

INVITATION FOR BIDS

(IFB # 15-105-Rebid)

Union Square Early Action Project

Bid Opening: 11:00 AM, Wednesday, January 27, 2016



CITY OF SOMERVILLE, MASSACHUSETTS

Joseph A. Curtatone, Mayor

Purchasing Department
Angela M. Allen, Purchasing Director

Brad Rawson
Office Strategic Planning & Community Development.
City of Somerville
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UNION SQUARE EARLY ACTION PROJECT

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PART 1 SECTION 00020:
CITY OF SOMERVILLE MASSACHUSETTS
INVITATION TO BID
UNION SQUARE EARLY ACTION PROJECT
Bid No. 15-105-Rebid

Enclosed you will find an invitation to bid for:

UNION SQUARE EARLY ACTION PROJECT
Somerville Ave, Webster Ave, Prospect St. Somerville, MA.

Plans and specifications will be available from 8:30 AM to 4:30 PM, Monday through Wednesday, 8:30 AM to 7:30 PM on Thursday, and 8:30 AM to 12:00 Noon, Fridays, at the Purchasing Department, 1st Floor, City Hall, 93 Highland Avenue, Somerville, MA 02143 from **Wednesday, January 6, 2016.**

When submitting bid, please identify the bid item and number clearly. All bids must be sealed and delivered to Purchasing Department, City of Somerville, 93 Highland Ave., Somerville, MA 02143, **no later than 11:00AM, on Wednesday, January 27, 2016.** Please mark the outside of all bid envelopes with the following:

“Bid #15-105-Rebid, Union Square Early Action Project” on the bid envelope.

BIDS SUBMITTED MUST BE AN ORIGINAL.

The completion of the following forms is necessary for consideration of a potential contract award. When submitting bid documents, please retain the order of documents as provided below:

- 1) Form for General Bid**
- 2) Unit Price Form**
- 3) Somerville Living Wage Form**
- 4) Acknowledgement of Notice to Bidders**
- 5) Quality Requirements Form**
- 6) Certificate of Non-Collusion & Tax Compliance**
- 7) Certificate of Signature Authority**
- 8) Signature Form complete when submitting your bid.**
- 9) Reference Form**
- 10) 5% Bid Deposit**
- 11) Wages, Statement of Compliance Form**

NOTE: If Vendor is incorporated an updated “**CERTIFICATE OF GOOD STANDING**” from the Commonwealth of Massachusetts will be needed for the awarded vendor only.

CITY HALL HOURS HAVE BEEN CHANGED. WE ARE OPEN UNTIL 7:30 P.M. ON THURSDAYS AND CLOSE ON FRIDAYS AT 12:30 P.M.

Please review and return with your sealed bids as sent. Also, ensure that all forms are completed and that your bid response is submitted as requested.

Your cooperation is greatly appreciated.

**PART 1, SECTION 2:
INSTRUCTIONS TO BIDDERS**

(Chapter 30:39M or 30B:5 – Construction- Competitive Sealed Bids)

1. NAME OF PROJECT

UNION SQUARE EARLY ACTION PROJECT

2. AWARDING AUTHORITY

The City of Somerville (City), acting by and through the Purchasing Department, invites sealed bids for the Union Square Early Action Project, in accordance with contract documents.

OSPCD Contact:

Brad Rawson
Office of Strategic Planning & Community Development
City of Somerville
93 Highland Avenue
Somerville, MA 02143
Phone (617) 625-6600 x2545
Fax: (617) 625-0722

3. ENGINEER:

**Parsons Brinckerhoff, Inc.
75 Arlington St.
Boston, MA 02116
614-426-7330**

Contact: Rachel J. Burckardt
Burckardt@pbworld.com

4. LOCATION OF PROJECT

Somerville Ave, Webster Ave, Prospect St. Somerville, MA

5. BRIEF DESCRIPTION OF WORK (see plans and specifications for more details):

Construction documents for this project have been prepared by Parsons Brinckerhoff who will act as the agent of the City, and could potentially oversee construction to ensure conformity to construction drawings, specifications, and standards. The City's Office of Strategic Planning and Community Development (OSPCD) is responsible for project management, and will also interact with the General Contractor during construction.

The Union Square Early Action Project is a streetscape and utility improvement project for segments of Prospect Street, Webster Avenue and Somerville Avenue in Somerville's Union Square. Subsurface utility work will consist of extending water main and sewer under Prospect Street between Somerville Avenue and the Fitchburg rail bridge. For surface-level improvements, Prospect Street and Webster Avenue are currently a one-way pair that will be returned to their historic two-way traffic operations. In order to implement the two-way configuration, four outdated traffic control signals will be replaced, including new mast arms and controllers. One small traffic island in Somerville Avenue will be removed, and a mid-block crosswalk will be installed on Somerville Avenue between Prospect Street and Webster Avenue.

6. ESTIMATED CONSTRUCTION COST OF THE PROJECT

The estimated cost for the project is \$ 2,100,000.00

7. PROJECT SCHEDULE:

Estimated Construction Start: March 31, 2016

Date of Substantial Completion: October 31, 2016

Date of Final Completion: To Be Finalized Post Award
100% completion of all work.

Bidders are instructed to the dates of: Substantial Completion and Final Completion. For the purpose of meeting these deadlines, the City may be prepared to authorize extended work hours beyond those prescribed by City ordinance, to include work on Sundays with the prior permission of the City.

Contractor submission of all paperwork required for the Construction Contract, including but not limited to insurance certificates, performance and payment bonds, a certificate of good standing from the Secretary of Corporations, and signature pages shall be submitted to the Purchasing Director no later than 5 working days from award of the contract.

The successful bidder shall be required to submit a preliminary construction schedule within 10 days of the established date of award of the Contract and a more detailed Gantt-type construction schedule within 15 days of the established award of the contract, which shows the dates of substantial and final completion.

While the work is not scheduled to start until March 31, 2016, the City is requesting that the Contractor be mobilized on that date and any materials should be ordered as soon as possible, after contract execution, to prevent delays. However, the City cannot pay for any work prior to March 31, 2016.

8. GOVERNING LAW

Massachusetts General Laws, c. 30, §39M.

9. SALES TAX EXEMPTION

Materials, equipment, and supplies for this project are exempt from sales tax in accordance with M.G.L. Chapter 64H, Section 6 (d). The city will furnish the successful bidder with its sales tax exemption number.

10. PERMIT FEES

(Contractor responsible obtaining permits/City of Somerville permit fees waived)

DPW permits to obstruct or excavate the public streets and/or sidewalks; ISD building code permits; and Traffic and Parking permits; are waived by the City of Somerville. However, license fees are not waived by the City of Somerville. The Contractor shall pay all license fees (e.g., drain layer's license fee). The City of Somerville Traffic and Parking Department must be contacted directly for all required permits. The vendor must also provide the City of Somerville Traffic and Parking Department with a traffic management plan, prior to the start of all work

If water usage is required in the commitment of this project, the Contractor needs to contact the DPW Water Dept., and make arrangements for a water meter. There will be a charge for the water meter and the water usage.

The Contractor is responsible for obtaining NSTAR work orders and for all costs and fees associated with NSTAR.

Permits to excavate the public way cannot be issued until the applicant has notified the appropriate utility companies, as required by Massachusetts General Laws, Chapter 370 of the Acts of 1963. The applicant must either: 1) obtain written receipts from the affected utilities, and provide copies of same to the owner; or 2) utilize the Dig-Safe System for the required notifications, and also submit written notifications for those utilities not participating in the Dig-Safe System. Written notifications must state that utility companies have been notified and the contractor cleared to begin work.

The following utility companies must be notified in writing:

M.B.T.A. Engineering and Maintenance Division 617-722-5454
Attn: Mr. William Bregoli, Chief Engineer
500 Arborway
Jamaica Plain, MA 02130

M.W.R.A. Sewer Division 617-242-6000
100 First Avenue
Charlestown Navy Yard
Boston, MA 02129

M.W.R.A. Water Division
100 First Avenue
Charlestown Navy Yard
Boston, MA 02129
617-242-6000

The following utility companies must be notified in writing or through Dig-Safe;

Algonquin Gas Transmission Corp.
Attn: Mr. James Grasso
Manager of Land and Public Relations
1284 Soldiers Field Road
Brighton, MA 02135
617-254-4050

Verizon
Attn: Mr. Jim Warren
460 Totten Pond Road
Waltham, MA 02154
781-290-5154

Boston Edison
Attn: Mr. William Lemos
Right of Way
1165 Massachusetts Avenue
Dorchester, MA 02125
617-541-5730

Boston Gas Company
Attn: Mr. Dennis Peri
201 Rivermoor Street
West Roxbury, MA 02132
617-323-9210

N-Star Electric
Attn: Mr. Wendell Berthelson
46 Blackstone Street
Somerville, MA 02139
617-497-1236, x4195

N-Star Steam
Attn: Mr. Thomas Connelly
Supervisor of Maintenance
265 First Street
Somerville, MA 02142
617-225-4568

N-Star Gas
Attn: Mr. Steve Richmond
303 Third Street
Somerville, MA 02142
617-369-5591

A T & T Broadband
Attn: Mr. Rich Ferrucci
760 Main Street
Malden, MA 01887

981-658-0400, x2210

Somerville Public Works Department
One Franey Road
Somerville, MA 02145

617-625-6600, x5200

Somerville Fire Department
266 Broadway
Somerville, MA 02143

617-625-6600, x8100

Dig-Safe

1-800-322-4844

The contractor shall have all utilities marked out along the course of this work by such means as the Engineer shall approve and shall preserve such marked locations until the work has progressed to the point where the encountered utility is fully exposed and protected as required. It shall be the contractor's responsibility to notify utilities at least 48 hours prior to the start of any excavation.

The contractor is responsible for contacting any other utilities that are not listed herein.

11. MINIMUM QUALIFICATION CRITERIA

- All bidders must have been conducting business, in this specified field, for a minimum of five (5) years.
- All bidders must have successfully constructed a minimum of three (3) municipal projects similar in magnitude within the last six (6) years.

All questions regarding the project and this Invitation to Bid should be in writing, submitted to Alex Nosnik, Asst. Purchasing Director, Purchasing Department, Somerville City Hall, First Floor, 93 Highland Avenue, Somerville, Massachusetts, 02143. Questions may be submitted either by mail or email to anosnik@somervillema.gov. Questions must be submitted in writing **by 12:30 pm, Thursday, January 14, 2016**; they will be answered in writing (via addendum) to all holders of the bid proposals. Bidders must submit e-mail address (preferred) or a fax number with their inquiries. If any bidders contact any other person or department outside of Purchasing with inquiries, they may be disqualified from the bidding process.

Key Dates

IFB Released		Wednesday, January 6, 2016
Deadline for Questions	12:30 PM	Thursday, January 14, 2016
Bids Due and Opened	11:00 AM	Wednesday, January 27, 2016
Anticipated Contract Award		February 1, 2016
Anticipated Notice to Proceed		February 15, 2016
Commencement of Work		March 31, 2016
Substantial Completion Date		October 31, 2016
Final Completion Date		To Be Determined Post Award

12. BID SUBMISSION TIME AND PLACE OF BID OPENING

Sealed bids (clearly identified as a bid and endorsed with the name and address of the bidder) must be received at the Purchasing Department, First floor, City Hall, 93 Highland Avenue, Somerville, MA, 02143 on or before **11:00 AM, Wednesday, January 27, 2016**, at which time they will be publicly opened and read aloud. In the event City Hall is closed, the deadline shall be 11:00 a.m. on the next day City Hall is open for business.

ADDITIONAL REQUIREMENTS: PLEASE READ CAREFULLY, FAILURE TO MEET THESE REQUIREMENTS COULD RESULT IN REJECTION OF A BID.

13. BID SUBMISSION REQUIREMENTS**Bid Signature**

A bid must be signed as follows: 1) if the bidder is an individual, by her/him personally; 2) if the bidder is a partnership, by the name of the partnership, followed by the signature of each general partner; and 3) if the bidder is a corporation, by the authorized officer, whose signature must be a person named on the Corporate Secretary's Certificate of Authority.

Changes and Addenda

If any changes are made to this IFB, an addendum will be issued. Addenda will be emailed to all bidders on record as having picked up the IFB. No changes may be made to the bid documents, except as authorized in an addendum from the Purchasing Department.

Modification or Withdrawal of Bids, Mistakes, and Minor Informalities

A bidder may correct, modify, or withdraw a bid by written notice received by the City of Somerville prior to the time and date set for the bid opening. Bid modifications must be submitted in a sealed envelope clearly labeled "Modification No.____" to the address listed in part one of this section. Each modification must be numbered in sequence, and must reference the original IFB.

After the bid opening, a bidder may not change any provision of the bid in a manner prejudicial to the interests of the City or fair competition. Minor informalities will be waived or the bidder will be allowed to correct them. If a mistake and the intended correct bid are clearly evident on the face of the bid document, the mistake will be corrected to reflect the intended correct bid, and the bidder will be notified in writing; the bidder may not withdraw the bid. A bidder may withdraw a bid if a mistake is clearly evident on the face of the bid document, but the intended correct bid is not similarly evident.

Right to Cancel/Reject Bids

The City of Somerville may cancel this IFB, or reject any and all bids, if the City determines that cancellation serves the best interests of the City; or that such rejection of bids is in the public interest.

Bid Prices to Remain Firm

All bid prices submitted in response to this IFB must remain firm for 60 days following the bid opening.

Unbalanced Bids

The City reserves the right to reject unbalanced, front loaded, and conditional bids.

Documents to be Submitted as part of Bid

The following documents must be submitted with the complete signed bid package:

Form for General Bid (Section 00300)

Unit Price Form (Section 00315)

Somerville Living Wage Form (Section 00320)

Acknowledgement of Notice to Bidders (Section 00330)

Quality Requirements Form (Section 00335)

Certificate of Non-Collusion and Tax Compliance (Section 00340)

Certificate of Signature Authority (Section 00350)

Signature Form (Section 00360)

Reference Form (Section 00370)

Bid bond (Section 00380)

Wage Compliance Form (Section 00385)

Schedule of Values. Bidders do NOT need to include a Schedule of Values with their bid package. The successful bidder will be required to submit a refined and detailed schedule of values for review and approval by the design professional prior to signing the construction contract.

5% Statutory Bid Guaranty. All bids shall be accompanied by a bid bond or bank certified check or bank treasurer's check in the amount of 5% of the bid price, which shall become the property of the City of Somerville if the bid is accepted and the bidder neglects or refuses to comply with the terms of the bid.

For successful bidder: Certificate of Good Standing: If the bidder is a corporation, a Certificate of Good Standing should accompany the signed contract. Certificate available online at: <http://corp.sec.state.ma.us/CorpWeb/Certificates/CertificateOrderForm.aspx> or call Tel: (617) 727-9640 for more information.

14. PREVAILING WAGE RATE REQUIREMENTS

The contractor shall pay Mass. Prevailing Wage Rates. The applicable prevailing wage rates are attached as part of this bid package and will be included as Appendix J in the contract. A signed Compliance Form must be included with the bid package (form included).

(a) The Contractor shall pay Mass. Prevailing Wage Rates set forth in Appendix J. Notwithstanding anything to the contrary, the City may, in its sole discretion withhold payment unless the City has in its possession payroll records that are complete, accurate, and current as of the date of said application for payment.

(b) The Contractor shall:

- (1) Pay wages at least once a week;
- (2) Submit payroll information on a weekly basis in a format approved by the City, numbered in numerical sequence and signed by the Contractor (including forms for weeks when the Contractor is not on the Project Site, in which case there shall be a notation to the effect "no work this payroll period" and a date anticipated for resuming work).

- (c) The Contractor shall submit to the City within the first week of construction:
 - (1) A list of apprenticeship programs with which the Contractor is affiliated;
 - (2) The number of apprentices that will be employed by the Contractor on the Project;
 - (3) A list of the Contractor's employee fringe benefits;
 - (4) A copy of each project schedule, including the anticipated commencement date for each Subcontractor; and
 - (5) A list of each Subcontractor's suppliers and material men.
- (d) The Contractor shall include language similar to the above in all subcontracts.

15. SAMPLE CONSTRUCTION CONTRACT

The successful bidder shall execute with the City of Somerville a Public Works Contract ("Contract") in substantially the same form as the sample contract included in this bid package. In addition to the items submitted with the bid, the contract includes certain other documents which may be executed by the Bidder selected as contractor and which are included as Appendices to the Sample Construction Contract (see Part 2) include:

Appendix F: Certificate of Authority (for corporations if the contract is signed by anyone other than the President, there must be a current Certificate of Vote signed by the corporate clerk or secretary stating who is authorized to sign contracts on the Corporations behalf)

Appendix D: Insurance Certificates— evidencing minimum coverage as follows:
General Liability - \$2,000,000 per occurrence, \$2,000,000 aggregate
Automobile Liability: \$1,000,000 per occurrence, \$1,000,000 aggregate
Workman's Compensation: statutory coverage

Certificates must stipulate "City of Somerville" as a certificate holder and as an additional insured for general liability.

Appendix F: Certificate of Good Standing: Certificate available online at <http://corp.sec.state.ma.us/CorpWeb/Certificates/CertificateOrderForm.aspx> or call Tel: (617) 727-9640 for more information.

Appendix H: Statement of Management (for contracts over \$100,000.00)

Appendix I: Performance and Payment Bonds for 100% of the contract sum

All paperwork required for the contract shall be completed and delivered to the Purchasing Department no later than five (5) working days after the Award of the Contract.

ITEMS OF SPECIAL CONSIDERATION

The Contractor's attention is specifically drawn to the following items of special consideration relative to this project, most of which are also addressed in the Technical Specifications.

- a. The Contractor must provide police details at the Contractor's expense.
- b. All new Handicapped Accessible ramps must meet the most current state ADA and City of Somerville standards.
- c. The Contractor must obtain all street and sidewalk permits as necessary.

19. RESERVATION OF RIGHTS

The City reserves the right to extend the deadline for submission of bids, to waive minor informalities, and to reject any and all bids, if in its sole judgment, the best interests of the City of Somerville would be served by doing so.

20. RULE FOR AWARD

A contract will be awarded to the responsible and eligible bidder offering the lowest bid. All required bid documents must be provided to be deemed responsible and eligible. The City may choose to elect the Add/Alternate contained herein. If the City accepts the Add/Alternate, the contract will be awarded to the responsible and eligible bidder offering the lowest bid, inclusive of the cost of the add/alternate.

21. MAINTENANCE MANUAL AND AS-BUILT DRAWING REQUIREMENTS

Upon Final Completion of all construction, the contractor shall submit: two complete copies of a maintenance manual, and two copies of an as-built drawing set, with two compact disc (CD) copies of the as-built drawings.

The City will not issue the final check for retainage until the submittal and approval of the maintenance manual and as-built drawings.

- 1) The Maintenance Manual shall be in the form of a three ring binder, organized and tabbed into appropriate sections, and shall include the following items:
 - A letter from the contractor stating the period of warranty for all parts, materials, and workmanship, from the date of Final Completion;
 - A letter from the contractor stating the period of warranty for the irrigation system;
 - All product information, product directions, and warranties;
 - Copies of City permits with signatures of inspectors;
 - Contact information for all subcontractors including email addresses; and,
 - A record of all submittals and dates of approvals.
- 2) As-Built drawing shall be a complete and accurate record that incorporate any and all changes to the construction plan set issued at the time of contract initiation. As-built drawings shall be clearly marked and annotated and shall include but not be limited to: all field changes, change orders, and supplemental drawing provided by the engineer.
- 3) The Compact Discs shall include an electronic copy of all as-built drawings.

PART 1 SECTION 3

Union Square Early Action Project (IFB # 15-105-Rebid)

BID SUBMISSION DOCUMENTS

BIDDERS NAME: _____

This Bid Submission includes the following:

- _____ Form for General Bid
- _____ Unit Price Form
- _____ Somerville Living Wage Form
- _____ Acknowledgement of Notice to Bidders
- _____ Quality Requirements
- _____ Certificate of Non-Collusion and Tax Compliance
- _____ Certificate of Signature Authority
- _____ Signature Form
- _____ Reference Form
- _____ 5% Statutory Bid Bond or Guaranty
- _____ Wage Rate Compliance Forms
- _____ Vendor Certification

**Part 1 Section 00300: FORM FOR GENERAL BID
FOR CONSTRUCTION CONTRACT**

To the Awarding Authority:

- A. The undersigned proposes to furnish all labor and materials required for:

Union Square Early Action Project

in accordance with the accompanying plans and specifications prepared by

Parsons Brinckerhoff, Inc. LLC
75 Arlington St.
Cambridge, MA 02141
614-426-7330

Contact: Rachel J. Burckardt
Burckardt@pbworld.com

specified below, subject to additions and deductions according to the terms of the specifications.

- B. **This bid includes addenda #1**_____, **#2** _____, **#3** _____, **#4** _____.

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

\$_____.
(total bid in figures)

_____ DOLLARS
(total bid in words)

- D. The bidder understands that the project construction cost estimate provided by the city is inclusive of all the work described in this form.
- E. The Undersigned Bidder agrees that, if it is selected as general contractor, it will within five working 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, including furnishing a 100% performance bond and a 100% labor and materials or payment bond, each of a surety company qualified to do business under the laws of the Commonwealth of Massachusetts 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; and, in addition, furnishing a certificate of good standing and insurance certificates as required by the bid documents.

- F. The Undersigned Bidder hereby certifies that it is able to furnish labor that can work in harmony with all other elements of labor employed or to be employed on the Project and that it will comply fully with all laws and regulations applicable to this Award, including applicable provisions of MGL Chapter 30, ss. 39M et seq.
- G. The Undersigned Bidder 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 certification, the word "person" shall mean any natural person, business, partnership, corporation, union, committee, club, or other organization, entity, or group of individuals.

- H. The Undersigned Bidder certifies under the penalties of perjury that:

(1) Pursuant to M.G.L. c. 62C, §49A, to the best of the signatories knowledge and belief, that the Undersigned Bidder is in compliance with all laws of the Commonwealth relating to taxes, reporting of employees and contractors, and withholding and remitting child support, as well as paid all contributions and payments in lieu of contributions pursuant to MGL 151A, §19A(b), and

(2) the Federal Employer Identification Number (EIN) of the Bidder is:

#_____, and that it is in compliance with all federal, state, and local laws regarding taxation.

- I. The Undersigned Bidder certifies under penalties of perjury that the Bidder is not presently debarred from doing federal or state public construction work, that the Bidder has not had its low bid rejected by any municipality in the previous two years, except

in which case the reasons for rejection were as follows:

- J. The Undersigned Bidder has submitted the information on the Reference Form:

- (00370-1), requesting three references for municipal projects completed during the previous six (6) years. The Undersigned Bidder understands that the contractor and subcontractors will be required to pay prevailing wages to laborers and mechanics, and that if the Undersigned's bid is significantly below the

average bid, the Awarding Authority may require the Bidder to substantiate that the bid is based on payment of wages at prevailing rates.

M. The Undersigned Bidder certifies that it can achieve substantial completion by:

_____ and achieve Final Completion by the date finalized by the City of Somerville Post Award.

N. Unit Price Form

1. Should certain additional work be required, or should the quantities of certain classes of work be increased or decreased from those required by the Contract Documents, by authorization of the City, unit prices listed on the attached "Unit Price Form" shall at the option of the City be the basis of payment to the Contractor or credit to the City, for such increase or decrease in the work. The unit prices shall represent the exact net amount per unit to be paid the Contractor (in the case of addition or increase) or to be refunded the City (in the case of decrease). Contractually noted adjustments will be allowed for overhead, profit, insurance or other direct or indirect expenses of the Contractor or Subcontractors.
2. The unit prices shall include cost of fuel, all labor, materials, equipment, overhead, profit, insurance, etc. to cover the finished work of the several kinds called for. Changes shall be processed in accordance with the provisions of the General Conditions governing changes in the work.

Executed this _____ day of _____, 2015.

On behalf of :

(Undersigned Bidder Business Name)

(Business Address) and (Telephone)

By:

Union Square Early Action Project
00300 - 14

(Name and Address of Person Signing Bid)

(Title of Person Signing bid)

(Signature)

BID SCHEDULE
Section 00315 - Unit Price Form

Union Square Early Action Project - IFB 15-105-REBID

Bidder must fill in Bid Schedule in Ink

Bidder shall fill in Computed Total
 (Subject to verification)

Item No.	Description	Units	Approximate Quantity	Computed Total
100- 001	MOBILIZATION The sum of _____ _____ <div style="text-align: right;">Lump Sum</div> (\$ _____) <div style="text-align: right;">Lump Sum</div>	Lump Sum	1	
102- 051	INDIVIDUAL TREE PROTECTION The sum of _____ _____ <div style="text-align: right;">Each</div> (\$ _____) <div style="text-align: right;">Each</div>	Each	27	
103- 001	INDIVIDUAL TREE REMOVED - UNDER 24 INCHES The sum of _____ _____ <div style="text-align: right;">Each</div> (\$ _____) <div style="text-align: right;">Each</div>	Each	6	
104- 001	INDIVIDUAL TREE REMOVED - DIAMETER 24 INCHES AND OVER The sum of _____ _____ <div style="text-align: right;">Each</div> (\$ _____) <div style="text-align: right;">Each</div>	Each	1	
108- 501	STREET SWEEPING The sum of _____ _____ <div style="text-align: right;">Hour</div> (\$ _____) <div style="text-align: right;">Hour</div>	Hour	300	

BID SCHEDULE
Section 00315 - Unit Price Form

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Item No.	Description	Units	Approximate Quantity	Computed Total
119- 001	RODENT CONTROL The sum of <div style="text-align: right;">Lump Sum</div> (\$ _____) <div style="text-align: right;">Lump Sum</div>	Lump Sum	1	
129- 001	ROADWAY EXCAVATION BY COLD PLANE The sum of <div style="text-align: right;">SQUARE YARD</div> (\$ _____) <div style="text-align: right;">SQUARE YARD</div>	SY	10,500	
129- 002	ROADWAY PAVEMENT REMOVAL The sum of <div style="text-align: right;">SQUARE YARD</div> (\$ _____) <div style="text-align: right;">SQUARE YARD</div>	SY	150	
129- 003	SIDEWALK REMOVAL The sum of <div style="text-align: right;">SQUARE YARD</div> (\$ _____) <div style="text-align: right;">SQUARE YARD</div>	SY	1,000	
141- 001	TEST PITS The sum of <div style="text-align: right;">CUBIC YARD</div> (\$ _____) <div style="text-align: right;">CUBIC YARD</div>	CY	200	

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Section 00315 - Unit Price Form

Union Square Early Action Project - IFB 15-105-REBID

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Item No.	Description	Units	Approximate Quantity	Computed Total
144- 001	CLASS B ROCK EXCAVATION The sum of _____ _____ CUBIC YARD (\$ _____) CUBIC YARD	CY	50	
150- 001	ORDINARY BORROW The sum of _____ _____ CUBIC YARD (\$ _____) CUBIC YARD	CY	100	
151- 001	GRAVEL BORROW The sum of _____ _____ CUBIC YARD (\$ _____) CUBIC YARD	CY	500	
152- 001	DENSE-GRADED CRUSHED STONE The sum of _____ _____ CY (\$ _____) CY	CY	175	
153- 001	FLOWABLE FILL (CDF) The sum of _____ _____ CUBIC YARD (\$ _____) CUBIC YARD	CY	50	

BID SCHEDULE
Section 00315 - Unit Price Form

Union Square Early Action Project - IFB 15-105-REBID

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Item No.	Description	Units	Approximate Quantity	Computed Total
156- 002	CRUSHED STONE (3/4-INCH) The sum of _____ _____ <div style="text-align: right;">Ton</div> (\$ _____) <div style="text-align: right;">Ton</div>	Ton	60	
170- 001	FINE GRADING AND COMPACTION - SUBGRADE AREAS The sum of _____ _____ <div style="text-align: right;">SQUARE YARD</div> (\$ _____) <div style="text-align: right;">SQUARE YARD</div>	SY	1,325	
200- 005	FRAMES AND GRATES OR COVERS The sum of _____ _____ <div style="text-align: right;">Each</div> (\$ _____) <div style="text-align: right;">Each</div>	Each	10	
201- 021	CATCH BASIN WITH DEEP SUMP AND TRAP The sum of _____ _____ <div style="text-align: right;">Each</div> (\$ _____) <div style="text-align: right;">Each</div>	Each	2	
202- 002	DRAIN MANHOLE The sum of _____ _____ <div style="text-align: right;">Each</div> (\$ _____) <div style="text-align: right;">Each</div>	Each	1	

BID SCHEDULE
Section 00315 - Unit Price Form

Union Square Early Action Project - IFB 15-105-REBID

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Item No.	Description	Units	Approximate Quantity	Computed Total
210- 001	SANITARY SEWER MANHOLE The sum of _____ _____ _____ Each (\$ _____) _____ Each	Each	1	
210- 998	CONNECTION TO EXISTING SANITARY SEWER The sum of _____ _____ _____ Each (\$ _____) _____ Each	Each	1	
220- 001	DRAINAGE & SANITARY STRUCTURES - ADJUSTED The sum of _____ _____ _____ Each (\$ _____) _____ Each	Each	8	
220- 510	DRAINAGE & SANITARY STRUCTURES - REMODELED The sum of _____ _____ _____ Each (\$ _____) _____ Each	Each	4	
220- 908	DRAINAGE STRUCTURES ABANDONED The sum of _____ _____ _____ Each (\$ _____) _____ Each	Each	1	

BID SCHEDULE
Section 00315 - Unit Price Form

Union Square Early Action Project - IFB 15-105-REBID

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Item No.	Description	Units	Approximate Quantity	Computed Total
220- 909	DRAINAGE STRUCTURES REMOVED The sum of _____ _____ Each (\$ _____) Each	Each	1	
223- 001	FRAME AND GRATE OR COVER REMOVE AND STACK The sum of _____ _____ Each (\$ _____) Each	Each	5	
226- 001	CATCH BASIN CLEANING The sum of _____ _____ Each (\$ _____) Each	Each	10	
238- 012	12-INCH DUCTILE IRON PIPE (DIP) FOR STORM DRAIN The sum of _____ _____ LINEAR FOOT (\$ _____) LINEAR FOOT	LF	50	
250- 010	10-INCH PVC SEWER PIPE The sum of _____ _____ LINEAR FOOT (\$ _____) LINEAR FOOT	LF	50	

BID SCHEDULE
Section 00315 - Unit Price Form

Union Square Early Action Project - IFB 15-105-REBID

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 (Subject to verification)

Item No.	Description	Units	Approximate Quantity	Computed Total
250- 012	12-INCH PVC SEWER PIPE The sum of _____ _____ LINEAR FOOT (\$ _____) LINEAR FOOT	LF	100	
252- 912	12 INCH HIGH DENSITY POLYETHYLENE (HDPE) PIPE FOR STORM DRAIN The sum of _____ _____ LINEAR FOOT (\$ _____) LINEAR FOOT	LF	50	
303- 006	6 INCH DUCTILE IRON WATER PIPE The sum of _____ _____ LINEAR FOOT (\$ _____) LINEAR FOOT	LF	75	
303- 008	8 INCH DUCTILE IRON WATER PIPE The sum of _____ _____ LINEAR FOOT (\$ _____) LINEAR FOOT	LF	50	
303- 012	12 INCH DUCTILE IRON WATER PIPE The sum of _____ _____ LINEAR FOOT (\$ _____) LINEAR FOOT	LF	250	

BID SCHEDULE
Section 00315 - Unit Price Form

Union Square Early Action Project - IFB 15-105-REBID

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Item No.	Description	Units	Approximate Quantity	Computed Total
303- 016	16 INCH DUCTILE IRON WATER PIPE The sum of _____ _____ LINEAR FOOT (\$ _____) LINEAR FOOT	LF	230	
309- 001	DUCTILE IRON FITTINGS FOR WATER PIPE The sum of _____ _____ LB (\$ _____) LB	LB	300	
347- 001	1-INCH COPPER TUBING TYPE K The sum of _____ _____ LINEAR FOOT (\$ _____) LINEAR FOOT	LF	80	
347- 002	1-1/2-INCH COPPER TUBING TYPE K The sum of _____ _____ LINEAR FOOT (\$ _____) LINEAR FOOT	LF	20	
350- 006	6 INCH GATE AND GATE BOX The sum of _____ _____ Each (\$ _____) Each	Each	2	

BID SCHEDULE
Section 00315 - Unit Price Form

Union Square Early Action Project - IFB 15-105-REBID

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Item No.	Description	Units	Approximate Quantity	Computed Total
350- 008	8 INCH GATE AND GATE BOX The sum of _____ _____ _____ Each (\$ _____) _____ Each	Each	1	
350- 012	12 INCH GATE AND GATE BOX The sum of _____ _____ _____ Each (\$ _____) _____ Each	Each	3	
356- 016	16 INCH BUTTERFLY VALVE AND BOX The sum of _____ _____ _____ Each (\$ _____) _____ Each	Each	3	
356- 020	20 INCH BUTTERFLY VALVE AND BOX The sum of _____ _____ _____ Each (\$ _____) _____ Each	Each	1	
358- 002	GATE BOX AND SERVICE BOX ADJUSTED The sum of _____ _____ _____ Each (\$ _____) _____ Each	Each	20	

BID SCHEDULE
Section 00315 - Unit Price Form

Union Square Early Action Project - IFB 15-105-REBID

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 (Subject to verification)

Item No.	Description	Units	Approximate Quantity	Computed Total
371- 990	CONNECTION TO EXISTING 20 INCH WATER MAIN The sum of _____ _____ <div style="text-align: right;">Lump Sum</div> (\$ _____) <div style="text-align: right;">Lump Sum</div>	Lump Sum	1	
376- 001	HYDRANT The sum of _____ _____ <div style="text-align: right;">Each</div> (\$ _____) <div style="text-align: right;">Each</div>	Each	2	
376- 003	HYDRANT - REMOVED AND STACKED The sum of _____ _____ <div style="text-align: right;">Each</div> (\$ _____) <div style="text-align: right;">Each</div>	Each	1	
460- 001	HOT MIX ASPHALT PAVEMENT (ALL COURSES) The sum of _____ _____ <div style="text-align: right;">Ton</div> (\$ _____) <div style="text-align: right;">Ton</div>	Ton	1,500	
460- 002	HOT MIX ASPHALT FOR PATCHING The sum of _____ _____ <div style="text-align: right;">Ton</div> (\$ _____) <div style="text-align: right;">Ton</div>	Ton	150	

BID SCHEDULE
Section 00315 - Unit Price Form

Union Square Early Action Project - IFB 15-105-REBID

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Item No.	Description	Units	Approximate Quantity	Computed Total
460- 003	LIQUID ASPHALT PRICE ADJUSTMENT The sum of _____ _____ Allowance (\$ _____) Allowance	Allowance	1	\$ 20,000
464- 001	BITUMEN FOR TACK COAT The sum of _____ _____ Gallon (\$ _____) Gallon	Gallon	700	
504- 001	GRANITE CURB - TYPE VA-4 The sum of _____ _____ LINEAR FOOT (\$ _____) LINEAR FOOT	LF	700	
516- 001	GRANITE CURB CORNER The sum of _____ _____ Each (\$ _____) Each	Each	6	
580- 001	GRANITE CURB - REMOVE & RESET The sum of _____ _____ LINEAR FOOT (\$ _____) LINEAR FOOT	LF	100	

BID SCHEDULE
Section 00315 - Unit Price Form

Union Square Early Action Project - IFB 15-105-REBID

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Item No.	Description	Units	Approximate Quantity	Computed Total
594- 001	CURB - REMOVE & DISCARD The sum of _____ _____ LINEAR FOOT (\$ _____) LINEAR FOOT	LF	800	
635- 100	HIGHWAY GUARD REMOVED AND DISCARDED The sum of _____ _____ LINEAR FOOT (\$ _____) LINEAR FOOT	LF	50	
697- 001	SEDIMENTATION FENCE The sum of _____ _____ LINEAR FOOT (\$ _____) LINEAR FOOT	LF	300	
701- 001	CEMENT CONCRETE SIDEWALKS & DRIVEWAYS (ALL THICKNESSES) The sum of _____ _____ SQUARE YARD (\$ _____) SQUARE YARD	SY	750	
701- 020	CEMENT CONCRETE WHEELCHAIR RAMPS The sum of _____ _____ Each (\$ _____) Each	Each	27	

Union Square Early Action Project - IFB 15-105-REBID

Bidder shall fill in Computed Total
(Subject to verification)

Item No.	Description	Units	Approximate Quantity	Computed Total
702- 001	HOT MIX ASPHALT WALKWAY The sum of SQUARE YARD (\$ _____) SQUARE YARD	SY	200	
703- 801	CONCRETE WHEEL STOP WITH DELINEATORS The sum of LINEAR FOOT (\$ _____) LINEAR FOOT	LF	50	
706- 880	HEAVY DUTY INTERLOCKING CONCRETE PAVERS The sum of SQUARE FOOT (\$ _____) SQUARE FOOT	SF	200	
707- 999	REMOVE AND RESET STREET FURNITURE The sum of Each (\$ _____) Each	Each	-	
740- 001	ENGINEER'S FIELD OFFICE AND RELATED EQUIPMENT FOR ENGINEER The sum of Month (\$ _____) Month	Month	5	

BID SCHEDULE
Section 00315 - Unit Price Form

Union Square Early Action Project - IFB 15-105-REBID

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Item No.	Description	Units	Approximate Quantity	Computed Total
751- 009	STRUCTURAL LOAM The sum of _____ _____ CUBIC YARD (\$ _____) CUBIC YARD	CY	25	
801- 301	3 INCH NON-METALLIC CONDUIT The sum of _____ _____ LINEAR FOOT (\$ _____) LINEAR FOOT	LF	925	
801- 302	3 INCH NON-METALLIC CONDUIT UNDER ROADWAYS The sum of _____ _____ LINEAR FOOT (\$ _____) LINEAR FOOT	LF	1,620	
806- 301	3 INCH METALLIC (GALVANIZED STEEL) CONDUIT The sum of _____ _____ LINEAR FOOT (\$ _____) LINEAR FOOT	LF	50	
811- 310	PULL BOX 12 X 12 INCHES The sum of _____ _____ Each (\$ _____) Each	Each	32	

BID SCHEDULE
Section 00315 - Unit Price Form

Union Square Early Action Project - IFB 15-105-REBID

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Item No.	Description	Units	Approximate Quantity	Computed Total
815- 098	FOOTING COST ADJUSTMENT The sum of <div style="text-align: right;">VLF</div> (\$ _____) <div style="text-align: right;">VLF</div>	VLF	100	
815- 701	TRAFFIC CONTROL SIGNAL – PROSPECT STREET & SOMERVILLE AVENUE The sum of <div style="text-align: right;">Lump Sum</div> (\$ _____) <div style="text-align: right;">Lump Sum</div>	Lump Sum	1	
815- 702	TRAFFIC CONTROL SIGNAL – WASHINGTON STREET, WEBSTER AVENUE, SOMERVILLE AVENUE & BOW STREET The sum of <div style="text-align: right;">Lump Sum</div> (\$ _____) <div style="text-align: right;">Lump Sum</div>	Lump Sum	1	
815- 703	TRAFFIC CONTROL SIGNAL – PROSPECT STREET & WEBSTER AVENUE The sum of <div style="text-align: right;">Lump Sum</div> (\$ _____) <div style="text-align: right;">Lump Sum</div>	Lump Sum	1	
820- 700	ROADWAY LIGHTING MODIFICATIONS The sum of <div style="text-align: right;">Lump Sum</div> (\$ _____) <div style="text-align: right;">Lump Sum</div>	Lump Sum	1	

BID SCHEDULE
Section 00315 - Unit Price Form

Union Square Early Action Project - IFB 15-105-REBID

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Item No.	Description	Units	Approximate Quantity	Computed Total
824- 001	RECTANGULAR RAPIDLY FLASHING BEACON SYSTEM The sum of _____ _____ <div style="text-align: right;">Lump Sum</div> (\$ _____) <div style="text-align: right;">Lump Sum</div>	Lump Sum	1	
828- 001	PERMANENT TRAFFIC SIGNAGE The sum of _____ _____ <div style="text-align: right;">SQUARE FOOT</div> (\$ _____) <div style="text-align: right;">SQUARE FOOT</div>	SF	390	
850- 001	TRAFFIC MANAGEMENT DURING CONSTRUCTION The sum of _____ _____ <div style="text-align: right;">Lump Sum</div> (\$ _____) <div style="text-align: right;">Lump Sum</div>	Lump Sum	1	
850- 002	TRAFFIC CONTROL SERVICES The sum of _____ _____ <div style="text-align: right;">Allowance</div> (\$ _____) <div style="text-align: right;">Allowance</div>	Allowance	1	\$ 150,000
852- 100	TEMPORARY CONSTRUCTION SIGNS The sum of _____ _____ <div style="text-align: right;">SQUARE FOOT</div> (\$ _____) <div style="text-align: right;">SQUARE FOOT</div>	SF	300	

BID SCHEDULE
Section 00315 - Unit Price Form

Union Square Early Action Project - IFB 15-105-REBID

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Item No.	Description	Units	Approximate Quantity	Computed Total
854- 026	TEMPORARY PAVEMENT MARKINGS – 4-INCH PAINT The sum of LINEAR FOOT (\$ _____) LINEAR FOOT	LF	2,000	
854- 120	PAVEMENT MARKING REMOVAL The sum of LINEAR FOOT (\$ _____) LINEAR FOOT	LF	1,400	
856- 105	PORTABLE CHANGEABLE MESSAGE SIGN The sum of Day (\$ _____) Day	Day	200	
860- 001	4-INCH WHITE PAVEMENT MARKINGS The sum of LINEAR FOOT (\$ _____) LINEAR FOOT	LF	13,250	
860- 002	4-INCH YELLOW PAVEMENT MARKINGS The sum of LINEAR FOOT (\$ _____) LINEAR FOOT	LF	5,500	

BID SCHEDULE
Section 00315 - Unit Price Form

Union Square Early Action Project - IFB 15-105-REBID

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Item No.	Description	Units	Approximate Quantity	Computed Total
860- 004	12-INCH WHITE STOP LINES The sum of <div style="text-align: right;">SQUARE FOOT</div> (\$ _____) <div style="text-align: right;">SQUARE FOOT</div>	SF	375	
860- 005	CROSSWALK STRIPING The sum of <div style="text-align: right;">SQUARE FOOT</div> (\$ _____) <div style="text-align: right;">SQUARE FOOT</div>	SF	5,100	
860- 006	PAVEMENT ARROWS AND LEGENDS The sum of <div style="text-align: right;">SQUARE FOOT</div> (\$ _____) <div style="text-align: right;">SQUARE FOOT</div>	SF	4,250	
860- 900	GREEN BIKE LANE PAINT The sum of <div style="text-align: right;">SQUARE FOOT</div> (\$ _____) <div style="text-align: right;">SQUARE FOOT</div>	SF	8,500	
874- 200	TRAFFIC SIGN REMOVED AND RESET The sum of <div style="text-align: right;">Each</div> (\$ _____) <div style="text-align: right;">Each</div>	Each	40	

BID SCHEDULE
Section 00315 - Unit Price Form

Union Square Early Action Project - IFB 15-105-REBID

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Item No.	Description	Units	Approximate Quantity	Computed Total
874- 300	TRAFFIC SIGN REMOVED AND DISCARDED The sum of _____ _____ Each (\$ _____) Each	Each	30	
875- 001	PARKING METER REMOVED AND RESET The sum of _____ _____ Each (\$ _____) Each	Each	1	
875- 002	PARKING METER REMOVED AND STACKED The sum of _____ _____ Each (\$ _____) Each	Each	1	
999- 999	DEMOBILIZATION The sum of _____ _____ Lump Sum (\$ _____) Lump Sum	Lump Sum	1	

BID SCHEDULE
Section 00316 - Add Alternative Price Form
Union Square Early Action Project - OFB 15-105-REBID

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(Subject to verification)

Item No.	Description	Units	Approximate Quantity	Computed Total
815- 704	ADD ALTERNATIVE 1: TRAFFIC CONTROL SIGNAL – BOW STREET & WARREN STREET The sum of _____ _____ Lump Sum (\$ _____) Lump Sum	Lump Sum	1	
	TOTAL PRICE - ADD ALTERNATIVE 1:			\$ _____



SOMERVILLE LIVING WAGE ORDINANCE CERTIFICATION FORM
CITY OF SOMERVILLE CODE OF ORDINANCES SECTION 2-397 et seq.*

Instructions: This form shall be included in all Invitations for Bids and Requests for Proposals which involve the furnishing of labor, time or effort (with no end product other than reports) by vendors contracting or subcontracting with the City of Somerville, where the contract price meets or exceeds the following dollar threshold: \$10,000. If the undersigned is selected, this form will be attached to the contract or subcontract and the certifications made herein shall be incorporated as part of such contract or subcontract. **Complete this form and sign and date where indicated below on page 2.**

Purpose: The purpose of this form is to ensure that such vendors pay a “Living Wage” (defined below) to all covered employees (i.e., all employees except individuals in a city, state or federally funded youth program). In the case of bids, the City will award the contract to the lowest responsive and responsible bidder paying a Living Wage. In the case of RFP’s, the City will select the most advantageous proposal from a responsive and responsible offeror paying a Living Wage. In neither case, however, shall the City be under any obligation to select a bid or proposal that exceeds the funds available for the contract.

Definition of “Living Wage”: For this contract or subcontract, as of 7/1/2015 “Living Wage” shall be deemed to be an hourly wage of no less than \$12.24 per hour. From time to time, the Living Wage may be upwardly adjusted and amendments, if any, to the contract or subcontract may require the payment of a higher hourly rate if a higher rate is then in effect.

CERTIFICATIONS

1. The undersigned shall pay no less than the Living Wage to all covered employees who directly expend their time on the contract or subcontract with the City of Somerville.
2. The undersigned shall post a notice, (copy enclosed), to be furnished by the contracting City Department, informing covered employees of the protections and obligations provided for in the Somerville Living Wage Ordinance, and that for assistance and information, including copies of the Ordinance, employees should contact the contracting City Department. Such notice shall be posted in each location where services are performed by covered employees, in a conspicuous place where notices to employees are customarily posted.
3. The undersigned shall maintain payrolls for all covered employees and basic records relating hereto and shall preserve them for a period of three years. The records shall contain the name and address of each employee, the number of hours worked, the gross wages, a copy of the social

* Copies of the Ordinance are available upon request to the Purchasing Department.

Form:_____
Contract Number:_____

CITY OF SOMERVILLE

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security returns, and evidence of payment thereof and such other data as may be required by the contracting City Department from time to time.

4. The undersigned shall submit payroll records to the City upon request and, if the City receives information of possible noncompliance with the provisions the Somerville Living Wage Ordinance, the undersigned shall permit City representatives to observe work being performed at the work site, to interview employees, and to examine the books and records relating to the payrolls being investigated to determine payment of wages.

5. The undersigned shall not fund wage increases required by the Somerville Living Wage Ordinance by reducing the health insurance benefits of any of its employees.

6. The undersigned agrees that the penalties and relief set forth in the Somerville Living Wage Ordinance shall be in addition to the rights and remedies set forth in the contract and/or subcontract.

CERTIFIED BY:

Signature: _____
(Duly Authorized Representative of Vendor)

Title: _____

Name of Vendor: _____

Date: _____

INSTRUCTIONS: PLEASE POST

**NOTICE TO ALL EMPLOYEES
REGARDING PAYMENT OF LIVING WAGE**

Under the Somerville, Massachusetts' Living Wage Ordinance (Ordinance No. 1999-1), any person or entity who has entered into a contract with the City of Somerville is required to pay its employees who are involved in providing services to the City of Somerville no less than a "Living Wage".

The Living Wage as of **7/1/2015** is **\$12.24** per hour. The only employees who are not covered by the Living Wage Ordinance are individuals in a Youth Program. "Youth Program" as defined in the Ordinance, "means any city, state or federally funded program which employs youth, as defined by city, state or federal guidelines, during the summer, or as part of a school to work program, or in any other related seasonal or part-time program."

For assistance and information regarding the protections and obligations provided for in the Living Wage Ordinance and/or a copy of the Living Wage Ordinance, all employees should contact the City of Somerville's Purchasing Department directly.

Part 1 Section 3: BID SUBMISSION DOCUMENTS

NOTICE TO BIDDERS
BID #15-105-Rebid

All bids must be in accordance with terms and conditions set forth herein as stated.

- SECTION A. Sealed bids for: **Union Square Early Action Project**. The bids will be received at the office of the Purchasing Director, Somerville City Hall, 93 Highland Avenue, Somerville, MA. 02143 no later than **Wednesday, January 27, 2016 at 11:00 A.M.** at which time and place they will be publicly opened and read.
- SECTION B. Forms of price bid, specifications and terms of contract can be obtained at the Purchasing Department office on or after **Wednesday, January 6, 2016.**
- SECTION C. Bid envelopes shall be clearly marked as follows: **"Bid No: 15-105-Rebid, Bid for Union Square Early Action Project."**
- SECTION D. If **awarded** vendor is a Corporation, vendor must comply with request for "Certificate of Good Standing". See attached instructions.
- SECTION E. **INSURANCE: Awarded Vendor** must comply with insurance requirements as stated in the bid package.
- SECTION F. Living Wage - see Somerville Living Wage Form (00320)
Prevailing Wage Rates – and Compliance Form
- SECTION G. The requirements in Section **E or F** will be waived if the words "Non-Applicable" (N/A) are inserted in the space designated.
- SECTION H. The copy of the bid deposited with the City will be accompanied by a bid guarantee in the amount of 5% of the proposed bid amount. A Bid bond, Certified Check, Treasurer's Check, or Cashier's Check made payable to the City must be submitted with each bid. Said bid guarantee will become the property of the City of Somerville if the proposal is accepted and the bidder either neglects or refuses to comply with the terms of the proposal. Bid guarantee will be returned within 30 days to all unsuccessful bidders.
- SECTION I. A Performance Bond and a Payment Bond in the amount of 100% of the total contract price will be required by the City.

Part 1 Section 3: BID SUBMISSION DOCUMENTS

SECTION J. The Purchasing Director reserves the right to accept or reject any or all bids, to waive any minor informalities, if in her sole judgment, the best interest of the City of Somerville would be served by so doing.

SECTION K. The City reserves the right to cancel a contract, if awarded bidder does not respond to all necessary documents and required signature forms within ten (10) working days of receipt of contract.

SECTION L. The Vendor must certify that all employees to be provided have successfully completed at least ten (10) hours of OSHA approved training in Construction Safety and Health.

Signature: _____

Company: _____

By: _____ Title: _____

Date: _____ Tel. No: _____ Fax: _____

Applicable to Corporations:

I hereby attest that the signatory to this bid has the authority to sign and submit bids for the Corporation.

ATTEST: _____
Secretary

Part 1, Section 3: BID SUBMISSION DOCUMENTS

QUALITY REQUIREMENTS

Please respond to the following questions. A negative response to any of the first four questions will automatically disqualify the Bidder. A negative response to the fifth question about SOMWBA will not disqualify the Bidder.

	Yes	No
Has the contractor been established in this specified field for at least 5 years?		
Has the contractor successfully completed a minimum of three (3) similar Municipal projects within the past six (6) years?		
Has the Contractor included a Health and Safety Plan Form with their bid documents?		
Can the contractor certify that all employees to be provided, have successfully completed at least 10 hours of OSHA approved training in Construction Safety and Health?		
<i>Optional:</i> Vendor: Are you a State Office for Minority and Women Owned Business Assistance (SOMWBA) certified minority- or woman-owned business?		

Form:_____
Contract Number:_____

CITY OF SOMERVILLE

Rev. 08/01/12



Non-Collusion Form and Tax Compliance Certification

Instructions: Complete each part of this two-part form and sign and date where indicated below.

A. NON-COLLUSION FORM

I, the undersigned, hereby certify under penalties of perjury that this bid or proposal has been made 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 of individuals.

Signature: _____
(Individual Submitted Bid or Proposal)
Duly Authorized

Name of Business or Entity: _____

Date: _____

B. TAX COMPLIANCE CERTIFICATION

Pursuant to M.G.L. c. 62C, §49A, I certify under the penalties of perjury that, to the best of my knowledge and belief, I am in compliance with all laws of the Commonwealth relating to taxes, reporting of employees and contractors, and withholding and remitting child support, as well as paid all contributions and payments in lieu of contributions pursuant to MGL 151A, §19A(b).

Signature: _____
(Duly Authorized Representative of Vendor)

Name of Business or Entity: _____

Social Security Number or Federal Tax ID#: _____

Date: _____



**Certificate of Authority
(Limited Liability Companies Only)**

Instructions: Complete this form and sign and date where indicated below.

1. I, the undersigned, being a member or manager of

_____,
(Complete Name of Limited Liability Company)

a limited liability company (LLC) hereby certify as to the contents of this form for the purpose of contracting with the City of Somerville.

2. The LLC is organized under the laws of the state of: _____.

3. The LLC is managed by (**check one**) a Manager or by its Members.

4. I hereby certify that each of the following individual(s) is:

- a member/manager of the LLC;
- duly authorized to execute and deliver this contract, agreement, and/or other legally binding documents relating to any contract and/or agreement on behalf of the LLC;
- duly authorized to do and perform all acts and things necessary or appropriate to carry out the terms of this contract or agreement on behalf of the LLC; and
- that no resolution, vote, or other document or action is necessary to establish such authority.

<u>Name</u>	<u>Title</u>

5. **Signature:**_____

Printed Name: _____

Printed Title:_____

Date: _____



Certificate of Authority (Corporations Only)

Instructions: Complete this form and sign and date where indicated below.

1. I hereby certify that I, the undersigned, am the duly elected Clerk/Secretary of

(Insert Full Name of Corporation)

2. I hereby certify that the following individual _____
(Insert the Name of Officer who Signed the Contract and Bonds)

is the duly elected _____ of said Corporation.
(Insert the Title of the Officer in Line 2)

3. I hereby certify that on _____
(Insert Date: Must be on or before Date Officer Signed Contract/Bonds)

at a duly authorized meeting of the Board of Directors of said corporation, at which a quorum was present, it was voted that

(Insert Name of Officer from Line 2) (Insert Title of Officer from Line 2)

of this corporation be and hereby is authorized to make, enter into, execute, and deliver 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.

4. **ATTEST:**

Signature: _____
(Clerk or Secretary)

AFFIX CORPORATE SEAL HERE

Printed Name: _____

Printed Title: _____

Date: _____
(Date Must Be on or after Date Officer Signed Contract/Bonds)

Part 1, Section 3: BID SUBMISSION DOCUMENTS

CITY OF SOMERVILLE

SIGNATURE FORM

NAME OF COMPANY: _____

ADDRESS: _____

TELEPHONE #: _____ FAX #: _____

DATE: _____ EMAIL: _____

SIGNATURE OF AUTHORIZED CONTRACTING OFFICIAL:

TITLE: _____

RESIDENCE: _____

IF COMPANY IS A PARTNERSHIP:

FULL NAME AND RESIDENCE OF EACH PARTNER:

IF COMPANY IS A CORPORATION:

THE CORPORATE NAME IS: _____

THE CORPORATION IS ORGANIZED UNDER THE LAWS OF: _____

THE PRESIDENT IS: _____

THE TREASURER IS: _____

THE CLERK/SECRETARY OR ASSISTANT CLERK/SECRETARY WHO WILL EXECUTE THE
CONTRACT AND SIGN THE CERTIFICATE OF AUTHORITY IS:

NAME OF CORPORATION THAT WILL APPEAR ON A POTENTIAL CONTRACTUAL
AGREEMENT IF DIFFERENT FROM ABOVE: _____.

NAME AND TITLE OF PERSON WHO WILL BE THE PRINCIPAL SIGNATORY ON THE
CONTRACT IF OTHER THAN THE PRESIDENT:

NAME: _____ TITLE: _____

Part 1, Section 3: BID SUBMISSION DOCUMENTS

REFERENCE FORM

Bidder:_____

IFB Title: **IFB# 15-105-Rebid Union Square Early Action Project**

Bidder must provide references from three municipalities for similar municipal projects completed during the previous six (6) years.

Reference:_____ Contact:_____

Address:_____ Phone:_____

_____ Fax:_____

Description and date(s) of supplies or services provided:_____

Reference:_____ Contact:_____

Address:_____ Phone:_____

_____ Fax:_____

Description and date(s) of supplies or services provided:_____

Reference:_____ Contact:_____

Address:_____ Phone:_____

_____ Fax:_____

Description and date(s) of supplies or services provided:_____



CITY OF SOMERVILLE, MASSACHUSETTS

JOSEPH A. CURTATONE
MAYOR

Vendor Certification

The vendor certifies that it has provided the City of Somerville with an accurate tax identification number (TIN). In the event that the City is fined by the IRS for an incorrect TIN provided by the vendor, the vendor agrees to reimburse the City for the amount of the fine.

TIN

Signature

Printed Name of Person signing

Company

Date



Somerville City Hall • 93 Highland Avenue • Somerville, Massachusetts 02143
(617) 625-6600, Ext. 3400 • TTY: (617) 666-0001 • Fax: (617) 625-1344
www.somervillema.gov



Form:_____
Contract Number:_____

CITY OF SOMERVILLE

Rev. 11/14/2014



OSHA GENERAL CONTRACTOR CERTIFICATION FORM

**Pursuant to Chapter 306 of the Acts of 2004
An Act Relative to the Health and Safety on Construction Projects**

GENERAL CONTRACTOR'S CERTIFICATION – BID FORM

I, the undersigned, hereby certify under penalties of perjury that I, and all subcontractors who are not filed sub-bidders, shall:

(1) that I am 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 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 Occupational Safety and Health Administration that is at least 10 hours in duration.

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 of individuals.

Signature: _____
(Individual Submitting Bid)
Duly Authorized

Name of Business or Entity: _____

Date: _____

RETURN THIS FORM WITH YOUR BID

INSURANCE SPECIFICATIONS

INSURANCE REQUIREMENTS FOR AWARDED VENDOR ONLY:

Prior to commencing performance of any work or supplying materials or equipment covered by these specifications, the contractor shall furnish to the Office of the Purchasing Director a Certificate of Insurance evidencing the following:

A. GENERAL LIABILITY - Comprehensive Form

Bodily Injury Liability.....\$ One Million

Property Damage Liability.....\$ One Million

B. COVERAGE FOR PAYMENT OF WORKER'S COMPENSATION BENEFIT PURSUANT TO CHAPTER 152 OF THE MASSACHUSETTS GENERAL LAWS IN THE AMOUNT AS LISTED BELOW:

WORKER'S COMPENSATION.....\$ Statutory

EMPLOYERS' LIABILITY.....\$ Statutory

C. AUTOMOBILE LIABILITY INSURANCE AS LISTED BELOW:

BODILY INJURY LIABILITY.....\$ STATUTORY

1. A contract will not be executed unless a certificate (s) of insurance evidencing above-described coverage is attached.
2. Failure to have the above-described coverage in effect during the entire period of the contract shall be deemed to be a breach of the contract.
3. All applicable insurance policies shall read:
"CITY OF SOMERVILLE" as a certificate holder and as an additional insured for general liability only along with a description of operation in the space provided on the certificate.

Certificate Should Be Made Out To:

**City Of Somerville
Purchasing Department
93 Highland Avenue
Somerville, Ma. 02143**

Note: If your insurance expires during the life of this contract, you shall be responsible to submit a new certificate(s) covering the period of the contract. No payment will be made on a contract with an expired insurance certificate.



CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY)

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an **ADDITIONAL INSURED**, the policy(ies) must be endorsed. If **SUBROGATION IS WAIVED**, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER	CONTACT NAME:		
	PHONE (A/C, No. Ext):	FAX (A/C, No):	
	E-MAIL ADDRESS:		
	INSURER(S) AFFORDING COVERAGE		NAIC #
INSURED	INSURER A:		
	INSURER B:		
	INSURER C:		
	INSURER D:		
	INSURER E:		
	INSURER F:		

COVERAGES**CERTIFICATE NUMBER:****REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSR	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS
	GENERAL LIABILITY						EACH OCCURRENCE \$
	<input type="checkbox"/> COMMERCIAL GENERAL LIABILITY						DAMAGE TO RENTED PREMISES (Ea occurrence) \$
	<input type="checkbox"/> CLAIMS-MADE <input type="checkbox"/> OCCUR						MED EXP (Any one person) \$
							PERSONAL & ADV INJURY \$
							GENERAL AGGREGATE \$
	GEN'L AGGREGATE LIMIT APPLIES PER:						PRODUCTS - COMP/OP AGG \$
	<input type="checkbox"/> POLICY <input type="checkbox"/> PRO-JECT <input type="checkbox"/> LOC						\$
	AUTOMOBILE LIABILITY						COMBINED SINGLE LIMIT (Ea accident) \$
	<input type="checkbox"/> ANY AUTO						BODILY INJURY (Per person) \$
	<input type="checkbox"/> ALL OWNED AUTOS						BODILY INJURY (Per accident) \$
	<input type="checkbox"/> HIRED AUTOS						PROPERTY DAMAGE (Per accident) \$
							\$
	UMBRELLA LIAB						EACH OCCURRENCE \$
	<input type="checkbox"/> EXCESS LIAB						AGGREGATE \$
	<input type="checkbox"/> DED <input type="checkbox"/> RETENTION \$						\$
	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY						WC STATUTORY LIMITS <input type="checkbox"/> OTH-ER <input type="checkbox"/>
	ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH) <input type="checkbox"/> Y/N <input type="checkbox"/> N/A						E.L. EACH ACCIDENT \$
	If yes, describe under DESCRIPTION OF OPERATIONS below						E.L. DISEASE - EA EMPLOYEE \$
							E.L. DISEASE - POLICY LIMIT \$

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (Attach ACORD 101, Additional Remarks Schedule, if more space is required)

DESCRIPTION OF PROJECT, SOLICITATION NUMBER AND THAT THE CITY OF SOMERVILLE IS A CERTIFICATE HOLDER AND ADDITIONAL INSURED

CERTIFICATE HOLDER**CANCELLATION**

CERTIFICATES SHOULD BE MADE OUT TO:

CITY OF SOMERVILLE
c/o PURCHASING DEPARTMENT
93 HIGHLAND AVE
SOMERVILLE, MA 02143

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE

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.	1 Name (as shown on your income tax return). Name is required on this line; do not leave this line blank.	
	2 Business name/disregarded entity name, if different from above	
	3 Check appropriate box for federal tax classification; check only one of the following seven boxes: <input type="checkbox"/> Individual/sole proprietor or single-member LLC <input type="checkbox"/> Limited liability company. Enter the tax classification (C=C corporation, S=S corporation, P=partnership) ▶ _____ Note. For a single-member LLC that is disregarded, do not check LLC; check the appropriate box in the line above for the tax classification of the single-member owner. <input type="checkbox"/> Other (see instructions) ▶ _____	4 Exemptions (codes apply only to certain entities, not individuals; see instructions on page 3): Exempt payee code (if any) _____ Exemption from FATCA reporting code (if any) _____ <i>(Applies to accounts maintained outside the U.S.)</i>
	5 Address (number, street, and apt. or suite no.)	Requester's name and address (optional)
	6 City, state, and ZIP code	
7 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 generally 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 instructions for line 1 and 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:

- 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
- 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
- I am a U.S. citizen or other U.S. person (defined below); and
- The FATCA code(s) entered on this form (if any) indicating that I am exempt from FATCA reporting is correct.

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 3.

Sign Here	Signature of U.S. person ▶	Date ▶
------------------	-----------------------------------	---------------

General Instructions

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

Future developments. Information about developments affecting Form W-9 (such as legislation enacted after we release it) is at www.irs.gov/fw9.

Purpose of Form

An individual or entity (Form W-9 requester) who is required to file an information return with the IRS must obtain your correct taxpayer identification number (TIN) which may be your social security number (SSN), individual taxpayer identification number (ITIN), adoption taxpayer identification number (ATIN), or employer identification number (EIN), to report on an information return the amount paid to you, or other amount reportable on an information return. Examples of information returns include, but are not limited to, the following:

- Form 1099-INT (interest earned or paid)
- Form 1099-DIV (dividends, including those from stocks or mutual funds)
- Form 1099-MISC (various types of income, prizes, awards, or gross proceeds)
- Form 1099-B (stock or mutual fund sales and certain other transactions by brokers)
- Form 1099-S (proceeds from real estate transactions)
- Form 1099-K (merchant card and third party network transactions)

- Form 1098 (home mortgage interest), 1098-E (student loan interest), 1098-T (tuition)
- Form 1099-C (canceled debt)
- Form 1099-A (acquisition or abandonment of secured property)

Use Form W-9 only if you are a U.S. person (including a resident alien), to provide your correct TIN.

If you do not return Form W-9 to the requester with a TIN, you might be subject to backup withholding. See What is backup withholding? on page 2.

By signing the filled-out form, you:

- Certify that the TIN you are giving is correct (or you are waiting for a number to be issued),
- Certify that you are not subject to backup withholding, or
- 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, and
- Certify that FATCA code(s) entered on this form (if any) indicating that you are exempt from the FATCA reporting, is correct. See *What is FATCA reporting?* on page 2 for further information.

CERTIFICATE OF GOOD STANDING

TO: Vendor

FROM: Purchasing Department

RE: **CERTIFICATE OF GOOD STANDING**

The **Awarded Vendor** must comply with our request for a **CURRENT “Certificate of Good Standing”**.

If you require information on how to obtain the “Certificate of Good Standing” or Certificate of Registration (Foreign Corporations) from the Commonwealth of Massachusetts, please call the Secretary of State’s Office at (617) 727-2850 (Press #1) located at One (1) Ashburton Place, 17th Floor, Boston, MA 02133 or you may access their web site at:
<http://corp.sec.state.ma.us/CorpWeb/Certificates/CertificateOrderForm.aspx>

If your company is incorporated outside of Massachusetts and therefore is a “foreign corporation”, but is registered to do business in Massachusetts, please comply with our request for the Certificate of Registration from the Commonwealth of Massachusetts. If your company is a foreign corporation, but is not registered to do business in Massachusetts, please provide the Certificate of Good Standing from your state of incorporation.

Please note that without the above certificate (s), the City of Somerville cannot execute your contract.

IMPORTANT NOTICE

Requests for Certificates of Good Standing by mail may take a substantial amount of time. A certificate may be obtained immediately in person at the Secretary’s Office at the address above. Also, at this time, the Secretary of State’s Office may not have your current annual report recorded. If this is the case, and you are therefore unable to obtain the Certificate of Good Standing, please forward a copy of your annual report filing fee check with your signed contracts. Please forward your original Certificate of Good Standing to the Purchasing Department upon receipt.

Thank You,

Purchasing Director

BID BOND OR GUARANTY

BIDDER TO INSERT HERE

**Prevailing Wage Rates
Payroll Submission Forms**

MASSACHUSETTS WEEKLY CERTIFIED PAYROLL REPORT FORM



Company's Name:		Address:		Phone No.:		Payroll No.:																	
Employer's Signature:		Title:		Contract No.:		Tax Payer ID No.:																	
Awarding Authority's Name:		Public Works Project Name:		Public Works Project Location:		Min. Wage Rate Sheet No.:																	
General / Prime Contractor's Name:		Subcontractor's Name:		"Employer" Hourly Fringe Benefit Contributions																			
Employee Name & Complete Address	Employee is OSHA 10 Certified (?)	Work Classification:	Appr. Rate (%)	Worked							Hours		Project Hours (A)	Hourly Base Wage (B)	Health & Welfare Insurance (C)	ERISA Pension Plan (D)	Supp. Unemp. (E)	Total Hourly Prev. Wage (F)	(A x F)		Check No. (H)		
				Su.	Mo.	Tu.	We.	Th.	Fr.	Sa.	All Other Hours	Total Gross Wages (G)							Total Gross Wages				
	<input type="checkbox"/>																						
	<input type="checkbox"/>																						
	<input type="checkbox"/>																						
	<input type="checkbox"/>																						
	<input type="checkbox"/>																						
	<input type="checkbox"/>																						
	<input type="checkbox"/>																						

NOTE: Pursuant to MGL Ch. 149 s.27B, every contractor and subcontractor is required to submit a "true and accurate" copy of their weekly payroll records directly to the awarding authority. Failure to comply may result in the commencement of a criminal action or the issuance of a civil citation.

WEEKLY PAYROLL RECORDS REPORT & STATEMENT OF COMPLIANCE

In accordance with Massachusetts General Law c. 149, §27B, a true and accurate record must be kept of all persons employed on the public works project for which the enclosed rates have been provided. A Payroll Form has been printed on the reverse of this page and includes all the information required to be kept by law. Every contractor or subcontractor is required to keep these records and preserve them for a period of three years from the date of completion of the contract.

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

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

STATEMENT OF COMPLIANCE

_____, 20____

I, _____,
(Name of signatory party) (Title)

do hereby state:

That I pay or supervise the payment of the persons employed by
_____ on the _____

(Contractor, subcontractor or public body)

(Building or project)

and that all mechanics and apprentices, teamsters, chauffeurs and laborers employed on said project have been paid in accordance with wages determined under the provisions of sections twenty-six and twenty-seven of chapter one hundred and forty nine of the General Laws.

Signature _____

Title _____



CHARLES D. BAKER
Governor

KARYN E. POLITO
Lt. Governor

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

Prevailing Wage Rates

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

RONALD L. WALKER, II
Secretary

WILLIAM D MCKINNEY
Director

Awarding Authority: City of Somerville

Contract Number: **City/Town:** SOMERVILLE

Description of Work: IFB 15-105-Rebid, Union Square Early Action Roadway Improvements

Job Location: 93 Highland Ave, Somerville, MA 02413

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: 12/30/2015

Wage Request Number: 20151230-005

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
Construction						
(2 AXLE) DRIVER - EQUIPMENT TEAMSTERS JOINT COUNCIL NO. 10 ZONE A	12/01/2015	\$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	12/01/2015	\$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	12/01/2015	\$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)	08/01/2015	\$88.29	\$9.80	\$19.23	\$0.00	\$117.32
AIR TRACK OPERATOR LABORERS - ZONE 1	12/01/2015	\$36.10	\$7.45	\$13.55	\$0.00	\$57.10
	06/01/2016	\$36.85	\$7.45	\$13.55	\$0.00	\$57.85
	12/01/2016	\$37.85	\$7.45	\$13.55	\$0.00	\$58.85
For apprentice rates see "Apprentice- LABORER"						
ASBESTOS REMOVER - PIPE / MECH. EQUIPT. HEAT & FROST INSULATORS LOCAL 6 (BOSTON)	12/01/2015	\$34.38	\$10.40	\$5.95	\$0.00	\$50.73
ASPHALT RAKER LABORERS - ZONE 1	12/01/2015	\$35.60	\$7.45	\$13.55	\$0.00	\$56.60
	06/01/2016	\$36.35	\$7.45	\$13.55	\$0.00	\$57.35
	12/01/2016	\$37.35	\$7.45	\$13.55	\$0.00	\$58.35
For apprentice rates see "Apprentice- LABORER"						
ASPHALT/CONCRETE/CRUSHER PLANT-ON SITE OPERATING ENGINEERS LOCAL 4	12/01/2015	\$43.73	\$10.00	\$14.90	\$0.00	\$68.63
	06/01/2016	\$44.48	\$10.00	\$14.90	\$0.00	\$69.38
	12/01/2016	\$45.73	\$10.00	\$14.90	\$0.00	\$70.63
	06/01/2017	\$46.73	\$10.00	\$14.90	\$0.00	\$71.63
	12/01/2017	\$47.73	\$10.00	\$14.90	\$0.00	\$72.63
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
BACKHOE/FRONT-END LOADER OPERATING ENGINEERS LOCAL 4	12/01/2015	\$43.73	\$10.00	\$14.90	\$0.00	\$68.63
	06/01/2016	\$44.48	\$10.00	\$14.90	\$0.00	\$69.38
	12/01/2016	\$45.73	\$10.00	\$14.90	\$0.00	\$70.63
	06/01/2017	\$46.73	\$10.00	\$14.90	\$0.00	\$71.63
	12/01/2017	\$47.73	\$10.00	\$14.90	\$0.00	\$72.63
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
BARCO-TYPE JUMPING TAMPER LABORERS - ZONE 1	12/01/2015	\$35.60	\$7.45	\$13.55	\$0.00	\$56.60
	06/01/2016	\$36.35	\$7.45	\$13.55	\$0.00	\$57.35
	12/01/2016	\$37.35	\$7.45	\$13.55	\$0.00	\$58.35
For apprentice rates see "Apprentice- LABORER"						
BLOCK PAVER, RAMMER / CURB SETTER LABORERS - ZONE 1	12/01/2015	\$36.10	\$7.45	\$13.55	\$0.00	\$57.10
	06/01/2016	\$36.85	\$7.45	\$13.55	\$0.00	\$57.85
	12/01/2016	\$37.85	\$7.45	\$13.55	\$0.00	\$58.85
For apprentice rates see "Apprentice- LABORER"						

Issue Date: 12/30/2015

Wage Request Number: 20151230-005

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Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
BOILER MAKER <i>BOILERMAKERS LOCAL 29</i>	01/01/2015	\$40.32	\$6.97	\$16.21	\$0.00	\$63.50
	01/01/2016	\$41.62	\$6.97	\$16.21	\$0.00	\$64.80
	01/01/2017	\$42.92	\$6.97	\$16.21	\$0.00	\$66.10
Apprentice - <i>BOILERMAKER - Local 29</i>						
Effective Date - 01/01/2015						
Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	65	\$26.21	\$6.97	\$10.54	\$0.00	\$43.72
2	65	\$26.21	\$6.97	\$10.54	\$0.00	\$43.72
3	70	\$28.22	\$6.97	\$11.35	\$0.00	\$46.54
4	75	\$30.24	\$6.97	\$12.16	\$0.00	\$49.37
5	80	\$32.26	\$6.97	\$12.97	\$0.00	\$52.20
6	85	\$34.27	\$6.97	\$13.78	\$0.00	\$55.02
7	90	\$36.29	\$6.97	\$14.59	\$0.00	\$57.85
8	95	\$38.30	\$6.97	\$15.40	\$0.00	\$60.67
Effective Date - 01/01/2016						
Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	65	\$27.05	\$6.97	\$10.54	\$0.00	\$44.56
2	65	\$27.05	\$6.97	\$10.54	\$0.00	\$44.56
3	70	\$29.13	\$6.97	\$11.35	\$0.00	\$47.45
4	75	\$31.22	\$6.97	\$12.16	\$0.00	\$50.35
5	80	\$33.30	\$6.97	\$12.97	\$0.00	\$53.24
6	85	\$35.38	\$6.97	\$13.78	\$0.00	\$56.13
7	90	\$37.46	\$6.97	\$14.59	\$0.00	\$59.02
8	95	\$39.54	\$6.97	\$15.40	\$0.00	\$61.91
Notes:						
Apprentice to Journeyworker Ratio:1:5						
BRICK/STONE/ARTIFICIAL MASONRY (INCL. MASONRY WATERPROOFING) <i>BRICKLAYERS LOCAL 3 (BOSTON)</i>	08/01/2015	\$49.86	\$10.18	\$18.57	\$0.00	\$78.61
	02/01/2016	\$49.86	\$10.18	\$19.14	\$0.00	\$79.18
	08/01/2016	\$50.76	\$10.18	\$19.22	\$0.00	\$80.16
	02/01/2017	\$51.33	\$10.18	\$19.22	\$0.00	\$80.73

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
Apprentice - <i>BRICK/PLASTER/CEMENT MASON - Local 3 Boston</i>						
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
Effective Date - 02/01/2016						
Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$24.93	\$10.18	\$19.14	\$0.00	\$54.25
2	60	\$29.92	\$10.18	\$19.14	\$0.00	\$59.24
3	70	\$34.90	\$10.18	\$19.14	\$0.00	\$64.22
4	80	\$39.89	\$10.18	\$19.14	\$0.00	\$69.21
5	90	\$44.87	\$10.18	\$19.14	\$0.00	\$74.19
Notes:						
Apprentice to Journeyworker Ratio:1:5						
BULLDOZER/GRADER/SCRAPER <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2015	\$43.31	\$10.00	\$14.90	\$0.00	\$68.21
	06/01/2016	\$44.06	\$10.00	\$14.90	\$0.00	\$68.96
	12/01/2016	\$45.29	\$10.00	\$14.90	\$0.00	\$70.19
	06/01/2017	\$46.28	\$10.00	\$14.90	\$0.00	\$71.18
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
CAISSON & UNDERPINNING BOTTOM MAN <i>LABORERS - FOUNDATION AND MARINE</i>	12/01/2015	\$36.45	\$7.45	\$13.75	\$0.00	\$57.65
	06/01/2016	\$37.20	\$7.45	\$13.75	\$0.00	\$58.40
	12/01/2016	\$38.20	\$7.45	\$13.75	\$0.00	\$59.40
For apprentice rates see "Apprentice- LABORER"						
CAISSON & UNDERPINNING LABORER <i>LABORERS - FOUNDATION AND MARINE</i>	12/01/2015	\$35.30	\$7.45	\$13.75	\$0.00	\$56.50
	06/01/2016	\$36.05	\$7.45	\$13.75	\$0.00	\$57.25
	12/01/2016	\$37.05	\$7.45	\$13.75	\$0.00	\$58.25
For apprentice rates see "Apprentice- LABORER"						
CAISSON & UNDERPINNING TOP MAN <i>LABORERS - FOUNDATION AND MARINE</i>	12/01/2015	\$35.30	\$7.45	\$13.75	\$0.00	\$56.50
	06/01/2016	\$36.05	\$7.45	\$13.75	\$0.00	\$57.25
	12/01/2016	\$37.05	\$7.45	\$13.75	\$0.00	\$58.25
For apprentice rates see "Apprentice- LABORER"						
CARBIDE CORE DRILL OPERATOR <i>LABORERS - ZONE 1</i>	12/01/2015	\$35.60	\$7.45	\$13.55	\$0.00	\$56.60
	06/01/2016	\$36.35	\$7.45	\$13.55	\$0.00	\$57.35
	12/01/2016	\$37.35	\$7.45	\$13.55	\$0.00	\$58.35
For apprentice rates see "Apprentice- LABORER"						
CARPENTER <i>CARPENTERS-ZONE 1 (Metro Boston)</i>	03/01/2015	\$42.30	\$9.80	\$16.48	\$0.00	\$68.58

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
Apprentice - CARPENTER - Zone 1 Metro Boston						
Effective Date - 03/01/2015						
Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$21.15	\$9.80	\$1.63	\$0.00	\$32.58
2	60	\$25.38	\$9.80	\$1.63	\$0.00	\$36.81
3	70	\$29.61	\$9.80	\$11.59	\$0.00	\$51.00
4	75	\$31.73	\$9.80	\$11.59	\$0.00	\$53.12
5	80	\$33.84	\$9.80	\$13.22	\$0.00	\$56.86
6	80	\$33.84	\$9.80	\$13.22	\$0.00	\$56.86
7	90	\$38.07	\$9.80	\$14.85	\$0.00	\$62.72
8	90	\$38.07	\$9.80	\$14.85	\$0.00	\$62.72
Notes:						
Apprentice to Journeyworker Ratio:1:5						
CEMENT MASONRY/PLASTERING						
<i>BRICKLAYERS LOCAL 3 (BOSTON)</i>						
	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
Apprentice - CEMENT MASONRY/PLASTERING - Eastern Mass (Boston)						
Effective Date - 07/01/2015						
Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$22.91	\$10.90	\$12.21	\$0.00	\$46.02
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
Effective Date - 01/01/2016						
Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$23.22	\$10.90	\$12.21	\$0.00	\$46.33
2	60	\$27.86	\$10.90	\$13.71	\$1.30	\$53.77
3	65	\$30.19	\$10.90	\$14.71	\$1.30	\$57.10
4	70	\$32.51	\$10.90	\$15.71	\$1.30	\$60.42
5	75	\$34.83	\$10.90	\$16.71	\$1.30	\$63.74
6	80	\$37.15	\$10.90	\$17.71	\$1.30	\$67.06
7	90	\$41.80	\$10.90	\$18.71	\$1.30	\$72.71
Notes:						
Steps 3,4 are 500 hrs. All other steps are 1,000 hrs.						
Apprentice to Journeyworker Ratio:1:3						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
CHAIN SAW OPERATOR						
<i>LABORERS - ZONE 1</i>						
	12/01/2015	\$35.60	\$7.45	\$13.55	\$0.00	\$56.60
	06/01/2016	\$36.35	\$7.45	\$13.55	\$0.00	\$57.35
	12/01/2016	\$37.35	\$7.45	\$13.55	\$0.00	\$58.35
For apprentice rates see "Apprentice- LABORER"						
CLAM SHELLS/SLURRY BUCKETS/HEADING MACHINES						
<i>OPERATING ENGINEERS LOCAL 4</i>						
	12/01/2015	\$44.73	\$10.00	\$14.90	\$0.00	\$69.63
	06/01/2016	\$45.48	\$10.00	\$14.90	\$0.00	\$70.38
	12/01/2016	\$46.73	\$10.00	\$14.90	\$0.00	\$71.63
	06/01/2017	\$47.73	\$10.00	\$14.90	\$0.00	\$72.63
	12/01/2017	\$48.73	\$10.00	\$14.90	\$0.00	\$73.63
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
COMPRESSOR OPERATOR						
<i>OPERATING ENGINEERS LOCAL 4</i>						
	12/01/2015	\$30.13	\$10.00	\$14.90	\$0.00	\$55.03
	06/01/2016	\$30.65	\$10.00	\$14.90	\$0.00	\$55.55
	12/01/2016	\$31.52	\$10.00	\$14.90	\$0.00	\$56.42
	06/01/2017	\$32.21	\$10.00	\$14.90	\$0.00	\$57.11
	12/01/2017	\$32.90	\$10.00	\$14.90	\$0.00	\$57.80
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
DELEADER (BRIDGE)						
<i>PAINTERS LOCAL 35 - ZONE 1</i>						
	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

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
Apprentice - PAINTER Local 35 - BRIDGES/TANKS						
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
Effective Date - 01/01/2016						
Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$24.76	\$7.85	\$0.00	\$0.00	\$32.61
2	55	\$27.23	\$7.85	\$3.66	\$0.00	\$38.74
3	60	\$29.71	\$7.85	\$3.99	\$0.00	\$41.55
4	65	\$32.18	\$7.85	\$4.32	\$0.00	\$44.35
5	70	\$34.66	\$7.85	\$14.11	\$0.00	\$56.62
6	75	\$37.13	\$7.85	\$14.44	\$0.00	\$59.42
7	80	\$39.61	\$7.85	\$14.77	\$0.00	\$62.23
8	90	\$44.56	\$7.85	\$15.44	\$0.00	\$67.85
Notes:						
Steps are 750 hrs.						
Apprentice to Journeyworker Ratio:1:1						
DEMO: ADZEMAN LABORERS - ZONE 1	12/01/2015	\$35.50	\$7.45	\$13.55	\$0.00	\$56.50
For apprentice rates see "Apprentice- LABORER"						
DEMO: BACKHOE/LOADER/HAMMER OPERATOR LABORERS - ZONE 1	12/01/2015	\$36.50	\$7.45	\$13.55	\$0.00	\$57.50
For apprentice rates see "Apprentice- LABORER"						
DEMO: BURNERS LABORERS - ZONE 1	12/01/2015	\$36.25	\$7.45	\$13.55	\$0.00	\$57.25
For apprentice rates see "Apprentice- LABORER"						
DEMO: CONCRETE CUTTER/SAWYER LABORERS - ZONE 1	12/01/2015	\$36.50	\$7.45	\$13.55	\$0.00	\$57.50
For apprentice rates see "Apprentice- LABORER"						
DEMO: JACKHAMMER OPERATOR LABORERS - ZONE 1	12/01/2015	\$36.25	\$7.45	\$13.55	\$0.00	\$57.25
For apprentice rates see "Apprentice- LABORER"						
DEMO: WRECKING LABORER LABORERS - ZONE 1	12/01/2015	\$35.50	\$7.45	\$13.55	\$0.00	\$56.50
For apprentice rates see "Apprentice- LABORER"						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
DIRECTIONAL DRILL MACHINE OPERATOR OPERATING ENGINEERS LOCAL 4	12/01/2015	\$43.31	\$10.00	\$14.90	\$0.00	\$68.21
	06/01/2016	\$44.06	\$10.00	\$14.90	\$0.00	\$68.96
	12/01/2016	\$45.29	\$10.00	\$14.90	\$0.00	\$70.19
	06/01/2017	\$46.28	\$10.00	\$14.90	\$0.00	\$71.18
	12/01/2017	\$47.27	\$10.00	\$14.90	\$0.00	\$72.17
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
DIVER PILE DRIVER LOCAL 56 (ZONE 1)	08/01/2015	\$58.86	\$9.80	\$19.23	\$0.00	\$87.89
DIVER TENDER PILE DRIVER LOCAL 56 (ZONE 1)	08/01/2015	\$42.04	\$9.80	\$19.23	\$0.00	\$71.07
DIVER TENDER (EFFLUENT) PILE DRIVER LOCAL 56 (ZONE 1)	08/01/2015	\$63.06	\$9.80	\$19.23	\$0.00	\$92.09
DIVER/SLURRY (EFFLUENT) PILE DRIVER LOCAL 56 (ZONE 1)	08/01/2015	\$88.23	\$9.80	\$19.23	\$0.00	\$117.26
DRAWBRIDGE OPERATOR (Construction) ELECTRICIANS LOCAL 103	09/01/2015	\$45.67	\$13.00	\$15.89	\$0.00	\$74.56
	03/01/2016	\$46.17	\$13.00	\$16.39	\$0.00	\$75.56
For apprentice rates see "Apprentice- ELECTRICIAN"						
ELECTRICIAN ELECTRICIANS LOCAL 103	09/01/2015	\$45.67	\$13.00	\$15.89	\$0.00	\$74.56
	03/01/2016	\$46.17	\$13.00	\$16.39	\$0.00	\$75.56

Classification Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - ELECTRICIAN - Local 103

Effective Date - 09/01/2015

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	\$18.27	\$13.00	\$0.55	\$0.00	\$31.82
2	40	\$18.27	\$13.00	\$0.55	\$0.00	\$31.82
3	45	\$20.55	\$13.00	\$11.86	\$0.00	\$45.41
4	45	\$20.55	\$13.00	\$11.86	\$0.00	\$45.41
5	50	\$22.84	\$13.00	\$12.23	\$0.00	\$48.07
6	55	\$25.12	\$13.00	\$12.58	\$0.00	\$50.70
7	60	\$27.40	\$13.00	\$12.95	\$0.00	\$53.35
8	65	\$29.69	\$13.00	\$13.32	\$0.00	\$56.01
9	70	\$31.97	\$13.00	\$13.69	\$0.00	\$58.66
10	75	\$34.25	\$13.00	\$14.06	\$0.00	\$61.31

Effective Date - 03/01/2016

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	\$18.47	\$13.00	\$0.55	\$0.00	\$32.02
2	40	\$18.47	\$13.00	\$0.55	\$0.00	\$32.02
3	45	\$20.78	\$13.00	\$11.84	\$0.00	\$45.62
4	45	\$20.78	\$13.00	\$11.84	\$0.00	\$45.62
5	50	\$23.09	\$13.00	\$12.71	\$0.00	\$48.80
6	55	\$25.39	\$13.00	\$13.07	\$0.00	\$51.46
7	60	\$27.70	\$13.00	\$13.39	\$0.00	\$54.09
8	65	\$30.01	\$13.00	\$13.81	\$0.00	\$56.82
9	70	\$32.32	\$13.00	\$14.18	\$0.00	\$59.50
10	75	\$34.63	\$13.00	\$14.55	\$0.00	\$62.18

Notes :

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

Apprentice to Journeyworker Ratio:2:3***

ELEVATOR CONSTRUCTOR	01/01/2015	\$53.30	\$13.58	\$14.21	\$0.00	\$81.09
ELEVATOR CONSTRUCTORS LOCAL 4	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	01/01/2015	\$37.31	\$13.58	\$14.21	\$0.00	\$65.10
ELEVATOR CONSTRUCTORS LOCAL 4	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	12/01/2015	\$35.60	\$7.45	\$13.55	\$0.00	\$56.60
LABORERS - ZONE 1	06/01/2016	\$36.35	\$7.45	\$13.55	\$0.00	\$57.35
	12/01/2016	\$37.35	\$7.45	\$13.55	\$0.00	\$58.35
For apprentice rates see "Apprentice- LABORER"						
FIELD ENG.INST.PERSON-BLDG,SITE,HVY/HWY	11/01/2015	\$40.49	\$10.00	\$14.55	\$0.00	\$65.04
OPERATING ENGINEERS LOCAL 4	05/01/2016	\$41.38	\$10.00	\$14.55	\$0.00	\$65.93
	11/01/2016	\$41.97	\$10.00	\$14.55	\$0.00	\$66.52
	05/01/2017	\$42.85	\$10.00	\$14.55	\$0.00	\$67.40
	11/01/2017	\$43.58	\$10.00	\$14.55	\$0.00	\$68.13
	05/01/2018	\$44.29	\$10.00	\$14.55	\$0.00	\$68.84
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
FIELD ENG.PARTY CHIEF-BLDG,SITE,HVY/HWY	11/01/2015	\$41.93	\$10.00	\$14.55	\$0.00	\$66.48
OPERATING ENGINEERS LOCAL 4	05/01/2016	\$42.82	\$10.00	\$14.55	\$0.00	\$67.37
	11/01/2016	\$43.42	\$10.00	\$14.55	\$0.00	\$67.97
	05/01/2017	\$44.31	\$10.00	\$14.55	\$0.00	\$68.86
	11/01/2017	\$45.04	\$10.00	\$14.55	\$0.00	\$69.59
	05/01/2018	\$45.76	\$10.00	\$14.55	\$0.00	\$70.31
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
FIELD ENG.ROD PERSON-BLDG,SITE,HVY/HWY <i>OPERATING ENGINEERS LOCAL 4</i>	11/01/2015	\$21.71	\$10.00	\$14.55	\$0.00	\$46.26
	05/01/2016	\$22.23	\$10.00	\$14.55	\$0.00	\$46.78
	11/01/2016	\$22.58	\$10.00	\$14.55	\$0.00	\$47.13
	05/01/2017	\$23.11	\$10.00	\$14.55	\$0.00	\$47.66
	11/01/2017	\$23.53	\$10.00	\$14.55	\$0.00	\$48.08
	05/01/2018	\$23.96	\$10.00	\$14.55	\$0.00	\$48.51
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
FIRE ALARM INSTALLER <i>ELECTRICIANS LOCAL 103</i>	09/01/2015	\$45.67	\$13.00	\$15.89	\$0.00	\$74.56
	03/01/2016	\$46.17	\$13.00	\$16.39	\$0.00	\$75.56
For apprentice rates see "Apprentice- ELECTRICIAN"						
FIRE ALARM REPAIR / MAINTENANCE / COMMISSIONING <i>ELECTRICIANS LOCAL 103</i>	09/01/2015	\$34.25	\$13.00	\$14.06	\$0.00	\$61.31
	03/01/2016	\$34.63	\$13.00	\$14.55	\$0.00	\$62.18
For apprentice rates see "Apprentice- TELECOMMUNICATIONS TECHNICIAN"						
FIREMAN (ASST. ENGINEER) <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2015	\$36.34	\$10.00	\$14.90	\$0.00	\$61.24
	06/01/2016	\$36.96	\$10.00	\$14.90	\$0.00	\$61.86
	12/01/2016	\$38.00	\$10.00	\$14.90	\$0.00	\$62.90
	06/01/2017	\$38.84	\$10.00	\$14.90	\$0.00	\$63.74
	12/01/2017	\$39.67	\$10.00	\$14.90	\$0.00	\$64.57
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
FLAGGER & SIGNALER <i>LABORERS - ZONE 1</i>	12/01/2015	\$20.50	\$7.45	\$13.55	\$0.00	\$41.50
	06/01/2016	\$20.50	\$7.45	\$13.55	\$0.00	\$41.50
	12/01/2016	\$20.50	\$7.45	\$13.55	\$0.00	\$41.50
For apprentice rates see "Apprentice- LABORER"						
FLOORCOVERER <i>FLOORCOVERERS LOCAL 2168 ZONE 1</i>	09/01/2015	\$41.59	\$9.80	\$17.53	\$0.00	\$68.92

Apprentice - FLOORCOVERER - Local 2168 Zone 1

Effective Date - 09/01/2015						
Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$20.80	\$9.80	\$1.79	\$0.00	\$32.39
2	55	\$22.87	\$9.80	\$1.79	\$0.00	\$34.46
3	60	\$24.95	\$9.80	\$12.16	\$0.00	\$46.91
4	65	\$27.03	\$9.80	\$12.16	\$0.00	\$48.99
5	70	\$29.11	\$9.80	\$13.95	\$0.00	\$52.86
6	75	\$31.19	\$9.80	\$13.95	\$0.00	\$54.94
7	80	\$33.27	\$9.80	\$15.74	\$0.00	\$58.81
8	85	\$35.35	\$9.80	\$15.74	\$0.00	\$60.89

Notes:
Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
FORK LIFT/CHERRY PICKER <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2015	\$43.73	\$10.00	\$14.90	\$0.00	\$68.63
	06/01/2016	\$44.48	\$10.00	\$14.90	\$0.00	\$69.38
	12/01/2016	\$45.73	\$10.00	\$14.90	\$0.00	\$70.63
	06/01/2017	\$46.73	\$10.00	\$14.90	\$0.00	\$71.63
	12/01/2017	\$47.73	\$10.00	\$14.90	\$0.00	\$72.63
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
GENERATOR/LIGHTING PLANT/HEATERS <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2015	\$30.13	\$10.00	\$14.90	\$0.00	\$55.03
	06/01/2016	\$30.65	\$10.00	\$14.90	\$0.00	\$55.55
	12/01/2016	\$31.52	\$10.00	\$14.90	\$0.00	\$56.42
	06/01/2017	\$32.21	\$10.00	\$14.90	\$0.00	\$57.11
GLAZIER (GLASS PLANK/AIR BARRIER/INTERIOR SYSTEMS) <i>GLAZIERS LOCAL 35 (ZONE 1)</i>	12/01/2017	\$32.90	\$10.00	\$14.90	\$0.00	\$57.80
	For apprentice rates see "Apprentice- OPERATING ENGINEERS"					
	07/01/2015	\$43.85	\$7.85	\$16.10	\$0.00	\$67.80
	01/01/2016	\$44.80	\$7.85	\$16.10	\$0.00	\$68.75
	07/01/2016	\$45.75	\$7.85	\$16.10	\$0.00	\$69.70
	01/01/2017	\$46.70	\$7.85	\$16.10	\$0.00	\$70.65

Apprentice - GLAZIER - Local 35 Zone 1

Effective Date - 07/01/2015						
Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$21.93	\$7.85	\$0.00	\$0.00	\$29.78
2	55	\$24.12	\$7.85	\$3.66	\$0.00	\$35.63
3	60	\$26.31	\$7.85	\$3.99	\$0.00	\$38.15
4	65	\$28.50	\$7.85	\$4.32	\$0.00	\$40.67
5	70	\$30.70	\$7.85	\$14.11	\$0.00	\$52.66
6	75	\$32.89	\$7.85	\$14.44	\$0.00	\$55.18
7	80	\$35.08	\$7.85	\$14.77	\$0.00	\$57.70
8	90	\$39.47	\$7.85	\$15.44	\$0.00	\$62.76

Effective Date - 01/01/2016						
Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$22.40	\$7.85	\$0.00	\$0.00	\$30.25
2	55	\$24.64	\$7.85	\$3.66	\$0.00	\$36.15
3	60	\$26.88	\$7.85	\$3.99	\$0.00	\$38.72
4	65	\$29.12	\$7.85	\$4.32	\$0.00	\$41.29
5	70	\$31.36	\$7.85	\$14.11	\$0.00	\$53.32
6	75	\$33.60	\$7.85	\$14.44	\$0.00	\$55.89
7	80	\$35.84	\$7.85	\$14.77	\$0.00	\$58.46
8	90	\$40.32	\$7.85	\$15.44	\$0.00	\$63.61

Notes:
Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
HOISTING ENGINEER/CRANES/GRADALLS <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2015	\$43.73	\$10.00	\$14.90	\$0.00	\$68.63
	06/01/2016	\$44.48	\$10.00	\$14.90	\$0.00	\$69.38
	12/01/2016	\$45.73	\$10.00	\$14.90	\$0.00	\$70.63
	06/01/2017	\$46.73	\$10.00	\$14.90	\$0.00	\$71.63
	12/01/2017	\$47.73	\$10.00	\$14.90	\$0.00	\$72.63

Apprentice - *OPERATING ENGINEERS - Local 4*

Effective Date - 12/01/2015

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	55	\$24.05	\$10.00	\$0.00	\$0.00	\$34.05
2	60	\$26.24	\$10.00	\$14.90	\$0.00	\$51.14
3	65	\$28.42	\$10.00	\$14.90	\$0.00	\$53.32
4	70	\$30.61	\$10.00	\$14.90	\$0.00	\$55.51
5	75	\$32.80	\$10.00	\$14.90	\$0.00	\$57.70
6	80	\$34.98	\$10.00	\$14.90	\$0.00	\$59.88
7	85	\$37.17	\$10.00	\$14.90	\$0.00	\$62.07
8	90	\$39.36	\$10.00	\$14.90	\$0.00	\$64.26

Effective Date - 06/01/2016

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	55	\$24.46	\$10.00	\$0.00	\$0.00	\$34.46
2	60	\$26.69	\$10.00	\$14.90	\$0.00	\$51.59
3	65	\$28.91	\$10.00	\$14.90	\$0.00	\$53.81
4	70	\$31.14	\$10.00	\$14.90	\$0.00	\$56.04
5	75	\$33.36	\$10.00	\$14.90	\$0.00	\$58.26
6	80	\$35.58	\$10.00	\$14.90	\$0.00	\$60.48
7	85	\$37.81	\$10.00	\$14.90	\$0.00	\$62.71
8	90	\$40.03	\$10.00	\$14.90	\$0.00	\$64.93

Notes:

Apprentice to Journeyworker Ratio:1:6

HVAC (DUCTWORK) <i>SHEETMETAL WORKERS LOCAL 17 - A</i>	08/01/2015	\$43.31	\$10.20	\$21.48	\$2.25	\$77.24
	02/01/2016	\$44.31	\$10.20	\$21.48	\$2.25	\$78.24
	08/01/2016	\$45.46	\$10.20	\$21.48	\$2.25	\$79.39
	02/01/2017	\$46.56	\$10.20	\$21.48	\$2.25	\$80.49
	08/01/2017	\$47.66	\$10.20	\$21.48	\$2.25	\$81.59
	02/01/2018	\$48.81	\$10.20	\$21.48	\$2.25	\$82.74

For apprentice rates see "Apprentice- SHEET METAL WORKER"

HVAC (ELECTRICAL CONTROLS) <i>ELECTRICIANS LOCAL 103</i>	09/01/2015	\$45.67	\$13.00	\$15.89	\$0.00	\$74.56
	03/01/2016	\$46.17	\$13.00	\$16.39	\$0.00	\$75.56

For apprentice rates see "Apprentice- ELECTRICIAN"

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
HVAC (TESTING AND BALANCING - AIR) <i>SHEETMETAL WORKERS LOCAL 17 - A</i>	08/01/2015	\$43.31	\$10.20	\$21.48	\$2.25	\$77.24
	02/01/2016	\$44.31	\$10.20	\$21.48	\$2.25	\$78.24
	08/01/2016	\$45.46	\$10.20	\$21.48	\$2.25	\$79.39
	02/01/2017	\$46.56	\$10.20	\$21.48	\$2.25	\$80.49
	08/01/2017	\$47.66	\$10.20	\$21.48	\$2.25	\$81.59
	02/01/2018	\$48.81	\$10.20	\$21.48	\$2.25	\$82.74

For apprentice rates see "Apprentice- SHEET METAL WORKER"

HVAC (TESTING AND BALANCING -WATER) <i>PIPEFITTERS LOCAL 537</i>	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 <i>PIPEFITTERS LOCAL 537</i>	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 <i>LABORERS - ZONE 1</i>	12/01/2015	\$36.10	\$7.45	\$13.55	\$0.00	\$57.10
	06/01/2016	\$36.85	\$7.45	\$13.55	\$0.00	\$57.85
	12/01/2016	\$37.85	\$7.45	\$13.55	\$0.00	\$58.85

For apprentice rates see "Apprentice- LABORER"

INSULATOR (PIPES & TANKS) <i>HEAT & FROST INSULATORS LOCAL 6 (BOSTON)</i>	09/01/2015	\$43.81	\$11.50	\$13.80	\$0.00	\$69.11
	09/01/2016	\$45.81	\$11.50	\$13.80	\$0.00	\$71.11
	09/01/2017	\$47.81	\$11.50	\$13.80	\$0.00	\$73.11
	09/01/2018	\$50.06	\$11.50	\$13.80	\$0.00	\$75.36
	09/01/2019	\$52.56	\$11.50	\$13.80	\$0.00	\$77.86

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

Effective Date - 09/01/2015

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$21.91	\$11.50	\$10.05	\$0.00	\$43.46
2	60	\$26.29	\$11.50	\$10.80	\$0.00	\$48.59
3	70	\$30.67	\$11.50	\$11.55	\$0.00	\$53.72
4	80	\$35.05	\$11.50	\$12.30	\$0.00	\$58.85

Effective Date - 09/01/2016

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$22.91	\$11.50	\$10.05	\$0.00	\$44.46
2	60	\$27.49	\$11.50	\$10.80	\$0.00	\$49.79
3	70	\$32.07	\$11.50	\$11.55	\$0.00	\$55.12
4	80	\$36.65	\$11.50	\$12.30	\$0.00	\$60.45

Notes:

Steps are 1 year

Apprentice to Journeyworker Ratio:1:4

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
IRONWORKER/WELDER <i>IRONWORKERS LOCAL 7 (BOSTON AREA)</i>	09/16/2015	\$42.40	\$7.80	\$20.85	\$0.00	\$71.05
	03/16/2016	\$43.40	\$7.80	\$20.85	\$0.00	\$72.05
	09/16/2016	\$44.05	\$7.80	\$20.85	\$0.00	\$72.70
	03/16/2017	\$44.65	\$7.80	\$20.85	\$0.00	\$73.30

Apprentice - IRONWORKER - Local 7 Boston

Effective Date - 09/16/2015						
Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$25.44	\$7.80	\$20.85	\$0.00	\$54.09
2	70	\$29.68	\$7.80	\$20.85	\$0.00	\$58.33
3	75	\$31.80	\$7.80	\$20.85	\$0.00	\$60.45
4	80	\$33.92	\$7.80	\$20.85	\$0.00	\$62.57
5	85	\$36.04	\$7.80	\$20.85	\$0.00	\$64.69
6	90	\$38.16	\$7.80	\$20.85	\$0.00	\$66.81

Effective Date - 03/16/2016						
Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$26.04	\$7.80	\$20.85	\$0.00	\$54.69
2	70	\$30.38	\$7.80	\$20.85	\$0.00	\$59.03
3	75	\$32.55	\$7.80	\$20.85	\$0.00	\$61.20
4	80	\$34.72	\$7.80	\$20.85	\$0.00	\$63.37
5	85	\$36.89	\$7.80	\$20.85	\$0.00	\$65.54
6	90	\$39.06	\$7.80	\$20.85	\$0.00	\$67.71

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

Apprentice to Journeyworker Ratio:**						
JACKHAMMER & PAVING BREAKER OPERATOR <i>LABORERS - ZONE 1</i>	12/01/2015	\$35.60	\$7.45	\$13.55	\$0.00	\$56.60
	06/01/2016	\$36.35	\$7.45	\$13.55	\$0.00	\$57.35
	12/01/2016	\$37.35	\$7.45	\$13.55	\$0.00	\$58.35
For apprentice rates see "Apprentice- LABORER"						
LABORER <i>LABORERS - ZONE 1</i>	12/01/2015	\$35.35	\$7.45	\$13.55	\$0.00	\$56.35
	06/01/2016	\$36.10	\$7.45	\$13.55	\$0.00	\$57.10
	12/01/2016	\$37.10	\$7.45	\$13.55	\$0.00	\$58.10

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
Apprentice - LABORER - Zone 1						
Effective Date - 12/01/2015						
Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$21.21	\$7.45	\$13.55	\$0.00	\$42.21
2	70	\$24.75	\$7.45	\$13.55	\$0.00	\$45.75
3	80	\$28.28	\$7.45	\$13.55	\$0.00	\$49.28
4	90	\$31.82	\$7.45	\$13.55	\$0.00	\$52.82

Effective Date - 06/01/2016						
Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$21.66	\$7.45	\$13.55	\$0.00	\$42.66
2	70	\$25.27	\$7.45	\$13.55	\$0.00	\$46.27
3	80	\$28.88	\$7.45	\$13.55	\$0.00	\$49.88
4	90	\$32.49	\$7.45	\$13.55	\$0.00	\$53.49

Notes:

Apprentice to Journeyworker Ratio:1:5						
LABORER: CARPENTER TENDER <i>LABORERS - ZONE 1</i>	12/01/2015	\$35.35	\$7.45	\$13.55	\$0.00	\$56.35
	06/01/2016	\$36.10	\$7.45	\$13.55	\$0.00	\$57.10
	12/01/2016	\$37.10	\$7.45	\$13.55	\$0.00	\$58.10
For apprentice rates see "Apprentice- LABORER"						
LABORER: CEMENT FINISHER TENDER <i>LABORERS - ZONE 1</i>	12/01/2015	\$35.35	\$7.45	\$13.55	\$0.00	\$56.35
	06/01/2016	\$36.10	\$7.45	\$13.55	\$0.00	\$57.10
	12/01/2016	\$37.10	\$7.45	\$13.55	\$0.00	\$58.10
For apprentice rates see "Apprentice- LABORER"						
LABORER: HAZARDOUS WASTE/ASBESTOS REMOVER <i>LABORERS - ZONE 1</i>	12/01/2015	\$35.50	\$7.45	\$13.55	\$0.00	\$56.50
For apprentice rates see "Apprentice- LABORER"						
LABORER: MASON TENDER <i>LABORERS - ZONE 1</i>	12/01/2015	\$35.60	\$7.45	\$13.55	\$0.00	\$56.60
	06/01/2016	\$36.35	\$7.45	\$13.55	\$0.00	\$57.35
	12/01/2016	\$37.35	\$7.45	\$13.55	\$0.00	\$58.35
For apprentice rates see "Apprentice- LABORER"						
LABORER: MULTI-TRADE TENDER <i>LABORERS - ZONE 1</i>	12/01/2015	\$35.35	\$7.45	\$13.55	\$0.00	\$56.35
	06/01/2016	\$36.10	\$7.45	\$13.55	\$0.00	\$57.10
	12/01/2016	\$37.10	\$7.45	\$13.55	\$0.00	\$58.10
For apprentice rates see "Apprentice- LABORER"						
LABORER: TREE REMOVER <i>LABORERS - ZONE 1</i>	12/01/2015	\$35.35	\$7.45	\$13.55	\$0.00	\$56.35
	06/01/2016	\$36.10	\$7.45	\$13.55	\$0.00	\$57.10
	12/01/2016	\$37.10	\$7.45	\$13.55	\$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 <i>LABORERS - ZONE 1</i>	12/01/2015	\$35.60	\$7.45	\$13.55	\$0.00	\$56.60
	06/01/2016	\$36.35	\$7.45	\$13.55	\$0.00	\$57.35
	12/01/2016	\$37.35	\$7.45	\$13.55	\$0.00	\$58.35
For apprentice rates see "Apprentice- LABORER"						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
MARBLE & TILE FINISHERS <i>BRICKLAYERS LOCAL 3 - MARBLE & TILE</i>	08/01/2015	\$38.08	\$10.18	\$17.25	\$0.00	\$65.51
	02/01/2016	\$38.08	\$10.18	\$17.70	\$0.00	\$65.96
	08/01/2016	\$38.78	\$10.18	\$17.78	\$0.00	\$66.74
	02/01/2017	\$39.24	\$10.18	\$17.78	\$0.00	\$67.20
Apprentice - <i>MARBLE & TILE FINISHER - Local 3 Marble & Tile</i>						
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
Effective Date - 02/01/2016						
Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$19.04	\$10.18	\$17.70	\$0.00	\$46.92
2	60	\$22.85	\$10.18	\$17.70	\$0.00	\$50.73
3	70	\$26.66	\$10.18	\$17.70	\$0.00	\$54.54
4	80	\$30.46	\$10.18	\$17.70	\$0.00	\$58.34
5	90	\$34.27	\$10.18	\$17.70	\$0.00	\$62.15
Notes:						
Apprentice to Journeyworker Ratio:1:3						
MARBLE MASONS,TILELAYERS & TERRAZZO MECH <i>BRICKLAYERS LOCAL 3 - MARBLE & TILE</i>	08/01/2015	\$49.90	\$10.18	\$18.57	\$0.00	\$78.65
	02/01/2016	\$49.90	\$10.18	\$19.14	\$0.00	\$79.22
	08/01/2016	\$50.80	\$10.18	\$19.22	\$0.00	\$80.20
	02/01/2017	\$51.37	\$10.18	\$19.22	\$0.00	\$80.77

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
Apprentice - <i>MARBLE-TILE-TERRAZZO MECHANIC - Local 3 Marble & Tile</i>						
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
Effective Date - 02/01/2016						
Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$24.95	\$10.18	\$19.14	\$0.00	\$54.27
2	60	\$29.94	\$10.18	\$19.14	\$0.00	\$59.26
3	70	\$34.93	\$10.18	\$19.14	\$0.00	\$64.25
4	80	\$39.92	\$10.18	\$19.14	\$0.00	\$69.24
5	90	\$44.91	\$10.18	\$19.14	\$0.00	\$74.23
Notes:						
Apprentice to Journeyworker Ratio:1:5						
MECH. SWEEPER OPERATOR (ON CONST. SITES) <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2015	\$43.31	\$10.00	\$14.90	\$0.00	\$68.21
	06/01/2016	\$44.06	\$10.00	\$14.90	\$0.00	\$68.96
	12/01/2016	\$45.29	\$10.00	\$14.90	\$0.00	\$70.19
	06/01/2017	\$46.28	\$10.00	\$14.90	\$0.00	\$71.18
	12/01/2017	\$47.27	\$10.00	\$14.90	\$0.00	\$72.17
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
MECHANICS MAINTENANCE <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2015	\$43.31	\$10.00	\$14.90	\$0.00	\$68.21
	06/01/2016	\$44.06	\$10.00	\$14.90	\$0.00	\$68.96
	12/01/2016	\$45.29	\$10.00	\$14.90	\$0.00	\$70.19
	06/01/2017	\$46.28	\$10.00	\$14.90	\$0.00	\$71.18
	12/01/2017	\$47.27	\$10.00	\$14.90	\$0.00	\$72.17
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
MILLWRIGHT (Zone 1) <i>MILLWRIGHTS LOCAL 1121 - Zone 1</i>	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
<div>Notes:</div>						
Steps are 2,000 hours						
Apprentice to Journeyworker Ratio:1:5						
MORTAR MIXER						
<i>LABORERS - ZONE 1</i>						
	12/01/2015	\$35.60	\$7.45	\$13.55	\$0.00	\$56.60
	06/01/2016	\$36.35	\$7.45	\$13.55	\$0.00	\$57.35
	12/01/2016	\$37.35	\$7.45	\$13.55	\$0.00	\$58.35
For apprentice rates see "Apprentice- LABORER"						
OILER (OTHER THAN TRUCK CRANES,GRADALLS)						
<i>OPERATING ENGINEERS LOCAL 4</i>						
	12/01/2015	\$22.27	\$10.00	\$14.90	\$0.00	\$47.17
	06/01/2016	\$22.66	\$10.00	\$14.90	\$0.00	\$47.56
	12/01/2016	\$23.31	\$10.00	\$14.90	\$0.00	\$48.21
	06/01/2017	\$23.82	\$10.00	\$14.90	\$0.00	\$48.72
	12/01/2017	\$24.34	\$10.00	\$14.90	\$0.00	\$49.24
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
OILER (TRUCK CRANES, GRADALLS)						
<i>OPERATING ENGINEERS LOCAL 4</i>						
	12/01/2015	\$26.08	\$10.00	\$14.90	\$0.00	\$50.98
	06/01/2016	\$26.54	\$10.00	\$14.90	\$0.00	\$51.44
	12/01/2016	\$27.29	\$10.00	\$14.90	\$0.00	\$52.19
	06/01/2017	\$27.89	\$10.00	\$14.90	\$0.00	\$52.79
	12/01/2017	\$28.50	\$10.00	\$14.90	\$0.00	\$53.40
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
OTHER POWER DRIVEN EQUIPMENT - CLASS II						
<i>OPERATING ENGINEERS LOCAL 4</i>						
	12/01/2015	\$43.31	\$10.00	\$14.90	\$0.00	\$68.21
	06/01/2016	\$44.06	\$10.00	\$14.90	\$0.00	\$68.96
	12/01/2016	\$45.29	\$10.00	\$14.90	\$0.00	\$70.19
	06/01/2017	\$46.28	\$10.00	\$14.90	\$0.00	\$71.18
	12/01/2017	\$47.27	\$10.00	\$14.90	\$0.00	\$72.17
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
PAINTER (BRIDGES/TANKS)						
<i>PAINTERS LOCAL 35 - ZONE 1</i>						
	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

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
Apprentice - PAINTER Local 35 - BRIDGES/TANKS						
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
Effective Date - 01/01/2016						
Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$24.76	\$7.85	\$0.00	\$0.00	\$32.61
2	55	\$27.23	\$7.85	\$3.66	\$0.00	\$38.74
3	60	\$29.71	\$7.85	\$3.99	\$0.00	\$41.55
4	65	\$32.18	\$7.85	\$4.32	\$0.00	\$44.35
5	70	\$34.66	\$7.85	\$14.11	\$0.00	\$56.62
6	75	\$37.13	\$7.85	\$14.44	\$0.00	\$59.42
7	80	\$39.61	\$7.85	\$14.77	\$0.00	\$62.23
8	90	\$44.56	\$7.85	\$15.44	\$0.00	\$67.85
<div>Notes:</div>						
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. <i>PAINTERS LOCAL 35 - ZONE 1</i>						
	07/01/2015	\$45.25	\$7.85	\$16.10	\$0.00	\$69.20
	01/01/2016	\$46.20	\$7.85	\$16.10	\$0.00	\$70.15
	07/01/2016	\$47.15	\$7.85	\$16.10	\$0.00	\$71.10
	01/01/2017	\$48.10	\$7.85	\$16.10	\$0.00	\$72.05

Classification Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - PAINTER Local 35 Zone 1 - Spray/Sandblast - New

Effective Date - 07/01/2015

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$22.63	\$7.85	\$0.00	\$0.00	\$30.48
2	55	\$24.89	\$7.85	\$3.66	\$0.00	\$36.40
3	60	\$27.15	\$7.85	\$3.99	\$0.00	\$38.99
4	65	\$29.41	\$7.85	\$4.32	\$0.00	\$41.58
5	70	\$31.68	\$7.85	\$14.11	\$0.00	\$53.64
6	75	\$33.94	\$7.85	\$14.44	\$0.00	\$56.23
7	80	\$36.20	\$7.85	\$14.77	\$0.00	\$58.82
8	90	\$40.73	\$7.85	\$15.44	\$0.00	\$64.02

Effective Date - 01/01/2016

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$23.10	\$7.85	\$0.00	\$0.00	\$30.95
2	55	\$25.41	\$7.85	\$3.66	\$0.00	\$36.92
3	60	\$27.72	\$7.85	\$3.99	\$0.00	\$39.56
4	65	\$30.03	\$7.85	\$4.32	\$0.00	\$42.20
5	70	\$32.34	\$7.85	\$14.11	\$0.00	\$54.30
6	75	\$34.65	\$7.85	\$14.44	\$0.00	\$56.94
7	80	\$36.96	\$7.85	\$14.77	\$0.00	\$59.58
8	90	\$41.58	\$7.85	\$15.44	\$0.00	\$64.87

Notes:
Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

PAINTER (SPRAY OR SANDBLAST, REPAINT)	07/01/2015	\$43.31	\$7.85	\$16.10	\$0.00	\$67.26
PAINTERS LOCAL 35 - ZONE 1	01/01/2016	\$44.26	\$7.85	\$16.10	\$0.00	\$68.21
	07/01/2016	\$45.21	\$7.85	\$16.10	\$0.00	\$69.16
	01/01/2017	\$46.16	\$7.85	\$16.10	\$0.00	\$70.11

Classification Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - PAINTER Local 35 Zone 1 - Spray/Sandblast - Repaint

Effective Date - 07/01/2015

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$21.66	\$7.85	\$0.00	\$0.00	\$29.51
2	55	\$23.82	\$7.85	\$3.66	\$0.00	\$35.33
3	60	\$25.99	\$7.85	\$3.99	\$0.00	\$37.83
4	65	\$28.15	\$7.85	\$4.32	\$0.00	\$40.32
5	70	\$30.32	\$7.85	\$14.11	\$0.00	\$52.28
6	75	\$32.48	\$7.85	\$14.44	\$0.00	\$54.77
7	80	\$34.65	\$7.85	\$14.77	\$0.00	\$57.27
8	90	\$38.98	\$7.85	\$15.44	\$0.00	\$62.27

Effective Date - 01/01/2016

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$22.13	\$7.85	\$0.00	\$0.00	\$29.98
2	55	\$24.34	\$7.85	\$3.66	\$0.00	\$35.85
3	60	\$26.56	\$7.85	\$3.99	\$0.00	\$38.40
4	65	\$28.77	\$7.85	\$4.32	\$0.00	\$40.94
5	70	\$30.98	\$7.85	\$14.11	\$0.00	\$52.94
6	75	\$33.20	\$7.85	\$14.44	\$0.00	\$55.49
7	80	\$35.41	\$7.85	\$14.77	\$0.00	\$58.03
8	90	\$39.83	\$7.85	\$15.44	\$0.00	\$63.12

Notes:
Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

PAINTER (TRAFFIC MARKINGS)	12/01/2015	\$35.35	\$7.45	\$13.55	\$0.00	\$56.35
LABORERS - ZONE 1	06/01/2016	\$36.10	\$7.45	\$13.55	\$0.00	\$57.10
	12/01/2016	\$37.10	\$7.45	\$13.55	\$0.00	\$58.10
For Apprentice rates see "Apprentice- LABORER"						
PAINTER / TAPER (BRUSH, NEW) *	07/01/2015	\$43.85	\$7.85	\$16.10	\$0.00	\$67.80
* If 30% or more of surfaces to be painted are new construction,	01/01/2016	\$44.80	\$7.85	\$16.10	\$0.00	\$68.75
NEW paint rate shall be used.PAINTERS LOCAL 35 - ZONE 1	07/01/2016	\$45.75	\$7.85	\$16.10	\$0.00	\$69.70
	01/01/2017	\$46.70	\$7.85	\$16.10	\$0.00	\$70.65

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate	
Apprentice - PAINTER - Local 35 Zone 1 - BRUSH NEW							
Effective Date - 07/01/2015							
Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate	
1	50	\$21.93	\$7.85	\$0.00	\$0.00	\$29.78	
2	55	\$24.12	\$7.85	\$3.66	\$0.00	\$35.63	
3	60	\$26.31	\$7.85	\$3.99	\$0.00	\$38.15	
4	65	\$28.50	\$7.85	\$4.32	\$0.00	\$40.67	
5	70	\$30.70	\$7.85	\$14.11	\$0.00	\$52.66	
6	75	\$32.89	\$7.85	\$14.44	\$0.00	\$55.18	
7	80	\$35.08	\$7.85	\$14.77	\$0.00	\$57.70	
8	90	\$39.47	\$7.85	\$15.44	\$0.00	\$62.76	
Effective Date - 01/01/2016							
Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate	
1	50	\$22.40	\$7.85	\$0.00	\$0.00	\$30.25	
2	55	\$24.64	\$7.85	\$3.66	\$0.00	\$36.15	
3	60	\$26.88	\$7.85	\$3.99	\$0.00	\$38.72	
4	65	\$29.12	\$7.85	\$4.32	\$0.00	\$41.29	
5	70	\$31.36	\$7.85	\$14.11	\$0.00	\$53.32	
6	75	\$33.60	\$7.85	\$14.44	\$0.00	\$55.89	
7	80	\$35.84	\$7.85	\$14.77	\$0.00	\$58.46	
8	90	\$40.32	\$7.85	\$15.44	\$0.00	\$63.61	
<div>Notes:</div> <div>Steps are 750 hrs.</div>							
Apprentice to Journeyworker Ratio:1:1							
PAINTER / TAPER (BRUSH, REPAINT)		07/01/2015	\$41.91	\$7.85	\$16.10	\$0.00	\$65.86
PAINTERS LOCAL 35 - ZONE 1		01/01/2016	\$42.86	\$7.85	\$16.10	\$0.00	\$66.81
		07/01/2016	\$43.81	\$7.85	\$16.10	\$0.00	\$67.76
		01/01/2017	\$44.76	\$7.85	\$16.10	\$0.00	\$68.71

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate	
Apprentice - PAINTER Local 35 Zone 1 - BRUSH REPAINT							
Effective Date - 07/01/2015							
Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate	
1	50	\$20.96	\$7.85	\$0.00	\$0.00	\$28.81	
2	55	\$23.05	\$7.85	\$3.66	\$0.00	\$34.56	
3	60	\$25.15	\$7.85	\$3.99	\$0.00	\$36.99	
4	65	\$27.24	\$7.85	\$4.32	\$0.00	\$39.41	
5	70	\$29.34	\$7.85	\$14.11	\$0.00	\$51.30	
6	75	\$31.43	\$7.85	\$14.44	\$0.00	\$53.72	
7	80	\$33.53	\$7.85	\$14.77	\$0.00	\$56.15	
8	90	\$37.72	\$7.85	\$15.44	\$0.00	\$61.01	
Effective Date - 01/01/2016							
Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate	
1	50	\$21.43	\$7.85	\$0.00	\$0.00	\$29.28	
2	55	\$23.57	\$7.85	\$3.66	\$0.00	\$35.08	
3	60	\$25.72	\$7.85	\$3.99	\$0.00	\$37.56	
4	65	\$27.86	\$7.85	\$4.32	\$0.00	\$40.03	
5	70	\$30.00	\$7.85	\$14.11	\$0.00	\$51.96	
6	75	\$32.15	\$7.85	\$14.44	\$0.00	\$54.44	
7	80	\$34.29	\$7.85	\$14.77	\$0.00	\$56.91	
8	90	\$38.57	\$7.85	\$15.44	\$0.00	\$61.86	
Notes: Steps are 750 hrs.							
Apprentice to Journeyworker Ratio:1:1							
PANEL & PICKUP TRUCKS DRIVER		12/01/2015	\$32.58	\$10.41	\$10.08	\$0.00	\$53.07
TEAMSTERS JOINT COUNCIL NO. 10 ZONE A		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)		08/01/2015	\$42.04	\$9.80	\$19.23	\$0.00	\$71.07
PILE DRIVER LOCAL 56 (ZONE 1)							
PILE DRIVER		08/01/2015	\$42.04	\$9.80	\$19.23	\$0.00	\$71.07
PILE DRIVER LOCAL 56 (ZONE 1)							

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
Apprentice - PILE DRIVER - Local 56 Zone 1						
Effective Date -	08/01/2015					
Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$21.02	\$9.80	\$19.23	\$0.00	\$50.05
2	60	\$25.22	\$9.80	\$19.23	\$0.00	\$54.25
3	70	\$29.43	\$9.80	\$19.23	\$0.00	\$58.46
4	75	\$31.53	\$9.80	\$19.23	\$0.00	\$60.56
5	80	\$33.63	\$9.80	\$19.23	\$0.00	\$62.66
6	80	\$33.63	\$9.80	\$19.23	\$0.00	\$62.66
7	90	\$37.84	\$9.80	\$19.23	\$0.00	\$66.87
8	90	\$37.84	\$9.80	\$19.23	\$0.00	\$66.87
Notes:						
Apprentice to Journeyworker Ratio:1:3						
PIPEFITTER & STEAMFITTER <i>PIPEFITTERS LOCAL 537</i>	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
Apprentice - PIPEFITTER - Local 537						
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
Effective Date - 03/01/2016						
Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	\$20.28	\$9.70	\$7.50	\$0.00	\$37.48
2	45	\$22.81	\$9.70	\$16.89	\$0.00	\$49.40
3	60	\$30.41	\$9.70	\$16.89	\$0.00	\$57.00
4	70	\$35.48	\$9.70	\$16.89	\$0.00	\$62.07
5	80	\$40.55	\$9.70	\$16.89	\$0.00	\$67.14
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:**						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
PIPELAYER <i>LABORERS - ZONE 1</i>	12/01/2015	\$35.60	\$7.45	\$13.55	\$0.00	\$56.60
	06/01/2016	\$36.35	\$7.45	\$13.55	\$0.00	\$57.35
	12/01/2016	\$37.35	\$7.45	\$13.55	\$0.00	\$58.35
For apprentice rates see "Apprentice- LABORER"						
PLUMBERS & GASFITTERS <i>PLUMBERS & GASFITTERS LOCAL 12</i>	09/01/2015	\$50.46	\$10.82	\$15.14	\$0.00	\$76.42
	03/01/2016	\$51.61	\$10.82	\$15.14	\$0.00	\$77.57
	09/01/2016	\$52.66	\$10.82	\$15.14	\$0.00	\$78.62
	03/01/2017	\$53.66	\$10.82	\$15.14	\$0.00	\$79.62
Apprentice - PLUMBER/GASFITTER - Local 12						
Effective Date -	09/01/2015					
Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	35	\$17.66	\$10.82	\$5.63	\$0.00	\$34.11
2	40	\$20.18	\$10.82	\$6.37	\$0.00	\$37.37
3	55	\$27.75	\$10.82	\$8.56	\$0.00	\$47.13
4	65	\$32.80	\$10.82	\$10.03	\$0.00	\$53.65
5	75	\$37.85	\$10.82	\$11.48	\$0.00	\$60.15
Effective Date - 03/01/2016						
Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	35	\$18.06	\$10.82	\$5.61	\$0.00	\$34.49
2	40	\$20.64	\$10.82	\$6.36	\$0.00	\$37.82
3	55	\$28.39	\$10.82	\$8.56	\$0.00	\$47.77
4	65	\$33.55	\$10.82	\$10.02	\$0.00	\$54.39
5	75	\$38.71	\$10.82	\$11.48	\$0.00	\$61.01
Notes:						
** 1:2; 2:6; 3:10; 4:14; 5:19/Steps are 1 yr Step4 with lic\$56.90 Step5 with lic\$63.40						
Apprentice to Journeyworker Ratio:**						
PNEUMATIC CONTROLS (TEMP.) <i>PIPEFITTERS LOCAL 537</i>	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 <i>LABORERS - ZONE 1</i>	12/01/2015	\$35.60	\$7.45	\$13.55	\$0.00	\$56.60
	06/01/2016	\$36.35	\$7.45	\$13.55	\$0.00	\$57.35
	12/01/2016	\$37.35	\$7.45	\$13.55	\$0.00	\$58.35
For apprentice rates see "Apprentice- LABORER"						
POWDERMAN & BLASTER <i>LABORERS - ZONE 1</i>	12/01/2015	\$36.35	\$7.45	\$13.55	\$0.00	\$57.35
	06/01/2016	\$37.10	\$7.45	\$13.55	\$0.00	\$58.10
	12/01/2016	\$38.10	\$7.45	\$13.55	\$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 <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2015	\$43.73	\$10.00	\$14.90	\$0.00	\$68.63
	06/01/2016	\$44.48	\$10.00	\$14.90	\$0.00	\$69.38
	12/01/2016	\$45.73	\$10.00	\$14.90	\$0.00	\$70.63
	06/01/2017	\$46.73	\$10.00	\$14.90	\$0.00	\$71.63
	12/01/2017	\$47.73	\$10.00	\$14.90	\$0.00	\$72.63
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
PUMP OPERATOR (CONCRETE) <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2015	\$43.73	\$10.00	\$14.90	\$0.00	\$68.63
	06/01/2016	\$44.48	\$10.00	\$14.90	\$0.00	\$69.38
	12/01/2016	\$45.73	\$10.00	\$14.90	\$0.00	\$70.63
	06/01/2017	\$46.73	\$10.00	\$14.90	\$0.00	\$71.63
	12/01/2017	\$47.73	\$10.00	\$14.90	\$0.00	\$72.63
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
PUMP OPERATOR (DEWATERING, OTHER) <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2015	\$30.13	\$10.00	\$14.90	\$0.00	\$55.03
	06/01/2016	\$30.65	\$10.00	\$14.90	\$0.00	\$55.55
	12/01/2016	\$31.52	\$10.00	\$14.90	\$0.00	\$56.42
	06/01/2017	\$32.21	\$10.00	\$14.90	\$0.00	\$57.11
	12/01/2017	\$32.90	\$10.00	\$14.90	\$0.00	\$57.80
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
READY MIX CONCRETE DRIVERS after 4/30/10 (Drivers Hired After 4/30/2010) <i>TEAMSTERS LOCAL 25a</i>	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 <i>TEAMSTERS LOCAL 25a</i>	07/01/2015	\$31.14	\$7.98	\$8.92	\$0.00	\$48.04
	05/01/2016	\$31.29	\$7.98	\$9.31	\$0.00	\$48.58
	07/01/2016	\$31.29	\$8.23	\$9.31	\$0.00	\$48.83
	05/01/2017	\$31.44	\$8.23	\$9.72	\$0.00	\$49.39
	07/01/2017	\$31.44	\$8.48	\$9.72	\$0.00	\$49.64
RECLAIMERS <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2015	\$43.31	\$10.00	\$14.90	\$0.00	\$68.21
	06/01/2016	\$44.06	\$10.00	\$14.90	\$0.00	\$68.96
	12/01/2016	\$45.29	\$10.00	\$14.90	\$0.00	\$70.19
	06/01/2017	\$46.28	\$10.00	\$14.90	\$0.00	\$71.18
	12/01/2017	\$47.27	\$10.00	\$14.90	\$0.00	\$72.17
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
RESIDENTIAL WOOD FRAME (All Other Work) <i>CARPENTERS -ZONE 1 (Residential Wood)</i>	04/01/2011	\$37.25	\$8.67	\$15.51	\$0.00	\$61.43
RESIDENTIAL WOOD FRAME CARPENTER ** ** 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. <i>CARPENTERS -ZONE 1 (Residential Wood)</i> As of 9/1/09 Carpentry work on wood-frame residential WEATHERIZATION projects shall be paid the RESIDENTIAL WOOD FRAME CARPENTER rate.	05/01/2011	\$27.49	\$6.34	\$6.23	\$0.00	\$40.06

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
Apprentice - CARPENTER (Residential Wood Frame) - Zone 1						
Effective Date - 05/01/2011						
Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$16.49	\$6.34	\$0.00	\$0.00	\$22.83
2	60	\$16.49	\$6.34	\$6.23	\$0.00	\$29.06
3	65	\$17.87	\$6.34	\$6.23	\$0.00	\$30.44
4	70	\$19.24	\$6.34	\$6.23	\$0.00	\$31.81
5	75	\$20.62	\$6.34	\$6.23	\$0.00	\$33.19
6	80	\$21.99	\$6.34	\$6.23	\$0.00	\$34.56
7	85	\$23.37	\$6.34	\$6.23	\$0.00	\$35.94
8	90	\$24.74	\$6.34	\$6.23	\$0.00	\$37.31
Notes:						
Apprentice to Journeyworker Ratio:1:5						
RIDE-ON MOTORIZED BUGGY OPERATOR <i>LABORERS - ZONE 1</i>	12/01/2015	\$35.60	\$7.45	\$13.55	\$0.00	\$56.60
	06/01/2016	\$36.35	\$7.45	\$13.55	\$0.00	\$57.35
	12/01/2016	\$37.35	\$7.45	\$13.55	\$0.00	\$58.35
For apprentice rates see "Apprentice- LABORER"						
ROLLER/SPREADER/MULCHING MACHINE <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2015	\$43.31	\$10.00	\$14.90	\$0.00	\$68.21
	06/01/2016	\$44.06	\$10.00	\$14.90	\$0.00	\$68.96
	12/01/2016	\$45.29	\$10.00	\$14.90	\$0.00	\$70.19
	06/01/2017	\$46.28	\$10.00	\$14.90	\$0.00	\$71.18
	12/01/2017	\$47.27	\$10.00	\$14.90	\$0.00	\$72.17
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
ROOFER (Inc. Roofer Waterproofing & Roofer Dampproofg) <i>ROOFERS LOCAL 33</i>	08/01/2015	\$40.11	\$11.00	\$12.00	\$0.00	\$63.11
	02/01/2016	\$41.01	\$11.00	\$12.00	\$0.00	\$64.01

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
Apprentice - ROOFER - Local 33						
Effective Date - 08/01/2015						
Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$20.06	\$11.00	\$3.38	\$0.00	\$34.44
2	60	\$24.07	\$11.00	\$12.00	\$0.00	\$47.07
3	65	\$26.07	\$11.00	\$12.00	\$0.00	\$49.07
4	75	\$30.08	\$11.00	\$12.00	\$0.00	\$53.08
5	85	\$34.09	\$11.00	\$12.00	\$0.00	\$57.09
Effective Date - 02/01/2016						
Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$20.51	\$11.00	\$3.38	\$0.00	\$34.89
2	60	\$24.61	\$11.00	\$12.00	\$0.00	\$47.61
3	65	\$26.66	\$11.00	\$12.00	\$0.00	\$49.66
4	75	\$30.76	\$11.00	\$12.00	\$0.00	\$53.76
5	85	\$34.86	\$11.00	\$12.00	\$0.00	\$57.86
<div>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.</div>						
Apprentice to Journeyworker Ratio:**						
<hr/>						
ROOFER SLATE / TILE / PRECAST CONCRETE	08/01/2015	\$40.36	\$11.00	\$12.00	\$0.00	\$63.36
ROOFERS LOCAL 33	02/01/2016	\$41.26	\$11.00	\$12.00	\$0.00	\$64.26
For apprentice rates see "Apprentice- ROOFER"						
<hr/>						
SHEETMETAL WORKER	08/01/2015	\$43.31	\$10.20	\$21.48	\$2.25	\$77.24
SHEETMETAL WORKERS LOCAL 17 - A	02/01/2016	\$44.31	\$10.20	\$21.48	\$2.25	\$78.24
	08/01/2016	\$45.46	\$10.20	\$21.48	\$2.25	\$79.39
	02/01/2017	\$46.56	\$10.20	\$21.48	\$2.25	\$80.49
	08/01/2017	\$47.66	\$10.20	\$21.48	\$2.25	\$81.59
	02/01/2018	\$48.81	\$10.20	\$21.48	\$2.25	\$82.74

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
Apprentice - SHEET METAL WORKER - Local 17-A						
Effective Date - 08/01/2015						
Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	\$17.32	\$10.20	\$4.90	\$0.00	\$32.42
2	40	\$17.32	\$10.20	\$4.90	\$0.00	\$32.42
3	45	\$19.49	\$10.20	\$9.59	\$1.18	\$40.46
4	45	\$19.49	\$10.20	\$9.59	\$1.18	\$40.46
5	50	\$21.66	\$10.20	\$10.45	\$1.27	\$43.58
6	50	\$21.66	\$10.20	\$10.70	\$1.28	\$43.84
7	60	\$25.99	\$10.20	\$12.17	\$1.45	\$49.81
8	65	\$28.15	\$10.20	\$13.04	\$1.54	\$52.93
9	75	\$32.48	\$10.20	\$14.76	\$1.72	\$59.16
10	85	\$36.81	\$10.20	\$15.98	\$1.89	\$64.88
Effective Date - 02/01/2016						
Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	\$17.72	\$10.20	\$4.90	\$0.00	\$32.82
2	40	\$17.72	\$10.20	\$4.90	\$0.00	\$32.82
3	45	\$19.94	\$10.20	\$9.59	\$1.19	\$40.92
4	45	\$19.94	\$10.20	\$9.59	\$1.19	\$40.92
5	50	\$22.16	\$10.20	\$10.45	\$1.28	\$44.09
6	50	\$22.16	\$10.20	\$10.70	\$1.29	\$44.35
7	60	\$26.59	\$10.20	\$12.17	\$1.47	\$50.43
8	65	\$28.80	\$10.20	\$13.04	\$1.56	\$53.60
9	75	\$33.23	\$10.20	\$14.76	\$1.75	\$59.94
10	85	\$37.66	\$10.20	\$15.98	\$1.92	\$65.76
<div>Notes: Steps are 6 mos.</div>						
Apprentice to Journeyworker Ratio:1:4						
<hr/>						
SIGN ERECTOR	06/01/2013	\$25.81	\$7.07	\$7.05	\$0.00	\$39.93
PAINTERS LOCAL 35 - ZONE 1						

Classification Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - SIGN ERECTOR - Local 35 Zone 1

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	12/01/2015	\$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	12/01/2015	\$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	10/01/2015	\$54.83	\$8.42	\$15.65	\$0.00	\$78.90
	01/01/2016	\$54.43	\$8.67	\$15.80	\$0.00	\$78.90
	03/01/2016	\$55.43	\$8.67	\$15.80	\$0.00	\$79.90
	10/01/2016	\$56.58	\$8.67	\$15.80	\$0.00	\$81.05
	03/01/2017	\$57.58	\$8.67	\$15.80	\$0.00	\$82.05

Classification Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

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

Effective Date - 10/01/2015

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	35	\$19.19	\$8.42	\$8.40	\$0.00	\$36.01
2	40	\$21.93	\$8.42	\$8.40	\$0.00	\$38.75
3	45	\$24.67	\$8.42	\$8.40	\$0.00	\$41.49
4	50	\$27.42	\$8.42	\$8.40	\$0.00	\$44.24
5	55	\$30.16	\$8.42	\$8.40	\$0.00	\$46.98
6	60	\$32.90	\$8.42	\$8.40	\$0.00	\$49.72
7	65	\$35.64	\$8.42	\$8.40	\$0.00	\$52.46
8	70	\$38.38	\$8.42	\$8.40	\$0.00	\$55.20
9	75	\$41.12	\$8.42	\$8.40	\$0.00	\$57.94
10	80	\$43.86	\$8.42	\$8.40	\$0.00	\$60.68

Effective Date - 01/01/2016

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	35	\$19.05	\$8.67	\$8.55	\$0.00	\$36.27
2	40	\$21.77	\$8.67	\$8.55	\$0.00	\$38.99
3	45	\$24.49	\$8.67	\$8.55	\$0.00	\$41.71
4	50	\$27.22	\$8.67	\$8.55	\$0.00	\$44.44
5	55	\$29.94	\$8.67	\$8.55	\$0.00	\$47.16
6	60	\$32.66	\$8.67	\$8.55	\$0.00	\$49.88
7	65	\$35.38	\$8.67	\$8.55	\$0.00	\$52.60
8	70	\$38.10	\$8.67	\$8.55	\$0.00	\$55.32
9	75	\$40.82	\$8.67	\$8.55	\$0.00	\$58.04
10	80	\$43.54	\$8.67	\$8.55	\$0.00	\$60.76

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	12/01/2015	\$43.31	\$10.00	\$14.90	\$0.00	\$68.21
	06/01/2016	\$44.06	\$10.00	\$14.90	\$0.00	\$68.96
	12/01/2016	\$45.29	\$10.00	\$14.90	\$0.00	\$70.19
	06/01/2017	\$46.28	\$10.00	\$14.90	\$0.00	\$71.18
	12/01/2017	\$47.27	\$10.00	\$14.90	\$0.00	\$72.17
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
TAMPERS, SELF-PROPELLED OR TRACTOR DRAWN OPERATING ENGINEERS LOCAL 4	12/01/2015	\$43.31	\$10.00	\$14.90	\$0.00	\$68.21
	06/01/2016	\$44.06	\$10.00	\$14.90	\$0.00	\$68.96
	12/01/2016	\$45.29	\$10.00	\$14.90	\$0.00	\$70.19
	06/01/2017	\$46.28	\$10.00	\$14.90	\$0.00	\$71.18
	12/01/2017	\$47.27	\$10.00	\$14.90	\$0.00	\$72.17
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
TELECOMMUNICATION TECHNICIAN ELECTRICIANS LOCAL 103	09/01/2015	\$34.25	\$13.00	\$14.06	\$0.00	\$61.31
	03/01/2016	\$34.63	\$13.00	\$14.55	\$0.00	\$62.18

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate	
Apprentice - TELECOMMUNICATION TECHNICIAN - Local 103							
Effective Date - 09/01/2015							
Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate	
1	40	\$13.70	\$13.00	\$0.41	\$0.00	\$27.11	
2	40	\$13.70	\$13.00	\$0.41	\$0.00	\$27.11	
3	45	\$15.41	\$13.00	\$11.03	\$0.00	\$39.44	
4	45	\$15.41	\$13.00	\$11.03	\$0.00	\$39.44	
5	50	\$17.13	\$13.00	\$11.30	\$0.00	\$41.43	
6	55	\$18.84	\$13.00	\$11.58	\$0.00	\$43.42	
7	60	\$20.55	\$13.00	\$11.86	\$0.00	\$45.41	
8	65	\$22.26	\$13.00	\$12.13	\$0.00	\$47.39	
9	70	\$23.98	\$13.00	\$12.41	\$0.00	\$49.39	
10	75	\$25.69	\$13.00	\$12.68	\$0.00	\$51.37	
Effective Date - 03/01/2016							
Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate	
1	40	\$13.85	\$13.00	\$0.42	\$0.00	\$27.27	
2	40	\$13.85	\$13.00	\$0.42	\$0.00	\$27.27	
3	45	\$15.58	\$13.00	\$11.52	\$0.00	\$40.10	
4	45	\$15.58	\$13.00	\$11.52	\$0.00	\$40.10	
5	50	\$17.32	\$13.00	\$11.79	\$0.00	\$42.11	
6	55	\$19.05	\$13.00	\$12.06	\$0.00	\$44.11	
7	60	\$20.78	\$13.00	\$12.34	\$0.00	\$46.12	
8	65	\$22.51	\$13.00	\$12.62	\$0.00	\$48.13	
9	70	\$24.24	\$13.00	\$12.90	\$0.00	\$50.14	
10	75	\$25.97	\$13.00	\$13.17	\$0.00	\$52.14	
Notes:							
Apprentice to Journeyworker Ratio:1:1							
TERRAZZO FINISHERS		08/01/2015	\$48.80	\$10.18	\$18.57	\$0.00	\$77.55
BRICKLAYERS LOCAL 3 - MARBLE & TILE		02/01/2016	\$48.80	\$10.18	\$19.14	\$0.00	\$78.12
		08/01/2016	\$49.70	\$10.18	\$19.22	\$0.00	\$79.10
		02/01/2017	\$50.27	\$10.18	\$19.22	\$0.00	\$79.67

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate	
Apprentice - TERRAZZO FINISHER - Local 3 Marble & Tile							
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	
Effective Date - 02/01/2016							
Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate	
1	50	\$24.40	\$10.18	\$19.14	\$0.00	\$53.72	
2	60	\$29.28	\$10.18	\$19.14	\$0.00	\$58.60	
3	70	\$34.16	\$10.18	\$19.14	\$0.00	\$63.48	
4	80	\$39.04	\$10.18	\$19.14	\$0.00	\$68.36	
5	90	\$43.92	\$10.18	\$19.14	\$0.00	\$73.24	
Notes:							
Apprentice to Journeyworker Ratio:1:3							
TEST BORING DRILLER		12/01/2015	\$36.70	\$7.45	\$13.75	\$0.00	\$57.90
LABORERS - FOUNDATION AND MARINE		06/01/2016	\$37.45	\$7.45	\$13.75	\$0.00	\$58.65
		12/01/2016	\$38.45	\$7.45	\$13.75	\$0.00	\$59.65
For apprentice rates see "Apprentice- LABORER"							
TEST BORING DRILLER HELPER		12/01/2015	\$35.42	\$7.45	\$13.75	\$0.00	\$56.62
LABORERS - FOUNDATION AND MARINE		06/01/2016	\$36.17	\$7.45	\$13.75	\$0.00	\$57.37
		12/01/2016	\$37.17	\$7.45	\$13.75	\$0.00	\$58.37
For apprentice rates see "Apprentice- LABORER"							
TEST BORING LABORER		12/01/2015	\$35.30	\$7.45	\$13.75	\$0.00	\$56.50
LABORERS - FOUNDATION AND MARINE		06/01/2016	\$36.05	\$7.45	\$13.75	\$0.00	\$57.25
		12/01/2016	\$37.05	\$7.45	\$13.75	\$0.00	\$58.25
For apprentice rates see "Apprentice- LABORER"							
TRACTORS/PORTABLE STEAM GENERATORS		12/01/2015	\$43.31	\$10.00	\$14.90	\$0.00	\$68.21
OPERATING ENGINEERS LOCAL 4		06/01/2016	\$44.06	\$10.00	\$14.90	\$0.00	\$68.96
		12/01/2016	\$45.29	\$10.00	\$14.90	\$0.00	\$70.19
		06/01/2017	\$46.28	\$10.00	\$14.90	\$0.00	\$71.18
		12/01/2017	\$47.27	\$10.00	\$14.90	\$0.00	\$72.17
For apprentice rates see "Apprentice- OPERATING ENGINEERS"							
TRAILERS FOR EARTH MOVING EQUIPMENT		12/01/2015	\$33.62	\$10.41	\$10.08	\$0.00	\$54.11
TEAMSTERS JOINT COUNCIL NO. 10 ZONE A		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

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
TUNNEL WORK - COMPRESSED AIR <i>LABORERS (COMPRESSED AIR)</i>	12/01/2015	\$47.58	\$7.45	\$14.15	\$0.00	\$69.18
	06/01/2016	\$48.33	\$7.45	\$14.15	\$0.00	\$69.93
	12/01/2016	\$49.33	\$7.45	\$14.15	\$0.00	\$70.93
For apprentice rates see "Apprentice- LABORER"						
TUNNEL WORK - COMPRESSED AIR (HAZ. WASTE) <i>LABORERS (COMPRESSED AIR)</i>	12/01/2015	\$49.58	\$7.45	\$14.15	\$0.00	\$71.18
	06/01/2016	\$50.33	\$7.45	\$14.15	\$0.00	\$71.93
	12/01/2016	\$51.33	\$7.45	\$14.15	\$0.00	\$72.93
For apprentice rates see "Apprentice- LABORER"						
TUNNEL WORK - FREE AIR <i>LABORERS (FREE AIR TUNNEL)</i>	12/01/2015	\$39.65	\$7.45	\$14.15	\$0.00	\$61.25
	06/01/2016	\$40.40	\$7.45	\$14.15	\$0.00	\$62.00
	12/01/2016	\$41.40	\$7.45	\$14.15	\$0.00	\$63.00
For apprentice rates see "Apprentice- LABORER"						
TUNNEL WORK - FREE AIR (HAZ. WASTE) <i>LABORERS (FREE AIR TUNNEL)</i>	12/01/2015	\$41.65	\$7.45	\$14.15	\$0.00	\$63.25
	06/01/2016	\$42.40	\$7.45	\$14.15	\$0.00	\$64.00
	12/01/2016	\$43.40	\$7.45	\$14.15	\$0.00	\$65.00
For apprentice rates see "Apprentice- LABORER"						
VAC-HAUL <i>TEAMSTERS JOINT COUNCIL NO. 10 ZONE A</i>	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
WAGON DRILL OPERATOR <i>LABORERS - ZONE 1</i>	12/01/2015	\$35.60	\$7.45	\$13.55	\$0.00	\$56.60
	06/01/2016	\$36.35	\$7.45	\$13.55	\$0.00	\$57.35
	12/01/2016	\$37.35	\$7.45	\$13.55	\$0.00	\$58.35
For apprentice rates see "Apprentice- LABORER"						
WASTE WATER PUMP OPERATOR <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2015	\$43.73	\$10.00	\$14.90	\$0.00	\$68.63
	06/01/2016	\$44.48	\$10.00	\$14.90	\$0.00	\$69.38
	12/01/2016	\$45.73	\$10.00	\$14.90	\$0.00	\$70.63
	06/01/2017	\$46.73	\$10.00	\$14.90	\$0.00	\$71.63
	12/01/2017	\$47.73	\$10.00	\$14.90	\$0.00	\$72.63
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
WATER METER INSTALLER <i>PLUMBERS & GASFITTERS LOCAL 12</i>	09/01/2015	\$50.46	\$10.82	\$15.14	\$0.00	\$76.42
	03/01/2016	\$51.61	\$10.82	\$15.14	\$0.00	\$77.57
	09/01/2016	\$52.66	\$10.82	\$15.14	\$0.00	\$78.62
	03/01/2017	\$53.66	\$10.82	\$15.14	\$0.00	\$79.62
For apprentice rates see "Apprentice- PLUMBER/PIPEFITTER" or "PLUMBER/GASFITTER"						
Outside Electrical - East						
CABLE TECHNICIAN (Power Zone) <i>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104</i>	08/30/2015	\$26.11	\$7.25	\$1.78	\$0.00	\$35.14
	08/28/2016	\$26.61	\$7.50	\$1.80	\$0.00	\$35.91
	09/03/2017	\$27.14	\$7.75	\$1.81	\$0.00	\$36.70
For apprentice rates see "Apprentice- LINEMAN"						
CABLEMAN (Underground Ducts & Cables) <i>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104</i>	08/30/2015	\$36.98	\$7.25	\$8.12	\$0.00	\$52.35
	08/28/2016	\$37.70	\$7.50	\$8.87	\$0.00	\$54.07
	09/03/2017	\$38.45	\$7.75	\$9.53	\$0.00	\$55.73
For apprentice rates see "Apprentice- LINEMAN"						
DRIVER / GROUNDMAN CDL <i>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104</i>	08/30/2015	\$30.46	\$7.25	\$8.34	\$0.00	\$46.05
	08/28/2016	\$31.05	\$7.50	\$8.89	\$0.00	\$47.44
	09/03/2017	\$31.66	\$7.75	\$9.44	\$0.00	\$48.85
For apprentice rates see "Apprentice- LINEMAN"						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
DRIVER / GROUNDMAN -Inexperienced (<2000 Hrs) <i>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104</i>	08/30/2015	\$23.93	\$7.25	\$1.72	\$0.00	\$32.90
	08/28/2016	\$24.39	\$7.50	\$1.73	\$0.00	\$33.62
	09/03/2017	\$24.88	\$7.75	\$1.75	\$0.00	\$34.38
For apprentice rates see "Apprentice- LINEMAN"						
EQUIPMENT OPERATOR (Class A CDL) <i>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104</i>	08/30/2015	\$36.98	\$7.25	\$12.29	\$0.00	\$56.52
	08/28/2016	\$37.70	\$7.50	\$12.95	\$0.00	\$58.15
	09/03/2017	\$38.45	\$7.75	\$13.61	\$0.00	\$59.81
For apprentice rates see "Apprentice- LINEMAN"						
EQUIPMENT OPERATOR (Class B CDL) <i>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104</i>	08/30/2015	\$32.63	\$7.25	\$9.05	\$0.00	\$48.93
	08/28/2016	\$33.26	\$7.50	\$9.63	\$0.00	\$50.39
	09/03/2017	\$33.92	\$7.75	\$10.21	\$0.00	\$51.88
For apprentice rates see "Apprentice- LINEMAN"						
GROUNDMAN <i>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104</i>	08/30/2015	\$23.93	\$7.25	\$1.72	\$0.00	\$32.90
	08/28/2016	\$24.39	\$7.50	\$1.73	\$0.00	\$33.62
	09/03/2017	\$24.88	\$7.75	\$1.75	\$0.00	\$34.38
For apprentice rates see "Apprentice- LINEMAN"						
GROUNDMAN -Inexperienced (<2000 Hrs.) <i>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104</i>	08/30/2015	\$19.58	\$7.25	\$1.59	\$0.00	\$28.42
	08/28/2016	\$19.96	\$7.50	\$1.60	\$0.00	\$29.06
	09/03/2017	\$20.35	\$7.75	\$1.61	\$0.00	\$29.71
For apprentice rates see "Apprentice- LINEMAN"						
JOURNEYMAN LINEMAN <i>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104</i>	08/30/2015	\$43.51	\$7.25	\$15.06	\$0.00	\$65.82
	08/28/2016	\$44.35	\$7.50	\$15.83	\$0.00	\$67.68
	09/03/2017	\$45.23	\$7.75	\$16.61	\$0.00	\$69.59

Classification Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - LINEMAN (Outside Electrical) - East Local 104

Effective Date - 08/30/2015						
Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$26.11	\$7.25	\$3.28	\$0.00	\$36.64
2	65	\$28.28	\$7.25	\$3.35	\$0.00	\$38.88
3	70	\$30.46	\$7.25	\$3.41	\$0.00	\$41.12
4	75	\$32.63	\$7.25	\$4.98	\$0.00	\$44.86
5	80	\$34.81	\$7.25	\$5.04	\$0.00	\$47.10
6	85	\$36.98	\$7.25	\$5.11	\$0.00	\$49.34
7	90	\$39.16	\$7.25	\$7.17	\$0.00	\$53.58

Effective Date - 08/28/2016						
Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$26.61	\$7.50	\$3.30	\$0.00	\$37.41
2	65	\$28.83	\$7.50	\$3.36	\$0.00	\$39.69
3	70	\$31.05	\$7.50	\$3.43	\$0.00	\$41.98
4	75	\$33.26	\$7.50	\$5.00	\$0.00	\$45.76
5	80	\$35.48	\$7.50	\$5.06	\$0.00	\$48.04
6	85	\$37.70	\$7.50	\$5.13	\$0.00	\$50.33
7	90	\$39.92	\$7.50	\$7.20	\$0.00	\$54.62

Notes:

Apprentice to Journeyworker Ratio:1:2

TELEDATA CABLE SPLICER <i>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104</i>	01/01/2015	\$28.12	\$4.25	\$3.09	\$0.00	\$35.46
	01/01/2016	\$28.98	\$4.25	\$3.12	\$0.00	\$36.35
TELEDATA LINEMAN/EQUIPMENT OPERATOR <i>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104</i>	01/01/2015	\$26.49	\$4.25	\$3.04	\$0.00	\$33.78
	01/01/2016	\$27.31	\$4.25	\$3.07	\$0.00	\$34.63
TELEDATA WIREMAN/INSTALLER/TECHNICIAN <i>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104</i>	01/01/2015	\$26.49	\$4.25	\$3.04	\$0.00	\$33.78
	01/01/2016	\$27.31	\$4.25	\$3.07	\$0.00	\$34.63
TREE TRIMMER <i>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104</i>	02/01/2015	\$18.05	\$3.55	\$0.00	\$0.00	\$21.60
	01/31/2016	\$18.51	\$3.55	\$0.00	\$0.00	\$22.06
This classification applies only to tree work done: (a) for a utility company, R.E.A. cooperative, or railroad or coal mining company, and (b) for the purpose of operating, maintaining, or repairing the utility company's equipment, and (c) by a person who is using hand or mechanical cutting methods and is not on the ground. This classification does not apply to wholesale tree removal.						
TREE TRIMMER GROUNDMAN <i>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104</i>	02/01/2015	\$15.92	\$3.55	\$0.00	\$0.00	\$19.47
	01/31/2016	\$16.32	\$3.55	\$0.00	\$0.00	\$19.87
This classification applies only to tree work done: (a) for a utility company, R.E.A. cooperative, or railroad or coal mining company, and (b) for the purpose of operating, maintaining, or repairing the utility company's equipment, and (c) by a person who is using hand or mechanical cutting methods and is on the ground. This classification does not apply to wholesale tree removal.						

Classification Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

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, 1:2, 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.

Division of Labor and Industries Statement of Compliance

WEEKLY PAYROLL RECORDS REPORT & STATEMENT OF COMPLIANCE

In accordance with Massachusetts General Law c. 149, §27B, a true and accurate record must be kept of all persons employed on the public works project for which the enclosed rates have been provided. A Payroll Form has been printed on the reverse of this page and includes all the information required to be kept by law. Every contractor or subcontractor is required to keep these records and preserve them for a period of three years from the date of completion of the contract.

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

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

STATEMENT OF COMPLIANCE

_____, 20____

I, _____,
(Name of signatory party) (Title)

do hereby state:

That I pay or supervise the payment of the persons employed by
_____ on the _____

(Contractor, subcontractor or public body)

(Building or project)

and that all mechanics and apprentices, teamsters, chauffeurs and laborers employed on said project have been paid in accordance with wages determined under the provisions of sections twenty-six and twenty-seven of chapter one hundred and forty nine of the General Laws.

Signature _____

Title _____

GENERAL TERMS & CONDITIONS

General Conditions

GENERAL TERMS AND CONDITIONS OF THE CONTRACT FOR CONSTRUCTION, RECONSTRUCTION, ALTERATION, REMODELING, OR REPAIR OF ANY PUBLIC BUILDING OR PUBLIC WORK IN THE CITY OF SOMERVILLE

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GENERAL TERMS AND CONDITIONS OF THE CONTRACT FOR CONSTRUCTION, RECONSTRUCTION, INSTALLATION,

**DEMOLITION, MAINTENANCE, OR REPAIR OF ANY
PUBLIC BUILDING OR PUBLIC WORK
IN THE CITY OF SOMERVILLE**

ARTICLE 1: DEFINITIONS

1.1. In General.

1.1.1. Well-known meanings. When words or phrases that have a well-known technical, or construction industry, or trade meaning are used in the Contract Documents, such words or phrases shall be interpreted in accordance with that meaning, unless otherwise stated.

1.1.2. Capitalization. The words and terms defined in this Article are capitalized in these General Terms and Conditions of the Contract. Other capitalized words may refer to a specific document found in the Contract Documents.

1.1.3. Persons. Whenever the word person or persons is used, it includes, unless otherwise stated, entity or entities, respectively, including, but not limited to, corporations, partnerships, and joint venturers.

1.1.4. Singular and Plural. The following terms have the meanings indicated which are applicable to both the singular and the plural thereof.

1.2. Definitions.

1.2.1. Agreement. The Agreement is the written document between the **City** and the **Contractor** which is titled: Agreement between the City of Somerville and the Contractor, which is the executed portion of the Contract, and which forms a part of the Contract. The Agreement also includes all documents required to be attached thereto, including, but not limited to, the performance bond, the labor and materials or payment bonds, certificates of insurance, and all Modifications of the Agreement.

1.2.2. Change Order. A Change Order is a document which is signed by the **Contractor**, the **Design Professional**, and the **City**; which is directed to the **Contractor**; which authorizes the **Contractor** to make an addition to, a deletion from or a revision in the Work, or an adjustment in the Contract Sum or in the Contract Time; and which is issued on or after the date of the Agreement between the **Contractor** and the **City**.

1.2.3. City. The **City** refers to the City of Somerville, which is the owner of the Project and is the public awarding authority with whom the **Contractor** has entered into the Contract and for whom the Work is to be provided.

1.2.4. Claim. A Claim is a dispute, demand, or assertion by one of the parties arising out of or relating to the Contract for which such party is seeking relief.

1.2.5. Contract. The Contract consists of all the Contract Documents. The Contract represents the entire and integrated agreement between the parties hereto and supersedes prior negotiations, representations, or agreements, either written or oral. The Contract may be amended or modified only by a Modification to the Contract signed by both parties.

1.2.6. Contract Documents. The Contract Documents consist of the Agreement; the notice of award of the Contract; the Notice to Proceed; the entire Project Manual; Change Orders; Construction Change Directives; the **Contractor's** Bid and all accompanying documents; and the **Design Professional's** written interpretations and clarifications issued on or after the issuance of the Notice to Proceed. Shop Drawing submittals and reports or drawings utilized by the **Design Professional** in preparing the Contract Documents are not Contract Documents.

1.2.7. Contractor. The **Contractor** is the person who is awarded the Contract for the Project herein pursuant to M.G.L. c. 149, §44A or M.G.L. c. 39, §39M; and is identified in the Agreement as such. The term "**Contractor**" is intended to include the **Contractor** as well as its authorized representative(s).

1.2.8. Contract Sum. The Contract Sum is the total amount stated in the Agreement payable by the **City** to the **Contractor** for the completion of the Work in accordance with the Contract Documents.

1.2.9. Contract Time. Unless otherwise provided, the Contract Time is the number of days allotted in the Contract Documents or the dates stated in the Agreement, including authorized adjustments, for Substantial Completion. We usually put a contract end date that is beyond the date of substantial completion.

1.2.10. Coordination Drawings. Coordination Drawings are those drawings, which are prepared by the **Contractor** or a Subcontractor that show the exact alignment, physical locations, and configuration of the mechanical, electrical, and fire protection installations.

1.2.11. Day. The term "day" shall mean calendar day unless otherwise stated.

1.2.12. Design Professional. The **Design Professional** is the person lawfully licensed to practice architecture, engineering, or landscape architecture and has been selected by the **City** to administer the Contract. The term "**Design Professional**," while referred to in the singular, means the **Design Professional** and/or the **Design Professional's** representative. For the purposes of this project, **Design Professional** shall mean the firm of Weston Sampson Engineers and appropriate consultants.

1.2.13. Field Order. A Field Order is a written order issued by the **Design Professional** which orders minor changes in the Work, but which does not involve a change in the Contract Sum or the Contract Time.

1.2.14. Final Completion. Final Completion is the point in time when the Design Professional finds that the Work has been fully completed in accordance with the Contract Documents. Final Completion shall be no later than thirty (30) days after Substantial Completion.

1.2.15. General Requirements. General Requirements refer to Sections of Division 1 of the Specifications.

1.2.16. Modification. A Modification is a written instrument that amends the Contract after execution of the Agreement.

1.2.17. Notice to Proceed. A Notice to Proceed is a written notice given by the **City**, or the **Design Professional**, to the **Contractor** fixing the date on which the Contract Time will begin to run and on which the **Contractor** shall start to perform its obligations under the Contract Documents.

1.2.18. Plans. The Plans are the drawings which are the graphic and pictorial portions of the Contract Documents, wherever located and whenever issued, showing the design, location, dimensions, scope, extent, and character of the Work to be furnished and performed by the **Contractor** and which have been prepared or approved by the **Design Professional**.

1.2.19. Product Data. Product Data are illustrations, standard schedules, performance charts, instructions, brochures, diagrams, and other information furnished by the **Contractor** to illustrate materials or equipment for some portion of the Work. Product Data are not considered part of the Contract Documents.

1.2.20. Project. The Project is the total Work to be provided under the Contract Documents and may be the whole or a part as indicated elsewhere in the Contract Documents and may include construction by the **City** or by separate contractors. The Project is the Work described in the invitation to bid (advertisement) and Specifications and illustrated by the Plans, including any Modifications.

1.2.21. Project Manual. The Project Manual is the entire set of bidding documents which includes, but is not limited to, the invitation to bid (advertisement), the instructions to bidders, all of the forms, the wage rates, all City and state requirements, the General Terms and Conditions of the Contract, any supplementary conditions thereto, the Plans, the Specifications, and all addenda.

1.2.22. Proposed Change Order. A Proposed Change Order is a Change Order that has been submitted by the **Contractor** to the **Design Professional**, is under review, and has not been approved by the **City**.

1.2.23. Samples. Samples are physical examples of materials, equipment, or

workmanship that are representative of some portion of the Work and which establish the standards by which such portion of the Work will be judged. Samples are not considered part of the Contract Documents.

1.2.24. Shop Drawings. Shop Drawings are all drawings, diagrams, illustrations, schedules, and other information that are specifically prepared or assembled by or for the **Contractor** and submitted by the **Contractor** to illustrate some portion of the Work. Shop Drawings are not considered part of the Contract Documents.

1.2.25. Site. The Site is the location of the Project and of the Work.

1.2.26. Specifications. Specifications are those portions of the Contract Documents consisting of written technical descriptions of materials, equipment, construction systems, standards, and workmanship as applied to the Work and certain administrative details applicable thereto.

1.2.27. Subcontractor. A Subcontractor is a person who contracts directly with the **Contractor**, unless otherwise stated.

1.2.28. Submittals. Submittals are those Shop Drawings, Product Data, Samples, or any other required document that are provided to the Design Professional for review and approval.

1.2.29. Substantial Completion. Substantial Completion means that the Work has been completed and the Site or the facility is opened for full and intended public use, except for minor incomplete or unsatisfactory items that do not materially impair the usefulness of the Work. The **Design Professional** shall decide what constitutes “minor,” “incomplete,” “unsatisfactory,” and “materially” and the **Design Professional's** decision shall be final.

1.2.30. Sub-subcontractor. A Sub-subcontractor is a person who has contracted directly with a Subcontractor.

1.2.31. Supplier. A Supplier is a manufacturer, fabricator, distributor, material person, or vendor having a direct contract with the Contractor or with any Subcontractor to furnish materials or equipment to be incorporated into the Work by the Contractor or any Subcontractor.

1.2.32. Work. Work refers to the services and the entire completed construction or the various separately identifiable parts thereof required by the Contract Documents, including all labor, materials, and equipment furnished, furnished and incorporated into the Project, or to be provided by the **Contractor** to fulfill the **Contractor's** obligations. The Work may constitute the whole or a part of the Project.

1.2.33. Construction Change Directive. A **Construction Change** Directive is a written directive to the **Contractor** ordering an addition to, a deletion from, or a revision to the Work issued on or after the date of the Agreement, signed by the **City**, and recommended by the **Design Professional**.

ARTICLE 2: ABOUT THE CONTRACT DOCUMENTS

2.1. Priority/Conflict.

2.1.1. Priority Among Contract Documents. In the event of conflict among the Contract Documents, the Contract Documents shall be construed according to the following priorities:

Highest Priority:	Modifications
Second Priority:	Agreement
Third Priority:	Addenda-later date to take precedence
Fourth Priority:	Supplementary General Conditions
Fifth Priority:	General Conditions
Sixth Priority:	Plans and Specifications

2.1.1.1. If there is a conflict between the Plans and Specifications, the figured dimensions shall govern over the scaled dimensions. Detailed Plans shall govern over the general Plans. Larger scale Plans shall take precedence over smaller scale Plans. Plans shall govern over Shop Drawings. Whenever notes, specifications, dimensions, details, or schedules in the Specifications or in the Plans, or between the Specifications and the Plans, or in all other instances not specifically noted above, the **Contractor** shall provide, unless otherwise directed by a Modification of the Contract, the better quality or greater quantity of Work at no increase in the Contract Sum or in the Contract Time.

2.1.1.2. Compliance with these priority conditions shall not justify any changes in the Work or any increase in the Contract Sum or Contract Time, unless any such compliance results in Work that may not be reasonably inferred from the Contract Documents as being required to produce the intended result as determined by the **Design Professional**.

2.1.2. Review of the Contract Documents and Field Conditions and Discovery of Conflict, Error, Ambiguity, or Discrepancy. Before starting the Work, and during the progress thereof, the **Contractor** shall carefully study and compare the Contract Documents with each other and with the information furnished by the **City** pursuant to Article 3 and shall at once report to the **Design Professional** any error, inconsistency, or omission the **Contractor** may discover. Any necessary change shall be ordered as provided in Article 11, subject to the requirements of any other provisions of the Contract Documents. The **Contractor** shall not proceed with the Work affected thereby (except in an emergency) until

a Modification has been issued. If the **Contractor** proceeds with the Work having discovered such errors, inconsistencies, or omissions contrary to the provisions contained herein, or if by reasonable study of the Contract Documents the **Contractor** could have discovered such, the **Contractor** shall bear all costs arising therefrom. The **Contractor** shall be liable to the **City** for failure to report any conflict, error, ambiguity, or discrepancy of which it knew or should have known.

2.1.3. Field Measurements. The **Contractor** shall take field measurements and verify field conditions and shall carefully compare such field measurements and conditions and other information known to the **Contractor** with the Contract Documents before commencing activities. Errors, inconsistencies, or omissions discovered shall be reported to the **Design Professional** at once.

2.1.4. Statutory Provisions. The **City** and the **Contractor** recognize that other rights duties and obligations with respect to public construction contracts are provided for by statute, notwithstanding the fact that they may not be provided for in the Contract Documents. In case of conflict between the statutory provisions and other provisions of the Contract Documents and the provisions of any applicable statute, the statutory provisions shall govern.

2.1.5. Voided or Unlawful Provisions. In the event any provision in the Contract is voided or deemed unlawful, such provision shall be deleted without affecting the remainder of the Contract.

2.2. Execution.

2.2.1. Execution of the Agreement by the **Contractor** is a representation that the **Contractor** has visited the Site, become familiar with local conditions under which the Work is to be performed, and correlated personal observations with requirements of the Contract Documents.

2.3. Intent.

2.3.1. Entire Agreement. The Contract Documents comprise the entire agreement between the **City** and the **Contractor** concerning the Work. The intent of the Contract Documents is to include all items necessary for the proper execution and completion of the Work by the **Contractor**. The Contract Documents are complementary; what is required by one shall be as binding as if required by all. Performance by the **Contractor** shall be required only to the extent consistent with the Contract Documents and reasonably inferable from them as being necessary to produce the intended results. All Work mentioned or indicated in the Contract Documents shall be performed by the **Contractor** as part of this Contract unless it is specifically indicated in the Contract Documents that such Work is to be done by others.

2.3.2. Statutory Provisions. Each and every provision of law, code, and regulation, required by law to be inserted in these Contract Documents shall be deemed to be inserted

herein, and they shall be read and enforced as though it were included herein, and if through mistake or otherwise, any such provision is not inserted, or if not correctly inserted, then upon the application of either party, the Contract Documents shall forthwith be physically amended to make such insertion.

2.3.3. Functionally Complete Project. It is the intent of the Contract Documents to describe a functionally complete Project. The intent of the Contract Documents is to include all items necessary for the proper execution and completion of the Work by the **Contractor**. Any Work, materials, or equipment that may be reasonably inferred from the Contract Documents or from prevailing custom or trade usage as being required to produce the intended result will be furnished and performed by the **Contractor** whether or not specifically called for in the Contract Documents.

2.3.4. Indications or Notations. All indications or notations which apply to one of a number of similar situations, materials, or processes shall be deemed to apply to all such situations, materials, or processes wherever they appear in the Work, except where a contrary result is clearly indicated by the Contract Documents.

2.3.5. Standards or Quality of Materials or Workmanship. Where no explicit quality or standards for materials or workmanship are established for Work, such Work is to be of good quality for the intended use and consistent with the quality of the surrounding Work and of the construction of the Project generally.

2.3.6. Manufactured Products. All manufactured articles, materials, and equipment shall be applied, installed, connected, erected, used, cleaned, and conditioned in accordance with the manufacturer's written or printed directions and instructions unless otherwise indicated in the Contract Documents.

2.3.7. Mechanical, Electrical, and Fire Protection Plans. The mechanical, electrical, and fire protection Plans are diagrammatic only and are not intended to show the alignment, physical locations, or configurations of such Work. Such Work shall be installed without additional cost to the **City** to clear all obstructions, permit proper clearances for the Work of other trades, and present an orderly appearance where exposed. Prior to beginning such Work, the **Contractor** shall prepare Coordination Drawings and demonstrate to the **Design Professional's** satisfaction that the installations will comply with the preceding sentence. The **Contractor** shall be solely liable and responsible for any costs and/or delays resulting from the **Contractor's** failure to prepare such Coordination Drawings.

2.3.8. Locations of Fixtures and Outlets. Exact locations of fixtures and outlets shall be obtained from the **Design Professional** as provided in Article 5 before the Work is roughed in. Work installed without such information from the **Design Professional** shall be relocated at the **Contractor's** expense.

2.3.9. Tests. When test boring or soil test information are included with the Contract

Documents or otherwise made available to the **Contractor** and such test boring or soil test information was obtained by the **City** for use by the **Design Professional** in the design of the Project or Work, the **City** does not hold out such information to the **Contractor** as an accurate or approximate indication of subsurface conditions, and no claim for extra cost of extension of time resulting from a reliance by the **Contractor** on such information shall be allowed except as otherwise provided herein. Any such reports are not part of the Contract Documents.

2.3.10. Joining Work. Where the Work is to fit with existing conditions or work to be performed by others, the **Contractor** shall fully and completely join the Work with such conditions or work, unless otherwise specified.

2.4. Organization.

2.4.1. Except as provided in M.G.L. c. 149, §44F, the organization of the Specifications into divisions, sections, and articles, and the arrangement of Plans shall not control the **Contractor** in dividing the Work among Subcontractors or in establishing the extent of Work to be performed by any trade.

2.5. References.

2.5.1. Where codes, manuals, specifications, standards, requirements and publications of public and private bodies are referred to in the Contract Documents whether specifically or by implication, references shall be understood to be to the latest revision prior to the date of receiving bids, except where otherwise indicated. Where statutes are referred to in the Contract Documents whether specifically or by implication, references shall be understood to be to the latest revision.

2.5.2. References herein to particular paragraphs or Articles are solely to facilitate finding additional information with regard to the specific matters and are not to be construed in any way as limiting the possible paragraphs and Articles in which such matters may be found elsewhere in this document.

2.6. Reuse of Design Professional's Written Instruments.

2.6.1. Neither the **Contractor** nor any Subcontractor or Supplier shall have or acquire any title to or ownership rights in any of the Plans, Specifications, or other documents prepared by the **Design Professional** and shall not reuse any of such Plans, Specifications, or other documents without prior written consent of the **City** and the **Design Professional**.

2.7. Written Material of the Contractor.

2.7.1. All written material prepared or collected by the **Contractor** in the course of completing the Work shall be the exclusive property of the **City** and shall not be used by the **Contractor** for any purpose other than the purpose of this Contract.

2.8. Modifying Words.

2.8.1. In the interest of simplicity, modifying words such as “all” and “any” may be omitted, but the fact that such words may be absent from one sentence and appear in another is not intended to affect the interpretation of either statement.

2.9. Use of Certain Words and Terms.

2.9.1. Whenever in the Contract Documents the terms “as ordered,” “as directed,” “as required,” “as allowed,” “as approved,” or terms of like effect or import are used, or the adjectives “reasonable,” “suitable,” “acceptable,” “proper,” “satisfactory,” or adjectives of like effect or import are used to describe a requirement, direction, review, or judgment of the **City** or of the **Design Professional** as to the Work, it is intended that such requirement, direction, review, or judgment will be solely to evaluate, in general, the completed Work for compliance with the requirements of and information in the Contract Documents and conformance with the design concept of the completed Project as a functioning whole as shown or indicated in the Contract Documents (unless there is a specific statement indicating otherwise).

2.9.2. The use of any such term or adjective shall not be effective to change the duties and responsibilities of the **City** or the **Design Professional** from those assigned in the Contract Documents or to assign any duty or authority to supervise or direct the furnishing or performance of the Work or any duty or authority to undertake responsibility contrary to the provisions of the Contract Documents.

2.9.3. When the words “Contractor,” “Subcontractor,” “Sub-subcontractor,” and “Supplier” are used, they are intended to include their employees and agents, unless otherwise specified.

2.10. Modification of the Contract Documents.

2.10.1. Major Modifications. Major Modifications may affect the Contract Sum or the Contract Time. The Contract Documents may be amended to provide for additions, deletions, and revisions in the Work or to modify the terms and conditions thereof in one or more of the following ways, all of which must contain a written endorsement by the **City**:

- 2.10.1.1.** a formal written amendment;
- 2.10.1.2.** a Change Order;
- 2.10.1.3.** a **Construction Change** Directive; or
- 2.10.1.4.** the **Design Professional's** written interpretation, clarification, or decision.

2.10.2. Minor Modifications. Minor modifications do not affect the Contract Sum or the Contract Time. The requirements of the Contract Documents may be supplemented and minor variations and deviations of the Work may be authorized in one or more of the following ways:

2.10.2.1. a Field Order; or

2.10.2.2. the **Design Professional's** approval of a Shop Drawing or Sample.

ARTICLE 3: THE CITY

3.1. Signatory.

3.1.1. All documents which require a signature or an endorsement by the **City** must be signed by the Mayor in order to be deemed ratified by the **City**.

3.2. Requirements to Provide Documents.

3.2.1. To the extent they are available, the **City** shall furnish surveys describing physical characteristics, legal limitations, and utility locations for the site of the Project, and a legal description of the Site.

3.2.2. The **City** shall obtain and pay for necessary approvals, easements, assessments, and charges that are customarily secured prior to the execution of the Contract.

3.2.3. The **City** shall furnish information or services required of the **City** hereunder with reasonable promptness after receipt from the **Contractor** of a written request for such information or services.

3.2.4. The **City** shall provide the **Contractor**, at no charge, such copies of the Project Manual as are reasonably necessary for the execution of the Work.

3.3. Clerk of the Works.

3.3.1. The **City** may engage a Clerk of the Works for this Project, in which case the **City** shall, upon request of the **Contractor**, provide the **Contractor** with a written statement of the duties, responsibilities, and limitations of authority of such Clerk of the Works. Except as expressly set forth in such written statement, the Clerk of the Works shall have no authority to approve Work, to approve Change Orders, or to exercise any of the power and authority of the **City** or the **Design Professional**. The Clerk of the Works shall observe the **Contractor's** operations and construction activities for compliance with the Plans and Specifications. The Clerk of the Works shall have access to all areas of the Project at all times. The **Contractor** shall fully cooperate with the Clerk of the Works in the performance of the Clerk's duties.

3.4. City's Right to Perform Construction and to Award Separate Contracts.

3.4.1. The **City** reserves the right to perform construction or operations at the Site with its own forces or others. If the **Contractor** claims that a delay or additional cost is involved because of such action by the **City**, the **Contractor** shall make such Claim as provided elsewhere in the Contract Documents.

3.4.2. When the separate contracts are awarded for different portions of the Project or

other construction or operations on the site, the term “**Contractor**” in the Contract Documents in each case shall mean the **Contractor** who executes each separate City-Contractor Agreement.

3.4.3. The **City** shall provide for coordination of the activities of the **City's** own forces and of each separate contractor with the Work of the **Contractor**, who shall cooperate with them. The **Contractor** shall afford each other person access to the Site and shall properly coordinate its Work with that of the persons performing other work. The **Contractor** shall participate with other separate contractors and the **City** in reviewing their construction schedules when directed to do so. The **Contractor** shall make any revisions to the construction schedules deemed necessary after a joint review and mutual agreement. The construction schedules shall then constitute the schedules to be used by the **Contractor**, separate contractors, and the **City** until subsequently revised.

3.5. Limitations on the City's Responsibilities.

3.5.1. The **City** shall not supervise, direct, or have control or authority over, nor be responsible for the **Contractor's** means, methods, techniques, sequences, or procedures of construction or the safety precautions and programs incident thereto, or for any failure of the **Contractor** to comply with laws, codes and regulations applicable to the furnishing or performance of the Work. The **City** will not be responsible for the **Contractor's** failure to perform or furnish the Work in accordance with the Contract Documents. The **City** is not responsible for the acts or omissions of the **Contractor**, any Subcontractor, Supplier, or anyone for whose acts the **Contractor**, any Subcontractor or Suppliers may be liable.

3.5.2. The **City's** authority to review any of the **Contractor's** progress schedules, or its decision to raise or not to raise any objections about such schedules shall not impose on the **City** any responsibility for the timing, planning, scheduling, or execution of the Work, nor in any way give rise to any duty or responsibility on the part of the **City** to exercise this authority for the benefit of the **Contractor**, any Subcontractor or Supplier or any other party.

3.5.3. The **City's** decision to raise or not to raise objections with regard to any aspects of the **Contractor's** insurance shall in no way give rise to any duty or responsibility on the part of the **City** to or for the benefit of the **Contractor**, any Subcontractor, any Supplier, or any other party.

3.6. Reservation of Rights.

3.6.1. The **City** reserves the right to correct at any time any error in any progress payment that may have been made.

3.6.2. Should defective Work be discovered subsequent to final payment, the **City** reserves the right to make a claim and recover all costs and professional fees associated therewith, including the cost of removing and/or replacing the defective Work.

3.7. Waivers.

3.7.1. All waivers by the **City** are valid only to the extent that they are signed by the **City**. Any such waivers pertain only to the specific matter contained in the waiver and not to any similar, subsequent matters.

ARTICLE 4: THE DESIGN PROFESSIONAL

4.1. City's Representative.

4.1.1. The **Design Professional** is the **City's** representative (1) during construction, (2) until final payment is due, and (3) with the **City's** concurrence, from time to time during the correction period described in Article 10. The **Design Professional** will advise and consult with the **City**. The **Design Professional** will have authority to act on behalf of the **City** only to the extent provided in the Contract Documents, unless otherwise modified by a written instrument in accordance with other provisions of the Contract.

4.1.2. The duties, responsibilities, and the limitations of authority of the **Design Professional** as the **City's** representative during construction are set forth in the Contract Documents and shall not be extended without the written consent of the **City** and the **Design Professional**.

4.2. Administration of the Contract.

4.2.1. The **Design Professional** will provide administration of the Contract as described in the Contract Documents, unless the **City** has engaged a construction manager.

4.3. Visits to the Site.

4.3.1. The **Design Professional** will visit the site at intervals appropriate to the stage of construction to become generally familiar with the progress and quality of the completed Work and to determine in general if the Work is being performed in a manner indicating that the Work, when completed, will be in accordance with the Contract Documents. However, the **Design Professional** will not be required to make exhaustive or continuous on-site inspections to check the quality or quantity of the Work. On the basis of on-site observations as an architect, engineer, or landscape architect, the **Design Professional** will keep the **City** informed of progress of the Work in writing and will endeavor to guard the **City** against defects and deficiencies in the Work.

4.4. Communications Facilitating Contract Administration.

4.4.1. Except as otherwise provided in the Contract Documents or when direct communications have been specially authorized, the **City** and the **Contractor** shall endeavor to communicate through the **Design Professional**. Communications by and with the **Design Professional's** consultants shall be through the **Design Professional**. Communications by and with Subcontractors and Suppliers shall be through the **Contractor**. Communications by and with **City** employees and separate contractors shall be through the **City**.

4.4.2. When it deems it necessary or expedient, the **City** may communicate directly with the **Contractor**, any Subcontractors, Suppliers, or consultants.

4.5. Certification of Applications for Payment.

4.5.1. Based on the **Design Professional's** observations and evaluations of the **Contractor's** applications for payment, the **Design Professional** will review and certify the amounts due the **Contractor** and will issue certificates for payment in such amounts.

4.6. Rejection of Work.

4.6.1. The **Design Professional** will have authority to reject or disapprove Work (1) that does not conform to the Contract Documents; (2) that the **Design Professional** believes to be defective; and (3) that the **Design Professional** believes will not produce a completed Project conforming to the Contract Documents or that will prejudice the integrity of the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. Whenever the **Design Professional** considers it necessary or advisable for implementation of the intent of the Contract Documents, the **Design Professional** will have authority to require additional inspection or testing of the Work in accordance with Article 9, whether or not such Work is fabricated, installed, or completed. However, neither this authority of the **Design Professional** nor a decision made in good faith either to exercise or not to exercise such authority shall give rise to a duty or responsibility of the **Design Professional** to the **Contractor**, Subcontractors, Suppliers, or other persons performing portions of the Work.

4.7. Review of Submittals.

4.7.1. The **Design Professional** will review or take other appropriate action upon the **Contractor's** submittals such as Shop Drawings, Product Data, and Samples, but only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents and only to the extent that the **Design Professional** believes desirable to protect the **City's** interest. The **Design Professional's** action will be taken with reasonable promptness, while allowing sufficient time in the **Design Professional's** professional judgment to permit adequate review, taking into account the time periods set forth in the latest schedule prepared by the **Contractor** and approved by the **Design Professional**. Review of such submittals is not conducted for the purpose of determining the accuracy and completeness of other details such as dimensions and quantities, or for substantiating instructions for installation or performance of equipment or systems, all of which remain the responsibility of the **Contractor** as required by the Contract Documents. The **Design Professional's** review of the **Contractor's** submittals shall not relieve the **Contractor** of the obligations under Article 5. The **Design Professional's** review shall not constitute approval of safety precautions or of any construction means, methods, techniques, sequences, or procedures. The **Design Professional's** approval of a specific item shall not indicate approval of an assembly of which the item is a component. After the rejection of the second resubmittal of any one Submittal, the **Contractor** shall bear the cost of the review of each subsequent resubmittal.

4.8. Preparation of Change Orders and Construction Change Directives.

4.8.1. The **Design Professional** will prepare Change Orders and **Construction Change Directives** and may authorize minor Modifications in the Work as provided in Article 11.

4.9. Inspections.

4.9.1. The **Design Professional** will conduct inspections to determine the date or dates of Substantial Completion and the date of final completion; will receive and forward to the **City** for the **City's** review and records written warranties and related documents required by the Contract and assembled by the **Contractor**; and will issue a final certificate for payment upon the **Contractor's** compliance with all of the requirements of the Contract Documents.

4.10. Interpretations, Clarifications, and Decisions.

4.10.1. The **Design Professional** will interpret and decide matters concerning performance under and requirements of the Contract Documents on written request of either the **City** or the **Contractor**. The **Design Professional's** response to such requests will be made with reasonable promptness and within the time set forth in the Agreement between the **City** and the **Design Professional**. Any such written interpretations, clarifications, and decisions shall be binding on the **Contractor**.

4.10.2. Interpretations, clarifications, and decisions of the **Design Professional** will be consistent with the intent of and reasonably inferable from the Contract Documents and will be in writing or in the form of drawings. The **Design Professional** will not be liable to the **Contractor**, any Subcontractor, or Supplier for results of interpretations, clarifications, or decisions so rendered in good faith.

4.10.3. The **Design Professional** may, as the **Design Professional** judges desirable, issue additional drawings or instructions indicating in greater detail the construction or design of the various parts of the Work; such drawings or instructions may be effected by a Field Order or other notice to the **Contractor**, and provided such drawings or instructions are reasonably consistent with the previously existing Contract Documents, the Work shall be executed in accordance with such additional drawings or instructions without any additional cost or an extension of the Contract Time.

4.10.4. The **Design Professional's** decisions on matters relating to aesthetic effect must be consistent with the **City's** and will be final.

4.11. Limitation on the Design Professional's Responsibilities.

4.11.1. Neither the **Design Professional's** authority to act under the provisions of the Contract Documents nor any decision made by the **Design Professional** in good faith to exercise or not to exercise such authority shall give rise to any duty or responsibility of the **Design Professional** to the **Contractor**, any Subcontractor, any Supplier, any surety for any of them or any other person.

4.11.2. The **Design Professional** will not have control over or charge of and will not be responsible for construction means, methods, techniques, sequences, or procedures, or for safety precautions and programs in connection with the Work, since these are solely the **Contractor's** responsibility as provided in Article 5.

The **Design Professional** will not be responsible for the **Contractor's** failure to carry out the Work in accordance with the Contract Documents. The **Design Professional** will not have control over or charge of and will not be responsible for acts or omissions of the **Contractor**, Subcontractors, Suppliers, or of any other persons performing portions of the Work.

ARTICLE 5: THE CONTRACTOR

5.1. Relationship with the City.

5.1.1. The **Contractor** is an independent contractor and not an employee of the **City**. The **Contractor** is engaged by virtue of the Contract to perform only those services contained therein. The **Contractor** is not authorized to contract on behalf of the **City** or to incur any liability on the part of the **City**.

5.2. Code of Conduct.

5.2.1. M.G.L. c. 268A establishes standards of conduct for officials and employees of the **City**. The **Contractor** shall familiarize itself with the statute and act accordingly.

5.3. Quality Assurance.

5.3.1. The **Contractor** shall be responsible for ensuring that it, all Subcontractors, Suppliers, and all persons employed to do the Work under the Contract Documents perform in a professional manner, provide a high quality of service and Work, and perform in accordance with the Contract Documents.

5.4. Supervision.

5.4.1. Competence and Efficiency. The **Contractor** shall supervise, inspect, and direct the Work competently and efficiently, devoting such attention thereto and applying such skills, attention and expertise as may be necessary to perform the Work in accordance with the Contract Documents.

5.4.2. Construction Means, Methods, Techniques, Etc. 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. Where the Contract Documents refer to particular construction means, methods, techniques, sequences, or procedures or indicate or imply that such are to be used in the Work, such mention is intended only to indicate that the operations of the **Contractor** shall be such as to produce at least the quality of Work implied by the operations described. The actual determination of whether or not the described operations may be safely and suitably employed on the Work shall be the responsibility of the **Contractor**, who shall notify the **Design Professional** in writing, prior to implementation, of the actual means, methods, techniques, sequences, or procedures which will be employed on the Work, if these differ from those mentioned in the Contract Documents. All loss, damage, liability or cost of correcting defective work arising from the employment of any construction means, methods, techniques, sequences, or procedures shall be

borne by the **Contractor**, notwithstanding that such construction means, methods, techniques, sequences, or procedures are referred to, indicated or implied by the Contract Documents, unless the **Contractor** has given timely notice to the **City** and the **Design Professional** in writing that such means, methods, techniques, sequences, or procedures are not safe or suitable, and the **City** has then instructed the **Contractor** in writing to proceed at the **City's** risk.

5.4.3. Variance between the Contract Documents and Statutes, Ordinances, Codes, Rules, and Regulations. The **Contractor** shall promptly notify the **Design Professional** and the **City** in writing of any variances between the Contract Documents and statutes, ordinances, codes, rules, and regulations. If the **Contractor**, without written notice to the **Design Professional** and the **City**, performs Work knowing that it is contrary to statutes, ordinances, codes, rules, and regulations, the **Contractor** shall assume full responsibility for such Work and shall bear the costs associated therewith, i.e., replacement, repairs, removal, and fines.

5.4.4. Acts and Omissions. The **Contractor** shall be responsible to the **City** for the acts and omissions of all persons performing or supplying the Work.

5.4.5. Inspections. The **Contractor** shall be responsible for inspection of portions of Work already performed under this Contract to determine whether such portions are in proper condition to receive subsequent Work.

5.5. Personnel.

5.5.1. Suitability. The **Contractor** shall provide competent, properly licensed and/or certified, suitably qualified, and reliable personnel to perform the Work required by the Contract Documents. The **Contractor** shall enforce strict discipline and maintain good order at the site at all times. The **Contractor** shall not employ any Subcontractor, Supplier, or other person, whether initially or as a substitute, against whom the **City** may have reasonable objection. Acceptance of any Subcontractor or other person by the **City** shall not constitute a waiver of any right of the **City** to reject defective Work.

5.5.2. Sexual Harassment. Sexual harassment is an unlawful practice under M.G.L. c. 151B. The **Contractor**, Subcontractors, and all other persons responsible for any portion of the Work shall refrain from engaging in sexual harassment. The **Contractor** shall be responsible for any acts of sexual harassment committed by any persons responsible for any portion of the Work. The **Contractor** shall take appropriate action against any such individuals.

5.5.3. Weapons and Illegal Drugs. No weapons or illegal drugs are permitted on the Site. It is the responsibility of the **Contractor** to ensure that no weapons or illegal drugs are brought to the Site.

5.5.4. Maximum Work Day and Work Week. (*Reference: M.G.L. c. 149, §§30 and 34;*) No laborer, worker, mechanic, foreperson or inspector working within this Commonwealth in the employ of the **Contractor**, Subcontractor or other person doing or contracting to do the

whole or part of the work contemplated by the Contract, shall be required or permitted to work more than eight (8) hours in any one day or more than forty-eight (48) hours in any one week, or more than six (6) days in any one week, except in cases of emergency.

5.5.5. Lodging. (*Reference:* M.G.L. c. 149, §25;). Every employee under this Contract shall lodge, board and trade where and with whom he or she elects, and neither the **Contractor** nor its agents or employees shall, either directly or indirectly, require as a condition of the employment of any person that the employee shall lodge, board or trade at a particular place or with a particular person.

5.5.6. Wage Rates. (*Reference:* M.G.L. c. 149, §27). Mechanics and apprentices, teamsters, chauffeurs and laborers performing Work shall be paid no less than the minimum rate of wages included in the bid documents and the Project Manual and which are made part of the Contract. They shall continue to be the minimum rate of wages for said employees during the life of the Contract. The **Contractor** shall keep a legible copy of the wage rates posted in a conspicuous place at the site during the life of the Contract. These rates of wages shall include payments by employers to health and welfare plans, pension plans and supplementary unemployment benefit plans as provided in M.G.L. c. 149, §26;, and such payments shall be considered as payments to persons under M.G.L. c. 149, §27 performing work as therein provided. If the **Contractor** does not make payments to a health and welfare plan, a pension plan and a supplementary unemployment benefit plan, where such payments are included in the rates of wages, the **Contractor** shall pay the amount of said payments directly to each employee engaged in the Work. If the **Contractor** pays less than the rate of wages, including payments to health and welfare funds and pension funds, or the equivalent payments in wages to any person performing Work within the classifications as determined by the Commissioner of Labor and Industries, and if the **Contractor** takes or receives for its own use or the use of any other person, as a rebate, refund or gratuity, or in any other guise, any part or portion of the wages, including payments to health and welfare funds and pension funds, or the equivalent payment in wages, paid to such person for Work done or service rendered on the Project, the **Contractor** will be subject to the penalties set forth in M.G.L. c. 149, §27. Notwithstanding the foregoing and the requirements of 5.5.7.1 and 5.5.7.2 below, if the Contract is federally funded, federal labor standards apply, including Davis Bacon minimum wage rates and payroll reporting requirements. See the "Federal Requirements" section at the end of these contract documents.

5.5.7. Payroll Records of Employees. (*Reference:* M.G.L. c. 149, §27B;). The **Contractor** and all Subcontractors who are subject to M.G.L. c. 149, §§27 and 27A shall keep a true and accurate record of all mechanics and apprentices, teamsters, chauffeurs, and laborers performing Work showing the name, address and occupational classification of each such employee, the hours worked by and the wages paid to all such employees. The **Contractor** and the Subcontractors shall submit a copy of said record to the **City** on a weekly basis.

5.5.7.1. (*Reference:* M.G.L. c. 149, §27B;). The **Contractor** and all Subcontractors who are subject to M.G.L. c. 149, §§27 and 27A shall preserve their payroll records for a period of three (3) years from the date of completion of the Contract.

5.5.7.2. (Reference: M.G.L. c. 149, §27B). The **Contractor** and all Subcontractors who are subject to M.G.L. c. 149, §§27 and 27A shall furnish to the Commissioner of Labor and Industries and the **City** within fifteen (15) days after completion of their portion of the Work a statement executed by the **Contractor** or Subcontractor or by any authorized officer or employee of the **Contractor** or Subcontractor who supervises the payment of wages in the form found in M.G.L. c.149, §27B.

5.6. Superintendence.

5.6.1. Employment of a Superintendent. The **Contractor** shall employ a competent, properly licensed superintendent, reasonably acceptable to the **City**, and necessary assistants who shall be in attendance at the Site full time during the progress of the Work until the date of Substantial Completion and for such additional time thereafter as the **Design Professional** or the **City** may determine to be necessary for the expeditious completion of the Work, including final completion. If continually in the employ of the Contractor, the same Superintendent shall be assigned to this project.

5.6.2. Removal/Replacement of a Superintendent. The **Contractor** shall remove the superintendent if requested to do so in writing by the **City** and shall promptly replace such superintendent with a competent person reasonably acceptable to the **City**. The superintendent shall represent the **Contractor**, and communications given to the superintendent shall be as binding as if given to the **Contractor**. The **Contractor** shall not replace the superintendent without written notice to the **City** and the **Design Professional**.

5.6.3. Registered Professional Engineer or Registered Land Surveyor. The **Contractor** shall retain a competent Registered Professional Engineer or Registered Land Surveyor, acceptable to the **Engineer**, who shall establish the exterior lines and required elevations of all buildings and structures to be erected on the site and shall establish sufficient lines and grades for the construction of associated Work such as, but not limited to, roads, utilities, and site grading. The Engineer or Land Surveyor shall certify as to the actual location of the constructed facilities in relation to property lines, building lines, easements, and other restrictive boundaries.

5.6.4. Building Grades, Lines, Etc.; The **Contractor** shall establish the building grades; lines; levels; and column, wall and partition lines required by the various Subcontractors in laying out their Work.

5.6.5. Coordination and Supervision. The **Contractor** shall coordinate and supervise the Work performed by Subcontractors to the end that the Work is carried out without conflict between trades and so that no trade, at any time, causes delay to the general progress of the Work. The **Contractor** and all Subcontractors shall at all times afford each trade, any separate contractor, or the **City**, every reasonable opportunity for the installation of Work and the storage of materials.

5.6.6. Job Meetings. There shall be job meetings held on a weekly basis, or more often if required by the **City**. The **Contractor** shall arrange for and attend weekly job meetings with the **Design Professional** and such other persons as the **Design Professional** may from time to time wish to have present. The **Contractor** shall be represented by a principal, project manager, general superintendent or other authorized main office representative, as well as by the **Contractor's** own superintendent. An authorized representative of any Subcontractor or Sub-subcontractor shall attend such meetings if the representative's presence is requested by the **Design Professional**. Such representatives shall be empowered to make binding commitments on all matters to be discussed at such meetings, including costs, payments, Change Orders, time schedules and workforce power. Any notices required under the Contract may be served on such representatives.

5.7. Materials, Labor, Equipment, Etc.

5.7.1. Provision of. Unless otherwise provided in the Contract Documents, the **Contractor** shall furnish and assume full responsibility for all materials, equipment, labor, transportation, construction equipment and machinery, tools, appliances, fuel, power, light, heat, telephone, water, sanitary facilities, temporary facilities, and all other facilities and incidentals necessary for the furnishing, performance, testing, start-up, and completion of the Work.

5.7.2. Quality and Use of. All materials and equipment shall be of good quality and new, except as otherwise provided in the Contract Documents. If required by the **Design Professional**, the **Contractor** shall furnish satisfactory evidence (including reports of required tests) as to the kind and quality of materials and equipment. All materials and equipment shall be applied, installed, connected, erected, used, cleaned, and conditioned in accordance with instructions of the applicable Supplier, except as otherwise provided in the Contract Documents.

5.7.3. Discrepancies or Defects. If the **Contractor** is unable to perform its Work because of discrepancies or defects in the work of the **City's** own forces or of a separate contractor, the **Contractor** shall immediately notify the **Design Professional** and the **City** in writing of the conditions that render unable to so perform. Failure to notify the **Design Professional** constitutes an acknowledgment and acceptance of the other work as being fit and proper for integration with the **Contractor's** Work except for latent or non-apparent defects and deficiencies in the other work.

5.8. Contractor's Management and Financial Statement Requirements. (Reference: M.G.L. c. 30, §39R)

5.8.1. The words defined herein shall have the meaning stated below whenever they appear in this Paragraph:

5.8.1.1. "Contractor" means any person, corporation, partnership, joint venture, sole proprietorship, or other entity awarded a contract pursuant to M.G.L. c.149, §44A-H or M.G.L. c. 30, §39M, inclusive.

5.8.1.2. “Contract” means any contract awarded or executed pursuant to M.G.L. c. 149, §44A-H or M.G.L. c. 30, §39M, which is for an amount or estimate amount that exceed the dollar amount set forth in M.G.L. c. 30, §39R.

5.8.1.3. “Records” means books of original entry, accounts, checks, bank statements and all other banking documents, correspondence, memoranda, invoices, computer printouts, tapes, discs, papers and other documents or transcribed information of any type, whether expressed in ordinary or machine language.

5.8.1.4. “Independent Certified Public Accountant” means a person duly registered in good standing and entitled to practice as a certified public accountant under the laws of the place of his/her residence or principal office and who is in fact independent. In determining whether an accountant is independent with respect to a particular person, appropriate consideration should be given to all relationships between the accountant and that person or any affiliate thereof. Determination of an accountant’s independence shall not be confined to the relationships existing in connection with the filing of reports with the **City**.

5.8.1.5. “Audit,” when used in regard to financial statement, means an examination of records by an independent certified public accountant in accordance with generally accepted accounting principles and auditing standards for the purpose of expressing a certified opinion thereon, or, in the alternative, a qualified opinion or a declination to express an opinion for stated reasons.

5.8.1.6. “Accountant’s Report,” when used in regard to financial statements, means a document in which an independent certified accountant indicates the scope of the audit which s/he has made and sets forth his/her opinion regarding the financial statements taken as a whole with listing of noted exceptions and qualifications, or an assertion to the effect that an overall opinion cannot be expressed. When an overall opinion cannot be expressed the reason therefore shall be stated. An accountant’s report shall include as part thereof a signed statement by the responsible corporate officer attesting that management has fully disclosed all material facts to the independent certified public accountant, and that the audited financial statement is a true and complete statement of the financial condition of the contractor.

5.8.1.7. “Management,” when used herein, means the chief executive officers, partners, principals or other person or persons primarily responsible for the financial and operational policies and practices of the Contractor.

5.8.1.8. Accounting terms, unless otherwise defined herein shall have a meaning in accordance with generally accepted accounting principles and auditing standards.

5.8.2. The Contractor shall make, and keep for at least six (6) years after final payment, books, Records, and accounts that in reasonable detail accurately and fairly reflect the transactions and dispositions of the Contractor.

5.8.3. Until the expiration of six (6) years after final payment, the Office of the Inspector General, and the Deputy Commissioner of the Division of Capital Asset Management shall have the right to examine any books, documents, papers or Records of the Contractor or of its Subcontractors that directly pertain to, and involve transactions relating to, the Contractor or its Subcontractors.

5.8.4. The Contractor shall describe any change in the method of maintaining Records or recording transactions which materially affect any statements filed with the **City**, including in its description the date of the change and reasons therefore, and shall accompany said description with a letter from the Contractor's Independent Certified Public Accountant approving or otherwise commenting on the changes.

5.8.5. The Contractor shall file a Statement of Management on internal accounting controls as set forth below prior to the execution of the Contract.

5.8.6. The Contractor shall file prior to the execution of the contract and shall continue to file annually, an Audited Financial Statement for the most recent completed fiscal year as set forth below.

5.8.7. The Contractor shall file with the **City** a Statement of Management as to whether the system of internal accounting controls of the Contractor and its subsidiaries reasonably assures that:

5.8.7.1. transactions are executed in accordance with Management's general and specific authorization;

5.8.7.2. transactions are recorded as necessary to permit preparation of financial statements in conformity with generally accepted accounting principles, and to maintain accountability for assets;

5.8.7.3. access to assets is permitted only in accordance with Management's general or specific authorization; and

5.8.7.4. the recorded accountability for assets is compared with the existing assets at reasonable intervals and appropriate action is taken with respect to any difference.

5.8.7.5. The Contractor shall also file with the **City** a statement prepared and signed by an Independent Certified Public Accountant stating that s/he has examined

the Statement of Management on internal accounting controls, and expressing an opinion as to:

5.8.7.5.1. whether the representation of Management in response to this paragraph and paragraphs 5.8.2. through 5.8.6 above are consistent with the result of Management's evaluation of the system of internal accounting controls; and

5.8.7.5.2. whether such representations of Management are, in addition, reasonable with respect to transactions and assets in amounts which would be material when measured in relation to the applicant's financial statements.

5.8.8. The Contractor shall annually file with the Commissioner of the Division of Capital Asset Management during the term of the contract a financial statement prepared by an Independent Certified Public Accountant on the basis of an Audit by such accountant. The final statement filed shall include the date of final payment. All statements shall be accompanied by an accountant's report. Such statements shall be made available to the **City** upon request.

5.9. Taxes.

5.9.1 The **Contractor** shall pay all sales, consumer, use, and other similar taxes for the Work or portions thereof which are provided by the **Contractor** which are legally enacted when bids are received, whether or not yet effective or merely scheduled to go into effect. However, the **Contractor** shall not pay, and the **City** shall not reimburse or pay the **Contractor** for, any sales taxes for building supplies or materials for which an exemption is provided in M.G.L. c. 64H, §6(f). The **City's** tax exemption number to be used by the **Contractor** in this regard is E04-600-1414.

5.10. Permits, Licenses, and Fees.

5.10.1 Unless otherwise provided, the **Contractor** shall obtain and pay the fees for all permits, licenses, and inspections that are necessary for the proper execution and completion of the Work and which are customarily secured after execution of the Contract and which are legally required. All fees for permits, and inspections required by any **City** department shall be waived. Fees for licenses (e.g. drainlayer's license) are not waived. In addition the contractor shall pay for water meters and water usage. The contractor is responsible for obtaining NSTAR work orders and paying all costs and fees associated with NSTAR work.

5.11. Notices Required By Statutes, Ordinances, Codes, Rules, Regulations, and Orders of the City.

5.11.1 The **Contractor** shall give notices required by statutes, ordinances, codes, rules, regulations, and orders of the **City** bearing on performance of the Work.

5.12. Additional Information from Design Professional.

5.12.1. The **Contractor** shall perform the Work in accordance with the Contract Documents and submittals approved pursuant to Article 4.

5.12.2. The **Contractor** shall give the **Design Professional** timely notice of any additional Plans, Specifications, or instructions required to define the Work in greater detail, or to permit the proper progress of the Work.

5.12.3. The **Contractor** shall not proceed with any Work not clearly and consistently defined in detail in the Contract Documents, but shall request additional drawings or instructions from the **Design Professional** as provided in the previous Paragraph. If the **Contractor** proceeds with such Work without obtaining further drawings, Specifications, or instructions, the **Contractor** shall correct Work incorrectly done at the **Contractor's** own expense.

5.13. “Or equal.”

5.13.1. Requirements for Substitutions. (*Reference: M.G.L. c. 30, §39M(b).*) Where products or materials are prescribed by manufacturer name, trade name, or catalog reference, the words “or approved equal” shall be understood to follow. An item shall be considered equal to the item so named or described if, in the opinion of the **Design Professional**:

5.13.1.1. it is at least equal in quality, durability, appearance, strength, and design;

5.13.1.2. it performs at least equally the function imposed by the general design for the Work;

5.13.1.3. it conforms substantially, even with deviations, to the detailed requirements for the items as indicated by the Specifications.

5.13.2. Net Savings. No proposed substitution will be permitted unless the **Contractor** certifies that the proposed substitution will yield a net savings to the **City** and will not extend the Contract Time.

5.13.3. Contractor’s Expense. Any structural or mechanical changes made necessary to accommodate substituted equipment under this paragraph (including but not limited to engineering fees) shall be at the expense of the **Contractor** or **Subcontractor** responsible for the Work item.

5.13.3.1. Any additional cost, or any loss or damage arising from the substitution of any material or any method for those originally specified shall be borne by the **Contractor**, notwithstanding approval or acceptance of such substitution by the **City** or the **Design Professional**, unless such substitution was made at the written request or direction of the **City** or the **Design Professional**.

5.13.3.2. All data to be provided by the **Contractor** in support of any proposed “or equal” or substitute item will be at the **Contractor's** expense.

5.13.4. Meeting Requirements. The **Contractor** shall be responsible for determining that all materials furnished for the Work meet all requirements of the Contract Documents. The **Design Professional** may require the **Contractor** to produce reasonable evidence that a material meets such requirements, such as certified reports of past tests by qualified testing laboratories, reports of studies by qualified experts, or other evidence which, in the opinion of the **Design Professional**, would lead to a reasonable certainty that any material used, or proposed to be used, in the Work meets the requirements of the Contract Documents. All such data shall be furnished at the **Contractor's** expense. This provision shall not require the **Contractor** to pay for periodic testing of different batches of the same material, unless such testing is specifically required by the Contract Documents to be performed at the **Contractor's** expense.

5.13.5. Named Manufacturer's Product. In all cases in which a manufacturer's name, trade name, or other proprietary designation is used in connection with materials or articles to be furnished under this Contract, whether or not the phrase "or equal" is used after such name, the **Contractor** shall furnish the product of the name manufacturer(s) without substitution, unless a written request for a substitute has been submitted by the **Contractor** and approved in writing by the **Design Professional** as provided in the following paragraph.

5.13.6. Deviations. If the **Contractor** proposes to use a material which while suitable for the intended use, deviates in any way from the detailed requirements of the Contract Documents, the **Contractor** shall inform the **Design Professional** in writing of the nature of such deviations at the time the material is submitted for approval and shall request written approval of the deviation from the requirements of the Contract Documents.

5.13.7. Rejection of Deviations. In requesting approval of deviations or substitutions, the **Contractor** shall provide, upon request, evidence leading to a reasonable certainty that the proposed substitution or deviation will provide a quality of result at least equal to that otherwise attainable. If, in the opinion of the **Design Professional**, the evidence presented by the **Contractor** does not provide a sufficient basis for such reasonable certainty, the **Design Professional** may reject such substitution or deviation without further investigation.

5.13.8. Consistent Character and Quality of Design. The Contract Documents are intended to produce a building of consistent character and quality of design. All components of the building including visible items of mechanical and electrical equipment have been selected to have a coordinated design in relation to the overall appearance of the Project. The **Design Professional** shall judge the design and appearance of proposed substitutes on the basis of their suitability in relation to the overall design of the Project, as well as for their intrinsic merits. The **Design Professional** will not approve as equal to materials specified proposed substitutes that, in the **Design Professional's** opinion, would be out of character, obtrusive, or otherwise inconsistent with the character or quality of design of the Project. In order to permit coordinated design of color and finishes the **Contractor** shall, if required by the **Design Professional**, furnish the substituted material in any color, finish, texture, or pattern which would have been available from the manufacturer originally specified, at no additional cost to the **City**.

5.13.9. Warranty. The warranties provided herein shall be in addition to and not in limitation of any other warranty required by the Contract Documents or otherwise prescribed by law.

5.13.10. Design Professional's Approval. The **Design Professional** will be the sole judge of acceptability. No "or equal" or substitute will be ordered, installed, or utilized without the **Design Professional's** prior written acceptance which will be evidenced by either a Change Order or an approved Shop Drawing. The **City** may require the **Contractor** to furnish at the **Contractor's** expense a special performance guarantee or other surety with respect to any "or equal" or substitute. The **Design Professional** will record the time required by the **Design Professional** and its consultants in evaluating substitutes proposed or submitted by the **Contractor** and in making changes in the Contract Documents (or in the provisions of any other direct contract with the **City** for work on the Project) occasioned thereby. Whether or not the **Design Professional** accepts a substitute item so proposed or submitted by the **Contractor**, the **Contractor** shall reimburse the **City** for the charges of the **Design Professional** and its consultants for evaluating each such proposed substitute item.

5.14. Substitute Construction Methods or Procedures.

5.14.1 If a specific means, method, technique, sequence, or procedure of construction is shown or indicated in and expressly required by the Contract Documents, the **Contractor** may furnish or utilize a substitute means, method, technique, sequence or procedure of construction acceptable to the **Design Professional**. The **Contractor** shall submit sufficient information to allow the **Design Professional**, in the **Design Professional's** sole discretion, to determine whether the substitute proposed is equivalent to that expressly called for by the Contract Documents.

5.15. Contractor's Progress Schedule.

5.15.1. Before Starting Construction. Within ten (10) days after the date of the Notice to Proceed, the **Contractor** shall submit to the **Design Professional** for review:

5.15.1.1. a preliminary progress schedule indicating the times (number of days or dates) for starting and completing the various stages of the Work;

5.15.1.2. a preliminary schedule of Shop Drawing and Sample submittals which will list each required submittal and the times for submitting, reviewing, and processing such submittal; and

5.15.1.3. a refined schedule of values for all of the Work which will include quantities and prices of items aggregating the Contract Sum and will subdivide the Work into component parts in sufficient detail to serve as the basis for progress payments during construction. Such prices will include an appropriate amount of overhead and profit applicable to each item of Work.

5.15.2. Review of Progress Schedule. At least ten (10) days prior to the commencement of construction, the **Design Professional**, the **Contractor**, and any other appropriate persons will meet to review and discuss the acceptability to the **Design Professional** of the progress schedule. The **Contractor** will have an additional ten (10) days to make corrections and adjustments and to complete and resubmit the schedule. No progress payment shall be made to the **Contractor** until the schedule is submitted to and found acceptable by the **Design Professional** as provided below.

5.15.3. Acceptability of Progress Schedule. The progress schedule will be acceptable to the **Design Professional** if, according to the **Design Professional**, it provides an orderly progression of the Work to completion within any specified time frame, but such acceptance will neither impose on the **Design Professional** responsibility for the sequencing, scheduling, or progress of the Work nor interfere with or relieve the **Contractor** from the **Contractor's** full responsibility therefore. The **Contractor's** schedule of Submittals must be acceptable to the **Design Professional** in providing a workable arrangement for reviewing and processing the required Submittals. The **Contractor's** schedule of values must be acceptable to the **Design Professional** as to form and substance.

5.15.4. Sepia and Copies. After the **Design Professional** has approved the schedule, the **Contractor** shall submit to the **Design Professional** one (1) sepia and four (4) copies bearing the **Contractor's** stamp of approval as a representation to the **City** that the **Contractor** has determined or verified all data on that progress schedule and that the **Contractor**, the Subcontractors and Suppliers have reviewed and coordinated the sequences in that progress schedule with the requirements of the Work.

5.15.5. Adjustment of Schedule. The **Contractor** shall adhere to the established progress schedule which may be adjusted from time to time as follows: the **Contractor** shall submit to the **Design Professional** for acceptance proposed adjustments in the progress schedule that will not change the Contract Time. Such adjustments will conform generally to the progress schedule then in effect and will comply with any provisions of the requirements applicable thereto.

5.15.6. During Construction. The **Contractor** shall submit monthly progress schedules to the **Design Professional**. The schedules shall stay current with the **Contractor's** approach to the Work remaining.

5.15.7. Schedule of Submittals. The **Contractor** shall prepare and keep current, for the **Design Professional's** approval, a schedule of Submittals that is coordinated with the **Contractor's** construction schedule and allows the **Design Professional** reasonable time to review Submittals.

5.16. Project Coordination.

5.16.1. In General. The **Contractor** shall be responsible for the proper coordination of

the Work of all of the trades.

5.16.2. Coordination with Subcontractors. The **Contractor** shall coordinate the work of each Subcontractor with the Work of every other Subcontractor whose Work affects the other.

5.16.3. Coordination with the City's Own Forces or Separate Contractors. The **Contractor** shall coordinate its operations with those of the **City's** own forces or separate contractors. The **Contractor** shall provide the **City's** own forces and separate contractors a reasonable opportunity for the handling, unloading and storage of their materials and equipment and execution of their work. The **Contractor** shall connect and coordinate its Work with theirs.

5.16.4. Coordination with Utility Companies. The **Contractor** shall coordinate its operations with all the appropriate utility companies to assure that the utilities required on the Project are available and functioning properly pursuant to the requirements of the Contract Documents.

5.17. Project Photographs.

5.17.1. In General. The **Contractor** shall take, at its own expense, interior and exterior photographs at the site, from different vantages as directed by the **Design Professional** or the **City**, before beginning any Work and thereafter, at a minimum, on the first work day of each month until final completion of the Work, including final Site photos. Photos shall be taken of any Work that will be buried or concealed while the Work is still exposed. The photographs shall be taken by a skilled commercial photographer. The number of photographs required shall be at the discretion of the **City** or the **Design Professional**. One aerial photo shall be required a) prior to commencement of the work and b) at the completion of the work. See Section 01320 – Construction Progress Documentation.

5.17.2. Prints and Digital Media. Within fourteen (14) days after the photographs have been taken, the **Contractor** shall cause prints to be made and delivered to the **City** and the **Design Professional**. All photographs shall be 8" x 10". Each print shall state the date of the photograph, the name of the Project, the description of the view and the name and address of the photographer. The **City** shall receive one glossy print of each photo as well as all prints in digital form on compact disc. The **Design Professional** shall receive one glossy print.

5.17.3. Failure to Comply. Should the **Contractor** fail to adhere to any requirement set forth in the previous two paragraphs, the **City** may have the photographs taken at the **Contractor's** expense or receive a set-off against the **Contractor's** next application for payment.

5.18. Record Documents and Samples at the Site.

5.18.1 The **Contractor** shall maintain in a safe place at the site one record copy of all Plans, Specifications, Modifications, Change Orders, **Construction Change** Directives, Field Orders and written interpretations and clarifications in good order and annotated to show all changes made during construction. These record documents together with all approved Samples and a counterpart of all approved Shop Drawings will be available to the **Design Professional**

for reference. Upon completion of the Work, these record documents, Samples and Shop Drawings will be delivered by the **Contractor** to the **Design Professional** for the **City**.

5.19. Submittals.

5.19.1. Purpose. The purpose of Submittals is to demonstrate for those portions of the Work for which Submittals are required the way the **Contractor** proposes to conform to the information given and the design concept expressed in the Contract Documents.

5.19.2. Submittal Procedure. Within ten (10) days from the Notice to Proceed, the **Contractor** shall submit to the **Design Professional** a completed Submittals schedule. The **Contractor** shall review, approve, and submit to the **Design Professional** Submittals required by the Contract Documents with reasonable promptness and in such sequence as to cause no delay in the Work or in the activities of the **City** or of separate contractors. Submittals made by the **Contractor** that are not required by the Contract Documents may be returned without action. The schedules shall be updated and resubmitted each month. All Submittals will be identified as the **Design Professional** may require and in the number specified in the General Requirements. The data shown on the Shop Drawings will be complete with respect to quantities, dimensions, specified performance and design criteria, materials, and similar data to show the **Design Professional** the materials and equipment that the **Contractor** proposes to provide and to enable the **Design Professional** to review the information for the limited purposes stated below.

5.19.3. Samples. The **Contractor** shall also submit Samples to the **Design Professional** for review and approval in accordance with said accepted schedule of Submittals. Each Sample will be identified clearly as to material, Supplier, pertinent data such as catalog numbers and the use for which it is intended and otherwise as the **Design Professional** may require to enable the **Design Professional** to review the Submittal for the limited purposed stated below. The numbers of each Sample to be submitted will be as specified in the Specifications. Unless otherwise specified in the Specifications, three (3) specimens of each Sample shall be submitted.

5.19.3.1. The Samples shall be of sufficient size to permit proper evaluation of material. Where variations in color or other characteristics are to be expected, samples showing the minimum range of variation shall be submitted. Materials exceeding the range of variation of the approved Samples will not be approved on the Work.

5.19.3.2. All costs associated with delivery of Samples will be paid by the **Contractor**.

5.19.4. Contractor's Verifications. Before submitting each Submittal, the **Contractor** shall have determined and verified:

5.19.4.1. all field measurements, quantities, dimensions specified performance criteria, installation requirements, materials, catalog numbers, and similar information with respect thereto;

5.19.4.2. all materials with respect to intended use, fabrication, shipping, handling, storage, assembly, and installation pertaining to the performance of the Work; and

5.19.4.3. all information relative to the **Contractor's** sole responsibilities in respect of means, methods, techniques, sequences, and procedures of construction and safety precautions and programs incident thereto.

5.19.5. Contractor's Representations. By approving and providing Submittals, the **Contractor** thereby represents that the **Contractor** has determined and verified all dimensions, quantities, field dimensions, relations to existing Work, coordination with Work to be installed later, coordination with information on previously accepted Submittals and verification of compliance with all the requirements of the Contract Documents. The accuracy of all such information is the responsibility of the **Contractor**. In reviewing Submittals, the **Design Professional** shall be entitled to rely upon the **Contractor's** representation that such information is correct and accurate.

5.19.6. Coordination. The **Contractor** shall also have reviewed and coordinated each Submittal with other Submittals and with the requirements of the Work and the Contract Documents.

5.19.7. Stamp or Specific Written Indication. Each Submittal will bear a stamp or specific written indication that the **Contractor** has satisfied the **Contractor's** obligations under the Contract Documents with respect to the **Contractor's** review and approval of that Submittal.

5.19.8. Written Notice of Variations. At the time of each Submittal, the **Contractor** shall give the **Design Professional** specific written notice of such variations, if any, that the Submittal may have from the requirements of the Contract Documents. Such notice is to be in a written communication separate from the Submittal. Moreover, the **Contractor** shall make a specific notation on each Submittal to the **Design Professional** for review and approval of each such variation.

5.19.9. Review and Approval by the Design Professional. The **Contractor** shall perform no portion of the Work requiring a Submittal until the respective Submittal has been approved by the **Design Professional**. Such Work shall be in accordance with approved Submittals.

5.19.9.1. The **Design Professional** will review and approve Submittals in accordance with the schedule of Submittals accepted by the **Design Professional** as required above. The **Design Professional's** review and approval will be only to determine if the items covered by the Submittals will, after installation or incorporation in the Work, conform to the information given in the Contract Documents and be compatible with the design concept of the completed Project as a functioning whole as indicated in the Contract Documents. The **Design Professional's** review and approval will not extend to means, method, technique, sequences, or procedures of construction

(except where a particular means, method, technique, sequences or procedures of construction is specifically and expressly called for by the Contract Documents) or to safety precautions or programs incident thereto. The review and approval of a separate item as such will not indicate approval of the assembly in which the item functions.

5.19.10. Deviations. The **Contractor** shall not be relieved of responsibility for deviations from requirements of the Contract Documents by the **Design Professional's** approval of Submittals unless the **Contractor** has specifically informed the **Design Professional** in writing of such deviation at the time of Submittal and the **Design Professional** has given written approval to the specific deviation. The **Contractor** shall not be relieved of responsibility for errors or omissions in Submittals by the **Design Professional's** approval thereof.

5.19.11. Revisions. The **Contractor** shall make corrections required by the **Design Professional** and shall return the required number of corrected copies of Submittals and submit as required new Submittals for review and approval. The **Contractor** shall direct specific attention, in writing or on resubmitted Submittals, to revisions other than those requested by the **Design Professional** on previous Submittals. Unless such written notice has been given, the **Design Professional's** approval of a resubmitted Submittal shall not constitute approval of any changes not requested on the prior Submittal.

5.19.12. Related Work. Where a Submittal is required by the Contract Documents or the schedule of Submittals accepted by the **Design Professional**, any related Work performed prior to the **Design Professional's** review and approval of the pertinent Submittal will be at the sole expense and responsibility of the **Contractor**.

5.19.13. Informational Submittals. Informational Submittals upon which the **Design Professional** is not expected to take responsive action may be so identified in the Contract Documents.

5.19.14. Certification. When professional certification of performance criteria of materials, systems or equipment is required by the Contract Documents, the **City** shall be entitled to rely upon such certifications, and neither the **City** nor the **Design Professional** shall be expected to make any independent examination with respect thereto.

5.20. Continuing the Work.

5.20.1. The **Contractor** shall carry on the Work and adhere to the progress schedule during all disputes or disagreements with the **City**. No Work shall be delayed or postponed pending resolution of any disputes or disagreements, except as otherwise provided herein or as the **City** and the **Contractor** may agree in writing.

5.21. Use of Site; Access to Work.

5.21.1. The right of possession of the premises and the improvements made thereon by the **Contractor** shall remain at all times in the **City**. The **Contractor's** right to entry and use

thereof arises solely from the permission granted by the **City** under the Contract Documents. The **Contractor** shall confine the **Contractor's** apparatus, the storage of materials, and the operations of the **Contractor's** workers to limits indicated by law, ordinance, the Contract Documents and permits and/or directions of the **Design Professional** and shall not unreasonably encumber the premises with the **Contractor's** materials. The **City** shall not be liable to the **Contractor**, the Subcontractors, Suppliers, or anyone else with respect to the conditions of the premises, except for a condition caused directly and solely by the negligence of the **City**.

5.21.2. At all times, the **City** and the **Design Professional** shall have access to the Work.

5.22. Protection of Persons and Property.

5.22.1. In General. The **Contractor** shall be responsible for initiating, maintaining, and supervising all health and safety precautions and programs in connection with the performance of the Contract. The **Contractor** is responsible for the implementation of all Federal, State, and local health and safety requirements.

5.22.2. The **Contractor** shall take reasonable precautions for safety of, and shall provide reasonable protection to prevent damage, injury, or loss to:

5.22.2.1. employees on the site and other persons who may be affected thereby;

5.22.2.2. the Work, materials, and equipment to be incorporated therein, whether in storage on or off the site, under the care, custody or control of the **Contractor**, Subcontractors, or Sub-subcontractors;

5.22.2.3. other property at the site or adjacent or in close proximity thereto, such as trees, shrubs, lawns, walks, pavements, roadways, structures, and utilities not designated for removal, relocation, or replacement in the course of construction; and

5.22.2.4. any other property of the **City**, whether or not forming part of the Work, located at the site or adjacent thereto in areas to which the **Contractor** has access.

5.22.3. Notices and Compliance. The **Contractor** shall give notices and comply in all other respects with applicable laws, ordinances, rules, regulations, codes, and lawful orders of public authorities bearing on the safety of persons or property or their protection from damage, injury, or loss. The **Contractor** shall notify owners of adjacent and nearby properties of underground facilities and utility owners when prosecution of the Work may affect them and shall cooperate with them in the protection, removal, relocation, and replacement of their property.

5.22.4. Erection and Maintenance of Safeguards. The **Contractor** shall erect and maintain, as required by existing conditions and the terms of the Contract, reasonable safeguards

for safety and protection, including posting danger signs and other warnings against hazards, promulgating safety regulations, and notifying owners and users of adjacent and nearby sites and utilities.

5.22.5. Hazardous Materials and Equipment. When use or storage of explosives or other hazardous materials or equipment or unusual methods are necessary for execution of the Work, the **Contractor** shall exercise utmost care and carry on such activities under the supervision of properly qualified personnel.

5.22.6. Damage to Property. The **Contractor** shall promptly remedy damage and loss to property referred to above. If the damage or loss is due in whole or in part to the **Contractor's** failure to take the precautions required herein, the **Contractor** shall bear the cost, subject to any reimbursement to which the **Contractor** is entitled under property insurance required by the Contract Documents. The **Contractor** shall be fully and solely responsible for all Work and other operations carried out on adjacent properties. The insurance required under Article 8 shall cover such Work or operations, and the **Contractor** shall indemnify and defend the **City**, the **Design Professional**, and the owners of such adjacent or nearby properties from and against all claims, suits, losses, or costs arising out of such Work or operations.

5.22.7. Fire Protection Equipment and Services. The **Contractor** shall provide and maintain in good operating condition suitable and adequate fire protection equipment and services and shall comply with all reasonable recommendations regarding fire protection made by the representatives of the fire insurance company carrying insurance on the Work or by the local fire chief or fire marshal. The area within the site limits shall be kept orderly and clean and all combustible rubbish shall be promptly removed from the site.

5.22.8. Protection of Excavations, Trenches, etc. The **Contractor** shall at all times protect excavations, trenches, buildings and materials from rain water, ground water, backup or leakage of sewers, drains and other piping, and from water of any other origin and shall remove promptly any accumulation of water. The **Contractor** shall provide and operate all pumps, piping, and other equipment necessary to this end.

5.22.9. Snow and Ice Removal. The **Contractor** shall remove snow and ice that might result in damage or delay.

5.22.10. Safety Representative. The **Contractor** shall designate a qualified and experienced safety representative at the site whose duties and responsibilities shall be the prevention of accidents and the maintaining and supervising of safety precautions and programs.

5.22.11. Weather Protection. (*Reference: M.G.L. c. 149, §44F(1).*) The **Contractor** shall install weather protection and furnish adequate heat in the protected area from November 1 through March 31.

5.22.12. Security. The **Contractor** shall provide, within the Contract Sum, a
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sufficient number of security personnel at the Site at all times when the **Contractor's** personnel are not present, from commencement of the Work until Substantial Completion to assure that the Site, the facility, and the Work, and all materials and equipment stored at the Site are fully and completely protected against loss or damage due to vandalism, theft, or malicious mischief. If the **Contractor** elects, in addition, to use guard dogs for this purpose, each dog shall at all times be accompanied by an adult handler. If the **Contractor** fails to comply with the requirements of this paragraph, then the **City** may provide appropriate security and charge the cost thereof to the **Contractor**. The **City's** provision of such security, or failure to do so, shall not relieve the **Contractor** of its responsibility to pay for loss or damage due to vandalism, theft, or malicious mischief at the Site.

5.22.13. Hazard Communication Programs. The **Contractor** shall be responsible for coordinating any exchange of material safety data sheets or other hazard communications information required to be made available to or exchanged between or among employers at the site in accordance with laws, codes and regulations.

5.22.14. Noise Pollution Control. The **Contractor** shall comply with all applicable provisions of Somerville Municipal Code §9-109.

5.23. Cutting and Patching.

5.23.1. In General. Unless otherwise provided in the Contract Documents, the **Contractor** shall be responsible for cutting, fitting, or patching required to complete the Work or to make its parts fit together properly, including the work of the City or of separate contractors.

5.23.2. Damage to Work of City or of Separate Contractor. The **Contractor** shall not damage or endanger a portion of the Work or fully or partially completed construction of the **City** or separate contractors by cutting, patching, or otherwise altering such construction, or by excavation. The **Contractor** shall not cut or otherwise alter such construction by the **City** or a separate contractor except with prior written consent of the **City** and of such separate contractor; such consent shall not be unreasonably withheld. The **Contractor** shall not unreasonably withhold from the **City** or a separate contractor the **Contractor's** consent to cutting or otherwise altering the Work.

5.23.3. Damage Caused by Contractor. Should the **Contractor** cause damage to the work or property of any separate contractor at the Site, or should any claim arising out of the **Contractor's** performance of Work at the Site be made by any separate contractor against the **Contractor**, the **City**, the **Design Professional**, or any of the **Design Professional's** consultants, the **Contractor** shall promptly attempt to settle with such other contractor by agreement, or to otherwise resolve the dispute by arbitration or at law. The **Contractor** shall, to the fullest extent permitted by laws and regulations, indemnify and hold harmless the **City**, the **Design Professional**, and the **Design Professional's** consultants from and against all claims, damages, losses and expenses (including, but not limited to, fees of the Design Professional, the Design Professional's consultants, attorneys, and other professionals, and court and arbitration or mediation costs) arising directly, indirectly or consequentially out of any action, legal or equitable, brought by any separate contractor against the **City**, the **Design Professional**, or any of the **Design Professional's** consultants, to the extent based on a claim arising out of the **Contractor's** performance of the Work. Should a separate contractor cause damage to the Work or property of the **Contractor** or should the performance of work by any separate contractor at the site give rise to any other claim, the **Contractor** shall not institute any action, legal or equitable, against the **City**, the **Design Professional**, or any of the **Design Professional's** consultants, or permit any action against any of them to be maintained and continued in its name or for its benefit in any court or before any arbiter which seeks to impose liability on or to recover damages from the **City**, the **Design Professional**, or any of the **Design Professional's** consultants, on account of any such damage or claim. If the **Contractor** delays at any time in performing or furnishing Work by any act or neglect of a separate contractor and the City and the Contractor are unable to agree as to the extent of any adjustment in the Contract Time attributable thereto, the **Contractor** may make a claim for an extension of time in accordance with Article 16. An extension of the Contract Time shall be the **Contractor's** exclusive remedy with respect to the **City**, the **Design Professional**, and the **Design Professional's** consultants, for any delay, disruption, interference, or hindrance caused by any separate contractor.

5.24. Cleaning Up.

5.24.1. During the progress of the Work, the **Contractor** shall keep the premises and surrounding area free from accumulation of waste materials and rubbish caused by operations under the Contract or other debris. At the completion of the Work, the **Contractor** shall remove from and about the Project all waste materials, rubbish, and debris, and the **Contractor's** tools, construction equipment, machinery, and surplus materials. Surplus materials to be provided to the **City** by specifications shall be stored in a clean, safe and secure area as directed by the **City**. The **Contractor** shall leave the site clean and ready for occupancy by the **City** at Substantial Completion of the Work. Immediately prior to the **Design Professional's** inspection for Substantial Completion, the **Contractor** shall completely clean the premises. Concrete and ceramic surfaces shall be cleaned and washed. Resilient coverings shall be cleaned, waxed and buffed. Woodwork shall be dusted and cleaned. Sash, fixtures and equipment shall be thoroughly cleaned. Stains, spots, dust, marks and smears shall be removed from all surfaces. Hardware and all metal surfaces shall be cleaned and polished. Glass and plastic surfaces shall be thoroughly cleaned by professional window cleaners. All damaged, broken or scratched glass or plastic shall be replaced by the **Contractor** at the **Contractor's** expense. The **Contractor** shall restore to original condition all property not designated for alteration by the Contract Documents.

5.24.2. If the **Contractor** fails to clean up as provided herein, the **City** may do so and charge the cost thereof to the **Contractor**.

5.25. Royalties and Patents.

5.25.1 The **Contractor** shall pay all license fees and royalties and assume all costs incident to the use in the performance of the Work or the incorporation in the Work of any invention, design, process, product, or device which is the subject of patent rights or copyrights held by others. To the fullest extent permitted by law, the **Contractor** shall indemnify and hold harmless the **City** and the **Design Professional** from and against all claims, costs, losses, and damages arising out of or resulting from any infringement of patent rights or copyrights incident to the use in the performance of the work or resulting from the incorporation in the work of any invention, design, process, product, or device not specified in the Contract Documents.

5.26. Contractor's Obligation to Perform.

5.26.1. The **Contractor's** obligation to perform and complete the Work in accordance with the Contract Documents is absolute. None of the following will constitute an acceptance of Work that is not in accordance with the Contract Documents or a release of the **Contractor's** obligation to perform the Work in accordance with the Contract Documents:

5.26.1.1. observations by the **Design Professional**;

5.26.1.2. recommendation of any progress or final payment by the **Design Professional**;

5.26.1.3. the issuance of a certificate of Substantial Completion or any payment by the **City** to the **Contractor** under the Contract Documents;

5.26.1.4. use or occupancy of the Work, Project, or Site, or any part thereof, by the **City**;

5.26.1.5. any acceptance by the **City** or any failure to do so;

5.26.1.6. any review and approval of a Shop Drawing or Sample submittal or the issuance of a notice of acceptance by the **Design Professional**;

5.26.1.7. any inspection, test, or approval by others; or

5.26.1.8. any correction of defective Work by the **City**.

5.27. Indemnification; and Covenant Not To Sue.

5.27.1. To the fullest extent permitted by law, the **Contractor** shall assume the defense of, indemnify and hold harmless the **City**, the **Design Professional**, the **Design Professional's** consultants, and agents and employees of any of them, from and against claims, damages, losses, and expenses, including, but not limited, to attorneys' fee, arising out of or resulting from performance of the Work, provided that such claim, damage, loss, or expense is attributable to bodily injury, sickness, disease, or death, or to injury to or destruction of tangible property (other than the Work itself) including loss of use resulting there from, caused in whole or in part by alleged negligent acts or omissions of the **Contractor**, a Subcontractor, anyone directly or indirectly employed by them, or anyone for whose acts they may be liable, regardless of whether or not such claim, damage, loss, or expense is caused in part by a party indemnified hereunder. Such obligation shall not be construed to negate, abridge, or reduce other rights or obligations of indemnity which would otherwise exist as to a party or person described in this paragraph.

5.27.2. In claims against any person or entity indemnified under the foregoing paragraph by an employee of the **Contractor**, a Subcontractor, anyone directly or indirectly employed by them or anyone for whose acts they may be liable, the indemnification obligation under the foregoing paragraph shall not be limited by a limitation on the amount or type of damages, compensation or benefits payable by or for the **Contractor** or a Subcontractor under Workers' Compensation laws, disability benefit acts or other employee benefit acts.

5.27.3. The obligations of the **Contractor** in this Article shall not extend to the liability of the **Design Professional**, the **Design Professional's** consultants, and agents or employees of any of them arising out of (1) the preparation of maps, Plans, opinions, reports, surveys, Change Orders, designs, or Specifications, or (2) directions or instructions given by the **Design Professional**, the **Design Professional's** consultants and agents or employees of any of them, provided such instructions or directions are the primary cause of the injury or damage.

5.27.4. The **Contractor**, or any successor, assign, or subrogee of the **Contractor** agrees

not to bring any civil suit, action, or other proceeding in law, equity or arbitration against the **Design Professional**, or the officers, employees, agents, or consultants of the **Design Professional**, for the enforcement of any action which the **Contractor** may have arising out of or in any manner connected with the Work. The **Contractor** shall assure that this covenant not to sue is contained in all subcontracts and sub-subcontracts of every tier and shall assure its enforcement. The **Design Professional**, its officers, employees, agents, and consultants are intended third-party beneficiaries of this covenant not to sue, and are entitled to enforce this covenant in law or equity.

5.28. Survival of Obligations.

5.28.1 All representations, indemnifications, warranties, and guarantees made in, required by or given in accordance with the Contract Documents, as well as all continuing obligations indicated in the Contract Documents, will survive final payment, completion and acceptance of the Work and termination or completion of the Contract.

ARTICLE 6: SUBCONTRACTORS

6.1 Use of Subcontractors.

6.1.1 The **Contractor** shall use the Subcontractors named in the **Contractor's Bid**.

6.2 Substitution of Subcontractors.

6.2.1 The **Contractor** shall not substitute another Subcontractor therefore without notice to the **City** and the **City's** prior written consent of such substitution.

6.3 Names of Subcontractors.

6.3.1 Upon execution of the Contract with the **City**, the **Contractor** shall provide in writing to the **City**, through the **Design Professional**, the names, addresses, telephone numbers, and fax numbers of all persons proposed for each principal portion of the Work.

6.4. Objections to Subcontractors.

6.4.1 The **Contractor** shall not use any Subcontractor against whom the **City** has a reasonable objection. The **Contractor** shall not be required to contract with any person or entity against whom it has a reasonable objection.

6.5. Form of the Subcontract.

6.5.1 All Work performed by a Subcontractor shall be through an appropriate subcontract. The form of subcontract shall be submitted to the **City's Law Department** for its approval, which shall not be unreasonably withheld or delayed.

6.6. Content of the Subcontract.

6.6.1. In addition to all statutorily mandated provisions and provisions required elsewhere in the Contract Documents, each subcontract shall expressly provide that:

6.6.1.1. Each subcontract agreement for a portion of the Work is assigned by the **Contractor** to the **City** provided that:

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6.6.1.1.1. the assignment is effective only after termination of the Contract by the **City** or the **Contractor** and only for those subcontract agreements which the **City** accepts by notifying the Subcontractor in writing; and

6.6.1.1.2. the assignment is subject to the prior rights of the surety, if any, obligated under bond relating to the Contract.

6.6.1.2. Each Subcontractor is bound by the requirements of the Contract Documents for the express benefit of the **City**.

6.6.1.3. Each Subcontractor shall assume toward the **Contractor** all the obligations that the **Contractor** assumes toward the **City** and the **Design Professional**, unless otherwise provided by law.

ARTICLE 7: PERFORMANCE AND PAYMENT BONDS

7.1. Form of Bonds.

7.1.1 The performance and labor and material or payment bonds shall be in the form required by the **City**, copies of which are included in the Project Manual. The **City** reserves the right to reject any bond that does not conform to the **City's** requirements.

7.2. Furnished by the Contractor. (*Reference: M.G.L. c. 30, §39M(c);, M.G.L. c. 149, §29).*

7.2.1 The **Contractor** shall furnish a performance bond and a labor and materials or payment bond, each with a surety company qualified to do business under the laws of the Commonwealth and satisfactory to the **City** and each in the sum of the Contract Sum, the premiums for which are to be paid by the **Contractor** and are included in the Contract Sum. The bonds shall remain in effect until final payment is made. The sum of the performance bond shall increase each time the Contract Sum is increased as a result of a Change Order.

7.3. Submission to the City.

7.3.1 The **Contractor** must submit the performance and a labor and materials or payment bonds to the **City** upon the **Contractor's** execution of the Agreement.

ARTICLE 8: INSURANCE REQUIREMENTS

8.1 Insurance Certificates.

8.1.1 Prior to starting work on this project, the contractor shall deposit with the **City**, certificates from insurers clearly stating that the required insurance policies have been issued to the **Contractor** and will remain in effect during the time period required to complete this contract. ACCORD forms will not be accepted. The certificates must be in a form satisfactory to the **City**. The insurance shall include all major divisions of coverage, and shall be on a comprehensive general basis including: Premises and Operations (including X-C-U), Owners and Contractors Protective, Products and Completed Operations, Owned, Non-owned or Hired

and/or Leased Motor Vehicles. Such insurance shall be written for not less than any limits of liability, required by law or the following limits, whichever are greater.

8.2 Minimum Coverages. The **Contractor** shall possess and maintain throughout the contract period/project, insurance in the kinds and amounts as provided in Appendix D. The **Contractor** may purchase and maintain excess liability insurance in the in the umbrella form in order to satisfy the limits of liability required for the insurance to be purchased and maintained in accordance with the required requirements set forth above (in addition to the umbrella limits required). Evidence of such excess liability shall be delivered to the **City** in the form of a certificate and the certificate indicating the policy numbers and limits of liability of all underlying insurance.

8.3 Additional Insured. The **City** shall be named as an additional insured on each certificate, and the certificate must have the endorsement of the insurance agency.

8.4 Notice. Each certificate shall contain a notation that the insurer will give 30 days notice to the **City** prior to cancellation, change or non-renewal of policy.

8.5 Carrier Rating. Insurance carriers MUST have an A.M. Best rating of "A" or better.

8.6 Material Breach. Failure of the contractor to provide and continue in force such insurance shall be deemed a material breach of contract and shall operate as immediate termination thereof.

ARTICLE 9: TESTS AND INSPECTIONS

9.1. Access.

9.1.1 The **City**, the **Design Professional**, and all other persons designated by the **City** shall have access to the Work at reasonable times for observing, inspecting, and testing. The **Contractor** shall provide them with proper and safe conditions for such access and advise them of the **Contractor's** site safety procedures and programs so that they may comply therewith as applicable.

9.2. Tests and Inspections.

9.2.1. The **Contractor** shall give the **Design Professional** timely notice of readiness of the Work for all required inspections, tests, or approvals and shall cooperate with inspection and testing personnel to facilitate required inspections or tests.

9.2.2. Unless otherwise provided, the **Contractor** shall make arrangements for such tests, inspections, and approvals with an independent testing laboratory or entity acceptable to the **City**, or with the appropriate public authority and shall bear all related costs of tests, inspections, and approvals. If the laws or regulations of any public body having jurisdiction require any Work or part thereof specifically to be inspected, tested, or approved by an employee or other representative of such public body, the **Contractor** shall assume full responsibility for arranging and obtaining such inspections, tests, or approvals, pay all costs in connection

therewith and furnish the **Design Professional** with the required certificates of inspection, testing, or approval.

9.2.3. The **Contractor** shall be responsible for arranging and obtaining and shall pay all costs in connection with any inspections, tests, or approvals required for the **Design Professional's** acceptance of materials or equipment to be incorporated into the Work, or of materials, mix designs, or equipment submitted for approval prior to the **Contractor's** purchase thereof for incorporation into the Work.

9.2.4. If any Work that is to be inspected, tested, or approved is covered by the **Contractor**, Subcontractor, or Sub-subcontractor without the prior written consent of the **Design Professional**, it must be uncovered for observation, inspection, testing, or approval, if requested by the **Design Professional**. The **Contractor** must recover the Work at its own expense.

9.2.5. The **Contractor** shall not be relieved of obligations to perform the Work in accordance with the Contract Documents either by activities or duties of the **Design Professional** in the **Design Professional's** administration of the Contract or by tests, inspections, or approvals required or performed by persons other than the **Contractor**.

ARTICLE 10

UNCOVERING AND CORRECTING WORK

10.1. Uncovering Work.

10.1.1. If a portion of the Work is covered contrary to the **Design Professional's** request or to requirements specifically expressed in the Contract Documents, it must, if required in writing by the **Design Professional**, be uncovered for the **Design Professional's** observation and be replaced, both at the **Contractor's** expense and without change in the Contract Time.

10.1.2. If a portion of the Work has been covered which the **Design Professional** has not specifically requested to observe prior to its being covered, the **Design Professional** may request to see such Work, and it shall be uncovered by the **Contractor**. If it is found that such Work is in accordance with the Contract Documents, costs of uncovering and replacing shall, by appropriate Change Order, be charged to the **City**. If it is found that such Work is defective or not in accordance with the Contract Documents, the **Contractor** shall pay all claims, costs, losses, and damages caused by, arising out of or resulting from such uncovering, exposure, observation, inspection, and testing and of satisfactory replacement of reconstruction (including, but not limited to, all costs of repair or replacement of work of others); and the **City** shall be entitled to an appropriate decrease in the Contract Sum. The **City** may take such decrease by reducing the then current application for payment accordingly or subsequent applications, if necessary, until the decrease is paid in full.

10.2. Correcting Work.

10.2.1. The **Contractor** shall promptly correct Work rejected by the **Design Professional**

or failing to conform to the requirements of the Contract Documents, whether observed before or after Substantial Completion and whether or not fabricated, installed, or completed. The **Contractor** shall bear all costs of correcting such rejected Work including additional testing and inspections and compensation for the **Design Professional's** services and expenses made necessary thereby and any cost, loss, or damages to the **City** resulting from such failure or defect.

10.2.2. If, within one (1) year after the date of Substantial Completion of the Work or designated portion thereof, or after the date for commencement of warranties established in Article 15, or by terms of an applicable special warranty required by the Contract Documents, any of the Work is found to be not in accordance with the requirements of the Contract Documents, the Contractor shall correct it promptly after receipt of written notice from the **City** to do so, unless the **City** has previously given the **Contractor** a written acceptance of such condition. This period of one (1) year shall be extended with respect to portions of Work first performed after Substantial Completion by the period of time between Substantial Completion and the actual performance of the Work. This obligation to correct under this paragraph shall survive acceptance of the Work under the Contract and termination of the Contract. The **City** shall give such notice promptly after discovery of the condition.

10.2.3. The **Contractor** shall correct, remove, or replace portions of the Work that are not in accordance with the requirements of the Contract Documents and are neither corrected by the **Contractor** nor accepted by the **City**.

10.2.4. If the **Contractor** fails within a reasonable time to correct nonconforming Work, or to remove and replace rejected Work, or fails to perform the Work in accordance with the Contract Documents, the **City** may correct it in accordance with the provisions herein. If the **Contractor** does not proceed with correction, removal, or replacement of such nonconforming Work within seven (7) days from the date of written notice from the **Design Professional**, the **City** may correct it and store any salvageable materials or equipment at the **Contractor's** expense. If the **Contractor** does not pay costs of any such removal and storage within ten (10) days after written notice, the **City** may upon ten (10) additional days' written notice sell such materials and equipment at auction or at private sale and shall account for the proceeds thereof, after deducting costs and damages that should have been borne by the **Contractor**, including compensation for the **Design Professional's** services and expenses made necessary thereby. If such proceeds of sale do not cover all the costs that the **Contractor** should have born, the Contract Sum shall be reduced by the deficiency. If payments then or thereafter due the **Contractor** are not sufficient to cover such amount, the **Contractor** shall pay the difference to the **City**.

10.2.5. The **Contractor** shall bear the cost of correcting destroyed or damaged construction, whether completed or partially completed, of the **City** or separate contractors caused by the **Contractor's** correction or removal of Work which is not in accordance with the requirements of the Contract Documents.

10.2.6. Nothing contained in this paragraph shall be construed to establish a period of limitation with respect to other obligations that the **Contractor** might have under the Contract Documents. Establishment of the time period of one (1) year as described in the above paragraph related only to the specific obligation of the **Contractor** to correct the Work and has no relationship to the time within which the obligation to comply with the Contract Documents may be sought to be enforced nor to the time within which proceedings may be commenced to establish the **Contractor's** liability with respect to the **Contractor's** obligations other than specifically to correct the Work.

10.3. Acceptance of Nonconforming Work.

10.3.1 If, instead of requiring correction or removal and replacement of defective or nonconforming Work, the **City** prefers to accept Work which is not in accordance with the requirements of the Contract Documents, the **City** may do so instead of requiring its removal and correction, in which case the **Contractor** shall pay all claims, costs, losses, and damages attributable to the **City's** evaluation of and determination to accept such defective or nonconforming Work. The Contract Sum will be reduced as appropriate. Such adjustment shall be effected whether or not final payment has been made.

ARTICLE 11: CHANGES IN THE WORK

11.1. In General.

11.1.1. The Contract Sum constitutes the total compensation (subject to authorized adjustments) payable to the **Contractor** for performing the Work. All duties, responsibilities and obligations assigned to or undertaken by the **Contractor** shall be at the **Contractor's** expense without any change in the Contract Sum.

11.1.2. Without invalidating the Contract and without notice to any surety, the **City** may, at any time or from time to time, order additions to, deletions from, or revisions in the Work. Such additions, deletions, or revisions will be authorized by a Change Order, a Modification or a **Construction Change Directive**. Upon receipt of any such document, the **Contractor** shall promptly proceed with the Work involved that will be performed under the applicable conditions of the Contract Documents (except as otherwise specifically provided).

11.1.3. The **Contractor** shall not be entitled to an increase in the Contract Sum or an extension of the Contract Time with respect to any Work performed that is not required by the Contract Documents as amended, modified, or supplemented, except as otherwise provided herein.

11.2. Change Orders.

11.2.1. (*Reference: M.G.L. c. 30, §39I*). The **Contractor** shall perform all the Work required by this Contract in conformity with the Plans and Specifications contained herein. No willful and substantial deviation from said Plans and Specifications shall be made unless authorized in writing by the **City** and the **Design Professional** in charge of the Work who is duly authorized by the **City** to approve such deviations. In order to avoid delays in the prosecution of the Work required by such Contract, such deviation from the Plans or Specifications may be

authorized by a written order of the **City** or the **Design Professional** so authorized to approve such deviation. Within thirty (30) days thereafter, such written order shall be confirmed by a certificate of the **City** stating: (1) If such deviation involves any substitution or elimination of materials, fixtures or equipment, the reasons why such materials, fixtures, or equipment were included in the first instance and the reasons for substitution or elimination, and, if the deviation is of any other nature, the reasons for such deviation, giving justification therefore; (2) that the specified deviation does not materially injure the Project as a whole; (3) that either the work substituted for the Work specified is of the same cost and quality, or that an equitable adjustment has been agreed upon between the **City** and the **Contractor** and the amount in dollars of said adjustment; and (4) that the deviation is in the best interest of the **City**.

11.3. Construction Change Directive.

11.3.1. A **Construction Change** Directive shall be used in the absence of total agreement on the terms of a Change Order.

11.3.2. Upon request of the **City** or the **Design Professional**, the **Contractor** shall without cost to the **City** submit to the **Design Professional** in such form as the **Design Professional** may require, an accurate written estimate of the cost of any proposed extra work or change. The estimate shall indicate the quantity and unit cost of each item of materials, and the number of hours of work and hourly rate for each class of labor, as well as the description and amounts of all other costs chargeable under the terms of this Article. Unit labor costs for the installation of each item of materials shall be shown if required by the **Design Professional**. If required by the **Design Professional**, in order to establish the exact cost of new Work added or of previously required Work omitted, the **Contractor** shall obtain and furnish to the **Design Professional** bona fide proposals from recognized Suppliers for furnishing any material included in such Work. Such estimates shall be furnished promptly so as to occasion no delay in the Work, and shall be furnished at the **Contractor's** expense.

11.3.3. The **Contractor** shall state in the estimate any extension of time required for the completion of the Work if the change or extra Work is ordered. The **Contractor** shall document, through a critical path analysis, or some other clearly delineated explanation, how the proposed change affects other aspects of the Work, and why it would require an extension of time. The **Contractor** shall promptly revise and resubmit such estimate if the **Design Professional** determines that it is not in compliance with the requirements of this Article, or that it contains errors of fact or mathematical errors.

11.3.4. If the **Construction Change** Directive provides for an adjustment to the Contract Sum, the adjustment shall be based on one of the following methods, as selected by the **City**, selection of which does not require the consent of the **Contractor**:

11.3.4.1. by unit prices stated in the Contract Documents or otherwise mutually agreed upon; or

11.3.4.2. by Cost and Percentages estimated by the **Contractor** as provided

herein and accepted by the **City**, whereupon the **Contractor's** estimate shall become a fixed price which shall not be changed by any variation in the actual cost of executing the Work covered by the change; or

11.3.4.3. by actual Cost determined after the Work covered by the change is completed, plus Percentage; or

11.3.4.4. by submission to arbitration or a court, which shall determine the fair value of the Work covered by the change.

11.3.5. “Cost” shall mean the estimated or actual net increase or decrease in cost to the **Contractor**, Subcontractor, or Sub-subcontractor for performing the Work covered by the change, including actual payments for materials, equipment rentals, expendable items, wages, and associated benefits to the workers and to supervisors employed full time at the Site, insurance, bonds, and other provable direct costs, but not including any administrative, accounting or expediting costs, or other indirect or overhead costs, or any wages or benefits of supervisory personnel not assigned full time to the Site, or any amount for profit or fee to the **Contractor**, Subcontractor, or Sub-subcontractor.

11.3.6. “Percentage” shall mean an allowance to be added to or subtracted from the Cost in lieu of overhead and profit and of any other expense that is not included in the Cost of the Work covered by the change, as defined above. Percentage for a Sub-subcontractor shall be 8% of any net increase or decrease of Cost of any Work performed by the Sub-subcontractor’s own forces plus 4% of any net increase or decrease in Cost of any Work performed for the Sub-subcontractor by lower tier Sub-subcontractors. Percentage for a Subcontractor shall be 12% of any net increase or decrease of Cost of any Work performed by the Subcontractor’s own forces plus 4% of the Cost of Work performed by Sub-subcontractors. Percentage for the **Contractor** shall be 15% of any net increase or decrease of Cost of any Work performed by the **Contractor's** own forces plus 5% of any net increase or decrease in the Cost for all other Work covered by the change. When the **Contractor** is also performing Work as a Subcontractor or Sub-subcontractor, the **Contractor** shall only be entitled to a total of no more than 15% of any net increase or decrease of Cost of any Work.

11.3.7. When in the reasonable judgment of the **Design Professional** a series of **Construction Change** Directives or Change Orders effect a single change, Percentage shall be calculated on the cumulative net increase or decrease in Cost, if any.

11.3.8. If unit prices are stated in the Contract Documents or are subsequently agreed upon, and if quantities originally contemplated are so changed in a Proposed Change Order or **Construction Change** Directive that the application of such unit prices to quantities of Work proposed will cause substantial inequity to the **City** or the **Contractor**, the applicable unit prices shall be equitably adjusted.

11.3.9. If the **City** elects to determine the Cost of the Work as provided in method

(11.3.4.1) using unit prices stated in the Contract Documents or subsequently agreed upon, the unit prices shall be subject to the prior paragraph. Notwithstanding the inclusion of unit prices in the Contract Documents, it shall be the **City's** option to require the Cost of any given change to be determined by one of the other methods stated in 11.3.4. If the **City** elected to determine the Cost of the change by unit prices and the nature of the work is such that its extent cannot readily be measured after the completion of such work or any subsequent Work, the **Contractor** shall keep daily records, available at all times to the **Design Professional** for inspection, of the actual quantities of such Work put in place, and delivery receipts or other adequate evidence, acceptable to the **Design Professional**, indicating the quantities of materials delivered to the Site for use in such unit price Work, and distinguishing such from other similar material delivered for use in Work include in the base Contract Sum. If so required by the **Design Professional**, materials for use in unit price Work shall be stored apart from all other materials on the Project.

11.3.10. If the **City** elects to determine the Cost of the Work as provided in methods 11.3.4.3. or 11.3.4.4. or if the method of determining the Cost has not been established before the Work is begun, the **Contractor** shall keep detailed daily records of labor and material costs applicable to the Work.

11.3.11. Upon receipt of a **Construction Change Directive**, the **Contractor** shall promptly proceed with the change in the Work involved and advise the **Design Professional** in writing of the **Contractor's** agreement or disagreement with the method, if any, provided in the **Construction Change Directive** for determining the proposed adjustment in the Contract Time.

11.3.12. A **Construction Change Directive** signed by the **Contractor** indicates the agreement of the **Contractor** therewith, including adjustment in the Contract Sum and Contract Time or the method for determining them. Such agreement shall be effective immediately and shall be recorded as a Change Order.

11.3.13. If the **Design Professional** and the **Contractor** do not agree with the adjustment in the Contract Time or the method for determining it, the adjustment or the method shall be referred to the **Design Professional** for determination.

11.4. Minor Changes in the Work.

11.4.1. The **Design Professional** has the authority to order minor changes in the Work. "Minor changes" as used in this paragraph mean changes which are so insignificant as to not affect the Contract Sum or the Contract Time and which are not inconsistent with the intent of the Contract Documents. Any minor change shall be committed to a written order which shall be binding on both the **City** and the **Contractor** and which shall be promptly carried out by the **Contractor**.

11.5. Certificate of Appropriations. (*Reference: M.G.L. c. 44, §31C;*). This Contract shall not be deemed to have been made until the **City's** auditor has certified thereon that an appropriation in the amount of this Contract is available therefor and that an officer or agent of the **City** has

been authorized to execute said Contract and approve all requisitions and change orders. No order to the **Contractor** for a change in or addition to the Work, whether in the form of a drawing, plan, detail or any other written instruction, unless it is an order which the **Contractor** is willing to perform without any increase to the Contract price, shall be deemed to be given until the auditor has certified thereon that an appropriation in the amount of such order is available therefore; but such certificate shall not be construed as an admission by the **City** of its liability to pay for such work. The certificate of the auditor that an appropriation in the amount of this Contract or in the amount of such order is available shall bar any defense by the **City** on the grounds of insufficient appropriation.

ARTICLE 12: CHANGE IN THE CONTRACT TIME

12.1. Date of Commencement.

12.1.1 The date of commencement of the Work is the date established in the Notice to Proceed. The date shall not be postponed by the failure to act of the **Contractor** or persons or entities for whom the **Contractor** is responsible.

12.2. Progress and Completion.

12.2.1. Time is of the essence; all time limits stated in the Contract Documents are of the essence of the Contract. By executing the Agreement, the **Contractor** confirms that the Contract Time is a reasonable period for performing the Work.

12.2.2. The **Contractor** shall proceed expeditiously with adequate forces and shall achieve Substantial Completion within the Contract Time.

12.2.3. Within five (5) working days of award of contract, the **Contractor** shall submit to the **Design Professional** a progress schedule showing for each class of Work included in the schedule of values, the percentage of completion to be obtained and the total dollar value of Work to be completed as of the first of each month until Substantial Completion. All calculations shall be on the basis of Work in place, but may include, at the **Design Professional's** discretion, the value of materials delivered but not in place.

12.2.4. The progress schedule shall be based on an orderly progression of the Work, allowing adequate time for each operation (including adequate time for submission and review of submittals), and leading to a reasonable certainty of Substantial Completion by the date established in the Agreement. The progress schedule will be reviewed by the **Design Professional** for compliance with the requirements of this Article and will be accepted by the **Design Professional** or returned to the **Contractor** for revision and resubmittal. Unless specifically required by law, no payment under this Contract shall be due until the progress schedule has been approved by the **Design Professional**. The **Design Professional's** review of the progress schedule shall not impose any duty on the **Design Professional** or the **City** with respect to the timing, planning, scheduling, or execution of the Work. In particular, if the **Contractor** proposes a progress schedule indicating a date of Substantial Completion which is earlier than the Contract Time, the **Contractor** shall not be entitled to additional payment or compensation of any kind if, for any reason, the full Contract Time is required to achieve

Substantial Completion of the Work.

12.2.5. If in any Application for Payment, the total value of the completed Work in place, as certified by the **Design Professional**, is less than 90% of the total value of the Work in place estimated in the progress schedule, the **City** may, at the **City's** option, require the **Contractor** to accelerate the progress of the Work without cost to the **City** by increasing the workforce or hours of Work or by other reasonable means approved by the **Design Professional**.

12.2.6. If each of three successive applications, as certified by the **Design Professional**, indicate that the actual Work completed is less than 90% of the values estimated in the progress schedule to be completed by the respective dates, the **City** may at the **City's** option, treat the **Contractor's** delinquency as a default justifying the action permitted under Article 18.

12.2.7. If the **Design Professional** has determined that the **Contractor** should be permitted to extend the time for completion as provided below, the calendar dates in the progress schedule shall be adjusted accordingly to retain their same relationship to the adjusted date of Substantial Completion, and the dollar value of the Work to be completed as of the first of each month shall be adjusted pro rata.

12.2.8. If the **Contractor** fails to submit any application for payment in any month, the **Design Professional** shall, for the purpose of this evaluation of progress, certify separately to the actual value of the Work in place completed as of the first of the month to the best of the **Design Professional's** knowledge.

12.2.9. Nothing herein shall limit the **City's** right to liquidated or other damages for delays by the **Contractor** or to any other remedy which the **City** may be entitled or may possess under other provisions of the Contract Documents or by law.

12.3. Delays and Extensions of Time.

12.3.1. If the **Contractor** is delayed at any time in the progress of the Work by an act or neglect of the **City** or the **Design Professional**, or of an employee of either, or of a separate contractor employed by the **City**, or by changes ordered in the Work, or by labor disputes, fire, unusual delay in deliveries, unavoidable casualties, or other causes (except weather) beyond the **Contractor's** control, or by delay authorized by the **City**, or by other causes which the **Design Professional** determines may justify delay, then the Contract Time shall be extended by Change Order or **Construction Change Directive** for such reasonable time as the **Design Professional** may determine.

12.3.2. Claims relating to time shall be made in accordance with applicable provisions of Article 16.

12.3.3. No claim for extension of time shall be allowed on account of failure of the **Design Professional** to furnish Plans, Specifications or instructions or to return Shop Drawings or Samples until fifteen (15) days after receipt by the **Design Professional** by registered or

certified mail of written demand for such instructions, Plans, Specifications, or Samples, and then not unless such claim is reasonable.

12.3.4. No extensions of time shall be granted because of seasonal or abnormal variations in temperature, humidity or precipitation, which conditions shall be wholly at the risk of the **Contractor**, whether occurring within the time originally scheduled for completion or within the period of any extension granted. There shall be no increase in the Contract Sum on account of any additional costs of operations or conditions resulting therefrom.

12.3.5. The **Contractor** hereby agrees that the **Contractor** shall have no claim for damages of any kind against the **City** or the **Design Professional** on account of any delay in the commencement of the Work and/or any hindrance, delay, or suspension of any portion of the Work, whether such delay is caused by the **City**, the **Design Professional**, or otherwise, except as and to the extent expressly provided under M.G.L. c. 30, §39O, in the case of written orders by the **City**. The **Contractor** acknowledges that the **Contractor's** sole remedy for any such delay and/or suspension will be an extension of time as provided in this Article.

12.3.6. (*Reference: M.G.L. c. 30, §39O;*). (a) The **City** may order the **Contractor** in writing to suspend, delay, or interrupt all or any part of the Work for such period of time as it may determine to be appropriate for the convenience of the **City**, provided however that if there is a suspension, delay, or interruption for fifteen (15) days or more due to a failure of the **City** to act within the time specified in this Contract, the **City** shall make an adjustment in the Contract prices for any increase in the cost of performance of this Contract under this provision for any suspension, delay, interruption, or failure to act to the extent that such is due to any cause for which this Contract provides for an equitable adjustment of the Contract price under any other Contract provisions.

(b) The **Contractor** must submit the amount of a claim under provision (a) to the **City** in writing as soon as practicable after the end of the suspension, delay, interruption, or failure to act and, in any event, not later than the date of final payment under this Contract and, except for costs due to a suspension order, the **City** shall not approve any costs in the claim incurred more than twenty (20) days before the **Contractor** notified the **City** in writing of the act or a failure to act involved in the Claim.

In the event a suspension, delay, interruption, or failure to act of the **City** increases the cost of performance to any Subcontractor, that Subcontractor shall have the same rights against the **Contractor** for payment for an increase in the cost of its performance as provisions (a) and (b) give the **Contractor** against the **City**, but nothing in provisions (a) and (b) shall in any way change, modify, or alter any other rights which the **Contractor** or the Subcontractor may have against each other.

12.4. Liquidated Damages.

12.4.1. If the **Contractor** shall fail to achieve Substantial Completion within the Contract

Time, it shall be liable to pay the **City** the daily amount specified in the Agreement, not as a penalty, but as a fixed and agreed upon damages for breach of contract. The said amount is fixed and agreed upon because of the difficulty of ascertaining the **City's** actual damages. It is mutually understood that the said amount is a reasonable approximation or estimate thereof as of the date of the Agreement. The **City** may elect to withhold said amount from periodic or final payments due to the **Contractor**, in addition to retainage and other back charges.

12.5. Changes in the Contract Time.

12.5.1. In Writing. The Contract Time may only be changed by a Change Order or a Modification. Any claim for an adjustment of the Contract Time shall be based on a written notice delivered to the party making the claim to the other party and to the **Design Professional** promptly (but in no event later than seven (7) days) after the occurrence of the event giving rise to the claim and stating the general nature of the claim. Notice of the extent of the claim with supporting data shall be delivered within thirty (30) days after such occurrence and shall be accompanied by the claimant's written statement that the adjustment claimed is the entire adjustment to which the claimant has reason to believe it is entitled as a result of the occurrence of said event. All claims for adjustment in the Contract Time shall be determined by the **Design Professional** in accordance with Article 16. No claim for an adjustment in the Contract Time will be valid if not submitted in accordance with the requirements of this paragraph.

12.5.2. Early Completion. The Contract Time shall not be changed due to a delay in the **Contractor's** early completion date.

ARTICLE 13: PAYMENTS

13.1. Schedule of Values.

13.1.1. The **Contractor** shall submit to the **Design Professional** a schedule of values which shall subdivide the Work into its component parts and shall include quantities, direct craft labor worker hours, labor cost and material/equipment cost. Labor cost shall include an appropriate amount of construction equipment costs, supplemental costs, administrative expenses, contingencies, and profit. The **Contractor** shall prepare the schedule of values in such form and supported by such data to substantiate its accuracy as the **Design Professional** may require and shall be revised if later found by the **Design Professional** to be inaccurate. This schedule, unless objected to by the **Design Professional**, shall be used as a basis for reviewing the **Contractor's** applications for payment.

13.2. Content and Submission of Applications for Payment.

13.2.1. At least ten (10) days before the date established for each progress payment, the **Contractor** shall submit to the **Design Professional** six (6) copies of an itemized application for payment for Work completed in accordance with the schedule of values. Such application shall be in a form or format established or approved by the **Design Professional** and shall be supported by documentation substantiating the **Contractor's** right to payment.

13.2.2. When **Construction Change** Directives have set forth an adjustment to the
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Contract Sum but have not yet been included in Change Orders, the value established by the **City** may be included in the application.

13.2.3. Applications covering Work of Subcontractors or Suppliers shall not include requests for payments of amounts the **Contractor** does not intend to pay to a Subcontractor or Supplier because of a dispute or other reason. The **Contractor** shall not be paid for any Work performed by a Subcontractor unless and until the **City** receives for that Subcontractor a certificate of insurance that conforms to the requirements of the Contract Documents .

13.2.4. Unless otherwise provided in the Contract Documents, payments shall be made on account of materials and equipment delivered and suitably stored at the Site for subsequent incorporation in the Work. If approved in advance by the **City**, payment may similarly be made for materials and equipment suitably stored off the Site at a location agreed upon in writing. Payment for materials and equipment stored on or off the Site shall be conditioned upon the application for payment being accompanied by a bill of sale, an invoice, or other documentation warranting that the **City** has received the materials and equipment free and clear of all liens, claims, security interests, or encumbrances, hereinafter collectively referred to as “liens,” and evidence that the materials and equipment are covered by appropriate insurance and other arrangements to protect the **City’s** interest therein.

13.2.5. Each application for payment or periodic estimate requesting payment shall be accompanied by, at the **City's** option, a certificate from each Subcontractor stating that the Subcontractor has been paid all amounts due the Subcontractor on the basis of the previous periodic payment to the **Contractor**, or else stating the amount not so paid and the reason for the discrepancy. In the event of any such discrepancy, the **Contractor** shall furnish the **Contractor's** own written explanation to the **City** through the **Design Professional**. Such waiver or certificate shall be in a form acceptable to the **City**.

13.3. False Applications for Payment.

13.3.1. (*Reference: M.G.L. c. 266, §§67B*). Any person who makes or presents to any claim upon or against any employee or department of the **City**, knowing such claim to be false, fictitious, or fraudulent shall be punished by a fine or not ore than ten thousand dollars (\$10,000) or by imprisonment in the state prison for not more than five (5) years, or in the house of correction for not more than two and one-half years, or both.

13.4. Review of Applications for Payment.

13.4.1. The **Design Professional** shall review each application for payment and will reject any application that (1) is not accompanied by the required documentation or (2) contains errors, mathematical or otherwise.

13.4.2. Within five (5) business days after receipt of an application for payment, the **Design Professional** will either (1) return the application to the **Contractor** with a written explanation as to why it was rejected or (2) issue to the **City** a certificate for payment, with a copy to the **Contractor**, for such amount as the **Design Professional** determines is properly due.

In the event an application is returned to the **Contractor**, the date of receipt of the application shall be the date of receipt of the corrected application.

13.4.3. The **Design Professional** or the **City** may make changes to any application submitted by the **Contractor**.

13.4.4. By recommending any payment, the **Design Professional** will not thereby be deemed to have represented that: (1) exhaustive or continuous on-site inspections have been made to check the quality or the quantity of the Work beyond the responsibilities specifically assigned to the **Design Professional** in the Contract Documents or (2) that there may not be other matters or issues between the parties that might entitle the **Contractor** to be paid additionally by the **City** or entitle the **City** to withhold payment to the **Contractor**. The **Design Professional's** approval of the application for payment and the accompanying documentation shall indicate that to the best of the **Design Professional's** knowledge, information, and belief, the Work has progressed to the point indicated by the **Contractor**, and that the quality of the Work is in accordance with the Contract Documents, subject to an evaluation of the Work as a functioning whole prior to or upon Substantial Completion, the results of any subsequent tests specified in the Contract Documents, final determination of quantities and classifications for unit price work and any other qualifications so stated.

13.4.5. The **Design Professional's** recommendation of any payment shall not mean that the **Design Professional** is responsible for the **Contractor's** means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of the **Contractor** to comply with laws and regulations applicable to the furnishing or performance of Work, or for any failure of the **Contractor** to perform or furnish Work in accordance with the Contract Documents.

13.4.6. No certificate given or payment made shall be evidence of the performance of this Contract, either wholly or in part and no payment, whether made upon the final certificate or otherwise, shall be construed as an acceptance of defective work or materials.

13.5. Decisions to Withhold Certification.

13.5.1. The **Design Professional** may refuse to recommend the whole or any part of any payment if, in the **Design Professional's** opinion, it would be incorrect to make the representations to the **City** referred to above.

13.5.2. If the **Contractor** and the **Design Professional** cannot agree on a revised amount, the **Design Professional** will promptly approve a certificate for payment for the amount for which the **Design Professional** is able to make such representations to the **City**. The **Design Professional** may also decide not to certify payment or, because of subsequently discovered evidence or subsequent observations, may nullify the whole or a part of a certificate for payment previously issued, to such extent as may be necessary in the **Design Professional's** opinion to protect the **City** from loss because of:

13.5.2.1. defective Work not remedied;

13.5.2.2. third party claims filed or reasonable evidence indicating probable filing of such claims;

13.5.2.3. failure of the **Contractor** to make payments properly to Subcontractors or for labor, materials or equipment;

13.5.2.4. reasonable evidence that the Work cannot be completed for the unpaid balance of the Contract Sum;

13.5.2.5. damage to the **City** or another contractor;

13.5.2.6. reasonable evidence that the Work will not be completed within the Contract Time, and that retainage currently held by the **City** would not be adequate to cover actual or liquidated damage for the anticipated delay;

13.5.2.7. persistent failure to carry out the Work in accordance with the Contract Documents; or

13.5.2.8. failure of mechanical trade or electrical trade subcontractors to comply with mandatory requirements for maintaining record drawings. The **Contractor** shall check record drawings each month. Written confirmation that the record drawings are current will be required by the **Design Professional** before approval of the **Contractor's** monthly payment requisition.

13.5.3. When the above reasons for withholding certification are removed, certification will be made for amounts previously withheld.

13.6. Progress Payments.

13.6.1. After the **Design Professional** has issued a certificate for payment, the **City** shall make payment in the manner and within the time provided in the Contract Documents.

13.6.2. (*Reference: M.G.L. c. 30, §39G;*). The **City** shall pay the amount due pursuant to any periodic, Substantial Completion or final estimate within thirty-five (35) days after receipt of written acceptance for such estimate from the **Contractor**. In the case of periodic payments, the **City** may deduct from its payment a retention based on its estimate of the fair value of its claims against the **Contractor**, a retention for direct payments to Subcontractors based on demands for same in accordance with M.G.L. c. 30, §39F; and a retention to secure satisfactory performance of the contractual work, not exceeding five percent (5%) of the approved amount of any periodic payment, and the same right to retention shall apply to bonded Subcontractors entitled to direct

payment under M.G.L. c. 30, §39F; provided, that a five percent (5%) value of all items that are planted in the ground shall be deducted from the periodic payments until final acceptance.

13.6.3. No periodic, Substantial Completion or final estimate or acceptance or payment thereof shall bar the **Contractor** from reserving all rights to dispute the quantity and amount of, or the failure of the **City** to approve a quantity and amount of, all or part of any Work item or extra Work item.

13.7. Final Payment.

13.7.1. After final inspection and after the **Contractor** has completed all the required corrections to the satisfaction of the **Design Professional** and the **City** and delivered in accordance with the Contract Documents all maintenance and operating instructions, schedules, guarantees, bonds, certificates, or other evidence of insurance, certificates of inspection, marked-up record documents, and all other documents called for in the Contract Documents, as well as any surplus materials requested by the **City**, the **Contractor** may make an application for final payment as provided below.

13.7.2. (*Reference: M.G.L. c. 30, §39G;*). Within thirty (30) days after receipt by the **City** of a notice from the **Contractor** stating that all of the Work required by the Contract has been completed, the **City** shall prepare and forthwith send to the **Contractor** for acceptance a final estimate for the quantity and price of the Work done and all retainage on the Work less all payments made to date, unless the **City's** inspection shows that Work required by the Contract remains incomplete or unsatisfactory, or that documentation required by the Contract has not been completed.

13.7.3. The making and acceptance of final payment will constitute a waiver of all claims by the **Contractor** against the **City** other than those previously made in writing and still unsettled.

13.8. Payments to Subcontractors.

13.8.1. Neither the **City** nor the **Design Professional** shall have an obligation to pay or see to the payment of money to a Subcontractor, Sub-subcontractor, or Supplier except as may otherwise be required by law.

13.8.2. (*Reference: M.G.L. c. 30, §39F;*) (1)(a) Forthwith after the **Contractor** receives payment on account of a periodic estimate, the **Contractor** shall pay to each Subcontractor the amount paid for the labor performed and the materials furnished by that Subcontractor, less any amount specified in any court proceedings barring such payment and also less any amount claimed due from the Subcontractor by the **Contractor**.

(b) Not later than the sixty-fifth day after each Subcontractor substantially completes its Work in accordance with the Plans and Specifications, the entire balance

due under the subcontract, less amounts retained by the **City** as the estimated cost of completing the incomplete and unsatisfactory items of Work, shall be due the Subcontractor; and the **City** shall pay that amount to the **Contractor**. The **Contractor** shall forthwith pay to the Subcontractor the full amount received from the **City** less any amount specified in any court proceeding barring such payment and also less any amount claimed due from the Subcontractor by the **Contractor**.

(c) Each payment made by the **City** to the **Contractor** pursuant to paragraphs (a) and (b) of M.G.L. c. 30, §39F(1);, for the labor performed and the materials furnished by a Subcontractor shall be made to the **Contractor** for the account of that Subcontractor; and the **City** shall take reasonable steps to compel the **Contractor** to make each such payment to each such Subcontractor. If the **City** has received a demand for direct payment from a Subcontractor for any amount which has already been included in a payment to the **Contractor** or which is to be include in a payment to the **Contractor** for payment to the Subcontractor as provided in paragraphs (a) and (b) of M.G.L. c. 30, §39F(1), the **City** shall act upon the demand as provided in M.G.L. c. 30, §39F.

(d) If, within seventy (70) days after the Subcontractor has substantially completed the subcontract Work, the Subcontractor has not received from the **Contractor** the balance due under the subcontract including any amount due for extra labor and materials furnished to the **Contractor**, less any amount retained by the **City** as the estimated cost of completing the incomplete and unsatisfactory items of Work, the Subcontractor may demand direct payment of that balance from the **City**. The demand shall be by a sworn statement delivered to or sent by certified mail to the **City**, and a copy shall be delivered to or sent by certified mail to the **Contractor** at the same time. The demand shall contain a detailed breakdown of the balance due under the subcontract and also a statement of the status of completion of the subcontract Work. [The demand letter shall indicate the certified mail number assigned by the postal service or the date of delivery to the **Contractor**.] Any demand made after substantial completion of the subcontract Work shall be valid even if delivered or mailed prior to the seventieth day after the Subcontractor has substantially completed the subcontract Work. Within ten (10) days after the Subcontractor has delivered or so mailed the demand to the **City** and delivered or so mailed a copy to the **Contractor**, the **Contractor** may reply to the demand. The reply shall be by a sworn statement delivered to or sent by certified mail to the **City**, and a copy shall be delivered to or sent by certified mail to the Subcontractor at the same time. The reply shall contain a detailed breakdown of the balance due under the subcontract, including any amount due for extra labor and materials furnished to the **Contractor** and of the amount due for each claim made by the **Contractor** against the Subcontractor.

(e) Within fifteen (15) days after receipt of the demand by the **City**, but in no event prior to the seventieth day after substantial completion of the subcontract Work, the **City** shall make direct payment to the Subcontractor of the balance due under the

subcontract, including any amount due for extra labor and materials furnished to the **Contractor**, less any amount (i) retained by the **City** as the estimated cost of completing the incomplete or unsatisfactory items of Work, (ii) specified in any court proceedings barring such payment, or (iii) disputed by the **Contractor** in the sworn reply; provided that the **City** shall not deduct from a direct payment any amount as provided in part (iii) if the reply is not sworn to or for which the sworn reply does not contain the detailed breakdown required by the previous paragraph. The **City** shall make further direct payments to the Subcontractor forthwith after the removal of the basis for deductions from direct payments made as provided in parts (i) and (ii) of this paragraph.

(f) The **City** shall forthwith deposit the amount deducted from a direct payment as provided in part (iii) of the previous paragraph in an interest-bearing joint account in the names of the **Contractor** and the Subcontractor in a bank in Massachusetts selected by the **City** or agreed upon by the **Contractor** and the Subcontractor and shall notify the **Contractor** and the Subcontractor of the date of the deposit and the bank receiving the deposit. The bank shall pay the amount in the account, including accrued interest, as provided in an agreement between the **Contractor** and the Subcontractor or as determined by decree of a court of competent jurisdiction.

(g) All direct payments and all deductions from demands for direct payments deposited in an interest-bearing account or accounts in a bank pursuant to the previous paragraph shall be made out of amounts payable to the **Contractor** at the time of receipt of a demand for direct payment from a Subcontractor and out of amounts which later become payable to the **Contractor** and in the order of receipt of such demands from Subcontractors. All direct payments shall discharge the obligation of the **City** to the **Contractor** to the extent of such payment.

(h) The **City** shall deduct from payments to a **Contractor** amounts that, together with the deposits in interest-bearing accounts pursuant to paragraph (f), are sufficient to satisfy all unpaid balances of demands for direct payment received from Subcontractors. All such amounts shall be earmarked for such direct payments, and the Subcontractors shall have a right in such deductions prior to any claims against such amounts by creditors of the **Contractor**.

(i) If the Subcontractor does not receive payment as provided in paragraph (a) or if the **Contractor** does not submit a periodic estimate for the value of the labor or materials performed or furnished by the Subcontractor and the Subcontractor does not receive payment for same when due less the deductions provided for in paragraph (a), the Subcontractor may demand direct payment by following the procedure in paragraph (d) and the **Contractor** may file a sworn reply as provided in that same paragraph. A demand made after the first day of the month following that for which the Subcontractor performed or furnished the labor and materials for which the Subcontractor seeks payment shall be valid even if delivered or mailed prior to the time payment was due on a periodic estimate from the **Contractor**. Thereafter the **City** shall proceed as provided in

paragraphs (e), (f), (g), and (h). “Subcontractor” as used in this paragraph (1)(i) shall mean a person approved by the **City** in writing as a person performing labor or both performing labor and furnishing materials pursuant to a contract with the **Contractor**.

(2) Any assignment by a Subcontractor of the rights under this section to a surety company furnishing a bond under the provisions of M.G.L. c. 149, §29; shall be invalid. The assignment and subrogation rights of the surety to amounts included in a demand for direct payment which are in the possession of the **City** or which are on deposit pursuant to paragraph (g) shall be subordinate to the rights of all Subcontractors who are entitled to be paid under this section and who have not been paid in full.

(3) A **Contractor** or a Subcontractor shall enforce a claim to any portion of the amount of a demand for direct payment deposited as provided in herein by a petition in equity in the superior court against the other and the bank shall not be a necessary party. A Subcontractor shall enforce a claim for direct payment or a right to require a deposit as provided in paragraph (f) by a petition in equity in the superior court against the **City** and the **Contractor** shall not be a necessary party. Upon motion of any party the court shall advance for speedy trial any petition filed as provided in this paragraph. M.G.L. c. 231, §§59 and 59B shall apply to such petitions. The court shall enter an interlocutory decree upon which execution shall issue for any part of a claim found due pursuant to §§59 and 59B and, upon motion of any party, shall advance for speedy trial the petition to collect the remainder of the claim. Any party aggrieved by such interlocutory decree shall have the right to appeal therefrom as from a final decree. The court shall not consolidate for trial the petition of any Subcontractor with the petition of one or more Subcontractors or the same general contract unless the court finds that a substantial portion of the evidence of the same events during the course of construction (other than the fact that the claims sought to be consolidated arise under the same general contract) is applicable to the petitions sought to be consolidated and that such consolidation will present unnecessary duplication of evidence. A decree in any such proceeding shall not include interest on the disputed amount deposited in excess of the interest earned for the period of any such deposit. No person except a Subcontractor filing a demand for direct payment for which no funds due the **Contractor** are available for direct payment shall have a right to file a petition in court of equity against the **City** claiming a demand for direct payment is premature, and such Subcontractor must file the petition before the **City** has made a direct payment to the Subcontractor and has made a deposit of the disputed portion as provided in part (iii) of paragraph (e) and in paragraph (f).

(4) In any petition to collect any claim for which a Subcontractor has filed a demand for direct payment the court shall, upon motion of the **Contractor**, reduce by the amount of any deposit of a disputed amount by the **City** as provided in part (iii) of paragraph (e) and in paragraph (f) any amount held under a trustee writ or pursuant to a restraining order or injunction.

ARTICLE 14: SUBSTANTIAL COMPLETION

14.1. Substantial Completion.

14.1.1. Upon Substantial Completion of the Work, the **Contractor** shall present in writing to the **City** its certification that the Work has been substantially completed and include in its certification (1) a list of items to be completed or corrected, (2) all special warranties required by the Contract Documents, endorsed by the **Contractor** and in a form reasonably acceptable to the **Design Professional** and (3) the permits and certificates referred to in 13.7.1., or elsewhere. The failure to include any item on the list mentioned in the preceding sentence does not alter the responsibility of the **Contractor** to complete all Work in accordance with the Contract Documents. When the **Design Professional** on the basis of an inspection determines that the Work or designed portion thereof is substantially complete and the other conditions have been met, the **Design Professional** will then prepare a certificate of Substantial Completion which shall establish the date of Substantial Completion, shall state the responsibilities of the **City** and the **Contractor** for security, maintenance, heat, utilities, damage to the Work, and insurance, and shall fix the time within which the **Contractor** shall complete the items listed therein. The certificate of Substantial Completion shall be submitted to the **City** and the **Contractor** for their written acceptance of the responsibilities assigned to them in such certificate.

14.1.2. Within twenty-one (21) days after receipt of the certification from the **Contractor**, the **City** shall present to the **Contractor** either a written declaration that the Work has been substantially completed or an itemized list of incomplete or unsatisfactory work items required by the Contract sufficient to demonstrate that the Work has not been substantially completed. The **City** may include with such list a notice setting forth a reasonable time within which the **Contractor** must achieve Substantial Completion of the Work. If the **City** fails to respond, by presentation of a written declaration or itemized list as aforesaid, to the **Contractor's** certification within the twenty-one (21) day period, the **Contractor's** certification shall take effect as the **City's** declaration that the Work has been substantially completed.

14.2. Partial Use or Occupancy of the Premises.

14.2.1. The **City** may occupy or use any completed or partially completed portion of the Work at any stage. Such partial occupancy or use may begin whether or not the portion is substantially complete, provided that the respective responsibilities of the **City** and the **Contractor** with respect to payments, retainage, if any, security, maintenance, heat, utilities, damage to the Work, insurance, correction of the Work, and warranties shall be established by agreement of the **City** and the **Contractor** or, absent such agreement, shall be determined by the **Design Professional** subject to the right of either party to contest such determination as provided in Article 16.

14.2.2. Immediately prior to such partial occupancy or use, the **City**, the **Contractor** and the **Design Professional** shall jointly inspect the area to be occupied or portion of the Work to be used in order to determine and record the condition of the Work.

14.2.3. Unless otherwise agreed upon, partial occupancy or use of a portion or portions of the Work shall not constitute acceptance of Work not complying with the requirements of the

Contract Documents.

14.2.4. (*Reference:* M.G.L. c. 30, §39G;). Within sixty-five (65) days after the effective date of a declaration of Substantial Completion, the **City** shall prepare and send to the **Contractor** for acceptance a Substantial Completion estimate for the quantity and price of the Work done and all but one percent (1%) retainage on that Work, including the quantity, price and all but one percent (1%) retainage for the undisputed part of each item and extra work item in dispute, but excluding the disputed part thereof, less the estimated cost of completing all incomplete and unsatisfactory items and less the total periodic payments made to date for the Work. The **City** shall also deduct from the Substantial Completion estimate an amount equal to the sum of all demands for direct payment filed by Subcontractors and not yet paid to Subcontractors or deposited in joint accounts pursuant to M.G.L. c. 30, §39F.

14.2.5. (*Reference:* M.G.L. c. 30, §39G). If the **City** fails to prepare and send to the **Contractor** any Substantial Completion estimate required by the provisions herein on or before the date specified, the **City** shall pay to the **Contractor** interest on the amount which would have been due to the **Contractor** pursuant to such Substantial Completion estimate at the rate of three (3) percentage points above the rediscount rate then charged by the Federal Reserve Bank of Boston from such date to the date on which the **City** sends that Substantial Completion estimate to the **Contractor** for acceptance or to the date of payment therefor, whichever occurs first. The **City** shall include the amount of such interest in the Substantial Completion estimate.

14.2.6. (*Reference:* M.G.L. c. 30, §39G). Within fifteen (15) days after the effective date of the declaration of Substantial Completion, the **City** shall send to the **Contractor** by certified mail, return receipt requested, a complete list of all incomplete or unsatisfactory items, and unless delayed by causes beyond its control, the **Contractor** shall complete all such items within forty-five (45) days after the receipt of such list or before the date for final payment and acceptance, whichever is later. If the **Contractor** fails to complete such Work within such time, the **City** may, subsequent to seven (7) days' written notice to the **Contractor** by certified mail, return receipt requested, terminate the Contract and complete the incomplete or unsatisfactory items and charge the cost of same to the **Contractor**.

14.3. Final Inspection.

14.3.1. Upon written notice from the **Contractor** that the entire Work or an agreed portion thereof is complete, the **Design Professional** will make a final inspection with the **City** and the **Contractor** and will notify the **Contractor** in writing of all particulars which this inspection reveals that the Work is incomplete or defective. The **Contractor** shall immediately take such measures as are necessary to complete such Work or remedy such deficiencies.

ARTICLE 15: GUARANTEES AND WARRANTIES

15.1. In General.

15.1.1. All guarantees and warranties specifically called for by the Specifications shall expressly run to the benefit of the **City**.

15.2. Warranties.

15.2.1. Warranties required by the Contract Documents shall commence on the date of Substantial Completion of the Work or designated portion thereof, unless otherwise provided in the certificate of Substantial Completion.

15.2.2. The **Contractor** warrants that the materials and equipment furnished under the Contract will be new and of recent manufacture unless otherwise specified, and that all Work will be of good quality, free from faults and defects, and in conformance with the Contract Documents. Work not conforming to these requirements, including substitutions not properly approved and authorized, may be considered defective. The **Contractor's** warranty excludes remedy for damage or defect caused by abuse, Modifications not executed by the **Contractor**, improper or insufficient maintenance, improper operation, or normal wear and tear under normal usage. If required by the **Design Professional**, the **Contractor** shall furnish satisfactory evidence as to the kind and quality of material and equipment.

15.2.3. The **Contractor** warrants that title to all Work covered by an application for payment will pass to the **City** either by incorporation in the construction or upon the receipt of payment by the **Contractor**, whichever occurs first, free and clear of all liens. The **Contractor** further agrees that the submission of any application for payment shall conclusively be deemed to waive all liens with respect to said Work to which the **Contractor** may then be entitled, provided that such waiver of the lien rights shall not waive the **Contractor's** right to payment for such Work.

15.2.4. The **Contractor** warrants and guarantees that title to all Work, materials, and equipment covered by any application for payment, whether incorporated in the Project or not, will pass to the **City** no later than the time of payment free and clear of all liens.

15.2.5. No materials or supplies for the Work shall be purchased by the **Contractor** or Subcontractor subject to any chattel mortgage or under a conditional sale contract or other agreement by which an interest is retained by the seller. The **Contractor** warrants that it has good title to all materials and supplies used by it in the Work, free from all liens.

15.2.6. The **Contractor** shall indemnify and hold the **City** harmless from all claims growing out of the lawful demands of Subcontractors, laborers, workers, mechanics, material persons, and furnishers of machinery and parts thereof, equipment, power tools, and all supplies, including commissary, incurred in the furtherance of the performance of this Contract. The **Contractor** shall at the **City's** request, furnish satisfactory evidence that all obligations of the nature hereinabove designated have been paid, discharged, or waived. If the **Contractor** fails to do so, then the **City** may, after having served written notice on the **Contractor** either pay unpaid bills, of which the **City** has written notice, direct, or withhold from the **Contractor's** unpaid compensation a sum of money deemed reasonably sufficient to pay any and all such lawful claims until satisfactory evidence is furnished that all liabilities have been fully discharged whereupon payment to the **Contractor** shall be resumed, in accordance with the terms of this

Contract, but in no event shall the provisions of this sentence be construed to impose any obligations on the **City** to either the **Contractor** or its surety. In paying any unpaid bills of the **Contractor**, the **City** shall be deemed the agent of the **Contractor** and any payment so made by the **City** shall be considered as payment made under the Contract by the **City** to the **Contractor** and the **City** shall not be liable to the **Contractor** for any such payment made in good faith.

15.3. Extended Warranties and Guarantees.

15.3.1. Any defective Work that is either corrected or replaced will be warranted and guaranteed for a period of three (3) years from the date of such correction or replacement.

ARTICLE 16: CLAIMS

16.1. In General.

16.1.1. Written Notice. A Claim must be made by written notice to the other party.

16.1.2. Content of Notice. The notice must include all written supporting data.

16.1.3. Burden of Proof. The party making the Claim must substantiate the Claim.

16.2. Time Limits on Claims.

16.2.1. Unless otherwise provided, all Claims must be made within twenty-one (21) days after the occurrence of the event giving rise to such Claim or within twenty-one (21) days after the claimant first recognizes the condition giving rise to the Claim, whichever is later. Any change or addition to a previously made Claim shall be made by a written notice within the twenty-one-day period in order to be valid.

16.3. Continuing Contract Performance.

16.3.1. Pending final resolution of a Claim including arbitration, unless otherwise agreed in writing, the **Contractor** shall proceed diligently with performance of the Contract and the **City** shall continue to make payments in accordance with the Contract Documents.

16.4. Types of Claims.

16.4.1. Claims for Differing Subsurface or Latent Physical Conditions. (*Reference: M.G.L. c. 30, §39N;*). If, during the progress of the Work, the **Contractor** or the **City** discovers that the actual subsurface or latent physical conditions encountered at the Site differ substantially or materially from those shown on the Plans or indicated in the Contract Documents, either the **Contractor** or the **City** may request an equitable adjustment in the Contract Sum of the Contract applying to Work affected by the differing Site conditions. A request for such an adjustment shall be in writing and shall be delivered by the party making such claim to the other party as soon as possible after such conditions are discovered. Upon receipt of such a claim from a **Contractor**, or upon its own initiative, the **City** shall make an investigation of such physical conditions, and if they differ substantially or materially from those shown on the Plans or indicated in the Contract Documents or from those ordinarily encountered and generally recognized as inherent in Work of the character provided for in the Plans and Contract

Documents and are of such a nature as to cause an increase or decrease in the cost of performance of the Work or a change in the construction methods required for the performance of the Work which results in an increase or decrease in the cost of the Work, the **City** shall make an equitable adjustment in the Contract Sum and the Contract shall be modified in writing accordingly.

16.4.2. Claims for Additional Cost. If the **Contractor** claims that any acts or omissions of the **City** or the **Design Professional**, including any instructions or orders, whether oral, written, by drawings, or otherwise, involve extra cost or time, and the **Contractor** has not received a written acknowledgment by the **City** or the **Design Professional** that extra payment will be made or time extended on account thereof, the **Contractor** shall promptly so notify the **Design Professional** in writing of such Claim and shall proceed with the Work relating to such Claim and all rights of both parties with respect to such Claim shall be deemed to have been reserved. No Claim by the **Contractor** on account of such acts, omissions, instructions, or orders shall be valid unless the **Contractor** has so notified the **Design Professional** before proceeding.

16.4.2.1. Under no circumstances shall a Claim be made for additional cost where adverse weather conditions are the basis for the Claim.

16.4.3. Claims for Additional Time. If the **Contractor** wishes to make a Claim for an increase in the Contract Time, written notice as provided herein shall be given. The **Contractor** shall have the burden of demonstrating the effect of the claimed delay on the Contract Time and shall furnish the **Design Professional** with such documentation relating thereto as the **Design Professional** may reasonably require. Under no circumstances shall the **Contractor** make a Claim for an increase in the Contract Time due to a change in the **Contractor's** early completion date. If the increase in the Contract Time extends beyond the Contract Time established by the **City**, only the time that so extends beyond the Contract Time shall be reviewed and considered. In the case of a continuing delay, only one Claim is necessary.

16.4.3.1. Under no circumstances shall a Claim be made for additional time where adverse weather conditions are the basis for the Claim.

16.4.4. Claims for Injury to Person or Damage to Property. Should either party to the Contract suffer injury to person or damage to property because of any error, omission, or act of the other party or of any of the other party's employees or agents or others for whose acts the other party is legally liable, a Claim will be made in writing to the other party within twenty-one (21) days of the occurrence of the act giving rise to the injury or damage.

16.5. Review of Claims.

16.5.1. Initial Referral. All Claims, the bases of which arise prior to final payment or the earlier termination of the Contract, shall be referred initially to the **Design Professional** for action as provided herein.

16.5.2. Time Period and Action. The **Design Professional** shall review Claims and shall

do one of the following within fourteen (14) days of receipt of the Claim:

16.5.2.1. defer any action with respect to all or any part of a Claim for the purpose of requesting and receiving additional information from either party;

16.5.2.2. decline in writing to render a decision for any reason which it deems appropriate (including, but not limited to, the fact that the Claim involves allegations of fault on the part of the **Design Professional**); or

16.5.2.3. render a decision on all or a part of the Claim.

16.5.3. If the **Design Professional** requests additional information, the **Design Professional** shall take action with respect to the Claim no later than fourteen (14) days after receipt of the additional information. The **Design Professional** shall notify the parties in writing of its disposition of such Claim. If the **Design Professional** renders a decision or declines to render a decision, either party may proceed in accordance with paragraph 16.7.

16.6. Decisions.

16.6.1. Decisions by the City or the Design Professional. (*Reference:* M.G.L. c. 30, §39P;). In every case in which this Contract requires the **City**, any official, or its **Design Professional** to make a decision on interpretation of the Specifications, approval of equipment, material or any other approval, or progress of the Work, the decision shall be made promptly and, in any event, no later than fourteen (14) days after the written submission for decision; but if such decision requires extended investigation and study, the **City**, the official, or the **Design Professional** shall, within fourteen (14) days after the receipt of the submission, give the party making the submission written notice of the reasons why the decision cannot be made within the thirty-day period and the date by which the decision will be made.

16.6.2. When Decision of the Design Professional is Final and Binding. The decision of the **Design Professional** shall be final and binding on the parties, unless a party files suit or a demand for arbitration within thirty (30) days after the date of the decision.

16.6.3. When Decision of the Design Professional is Not Final and Binding. (*Reference:* M.G.L. c. 30, §39J). Notwithstanding any contrary provision of this Contract, no decision by the **City** or by the **Design Professional** on a dispute, whether of fact or of law, arising under said Contract shall be final or conclusive if such decision is made in bad faith, fraudulently, capriciously, arbitrarily, is unsupported by substantial evidence, or is based upon error of law.

16.6.4. Resolved Claims. If a Claim is resolved, the **Design Professional** shall obtain or prepare the appropriate documentation and provide the **City** and the **Contractor** with a copy of same.

16.7. Arbitration.

16.7.1. Controversies and Claims Subject to Arbitration. Any controversy or Claim arising out of or related to the Contract, or the breach thereof, shall be settled by arbitration in accordance with the Construction Industry Arbitration Rules of the American Arbitration Association, and judgment upon the award rendered by the arbitrator or arbitrators may be entered in any court having jurisdiction thereof, except controversies or Claims relating to aesthetic effect, subject to the provisions of paragraph 16.7.7. In any such arbitration in which the amount stated in the demand is \$100,000 or less, the American Arbitration Association shall appoint a single arbitrator in accordance with such Rules, who shall be a lawyer. In any such arbitration in which the amount stated in the demand is in excess of \$100,000, the demand shall include the name of an arbitrator appointed by the claimant. The respondent shall appoint a second arbitrator and shall notify the claimant in writing of such appointment within thirty (30) days of receipt of the demand, failing which the matter shall be decided by the arbitrator named in the claimant's demand. Within thirty (30) days after the claimant's receipt of notice of the appointment of the second arbitrator, the two arbitrators shall appoint a neutral arbitrator and shall notify the parties in writing of such appointment, failing which either party may apply to the American Arbitration Association to appoint such neutral arbitrator. If such neutral arbitrator is appointed by the American Arbitration Association, he or she shall be a lawyer.

16.7.2. Rules for Arbitration. If the neutral arbitrator is appointed by the American Arbitration Association, the said Association shall administer the arbitration and its Construction Industry Arbitration Rules shall govern all aspects of the proceeding including the enforcement of any award. If the neutral arbitrator is not appointed by the American Arbitration Association, then the panel of arbitrators shall act as the administrator of the arbitration but the Construction Industry Arbitration Rules of the Association shall nonetheless govern all aspects of the proceeding, including the enforcement of any award, provided however that the arbitration panel shall have all of the powers and duties conferred on the Association pursuant to said rules. In addition, the following rules shall govern the selection of arbitrators and the proceedings:

16.7.2.1. Neither party may appoint as arbitrator an employee or an owner of that party, nor the parent, spouse, or child of an employee or owner of that party.

16.7.2.2. After the neutral arbitrator has been appointed, neither party may engage in *ex parte* communication with any arbitrator.

16.7.3. When Arbitration May Be Demanded. Demand for arbitration of any Claim, the basis of which arises prior to final payment or the earlier termination of the Contract may not be made before the earlier of (1) the date on which the **Design Professional** has rendered a written decision on the Claim or has notified the parties in writing that such decision will not be rendered or (2) forty-five (45) days following receipt by the **Design Professional** of a written request for a decision sent by registered or certified mail to both the **Design Professional** and the other party to this Contract.

16.7.3.1. In no event shall a demand for arbitration be made after the date
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when the institution of legal or equitable proceedings based on such Claim would be barred by the applicable statute of limitations.

16.7.4. Limitation on Consolidation or Joinder. No arbitration arising out of or relating to the Contract Documents shall include, by consolidation or joinder or in any other manner, the **Design Professional**, the **Design Professional's** employees or consultants, except by written consent containing specific reference to the Contract and signed by the **Design Professional**, the **City**, the **Contractor**, and any other person or entity sought to be joined. No arbitration shall include, by consolidation or joinder or in any other manner, parties other than the **City**, the **Contractor**, a separate contractor, and other persons substantially involved in a common question of fact or law whose presence is required if complete relief is to be accorded in arbitration. No person or entity other than the **City**, the **Contractor**, or a separate contractor shall be included as an original third party or additional third party to an arbitration whose interest or responsibility is insubstantial. Consent to arbitration involving an additional person or entity shall not constitute consent to arbitration of a dispute not described therein or with a person or entity so named or described herein. The foregoing agreement to arbitrate and other agreements to arbitrate with an additional person or entity duly consented to by parties to the Contract shall be specifically enforceable under applicable law in any court having jurisdiction thereof.

16.7.5. Claims and Timely Assertion of Claims. A party who files a notice of demand for arbitration must assert in the demand all Claims then known to that party on which arbitration is permitted to be demanded. When a party fails to include a Claim through oversight, inadvertence, or excusable neglect, or when a Claim has matured or been acquired subsequently, the arbitrator or arbitrators may permit amendment.

16.7.6. Award Final. The award rendered by the arbitrator or arbitrators shall be final, and judgment may be entered upon it in accordance with applicable law in any court having jurisdiction thereof.

16.7.7. The City's Reservation of Rights. Notwithstanding any provision contained in this Article 16 or elsewhere in the Contract Documents, the **City** reserves the following rights in connection with Claims between the **City** and the **Contractor**, which rights may be exercised by the **City** unilaterally, in the **City's** sole discretion, and without the consent of the **Contractor**:

16.7.7.1. the right to institute legal action against the **Contractor** in any court of competent jurisdiction in lieu of demanding arbitration, in which case the dispute or disputes which are the subject of such action shall be decided by such court, and not by arbitration;

16.7.7.2. the right to obtain from any court of competent jurisdiction a stay of any arbitration instituted by the **Contractor**, provided that the application for such stay is made before the appointment of the neutral arbitrator in such arbitration, in which case the dispute or disputes which are the subject of such arbitration shall be decided by such court and not by arbitration;

16.7.7.3. the right to require the **Contractor** to join as a party in any arbitration between the **City** and the **Design Professional** relating to the Project, in which case the **Contractor** agrees to be bound by the decision of the arbitrator or arbitrators in such arbitration.

16.7.8. In case the **City** elects to proceed in accordance with 16.7.7.1. or 16.7.7.2. above, the word “litigation” shall be deemed to replace the word “arbitration” wherever the latter word appears in the Contract Documents.

ARTICLE 17: EMERGENCIES

17.1. In an emergency affecting the health and safety of persons or property, the **Contractor** shall act to prevent threatened damage, injury, or loss.

17.2. In emergencies affecting the health, safety, or protection of persons, the Work or property at the Site or adjacent thereto, the **Contractor**, without special instruction or authorization from the **City** or the **Design Professional**, is obligated to act to prevent threatened damage, injury, or loss. The **Contractor** shall give the **Design Professional** prompt written notice if the **Contractor** believes that any significant changes in the Work or variations from the Contract Documents have been caused thereby. If the **Design Professional** determines that a change in the Contract Documents is required because of the action taken by the **Contractor** in response to such an emergency, a **Construction Change** Directive or Change Order will be issued to document the consequences of such action.

ARTICLE 18: TERMINATION OR SUSPENSION OF THE CONTRACT

18.1. Suspension by the City.

18.1.1. At any time and without cause, the **City** may suspend the Work or any portion thereof for a period of not more than ninety (90) days by notice in writing to the **Contractor** and the **Design Professional** that will fix the date on which Work will be resumed. The **Contractor** shall resume Work on the date so fixed. The **Contractor** shall be allowed an adjustment in the Contract Sum or an extension of the Contract Time, or both, directly attributable to any such suspension if the **Contractor** makes an approved Claim therefor.

18.1.2. If the Work is defective, if the **Contractor** fails to provide a sufficient number of skilled workers or suitable materials or equipment, or if the **Contractor** defaults or neglects to carry out the Work in accordance with the Contract Documents and fails within a seven-day period after receipt of written notice from the **City** to begin and prosecute correction of such default or neglect with diligence and promptness, the **City** may correct such deficiencies, without prejudice to other remedies the **City** may have. In such case, an appropriate **Construction Change** Directive shall be issued deducting from payments then or thereafter due to the **Contractor** the cost of correcting such deficiencies including compensation for the **Design Professional's** additional services and expenses made necessary by such default, neglect, or failure and any and all direct, indirect, or consequential costs associated with the order to stop the

Work. If such payments then or thereafter due the **Contractor** are not sufficient to cover such amounts, the **Contractor** shall immediately pay the difference to the **City**. The **Contractor** shall remain responsible for maintaining progress and shall not be entitled to any increase in the Contract Time or the Contract Sum.

18.2. Termination by the Contractor.

18.2.1. If, through no act or fault of the **Contractor**, a Subcontractor, or a Sub-subcontractor, the Work is suspended for a period of more than ninety (90) days by the **City**, or under an order of court or other public authority, or the **Design Professional** fails to act on any application for payment within thirty (30) days after it is submitted in proper form and content or the **City** fails for thirty (30) days to pay the **Contractor** any sum finally determined to be due, then the **Contractor** may terminate the Contract upon seven (7) days' written notice to the **City**, provided that the **City** does not remedy such suspension or failure within that time.

18.3. Termination by the City.

18.3.1. If the **Contractor** is adjudged a bankrupt, or if the **Contractor** makes a general assignment for the benefit of the **Contractor's** creditors, or if a receiver is appointed on account of the **Contractor's** insolvency, or if the **Contractor** persistently or repeatedly refuses or fails, except in cases for which extension of time is provided, to supply enough properly skilled workers or proper materials, or if the **Contractor** fails to make prompt payment to Subcontractors or for materials or labor, or persistently disregards laws, ordinances, rules, regulations, or orders of any public authority having jurisdiction or disregards an instruction, order, or decision of the **Design Professional**, or otherwise is guilty of substantial violation of any provision of the Contract, then the **Contractor** shall be in default, and the **City** may, without prejudice to any other right or remedy and upon written notice to the **Contractor**, take possession of all materials, tools, appliances, equipment, construction equipment and machinery and vehicles, offices and other facilities on the Project Site, and all materials intended for the Work, wherever stored, and, seven (7) days after such notice, may terminate the employment of the **Contractor**, accept assignment of any or all subcontracts pursuant to Paragraph __, and finish the Work by whatever method the **City** may deem expedient. The **City** shall be entitled to collect from the **Contractor** all direct, indirect, and consequential damages suffered by the **City** on account of the **Contractor's** default, including without limitation additional services and expenses of the **Design Professional** made necessary thereby. The **City** shall be entitled to hold all amounts due to the **Contractor** at the date of termination until all of the **City's** damages have been established, and to apply such amounts to such damages.

18.3.2. (*Reference: Somerville Municipal Code Chapter 2.117, Section 2.117.110C*). In the event the **Contractor** or any of its agents or employees violates any provision of Somerville Municipal Code Chapter 2.117 that is applicable to **City** contractors in connection with the awarding, administration, or performance of the Contract, the **City** may terminate the Contract.

ARTICLE 19: AMERICANS WITH DISABILITIES ACT; (42 U.S. 12131)

19.1. On July 26, 1994, the Americans with Disabilities Act ("the Act") became effective for
Union Square Early Action Project

employers of fifteen or more employees.

19.2. The Act protects against discrimination on the basis of “disability,” which is defined as a physical or mental impairment that substantially limits at least one “major life activity;” or discrimination against an individual who has a record of such impairment; or discrimination against an individual being regarded - even if inaccurately - as having such impairment. The Act also expressly prohibits job discrimination that is based on any individual’s relationship or association with a disabled person.

19.3. If the **Contractor** is subject to the Act, it must comply with its provisions.

ARTICLE 20: WRITTEN NOTICE TO THE PARTIES

20.1. In General.

20.1.1. All written communications from the **Design Professional** to the **Contractor** shall be copied to the **City**. All written communications from the **Contractor** to the **Design Professional** shall be copied to the **City**. All written communications from the **Contractor** to the **City** shall be copied to the **Design Professional**.

20.2. Addresses.

20.2.1. To the City. Written notice to the **City** shall be sent or hand-delivered to:

Purchasing Director
City of Somerville
93 Highland Avenue
Somerville, MA 02143

City Solicitor
Law Department
93 Highland Avenue
Somerville, MA 02143

Executive Director
Office of Strategic Planning & Community Development 93
Highland Avenue
Somerville, MA 02143

20.2.2. To the Contractor. Both the address given on the bid form upon which the Agreement is founded and the **Contractor's** office at or near the Site of the Work are hereby designated as places to either of which notices, letters, and other communications to the **Contractor** shall be certified, mailed, or delivered. Delivery of any notice, letter, or other communication to the **Contractor** at or depositing same in a postpaid wrapper directed to either place shall be deemed sufficient service thereof upon the **Contractor**. Written notice shall be deemed to have been duly served on the **Contractor** if it is sent or hand-delivered to any member or officer of the **Contractor**. The date of said service shall be the date of such delivery

Union Square Early Action Project
00430

or mailing. The address may be changed at any time by an instrument in writing, executed and acknowledged by the **Contractor** and delivered to the **City** and to the **Design Professional**. Nothing herein contained shall be deemed to preclude or render inoperative the service of any notice, letter, or other communication upon the **Contractor** personally. Moreover, any notice, letter, or other communication required under the Contract may be served on the **Contractor's** representative at job meetings. The **Contractor** shall provide the **City** with its change of address seven (7) days prior to its effective date.

20.2.3. To the Design Professional. Written notice to the **Design Professional** shall be sent or hand-delivered to the address appearing on the Project Manual. Written notice shall be deemed to have been duly served on the **Design Professional** if it is sent or hand-delivered to any member or officer of the **Design Professional**.

ARTICLE 21: MISCELLANEOUS PROVISIONS

21.1. Governing Law.

21.1.1. This Contract shall be governed by the laws of the Commonwealth of Massachusetts.

21.2. Venue.

21.2.1. Venue for any court action or proceeding shall be Middlesex County in the Commonwealth of Massachusetts only. The **Contractor**, all Subcontractors, and Suppliers waive any and all jurisdictional and venue defenses.

21.3. Successors and Assigns.

21.3.1. The **Contractor** shall not assign, in whole or in part, its rights and obligations under the Contract Documents without prior written consent of the **City**. An assignment without the prior written consent of the **City** shall not relieve the **Contractor** of its obligations thereunder.

21.3.2. The **City** and the **Contractor** respectively bind themselves, their partners, successors, assigns, and legal representatives to the other party hereto and to partners, successors, assigns, and legal representatives of such other party in respect to covenants, agreements, and obligations contained in the Contract Documents.

21.4. Statutory Limitation Period.

21.4.1. It is expressly agreed that the obligations of the **Contractor** hereunder arise out of contractual duties, and that the failure of the **Contractor** to comply with the requirements of the Contract Documents shall constitute a breach of contract, not a tort, for the purpose of applicable statutes of limitations and repose. Any cause of action which the **City** may have on account of such failure shall be deemed to accrue only when the **City** has obtained actual knowledge of such failure, not before.

21.5. Rights and Remedies.

21.5.1. Duties and obligations imposed by the Contract Documents and rights and remedies available thereunder shall be in addition to and not a limitation of duties, obligations, rights, and remedies otherwise imposed or available by law.

21.5.2. No action or failure to act by the **City**, the **Design Professional**, or the **Contractor** shall constitute a waiver of a right or duty afforded them under the Contract, nor shall such action or failure to act constitute approval of or acquiescence in a breach thereunder, except as may be specifically agreed in writing.

PART 2 - SAMPLE CONSTRUCTION CONTRACT

IMPORTANT INFORMATION REGARDING CERTIFICATE OF GOOD STANDING

- Sample Contract
- Certificate of Authority
- Appendix A – Scope of Work (including Technical Specifications)
- Appendix B – Contractor's Bid Price; Form for General Bid (From Bid Book)
- Appendix C – General Terms and Conditions
- Appendix D – Insurance Requirements
- Appendix E – Wage Rates and Living Wage (From Bid Book)
- Appendix F – Certificate of Good Standing (for corporations; from Bid Book)
- Appendix G – Procurement documentation (Advertisements and Notice to Bidders)
- Appendix H – Statement of Management
- Appendix I – Performance Bond and Payment Bond, if contract over \$2000

SAMPLE CONTRACT

CONTRACT NUMBER

A-
PURCHASE ORDER # AND AMOUNT

BID NUMBER

OSPCD
ISSUING DEPARTMENT

FUNDING DEPARTMENT (Division)

CONTRACT PERIOD

CITY OF SOMERVILLE
MAYOR'S OFFICE OF STRATEGIC PLANNING AND COMMUNITY DEVELOPMENT

PUBLIC CONSTRUCTION CONTRACT

FOR: Union Square Early Action Project

CONTRACTOR: Vendor
Address
Townname, Ma

ACCORDING TO SPECIFICATIONS CONTAINED HEREIN

Sample Contract

**CITY OF SOMERVILLE
OWNER-CONTRACTOR PUBLIC CONSTRUCTION AGREEMENT**

AGREEMENT made this --- day of _____, by and between the City of Somerville, a Massachusetts municipal corporation, acting by and through its Purchasing Department, with a usual address of 93 Highland Ave., Somerville, MA 02143 ("City", "Owner" or "Awarding Authority") and the following General Contractor ("Contractor" or "General Contractor"):

GENERAL CONTRACTOR:

Name:
Address:
Telephone: Fax:
E-Mail:

PROJECT: ADA Ramps (12) at Four Locations

The work consists of the construction of twelve (12) Wheelchair Ramps to Massachusetts Architectural Access Board (AAB) standards (521 MR 21.00, effective January 27, 2006); hiring a design professional to verify that all AAB requirements have been fulfilled; and resetting crosswalk signs. Substantial completion of work shall be by September 1, 2009.

PROJECT MANAGER:

Name: Brad Rawson
Address: City Hall, 3rd floor, 93 Highland Avenue, Somerville, MA 02143
Telephone: 617-625-6600, x.2545 Fax: 617-625-0722
E-Mail: afranzen@somervillema.gov

DESIGN PROFESSIONAL:

Name: **Parsons Brinckerhoff, Inc. LLC**
Address: **75 Arlington St.**
Cambridge, MA 02141

Contact: Rachel J. Burckardt
Phone: 614-426-7330
Burckardt@pbworld.com
Profession: Architect [] Landscape Architect [X] Engineer []

FUNDING SOURCE: Federal [] State [] City [X]

THIS CONTRACT IS A:

X Public Works Contract estimated to cost more than \$10,000 subject to the bidding requirements of G.L. c. 30, § 39M

Sample Contract

Part 1, Section 4: OTHER BID DOCUMENTS

- Public Building Contract estimated to cost under \$10,000, subject to the price quote requirements of G.L. c. 149 §44A (2)(A)
- Public Building Contract estimated to cost more than \$10,000 but less than \$25,000, subject to the written response requirements of G.L. c. 149, §44A(2)(B) of the General Laws
- Public Building Contract estimated to cost more than \$25,000 but less than \$100,000, subject to the bidding requirements of G.L. c. 149, §44A(2)(C) and G.L. c. 30, § 39M
- Public Building Contract estimated to cost more than \$100,000, subject to the bidding requirements of G.L. c. 149, §44A(D).

Section 1: CONTRACT DOCUMENTS/APPENDICES

The Contract Documents consist of this Agreement; the notice of award of the Contract; the Notice to Proceed; the entire Project Manual; Change Orders; Construction Change Directives; the Contractor's Bid and all accompanying documents; and the Design Professional's written interpretations and clarifications issued on or after the issuance of the Notice to Proceed. Shop Drawing submittals and reports or drawings utilized by the Design Professional in preparing the Contract Documents are not Contract Documents.

The following Appendices are hereby incorporated by reference as part of this Agreement.

- X Certificate of Authority
- * Appendix A - Scope of Services - Misc. Bid Documents: includes a brief description of the Project, the Plans and Technical Specifications (Plans on File) and Addenda issued during the bid process
- X Appendix B - Contractor's Bid Price; Form for General Bid
- X** Appendix C - General Conditions
- X** Appendix D - Insurance Requirements with Contractor's Insurance Certificate(s)
- X Appendix E - Wage Rates; Living Wage
- X Appendix F - Certificate of Good Standing (for corporations)
- X Appendix G - Procurement Documentation (includes Advertisement; Notice to Bidders)

Sample Contract

Part 1, Section 4: OTHER BID DOCUMENTS

- X Appendix H - Statement of Management (over \$100,000)
- X Appendix I - Performance Bond and Payment Bond, if contract is over \$2,000
- X Appendix J - Section 3 Requirements
- X Appendix K – Laws Applicable to Federally Funded Contracts

- X = Attached
- * = Included in the Project Manual and incorporated herein by reference
- ** = Attached and also duplicated in the Project Manual

Section 2: THE CONTRACTOR'S WORK.

The Contractor's "Work" refers to the services and the entire completed construction or the various separately identifiable parts thereof required by the Contract Documents, including all labor, materials, and equipment furnished, furnished and incorporated into the Project, or to be provided by the Contractor to fulfill the Contractor's obligations. The Work may constitute the whole or a part of the Project.

Section 3: PROJECT DATES.

- (a) Contract Period:
- (b) Date of Commencement of Work: The Date of Commencement of the Work shall be stipulated by a written Notice to Proceed given by the City to the Contractor.
- (c) Date of Substantial Completion: The Contractor shall achieve Substantial Completion of the Work on or before _____ or --- calendar days after the Date of Commencement of the Work, time being of the essence. Substantial Completion means that the Work has been completed and the Site or the facility is opened for full and intended public use, except for minor incomplete or unsatisfactory items that do not materially impair the usefulness of the Work. The Design Professional shall decide what constitutes "minor," "incomplete," "unsatisfactory," and "materially" and the Design Professional's decision shall be final.

- (d) Date of Final Completion:
The Date of Final Completion shall be _____.

Section 4. CONTRACT SUM/LIQUIDATED DAMAGES

- (a) Contract Sum: The Contract Sum shall be \$_____.

Sample Contract

Part 1, Section 4: OTHER BID DOCUMENTS

(b) Liquidated Damages: The Contractor and the City agree to a Liquidated Damages sum of \$250.00 per calendar day.

SIGNATURE PAGE FOLLOWS

Sample Contract

Part 1, Section 4: OTHER BID DOCUMENTS

IN WITNESS WHEREOF, the City and the Contractor have executed this Contract as a sealed instrument as of the date first written above.

CITY OF SOMERVILLE

I hereby certify that an unencumbered balance of \$ _____ is available for this Contract and I further certify that the sum of \$ _____ is hereby encumbered against the appropriate account for the purposes of this contract.

Edward Bean, City Auditor

Joseph A. Curtatone
Mayor

Michael F. Glavin, OSPCD
Executive Director

Angela M. Allen, Purchasing Director

Approved as to form:

Francis X. Wright, Jr., City Solicitor

VENDOR:

Signature of Authorized Agent of Vendor

Printed Name: _____
Title: _____

Vendor Address: _____

Federal Tax ID: # _____

FOR CORPORATIONS ONLY:

Clerk's Signature

Clerk's Name

Sample Contract

SAMPLE CERTIFICATE OF AUTHORITY

__, 2014.
(Contract Date)

At a meeting of the directors of ____ duly
(Name of Corporation)

called and held at ____ on __, 2010.
(Address) (Date)

which a quorum was present and acting, it was voted that _____
(Name)

the __ of this corporation is hereby authorized and empowered to
(Office)

make, enter into, sign, seal and deliver on behalf of this corporation a contract for

_____ with the City of Somerville, Mayor's (Describe Service)

Office of Strategic Planning and Community Development. I do hereby certify that the above

is a true and correct copy of the record that said vote has not been amended or repealed and is in

full force and in effect at of this date, and that __ is duly elected
(Name)

____ of this corporation.
(Office)

(Clerk) (Secretary) of the Corporation

Attest:

(Affix Corporation Seal Here)

Sample Contract

APPENDIX A
Scope of Services – Miscellaneous Bid Documents

Includes a brief description of the project
The Plans and Technical Specifications (Plans on File)
And all addenda issued during the bid process.

Sample Contract

Part 1, Section 4: OTHER BID DOCUMENTS

APPENDIX B
Contractor's Bid Price - Form for General Bid
(From Bid Book)

Sample Contract

Part 1, Section 4: OTHER BID DOCUMENTS

APPENDIX C
General Conditions
(From Bid Book)

Sample Contract

APPENDIX D INSURANCE REQUIREMENTS

Sample Contract

APPENDIX D - INSURANCE REQUIREMENTS INSURANCE SPECIFICATIONS

INSURANCE REQUIREMENTS FOR AWARDED VENDOR ONLY:

Prior to commencing performance of any work or supplying materials or equipment covered by these specifications, the contractor shall furnish to the Office of the Purchasing Director a Certificate of Insurance evidencing the following:

A. GENERAL LIABILITY - Comprehensive Form

Bodily Injury Liability.....\$ Two Million

Property Damage Liability.....\$ Two Million

B. COVERAGE FOR PAYMENT OF WORKER'S COMPENSATION BENEFIT PURSUANT TO CHAPTER 152 OF THE MASSACHUSETTS GENERAL LAWS IN THE AMOUNT AS LISTED BELOW:

WORKER'S COMPENSATION.....\$ Statutory

EMPLOYERS' LIABILITY.....\$ Statutory

C. AUTOMOBILE LIABILITY INSURANCE AS LISTED BELOW:

AGGREGATE.....\$ One Million

1. A contract will not be executed unless a certificate (s) of insurance evidencing above-described coverage is attached.
2. Failure to have the above-described coverage in effect during the entire period of the contract shall be deemed to be a breach of the contract.
3. All applicable insurance policies shall read:
"CITY OF SOMERVILLE" as a certificate holder and as an additional insured for general liability only along with a description of operation in the space provided on the certificate.

Certificate Should Be Made Out To:

City Of Somerville
Purchasing Department
93 Highland Avenue
Somerville, Ma. 02143

Note: If your insurance expires during the life of this contract, you shall be responsible to submit a new certificate(s) covering the period of the contract. No payment will be made on a contract with an expired insurance certificate.

Sample Contract

Part 1, Section 4: OTHER BID DOCUMENTS

**APPENDIX E
PREVAILING WAGE RATES
AND LIVING WAGE FORM**

Sample Contract

Part 1, Section 4: OTHER BID DOCUMENTS

DAVIS BACON AND PREVAILING WAGE RATES

INSERT MANUALLY

Sample Contract



SOMERVILLE LIVING WAGE ORDINANCE CERTIFICATION FORM
CITY OF SOMERVILLE CODE OF ORDINANCES SECTION 2-397 et seq²

Instructions: This form shall be included in all Invitations for Bids and Requests for Proposals which involve the furnishing of labor, time or effort (with no end product other than reports) by vendors contracting or subcontracting with the City of Somerville, where the contract price meets or exceeds the following dollar threshold: \$10,000. If the undersigned is selected, this form will be attached to the contract or subcontract and the certifications made herein shall be incorporated as part of such contract or subcontract. **Complete this form and sign and date where indicated below on page 2.**

Purpose: The purpose of this form is to ensure that such vendors pay a "Living Wage" (defined below) to all covered employees (i.e., all employees except individuals in a city, state or federally funded youth program). In the case of bids, the City will award the contract to the lowest responsive and responsible bidder paying a Living Wage. In the case of RFP's, the City will select the most advantageous proposal from a responsive and responsible offeror paying a Living Wage. In neither case, however, shall the City be under any obligation to select a bid or proposal that exceeds the funds available for the contract.

Definition of "Living Wage": For this contract or subcontract, as of 7/1/2013 "Living Wage" shall be deemed to be an hourly wage of no less than \$11.89 per hour. From time to time, the Living Wage may be upwardly adjusted and amendments, if any, to the contract or subcontract may require the payment of a higher hourly rate if a higher rate is then in effect.

CERTIFICATIONS

1. The undersigned shall pay no less than the Living Wage to all covered employees who directly expend their time on the contract or subcontract with the City of Somerville.
2. The undersigned shall post a notice, (copy enclosed), to be furnished by the contracting City Department, informing covered employees of the protections and obligations provided for in the Somerville Living Wage Ordinance, and that for assistance and information, including copies of the Ordinance, employees should contact the contracting City Department. Such notice shall be posted in each location where services are performed by covered employees, in a conspicuous place where notices to employees are customarily posted.
3. The undersigned shall maintain payrolls for all covered employees and basic records relating hereto and shall preserve them for a period of three years. The records shall contain the name and

²Copies of the Ordinance are available upon request to the Purchasing Department.

Sample Contract

address of each employee, the number of hours worked, the gross wages, a copy of the social security returns, and evidence of payment thereof and such other data as may be required by the contracting City Department from time to time.

4. The undersigned shall submit payroll records to the City upon request and, if the City receives information of possible noncompliance with the provisions the Somerville Living Wage Ordinance, the undersigned shall permit City representatives to observe work being performed at the work site, to interview employees, and to examine the books and records relating to the payrolls being investigated to determine payment of wages.

5. The undersigned shall not fund wage increases required by the Somerville Living Wage Ordinance by reducing the health insurance benefits of any of its employees.

6. The undersigned agrees that the penalties and relief set forth in the Somerville Living Wage Ordinance shall be in addition to the rights and remedies set forth in the contract and/or subcontract.

CERTIFIED BY:

Signature: _____
(Duly Authorized Representative of Vendor)

Title: _____

Name of Vendor: _____

Date: _____

Sample Contract

INSTRUCTIONS: PLEASE POST

**NOTICE TO ALL EMPLOYEES
REGARDING PAYMENT OF LIVING WAGE**

Under the Somerville, Massachusetts' Living Wage Ordinance (Ordinance No. 1999-1), any person or entity who has entered into a contract with the City of Somerville is required to pay its employees who are involved in providing services to the City of Somerville no less than a "Living Wage".

The Living Wage as of **7/1/2013** is **\$11.89** per hour. The only employees who are not covered by the Living Wage Ordinance are individuals in a Youth Program. "Youth Program" as defined in the Ordinance, "means any city, state or federally funded program which employs youth, as defined by city, state or federal guidelines, during the summer, or as part of a school to work program, or in any other related seasonal or part-time program."

For assistance and information regarding the protections and obligations provided for in the Living Wage Ordinance and/or a copy of the Living Wage Ordinance, all employees should contact the City of Somerville's Purchasing Department directly.

Sample Contract

**APPENDIX F
CERTIFICATE OF GOOD STANDING
(FOR CORPORATIONS)**

INSERT DOCUMENT FROM BID BOOK HERE

Certificate of Good Standing: If the bidder is a corporation, a Certificate of Good Standing should accompany the bid. Certificate of Good Standing available online at: http://corp.sec.state.ma.us/corp/Certificates/Certificate_Request.asp or call Tel: (617) 727-9640 for more information.

Sample Contract

CERTIFICATE OF GOOD STANDING

TO: Vendor

FROM: Purchasing Department

RE: **CERTIFICATE OF GOOD STANDING**

The **Awarded Vendor** must comply with our request for a **CURRENT “Certificate of Good Standing”**.

If you require information on how to obtain the “Certificate of Good Standing” or Certificate of Registration (Foreign Corporations) from the Commonwealth of Massachusetts, please call the Secretary of State’s Office at (617) 727-2850 (Press #1) located at One (1) Ashburton Place, 17th Floor, Boston, MA 02133 or you may access their web site at: www.MA.GOV/SEC/COR

If your company is incorporated outside of Massachusetts and therefore is a “foreign corporation”, but is registered to do business in Massachusetts, please comply with our request for the Certificate of Registration from the Commonwealth of Massachusetts. If your company is a foreign corporation, but is not registered to do business in Massachusetts, please provide the Certificate of Good Standing from your state of incorporation.

Please note that without the above certificate (s), the City of Somerville cannot execute your contract.

IMPORTANT NOTICE

Requests for Certificates of Good Standing by mail may take a substantial amount of time. A certificate may be obtained immediately in person at the Secretary’s Office at the address above. Also, at this time, the Secretary of State’s Office may not have your current annual report recorded. If this is the case, and you are therefore unable to obtain the Certificate of Good Standing, please forward a copy of your annual report filing fee check with your signed contracts. Please forward your original Certificate of Good Standing to the Purchasing Department upon receipt.

Thank You,

Purchasing Director

Sample Contract

APPENDIX G PROCUREMENT DOCUMENTATION

ADVERTISEMENTS, NOTICE TO BIDDERS, ETC.

Sample Contract

APPENDIX H
STATEMENT OF MANAGEMENT
FOR CONTRACTS OVER \$100,000

STATEMENT OF MANAGEMENT

In accordance with M.G.L. Chapter 30, Section 39R, the undersigned successful bidder states that its system of internal accounting controls and that of its subsidiaries reasonably assure (1) that transactions are executed in accordance with management's general and specific authorization; (2) that transactions are recorded as necessary to permit preparation of financial statements in conformity with generally accepted accounting principles, and to maintain accountability for assets; (3) that access to assets is permitted only in accordance with management's general or specific authorization, and (4) that the recorded accountability for assets is compared with the existing assets at reasonable intervals and appropriate action was taken with respect to any difference.

Executed this _____ day of _____ 2014

On behalf of _____
(Successful bidder name)

(Address and telephone of successful bidder)

(Name and title of person signing statement)

By: _____
(Signature)

CERTIFIED PUBLIC ACCOUNTANT STATEMENT

In accordance with M.G.L. 30, Section 39R I, _____
a certified public accountant, state that I have examined the above Statement of Management on internal accounting controls, and that in my opinion (1) the representations of management are consistent with the result of management's evaluation of the system of internal accounting controls; and (2) that such representations of management are, in addition, reasonable with respect to transactions and assets in amounts which would be material when measured in relation to the above referenced successful bidder's financial statements.

(Signature)

(Business name, address and telephone number)

Sample Contract

APPENDIX I
PERFORMANCE BOND AND PAYMENT BOND
FOR CONTRACTS OVER \$2000

Sample Contract

PERFORMANCE BOND

We, the undersigned,

_____,
(Name of Contractor)

_____,
(Address of Contractor)

_____, hereinafter called Principal, and
(Corporation, Partnership, or Individual)

_____,
(Name of Surety)

_____, (Address of Surety)

hereinafter called Surety, are held and firmly bound unto CITY OF SOMERVILLE, 93

Highland Avenue Avenue, Somerville, MA 02139, hereinafter called Owner, in the penal

sum of __ Dollars

(\$__) in lawful money of the United States, for the payment of which sum well and truly to be made. We hereby jointly and severally bind ourselves, our heirs, executors, administrators, successors, and assigns.

The condition of this obligation is such that the Principal entered into a certain contract with the Owner, dated the __day of __, 20__, a copy of which is attached hereto and made a part hereof, for the project known as Union Square Early Action Project and the Principal and Surety bind themselves to the Owner for the performance of the contract.

Now, therefore, if the Principal shall well, truly and faithfully perform its duties, all the undertakings, covenants, terms, conditions, and agreements of said contract during the original term thereof, and any extensions thereof which may be granted by the Owner, with

Sample Contract

or without notice to the Surety and during the guaranty period set forth in the contract, and if it shall satisfy all claims and demands incurred under such contract, and shall fully indemnify and save harmless the Owner from all costs and damages which it may suffer by a reason of failure to do so, and shall reimburse and repay the Owner all outlay and expenses which the Owner may incur in making good any default, then this obligation shall be void; otherwise, this bond shall remain in full force and effect; provided, further, that the said Surety for value received hereby agrees that no change, extension of time, alteration or addition to the terms of the contract or to the work to be performed thereunder of the specifications accompanying the same shall in any wise affect its obligation on this Bond, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the contract or to the work or to the specifications. Provided, further, that no final settlement between the Owner and the Contractor shall abridge the right of any beneficiary hereunder whose claim may be unsatisfied.

IN WITNESS WHEREOF, this instrument is executed on this __day of __, 2014.

CONTRACTOR AS PRINCIPAL

SURETY

(Signature)
Name and Title:

(Signature)
Name and Title:

SEAL

SEAL

Sample Contract

Payment Bond

We, the undersigned,

_____,
(Name of Contractor)

_____,
(Address of Contractor)

_____, hereinafter called Principal, and
(Corporation, Partnership, or Individual)

_____,
(Name of Surety)

_____, (Address of Surety)

hereinafter called Surety, are held and firmly bound unto CITY OF SOMERVILLE, 93 Highland Avenue, Somerville, MA 02139, hereinafter called Owner, in the penal sum of Dollars (\$_) in lawful money of the United States, for the payment of which sum well and truly to be made. We hereby jointly and severally bind ourselves, our heirs, executors, administrators, successors, and assigns.

The condition of this obligation is such that the Principal entered into a certain contract with the Owner, dated the _day of _, 20_, a copy of which is attached hereto and made a part hereof, for the project known as Union Square Early Action Project.

Now, therefore, if the Principal shall promptly make payment to all persons, firms, subcontractors, and corporations furnishing materials for or performing labor in the prosecution of the work provided for in such contract, and any authorized extension or modification thereof, including all amounts due for materials used in connection with the

work, and all insurance premiums on said work, and for all labor, performed in such work whether by subcontractor or otherwise, then this obligation shall be void; otherwise this bond is remain in full force and effect. Provided, further, that the said Surety for value received hereby agrees that no change, extension of time, alteration or addition to the terms of the contract or to the work to be performed thereunder of the Specifications accompanying the same shall in any wise affect its obligation on this Bond, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the contract or to the work or to the specifications.

Provided, further, that no final settlement between the Owner and the Contractor shall abridge the right of any beneficiary hereunder, whose claim may be unsatisfied. IN WITNESS WHEREOF, this instrument is executed on this _day of _, 2014.

CONTRACTOR AS PRINCIPAL SURETY

(Signature) (Signature)
Name and Title: Name and Title:

SEAL SEAL

MEETING OF THE BOARD OF DIRECTORS

CERTIFICATE OF AUTHORITY

__20

At a meeting of the Directors of the

____duly called and held at __on the __day of __20__, at which a quorum was present and acting, it was

VOTED THAT

the __of this corporation is hereby authorized and empowered to make, enter into, sign, seal and deliver, in behalf of this corporation, a Contract for Union Square Early Action Projectwith the City of Somerville, and performance and payment bonds (each in the full amount of the Contract) in connection with such Contract.

I DO HEREBY CERTIFY that the above is a true and correct copy of the record, that said vote has not been amended or repealed and is in full force and effect on this date, and that __is duly elected __of this corporation.

ATTEST:

Clerk or Secretary of the Corporation

(Affix Corporate Seal Here)

Sample Contract

Sample Contract

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UNION SQUARE EARLY ACTION PROJECT

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END OF SECTION

Sample Contract

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ATTACHMENTS TO THE TECHNICAL SPECIFICATIONS

ATTACHMENT DESCRIPTION

ATTACHMENT A – GEOTECHNICAL INFORMATION

ATTACHMENT B – ENVIRONMENTAL SITE ASSESSMENT REPORTS

ATTACHMENT C – TRAFFIC MARKINGS – COATING SYSTEMS

ATTACHMENT D – CITY STANDARD MAST ARM

(Remainder of page is intentionally blank)

01001 GENERAL NOTE FOR THE TECHNICAL SPECIFICATIONS:

The Massachusetts Department of Transportation (MassDOT), Highway Division Standard Specifications for Highways and Bridges (herein titled “Standard Specifications” and “MHD Standard Specifications”) shall be considered part of these Technical Specification where referenced herein. The term “MHD” shall mean MassDOT Highway Division.

(Remainder of Page is Intentionally Blank)

01002 GENERAL EARTHWORK REQUIREMENTS**DESCRIPTION**

The work specified below consists of excavation, backfill, compaction, support of excavation, and groundwater control for the purposes of roadway and sidewalk construction, utility construction, and other incidental work.

The Contractor shall perform all excavations of whatever materials encountered, except rock, in a manner as required to allow for placing of temporary earth support, concrete plug, forms, installation of pipe and or structure and other work, and to permit access for the purpose of observing the work.

Soil testing shall be carried out to verify proper soil bearing capacities for foundations. The Engineer shall be notified immediately if unstable or unsuitable soil is found at the bottom of the foundation excavations.

All unsuitable material shall be removed within the limits of the foundations, as directed by the Engineer, and replaced with a well graded Gravel Borrow as specified under Item 151-001.

Excavations shall be to such widths as will give suitable space for the required work and stability of the sidewalls. Bottoms of trenches and excavations shall be protected from frost and shall be firm, dry and in an acceptable condition to receive the work. Work shall not be placed on frozen surfaces nor shall work be placed on wet or unstable surfaces.

All excavations made in open cut will be controlled by the conditions existing at that location. In no case shall earth be excavated or disturbed by machinery so near to the finished subgrade of structures and pipelines as to result in the disturbance of the supporting earth without proper support or protection. All excavations should be accomplished with a smooth faced bucket or by hand.

EXCAVATION CLASSIFICATIONS

Refer to description of classifications of excavation in Items 120-021 and 120-031.

GENERAL REQUIREMENTS**BLASTING**

Blasting is not permitted.

PERMITS, CODES, AND SAFETY REQUIREMENTS

Comply with all rules, regulations, laws and ordinances of the municipality, the Commonwealth of Massachusetts, and other authorities having jurisdiction over the project site or work. All labor, materials, equipment and services necessary to make the work comply with these requirements shall be provided by the Contractor without additional cost to the City.

Comply with the provisions of the Manual for Accident Prevention in Construction of the Associated General Contractors of America, Inc., and the requirements of the Occupational Safety and Health Administration, United States Department of Labor.

The Contractor shall obtain and pay for all permits and licenses required to the complete work.

For Traffic Management requirements, refer to the Section 01015 and Item 850-002.

The Contractor shall notify “Dig Safe” at 1-888-DIG-SAFE and all utility companies at least 72 hours (excluding Saturdays, Sundays and Massachusetts legal holidays) prior to commencing any excavation work.

The Contractor shall provide police details when working in roadways as required by local jurisdictional authorities. Refer to Item 850-001.

PROTECTION OF EXISTING CONDITIONS

All work shall be executed in such a manner as to prevent any damage to existing buildings, streets, curbs, paving, service utility lines, structures and adjoining property.

Locate and mark underground utilities to remain in service before beginning the work. Protect all existing utilities to remain in service during operations. Do not interrupt existing utilities except when authorized in writing by authorities have jurisdiction unless otherwise indicated on the Contract Drawings.

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

Inactive or abandoned utilities encountered during construction operations shall be removed, plugged, capped or filled. The location of such utilities shall be recorded on the Record Drawings.

Provide barricades, fences, lights, signs, and all other safety devices required to protect the public against injury. Refer to Item No. 850-002.

In case of any damage or injury caused in the performance of the work the Contractor shall, at his own expense make good such damage or injury to the satisfaction of, and without cost to the City.

Existing streets, sidewalks and curbs adjacent to the project site damaged during the project work shall be repaired or replaced in kind.

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

MATERIALS

Backfill materials shall conform to the following material descriptions and gradation requirements.

1. Ordinary Borrow: Ordinary Borrow is specified under Item 150-001.
2. Gravel Borrow: Gravel Borrow shall be as specified under Item 151-001.
3. Crushed Stone: Crushed Stone shall be as specified under Item 156-002.

SAMPLING

The backfill materials shall be obtained from a source with no known contamination. The supporting certification shall be submitted for the initial material source for each additional source the Contractor proposes. The source information shall be current – no greater than one month old.

Representative 50-pound samples of the proposed material shall be collected at the source in the presence of the Engineer. This activity shall be coordinated with the City. The Contractor shall deliver fifty-pound samples for each sample of source material to the project site, and fifty-pound samples to the City's testing laboratory at 164 Pond Street, Stoneham, MA 02180. The Contractor shall also take photographs of material piles at the source, and provide these to the City. All submittals shall be identified by Contractor's name, project name, and source information. Source information shall include the name, address, and location of the borrow area; the ownership of the source; the location of the samples from within the borrow area; and the date and method of sampling. Each sample shall be accompanied by particle size results, including gradation curves (based on screening and visual methods), and computational sheets. Approval of the gradation of the sample submitted will be based on the City's evaluation and testing. Approval of the sample submitted does not imply blanket approval of the source.

CONSTRUCTION METHODS

GENERAL

The Contract Drawings indicate the proposed finish alignment, elevation, and grade of the work. Establish the line and grade in close conformity with the Contract Drawings. The Engineer, however, may make minor adjustments in the field as necessary due to conditions encountered.

The Contractor is responsible for establishing construction phasing, means, and methods and interim grading and temporary conditions required to attain the finish product required by the Contract Documents. The Contractor is responsible for all construction, protection, movement, and maintenance of stockpiles. Establish and maintain suitable benchmarks and grade control to accurately perform the work.

All excavation shall be performed in the dry. Excavation and dewatering shall be accomplished by methods, which preserve the undisturbed state of the subgrade soils.

No excavation will be permitted below a line drawn downwards at 2 horizontal to 1 vertical from the underside of the closest edge of any in-place footing or utility at a higher elevation without providing adequate sheeting and bracing to prevent movement of the in-place footing or utility.

When excavations have reached the prescribed depths, the condition of the bottom of the trench or hole shall be inspected by the Engineer. After inspection the Contractor will receive approval to proceed if conditions meet project requirements.

No excavation shall be deposited or stockpiled at any time to endanger the traveling public or portions of new or existing structures, either by direct pressure or indirectly by overloading banks contiguous to the operation. Material, if stockpiled, shall be stored so as not to interfere with the established sequence of the construction. If there is not sufficient area available for stockpiling within the limits of the project, the Contractor will be required to furnish his own area for stockpiling.

When the Contract Drawings require excavation in areas in close proximity to existing buildings, roads, structures and utilities it shall be the responsibility of the Contractor at its expense to use satisfactory

means and methods to protect and maintain the stability of such roads, and structures located immediately adjacent to but outside the limits of excavations.

Old foundations and/or structures and other obstructions may be encountered during excavation, and shall be brought to the attention of the Engineer for resolution. Unless directed otherwise, such obstructions shall be removed to a minimum of 1 foot below base of proposed structure, or as directed by the Engineer.

Provide shoring, sheeting, and/or bracing at excavations, as required, to assure complete safety against collapse of earth at the side of excavations. Provide shoring of public utility lines where exposed in the excavations in accordance with rules and regulations of the local authorities.

TRENCH EXCAVATION

Trench excavation shall be carried out to the lines and grades as specified herein and shown on the Drawings.

Trenches may be excavated to their full depth by machinery provided that the material remaining at the bottom of the trench is no more than slightly disturbed.

The Contractor should anticipate that due to existing utility lines, some hand excavation will be required.

Trench excavation shall result in a flat or shaped trench bottom, true to grade so that the pipe will have uniform and continuous bearing on a firm support. Trenches shall be made as narrow as practicable, and every effort shall be made to keep the sides of the trenches firm and undisturbed until backfilling and compaction is completed.

UNATTENDED TRENCHES

- A. The Contractor shall secure all unattended trenches in accordance with the provisions of the Summary of 520 CMR 14.00 et. seq. attached hereto.
- B. A Permit for Trench Excavation, issued in accordance with G.L. c. 82A, §§1-5 and 520 CMR 14.00 et. seq, shall be obtained before performing any trench excavation. There will be no fee for this application.

TEMPORARY EARTH SUPPORT

The Contractor shall furnish, place and maintain such sheeting, shoring, and bracing at locations necessary to support the sides of excavations to prevent danger to persons or damage to adjacent pavements, facilities, utilities, or structures; to prevent injurious caving or erosion or the loss of ground; and to maintain pedestrian and vehicular traffic as required by the Contract Documents, the Contractor's sequence of construction, and as directed by the Engineer.

In all sheeting, shoring and bracing operations, care shall be taken to prevent collapse of excavations, injury to persons or damage to adjacent structures, facilities, utilities and services. Any injuries to persons shall be the responsibility of the Contractor; and any damage to the work occurring as a result of settlement, water or earth pressure, or other causes due to inadequate bracing or other construction operations of the Contractor shall be satisfactorily repaired and made good by the Contractor, at no additional expense to the City.

Where sheeting is to be used, it shall be driven ahead of excavation operations to the extent practicable so as to avoid the loss of material from behind the sheeting; where voids occur outside of the sheeting, they shall be filled immediately with Ordinary Borrow, thoroughly compacted.

Earth support system shall be installed with adequate clearance to avoid any interference with the permanent structure.

The earth support system shall be capable of providing a watertight excavation under non-flood conditions.

All sheeting and bracing shall be removed.

The Contractor shall comply with all federal, state, and local safety regulations, and requirements.

GROUNDWATER CONTROL

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

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

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

The Contractor shall control the grading in the areas surrounding all excavations so that the surface of the ground will be properly sloped to prevent water from running into the excavated area. Upon completion of the work and when directed, all areas shall be restored by the Contractor in a satisfactory manner and as directed.

FILLING AND BACKFILLING

The subgrade shall be shaped to line, grade, and cross-section, and be thoroughly compacted in accordance with the requirements herein. This operation shall include any required reshaping and wetting to obtain proper compaction. All soft or otherwise unsuitable material shall be removed and replaced with suitable material from excavation or borrow. The resulting area, and all other low sections, holes, or depressions shall be brought to the required grade with accepted material and the entire subgrade shaped to line, grade and cross-section and thoroughly compacted.

All fills shall be placed in horizontal layers. Fill shall not be placed following the natural contours of the ground. Fill shall be placed starting in the lowest areas working up to finish grades in horizontal layers in

the manner specified herein. Each layer of fill shall be benched into the existing slope in order to avoid the formation of a shear plane.

Unless otherwise specified or directed by the Engineer, material used for filling and backfilling shall meet the material requirements specified herein. In general, the material used for backfilling storm drain and utility trench excavations shall be material removed from the excavations provided that the reuse of these materials result in the required trench compaction and meets the requirements specified for Ordinary Borrow. All backfill placed for structure and pipe bedding shall be Gravel Borrow unless otherwise specified. In areas where the bottom of the excavation is in fine sand and silt, and is below the groundwater table, the first lift of backfill may be 12 inches of compacted crushed stone to provide a working mat and drainage layer. Place backfill to a maximum loose lift thickness of 12 inches. Maintain backfill material with uniform moisture content, with no visible wet or dry streaking, between plus two percent and minus three percent of optimum moisture content. The final filled soil mass shall be as uniform as possible in lift thickness, moisture content, and effort required to compact soil mass.

TRENCH BACKFILL

After the storm drain or utility pipe or conduit installation has been inspected and approved, trenches shall be backfilled as soon as practicable with specified material. All trench backfilling shall be done with special care.

Backfill material for pipe bedding shall be deposited in the trench, uniformly on both sides of the pipe or conduit, for the entire width of the trench to the springline of the pipe or conduit. The backfill material shall be placed by hand shovels, in layers not more than 8 inches thick in loose depth, and each layer shall be thoroughly and evenly compacted by tamping on each side of the pipe to provide uniform support around the pipe or conduit, free from voids.

The balance of backfill shall be spread in layers not exceeding 12 inches in loose depth. Each layer shall be thoroughly compacted by mechanical methods and shall contain no rock, stones or boulders larger than **4 inches** in their greatest dimension.

All trench backfilling shall be done with special care and must be carefully placed so as not to disturb the work at any time; if necessary, a timber grillage or other suitable method shall be used to break the fall of the material. The moisture content of the backfill material shall be such that proper compaction will be obtained. Puddling of backfill with water will not be permitted. Backfill within areas to receive topsoil or pavement construction shall be made to grades required to establish the proper subgrade for the placement of topsoil or pavement base courses.

In backfilling trenches, each layer of backfill material shall be moistened and compacted to a density at least equal to that of the surrounding undisturbed earth, and in such a manner as to permit the rolling and compaction of the filled trench or excavation with the adjoining earth to provide the required bearing value, so that paving of the excavated and disturbed areas, where required, can proceed immediately after backfilling is completed.

Any trenches or excavations improperly backfilled or where settlement occurs shall be reopened, to the depth required to achieve proper compaction, then refilled and compacted with the surface restored to the required grade and condition, at no additional expense to the City.

During filling and backfilling operations, pipelines will be checked by the Engineer to determine whether any displacement of the pipe has occurred. If the observation of the pipelines shows poor alignment, displaced pipe or any other defects they shall be remedied in a manner satisfactory to the Engineer, at no additional cost to the City.

BACKFILLING AGAINST STRUCTURES

Backfilling against masonry or concrete shall not be done until permitted by the City. The Contractor shall not place backfill against or on structures until they have attained sufficient strength to support the loads (including construction loads) to which they will be subjected, without distortion, cracking or other damage. As soon as practicable after the structures are structurally adequate and other necessary work has been satisfactorily completed and approved, special leakage tests of the structures shall be made by the Contractor, as specified elsewhere in the Specifications. After the satisfactory completion of leakage tests and the satisfactory completion of any other required work in connection with the structures, the backfilling around the drainage structures shall proceed using suitable and approved excavation material. The best of the backfill material meeting requirements of Ordinary Borrow shall be used for backfilling against structures. Just prior to placing backfill, the areas shall be cleaned of all excess construction material and debris and the bottom of excavations shall be in a thoroughly compacted condition.

Symmetrical backfill loading shall be maintained. Special care shall be taken to prevent any wedging action or eccentric loading upon or against the structures. During backfilling operations, care shall be exercised that the equipment used will not overload the structures in passing over and compacting these fills. Except as otherwise specified or directed, backfill shall be placed in layers not more than 12 inches in loose depth and each layer of backfill shall be compacted thoroughly and evenly using approved types of mechanical equipment. Each pass of the equipment shall cover the entire area of each layer of backfill.

In compacting and other operations, the Contractor shall conduct his operations in a manner to prevent damage to structures due to passage of heavy equipment over, or adjacent to, structures, and any damage thereto shall be made good by the Contractor at no additional expense to the City.

After backfilling trenches and excavations, the Contractor shall maintain the surfaces of backfill areas in good condition so as to present a smooth surface at all times level with adjacent surfaces. Any subsequent settling over backfilled areas shall be repaired by the Contractor immediately, and such maintenance shall be provided by the Contractor for the life of this Contract, at no additional cost to the City.

COMPACTION

Compaction Requirements: The degree of compaction is expressed as a percentage of the maximum dry density of the material at optimum moisture content as determined by ASTM Test D1557, Method C. The compaction requirements are as follows:

Area	ASTM Density Degree of Compaction
Below structures	95%
Pavement base course	95%
Pavement and walkway subgrade	95%
General fill below pavement subbase	95%
Trench backfill - below pavements	95%
- below landscaped areas	92%
- below structures	95%
Placement of Item 125-481 material	
- below walkway	95%
- below landscaped areas	(Note 1)
All other areas	90%

Note 1. Shape and compact by passing of bulldozer.

Moisture Control:

Fill that is too wet for proper compaction shall be disced, harrowed, or otherwise dried to a proper moisture content to allow compaction to the required density. If fill cannot be dried within 24 hours of placement, it shall be removed and replaced with drier fill.

Fill that is too dry for proper compaction shall receive water uniformly applied over the surface of the loose layer. Sufficient water shall be added to allow compaction to the required density.

Unfavorable Conditions:

In no case shall fill be placed over material that is frozen. No fill material shall be placed, spread or rolled during unfavorable weather conditions. When work is interrupted by heavy rains, fill operations shall not be resumed until the moisture content and the density of the previously placed fill are as specified.

In freezing weather, a layer of fill shall not be left in an uncompacted state at the close of the day's operations. Prior to terminating work for the day, the final layer of compacted fill shall be rolled with a smooth wheeled roller to eliminate ridges of soil left by compaction equipment.

Compaction Control:

In-place density tests shall be made in accordance with ASTM D1556, D2922, or D2167 as the work progresses, to determine the degree of compaction being attained by the Contractor. Any corrective work required as a result of such tests, such as additional compaction, or a decrease in the thickness of layers, shall be performed by the Contractor at no additional expense to the City. In-place density testing shall be made at the Contractor's expense by the geotechnical testing laboratory.

In-place density tests shall be performed at a minimum of one per trench and one test per lift for roadway and sidewalk subgrade and pavement courses.

DISPOSAL

All excess and unsuitable excavated soil shall be removed from the site and legally disposed off-site by the Contractor.

BASIS OF PAYMENT

Trench Excavation for Sewer, Storm Drainage, Water, Lighting, Traffic Conduit, and Other Utilities:

The payment of excavation, backfill, backfill materials, dewatering, and temporary earth support, unless otherwise noted, are included under the items of work that it pertains to.

Support of Excavation and Groundwater:

The cost of Support of Excavation and Groundwater Control will be considered incidental to the Items of work to which they pertain.

Other Earthwork:

Refer to the various Items of work for measurement and payment.

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Attachment to 01002 General Earthwork Requirements

Summary of 520 CMR 14.00, et. seq.

All Unattended Trenches in public ways and at fixed work sites other than on a public way shall be secured with covers or barriers to prevent unauthorized entry and provide protection for the General Public in accordance with the provisions specified herein. The Issuing Authority may require any additional, site-specific provisions it deems necessary to protect the General Public as a condition to any permit issued.

Trenches on Public Ways:

- A. Covers: 3/4 inch thick steel metal plates, placed over the Trench, level and physically secured
 - 1. Trench covers subject to vehicle traffic shall be suitable for H20 loading.
- B. Barriers shall be:
 - 1. continuous and surround the entire Trench perimeter
 - a. barriers with multiple sections shall have no more than four inches between each section
 - b. adjacent sections shall be securely fastened to each other
 - 2. not less than six feet in height
 - a. openings between the ground and barrier shall not exceed four inches
 - 3. strong with stable support
 - a. barriers adjacent to high speed traffic may include traffic control barrels ballasted by sandbags or temporary pre-cast concrete barriers as components
 - 4. easily visible to motorists
 - 5. a sufficient distance from the Trench to be unaffected by changing conditions of the Trench site

Trenches at Fixed Work Sites Other than on a Public Way:

- A. Covers: 3/4 inch thick steel metal plates, placed over the Trench, level and physically secured
 - 1. Trench covers subject to vehicle traffic shall be suitable for H20 loading.

Attachment to 01002 General Earthwork Requirements

B. Barriers and Gates:

1. Barriers shall be:
 - a. continuous and surround the entire Trench perimeter
 - i. barriers with multiple sections shall have no more than four inches between each section
 - ii. adjacent sections shall be securely fastened to each other
 - b. not less than six feet in height
 - i. openings between the ground and barrier shall not exceed four inches
 - c. clearly marked on all sides with signs indicating "Danger-Do Not Enter", "Authorized Personnel Only" or equivalent warning
 - d. a sufficient distance from the Trench to be unaffected by changing conditions of the Trench site
2. Fence-type barriers shall be secured by vertical support members not more than ten feet apart
 - a. fencing spaces shall not exceed four inches when measured as mesh size or between slats
 - b. all horizontal support members shall be located on the Trench side of the barrier
3. Solid barriers shall not contain holes or indentations larger than four inches
 - a. the wall of a dwelling or other permanent structure of a height of not less than six feet may serve as part of the barrier provided it complies with all of the provisions specified herein
4. Gates and other means of egress shall:
 - a. comply with the size and strength provisions of specified above
 - b. be securely fastened to adjacent barrier components
 - c. allow not more than four inches between gates and barrier components
 - d. be securely locked with a padlock, combination lock, or other suitable locking device

Alternative Provisions

Continuous personal monitoring of the Unattended Trench by the Permit Holder or by person(s) under the control and direction of the Permit Holder may be substituted for the provisions specified herein.

End of Attachment to 01002 General Earthwork Requirements

01012 PROJECT COORDINATION**COORDINATION WITH ONGOING CONSTRUCTION****A. Green Line Extension (GLX)**

1. Work includes construction of an extension of the Green Line from Lechmere with a branch ending at a new station at Prospect Street, adjacent to the bridge over the Fitchburg Line.
2. Construction may be ongoing concurrent with this Project.
3. Provide access for the GLX contractor from the GLX construction site to Prospect Street at Bennett Street and other designated access points.

B. Residential Construction on Washington Street

1. Work includes construction of new residential structure along the north side of Washington Street. Work also includes construction of a sidewalk extension adjacent to the construction site.
2. Construction will be ongoing concurrent with this Project.
3. Provide access for the site construction contractor to Washington Street.
4. Coordinate the exact layout of traffic signing and striping in the vicinity of this site.

C. National Grid Construction on Prospect Street

1. Construction may be ongoing concurrent with this Project.

D. Eversource (formerly NSTAR) Construction on Prospect Street and Washington Street

1. Construction will be ongoing concurrent with this Project.
2. Provide access for the utility's contractor to Prospect and Washington Streets.

COORDINATION WITH MBTA BUS OPERATIONS**A. MBTA operates six bus routes within the Project area.****B. The Contractor shall allow the MBTA to operate these bus routes without construction-related delays.****C. The Contractor shall maintain access for the MBTA buses to stop at all signed bus stops at times.**

1. If the Contractor determines that in order to perform the Work of this Contract, it is necessary to restrict access to a bus stop, the Contractor must first obtain permission from the MBTA to temporarily relocate the bus stop.

- D. As a result of this project, the MBTA intends to alter the route that its Route 91 takes through the Project Area. The Contractor shall meet with the City, the Engineer and the MBTA to coordinate the scheduling for the change in Route 91 and the changes to the bus stop signs accordingly.

COORDINATION WITH MWRA

- A. MWRA owns the Spot Pond East Supply Main in Webster Avenue.
- B. The Contractor shall not interfere with the operation of the supply main and shall provide 24/7 access for the MWRA to the various valves within the Project Area.
- C. Prior to the start of construction, the Contractor shall obtain an MWRA 8(m) permit from the MWRA.

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01015 SEQUENCE OF WORK**GENERAL**

- A. This section includes:
1. Contractor work hours
 2. Constraints:
 - a. Maintenance to traffic patterns
 - b. Maintenance of utility service
 3. Switchover to two-way operations
 4. Milestones

CONTRACTOR WORK HOURS

The normal work hours shall be 7 am to 7 pm, 7 days per week.

No work shall be performed at other hours without prior written approval from the City.

CONSTRAINTS

- A. Maintenance of traffic patterns
1. Maintain the existing one-way traffic pattern on Webster Avenue and Prospect Street until the designated weekend switchover to two-way operations.
 2. Prior to the switchover to two-way operation, maintain all traffic signage and traffic control signal systems in the current configuration to support one-way operations.
 3. Prior to the switchover to two-way operation, new traffic control equipment may be installed, but shall be covered and not placed in operation.
 4. Prior to the switchover to two-way operation, new traffic signage may be installed, but shall be covered until the switchover.
 5. Prior to the switchover to two-way operations, maintain:
 - a. At least one southbound traffic lane on Webster Avenue
 - b. At least one northbound traffic lane on Prospect Street
 - c. At least one eastbound and one westbound traffic lane on Somerville Avenue.
 6. At all times, maintain access to Everett and Emerson Streets via Newton Street.
 - a. Newton Street between Everett and Prospect Streets may be closed for sewer, water, and speed table construction.

B. Utility service:

1. Water service: Maintain water service at all time, except:
 - a. Connection to 20-inch water main on Newton Street: one 8-hour shutdown will be allowed.
2. Sewer and storm drain: Maintain flow in existing lines at all times.

SWITCHOVER TO TWO-WAY OPERATIONS

A. The switchover from one-way to two-way operations on Webster Avenue and Prospect Street shall occur on a designated weekend switchover approved by the City.

B. Prior to the switchover:

1. Install and test (but do not activate) all new traffic signal control equipment.
2. Remove traffic islands as indicated on the Drawings (except island on the Washington Street approach to the Somerville Avenue/Prospect Street intersection).
3. Install new curb extensions
4. Install new wheelchair ramps.
5. At least 8 calendar days prior, complete cold and overlay Webster Avenue and Prospect Street. Install temporary tape pavement markings.
6. Install new traffic signage and cover it until the switchover.
7. Do not remove any traffic signage or traffic control system elements that support the current one-way traffic operations. If necessary, the Contractor may temporarily relocate signal heads as approved by the Engineer.
8. Meet with the City, the Engineer and MBTA Bus Operations to coordinate the timing of the switchover with regard to the rerouting of Route 91 outbound and the relocation of bus stops.

B. Switchover – General Sequence:

1. Step 1(Phase A and B): Webster Avenue
 - a. Ban all parking on Webster Avenue
 - b. Restrict traffic to a single 12-ft. southbound lane on the west side of Webster Avenue.
 - c. Stripe DYCL for two-way operations and channelizing island at southbound approach to Prospect Street
 - d. Shift traffic to a single 12-ft southbound lane on the east side of Webster Avenue.

- e. Stripe southbound left turn lane at Prospect Street and bicycle lanes on Webster Avenue
 - f. Unwrap traffic and parking signage for two-way operations.
 - g. Provide traffic officers at signalized intersections.
 - h. Initiate two-way operations
 - i. Activate new signal system at Webster/Washington/Somerville Av. Intersection and Webster Street/Prospect Ave (note Prospect SB will remain covered).
 - h. MBTA will reroute Route 91 prior to Step 2.
2. Step 2 (Phase A and B): Prospect Street
- a. Close Prospect Street to all traffic (Webster to Somerville Avenue) and detour via Webster Avenue.
 - b. Stripe DYCL for two-way operations, bicycle lane, and northbound left turn lane at Somerville Avenue intersection.
 - c. Unwrap traffic and parking signage for two-way operations.
 - d. Provide traffic officers at signalized intersections.
 - e. Remove existing island and mast arm on Washington Street SB at Prospect Street/Somerville Avenue intersection.
 - e. Initiate two-way operations. Remove detour signage.
 - f. Activate new signal system at Webster/Prospect and Prospect/Somerville Av. intersections.
2. Step 3: Miscellaneous pavement markings
- a. Complete any pavement markings not installed in Steps 1 and 2.
 - b. Remove traffic and parking signage in support of one-way operations.

MILESTONES

- A. Milestone 1: Completion of permanent striping and switchover to two-way operations on Webster Avenue and Prospect Street.

1. **August 31, 2016.**

01025 MEASUREMENT & PAYMENT**DESCRIPTION:**

- A. Measurement and payment for all items of the Work shall be as specified in this section.
- B. Lump sum and unit price items referenced in this section are the prices bid in the Unit Price Form contained in Section 00300.
- C. All portions of the Work are either included in a lump sum bid item or a unit price bid item listed in the Bid Schedule.
- D. Payment for all Work shall be in compliance with the Contract Documents, and shall be in accordance with the unit prices bid and the accepted Schedule of Values.
 - 1. Work for which there is not a separate item will be considered incidental to the Contract and no additional compensation will be allowed.

LUMP SUM BID ITEMS:

- A. Payment of each lump sum shall be full compensation for all labor, materials, and equipment required to furnish, install and test the Work covered under the lump sum items.
- B. Payment of the lump sum shall fully compensate the Contractor for any other work which is not specified or shown, but is necessary to complete the Work.
- C. Payment of the lump sum will be based on physical progress for each activity in accordance with the approved Schedule of Values.

UNIT PRICE BID ITEMS:

- A. Payment of a unit price shall be full compensation for all labor, materials, and equipment required to furnish, install, and test each unit of Work covered under the applicable item.
- B. Payment of unit price bid items will only be made for the actual quantity of Work performed in accordance with the Contract Documents.

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01045 CUTTING & PATCHING**GENERAL:**

- A. Provide protective devices to safeguard all Work and existing facilities during cutting and patching operations.
- B. Saw cut HOT MIX ASPHALT pavement at limits of paving.
- C. Saw cut sidewalks at limit of new concrete sidewalks or new concrete wheelchair ramps.
 - 1. Saw cut concrete sidewalks only at existing score lines. Do not saw cut between score lines.
- D. Remove and dispose of materials in a manner to prevent damage to adjacent facilities or materials.
 - 1. Remove and dispose of materials which are not salvageable from site.
- E. Restore all Work and existing facilities affected by cutting operations with new materials, or with salvaged materials acceptable to the City.
 - 1. Obtain a finished installation with strength, appearance, and functional capacity equal to original or better.
 - 2. Patch and refinish entire surfaces if necessary.

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01050 FIELD ENGINEERING**SUMMARY:****A. Section Includes:**

1. Examination of site and conditions of construction.
2. Confirmation of construction easements.
3. Record Project Documents.

SUBMITTALS:**A. Submit in accordance with Section 01300 and the following:**

1. Qualifications of Contractor's Professional Land Surveyor.

B. Record Drawings:

1. Submit monthly with payment request:
 - a. Submit each month with project invoices: copies of survey notes and Record Drawings indicating the as-built information of completed Work.
 - b. **Payment will not be made for any Work that is completed but is not correctly indicated in the monthly submittal of as-built information on the Record Drawings.**
2. Submit at Contract Close-out:
 - a. As a condition of final acceptance and payment, submit a full set of Record Drawings indicating all as-built locations and dimensions of work prepared by a Professional Land Surveyor from the ground survey. The Contractor shall include a statement on the cover sheet indicating that the Record Drawings contain all as-built information and that the Contractor has verified the information shown on the Record Drawings.

QUALITY ASSURANCE:

The layout of the Work and the establishment of line and grade shall be performed by a Registered Land Surveyor licensed in the Commonwealth of Massachusetts. The surveyor shall have at least five years experience in the layout of construction work with at least three years experience in the layout of pipeline work.

FIELD ENGINEERING REQUIREMENTS:**A. Verification of Conditions:**

1. Before starting operations, examine the site to become acquainted with conditions to be encountered.
2. Notify DIG SAFE, utilities, and Somerville DPW prior to excavation.
3. Obtain MWRA 8(m) Permit prior to excavation

4. Verify exact locations of sewers, drains, local water mains, gas mains, above or below ground electrical wires, other utilities and conduits and structures that may interfere with Work.
5. Verify locations and dimensions of utilities at all tie-in locations before ordering piping, fittings, structures and other materials.
 - a. Take test pits to confirm the existing conditions at each tie-in location.

B. Environmental Requirements:

1. Unfavorable Construction Conditions:

- a. During unfavorable weather, wet ground, or other unsuitable construction conditions, confine operations to work which will not be affected adversely by such conditions.
- b. No portion of Work shall be constructed under conditions which adversely affect quality or efficiency.

C. Field Measurements:

1. Lines and Grades:

- a. All Work shall be performed to lines, grades, and elevations indicated on Drawings.
- b. The Contractor is responsible for the layout of the Work and the establishment of line and grade.
- c. Establish basic horizontal and vertical control points.
- d. Perform all additional survey, layout, and measurement Work.
 - 1) Furnish survey crew under charge of a Professional Land Surveyor registered in the Commonwealth of Massachusetts, and such instruments, tools, stakes, and other materials required to complete survey, layout, and measurement Work, inclusive of:
 - a) Establishing or designating horizontal and vertical control points.
 - b) Establishing construction work area boundaries.
 - c) Checking survey, layout, and measurement of the Work.
 - d) For utility lines, provide horizontal and vertical control points every 50 feet.
- e. Remove and reconstruct Work which is improperly located at no additional cost to the City.

D. Connections to Existing Facilities:

1. Make all necessary connections to existing facilities as indicated on Drawings.

2. Contractor shall notify the Engineer at least ten (10) days prior to undertaking connections that impact private or public utilities.
 - a. Protect facilities against deleterious substances and damage.
 3. Thoroughly plan in advance all connections to existing facilities that are in service.
 - a. All required equipment, materials, and labor shall be on hand at time of undertaking connections to existing facilities in service.
- E. Protection of Utilities and Underground Facilities:
1. Protect, shore, brace, support, and maintain all underground pipes, conduits, drains, and other underground construction uncovered or otherwise affected by construction operations.

PROJECT MONUMENTATION:

- A. Establish control points (known coordinates) and bench marks along the alignment of the Project.
 1. Existing horizontal control points and benchmarks will be provided by the Engineer.
- B. Protect all existing monumentation within the project area. **See detail as indicated on the Drawings for protection of existing monumentation during active construction.**
- C. Restore all existing survey monuments, property line markers, street and roadway layout monumentation, and other monumentation that is disturbed by the Work of the Contract.

PROJECT RECORD DOCUMENTS:

- A. The Contractor shall maintain one set of the Project Record Documents at the site. The Project Record Documents shall be stored apart from other documents used for construction. The Project Record Documents shall be maintained in a clean, dry and legible conditions and shall not be used for construction purposes.
- B. The Contractor shall maintain two sets of Record Drawings that indicated redline "as-built locations and dimensions of work".
 1. The Record Drawings with as-built information shall be submitted monthly to the Engineer for verification and for payment.
 2. The as-built locations shall include the survey notes and marked-up plans prepared by a Professional Land Surveyor (PLS) registered in the Commonwealth of Massachusetts. The format of this information shall be such that it can eventually be used for the final as-built plans.
 3. The as-built information on the Record Drawings shall include the following:
 - a. For storm drain and sewer lines: the rims, inverts, pipe sizes and pipe material, at all structures; horizontal and vertical locations of any bend between structures; bottom of sump elevation for catch basins; inverts, pipe sizes, and pipe material. Also provide the

- coordinates of the center of the structure itself and coordinates of the cover or grate. See paragraph g. below for headwalls.
- b. For water lines: horizontal and vertical locations every 50 feet on pipes, at all changes in grade or direction, at all fittings, at all valves, and at hydrants. Provide coordinates of hydrant, valve, and fittings.
 - c. Include the location of any existing utility that differs from the location indicated on the Plans.
 - d. Include the location of any uncharted utility encountered.
 - e. The location of new or existing underground utilities shall be obtained prior to backfilling the trench.
4. All deficiencies or errors noted by the Engineer shall be promptly corrected.
 5. Field data shall be updated each month.
 6. The Record Drawings shall be available for inspection by the Engineer at all times.
- C. Indicate the following on the Final Record Drawings:
1. All as-built information surveyed by a Professional Land Surveyor based on the ground survey and completed in accordance with the standards established in CMR 250.6.02.
 2. Rim elevations at all surface structures (catch basins, manholes, gate valves).
 3. Invert elevations on all sewer pipes at sewer manholes.
 4. Location of traffic signs, traffic signal posts, handholes, street light poles, crosswalks, wheel chair ramps, and other features collected as part of a topo survey.
 5. The Final Record Drawings with as-built information shall be submitted in paper copy (1 set) plus electronic copies in two formats:
 - a. AutoCAD.
 - b. PDF format files.
 6. Survey shall reference Massachusetts State Plane (NAD '83) and NAVD 1988.

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01060 PERMITS**APPLICABLE REGULATIONS:**

Comply with all Federal, State, and Local laws, and regulations concerning environmental pollution control and abatement, navigable waters, noise, air pollution, damage to archaeological resources and any other governing agencies. The Contractor shall comply with all laws, rules, regulations and ordinances promulgated by any authority having jurisdiction over the Work.

PERMITS OBTAINED BY THE CITY

None

PERMITS TO BE OBTAINED BY THE CONTRACTOR:

- A. The Contractor is responsible for obtaining and paying for all permits, licenses, certifications or approvals that are not listed above, but that are required for the Work. These include, but are not limited to, building, electrical and other permits required of its equipment, work force, and of particular operations (such as transportation of equipment, materials, chemicals, fuel, hazardous or contaminated materials, items removed from the sites; use and storage of chemicals, and other materials; fuel storage; air emission; discharge of dewatering and/or storm drainage, whether to water bodies or to storm drainage systems; and the like) in the performance of the Work or the construction and removal of temporary construction facilities (such as temporary utilities including the provision of backwater preventers on temporary water services, above or below ground tanks, piping installation, piping removal, and chemical handling. Proper equipment shall be installed, tested and maintained in accordance with local, state, and federal requirements.
- B. The Contractor is responsible for scheduling and coordinating inspections and receipt of local or state permits/approvals/certifications for any tanks, piping, and associated appurtenances which are constructed, tested or removed as part of this Contract. Receipt of approvals for storage and use of test chemicals/gasses is the responsibility of the Contractor.
- C. In addition to the permits required to be obtained by the Contractor specified elsewhere in this section, the Contractor shall also obtain the following permits prior to the start of construction:
 - 1. NPDES Notice of Intent & Stormwater Pollution Prevention Plan (SWPPP): Prior to the start of construction, the Contractor shall prepare and submit to the Environmental Protection Agency (US EPA) a Notice of Intent for Storm Water Discharge Associated with Construction Activity under an NPDES General Permit.
 - a. This submittal shall include a site-specific Stormwater Management Plan prepared by a professional engineer registered in Massachusetts.
 - b. All work in this Contract shall be performed in compliance with the SWPPP.
 - c. The Contractor shall maintain one copy of the SWPPP on site at all times.
 - d. Upon completion and acceptance of all Work by the City, the Contractor shall submit a Notice of Termination to US EPA.

2. NPDES General Permit for Construction Dewatering Activities: The Contractor shall apply for a NPDES General Permit for Construction Dewatering Activities from the US EPA and the MA DEP.
3. MWRA 8(m) Permit: The Contractor shall apply for and obtain an MWRA 8(m) Permit for work in the vicinity of the MWRA East Spot Pond Supply Main that is located in and adjacent to Webster Avenue.

SITE VISITS BY PERMITTING AGENCIES AND NOTIFICATION:

Certain permits require that a representative of the permitting agency be present at the site during the construction of certain items of work. The Contractor shall allow representatives of permitting or other regulatory agencies to have access to the work site.

Where such items of work will be backfilled or otherwise buried in the course of subsequent work, the requirement may be that the item of work is viewed by the representative of the permitting agency prior to backfilling or burying. The Contractor shall not backfill or bury the work to be viewed until the representative of the permitting agency has viewed the work.

In situations where site visits by the permitting agency are required, the Contractor shall be responsible for notifying the permitting agency in writing in compliance with requirements of such permit.

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01120 HEALTH AND SAFETY**HEALTH & SAFETY - GENERAL**

- A. The Contractor shall take all necessary precautions and provide all necessary safeguards to prevent personal injury and property damage. The Contractor shall provide protection for all persons, including, but not limited to his/her employees and employees of other contractors or subcontractors, members of the public, employees, representatives and agents of the City, members of regulatory agencies who may be on-site during this work or other work on-site.
- B. The Contractor shall provide protection for all public and private property, including, but not limited to structures, pipes and utilities, above and below ground.
- C. The Contractor shall provide and maintain all necessary safety equipment such as fences, barriers, signs, lights, walkways, guards and fire prevention and firefighting equipment and shall take such other action as is required to fulfill their obligations under this Section. All work under this contract shall be conducted in accordance with all applicable Federal, State and local municipal laws, regulations and ordinances pertaining to health and safety, and industry guidelines, including but not limited to the following.
 - 1. National Institute for Occupational Safety and Health (NIOSH) applicable sections.
 - 2. Occupation Safety and Health Administration (OSHA), Regulations 29 CFR applicable sections.
- D. The Contractor shall designate a Health and Safety Coordinator with knowledge of all applicable safety and health codes, statutes and ordinances as well as best safety practices recognized by the construction industry. The Safety and Health Coordinator shall be able to demonstrate knowledge by verbal or written test and have the ability to ensure compliance with same. The Contractor shall notify the Engineer orally and in writing immediately should any unforeseen safety hazard or condition become evident during the performance of the Work. The Contractor shall take action to establish and maintain safe working conditions to safeguard employees, the public, and the environment.

HEALTH AND SAFETY PLAN (HASP):

- A. The Contractor shall prepare a Health and Safety Plan (HASP) for all workers, including Subcontractors, onsite personnel, visitors and potential offsite receptors from potential chemical and physical hazards. The Contractor shall furnish all labor, materials and equipment necessary to implement health and safety procedures designed to protect health, safety, public welfare and the environment during the performance of all Work.
- B. The Health and Safety Plan shall be in compliance with the health and safety standards set forth by Occupational Safety and Health Administration (OSHA) as described in 29 CFR1910.120 – Occupational Safety and Health Standards and 29 CFR 1926 – Safety and Health Regulations for Construction.
- C. The HASP shall include the following:

1. Identification of Key Personnel: Identify field and office contacts, describing general function, lines and levels of Engineer, responsibility and communication. The names, addresses and telephone numbers shall also be provided in the plan.
2. Understanding of Project Work: Describe work activities to be performed by Contractor, including identification and understanding of field testing and any required permits (i.e., property access, street opening, environmental) to be obtained. Site controls to be utilized, including regulated areas (zone delineation) within work zone, security, communication and entry control procedures.
3. Identification of Chemical and Physical Hazards and Risks: Identify potential known chemical hazards and occupational exposure to contaminated soils and/or groundwater and physical hazards involved with such activities associated with trenching and excavation, use of electrical equipment and/or electrical installations, use of hand and power tools, heavy equipment, which may result in physical injury to a worker. This assessment shall also identify allowable exposure limits, potential routes of exposure, preventative and control measures and symptoms associated with the potential hazard.
4. Excavation Entry: Indicate how the Contractor will comply with the inspection, training, competent person and other relevant requirements of OSHA 29 CFR 1926-Subpart P-Excavations.
5. Personal Protective Equipment (PPE): Provide list, description and procedures for use of clothing, equipment and/or instrumentation to conduct work in Level D and Upgraded Level D protection, including procedures for self-decontamination and handling of clothing. Modified Level D protection shall be the minimum requirement for all on-site personnel.
6. Respiratory Protection Equipment (RPE): Provide list, description and procedures for donning respirators. Information regarding the availability of RPE shall be clearly stated in the plan as well as indicators (i.e., change in work task or scope, weather conditions, new contaminants.)
7. Standard Operating Procedures: Provide Contractor's standard work practices during construction. Worker safety requirements for entering excavations shall be included and comply with 29 CFR 1926-Subpart P - Excavations.
8. Worker Training and Medical Requirements: All workers who will potentially come in contact with contaminated media shall have 40-hour OSHA HAZWOPER training, and possess a current annual refresher course/certificate and meet the annual medical monitoring surveillance requirements set forth by OSHA in 29 CFR 1910. Any workers required to use respirators shall be certified in use of said equipment. Copies of all training certificates shall be provided to the Engineer and/or documented in the plan.
9. Emergency Response Plans and Procedures: Describe procedures for handling workers injured by identified physical and/or chemical hazards, including availability and locations of first aid kits, eye wash equipment, and fire extinguishers. Plans and procedures shall describe means of communication for contacting emergency responders (i.e., fire, police, ambulance, hospital) and directions to the nearest medical facility or hospital.

10. Personnel Monitoring Program: The Personnel Monitoring Program shall identify and describe symptoms and treatment of conditions including but not limited to noise, sunburn, heat stress, frostbite and/or hypothermia associated with working outdoors.
11. Environmental Monitoring Program: An Environmental Monitoring Program, including but not limited to ambient air monitoring, will be required during trench excavation activities and while working in confined space. The Environmental Monitoring Program shall be designed to continuously monitor for total volatile organic compounds (TVOCs), oxygen, Methane and hydrogen sulfide and shall describe the type of monitoring equipment, calibration and maintenance procedures and appropriate action levels in the event unsafe conditions are encountered. Results of Environmental Monitoring shall be used to assess the need and/or to upgrade the level of dermal and/or respiratory protection. The Engineer may conduct duplicate air monitoring for quality control purposes.

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01200 PROGRESS MEETINGS**A. Preconstruction Conference:**

1. Prior to commencement of the Work, a preconstruction conference shall be held at a time and place designated by the Engineer.
2. The purpose of the conference is to designate responsible personnel and establish working relationship.
 - a. Matters requiring coordination shall be discussed and procedures for handling such matters established.
 - b. Agenda shall include:
 - 1). Initial Contractor schedule.
 - 2) Transmittal, review, and distribution of submittals.
 - 3) Processing applications for payment.
 - 4) Maintaining record documents.
 - 5) Critical work sequencing.
 - 6) Field Orders and Change Orders.
 - 7) Staging areas and use of City streets.

B. Progress Meetings:

1. Attend regular biweekly or weekly progress meetings.
2. Purpose of progress meetings:
 - a. Review progress of Work and upcoming Work.
 - b. Maintain coordination of efforts.
 - c. Discuss changes in scheduling.
 - d. Resolve other problems which may develop.

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01300 SUBMITTALS

The Contractor shall submit product data, shop drawings, samples, quality control submittals, working drawings, for review and approval as required by the Contract Documents.

DEFINITIONS:

- A. **Approved:** No correction or marks.
- B. **Approved as Noted:** Few minor corrections. All items may be fabricated as marked up without further resubmission. Resubmit corrected copy.
- C. **Revise and Resubmit:** Minor corrections. Items not noted to be revised and corrected may be fabricated at the Contractor's option. Resubmit shop drawings per original submission with corrections noted. Thirty (30) days will be allowed for checking and appropriate action by the Engineer.
- D. **Rejected-See Remarks:** Major corrections or not in accordance with Contract Documents. No items shall be fabricated. Correct and resubmit shop drawings per original submission. Twenty-one (21) days will be allowed for checking and appropriate action by the Engineer.
- E. **Reviewed for Informational Purposes Only:** Items not reviewed or items for which submittals are not required.
- F. **“Equal.”** For approval of an “equal” product that is not specified, “equal” shall mean as it is defined in MGL Chapter 30, Section 39M(b).

SUBMITTAL PROCESS:

- A. Requirements:
 - 1. General Submission Requirements:
 - a. Make submittals promptly in accordance with the approved construction schedule and in such sequence as to cause no delay in the work.
 - b. Submittal electronically as PDFs to:

Parsons Brinckerhoff, Inc.
75 Arlington Street, 9th floor
Boston, MA 02116
Attn: Rachel J. Burckardt
Burckardt@pbworld.com
 - c. Include:
 - 1) Date of submission and the dates of any previous submissions.
 - 2) Contract title (“Union Square Utility and Roadway Early Action Project”) and IJB No. 15-105.

- 3) Submittal Identification Number consisting of the Specification Number, submittal number, and versions identification:

XXXXX-YYY-Z

where XXXXX = Specification Section or Bid Item No.

YYY = submittal number (start with 001 within each Section

Z = letter indicating a resubmittal (initial submittal is blank,
first resubmittal is “A”, 2nd is “B”, etc.

- 4) The names of the following

- (a) Contractor
- (b) Supplier
- (c) Manufacturer

- 5) Identification of the product or process, with the specification section or item number and paragraph number.

- 6) Field dimensions, clearly identified as such.

- 7) Relation to adjacent or critical features of the work or materials.

- 8) Applicable standards, such as ACI, ASTM, AASHTO, ANSI, ASME or FS numbers.

- 9) Identification of deviations from the Contract Documents.

- 10) Identification of revisions on resubmittals.

- 11) An 8-inch by 3-inch blank space for the Contractor's and Engineer's stamps.

- a) Contractor's stamp, shall be initialed or signed, certifying to the review of the submittal, verification of products, field measurements and field construction criteria, proposed construction methods, and coordination of the information within the submittal with requirements of the work and of the Contract Documents.

- d. For approval of an “equal” product that is not one of the products specified, submit evidence to Engineer that the “equal” product meets the requirements stated in MGL Chapter 30, Section 39M(b)

2. Shop Drawings:

- a. Drawings shall be presented in a clear and thorough manner.

- 1) Details shall be identified by reference to applicable sheet and detail or schedule as shown on the Contract Drawings.

- 2) Drawings shall have sufficient detail to show the kind, size, arrangement and function of component materials and devices.

3. Product Data:

a. Preparation:

- 1) Clearly mark each copy to identify pertinent products or models.
- 2) Show performance characteristics and capacities.
- 3) Show dimensions and clearances required.
- 4) Show wiring or piping diagrams and controls.
- 5) Show external connections, anchorages and supports required.

b. Manufacturer's standard schematic drawings and diagrams.

- 1) Modify drawings and diagrams to delete information which is not applicable to the Work.
- 2) Supplement standard information to provide information specifically applicable to the Work.

4. Samples:

a. Office samples shall be of sufficient size and quantity to clearly illustrate;

- 1) Functional characteristics of the product, with integrally related part and attachment devices.
- 2) Full range of color, texture and pattern.

5. Quality Control Submittals:

- a. A Certificate of Compliance shall be submitted which clearly states that the materials being supplied comply with the materials specified.

6. Contractor's Responsibilities:

a. Review Shop Drawings and Product Data prior to submission.

b. Determine and verify:

- 1) Field measurements.
- 2) Field construction criteria.
- 3) Catalog numbers and similar data.
- 4) Conformance with Contract Documents.

c. Coordinate each submittal with requirements of the Work.

- d. **Notify the Engineer in writing, at time of submission, of any deviations in the submittals from requirements of the Contract Documents.**

C. Resubmission Requirements:

1. Make any corrections or changes in the submittals required by the Engineer and resubmit until accepted by the Engineer.
2. Shop Drawings, Working Drawings and Product Data.
 - a. Revise initial drawings or data, and resubmit as specified for the initial submittal.
 - b. Indicate any changes which have been made other than those requested by Engineer.
3. Samples:
 - a. Submit new samples as required for initial submittal.
4. Affix stamp, and indicate requirements for resubmittal, or acceptance of submittal.

SUBMITTAL LOG:

- A. Maintain an accurate updated submittal log and bring this log to each scheduled progress meeting. This log shall include the following items:
 1. Submittal-description and number assigned.
 2. Date submitted to the Engineer.
 3. Date returned to the Contractor.
 4. Status of submittal (Approved, Approved as Noted, Revise and Resubmit, Rejected-See Remarks, Reviewed For Informational Purposes Only).
 5. Date of resubmittal and return (as applicable).
 6. Date material released for fabrication.
 7. Projected date of fabrication.
 8. Projected date of delivery to site.
 9. Status of O&M manuals submittal.
 10. Specification Section or Item No.
 11. Contract Drawing number.
 12. Certificate of Compliance: Submitted and anticipated.

- B. Submit initial log listing all submittals within 30 days of NTP.

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01470 INDEPENDENT TESTING LABORATORY**GENERAL**

- A. Conduct tests where specifically required in Contract Documents. Quality control verification testing will be performed by Engineer.
 - 1. Conduct required tests in accordance with the Engineer's accepted test instructions, procedures and plans.
- B. The Contractor shall provide and pay for the services of an Independent Testing Laboratory to perform services as specified herein.

SUBMITTALS

- A. Submit qualifications of Contractor's independent Testing Laboratory indicating that the lab meets the requirements and certification specified in Paragraph 1.07.

REQUIREMENTS

- A. Testing Laboratory Services Furnished by Contractor:
 - 1. Qualifications of Testing Laboratory:
 - a. Employ services of an independent Testing Laboratory to perform material qualification and job control testing. The laboratory shall meet requirements of ASTM E329 for the type of work performed. Non-destructive examination, including visual inspection of metallurgy welds, is included in this requirement.
 - b. Laboratories performing cement, concrete and aggregate testing shall possess a current Certificate of Accreditation to the latest edition of AASHTO R18, (or ASTM C1077), and a Certificate of Accreditation for each cement, concrete and aggregate test method to be used.
 - c. Laboratories performing soils testing shall possess a current Certificate of Accreditation to the latest edition of AASHTO R18, (or ASTM D3740), and a Certificate of Accreditation for each soils test method to be used.
 - d. Accreditation may be performed by AASHTO Accreditation Program (AAP), National Voluntary Laboratory Accreditation Program (NVLAP), American Association for Laboratory Accreditation (A2LA) or the Concrete Materials Engineering Council.
 - e. Field sampling and testing shall be performed by the laboratory and personnel that are licensed by the Commonwealth of Massachusetts State Board of Building Regulations and Standards in the manner indicated in Specifications, with minimum interference to the construction operations.
 - f. Ensure that laboratory is:
 - 1) Certified by the Massachusetts Department of Environmental Protection for the analyses to be performed.

- 2) Has been in business for a minimum of five years while providing applicable testing services.
2. Furnish all testing services required for the Engineer's review of materials and equipment proposed to be used in the Work and quality control tests made in field, including:
 - a. HOT MIX ASPHALT materials and mix designs.
 - b. Cement concrete materials and mix designs.
 - c. Moisture-density (Proctor) and relative density tests on:
 - 1) Embankment materials
 - 2) Backfill materials
 - 3) Subgrade materials
 - d. Gradation tests for backfills.
 - e. In-place field density tests on:
 - 1) Embankment materials
 - 2) Backfill materials
 - 3) Subgrade materials
 - f. Disinfection of water pipes.
 - g. All other tests and engineering data as specified herein for the Engineer's review of materials and equipment proposed to be used in the Work.
3. Obtain Engineer's acceptance of testing laboratory before having services performed.
4. Arrangements for delivery of samples and test specimens to testing laboratory.
5. Do not replace the Testing Laboratory without prior written approval by the Engineer.
6. Field Testing:
 - a. The Contractor shall provide and schedule all field and laboratory testing and furnish written reports of each test within 48 hours of completion of testing to avoid delays.
 - b. The Contractor shall furnish all sample materials and field testing activities.
 - c. Contractor shall retest due to failure of original Work to meet the requirements of the Contract Documents.

7. Notification:
 - a. Provide the Engineer with not less than two workdays prior written notice of occurrence of an identified inspection. Inspections/approvals required by outside agencies require a seven day prior notification.
 8. Document results of tests in report format and submit for review. Include the following:
 - a. Contract or Project Identification.
 - b. Identification of items tested.
 - c. Quantity.
 - d. Date test conducted.
 - e. Location of items tested.
 - f. Test procedure used.
 - g. Name of technician.
 - h. Acceptance Criteria.
 - i. Results - Acceptance or rejection.
 - j. Authorized signature.
 9. Contractor Performed Tests - Witnessed by the Engineer. Do not proceed with Work without Engineer acceptance of test results.
- B. Testing Laboratory Services Furnished by the Owner:
1. The Contractor shall provide for all testing laboratory services, however, the Owner reserves the right to hire its own testing laboratories for quality control tests made in field or laboratory on materials and equipment during and after their incorporation in the Work.
- C. Inspection and tests, conducted by persons or agencies other than Contractor do not relieve Contractor of responsibility to meet Contract Document requirements.

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01565 NOISE CONTROL

The Contractor shall use every effort and every means possible to minimize noise caused by its operations, which the applicable towns may consider as objectionable or so regulated by ordinance. The Contractor and each Subcontractor shall provide working machinery and equipment designed to operate with the least possible noise, and when gearing is used, such gearing shall be of a type designed to reduce noise to a minimum. **Back-up alarms on all equipment shall be modified to reduce noise impacts.** Compressors and air-powered equipment shall be equipped with pneumatic exhaust silencers. All gas or oil operated equipment shall be equipped with silencers or mufflers on intake and exhaust lines. Wherever practicable, electricity shall be used for power to reduce noise. Dumping bins, hoppers and trucks used for disposal of excavated materials shall be lined with wood or other sound-deadening material. Where required by agencies having jurisdiction, certain noise-producing work may have to be performed during specified periods only. The Contractor shall use mufflers on trucks and equipment to reduce noise.

The Contractor shall comply with the noise ordinance of the City of Somerville.

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01570 ENVIRONMENTAL CONTROLS**PROTECTION OF LAND RESOURCES:****A. General:**

1. Land resources within the project boundaries and outside the limits of the work as may be affected under the work of this contract shall be preserved in their present condition, or be restored to a condition, after completion of construction, that will appear to be natural. The Contractor shall confine its construction activities to areas defined by the Drawings or Specifications.

B. Restoration of Landscape Damage:

1. Any trees or other landscape features scarred or damaged by equipment or operations shall be restored or replaced in kind with a tree or shrub of equivalent or superior quality and size to the satisfaction of the Engineer. All scars made on trees by equipment, construction operations or by the removal of limbs larger than 1 inch in diameter shall be coated as soon as possible with an approved tree wound dressing. All trimming or pruning shall be performed in an approved manner by experienced workmen with saws or pruning shears. Trimming with axes will not be permitted.

C. Post-Construction Clean-up or Obliteration:

1. The Contractor, on or before the completion of the work, except as otherwise expressly directed or permitted in writing by the Engineer, shall tear down and remove all temporary structures built or used by it, shall remove all rubbish and debris of all kinds from all contract structures and from any grounds which the Contractor shall have occupied; shall leave the site of the work in a satisfactory neat and clean condition; shall remove all abandoned materials and plants; and shall leave the spoiled areas and the property which may have been affected by his operations, in a neat and satisfactory condition. All materials salvaged shall be the property of the Contractor, and shall be disposed of legally off City property.

PROTECTION OF CULTURAL RESOURCES:**A. General:**

1. The Contractor's attention is directed to the National Historic Preservation Act of 1966 (16 U.S.C. 470) and 36 CFR 800, which provides for the preservation of potential historical, architectural, archaeological, or cultural resources (hereinafter called "cultural resources").
2. The Contractor shall conform to the applicable requirements of the National Historic Preservation Act of 1966 as it relates to the preservation of cultural resources.
3. All cultural resources including articles of historical or scientific value, including coins, fossils, and articles of antiquity, which may be uncovered or otherwise brought to attention during course of the Work, shall remain the property of the owner of the property on which articles reside. Such findings shall be immediately reported to the Engineer.
4. In the event potential cultural resources are discovered during excavation, the following procedures shall be instituted:

- a. The Contractor shall stop work immediately and immediately notify the Engineer of such potential cultural resources find.
- b. The Contractor shall cease operations until such time as a Registered Archaeologist (provided by the City) can be called to assess the value of these potential cultural resources and make recommendations to the Massachusetts Historical Commission.
- c. If the archaeologist determines that the potential find is a bona fide cultural resource, at the direction of the Massachusetts Historical Commission, the Contractor shall suspend Work at the location of the find.

PROTECTION OF WATER RESOURCES:

A. General:

1. DO NOT pollute any storm drains or sewers with fuels, oils, bitumen, calcium chloride, acids or harmful materials. It is the responsibility of the Contractor to investigate and comply with all applicable Federal, State, County, and Municipal laws concerning pollution of surface waters. All work under this contract shall be performed in such a manner that objectionable materials will not be allowed to enter through or adjacent to the project areas.
2. During and after construction, there shall be no discharge or spillage of chemicals, fuel, oil, lubricants, bitumen, raw sewage, or any other pollutant from the Project into any storm drain.
3. No debris, litter or sanitary waste shall be allowed to fall or remain on site. All practical precautions shall be undertaken to collect and remove debris within the immediate vicinity of the project and any materials which escape from the vicinity but are the result of the Contractor's activity.

SPILL MANAGEMENT PLAN:

- A. The Contractor shall develop a spill management plan for any hazardous materials that may be employed during work. Specifically, the Contractor shall prepare to effectively deal with spillage of fuel or hydraulic fluids from equipment. A quick absorbent material, such as "Speedy Dry" or equivalent shall be stored in a dry readily available area at the work site for use in the event petroleum-based fluids are spilled or leaked. The spent material is then to be containerized and disposed of properly. Absorbent-floating material shall be stored in a readily available area for use in case of a spill into a catch basin or storm drain.
- B. The Contractor shall submit the Spill Prevention Plan to the Engineer for approval.
- C. Do not store overnight petroleum products or hydraulic fluids within the project area.

STORAGE OF EQUIPMENT AND MATERIAL:

- A. Equipment shall be stored in a manner and location that will minimize potential environmental impacts. There shall be no stockpiling of material or storage of equipment or vehicles beyond the paved area of the site. Best management practices shall be employed during construction to prevent any adverse impacts on adjacent properties, which practices shall include, but not be

limited to, covering of all stockpiled materials, and handling of all excavate in accordance with the Massachusetts Contingency Plan requirements.

MAINTENANCE OF DRAINAGE:

- A. The Contractor shall be responsible for providing for the flow of stormwater into catch basin.
- B. The Contractor shall also be responsible for providing for the flow of stormwater in storm drains interrupted during the progress of the Work, and immediately removing and disposing of obstructions.
- C. The entire procedure of maintaining existing flow must be fully discussed with the Engineer at least 5 working days prior to the interruption of any flow.

EROSION CONTROL:

- A. Such materials as may be necessary shall be utilized to effectively prevent erosion and sediment from entering storm drains.
- B. Do not place excavated soil material in a manner that will cause it to wash away by stormwater runoff.
- C. All unconsolidated, project-related materials shall be contained to prevent erosion into resource areas by implementing all practical precautions, including but not limited to placement of sand bags.
- D. Stockpiles shall be completely covered when no activity occurs at the site for periods of time greater than 24 hours.
- E. Catch basins shall be protected with silt sacks (Gutter Buddies ®, SiltSacks™, SiltSocks™, SpillSmart Drain Filters, or approved equal) until construction is completed.
 - 1. Protect all catch basins within project limits.
- F. Transport all soils, excavated materials, aggregates, debris, or spoils in covered trucks. Trucks entering and leaving the Project work areas shall have their loads completely covered in compliance with M.G.L. Chapter 85 § 36.

DIRT, DEBRIS AND DUST CONTROL:

- A. Maintain all work areas within or without the project boundaries free from dirt, debris and dust which would cause the standards for air pollution to be exceeded or cause a hazard or nuisance to others. Where applicable, approved temporary methods of stabilization consisting of sprinkling or use of calcium chloride, to be approved, must be repeated at such intervals as to keep all parts of the disturbed area at least damp at all times, and the Contractor must have sufficient competent equipment on the job to accomplish this if sprinkling is used. Dirt and dust control must be performed whenever a dust nuisance or hazard occurs, or as directed by the Engineer.
- B. The Project site shall be maintained in a clean and orderly condition. Refuse, debris and waste materials shall not be placed within any resource area under any circumstances and shall be disposed of promptly and properly and in accordance with applicable local, state and federal laws.

All construction refuse, debris and waste materials shall be removed from the site upon completion of the construction activities as directed by the Engineer. The Contractor shall clean the work area at the end of each workday to prevent wind deposition of fugitive dust and accumulation of debris in the Project Area and on adjacent land.

- C. The Contractor shall implement dust control measures during roadway and utility construction, and at all material stockpiles, so as to prevent the wind deposition of fugitive dust. All stockpiles shall be covered during non-working hours and when the stockpile is not being actively used.
- D. Street Sweeping:
 - 1. Provide street sweeping in accordance with Items 108-501.
 - 2. At Substantial Completion, after the removal of all materials, equipment and temporary traffic control devices, the Contractor shall provide street sweeping services to clean all pavements within the limits of work.

AIR POLLUTION:

- 1. Use construction equipment which is in compliance with the most restrictive regulation of the EPA, state and local authorities.
- 2. Comply with Massachusetts air quality regulations (310 CMR 7.09).
- 3. Comply with restriction on vehicle idling (maximum 5 minutes of idling).
- 4. Burning of trees, brush, and other combustible materials will not be permitted. Such materials will be legally disposed of off-site in accordance with all federal, state and local regulations.
- 5. Participate in DEP's Clean Air Construction Initiative (CACI) to retrofit all on-site diesel-powered equipment with after-engine emission controls and use of Low Sulfur Diesel Fuel.

MAINTENANCE OF POLLUTION CONTROL FACILITIES DURING CONSTRUCTION:

- A. During the life of this contract the Contractor shall maintain all facilities constructed for pollution control under this contract as long as the operations creating the particular pollutant are being carried out or until the material concerned has become stabilized to the extent that pollution is no longer being created.

DISPOSAL OF SURPLUS EXCAVATION MATERIAL

- A. All surplus excavation material shall be removed from the project area by the Contractor. The Contractor shall dispose of the material in compliance with all federal, state, and local laws and regulations.

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01580 PROJECT SIGNS

The Contractor shall supply, install and maintain for the duration of the project two (2) signs at locations determined by the Engineer in the field.

The Contractor shall submit the design of the sign to the Engineer for approval. The exact location of the sign shall be determined by the Engineer.

The sign shall be constructed of either of the following:

1. 3/4-inch MDO Ext. Plywood, 4-foot by 8-foot with a mitered edge border of 2 inches by 3 inches fir.
2. 0.080 inch aluminum

Sign shall include the following:

1. City of Somerville and City logo(s).
2. Project title: "Union Square Utility and Roadway Early Action Project"
3. "IFB#15-105"
4. Names of design team firms:
 - a. Parsons Brinckerhoff, Inc.
 - b. Toole Design Group, Inc.
 - c. Bryant Associates, Inc.
5. Name of Contractor
6. No other information will be allowed on the project sign.

The Contractor shall remove and dispose of the signs at completion of the Project.

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ITEM NO. 100-001
ITEM NO. 999-999

MOBILIZATION
DEMOBILIZATION

LUMP SUM
LUMP SUM

DESCRIPTION

Item No. 100-001 Mobilization

A. **Work Tasks:** This Item includes Contractor mobilization tasks including the following:

1. Transport to Project area and assemble all construction plant, equipment, safety equipment, operational materials and supplies.
2. Submit the following:
 - a. Spill Prevention Plan (as specified in the Special Conditions)
 - b. The list of items to be submitted at the Pre-Construction Conference (as specified in the Special Conditions).
 - c. Initial project schedule.
 - d. Schedule of values for lump sum bid items.
 - e. Health and Safety Plan (as specified in the Special Conditions).
 - f. Dust Control Mitigation Plan.
 - g. The names and 24/7 phone numbers of the Contractor's project manager, superintendent and at least two other supervisors.
 - h. Project signs
3. Submit and obtain approval of the Engineer for the following:
 - a. Contractor's Traffic Management/Construction Access Plan (as described in the Special Conditions) indicating staging areas, accessible pedestrian detours around the staging areas, and traffic control devices to protect staging areas by barriers and traffic signage for both motorists and pedestrians.
 - d. Independent Testing Laboratory.
4. Attend Pre-Construction Conference and Coordination Meetings.
5. Furnish, and install on-site sanitary facilities .
6. Have all OSHA required notices and establish a safety program. Notices shall be posted at the site.
7. Furnish, install and operate initial temporary controls, in accordance with Special Conditions.

8. Obtain permits that are the responsibility of the Contractor. Submit copy of all permits to the Engineer.
9. Implement and execute a Rodent Control Program as specified herein under Item 119-001.
 - a. Submit the initial submittals as specified herein, implement the pre-construction baiting program and submit the report on the pre-construction baiting program.
 - b. Submit the weekly and final reports on the maintenance-baiting program that lasts throughout the construction period.
10. Erect project sign signs.
11. Remove tall sign post on foundation in the middle of the sidewalk on Propsect Street at Newton Street. Payment for the removal of the tall post and sign shall be under Item 100-001. Payment for removal of the foundation shall be under Item 144-001.

Item No. 999-999 Demobilization

Item No. 999-999 includes Contractor demobilization tasks including the removal of all equipment, temporary fencing, and temporary controls at the site and site clean-up.

METHOD OF MEASUREMENT AND PAYMENT

ITEM NO. 100-001
ITEM NO. 999-999

MEASUREMENT

These Bid Items will be measured as lump sums.

PAYMENT

General:

The total price for mobilization and demobilization shall not exceed five percent (3%) and three percent (2%) of the Contract Price, respectively. **The figure of five percent (3%) for mobilization shall apply to Item No. 100-001.**

Partial Payment for Item No. 100-001:

Partial payments for mobilization will be made according to the following payment schedule:

- a. Upon completion of tasks A.1 through A.7 plus tasks A.9 and A.10 as listed above under “Work Tasks,” 60 percent of the lump sum for Item 100-001 will be paid.
- b. Upon the approval by the Engineer of the Contractor’s Detailed Construction Schedule, approval of the Schedule of Values, approval of the Health and Safety Plan, and completion of task A.8 as listed above under “Work Tasks,” the remaining 40 percent of the lump sum for Item 100-001 will be paid.

Item No. 999-999 Demobilization:

Demobilization will be paid in a single lump sum upon the completion of the demobilization effort, as determined by the Engineer.

Pay Item

Pay Unit

ITEM NO. 100-001 MOBILIZATION
ITEM NO. 999-999 DEMOBILIZATION

LUMP SUM
LUMP SUM

ITEM NO. 102-501**INDIVIDUAL TREE PROTECTION****EACH****GENERAL**

Protect trees to remain as indicated on the Drawings and protect all trees adjacent to the limits of work.

SUBMITTALS

Shop Drawings, Samples, and Product Literature: At least thirty (30) days prior to intended use, Contractor shall provide the following samples and submittals for approval. Do not order materials until Engineer's approval of samples, certifications and test results has been obtained. Delivered materials shall closely match the approved samples. Samples and approvals which are not obtained prior to the ordering of materials or the completion of work shall result in possible disapproval of obtained materials or completed work.

1. Tree wrapping protection with lumber enclosure.

Request for deviations from Specifications: If any deviations from specifications are proposed, include written description and reasons for proposed deviations. Do not proceed until written approval by the Engineer of any deviations.

STANDARDS

Where references are made in these Specifications to Standard Specifications, codes, etc., of the U.S. Government, State or local authorities, or professional and industrial societies and associations, the applicable portions thereof shall govern as fully as if they were recited at length herein, and shall include all revisions thereto issued as of the date of the Notice to Contractors pertaining hereto.

1. **Standard Specifications:** "Standard Specifications for Highway and Bridges", Massachusetts Department of Transportation, Highway Division (MHD), latest edition and all supplements.
2. **AASHTO:** American Association of State Highway and Transportation Officials, Standard Specifications, latest edition.
3. **ASTM:** American Society of Testing and Materials "Annual Book of ASTM Standards", latest edition.
4. **OSHA:** Occupational Safety Hazard Administration, latest requirements.
5. **ISA:** International Society of Arboriculture Guide for Plant Appraisal, latest requirements.
6. **MAA:** Massachusetts Arborists Association, Wellesley, MA. 02181-7913; telephone (617) 431-1625.
7. **ASNI:** American National Standards Institute Standard A300-latest edition; "Standard_Practices for Tree Care Operations – Tree, Shrub and Other Woody Plant Maintenance".
8. **ANSI:** American National Standards Institute Standard Z-133.1. latest edition; "Safety Requirements for Tree Care Operations – Pruning, Trimming, Repairing, Maintaining, and Removing Trees, and cutting Brush".

MATERIALS

Tree protection lumber for wrapping of the trunks of individual trees, shall consist of 2-inch by 4-inch lumber wired together in close spacing with sixteen (16) gauge galvanized steel wire to form a protective enclosure around individual tree trunks. This method shall only be used after prior approval of Engineer of individual trees to be protected in this manner.

EXECUTION

Protect all existing trees within limits of work, unless the Drawings indicate the tree for removal.

Place tree protection additionally at all other locations where trees may be jeopardized by construction activities. Trees to be saved within the Contract Limit Line and elsewhere as designated shall be protected with protection as specified, herein.

Individual trees shall be protected by wiring 2-inch by 4-inch lumber closely spaced in vertical alignment around the trunk of each tree. No spikes or nails are to be driven into trees.

Damage no trees to remain by burning, by pumping of water, by cutting live roots or branches, or by any other means. No trees to remain shall be used for crane stay, guys or other fastenings. Construction materials shall not, be stored beneath the leaf canopy of trees to be saved.

Protection of trees shall remain in place and shall be maintained in working condition by the Contractor. All protection devices shall be removed from the site by the Contractor just prior to preparing areas for seeding as specified, herein, or as directed in the field by the Engineer.

Existing trees to be saved within or outside the Limit of Work, which have, in the opinion of the Engineer, become damaged due to the Contractor's action, shall be assessed at \$1000 per caliper inch and deducted from the Contract amount. The Contractor shall pay all expenses incurred without additional cost to the City. These trees shall be removed, according to the Specification requirements for removals, the stumps grubbed out and removed, and the ground surface repaired. Costs for this removal shall be borne by the Contractor and shall not be included as part of the above schedule.

METHOD OF MEASUREMENT AND PAYMENT

ITEM NO. 102-501

METHOD OF MEASUREMENT

Item 102-501 will be measured per each for all tree protection indicated on the Drawings and specified herein. It shall include all labor and materials required to complete the work of tree protection complete and accepted, which will include the cost of furnishing and installing all materials complete in place in accordance with approved product literature, samples, and Shop Drawings.

BASIS OF PAYMENT

Item 102-501 will be paid for at the contract price each for tree protection in accordance with approved product literature, samples, and Shop Drawings. Such price and payment shall be full compensation for all the labor and materials required to complete the work under these Items.

Item No.	Pay Item	Pay Unit
ITEM NO. 102-501	INDIVIDUAL TREE PROTECTION	EACH

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ITEM NO. 103-001	INDIVIDUAL TREE REMOVED - DIAMETER UNDER 24 INCHES	EACH
ITEM NO. 104-001	INDIVIDUAL TREE REMOVED - DIAMETER 24 INCHES AND OVER	EACH

GENERAL

Removal of individual trees shall be as indicated on the Drawings and as directed in the field by the Engineer. During removals protect all adjacent vegetation within and outside the site limits.

MATERIALS

Gravel Borrow shall be as specified under Item 151-001 GRAVEL BORROW, herein.

EXECUTION**Timing:**

Before beginning tree removal work, the Contractor shall meet jointly with the City and the Engineer in order to discuss the procedures to be utilized. The Contractor shall be held responsible for any damage to vegetation designated to remain.

Contractor shall give the City adequate advance notice of his readiness to start tree removal work in order that the City can review and approve the Contractor's plans for access to the tree removal site.

Contractor shall be responsible for acquiring any and all permits required to complete the work of this Contract.

Plant Removal:

The Contractor shall accept the site as he finds it and shall remove all vegetation designated for removal and all debris, organic matter, and objectionable material, which are not suitable for, use as fill or for support of structural loads or slabs.

The Contractor shall remove all stumps and roots to a depth not less than three feet below original ground level. Unless further excavation is required, depressions made by stump removal and grubbing shall be filled Gravel Borrow and compacted to 95% as specified under Item 151-001, in preparation for installation of pavement or concrete sidewalk.

METHOD OF MEASUREMENT AND PAYMENT**ITEM NO. 103-001****ITEM NO. 104-001****METHOD OF MEASUREMENT**

Items 103-001 INDIVIDUAL TREE REMOVED - UNDER 24 INCHES and 104-001 INDIVIDUAL TREE REMOVED - DIAMETER 24 INCHES AND OVER will be measured per each complete and approved.

BASIS OF PAYMENT

Items 103-001 and 104-001 will be paid for at the contract price per each for tree removal. Such price and payment shall be full compensation for all the labor and materials required to complete the work under this Item.

Item No.	Pay Item	Pay Unit
ITEM NO. 103-001	INDIVIDUAL TREE REMOVAL - DIAMETER UNDER 24 INCHES	EACH
ITEM NO. 104-001	INDIVIDUAL TREE REMOVED - DIAMETER 24 INCHES AND OVER	EACH

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ITEM NO. 108-501**STREET SWEEPING****HOUR****DESCRIPTION**

This Item consists of supplying street sweeping services weekly and additionally as directed by the Engineer. The Contractor shall provide street sweeping equipment approved by the Engineer and designed for urban street sweeping.

EXECUTION

The street sweeping equipment shall operate within the limits as follows:

1. Somerville Avenue: Webster Avenue to Prospect Street
2. Webster Avenue: Somerville Avenue to 500 feet south of Prospect Street
3. Prospect Street: Somerville Avenue to 500 feet south of Webster Avenue

If directed by the Engineer, the Contractor shall provide street sweeping in a greater area.

Street sweeping shall be performed weekly, unless more frequent sweeping is ordered by the Engineer. Street sweeping shall conform to the requirements of the Special Conditions. The street sweeping equipment shall pass in both directions on the indicated streets. The equipment shall make at least one pass in each direction to sweep the travel lanes and an additional pass in each direction to sweep the curb lines. If there is no parking ban, the sweeper shall operating around the park cars and sweep as much of the curblines as possible where cars are not parked.

Parking Ban for Street Sweeping – Item 108-501:

Once a month, on a day determined by the City, there will be a parking ban for street sweeping within the limits specified in the Special Conditions. The Contractor shall assist the City by erecting no parking signs. The City will arrange for the City Police to enforce the parking ban by tagging and towing. Street sweeping shall be performed along the curblines within the area of the parking ban. The Contractor should assume the parking ban will typically be for 4 hours and be prepared to perform the street sweeping upon completion of towing operations.

METHOD OF MEASUREMENT AND PAYMENT**ITEM NO. 108-501****MEASUREMENT**

Measurement shall be based on the actual number of hours that street sweeping equipment is on site and in operation. Measurement will be to the nearest one-half hour. The Engineer will determine the days when street sweeping is to be performed. Measurement will only be made on those days that the Engineer has directed that street sweeping is to be performed. The street sweeper operator shall log in with the Engineer before and after street sweeping operations.

PAYMENT

Payment shall be at the contract unit price per hour and is inclusive of materials, labor, equipment, tools, supplies and all other necessary items needed for satisfactory completion of the work approved by the Engineer. Erection and removal of no parking signs will be considered incidental to this Item and will not be paid for separately.

Pay Item**Pay Unit****ITEM NO. 108-501 STREET SWEEPING****HOUR**

ITEM NO. 119-001**RODENT CONTROL****LUMP SUM****DESCRIPTION**

The work under these Items shall include all work necessary to provide rodent control in the areas of proposed construction. Such rodent control shall include a pre-construction survey of surface rodent activity and sanitation deficiencies in and bordering the proposed work area.

The Contractor is required to make all efforts to reduce the activity of rodents within the proposed work area prior, during and after construction has ceased, on a street by street basis for the duration of this project to the satisfaction of the Engineer.

A. Rodent Control Program shall include the following areas:

1. Item 119-001 shall include all streets within the Limits of Work indicated on the Drawings.

CONSTRUCTION METHODS & SUBMITTALS

- A. Baiting will include a pre-construction baiting program followed by a maintenance-baiting program that lasts throughout the construction period. All baiting will be done according to the rodenticide labeling as approved by the U.S. EPA and the Massachusetts Department of Food and Agriculture. All bait applications will be made by licensed pest control operators and based upon activity levels and distribution of rodent control populations.
- B. Records shall be maintained on baiting and survey results. A summary of determinable results of the control program must be submitted to the Engineer on a weekly basis. The summary must include the types of bait used, baiting locations, a description of rodent activity and sanitation conditions, and recommendations. Control shall include baiting of active rat burrows and the use of tamper-resistant bait stations, as appropriate. Control shall also be applied at all manholes and/or catch basins within the immediate contract area and to all catch basins and sewer manholes on adjoining streets within 300 feet of the Project Limits as defined above.
- C. The pest control operator must provide adequate liability insurance and be prepared to respond to changes in rodent populations and any rodent related complaints associated with construction activities.
- D. Initial submittals (at the Pre-Construction Conference):
 1. Name and qualifications of the pest control operator that will implement the Rodent Control Program.
 2. Description of the Rodent Control Program.

METHOD OF MEASUREMENT AND PAYMENT**ITEM NO. 119-001****MEASUREMENT**

The Bid Item will be measured as a lump sum.

PAYMENT

Payment for these Items shall be made on a lump sum basis. The lump sum unit price paid for under these Items shall constitute full compensation for all activities required to accomplish the control of rodent populations during construction of this project within the limits specified. A payment in the

amount of 50% of the price bid for each Item shall be made after the pre-construction survey has been completed and the necessary steps for the duration of the project have been initiated. The remaining 50% of each Item will be paid for at the conclusion of the work as specified above or at a prior date as directed by the Engineer.

The lump sum unit price paid for under this Item shall also include full compensation for furnishing all materials, labor, tools, equipment and all other incidentals necessary to complete the work under this Item to the satisfaction of the Engineer.

Pay Item

Pay Unit

ITEM NO. 119-001 RODENT CONTROL

LUMP SUM

(Remainder of page is intentionally blank)

ITEM NO. 129-001 ROADWAY EXCAVATION BY COLD PLANE SQUARE YARDS**GENERAL**

Remove pavement by cold planer where indicated on the Drawings.

EXECUTION**MILLING**

1. Equipment:
 - a. The cold planer shall be equipped with an elevating device capable offloading planed material directly into dump trucks while operative.
 - b. It shall have safety devices such as reflectors, headlights, taillights, flashing lights, and back up signals so as to operate safely in traffic both day and night.
 - c. The cold planer shall be designed and built for planing flexible pavements and possess the ability to plane cement concrete patches when encountered in bituminous pavement.
 - d. It shall be self-propelled and shall have the means for planing without tearing or gouging the underlying surface,
 - e. Variable lacing patterns shall be provide to permit a rough grooved or smooth surface as directed.
 - f. The machine shall be adjustable to the crown and depth. It shall meet the standards set by the Air Quality Act for noise and air pollution.
2. Cold planing to a depth of 2 inches across the full width of the street, curb to curb.
3. The minimum width of pavement planed in each pass shall be 6 feet, expect in areas to be trimmed and edged.
4. The milled or planed surface shall conform generally to the grade and cross slope required. If not otherwise indicated, the surface shall be milled to the existing cross slopes.
5. The surface shall not be torn gouged, shoved, broken or excessively grooved. It shall be free from imperfections in workmanship that prevent resurfacing after this operation. Surface texture shall be as specified by the Engineer and excess material shall be removed so that the surface is suitable for traffic.
6. Immediately after milling, all castings shall be **painted bright red or orange** to warn motorists of the hazard of raised castings.
 - a. Where castings are out of the travel lanes, place a reflectorized drum with flasher on each raised casting.

7. At the limits of the overlaying, the Contractor shall cold mill the existing pavement to provide a 20 foot long smooth transition between the overlay and the existing pavement. At the limits of overlay at side streets, saw cut the existing pavement.

METHOD OF MEASUREMENT AND PAYMENT

ITEM NO. 129-001

Roadway Excavation by Cold Plane will be measured and paid for by the square yard of area as indicated on the plans or as directed.

Pay Item

Pay Unit

**ITEM NO. 129-001 ROADWAY EXCAVATION
BY COLD PLANE**

SQUARE YARD

(Remainder of page is intentionally blank)

ITEM NO. 129-002
ITEM NO. 129-003

ROADWAY PAVEMENT REMOVAL
SIDEWALK REMOVAL

SQUARE YARD
SQUARE YARD

GENERAL

The work of these Items includes the removal of bituminous pavement and the removal of sidewalks of any material (HOT MIX ASPHALT, brick, concrete paver and cement concrete).

EXECUTION

BITUMINOUS PAVEMENT REMOVAL

Saw cut along neat lines at limits of bituminous pavement removal. Remove along the saw cut lines to prevent forming irregular pavement edges. Completely remove full depth of existing pavement. Existing bituminous pavement depth is anticipated to be 5 to 7 inches thick.

Pavement removed shall be removed from the project site. Pavement removed may be recycled for reuse on this or other projects. Otherwise the Contractor shall dispose of the removed pavement in accordance with all federal, state and local laws and regulations.

SIDEWALK REMOVAL

Brick, concrete paver, cement concrete and HOT MIX ASPHALT sidewalks, and sidewalks of cement concrete with HOT MIX ASPHALT overlays shall be removed to the full depth of the existing pavement, including all wire mesh and other reinforcing. The materials shall be removed from the site and disposed of off-site in accordance with all federal, state and local laws and regulations.

Saw cut along neat lines along existing score lines at limits of sidewalk removal. Remove along the saw cut lines to prevent forming irregular edges.

METHOD OF MEASUREMENT AND PAYMENT

ITEM NO. 129-002

ITEM NO. 129-003

Roadway Pavement Removal and Sidewalk Removal will be measured by the square yard based on the limits indicated on the Drawings or as otherwise directed by the Engineer.

Roadway Pavement Removal and Sidewalk Removal will be paid for at the respective contract unit prices and shall include all supervision, labor, materials and equipment necessary for the removals as specified including the legal off-site disposal of all removed material.

Where the finish grade is lower than the existing grade and it is necessary to remove the existing gravel base below the pavement or sidewalk, such removal will be paid for under Item 120-021.

Pay Item

Pay Unit

ITEM NO. 129-002
ITEM NO. 129-003

ROADWAY PAVEMENT REMOVAL
SIDEWALK REMOVAL

SQUARE YARD
SQUARE YARD

ITEM NO. 141-001**TEST PITS****CUBIC YARD****GENERAL**

Excavate test pits at locations as directed by the Engineer. The purpose of test pits shall include the verification of location of existing underground utilities and other subsurface conditions.

EXECUTION

- A. Removal of pavement and sidewalks: Saw cut existing pavement. In the case of existing concrete sidewalks, saw cut along existing score lines.
- B. Exercise care not to damage existing utilities. The Contractor shall cooperate with representatives of the respective utility owners by notifying them, allowing them to be present during the test pit operations, and allowing them to inspect and repair, if necessary, their underground facilities.
- C. Material shall be carefully excavated so that the underground utility or structure being searched for, or any other utility or structure, will not be damaged or destroyed. Excavation shall be with a hand shovel if conditions so warrant.
- D. Provision of barriers, signage, traffic maintenance, traffic officers, steel plates and other temporary controls shall be in accordance with the provision of Items No. 850-001 and 850-002.
- E. Restore surface with temporary HOT MIX ASPHALT patch as specified under Item 460-002.

METHOD OF MEASUREMENT AND PAYMENT**ITEM NO. 141-001****METHOD OF MEASUREMENT**

TEST PITS shall be measured by the cubic yard to the limits as directed by the Engineer.

BASIS OF PAYMENT

TEST PITS will be paid for at the Contract Unit Price per cubic yard. The unit price shall be full compensation for all labor, equipment, materials and supervision necessary to excavate one cubic yard of Test Pit. Include the following costs: preparing site; excavating; furnishing temporary excavation support systems; removing and disposing of pavement and debris; handling, storing, transporting and disposing of all excess excavated material; preparing subgrades; pumping and dewatering, including sedimentation control; collection of information; furnishing and installing steel covers at grade, if required; backfilling; compacting; including miscellaneous concrete; utility support; temporary paving and other appurtenant work.

Pay Item**Pay Unit****ITEM NO. 141-001 TEST PITS****CUBIC YARD**

ITEM NO. 144-001**CLASS B ROCK EXCAVATION****CUBIC YARD****GENERAL**

The work under this Item consists of the excavation, removal and off-site disposal of boulders, masonry and concrete measuring one cubic yard or more and solid rock that requires power equipment to remove, when encountered during excavation to install the stormwater system, street lighting system, landscaping, or other utilities.

This Item also includes the complete removal of the concrete foundation for the sign in the middle of the sidewalk on Prospect Street at Newton Street.

METHOD OF MEASUREMENT AND PAYMENT**ITEM NO. 144-001****MEASUREMENT**

Class B Rock Excavation will be measured by the actual volume in cubic yard, to the payment limits as specified below. When rock is encountered, it shall be uncovered but not excavated until measurements have been made by the Engineer.

The Contractor shall not perform rock excavation work until material to be excavated has been cross-sectioned and classified by the Engineer. Visual observation of the completed excavation may be made by the Engineer to modify the excavation classifications. Removal of rock prior to classification by the Engineer shall be considered as earth excavation unless accepted by the Engineer in writing. Authorized excavation will be paid on the basis of Contract unit prices for the appropriate classification.

Payment limits:

1. Upper limit: as measured in the field by the Engineer.
2. Horizontal limits: 6 inches beyond the outside of the proposed pipe or structure.
3. Bottom limit: 6 inches below the outside of the proposed pipe or structure.

Rock excavated beyond the payment limits will not be measured for payment.

PAYMENT

Class B Rock Excavation will be paid for at the Contract unit price per cubic yard. The price shall include all supervision, labor, material, and equipment for excavation and disposal of legally in an off-site location.

Pay Item**Pay Unit****ITEM NO. 144-001****CLASS B ROCK EXCAVATION****CUBIC YARD**

ITEM NO. 150-001**ORDINARY BORROW****CUBIC YARD****DESCRIPTION**

The work under this Item consists of furnishing, placing, and compacting Ordinary Borrow for use as fill in landscaped and lawn areas.

For fill under sidewalks, roadways or paved parking areas, use Gravel Borrow, Item 151-001.

MATERIAL

Ordinary Borrow: Ordinary borrow shall be well-graded, natural inorganic soil containing no stone greater than 6 inches maximum dimension. The materials shall be free of trash, ice, snow, tree stumps, roots and other organic and deleterious materials. It shall be free of highly plastic clays, of all materials subject to decay or other materials that will corrode piping or metals. Ordinary borrow shall have a maximum dry density of not less than 110 pounds per cubic foot. It shall be of such a nature and character that it can be compacted to the specified densities. Topsoil shall not be considered Ordinary Borrow. Existing available fill materials from on-site excavations may be reused as Ordinary Borrow if it meets the above requirements.

EXECUTION

Grade and compact subgrade as specified in General Earthwork Requirements. Do not place on frozen subgrade.

Place Ordinary Borrow in 12-inch lifts and compacted as specified in General Earthwork Requirements. Do not place frozen material.

Use only in lawn and landscaped areas. For fill under roadways and sidewalks, use Gravel Borrow.

METHOD OF MEASUREMENT AND PAYMENT**ITEM NO. 150-001****MEASUREMENT**

Ordinary Borrow furnished by the Contractor will be measured by the cubic yard placed and compacted for the purposes of fill in landscaped or lawn areas.

Payment Limits:

Lower payment limits shall be the grade existing before the placement of Ordinary Borrow as determined by a survey performed by the Contractor.

Upper payment limits in areas of seeded lawn shall be 6 inches below the finished grade. The Contractor shall survey the finish grade no sooner than 30 days after the installation of the loam.

Horizontal payment limits shall be as directed by the Engineer.

PAYMENT

Ordinary Borrow will be paid for at the Contract unit price per cubic yard. The unit price shall be full compensation for all labor, equipment, materials and supervision necessary to furnish, place and compact one cubic yard of Ordinary Borrow. Include the following costs: Furnishing, placing, compacting, and testing of borrow; temporary stockpiling; erosion control measures; and dust control measures.

No payment will be made for the reuse of existing material meeting the requirements of Ordinary Borrow.

No payment will be made for Ordinary Borrow used as specified in Drainage Items and as specified for use in the General Earthwork Requirements section of these Specifications.

Pay Item

Pay Unit

ITEM NO. 150-001 ORDINARY BORROW

CUBIC YARD

(Remainder of page is intentionally blank)

ITEM NO. 151-001**GRAVEL BORROW****CUBIC YARD****GENERAL**

The gravel base shall consist of approved gravel placed on the subgrade and in close conformity with the lines and grades shown on the plans or established by the Engineer.

MATERIAL

Gravel Borrow shall consist of imported material that is inert, hard, durable stone and coarse sand, free from loam and clay, surface coatings, and deleterious materials.

Gradation requirements are as follows:

<u>U.S. Standard Sieve Size</u>	<u>Percent Passing by Weight</u>
3 inch	100
1/2 inch	50 - 85
No. 4	40 - 75
No. 50	8 - 28
No. 200	0 - 10

SAMPLING

The gravel borrow shall be obtained from a source with no known contamination. The supporting certification shall be submitted for the initial material source and for each additional source the Contractor proposes.

EXECUTION**GRAVEL BASE COURSE FOR ROADWAYS:**

The gravel shall be spread and compacted in layers not exceeding 8 inches in depth, compacted measurement, except the last layer of gravel base course shall be 4 inches in depth compacted measurement and all layers shall be compacted to not less than 95 percent of the maximum dry density of the material as determined by the Standard AASHTO Test Designation T99 compaction test Method C at optimum moisture content as determined by the Engineer. If the material retained on the #4 sieves is 50% or more of the total sample this test shall not apply and the material shall be compacted to the satisfaction of the Engineer. The specific density of the Gravel Base shall be maintained by determining the number of passes of a roller required to produce a constant and uniform density, after conducting a series of tests using the nuclear device.

Any stone with a dimension greater than that permitted for the type of gravel specified shall be removed from the sub-base before the gravel is compacted. Compaction shall continue until the surface is even and true to the proposed lines and grades within a tolerance of 3/8 inch above or below the required cross sectional elevations and to a maximum irregularity not exceeding 3/8 inch under a 10 foot line longitudinally. In locations when the 8 inches of gravel is used as roadway base this tolerance shall be

3/4 inches under a 10 foot line. Any specific area of gravel sub-base which, after being rolled, does not form a satisfactory, solid, stable foundation shall be removed, replaced and recompacted by the Contractor at no additional cost to the City.

GRAVEL BASE COURSE FOR SIDEWALKS:

The gravel for sidewalks, ramps and driveways shall be shaped parallel to the finish surface of the sidewalks, ramps and driveways. The gravel shall be spread and compacted in layers not exceeding 6 inches in depth, compacted measurement. All depressions shall be filled with gravel borrow and again compacted until the surface is smooth and hard.

REUSE OF EXISTING GRAVEL FOR SIDEWALK REPLACEMENT:

Where a proposed sidewalk is replacing the existing sidewalk, the Contractor shall take samples of the existing base material at a frequency of one per 2,000 square feet. The samples shall indicate the depth of the existing gravel and shall be tested for grain size distribution to determine if the material meets the specification for gravel borrow or processed gravel. If these samples indicate that there is at least 8 inches of existing gravel, the existing material may be left in place where directed by the Engineer.

Where the existing gravel is left in place, the Contractor shall compact the existing material to not less than 95 percent of the maximum dry density of the material as determined by the Standard AASHTO Test Designation T99 compaction test Method C at optimum moisture content as determined by the Engineer. All depressions shall be filled with gravel borrow and again compacted until the surface is smooth and hard.

If the proposed sidewalk grade is higher than existing, the Contractor shall raise the grade of the gravel base by spreading and compacting gravel borrow Type b.

METHOD OF MEASUREMENT AND PAYMENT

ITEM NO. 151-001

METHOD OF MEASUREMENT

Gravel Borrow will be measured by the cubic yard placed and compacted to the limits indicated on the Drawings.

Where existing gravel is reused, the Contractor shall survey the grade of the existing gravel remaining in place after compaction but before additional new gravel borrow is placed. The Contractor shall also survey the grade of the completed compacted gravel base and use the end area method to compute the volume of gravel borrow installed.

BASIS OF PAYMENT

Gravel Borrow will be paid for at the Contract Unit Price per cubic yard. The unit price shall be full compensation for all labor, equipment, materials and supervision necessary to furnish, place and compact one cubic yard of Gravel Borrow. Include the following costs: Furnishing, placing, compacting, and testing of borrow; temporary stockpiling; erosion control measures; and dust control measures.

Pay Item

Pay Unit

ITEM NO. 151-001 GRAVEL BORROW

CUBIC YARD

ITEM NO. 152-001**DENSE-GRADED CRUSHED STONE****TONS****GENERAL**

Furnish and install dense-graded crushed stone for as a substitute for Gravel Borrow for sidewalk and roadway subbase when directed by the Engineer.

MATERIAL**CRUSHED STONE MATERIAL SPECIFICATION**

Dense Graded Crushed Stone shall consist of crusher-run course aggregates of crushed stone or grave and fine aggregates of natural sand or stone screenings uniformly pre-mixed and placed on the subgrade in close conformity with the lines and grades as indicated on the Drawings.

Dense-Graded Crushed Stone for Sub-base shall conform to MHD Standard Specifications material specifications M2.01.7 and shall meet the following gradation requirements:

<u>U.S. Standard Sieve Size</u>	<u>Percent Passing by Weight</u>
2 inch	100
1-1/2 inch	70 - 100
3/4 inch	50 - 85
No. 4	30 - 55
No. 50	8 - 24
No. 200	3 - 10

EXECUTION**SPREADING AND COMPACTING:**

1. Spread the dense-graded crushed stone in layers from self-spreading vehicles or other equipment approved by the Engineer.
2. Place and compact in 6-inch lifts.
3. Watering devices shall be available at the source of the supply and on the project site for use as directed by the Engineer to prevent segregation in transit and during spreading and to obtain proper density and stability of the mixture.
4. Compact to 95% maximum density as determined by ASTM D2992. Perform test at the frequency of at least 1 tests per 250 square feet of finish paving area.
5. Compact the top of the dense-graded crushed stone to a depth of 3 inches below the indicated finished grade within tolerances specified in MHD Section 4.01.60, 3/8 in. tolerance.

6. Use water for dust control until the bituminous pavement is placed.

METHOD OF MEASUREMENT AND PAYMENT

ITEM NO. 152-001

Measurement shall be based on the actual number of tons of material placed to the limits shown on the Drawings and as directed by the Engineer. Weight slips shall be countersigned by the Engineer, and no weight slips not so constitute full compensation for complete compliance with requirements of this item, including all incidental work, and construction methods. Payment per ton is inclusive of mobilization, demobilization, materials, labor, equipment, tools, supplies and all other necessary items needed for satisfactory completion of the work approved by the Engineer.

Pay Item	Pay Unit
ITEM NO. 152-001 DENSE GRADED CRUSHED STONE	TONS

(Remainder of page is intentionally blank)

ITEM NO. 153-001**FLOWABLE FILL (CDF)****CUBIC YARD****GENERAL**

With the prior approval of the Engineer, Flowable Fill (Controlled-Density Fill or CDF, conforming to MHD Type 2E “Flowable/Excavatable”) can be used as a backfill material in paved areas, following trenching and utility (pipe, etc.) installations.

The Contractor shall be responsible for proper placement of CDF, including allowing adequate time for complete curing of the CDF, before paving is installed. In areas of high water table, the CDF needs additional curing time, and that time needs to be taken into account when scheduling paving operations.

MATERIAL

- A. Provide Flowable Fill (CDF) MHD Type 2E with ingredients complying with the following:

Portland cement	AASHTO M85
Fly Ash	AASHTO M295 Class F
Sand	MHD M4.02.02
Water	MHD M4.02.04
Air entraining admixtures	MHD M4.02.05

Note 1: In lieu of the slump test, a 6-inch long, 3-inch diameter tube may be filled to the top and then slowly raised. The diameter of the resulting “pancake” may be measured and the range of the diameter shall be 9 to 14 inches.

Note 2: the maximum strength for structural flowable fills may be expressed in increments of 500 psi and will depend on the Engineer’s requirements.

Note 3: High air (25% plus) may be used instead of fly ash with an adjustment in sand content.

- B. CDF properties shall be as follows:

	<u>28 days</u>	<u>90 days</u>
Compressive Strength	30 - 80 psi	100 psi
Slump	10 - 12 inches	
Air	20 - 30 %	

- C. A typical CDF mix design is as follows:

Portland cement	50 pounds
Fly Ash	250 pounds
Sand	2700 pounds
Water	60 gallons

EXECUTION

If directed by the Engineer, install Flowable Fill for backfill. Ensure that all voids are filled with Flowable Fill.

METHOD OF MEASUREMENT AND PAYMENT

ITEM NO. 153-001

METHOD OF MEASUREMENT

Measurement shall be based on the actual number of cubic yards of flowable fill placed as directed by the Engineer.

BASIS OF PAYMENT

Payment per cubic yard is inclusive of mobilization, demobilization, materials, labor, equipment, tools, supplies and all other necessary items needed for satisfactory completion of the work approved by the Engineer.

No payment will be made under Item No. 153-001 where street lighting conduit in roadways is backfilled with CDF. CDF for this purpose is considered incidental to Item No. 820-315.

Pay Item

Pay Unit

ITEM NO. 153-001 FLOWABLE FILL (CDF)

CUBIC YARD

(Remainder of page is intentionally blank)

ITEM NO. 156-002**CRUSHED STONE (3/4-INCH)****TON****GENERAL**

Furnish and install crushed stone for backfill of unsuitable material in wet conditions, and bedding for pipe and structures in wet soil conditions, where shown on the Drawings, and where directed by the Engineer.

MATERIAL**Crushed Stone – 3/4 Inch:**

Durable crushed rock free from dust, clay or trash. Crushed stone shall be free from a detrimental quantity of thin, flat, elongated or other objectionable pieces. A detrimental quantity will be considered as any amount in excess of 15% of the total weight.

Gradation:

U.S. Standard <u>Sieve Size</u>	Percent Passing <u>by Weight</u>
1 inch	100
3/4 inch	90 - 100
1/2 inch	10 - 50
3/8 inch	0 - 20
No. 4	0 - 5
No. 200	0 - 0.5

SAMPLING

The crushed stone shall be obtained from a source with no known contamination. The supporting certification shall be submitted for the initial material source and for each additional source the Contractor proposes.

Representative samples of the proposed material shall be collected at the source in the presence of the Engineer. This activity shall be coordinated with the City. The Contractor shall deliver fifty-pound samples from each source material to the project site, and fifty-pound samples to the City's testing laboratory at 148 Newton Street, Waltham, MA 02453-8643. The Contractor shall also take photographs of material piles at the source, and provide these to the City. All submittals shall be identified with the Contractor's name, project name, and source information. Source information shall include the name, address, and location of the borrow area; the ownership of the source; the location of the samples from within the borrow area; and the date and method of sampling. Each sample shall be accompanied by particle size distribution results performed in accordance with ASTM D422, including gradation curves (based on screening and visual methods), and computational sheets. Approval of the gradation of the sample submitted will be based on City evaluation and testing. Approval of the sample submitted does not imply blanket approval of the source.

CONSTRUCTION METHODS**Backfill of Unsuitable Material:**

Where unsuitable material is removed as directed by the Engineer, and conditions are wet, the Engineer may direct that Crushed Stone (3/4") be placed in lieu of gravel borrow. The crushed stone shall be

placed to completely fill the volume of the overexcavation in accordance with the requirements specified in General Earthwork Requirements.

Bedding Material in Wet Conditions:

Where wet or saturated soils conditions are encountered at the elevation of the proposed pipe or structure bedding, Engineer may direct that Crushed Stone (3/4") be placed. The crushed stone shall be placed to dimensions as directed by the Engineer. Placement shall be in accordance with the requirements specified in General Earthwork Requirements.

METHOD OF MEASUREMENT AND PAYMENT

ITEM NO. 156-002

Where Crushed Stone (3/4 Inch) is used in lieu of gravel for subbase at drainage or utility structures or for piping, no separate measurement nor payment will be made; rather the cost of the Crushed Stone shall be considered incidental to the respective item for the drainage or utility structure or pipe.

Where Crushed Stone (3/4-Inch) is used to backfill "Additional Excavation" where directed or is otherwise used as directed by the Engineer (where its use is not covered by another payment item), payment will be made as follows. The crushed stone shall be measured and paid for by the weight in tons in place. Payment will be at the Contract unit price which shall constitute full compensation for complete compliance with this Item, including all labor, material, equipment, tools, incidental work and construction methods.

Pay Item	Pay Unit
ITEM NO. 156-002 CRUSHED STONE (3/4-INCH)	TON

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ITEM NO. 170-001	FINE GRADING AND COMPACTION - SUBGRADE AREAS	SQUARE YARD
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GENERAL

Fine grade and compact the subgrade under roadways, sidewalks, curbing, and landscaped areas.

EXECUTION

Fine grade subgrade in accordance with Section 170 of the MHD Standard Specifications.

Subgrade under roadways and sidewalks shall be compacted to 95% of the maximum dry density of the material at optimum moisture content as determined by ASTM Test D1557, Method C.

Compaction of subgrade below landscaped areas shall be between 88% and 92% of the maximum dry density of the material at optimum moisture content as determined by ASTM Test D1557, Method C.

<u>METHOD OF MEASUREMENT AND PAYMENT</u>	<u>ITEM NO. 170-001</u>
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Fine Grading and Compaction – Subgrade Areas will be measured per square yard on the plane of the subgrade.

Fine Grading and Compaction – Subgrade Areas will be paid for at the Contract Unit Price per square yard. The unit price shall be full compensation for all labor, equipment, materials and supervision necessary to perform one square yard of Fine Grading and Compacting – Subgrade Areas. Include the following costs: Grading and compacting of subgrade areas, material and compaction testing as specified, erosion control measures, and dust control measures.

Pay Item**Pay Unit**

ITEM NO. 170-001	FINE GRADING AND COMPACTION - SUBGRADE AREAS	SQUARE YARD
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ITEM NO. 200-005**FRAMES AND GRATES OR COVERS****EACH****DESCRIPTION**

The work under this Item shall include the furnishing and installing of new frames, grates and covers to complete the construction of various drainage and sanitary structures installed under this Contract. This item will also apply to the Engineer-ordered replacement of existing damaged frames, grates and covers on existing structures. The frames, grates, and covers shall be iron castings and shall be installed as shown on the Contract Drawings, and as directed by the Engineer.

MATERIALS

New iron castings (frames, grates and covers) shall conform to the requirements of AASHTO Designation M105, Class No. 30, Gray Iron Castings. Catch basins grates shall be rated as “bicycle safe” by the manufacturer. Grate patterns shall be two-directional. The use of one-directional grate patterns is prohibited. Do not use MHD “Cascade” style grates. All castings shall be rated “heavy duty” and capable of meeting AASHTO H-20 and HS-20 loading requirements.

Catch Basin Frames and Grates: The catch basin grates shall have a two-directional or “grid-pattern” type. Where grates are to be installed adjacent to granite curbing, they shall 3-flange type grates. Provide as specified in the table below: 24-inch square grate with 36 openings, similar to Model No. LF 248-2-000, as manufactured by E. L. LeBaron Foundry Co., or approved equal. *Do not use Cascade grates at these locations.*

“D-Frame” Style Frames and Grates: “D-Frame” Styles grates shall be a two-directional or “grid-pattern” type. Test bars required shall be Test Bar B 1.20 inches in diameter. For catch basins with curb inlets, the frame and grate shall conform to “M.D.C. Standard Design” Model 14, Old Style Grate-Drop inlets for three flanges, as manufactured by:

1. Neenah Foundry (Representative Melville Grant Assoc.), Box 175, 83 Chapel Street, Needham, MA 02192 (Drop Inlet Model No. R3405B)
2. Mechanics Iron Foundry Co., 56 Kemble Street, Roxbury, MA 02119 (Model No. F5051)
3. E.L. LeBaron Foundry Co., Box 746, 14E Union Street, Brockton, MA 02403 (Model No. LD 268-1)
4. C.M. White Iron Works, Inc., 62 Concord Street, North Reading, MA (Model No. S421)
5. approved equal.

Manhole castings shall conform to Model No. R-1720 as manufactured by, Neenah Foundry, Model No. B-3030 as Manufactured by Mechanics Iron Foundry Co., 56 Kemble Street, Roxbury, MA 02119, Model No. LB 268-2-000 as Manufactured by E.L. LeBaron, Model No. Mass. Standard D.C.R. No. 5 as Manufactured by C.M. White Iron Works, Inc., 62 Concord Street, North Reading, MA, or an approved equal.

Manhole covers shall be labeled as indicated on the Drawings. Where manholes include a hydrodynamic separator, the cover shall indicate the type of separator unit and supplier.

Where catch basins include a hydrodynamic separator, provide a sign indicting the type of unit and supplier. The sign shall be set next to the “Don’t Dump” sign in the adjacent sidewalk or a concrete slab.

CONSTRUCTION METHODS

Frame castings for catch basins and manholes shall be set in full beds of mortar, true to lines and grade and structure opening, and as directed by the Engineer. The Contractor shall take adequate elevation readings of the pavement surfaces on all sides of the structure to insure that the frame and grate or cover is set to create a flush wearing surface. Catch basin grates shall be set at temporary grades as needed to insure that stormwater runoff does not puddle on the roadway during the phasing of the work.

METHOD OF MEASUREMENT AND PAYMENT

ITEM NO. 200-005

BASIS OF PAYMENT

Furnishing and installing of new frames, grates and covers will be paid for at the Contract unit price each. Payment shall include full compensation for all materials, transporting, protecting and installing the frame, grate and/or cover, and for all equipment, tools and labor incidental thereto.

For double grate catch basins (Item 203-413), each frame and grate will be measured separately. Therefore, the measurement under Item 200-005 for a double grate catch basin shall be 2 each.

The temporary setting of frames and grates to conform to the surface grade prior to the placing of the finish surface will not be separately measured for payment.

Pay Item		Pay Unit
ITEM NO. 200-005	FRAMES AND GRATES OR COVERS	EACH

(Remainder of page is intentionally blank)

ITEM NO. 201-021 CATCH BASIN WITH DEEP SUMP AND TRAP EACH**DESCRIPTION**

The work under this Item shall include the furnishing and installing of catch basins at the locations and the line and grade as shown on the Contract Drawings.

MATERIALS**Precast Concrete, Joints, Pipe Connections, Brick, Sumps, Subbase and Sealant:**

As specified under Item 202-002.

Catch Basin Hoods:

All catch basins shall have hoods installed over the outlet pipe. Hoods shall be cast iron hinged traps that fit over the catch basin outlet pipe. Traps shall be approximately 15-inches wide by 15-inches high and extend 8 to 10-inches from the wall of the structure. Catch basin hoods shall be LeBaron L202 with high strength hangers

Catch Basin Signs:

Provide cast iron catch basin signs as indicated on the Drawings.

Screened Gravel for Subbase:

Screened Gravel shall be uniformly graded with the maximum size of a particle between 3/8 inch and 3/4 inch. Screened Gravel shall consist of clean, hard and durable particles free from an excess of soft, elongated and disintegrated pieces or other objectionable material.

In wet conditions, crushed stone, meeting the requirements of Item 156-002, may be used in place of Screened Gravel at the option of the Engineer.

CONSTRUCTION METHODS

Excavation and backfilling for the installation of the catch basins shall be in accordance with General Earthwork Requirements. Excavate hole to the proper depth as shown on the Drawings allowing for 6 inches of subbase. The bases shall be supported on a compacted level foundation of screened gravel a minimum 6 inches thick. If the subgrade material is wet, use 3/4-inch crushed stone in lieu of screened gravel.

Crushed Stone (3/4" – See Item 156-002) may be substituted for Screened Borrow if field conditions at the bottom of the excavation are wet.

The precast base shall be placed level at the specified grade. The entire base shall be in contact with the underlying compacted level foundation. Check elevation and verify that the structure is level. The structure sections shall be installed using the approved gasket for sealing the joints; jointing shall be performed in accordance with the manufacturer's recommendations. Adjustment of the structure can be performed by lifting the upper sections free of the excavated area, re-leveling the base, and re-installing the sections. Damaged sections and gaskets shall be repaired or replaced as necessary, at no additional cost to the City.

Plug and grout the lifting holes if present. Backfill the structure to the outlet pipe using compacted gravel borrow. Compaction density and lift height shall be in accordance with General Earthwork

Requirements. Install outlet pipes at invert elevations indicated on the Drawings. Pipe openings shall be provided in the precast concrete structure risers to receive entering pipes and these openings shall be made at the place of manufacture. Connection of drain pipes to the structure shall be by means of a flexible connection, tighten the connector over the pipe to the manufacturer's recommended torque.

Install additional riser section(s) if necessary. Install and set grade adjustment rings in a full bed of mortar (as required). Install frame and grate at the finished grade elevation in a full bed of mortar as specified under Item 200-005. Backfill unit up to finished grade using compacted gravel borrow. Compactions density and lift height shall be in accordance with the General Earthwork Requirements.

Cutting or tampering in the field, for purpose of creating new sidewall openings or altering existing openings, will not be permitted without approval of the Engineer.

The interior sidewalls of the Catch Basin sumps shall be carefully painted with a florescent orange line at 12-inch increments from the bottom up to the underside of the insert. The distance from the bottom shall be neatly stenciled above the line.

Clean all sediment, debris, mortar, and soil from the bottom of all structures prior to final acceptance of the project.

METHOD OF MEASUREMENT AND PAYMENT

ITEM NO. 201-021

Furnishing and installing of catch basins of any type will be paid for at the contract unit price each. Payment shall include full compensation for excavation, placing and compacting backfill material, placing and compacting screened gravel or crushed stone subbase, all materials, transporting, protecting and installing the precast concrete catch basins complete as shown on the Contract Drawings and specified, and for all equipment, tools and labor incidental thereto.

Pay Item		Pay Unit
ITEM NO. 201-021	CATCH BASIN WITH DEEP SUMP AND TRAP	EACH

(Remainder of page is intentionally blank)

ITEM NO. 202-002**DRAIN MANHOLE****EACH****ITEM NO. 210-001****SANITARY SEWER MANHOLE****EACH****DESCRIPTION**

The work under this Item shall include the furnishing and installing of pre-cast concrete drain manholes and manhole access structures as shown on the Drawings and as directed by the Engineer.

Submittals

A. Submit the following for all precast concrete structures:

1. Detailed shop drawings showing all dimensions of the structure and all reinforcing, stamped by a Registered Professional Structural Engineer licensed in the Commonwealth of Massachusetts. Include erection drawings showing connections, cast-in items, waterproofing details, lifting hooks. Include production drawings showing elevations, sections, and details indicating sizes and quantities of reinforcement.
2. Structural calculations prepared by and stamped by a professional structural engineer licensed in the Commonwealth of Massachusetts. Calculations shall be prepared in accordance with the applicable sections of the following references:
 - a. Commonwealth of Massachusetts State Building Code.
 - b. American Concrete Institute, ACI 318 “Building Code Requirements for Reinforced Concrete.”
 - c. AASHTO, “Standard Specifications for Highway Bridges.”

- B. Submit product data on manhole waterproofing. Also submit the written application instructions of the manufacturer.
- C. Submit product data and manufacturer's written application and placement instructions for non-shrink mortar.
- D. Submit product data and manufacturer's written instruction for installing pipe connector.
- E. Submit test reports from the testing of sanitary sewer manholes.
- F. Submit Certificates of Compliance for precast risers and tops

MATERIALS**Precast Concrete**

Provide precast reinforced concrete structures as indicated on the Drawings and complying with ASTM C 478. The precast concrete manhole tops shall be a flat slab top type, as indicated in the Drawings. Manholes shall be designed to support AASHTO H20 loadings. The precast concrete base section shall be cast with and integral floor. Diameter, base and riser thicknesses shall be as indicated on the Contract Drawings. Concrete shall have a minimum 28 day compressive strength of 4,000 psi using Type II Portland cement.

Joints

Horizontal joints between sections of concrete structures shall be sealed with a self-sealing butyl rubber based flexible joint sealant gasket complying with ASTM C443. Sealant shall be installed in accordance with the manufacturer's written instructions.

Manhole Steps

Manhole steps shall be 1/2-inch grade 60 steel reinforcing rod conforming to ASTM A615 encapsulated with molded copolymer polypropylene. Rungs shall have a 14-inch-wide stepping surface and protrude no less than 6 inches from the wall equal to M.A. Industries type PS-2-PR-SL. Copolymer polypropylene shall be type II, grade 16906, meeting ASTM specifications D 4101. The portion of the legs to be embedded in the precast section shall have fins and be tapered to ensure a secure bond. Steps shall start a foot above the shelf of the manhole floor and continue twelve inches on center spacing up through the complete height of the unit. The steps shall finish no lower than 24 inches below the rim elevation.

Pipe Connections

Drainage structures shall have plain beveled openings to accept the pipe specified and to be sealed with non-shrink grout.

Sewer manhole pipe openings shall have integral flexible rubber sleeves capable of accepting the pipe connection and providing a positive seal.

Brick

Bricks for raising manhole frames to finished grade shall conform to ASTM C62. Bricks shall be sound, hard, uniformly burned, regular, and uniform in shape and size. Underburned or salmon brick shall not be acceptable. Only whole brick shall be used. Mortar shall be composed of one part Portland cement, two parts sand, and hydrated lime not to exceed 10 lbs. to each bag of cement. Portland cement shall be ASTM C150, Type II; hydrated lime shall conform to ASTM C207. Sand shall be washed, cleaned, screened, well-graded with all particles passing a No. 4 sieve, and conform to ASTM C33.

Inverts

The invert channel within the structure shall be shaped from cement concrete and shall be sloped to drain from the inlets to the outlet. Inverts in drain manholes shall conform accurately to size of the adjoining pipe. Side inverts and main inverts where the direction changes shall be laid out in smooth curves of the longest possible radius which is tangent, within the manhole, to the centerline of the adjoining pipe lines.

Subbase

Screened Gravel shall be uniformly graded with the maximum size of a particle between 3/8 inch and 3/4 inch. Screened Gravel shall consist of clean, hard and durable particles free from an excess of soft, elongated and disintegrated pieces or other objectionable material.

In wet conditions, crushed stone, meeting the requirements of Item 156-002, may be used in place of Screened Gravel at the option of the Engineer.

Sealant

The precast concrete manholes shall be coated with a liquid penetrant/sealant for Portland cement concrete surfaces used to protect concrete surfaces from chloride intrusion. Sealant shall be Weather Worker J29A manufactured by Dayton Superior, Enviroseal 40 or Weatherguard P40 Sealer manufactured by Harris Specialty Chemicals, SXL100 manufactured by Prosoco Inc., or Chem-Trete BSM 40 VOC manufactured by Silvento Inc., or approved equal.

Sanitary Sewer Manhole Waterproofing:

- A. The exterior surfaces of precast sanitary sewer manholes shall be given two heavy coats of bituminous waterproofing material.
1. The material shall be No. 35-J-10 Hi Build Bituminous Coating made by Mobil Chemical Company, Edison, NJ; Bitumastic Super Service Black made by Koppers Company, Inc., Pittsburgh, PA; or equal.
 2. The waterproofing material shall be applied by brush or spray and in accordance with the instructions of the manufacturer. Time shall be allowed between coats to permit sufficient drying so that the application of the second coat has no effect on the first coat.

CONSTRUCTION METHODS

Excavation and backfilling for the installation of manholes shall be in accordance with the General Excavation and Backfill Requirements. The bases shall be supported on a compacted level foundation of screened gravel a minimum 6 inches thick. Crushed Stone (3/4" – See Item 156-002) may be substituted for screened gravel if field conditions at the bottom of the excavation are wet.

Manhole risers and tops shall be installed using approved butyl-rubber type gasket for sealing joints of manhole risers and tops; jointing shall be performed in accordance with the manufacturer's recommendations. Manhole risers and tops shall be installed level and plumb. Water shall not be permitted to rise over newly made joints, nor until after inspection as to their acceptability. All jointing shall be done in a manner to ensure watertight joints. Openings shall be provided in the precast concrete manhole risers to receive entering pipes and these openings shall be made at the place of manufacture. Connection of drain pipes to manholes shall be by means of a non-shrink grout joint.

Care shall be taken to ensure the openings are made to permit setting of the entering pipe at its correct elevation as indicated or directed. Manhole risers and tops shall be installed so the manhole steps shall be in alignment.

All holes used for handling shall be thoroughly plugged with non-shrink grout.

Cutting or tampering in the field, for purpose of creating new sidewall openings or altering existing openings, will not be permitted without approval of the Engineer.

Remove and dispose all sediment, debris, mortar, and soil from the bottom of all structures prior to final acceptance of the project.

The vacuum test of sewer manholes shall be conducted in accordance with ASTM C1244. Test results will be judged by the length of time it takes for the applied vacuum to drop from 10 inches of mercury to 9 inches. If the time is less than that listed in the table below, the manhole will have failed the test.

Minimum Test Times for Various Manhole Diameters

Depth (Feet)	48	60	72
	<u>Time in Seconds</u>		
0-12	30	39	49
12-16	40	52	67
16-20	50	65	81

If the manhole fails the initial test, the Contractor shall locate the leak and make proper repairs. Leaks may be filled with a wet slurry of accepted quick setting material. If the manhole should again fail the vacuum test, additional repairs shall be made until it passes the test or the manhole shall be replaced and the new manhole tested. All repairs shall be made at no additional cost to the City.

METHOD OF MEASUREMENT AND PAYMENT

ITEM NO. 202-002

ITEM NO. 210-001

Furnishing and installing manholes will be paid for at the contract unit price each. Payment shall include full compensation for excavation, placing and compacting backfill material, placing and compacting gravel borrow or crushed stone subbase, all materials, transporting, waterproofing, testing, protecting and installing the precast concrete structures complete as shown on the Contract Drawings and specified, and for all equipment, tools and labor incidental thereto.

Pay Item		Pay Unit
ITEM NO. 202-002	DRAIN MANHOLE	EACH
ITEM NO. 210-001	SANITARY SEWER MANHOLE	EACH

(Remainder of page is intentionally blank)

ITEM NO. 210-998 CONNECTION TO EXISTING SANITARY SEWER LUMP SUM

DESCRIPTION

The work under this Item shall include connecting the sewer constructed under this contract to the existing brick sewer, as indicated on the Drawings and as specified herein.

CONSTRUCTION METHODS

Neatly cut opening in existing brick sewer to accept new PVC sewer pipe. Install pipe connection with the new pipe cut flush to the inside of the existing brick sewer. Seal around opening with a non-shrink grout.

Excavation and backfill shall conform to the General Earthwork Requirements.

METHOD OF MEASUREMENT AND PAYMENT

ITEM NO. 210-998

CONNECTION TO EXISTING SANITARY SEWER will be paid for at the contract lump sum price. Payment shall include full compensation for excavation, placing and compacting backfill material, placing and compacting gravel borrow or crushed stone subbase, all materials, transporting, protecting and installing the precast concrete structures complete as shown on the Contract Drawings and specified, and for all equipment, tools and labor incidental thereto.

Pay Item

Pay Unit

ITEM NO. 210-998

**CONNECTION TO EXISTING
SANITARY SEWER**

LUMP SUM

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ITEM NO. 220-001	DRAINAGE & SANITARY STRUCTURES –ADJUSTED	EACH
ITEM NO. 220-510	DRAINAGE & SANITARY STRUCTURES –REMODELED	EACH

DESCRIPTION

The work of Item 220-001 consists of adjusting existing castings of drainage and sanitary structures to the finish grade of the roadway. This will be used in areas of cold planning and overlaying where existing castings are misaligned or depressed with respect to the existing pavement grade,

The work of Item 220-510 consists of removing the remodeling of drainage and sanitary structures in areas of cold planning and overlaying where existing structures have settled or have structural damage within the upper 4 feet of the existing structure.

MATERIALS

Refer to Items 201-021, 202-002, and 210-001.

CONSTRUCTION METHODS**Adjusting to Grade (ITEM NO. 220-001)**

Remove existing castings and protect from damage.

Remove or build up masonry at the top of the structure so that the casting will be flush with finish grade. Construction methods shall conform to the applicable provisions of Item 202-002.

The maximum height of brick and mortar or grading rings shall not exceed 11 inches.

Reset the existing casting shall be set in full beds of mortar as specified in Item 200-005.

Remodeling (ITEM NO. 220-510)

Remove existing castings and protect from damage.

Remove up damaged masonry to a depth of 4 feet below the rim elevation.

(If damaged masonry extends below 4 feet below the rim elevation, the removal work will be performed under Item 220-909 and a new structure [Item 201-021, 202-002 or 210-001) will be installed as directed by the Engineer.)

Reconstruct structure as specified in Items 201-021, 202-002 or 210-001, as appropriate. Build up masonry at the top of the structure so that the casting will be flush with finish grade.

Reset the existing casting shall be set in full beds of mortar as specified in Item 200-005.

METHOD OF MEASUREMENT AND PAYMENT**ITEM NO. 220-001****ITEM NO. 220-510****METHOD OF MEASUREMENT**

The work of Items No. 220-001 and 220-510 will be measured per each structure.

BASIS OF PAYMENT

Adjusting or remodeling of existing drainage and sanitary structures will be paid for at the Contract unit price each. Payment shall include full compensation for all materials; transporting; removing, protecting and reinstalling the frame, grate and/or cover; and for all equipment, tools and labor incidental thereto.

The temporary setting of frames and grates to conform to the surface grade prior to the placing of the finish surface will not be separately measured for payment.

Pay Item		Pay Unit
ITEM NO. 220-001	DRAINAGE & SANITARY STRUCTURES – ADJUSTED	EACH
ITEM NO. 220-510	DRAINAGE & SANITARY STRUCTURES – REMODELED	EACH

(Remainder of page is intentionally blank)

ITEM NO. 220-908	DRAINAGE STRUCTURES ABANDONED	EACH
ITEM NO. 220-909	DRAINAGE STRUCTURES REMOVED	EACH
ITEM NO. 223-001	FRAME AND GRATE OR COVER REMOVE AND STACK	EACH

DESCRIPTION

The work under these Items shall consist of the abandonment or removal of existing drainage structures. The work includes the removal and stacking of castings, the plugging of inlets and outlet pipes, and the filling of all drainage structures designated to be abandoned and the removal of all masonry and filling the cavity of the drainage structures designated to be removed.

MATERIALS

Backfill used to fill the cavity of the removed or abandoned structure shall conform to Gravel Borrow specified in Item 151-001.

CONSTRUCTION METHODS

The existing castings shall be carefully removed and cleaned of cement concrete and or asphalt. They shall be satisfactorily stored and protected until the castings are required for reuse or until the casting are delivered by the Contractor to a Somerville DPW yard at Franey Road.

Pipe inlets and outlets of structures to be abandoned shall be plugged with brick masonry (as specified under Item 202-002) not less than 8 inches in thickness. Upper portions of the abandoned structures masonry shall be removed to a depth of 3-feet below the finished grade, the bottom of the structures shall be broken, and the structures shall be completely filled with Gravel Borrow, as specified under Item number 151-001, placed in 6 inch layers and thoroughly compacted.

Pipe inlets and outlets of structures to be removed shall be plugged with brick masonry (as specified under Item 202-002) not less than 8 inches in thickness. The existing masonry of the structures to be removed shall be completely removed. The cavity shall be completely filled and with Gravel Borrow, as specified in Item 151-001, placed in 6 inch layers and thoroughly compacted as specified. Crushed Stone may be substituted for Ordinary Borrow if field conditions at the bottom of the excavation are wet as directed by the Engineer.

METHOD OF MEASUREMENT AND PAYMENT**ITEM NO. 220-908****ITEM NO. 220-909****ITEM NO. 223-001**

Drainage structures abandoned or removed including the plugging of inlets and outlet pipes will be measured and paid for at the Contract unit price each under the appropriate Item. Castings removed and stacked will be measured and paid for at the Contract unit price each.

Pay Item	Pay Unit
ITEM NO. 220-908 DRAINAGE STRUCTURES ABANDONED	EACH
ITEM NO. 220-909 DRAINAGE STRUCTURES REMOVED	EACH
ITEM NO. 223-001 FRAME AND GRATE OR COVER REMOVE AND STACK	EACH

ITEM NO. 226-001**CATCH BASIN CLEANING****EACH****GENERAL**

Clean and flush existing catch basins as directed by the Engineer.

EXECUTION**A. Cleaning Catch Basins and Pipe:**

1. Remove grating and clean catch basin sump. Flush basin and outlet pipe.
2. Grit removed from catch basins, manholes, and pipes shall be considered “special wastes” and shall be disposed of at a licensed lined landfill.
3. Submit the following documentation regarding the Disposal of Special Wastes:
 - a. Name and location of licensed disposal facility.
 - b. Documentation that all material was disposed of at the designated disposal facility. This shall include tipping slips and written documentation for each truckload received at the disposal facility.

METHOD OF MEASUREMENT AND PAYMENT**ITEM NO. 226-001****MEASUREMENT**

Catch Basin cleaning will be measured by each catch basin cleaned, including the existing outlet pipe.

PAYMENT

Catch Basin cleaning will be paid for by each catch basin cleaned, including the existing outlet pipe.

Pay Item**Pay Unit****ITEM NO. 226-001 CATCH BASIN CLEANING****EACH**

(Remainder of page is intentionally blank)

ITEM NO. 238-012**12-INCH DUCTILE IRON PIPE (DIP)
FOR STORM DRAIN****LINEAR FOOT****DESCRIPTION**

The work under this Item shall include the furnishing and installing of ductile iron pipe (DIP) of the size indicated and at the locations indicated on the Drawings. This item will be used when ordered by the Engineer if it is necessary to install shallow drain pipes with less than 3 feet of cover.

MATERIALS**Ductile Iron Pipe:**

1. Ductile iron pipe shall conform to AWWA C150 and C151, and shall be Class 52.
2. Joints shall be the push-on rubber gasket type meeting the requirements of AWWA C111.
3. Fittings: Fittings shall be ductile iron and shall conform to AWWA C110.
4. Linings: Ductile iron pipe shall be cement lined meeting the requirements of AWWA C104.

CONSTRUCTION METHODS

Install piping in accordance with ASTM D2321, the manufacturer's instructions, and the Drawings.

Acceptance of pipe will be on the basis of tests specified hereinbefore. The quality of all materials used in the pipe, the process of manufacture, and the finished pipe shall be subject to review by the Engineer. Inspection may be made at the place of manufacture, or on the work site after delivery or at both places and the pipe shall be subject to rejection at any time on account of failure to meet any of the specification requirements, even though sample pipe units may have been accepted as satisfactory at the place of manufacture. All pipe that is rejected shall be immediately removed from the project site by the Contractor at no additional cost to the City.

Pipe sections shall not be stored on areas over the newly laid pipe or other pipelines which might be damaged by the superimposed load, and storage sections shall be restricted to approved areas.

Except where a concrete cradle or envelope is required, the pipe shall be laid in a gravel cradle. In trenches, no blocking or supporting of the piping by concrete, stones, bricks, wooden wedges, or method other than bedding the pipe on gravel or crushed stone will be permitted. Each length of pipe shall be shoved home against the pipe previously laid and held securely in position. Joints shall not be "pulled" or "cramped" without approval of the Engineer.

After the pipes are aligned in the trench and are ready to be jointed, all joint surfaces shall be cleaned. All pipes shall be laid with extreme care as to grade and alignment. Each pipe shall be so laid as to form a close joint with the next adjoining pipe and bring the inverts continuously to the required grade.

Stakeout of drain work and setting of line and grade is the responsibility of the Contractor. The Contractor shall establish centerline and offset stakes at each manhole, plus intermediate centerline and offset stakes as needed to ensure proper alignment and grade.

Care shall be taken to prevent earth, water and other materials from entering the pipeline. As soon as possible after the pipe and manholes are completed, the Contractor shall clean out the pipeline and manholes being careful to prevent soil, water, and debris from entering any existing drain. Place plugs in end of uncompleted conduit at the end of the work day, or whenever work stops. Flush lines between manholes to remove any collected debris.

If the visual observation of the completed drain or any part thereof shows any pipe, manhole, or joint to be of defective work or material the defect shall be replaced or repaired as directed by the Engineer at no cost to the City. The visual observation shall be conducted by the Engineer and any defects shall be as identified by such. The Contractor shall coordinate and provide site access for the City.

Storage, Handling and Placing Ductile Iron Pipe

Ductile iron pipe shall be laid at the lines and grades as shown on the plans and specified herein. Whenever encountered within the trench existing sewer/drain shall be removed unless otherwise noted. All existing sewer/drain lines, which are to be abandoned in place, shall be plugged at all open ends.

Pipes and fittings shall be subjected to a careful inspection and a hammer (ringing) test just before installation.

Any fitting showing a crack or any fitting or pipe which has received a severe blow that may have caused an incipient fracture, even though no such fracture can be seen, or any fittings or pipe discovered to be defective, shall be marked as rejected and removed at once from the work. Pipe showing a crack may be cut off before the pipe is laid at a point at least 12 inches from the visible limit of the crack provided the remaining portions perfectly sound as determined by the Engineer. Cut ends used with push-on joints shall be chamfered to prevent cutting the gasket when the pipe is laid.

Each pipe shall be cleared of all excess tar, debris, dirt, etc., before laying.

Care shall be taken in loading, transporting, and unloading to prevent injury to the pipes or coatings. Pipe or fittings shall not be dropped. All pipe or fittings shall be examined before laying, and no piece shall be installed which is found to be defective. Any damage to the pipe coatings shall be repaired as directed by the Engineer.

If any defective pipe is discovered after it has been laid, it shall be removed and replaced with a sound pipe in satisfactory manner by the Contractor at no additional expense to the City. All pipe and fittings shall be thoroughly cleaned before laying, shall be kept clean until used in the work, and when laid shall conform to the lines and grades required.

When laying is not in progress, including lunchtime; the open ends of the pipe shall be closed by watertight plug or other approved means. The Contractor shall keep the trench free from water while the pipe is being installed. Fittings, in addition to those shown on the plans, shall be provided, if required, in crossing utilities, which may be encountered when opening the trench.

When cutting pipe is required, the cutting shall be done by machine leaving a smooth cut at right angles to the axis of the pipe. Cut ends of pipe shall be beveled to conform to the manufactured spigot end. Cement lining shall be undamaged.

Fittings and plugs shall be restrained against hydraulic thrust with a block of Class B concrete conforming to the size and shape required by the Boston Water and Sewer Commission specifications. Yokes and tie rods, retainer glands or any combination thereof shall also be used as directed by the Engineer based on actual field conditions encountered. Unless otherwise approved by the Engineer, all pipe up to and including 12 inch pipe shall have at least two (2) 3/4 inch tie rods, 16-inch pipe at least four (4) 3/4 inch tie rods, and 48-inch pipe at least six (6) 1-1/2 inch tie rods. All yokes and tie rods shall be coated with an approved bituminous paint after assembly.

METHOD OF MEASUREMENT AND PAYMENT

ITEM NO. 238-012

Measurement per linear foot for various types and sizes of pipe will be horizontally along the centerline of the pipe. Where increasers are used, measurement will be included with the larger size of pipe.

Furnishing and installing of Ductile Iron Pipe of various sizes will be paid for at the Contract unit price per linear foot of actual pipe installed under the respective Item. Payment shall include full compensation for trench excavation to the depths required to provide for laying the pipe at the grades shown on the Drawings, furnishing all materials, transporting, protecting and installing (including joining) all pipe and fittings, flared end sections, placing and compacting bedding and backfill material (specified under General Earthwork Requirements), removal of abandoned pipe within trench, and all else in connection with the laying of the drain pipe for which there is no separate pay Item. All piping shall be left in a clean manner with no sediment accumulation.

Pay Item

Pay Unit

**ITEM NO. 238-012 12-INCH DUCTILE IRON PIPE (DIP)
FOR STORM DRAIN**

LINEAR FEET

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ITEM NO. 250-010	10-INCH PVC SEWER PIPE	LINEAR FOOT
ITEM NO. 250-012	12-INCH PVC SEWER PIPE	LINEAR FOOT

DESCRIPTION

The work under this Item shall include the furnishing and installing of PVC sewer pipe and fittings of the size indicated and at the locations indicated on the Drawings.

MATERIALS**Polyvinyl Chloride Pipe:**

1. The polyvinyl chloride pipe and fittings, including also those required for stubs, shall conform to ASTM D3034.
2. The pipe shall have pipe diameter to wall thickness ratio (SDR) of a maximum of 35.
3. Joints shall conform to ASTM D3212. Provide push-on bell and spigot joints with elastomeric ring gaskets.
4. Provide gaskets conforming to ASTM F477; resistant to common ingredients of sewage and industrial wastes, including oils and groundwater; and capable of enduring permanently under conditions of proposed use. Fix gaskets into place in bell to avoid dislodging during joint assembly.

Flexible Pipe-to-Manhole Connector with Flexible Annular Space Filler:

1. Conform to ASTM C923.
2. Band and clamp non-magnetic Series 304 stainless steel.
3. Nitrile and PVC cavity O-ring.
4. Do not furnish connectors using castings and bolts with non-resilient bearings.

CONSTRUCTION METHODS

PVC pipe shall be installed in accordance the applicable provisions of Item 238-012 above and the following:

Install PVC pipe on bedding of screened gravel. Solidly bed pipe in pipe bedding material with full bearing for the entire length of the pipe. Excavate depressions for bell and spigot, hubbed, and flared ends to provide full bedding. Initial backfill to a point at least 6 inches over the pipe shall be screened gravel.

Installation of PVC Pipe:

- A. Install in accordance with paragraph 3.02 of this section and the following:
- B. Do not install non-straight pipe sections that deviate more than 1/2 inch over a 20-foot length of pipe.

1. Handle and place carefully into position to avoid damage.
 2. Do not allow pipe centerline to deviate from straight line drawn between ends, by more than 1/16 inch per foot of length.
- C. Follow directions of joint material and pipe manufacturers when installing gaskets and joints to render them watertight and flexible.
- D. After bedding pipe, place and compact bedding material between pipe and sides of trench. Use extra care to compact bedding material under lower half of pipe. Fill bell holes with bedding material and compact. Place compact bedding material as indicated on the Drawings.
- E. Allowable Pipe Deflection:
1. Pipe provided under this specification shall be so installed as to not exceed a maximum deflection of 5 percent. Such deflection shall be computed by multiplying the amount of deflection (nominal diameter less minimum diameter when measured) by 100 and dividing by the nominal diameter of the pipe.
 2. Upon completion of a section of sewer, including placement and compaction of backfill, the Contractor shall measure the amount of deflection by pulling a specially designed gage assembly through the completed section. The gage assembly shall be in accordance with the recommendations of the pipe manufacturer.

Jointing Pipe:

After the pipe are aligned in the trench and are ready to be jointed, all joint surfaces shall be cleaned.

Alignment and Placement:

All pipe shall be laid with extreme care as to grade and alignment. Each pipe shall be so laid as to form a close joint with the next adjoining pipe and bring the inverts continuously to the required grade.

Stakeout of drain work and setting of line and grade is the responsibility of the Contractor.

The Contractor shall establish centerline and offset stakes at each manhole, plus one intermediate centerline and offset stake as a check point between manholes. Laser aligning shall not be used to establish a continuous line in excess of 400-feet.

Cleaning:

Care shall be taken to prevent earth, water and other materials from entering the pipeline. As soon as possible after the pipe and manholes are completed, the Contractor shall clean out the pipeline and manholes being careful to prevent soil, water and debris from entering any existing pipe.

1. Place plugs in end of uncompleted conduit at end of day or whenever work stops.
2. Flush lines between manholes if required to remove collected debris.

Testing of Completed Gravity Sanitary Sewer System:

Testing of sanitary sewers shall be by low-pressure air test after installation of service fittings and leads, and after completing backfill of the gravity sewer trench. The Engineer will be present during all testing.

The low-pressure air test shall be conducted in compliance with the following:

1. After completing backfill of the wastewater line, the Contractor shall, at his expense, conduct a Line Acceptance Test using low-pressure air.
2. The test shall be performed under the supervision of a representative of the Somerville DPW.
4. Equipment used shall meet the following minimum requirements:
 - a. Pneumatic plugs shall have a sealing length equal to or greater than the diameter of the pipe to be inspected.
 - b. Pneumatic plugs shall resist internal test pressures without requiring external bracing or blocking.
 - c. All air used shall pass through a single control panel.
 - d. Three individual hoses shall be used for the following connections:
 - i. From control panel to pneumatic plugs for inflation.
 - ii. From control panel to sealed line for introducing the low pressure air.
 - iii. From sealed line to control panel for continually monitoring the air pressure rise in the sealed line.
 - iv. Procedures: All pneumatic plugs shall be seal tested before being used in the actual test installation. One length of pipe shall be laid on the ground and sealed at both ends with the pneumatic plugs to be checked. Air shall be introduced into the plugs to 25 psi. The sealed pipe shall be pressurized to 5 psi. The plugs shall hold against the pressure without bracing and with movement of the plugs out of the pipe.
 - v. After a reach of pipe has been backfilled and cleaned, and the pneumatic plugs are checked as specified, the plugs shall be placed in the line and inflated to 25 psi. Low pressure reaches 4 psi greater than the average back pressure of ground water that may be over the pipe. Two minutes minimum shall be allowed for the air pressure to stabilize.
 - vi. After the stabilization period (3.5 psi minimum pressure in the pipe), the air hose from the control panel to the air supply shall be disconnected. The portion of line being tested shall be termed "acceptable" if the time required in minutes for the pressure to decrease from 3.5 to 2.5 psi (greater than the average back pressure of any ground water that may be over the pipe) shall not be less than the time shown for the given diameters in the following table:

Pipe Diameter (in inches)	Minutes
8	4.0
10	5.0
12	5.5
15	7.5

In areas where ground water is known to exist, the Contractor shall install a 1/2 inch diameter capped pipe nipple, approximately 10 inches long, through the manhole wall on top of one of the sewer lines entering the manhole. This shall be done at the time the sewer line is installed. Immediately prior to the performance of the Line Acceptance Test, the ground water shall be determined by removing the pipe cap, blowing air through the pipe nipple into the ground so as to clear it, and then connecting a clear plastic tube to the nipple. The hose shall be held vertically and a measurement of the height in feet shall be divided by 2.3 to establish the pounds of pressure that will be added to all readings. (For example, if the height of water is 11 feet, then the added pressure will be 5 psi, and the 2.5 psi increased to 7.5 psi. The allowable drop of one pound and the timing remain the same.)

- vii. If installation fails to meet the above requirements for the air test, the Contractor shall correct the pipeline until an acceptable test is achieved.
- viii. The Contractor shall provide as required the proper plugs, weirs, and other equipment required to perform all tests.
- ix. The tests shall be conducted at all times in the presence of the Engineer. Should a line that has previously been tested indicate any water infiltration, or otherwise appear suspect to the Engineer, the Contractor shall conduct confirmation air tests on the line, at no additional cost to the City.

METHOD OF MEASUREMENT AND PAYMENT

ITEM NO. 250-010
ITEM NO. 250-012

Measurement per linear foot for various types and sizes of pipe will be horizontally along the centerline of the pipe.

No separate measurements will be made for fittings including bends, wyes, tees and the like. These items shall be considered incidental to the length of pipe measured.

Furnishing and installing of PVC Pipe will be paid for at the Contract unit price per linear foot of actual pipe installed. Payment shall include full compensation for trench excavation to the depths required to provide for laying the pipe at the grades shown on the Contract Drawings, furnishing all materials, transporting, protecting and installing (including joining) all pipe and fittings, placing and compacting bedding and backfill material (specified under General Earthwork Requirements), testing, connection to existing manhole, connection to drinking fountain, removal of abandoned pipe within trench, and all else in connection with the laying of the sewer pipe for which there is no separate pay Item. All piping shall be left in a clean manner with no sediment accumulation.

Pay Item		Pay Unit
ITEM NO. 250-010	10-INCH PVC SEWER PIPE	LINEAR FEET
ITEM NO. 250-012	12-INCH PVC SEWER PIPE	LINEAR FEET

(Remainder of page is intentionally blank)

ITEM NO. 252-912	12 INCH HIGH DENSITY POLYETHYLENE (HDPE) PIPE FOR STORM DRAIN	LINEAR FOOT
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GENERAL

Furnish and install new HDPE drainage pipe as indicated.

SAMPLE AND SHOP DRAWINGS

- A. Catalog cuts and product data for perforated HDPE pipe.

MATERIAL

- A. HDPE Pipe:

1. All High Density Polyethylene (HDPE) pipe and pipe cap shall be rated to withstanding a AASHTO HS20-44 loading. Pipe shall be ADS N-12 pipe or approved equal.
2. HDPE: N-12 ST IB pipe shall have a smooth interior and annular exterior corrugations.
3. Fittings shall conform to AASHTO M294 or ASTM F2306. Fabricated fittings shall be welded at all accessible interior and exterior junctions.
4. Pipe and fittings shall be made of virgin polyethylene compounds that comply with cell classification 435400C as defined and described in ASTM D3350, except that carbon black content should not exceed 4%. The virgin pipe material shall comply with the notched constant ligament-stress (NCIS) test as specified in Section 6.1.1 and 5.1 of AASHTO M294 and ASTM F2306 respectfully.

EXECUTION

- A. Trench Excavation:

1. Trenches may be excavated to their full depth by machinery provided that the material remaining at the bottom of the trench is no more than slightly disturbed.
2. Trench excavation shall result in a flat or shaped trench bottom, true to grade so that the pipe will have uniform and continuous bearing on a firm support. Trenches shall be made as narrow as practicable, and every effort shall be made to keep the sides of the trenches firm and undisturbed until backfilling and compaction is completed.
3. Temporary Earth Support:
 - a. The Contractor shall furnish, place and maintain temporary earth support at locations necessary to support the sides of excavations to prevent danger to persons or damage to adjacent pavements, facilities, utilities, or structures; to prevent injurious caving or erosion or the loss of ground.
 - b. In all temporary earth support operations, care shall be taken to prevent collapse of excavations, injury to persons or damage to adjacent structures. Any injuries to persons shall be the responsibility of the Contractor; and any damage to the work occurring as a result of settlement, water or earth pressure, or other causes due to inadequate bracing or

other construction operations of the Contractor shall be satisfactorily repaired and made good by the Contractor, at no additional expense to the City.

- c. The Contractor shall comply with all federal, state, and local safety regulations, and requirements.
4. Groundwater Control:
- a. The Contractor shall provide, at its own expense, adequate pumping and drainage facilities to maintain the excavated area sufficiently dry from groundwater and/or surface runoff so as not to adversely affect construction procedures nor cause excessive disturbance of underlying natural ground. The flows of all water resulting from pumping shall be managed so as not to cause erosion, siltation of drainage systems, or damage to adjacent property. Prior to discharge, all groundwater shall be filtered by temporary settling basins or filter media.
 - b. Any damage resulting from the failure of the dewatering operations of the Contractor, and any damage resulting from the failure of the Contractor to maintain all the areas of work in a suitable dry condition, shall be repaired by the Contractor, as directed by the Engineer, at no additional cost to the City. The Contractor's pumping and dewatering operations shall be carried out in such a manner as to prevent damage to the Contractor work and so that no loss of ground will result from these operations. Precautions shall be taken to protect new work from flooding during storms or from other causes. Pumping shall be continuous to protect the work and/or to maintain satisfactory progress.

B. Installation of HDPE Pipe:

- 1. Acceptance of Pipe: Acceptance will be on the basis of tests specified herein before. The quality of all materials used in the pipe, the process of manufacture, and the finished pipe shall be subject to review by the Engineer. Inspection will be on the work site after delivery. The pipe shall be subject to rejection at any time on account of failure to meet any of the specification requirements. All pipe that is rejected shall be immediately removed from the project site by the Contractor and replaced with new pipe conforming to the Specifications, all at no additional cost to the City.
- 2. Pipe Storage: Pipe sections shall not be stored on areas over the newly laid pipe that might be damaged by the superimposed load, and storage sections shall be restricted to approved areas.
- 3. Handling Pipe: Each pipe unit shall be handled into its position in the trench only in such manner and by such means, as the Engineer accepts as satisfactory. The Contractor will be required to furnish suitable devices to permit satisfactory support of all parts of the pipe unit when it is lifted.
- 4. Slope the pipe down at the grade indicated on the Drawings.
- 5. Cleaning: Care shall be taken to prevent earth, water and other materials from entering the pipeline. As soon as possible after the pipe and manholes are completed, the Contractor shall clean out the pipeline and manholes being careful to prevent soil, water and debris from entering any existing drain.

- a. Place plugs in end of uncompleted conduit at end of day or whenever work stops.
- b. Flush lines between manholes if required to remove collected debris.

C. Trench Backfill:

1. Backfill trench with suitable backfill material, defined as conforming with the requirements of Item 150-001 ORDINARY BORROW, 151-001 GRAVEL BORROW, 152-001 DENSE-GRADED CRUSHED STONE, 153-001 FLOWABLE FILL (CDF) or 156-002 CRUSHED STONE (3/4-INCH).
2. Compact in 12-inch lifts.
3. Take care in backfilling and compacting so as not to damage or crush the pipe.

METHOD OF MEASUREMENT AND PAYMENT

ITEM NO. 252-912

MEASUREMENT

Pipe will be measured in place by the linear foot of pipe installed complete in place.

PAYMENT

Pipe will be paid for at the contract unit price per linear foot of pipe, installed and complete in place. Trench excavation, removal of abandoned pipe within trench, backfilling, and compaction will be considered incidental to this Item.

Pay Item

Pay Unit

ITEM NO. 252-912

**12 INCH HIGH DENSITY POLYETHYLENE
(HDPE) PIPE FOR STORM DRAIN**

LINEAR FOOT

ITEM NO. 303-006	6 INCH DUCTILE IRON WATER PIPE	LINEAR FOOT
ITEM NO. 303-008	8 INCH DUCTILE IRON WATER PIPE	LINEAR FOOT
ITEM NO. 303-012	12 INCH DUCTILE IRON WATER PIPE	LINEAR FOOT
ITEM NO. 303-016	16 INCH DUCTILE IRON WATER PIPE	LINEAR FOOT
ITEM NO. 309-001	DUCTILE IRON FITTINGS FOR WATER PIPE	POUND
ITEM NO. 371-990	CONNECTION TO EXISTING 20 INCH WATER MAIN	LUMP SUM

DESCRIPTION:

Furnish, install, test and disinfect water system piping, as indicated and specified.

QUALITY ASSURANCE:

- A. All pipe and fittings shall be inspected and tested at the foundry as required by the standard specifications to which the material is manufactured. The Contractor shall submit in duplicate sworn certificates of such tests.
- B. In addition, the City reserves the right to have any or all pipe, fittings and special castings inspected and/or tested by an independent service at either the manufacturer's plant or elsewhere. Such inspection and/or tests shall be at the City's expense.
- C. Provide the services of an independent testing laboratory to perform the pressure and disinfection tests specified herein.
- D. The Contractor shall be responsible for the water-tightness and disinfection of the water main. If the pipe fails the tests specified in paragraph 3.06 of this section, the Contractor shall perform all work associated with locating and repairing the leaks and retesting until all pipe passes the tests, all without additional compensation from the City.
- F. Only employees of the Somerville DPW will be allowed to operate existing hydrants and gates.
- G. No existing water main shall experience any disruption in service without approval of the City and notification of a minimum of 48 hours in advance of any disruption. The Contractor will be responsible to notify users of any disruption of the water service a minimum of 48 hours in advance. **This requirement applies to the connection at the existing 20-inch water main at Newton Street.**

SUBMITTALS:

- A. Submit the following:
 - 1. Qualifications of independent testing laboratory.
 - 2. Submit catalog cuts and product data for water pipe and fittings
 - 3. Certification of compliance for pipe.
 - 4. Certification that pipe has been tested as specified.
 - 5. Proposed methods for performing testing, including plans showing sections to be tested:

- a. Pressure/Leakage test.
 - b. Disinfection.
- 6. Certified test reports as specified and as contained in cited standards. Test results shall include, but not be limited to:
 - a. Pressure/Leakage test.
 - b. Disinfection.
- 7. Schedule of work, including dates and duration of proposed shutdown of water mains.
- B. Additional requirements for restrained joints.
 - 1. Piping layout drawings showing both plan and profile of the proposed pipeline. Data to be shown to include curve and deflection data, invert elevations, grades, joint locations, closure locations, joint openings if any, and all other necessary information.
 - 2. Locations and type of restrained joints or devices to prevent joint separation.

MATERIALS

DUCTILE IRON PIPE:

- A. Provide pipe conforming to ANSI A21.50/AWWA C150. The pipe shall be equipped with push-on type, restrained joint, or mechanical joints, as required.
- B. Provide pipe manufactured in accordance with ANSI A21.51/AWWA C151.
- C. The ductile iron pipe shall be Pressure Class 350 and thickness Class 52. Pipe shall be furnished in minimum nominal 18-foot lengths, with Push-on or Mechanical Joints with gaskets conforming to ANSI A21.11/AWWA C111.
- D. The ductile iron pipe shall be double cement lined inside and then asphalt seal coated in accordance with ANSI A21.4/AWWA C104. The pipe shall be furnished along with necessary materials and equipment recommended by the manufacturer for use in joining pipe lengths and fittings.
- E. Fittings shall be short body ductile iron Class 350 Mechanical Joint, conforming to ANSI A21.53/AWWA C153 for pipe sizes 16 inches and smaller. Fittings shall have the same lining and coating as the pipe specified above. All fittings shall be marked with the weight and shall have distinctly cast upon them the pressure rating, the manufacturer's identification, nominal diameter of openings and the number of degrees or fraction of the circle on all bends.
- F. In order to provide positive joint restraint, valve anchor tees and restrained joints on 6-inch branch shall be used for hydrant branch connections.

- G. Caps and plugs installed in all new work as indicated on the Drawings shall be provided with a threaded corporation or bleeder valve so that air and water pressure can be relieved prior to future connection.
- H. Contractor shall provide all adapters and fittings such as transition couplings, as determined in the field, necessary to complete all connections, whether or not specifically stated in the Drawings and Specifications.
- I. All pipe shall be marked with the class, thickness designation and initials of the manufacturer.
- J. Restrained joints shall be furnished. Restraints for mechanical joint fittings shall be Megalug as manufactured by Ebba Iron Co., American Cast Iron Pipe Co., Birmingham, Alabama, Griffin Pipe Products Co., Florence, New Jersey or equal. Restraints for push-on joints shall be series 800 coverall as manufactured by Ebba Iron Co. or equal. Location of restrained joints shall be based on Thrust Restraint Design for Ductile Iron Pipe (Second Edition), published by Ductile Iron Pipe Research Association.
- K. Pipe for use with split couplings shall be as specified except that the ends shall not have bells or beads but shall have cast or machined shoulders necessary for the couplings to be used and shall conform to the specifications of the manufacturer of the couplings.
- L. Not Used
- M. Gaskets, Glands, Nuts And Bolts:
 - 1. Gaskets, glands, nuts, bolts and accessories shall conform to AWWA C111 or C153 as appropriate.
 - 2. Gaskets shall be of plain tipped rubber, suitable for exposure to the liquid within the pipe.
 - 3. Glands shall be ductile or cast iron.
 - 4. Bolts and nuts shall be high strength alloy.

COUPLINGS AND ADAPTERS:

- A. Sleeve-type couplings for plain-end pipe shall be provided with plain rubber gaskets and steel, tee-head bolts with nuts. Couplings shall be given a shop coat compatible with the same outside coating as the pipe specified above. Couplings shall be Dresser style 38 or 138, furnished preassembled, as manufactured by Dresser Industries, Inc., Smith-Blair, Coupling Systems, Inc. or equal.
- B. Couplings or adapters as required for connecting existing pipe to new pipe or new pipe to new pipe shall be furnished as required and designed for compatibility with the pipe and operating pressures encountered. Couplings shall be Dresser Style 162 as manufactured by Dresser Industries Inc., Smith-Blair, Baker All Steel or equal. Flanged adapters shall be Dresser Style 128, or equal.
- C. Split couplings may be used for connecting gray cast iron or ductile iron. If split couplings are used with grooved ductile iron pipe, the minimum pipe wall thickness shall be as specified. Split

couplings shall be made of malleable iron and shall be suitable for use with grooved-end or shouldered-end, cast iron pipe. They shall be:

1. Victualic couplings made by the Victualic Company of America, Elizabeth, New Jersey;
2. Gruvagrip couplings made by Gustin-Bacon Manufacturing Company, Kansas City, Missouri;
3. Groove couplings made by Eastern Malleable Iron Company, Pittsburgh, Pennsylvania;
4. Equal.

- D. All couplings shall be furnished with the pipe stop removed.
- E. Couplings shall be provided with gaskets of a composition suitable for exposure to the liquid within the pipe. The gaskets shall have metallic tips to provide electrical continuity through the joint.
- F. The Contractor shall provide suitable filling rings where the layout of the flanged piping is such as to necessitate their use. In materials, workmanship, facing, and drilling, such rings shall conform to the 125 pound ANSI Standard. Filling rings shall be of suitable length with nonparallel faces and corresponding drilling, if necessary, to endure correct assembly of the adjoining piping or equipment.
- G. Couplings for exposed pipe shall be of steel. The couplings shall be provided with steel bolts and nuts. They shall be:
1. Dresser Style 38
 2. Smith-Blair Style 411
 3. Baker Allsteel
 4. Equal.
- H. At the Contractor's option, flexible connections in the piping shall be sleeve-type couplings, split couplings or mechanical joint pipe as herein specified.

EXECUTION

A. Handling Ductile Iron Pipe and Fittings:

1. Care shall be taken in loading, transportation, and unloading to prevent injury to the pipe or coatings.
2. Pipe or fittings shall not be dropped.
3. Pipe shall be stored above ground at a height no greater than 5-feet, and with even support for the pipe barrel.
4. Only nylon-protected slings shall be used for handling the pipe. No hooks or bare cables will be permitted.
5. Gaskets shall be shipped in cartons and stored in a clean area, away from grease, oil, heat, direct sunlight and ozone producing electric motors.

B. Examination of Pipe:

1. All pipe or fittings shall be examined before placement, and no piece shall be installed which is found to be defective. Any damage to the pipe coatings shall be repaired as directed by the Engineer at no additional cost to the City.
2. Pipes and fittings shall be inspected and subjected to a hammer (ringing) test just before installation.
3. Any fitting showing a crack or any fitting or pipe which has received a severe blow that may have caused an incipient fracture, even though no such fracture can be seen, or any fitting or pipe discovered to be defective, shall be marked as rejected and removed from the Work Site.
 - a. Pipe showing a crack may be cut off at a point at least 12 inches from the visible limit of the crack provided the remaining portion is sound as determined by the Engineer.
 - b. Cut ends used with push-on joints shall be chamfered.
4. If any defective pipe is discovered after it has been placed, it shall be removed and replaced with a sound pipe by the Contractor, at no additional cost to the City.

C. Installation:

1. All pipe and fittings shall be thoroughly cleaned before placement.
 - a. Each pipe shall be cleared of items, including, but not limited to, excess tar, debris, dirt, mud, snow, ice, before laying.
2. Ductile iron pipe and fittings shall be installed in accordance with requirements of AWWA Standard Specification C600 except as otherwise provided herein.
3. A firm even bearing throughout the length of the pipe shall be constructed by compacting screened gravel around the pipe, up to the springline.
 - a. Blocking will not be permitted.
4. When laid, the pipe shall conform to the lines and grades required.
 - a. Provide a minimum of 5 feet of cover below finished grade, unless otherwise indicated on the Drawings.
5. When laying is not in progress, including lunchtime, the open ends of the pipe shall be closed by watertight plug or other approved means. The Contractor shall keep the trench free from water while the pipe is being installed.
6. Fittings, in addition to those shown on the Drawings, shall be provided where water lines cross utilities to provide vertical separation between the lines.
7. When cutting pipe is required, the cutting shall be done by machine, leaving a smooth cut at right angles to the axis of the pipe. Cut ends of pipe to be used with a bell (push-on joint)

shall be beveled to conform to the manufactured spigot end. Cement lining shall be undamaged.

8. Yokes and tie rods, retainer glands or any combination thereof shall also be used as directed by the Engineer based on actual field conditions encountered. Pipe up to and including 12 inch pipe shall have at least two 3/4 inch tie rods. All yokes and tie rods shall be coated with an approved bituminous paint after assembly.
9. Ductile iron pipe installed within 5-feet of gas lines shall be fully encased with polyethylene material. Polyethylene shall be 8 millimeters thick and comply with AWWA C 105.
10. No defective pipe or fittings shall be laid or placed in the piping, and any piece discovered to be defective after having been laid or placed shall be removed and replaced by a sound and satisfactory piece, at no additional cost to the City.

D. Deflection of Water Mains:

1. In laying a full 18 foot length of ductile iron pipe along a curve, the maximum changes in alignment of each length of pipe shall not exceed the following amounts:

Size of Pipe Inches	<u>Maximum Permissible Deflection</u>	
	<u>Push-on Joint</u> <u>Inches</u>	<u>Mechanical Joint</u> <u>Inches</u>
4	19	31
6	19	27
8-12	19	20

E. Joints for Water Mains:

1. Push-on joints shall be made in strict accordance with the manufacturer's instructions. Pipe shall be laid with bell ends looking ahead. A rubber gasket shall be inserted in the groove of the bell end of the pipe, and the joint surfaces cleaned and lubricated. The plain end of the pipe to be entered shall then be inserted in alignment with the bell of the pipe to which it is to be joined, and pushed home with a jack or by other means. After joining the pipe, a metal feeler shall be used to make certain that the rubber gasket is correctly located.
2. Mechanical joints shall be made up by first cleaning with a wire brush the surfaces against which the gasket will come in contact. The gasket, bell, and spigot shall be lubricated by washing with soapy water just prior to assembling the joint. After the nuts have been made up finger tight, the bottom nut, then top and then diametrically opposite nuts shall be progressively tightened. The tightening process should be repeated until the nuts are within the following range of torques:

<u>Pipe Size</u> <u>Inches</u>	<u>Bolt Diameter</u> <u>Inches</u>	<u>Torque</u> <u>Inch-lbs</u>	<u>Wrench Length</u> <u>Inches</u>
3	5/8	40-60	8
4-24	3/4	60-90	10
30-36	1	70-100	12
42-48	1-1/4	90-120	14

3. Restrained Joints

- a. Joining of restrained joint piping shall conform to the manufacturer's recommendations.
- b. If effective sealing of the joint is not attained, the joint shall be disassembled, thoroughly cleaned, a new gasket inserted and joint reassembled.
- c. Deflection of alignment at a joint shall not exceed the appropriate permissible deflection recommended by the manufacturer.

F. Sleeve Couplings for Water Mains:

1. After assembly, all exterior surfaces including the bolts and nuts shall be thoroughly coated with two coats of a heavy-duty protective coating. Surfaces to receive epoxy coating shall be prepared in accordance with Steel Structure Painting Council Specifications SP-3. All surfaces to receive epoxy coating shall be preheated. Electrical continuity (copper strip conductors) shall be provided across all joints in accordance with the manufacturer's instructions. Copper strips shall be cadwelded on each side of the joint.

TESTING, DISINFECTING, AND FLUSHING OF WATER MAINS:

- A. Prior to the pressure and leakage tests, the piping shall be thoroughly flushed clean of all dirt, dust, oil, grease and other foreign material. This work shall be done with care to avoid damage to linings and coatings.
- B. Pressure And Leakage Tests
 1. Except as otherwise directed, all pipelines shall be given combined pressure and leakage tests in section of approved length. The Contractor shall furnish and install suitable temporary testing plugs or caps; all necessary pressure pumps, pipe connections, meters, gates, and other necessary equipment; and all labor required. The City or Engineer shall have the privilege of using their own gages.
 2. Subject to approval and provided that the tests are made within a reasonable time considering the progress of the project as a whole, and the need to put the section into service, the Contractor may make the tests when he desires.
 3. Unless it has already been done, the section of pipe to be tested shall be filled with water of approved quality, and all air shall be expelled from the pipe. The Contractor shall follow established procedures for filling the pipe and expelling trapped air to avoid exposing the piping system to water-hammer. If blowoffs are not available at high points for releasing air, the Contractor shall excavate as required and install the necessary taps. After completion of the test, if so directed by the Engineer, he shall remove corporations used for testing, plug the holes and backfill as necessary.
 4. The section under test shall be maintained full of water for a period of 24 hours prior to the combined pressure and leakage test being applied.
 5. The pressure and leakage test shall consist of first raising the water pressure (based on the elevation of the lowest point of the section under test corrected to the gage location) to a

- pressure in pounds per square inch numerically equal to the pressure rating of the pipe not to exceed 200 psi. If the Contractor cannot achieve the specified pressure and maintain it for a period of two hour, the section shall be considered as having failed to pass the pressure test.
6. Following or during the pressure test, the Contractor shall make a leakage test by metering the flow of water into the pipe while maintaining in the section being tested a pressure equal to the pressure rating of the pipe. If the average leakage during a two-hour period exceeds a rate of 11.6 gallons per inch of diameter per 24 hours per mile of pipeline, the section shall be considered as having failed the leakage test. For example, if 1,000 feet of 12-inch pipe is to be tested, the allowable leakage is 2.2 gallons over a 2-hour period, calculated as follows:

$$L = (11.6 \text{ gal}) \times (12") \times (2 \text{ hr.}) \times (1000') = 2.2 \text{ gal} \\ (1") \times (24 \text{ hr.}) \times (5280')$$

7. If the section fails to pass the pressure and leakage test, the Contractor shall do everything necessary to locate, uncover, and repair or replace the defective pipe, fitting, or joint, all at his own expense and without extension of time for completion of the work. Additional tests and repairs shall be made until the section passes the specified test.
8. If, in the judgment of the Engineer, it is impracticable to follow the foregoing procedure exactly for any reason, modifications in the procedure shall be made as required and approved, but in any event the Contractor shall be responsible for the ultimate tightness of the line within the above leakage and pressure requirements.
9. All testing required per the Contract Documents shall be witnessed by the Engineer. Any testing or testing results not witnessed by the Engineer shall not be considered as having met any of the Contract Document requirements for testing.

C. Disinfection and Flushing:

1. The Contractor shall disinfect the lines carrying potable water.
2. The Contractor shall furnish all equipment and materials necessary to do the work of disinfecting, and shall perform the work in accordance with the procedure outlined in AWWA C651 and all amendments thereto.
3. In general, the procedure of disinfecting the main shall be to apply the chlorine through a tap in one end of the section and bleed it off through a tap at the other end.
4. The applied dosage shall be such as to produce a chlorine concentration of not less than 10 mg/l after a contact time of not less than 24 hours.
5. During the disinfection period, care shall be exercised to prevent contamination of water in existing mains.
6. Any temporary connection to the mains or other facilities required to accomplish the disinfection of the mains shall be at the Contractor's expense.
7. After treatment, the main shall be flushed with clean water until the residual chlorine concentration is less than 0.2 mg/l.

8. Before disposing of the water used in disinfecting and flushing water mains the Contractor shall thoroughly neutralize it through the application of a reducing agent, as referenced in AWWA C65 1.
9. Bacteriological sampling and testing shall be done in accordance with AWWA C651 for each main and each branch. Sampling shall be accomplished with sterile bottles treated with sodium thiosulfate, as required by Standard Methods. No hose or fire hydrants shall be used in collection of samples. A corporation stop installed on the main, with a removable copper tube gooseneck assembly, is the recommended method.
10. Testing shall be done by a laboratory approved by the Engineer, in accordance with Standard Methods, and shall show the absence of coliform organisms. A standard plate count may be required at the option of the Engineer.

SEPARATION OF POTABLE WATER MAINS AND SEWER OR NON-POTABLE LINES:

A. Parallel Installation:

1. Water mains shall be laid at least 10 feet horizontally from any existing or proposed sewer or non-potable line. The distance shall be measured edge to edge. In cases where it is not practical to maintain a ten-foot separation, it is permissible to install a water main closer to a sewer, provide that the water main is laid in a separate trench or on an undisturbed earth shelf located on one side of the sewer at such an elevation that the bottom of the water main is at least 19 inches above the top of the sewer.

B. Crossings:

1. Water mains crossing sewers shall be laid to provide a minimum vertical distance of 18 inches between the outside of the water main and the outside of the sewer. The water main shall cross over the sewer. At crossings, one full length of water pipe shall be located so both joints will be as far from the sewer as possible.

- C. When it is impossible to obtain the horizontal and vertical separation specified, construct both the water main and the sewer or non-potable line with either push-on or mechanical joint cement lined ductile iron pipe.

METHOD OF MEASUREMENT AND PAYMENT

ITEM NO. 303-006
ITEM NO. 303-008
ITEM NO. 303-012
ITEM NO. 303-016
ITEM NO. 309-001
ITEM NO. 371-990

MEASUREMENT

Water pipe of various sizes will be measured per linear foot of continuous runs of such pipe actually laid, measuring along the centerline of the pipe.

DUCTILE IRON FITTINGS FOR WATER PIPE consisting of bends, tees, caps, wyes, sleeves, reducers, increasers and other special fittings, apply only when new materials are necessary and when these materials are not specifically provided for under other Bid Items. The fittings (excluding accessories comprising Rings, Gaskets, Bolts, Nuts, Washers and Clamps) will be measured by the pound based on

the weight stated on the invoice of the supplier or the manufacturer's rated weight in the catalog, whichever is the lesser.

CONNECTION TO EXISTING 20 INCH WATER MAIN will be measured as a lump sum.

PAYMENT

Payment will be at the unit price per linear foot of pipe furnished and installed. The unit price shall be full compensation for all labor, equipment, materials and supervision necessary to furnish, install, and test one linear foot of water pipe.

Include all costs necessary for; preparing site; traffic controls incidental to the work; locating utilities; excavating and trenching; temporary excavation support systems; removing and disposing of debris; handling, storing, transporting and disposing of all material, including excess material; stockpiling material; supporting all utilities; preparing subgrades; trench dewatering including pumping and sedimentation control; bedding and backfilling; warning tape, compacting, including furnishing and installing imported backfill materials; surface restoration; testing; and other appurtenant work.

Include all costs of pipe, fittings, couplings, restrained joints, thrust blocks, testing and disinfecting. Include all costs for removal of abandoned pipe within trench. Include all cost for connections to existing piping, including reducers, couplings and sleeves (except for connection to existing water main which is included in Item No. 371-990). Include all costs of coordinating with the Engineer and the Somerville DPW regarding arranging for water system shutdowns.

Payment for DUCTILE IRON FITTINGS FOR WATER PIPE will be at the Contract unit price per pound and will be considered full compensation for furnishing and installing the fittings.

Payment for CONNECTION TO EXISTING 20 INCH WATER MAIN will be at the Contract lump sum price and will be considered full compensation for all materials, labor and equipment necessary to connect to the existing 20-inch water main as indicated on the Drawings and as specified herein. It shall include cutting in the tee into the existing 20-inch cast iron main, including sleeve connections to join the new ductile iron tee to the existing cast iron pipe. It shall include all work associated with the temporary shutdown of the 20-inch line and the notifications as specified herein. The 20-inch butterfly gate will be paid for under Item 356-020.

Pay Item		Pay Unit
ITEM NO. 303-006	6 INCH DUCTILE IRON WATER PIPE	LINEAR FOOT
ITEM NO. 303-008	8 INCH DUCTILE IRON WATER PIPE	LINEAR FOOT
ITEM NO. 303-012	12 INCH DUCTILE IRON WATER PIPE	LINEAR FOOT
ITEM NO. 303-016	16 INCH DUCTILE IRON WATER PIPE	LINEAR FOOT
ITEM NO. 309-001	DUCTILE IRON FITTINGS FOR WATER PIPE	POUND
ITEM NO. 371-990	CONNECTION TO EXISTING 20 INCH WATER MAIN	LUMP SUM

ITEM NO. 347-001	1-INCH COPPER TUBING TYPE K	LINEAR FOOT
ITEM NO. 347-002	1-1/2-INCH COPPER TUBING TYPE K	LINEAR FOOT

DESCRIPTION

The work of these Items includes the provision of water service piping.

REFERENCES:

Comply with applicable requirements of the following standards. Where these standards conflict with other specified requirements, the most restrictive requirements shall govern. All work shall be in accordance with the requirements and specifications of the Somerville Department of Public Works.

Standard Specifications: The work to be performed under these Items shall conform to the relevant portions of the MHD Standard Specification Section 301.21, 301.22, 301.23, 301.24, 301.40, 301.60, and the following:

AWWA: American Water Works Association

SUBMITTALS

At least thirty (30) days prior to intended use, Contractor shall provide the following samples and submittals for approval. Do not order materials until Engineer's approval of samples, certifications and test results has been obtained. Delivered materials shall closely match the approved samples. Samples and approvals which are not obtained prior to the ordering of materials or the completion of work shall result in possible disapproval of obtained materials or completed work.

Shop Drawings and Manufacturer's Literature:

Prior to ordering the below listed materials, submit Shop Drawings to the Engineer for approval. Coordinated Shop Drawings shall show required sizes, dimensions, sections, profiles of units, the arrangement of and provision for anchoring, fastening, and supports, and other necessary details for delivery and lifting devices required for installation of work. Submit Shop Drawings and Manufacturer's literature for the following: as follows:

1. 1-Inch Copper Tubing Type K and fittings
2. 1-1/2-Inch Copper Tubing Type K and fittings
3. 1-Inch Corporation Cock and Curb Stop
4. 1-1/2-Inch Corporation Cock and Curb Stop

Do not order materials until samples and Shop Drawings and Manufacturer's Literature have been approved by the Engineer.

Provide certification that the water line has been tested and chlorinated as specified herein.

MATERIALS**Copper Tubing:**

Copper tubing shall conform to the requirements of ASTM B88 Type k, annealed. To minimize joints, coiled tubing shall be used. Joints in copper tubing shall be made with three part compression couplings, flared tube fittings (ASA spec. B-16), or an approved equal. All fittings shall be electrically conductive.

Corporation Stops:

Corporation stops shall be cast bronze ball valves, conforming to the latest ASTM specification for Steam or Valve Bronze Castings, Serial Designation B62.

Curb Stops:

Curb Stops shall be:

1. Cast iron bronze, conforming to the specification above for corporation stops.
2. Equal in size to the new copper pipe, which the stop is connected to.
3. Full, round, smoothed, reamed waterway and shall operate freely as adjusted for testing.
4. Ball valve conforming to AWWA 800 with a one-piece tee head and shall open to the right.
5. Rated at 250 psi or greater.

Roadway Service Boxes:

Roadway service boxes shall have a minimum inside diameter of four and one-quarter (4 1/4") inches, shall be coated with asphaltum.

CONSTRUCTION METHODS

Excavation and Backfill:

Comply with the requirements of the General Earthwork Requirements included in the Specifications.

Pipe laying:

Shape trench bottoms to give uniform circumferential support to the full length of pipe.

Water pipe shall be laid with a minimum cover of five and one-half (5 1/2") feet.

When laying is not in progress, including lunchtime; the open ends of the pipe shall be closed by watertight plug. The Contractor shall keep the trench free from water while the pipe is being installed.

Corporation Stops:

Corporation stops shall be threaded into a tap in the main at the horizontal diameter of the main.

The tap shall be made in the main by means of a tapping machine manufactured for this purpose and supplied by the Contractor. The tap and drill shall be kept sharp and shall have standard threads.

Screw firmly into the water main with the key upward and the inlet end projecting at least 1/8 inch beyond the inside face of the main. Leave in the on (open) position. Fit with a roadway service box.

Curb Stops:

Install on one inch service lines. Set in a bed of crushed stone.

Blocking shall be placed under valve to insure against settlement.

Install curb stop at tap to main and between the fixtures and the meter.

Testing and Cleaning:

All service connections shall be tested for strength and tightness before being backfilled; they shall be tested for at least two (2) hours under the normal pressure in the water mains to which they are connected, and any signs of leakage or evidence of failure shall be promptly repaired by the Contractor at no additional cost to the City.

The Contractor shall furnish all apparatus, material, and labor for making the tests. The water required for testing will be furnished by the City of Somerville. The Contractor is responsible for all fees and charges for use of City water.

The Contractor shall remove any sediment deposit which may accumulate and impede the full flow of water when restoring the water service from the corporation stop to and through the water meter.

Disinfection:

After testing all water piping shall be disinfected in accordance with AWWA C601.

METHOD OF MEASUREMENT AND PAYMENT

ITEM NO. 347-001

ITEM NO. 347-002

METHOD OF MEASUREMENT

Furnishing and installing of COPPER TUBING will be measured per linear foot of actual pipe installed, complete in place.

BASIS OF PAYMENT:

Furnishing and installing of COPPER TUBING will be paid for at the contract unit price per linear foot of actual pipe installed. Payment shall include full compensation for trench excavation to the depths as specified herein, furnishing all materials, transporting, protecting and installing (including joining) all pipe and fittings, placing and compacting bedding and backfill material (specified under General Earthwork Requirements), tapping the City water main, corporation stop/curb stop with roadway box, testing, disinfection, and all else in connection with the laying of the Copper Tubing for which there is no separate pay Item. All piping shall be left in a clean manner with no sediment accumulation.

Pay Item

Pay Unit

ITEM NO. 347-001

1-INCH COPPER TUBING TYPE K

LINEAR FOOT

ITEM NO. 347-002

1-1/2-INCH COPPER TUBING TYPE K

LINEAR FOOT

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ITEM NO. 350-006	6 INCH GATE AND GATE BOX	EACH
ITEM NO. 350-008	8 INCH GATE AND GATE BOX	EACH
ITEM NO. 350-012	12 INCH GATE AND GATE BOX	EACH
ITEM NO. 356-016	16 INCH BUTTERFLY VALVE AND BOX	EACH
ITEM NO. 356-020	20 INCH BUTTERFLY VALVE AND BOX	EACH

GENERAL

Furnish and install gate valves with gate boxes and stems as indicated on the Drawings and specified herein.

SUBMITTALS:

Submit catalog cuts and product data for valves.

MATERIALS**GATE VALVES:**

1. Gate valves shall conform to AWWA C500.
2. Gate valves in sizes up to and including 12 inch shall be iron-body, New York Metropolitan pattern, bronze mounted, nonrising stem, double-disk type with parallel gates and rated for 200 psi working water pressure. Gate valves shall be manufactured by:
 - a. M & H Valve Co., by Dresser Industries, Inc.
 - b. Kennedy Valve, Division of McWane Inc.
 - c. A.P. Smith by U.S. Pipe Corp.
 - d. Or equal.
3. Valves shall have mechanical joints complete with accessories, including lead-tipped or copper-armored gaskets for electrical conductivity. Operating nuts shall be 2 inch square and shall be turned to the left (counter-clockwise) to open.
4. Valves shall be furnished with "O" ring seals utilizing two "O" rings. The design shall be such that the seal plate can be fitted with "O" rings when the valve is under pressure in the full open position.
5. Disks shall be bronze faced, and body seat rings shall be bronze.
6. The interior of the valve shall be coated with a minimum dry film thickness of 8 mils of a two-component, polymerized powder epoxy. Surfaces shall be prepared in accordance with SSPC SP 10.

VALVE BOXES:

Valve boxes shall be of the adjustable, telescoping, heavy duty pattern type with the lower part of cast iron and the upper part of steel or cast iron. They shall be designed to prevent the direct transmission of traffic loads to the pipe or valve. The upper portion shall be provided with a flange having a bearing area to prevent settlement. The lower section shall be designed to enclose the operator and stuffing box of the valve and rest on the bonnet. The inside diameter of boxes for valves shall be at least 4 1/2 inches and

provisions shall be made for adjustment through at least 6 inch vertically without reduction of lap between sections to less than 4 inches.

EXECUTION

INSTALLATION OF VALVES:

All material shall be inspected for defects, all foreign matter cleaned out of valve openings and seats, all mechanisms shall be operated to check their proper functioning. Nuts and bolts shall be complete and tight. Concrete pad shall be placed under each valve. Concrete pads shall be either precast concrete blocks or cast-in-place concrete of minimum 3000 psi strength.

METHOD OF MEASUREMENT AND PAYMENT

ITEM NO. 350-006
ITEM NO. 350-008
ITEM NO. 350-012
ITEM NO. 356-016
ITEM NO. 356-020

MEASUREMENT

Gate or butterfly valves and boxes of various sizes will be measured per each unit installed in place.

PAYMENT

Payment will be at the unit price per each. The unit price shall be full compensation for all labor, equipment, materials and supervision necessary to furnish, install, and test one valve and box.

Include all costs necessary for preparing site; traffic controls incidental to the work; locating utilities; excavating and trenching; temporary excavation support systems; removing and disposing of debris; handling, storing, transporting and disposing of all material, including excess material; stockpiling material; supporting all utilities as required including services; maintaining flows; preparing subgrades; bedding and backfilling; compacting, including furnishing and installing imported backfill materials; surface restoration; and other appurtenant work.

Pay Item		Pay Unit
ITEM NO. 350-006	6 INCH GATE AND GATE BOX	EACH
ITEM NO. 350-008	8 INCH GATE AND GATE BOX	EACH
ITEM NO. 350-012	12 INCH GATE AND GATE BOX	EACH
ITEM NO. 350-016	16 INCH BUTTERFLY VALVE AND BOX	EACH
ITEM NO. 350-020	20 INCH BUTTERFLY VALVE AND BOX	EACH

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ITEM NO. 358-002 GATE BOX AND SERVICE BOX ADJUSTED EACH

DESCRIPTION:

The work of Item 358-002 shall include locating and adjusting existing shut off valves, curb stops, gate boxes and service boxes within the project limits to proposed finish grade. The Contractor is alerted that the Plans do not indicate all these facilities and that the Contractor is responsible for the proper adjustment and working order of such facilities within the project limits.

Standard Specifications: "Standard Specifications for Highway and Bridges", Massachusetts Department of Transportation (MassDOT), Highway Division (MHD), latest edition and all supplements The work to be performed under these Items shall conform to the relevant portions of the MHD Standard Specification Section 301.21, 301.22, 301.23, 301.24, 301.40, 301.60, and the following:

MATERIALS

Not Used

EXECUTION

Gate Boxes Adjusted to Grade:

The boxes shall be set in a true vertical position and if they are in the limits of the roadway or within limits where the plowing of snow will take place in the winter, the tops of the boxes shall be set 1/2 inch below the top of the surrounding finished grade. In locations where these boxes are not likely to be disturbed, the tops shall be set flush with the adjoining finished grade. Boxes shall be adequately supported during backfilling to maintain vertical alignment.

Gate and service boxes that are located in roadway pavement areas shall have concrete collars installed around them below the surface paving courses.

METHOD OF MEASUREMENT AND PAYMENT

ITEM NO. 358-002

METHOD OF MEASUREMENT

GATE BOX AND SERVICE BOX ADJUSTED will be measured per each, complete in place.

BASIS OF PAYMENT:

GATE BOX AND SERVICE BOX ADJUSTED will be paid for at the respective contract unit price per each, which price includes all labor, equipment, and materials necessary to complete the work.

Pay Item	Pay Unit
ITEM NO. 358-002 GATE BOX AND SERVICE BOX ADJUSTED	EACH

(Remainder of page is intentionally blank)

ITEM NO. 376-001	HYDRANT	EACH
ITEM NO. 376-003	HYDRANT - REMOVED AND STACKED	EACH

GENERAL

Furnish and install hydrants as indicated on the Drawings and specified herein.
Remove existing hydrant and deliver to Somerville DPW yard at Franey Road.

SUBMITTALS:

Submit catalog cuts and product data for hydrants.

Submit details of the proposed method of restraining hydrants.

Submit product data on filter cloth for crushed stone at hydrant drains.

MATERIALS

Hydrants shall be one of the following models:

1. American AVK 2780
2. Muller Centurion A-423
3. M&H 129
4. Clow Medallion
5. Approved equal

EXECUTION**Removal of Existing Hydrants:**

Remove existing hydrants where indicated on the Drawings and deliver to Somerville DPW yard at Franey Road

Installation of New Hydrants and Resetting of Existing Hydrants:

1. Hydrants shall be set plumb with the steamer nozzle facing the roadway.
2. Hydrants shall be set with the center of the operating nut 18 inches back from the face of the curb.
3. Hydrants shall be set so that the manufacturer's "bury" mark or ground line is at finish grade. If there is no bury mark on the hydrant, the bottom of the breakaway feature shall be a minimum of 2 inches and a maximum of 4 inches above finish grade.
4. The depth of bury shall be either 5 1/2 or 6 feet.
5. Hydrants shall be set on a 3000 psi concrete base at least 14 inches square and 4 inches thick.
6. Hydrants shall be restrained by using rods and clamps, mechanical joint retainer glands, thrust blocks, or any combination thereof as required by the Engineer.

7. A drainage pit shall be excavated below and around each hydrant and backfilled to a height of at least 6 inches above all drain ports with at least 12 cubic feet of 1 inch to 2 inch crushed stone. The crushed stone shall be covered with 4 mil thick plastic sheeting.
8. Hydrants shall be field painted red.

METHOD OF MEASUREMENT AND PAYMENT

ITEM NO. 376-001

ITEM NO. 376-003

MEASUREMENT

HYDRANT and HYDRANT - REMOVED AND STACKED will be measured per each

PAYMENT

HYDRANT:

Payment will be at the unit price per each. The unit price shall be full compensation for all labor, equipment, materials and supervision necessary to furnish, install, and test one hydrant.

HYDRANT - REMOVED AND STACKED

Payment will be at the unit price per each. The unit price shall be full compensation for all labor, equipment, materials and supervision necessary to remove, deliver to the Somerville DPW yard and stack one hydrant.

BOTH ITEMS:

Include all costs necessary for preparing site; traffic controls incidental to the work; locating utilities; excavating and trenching; temporary excavation support systems; removing and disposing of debris; handling, storing, transporting and disposing of all material, including excess material; stockpiling material; supporting all utilities as required including services; maintaining flows; preparing subgrades; bedding and backfilling; compacting, including furnishing and installing imported backfill materials; surface restoration; and other appurtenant work.

Pay Item

Pay Unit

ITEM NO. 376-001

HYDRANT

EACH

ITEM NO. 376-003

HYDRANT - REMOVED AND STACKED

EACH

(Remainder of page is intentionally blank)

ITEM NO. 460-001	HOT MIX ASPHALT PAVEMENT (ALL COURSES)	TON
ITEM NO. 460-002	HOT MIX ASPHALT FOR PATCHING	TON
ITEM NO. 464-001	BITUMEN FOR TACK COAT	GALLON

DESCRIPTION:

The work under these Items shall consist of furnishing and placing plant mixed HOT MIX ASPHALT for new construction and resurfacing of bituminous roadway pavements, as indicated on the Plans or as directed by the Engineer.

MATERIALS:

All HOT MIX ASPHALT shall be in accordance with the latest version of the Massachusetts Department of Transportation (MassDOT), Highway Division (MHD), Specifications for Highways and Bridges for Class I-1, HOT MIX ASPHALT Pavements and Foundation Bases Sections 420, 460, 700 and M-3 where applicable, latest versions.

METHOD OF CONSTRUCTION

Where existing roadway pavement is to be resurfaced, the HOT MIX ASPHALT shall be placed in one course to the grade and contour approved by the Engineer and having a thickness of 3.5 to 4.5 times the nominal maximum size stone in the mix being placed.

Deliver, place and compact HOT MIX ASPHALT pavement according to the applicable provisions of Section 460 of the MHD Standard Specifications, including the aforementioned supplements.

Provide tack coat when overlaying existing hardened surfaces, as specified in Subsection 460.62 of the MHD Standard Specifications.

METHOD OF MEASUREMENT AND PAYMENT**ITEM NO. 460-001****ITEM NO. 460-002****ITEM NO. 464-001****METHOD OF MEASUREMENT:**

The quantity of HOT MIX ASPHALT to be paid for shall be the actual and verified number of tons of HOT MIX ASPHALT accepted in conformance with this specification, complete in place and approved.

The weight slips shall be countersigned on delivery by the Engineer, and any weight slip, not so countersigned, shall be excluded from any payment under the Contract.

Tack coat will be separately measured per gallon for the actual quantity used.

The quantity of temporary HOT MIX ASPHALT pavement will be measured by the actual and verified number of tons of HOT MIX ASPHALT, complete in place and accepted. Separate measurement or payment will not be made for the removal and disposal of temporary HOT MIX ASPHALT pavement and the installation and removal of bond breaker material.

BASIS OF PAYMENT:

The quantity of all the types of HOT MIX ASPHALT (except for patching) will be paid for at the same Contract unit price per ton complete in place for Item No. 460-001.

HOT MIX ASPHALT pavement for patching will be paid for at the Contract unit price per ton complete in place for Item No. 460-002.

Bitumen for tack coat, where directed, will be paid for at the contract unit price per gallon, complete in place.

HOT MIX ASPHALT Pavement not in compliance with the specified requirements will be removed or payment for such non-compliant HOT MIX ASPHALT pavement will be adjusted in accordance with the Engineer.

Payment shall also include the preparation and submittal of the plans and cross sections indicating the Contractor's means and methods for employing a combination of full-depth reconstruction and variable depth overlay to achieve the finish grades indicated on the Plans.

Pay Item		Pay Unit
ITEM NO. 460-001	HOT MIX ASPHALT PAVEMENT (ALL COURSES)	TON
ITEM NO. 460-002	HOT MIX ASPHALT FOR PATCHING	TON
ITEM NO. 464-001	BITUMEN FOR TACK COAT	GALLON

(Remainder of page is intentionally blank)

ITEM NO. 460-003	LIQUID ASPHALT PRICE ADJUSTMENT	ALLOWANCE
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DESCRIPTION:

To account for fluctuations (both up and down) in the price of liquid asphalt, this Item shall use the established bi-monthly averages prices calculated and published by MassDOT, Highway Division.

The base price shall be the last, calculated bi-monthly average price known before the due-date to submit bids. This price shall become the base price for Liquid Asphalt for this Contract.

On the internet, these average bi-monthly prices can be viewed at www.mhd.state.ma.us under the heading, “Permits, Forms & Publications”, click on “More”, then ...under the heading, “Construction Publications”, click on “Period Prices for Liquid Asphalt, Diesel Fuel & Gasoline”.

BASIS OF PAYMENT

The Engineer shall use these published, MHD, bi-monthly price averages, along with the actual mix tonnage installed in that two-month period to calculate the amount paid.

If the MHD period price for a given two-month period is more than the Contract’s base price for liquid asphalt, the Engineer shall initiate an Alteration to pay for hot-mix asphalt using a corresponding, higher-than-bid unit price that can be justified by the MHD period price for that period.

If the MHD period price for a given two-month period is less than the Contract’s base price for liquid asphalt, the Engineer shall initiate an Alteration to pay for hot-mix asphalt using a lower-than-bid unit price that can be justified by the MHD period price for that period.

Pay Item**Pay Unit****ITEM NO. 460-003****LIQUID ASPHALT PRICE
ADJUSTMENT****ALLOWANCE**

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ITEM NO. 504-001	GRANITE CURB – TYPE VA-4	LINEAR FEET
ITEM NO. 516-001	GRANITE CURB CORNER	EACH

GENERAL

Furnish and install granite curbing, including transition curb at wheelchair ramps, and granite curb corners where indicated on the Drawings.

Note that the intent of the Plans is to use new granite curb wherever granite curb is indicated. Existing curbing removed from these locations shall be removed and discarded under Item No. 594-001.

MATERIAL

All granite curb and edging shall be of structural granite and be hard and durable. It shall be light gray in color, free from seams and other structural imperfections or flaws which would impair its structural integrity and of a smooth splitting appearance. Natural variations characteristic of the deposit will be permitted for all curbing.

All granite curb to be used in this Contract shall be quarried from the same parent material source and shipped to the Contractor at the same time, regardless of construction phasing.

Test samples of curbing shall conform to requirements of ASTM C615.

Whenever curbing is sawed, all surfaces that are to be exposed shall be thoroughly cleaned and any iron rust or iron particles removed by sand blasting. Any saw mark in excess of 1/8 inch shall be removed.

Provide vertical granite curbs conforming to MHD (MassDOT Highway Division) Specifications Sections M9.04.0, M9.04.1 and M9.04.6 for granite curb type VA4 including curved curbing requirements.

Provide granite curb corners conforming to MHD Specifications Sections M9.04.6.

SAMPLE AND SHOP DRAWINGS

Submit the following:

1. Name and address of quarry.
2. Sample: 4 straight sections, 2 curved sections, each 6-foot length, for approval at the site.
3. Sample: 1 granite curb corner, for approval at the site.

EXECUTION**INSTALLATION:****Trench:**

1. Excavate trench a width of 18 inches. The subgrade of the trench shall be 6 inches below the curb.

2. Spread and compact curb bedding at least 6 inches deep and at least 18 inches wide, in accordance with the details indicated on the Drawings. Tamp or ram the gravel bedding until it is unyielding.
3. Install concrete cradle as indicated on the Plans.
4. Where curbing crosses over a catch basin, provide a foundation of a full bed of Portland cement mortar on the supporting back wall of the catch basin and gravel on either side to support the overhang.

Setting Curb:

1. Set curbing vertically true. Set to the line and grade indicated on the Drawings.
2. All spaces under each piece of curbing shall be filled with gravel and thoroughly tamped so the whole length is completely supported on gravel.
3. Set pieces of curbing as close together as possible.
4. If pieces of curbing come from different quarries or have different color or appearance, segregate each so as to give the finished curbing a uniform appearance.
5. Set curb in concrete cradle with continuous concrete in trench along the front side of the curbing as indicated on the Drawings.
6. Place concrete cradle under and concrete backing on the back side of each piece of granite curb.
7. Backfill and tamp with gravel borrow on the back side of the curbing in the spaces between the concrete backing.
8. Ensure that the entire trench is backfilled with gravel and thoroughly tamped after the curbing is set. Do not disturb the line, grade or trueness of the curbing during the backfilling and tamping of the trench.

Pointing:

1. The joints between the pieces of curbing (both front and back) shall be carefully filled with cement mortar and neatly pointed on the top and front exposed portions.
2. After pointing, clean all excess mortar on the face and top.

Transition Curb for Wheelchair Ramps:

1. Provide transition sections of granite curb to form the sloped sides of wheelchair ramps as indicated in the details on the Drawings.
2. The granite curb for transition sections shall be the same type of curb and same color as the adjacent granite curb.
3. Where the transition sections are along a curve in the curbline, provide transition pieces cut to the radius of the curve.

4. Where transitions pieces abut the vertical granite curbing, the transition piece shall be cut so it fits tightly against the vertical curb with no voids in the top or exposed front greater than 2 inches.

Curb corners:

1. Granite curb corners shall match the adjacent curb in size, color and finish. The front arris line shall extend 1/4 of a circle having a radius of 3 feet. The back arris line shall be straight.
2. The curb corners shall be set to match the line and grade of the adjacent curb.

Catch Basins:

1. Granite curb inlets will **NOT** be used at catch basins in this Project.
2. Transition reveal at curb inlets as indicated in the detail on the Plans.

METHOD OF MEASUREMENT AND PAYMENT

ITEM NO. 504-001
ITEM NO. 516-001

METHOD OF MEASUREMENT

The length of curb shall be measured along the front arris line of the curb. No distinction will be made for straight or curved curb, nor will any distinction be made for transition curbing at wheel chair ramps.

Each curb corner set complete in place will be measured as a single unit.

BASIS OF PAYMENT

Curb will be paid for at the unit price per linear foot.

Curb corners will be paid for per each unit.

No separate payment will be made for excavation, pavement sawcutting, or gravel borrow foundation for curbing, as these Items of work will be considered incidental to the furnishing and installation of curbing.

Pay Item

Pay Unit

ITEM NO. 504-001 GRANITE CURB – TYPE VA-4
ITEM NO. 516-001 GRANITE CURB CORNER

LINEAR FEET
EACH

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ITEM NO. 580-001	GRANITE CURB – REMOVE & RESET	LINEAR FEET
ITEM NO. 594-001	CURB – REMOVE & DISCARD	LINEAR FEET

GENERAL

The work consists of removing existing curb of any cross section and any material and resetting or discarding them in accordance with these specifications and as directed by the Engineer.

Reset curbing shall not be used as transition curbing at wheelchair ramps.

EXECUTION**REMOVAL**

Saw cut the existing HOT MIX ASPHALT pavement between 12 and 18 inches from face of curbing for the length of curb to be removed. Cut in a straight line. Remove HOT MIX ASPHALT pavement within saw cut.

Where there is concrete sidewalk behind the curb, saw cut the sidewalk on existing score lines and remove sidewalk.

Carefully remove existing granite curbing. Protect so that it may be reused in the Work. If existing curbing is damaged by the actions of the Contractor, the Contractor shall replace with new granite curbing at no additional cost to the City.

INSPECTION OF REMOVED GRANITE CURBING

The Engineer will inspect all existing granite curbing removed to determine if each piece is suitable for reuse.

REUSE IN PLACE

Where suitable existing granite curbing are removed and can be reset in place (adjusted to the proposed line and grade as shown on the Drawings), the resetting of the curb shall immediately follow its removal.

REUSE IN NEW LOCATION

Where suitable existing granite curbing are removed but cannot be used in place or immediately adjacent, the curbing shall be incorporated in a location where the Plans call for proposed granite curbing.

The Contractor shall stack and protect the removed curbing at a location acceptable to the Engineer until such time as they can be reset in the new location. Care shall be taken to prevent discoloration of the curbing. If existing curbing is damaged or lost by the actions of the Contractor (including the Contractor's failure to adequately protect the stacked curbing), the Contractor shall replace with new granite curbing at no additional cost to the City.

ADJUSTMENT

The lengths of any section of curb shall be altered by cutting in order to fit closures as necessary. The ends of all stones shall be square with the planes of the top and face so that when the stones are placed end-to-end as closely as possible, no space shall show in the joint at the top and face of more than 3/4 inch for the full width of the top and for 8 inches down the exposed face of the curb.

RESETTING OF GRANITE CURB AND GRANITE CURB CORNERS

Reset in accordance to the installation procedures as specified under Item No. 504-001.

DISCARDING OF CURB

The following types of curb and curb corners shall be discarded:

1. All concrete curb removed.
2. Granite curb (and not damaged by the Contractor) that are determined by the Engineer to be unsuitable for reuse.

The Contractor shall take possession of all curbing to be disposed of and shall dispose of them off-site in accordance with all applicable local, state and federal regulations.

METHOD OF MEASUREMENT AND PAYMENT

ITEM NO. 580-001

ITEM NO. 594-001

MEASUREMENT

Granite Curbing Removed and Reset

The length of curb removed and reset shall be measured along the front arris line of the curb. No distinction will be made for straight or curved curb.

Curbing Removed and Discarded

The length of curb removed and discarded shall be measured along the front arris line of the curb. No distinction will be made for straight or curved curb, nor will any distinction be made for transition curbing at wheel chair ramps.

PAYMENT

Curb removed and reset will be paid for at the unit price per linear foot.

Curb removed and discarded will be paid for at the unit price per linear foot.

No separate payment will be made for excavation, pavement sawcutting, or gravel borrow foundation for curbing, as these items of work will be considered incidental to the removing and resetting of curbing.

Pay Item

Pay Unit

ITEM NO. 580-001 GRANITE CURB – REMOVE & RESET

LINEAR FEET

ITEM NO. 594-001 CURB – REMOVE & DISCARD

LINEAR FEET

ITEM NO. 635-100**HIGHWAY GUARD REMOVED AND
DISCARDED****LINEAR FOOT****DESCRIPTION**

Remove steel guard rails as the locations indicated on the Drawings.

The work shall conform to the applicable provisions of Section 601 of the Standard Specification, as modified herein.

EXECUTION

Complete remove steel guard rail including rail, posts, and hardware. Remove posts completely or to a depth of at least 3 feet below the finish grade.

All material shall become the property of the Contractor and shall be disposed of legally at an off-site location.

METHOD OF MEASUREMENT AND PAYMENT**ITEM NO. 635-100****METHOD OF MEASUREMENT**

Guard Rail removed will be measured by the actual linear feet of guard rail to be removed to the limits indicated on the Drawings, measured along the roadway face of the guard rail.

BASIS OF PAYMENT

Payment will be at the contract unit price per linear foot.

The unit price for removal shall be full compensation for all labor, equipment, materials and supervision necessary to remove and dispose of one linear foot of Guard Rail.

Item No.	Pay Item	Pay Unit
ITEM NO. 635-100	HIGHWAY GUARD REMOVED AND DISCARDED	LINEAR FOOT

(Remainder of page is intentionally blank)

ITEM NO. 697-001**SEDIMENTATION FENCE****LINEAR FEET****DESCRIPTION**

This Item specifies sedimentation fence for erosion and sedimentation control for use when directed by the Engineer.

MATERIAL

Manufactured product including siltation control geotextile and support posts. Geotextile shall be a polypropylene, ultraviolet resistant material.

Support posts shall be softwood measuring 2 inches by 4 inches or oak measuring 1-1/2 inches by 1-1/2 inches.

Posts shall be a minimum of 4 feet long and pointed at one end. Filter fabric shall extend 6 inches below undisturbed ground to prevent undermining.

CONSTRUCTION METHODS

Prior to the start of construction, deliver 500 LF of siltation fence to site for use as directed.

Installation:

A trench shall be excavated approximately 6 inches wide and 6 inches deep along the upslope line of the fence. The filter fabric shall be extended into the trench and the trench backfilled with the excavated soils and thoroughly compacted.

The exact location of erosion and sediment controls shall be as approved by the Engineer in the field.

Inspection, Maintenance & Sediment Removal:

The Contractor shall inspect all erosion and sediment controls daily. The Contractor shall also inspect all erosion and sediment controls before an anticipated storm greater than 0.5 inches, and following a significant storm event (0.5 inches or greater total rainfall).

All erosion control devices shall be maintained so that they function as specified herein until final grading and stabilization is completed.

Any silt fence that becomes damaged during construction operations shall be repaired or replaced immediately at no additional cost to the City.

Silt fences shall have sediment removed before depth of sediment is half height of fence.

Dispose of sediment deposits off-site, in accordance with all Federal, State, and local regulations.

Removal:

The silt fence shall remain in place until the graded areas have become permanently stabilized. Stabilization means that disturbed soil surfaces have a dense stand of vegetation or are covered by properly installed erosion control blanket, rip rap, pavement or other erosion-resistant surface.

METHOD OF MEASUREMENT AND PAYMENT

ITEM NO. 697-001

METHOD OF MEASUREMENT

Siltation Fence will be measured by the actual length in linear feet of siltation fence with hay bales installed complete in place, as indicated on the Drawings or as directed by the Engineer.

BASIS OF PAYMENT

Payment will be at the unit price per linear foot. The unit price shall be full compensation for all labor, equipment, materials and supervision necessary to install one linear foot of siltation fence.

Pay Item

Pay Unit

ITEM NO. 697-001 SEDIMENTATION FENCE

LINEAR FOOT

(Remainder of page is intentionally blank)

**ITEM NO. 701-001 CEMENT CONCRETE SIDEWALKS & DRIVEWAYS
(ALL THICKNESSES)****SQUARE YARDS****GENERAL**

The work includes the construction of concrete sidewalk and driveways of all thicknesses including wire mesh reinforcement.

ACCESSIBILITY CODES:

521 CMR Rules and Regulations of the AAB and ADA shall be adhered to on this Project.

SUBMITTALS

The Contractor shall submit a method to stamp the wave pattern in the concrete sidewalk, as indicated on the Plans.

MATERIAL

Cement Concrete Sidewalks shall be Air-Entrained 4000 psi, 3/4-inch aggregate, and conform to City standard concrete specification.

Welded wire concrete reinforcement fabric shall comply with ASTM A185 as revised. The gauge of wire and the dimensions of the mesh shall be 6x6 No. 10 gauge. Only sheet metal shall be used. Mesh from rolls shall not be used.

EXECUTION**GENERAL:**

1. All sidewalks shall be cement concrete, unless otherwise noted on the Plans.
2. All wheelchair ramps shall be cement concrete.
3. The Contractor shall construct sidewalks and wheelchair ramps in accordance with all applicable accessibility standards, including
 - a. Massachusetts Department of Transportation Highway Division Standard Specifications.
 - b. Massachusetts Department of Transportation Highway Division Wheelchair Ramp Standards.
 - c. American with Disabilities Act Accessibility Guidelines.
 - d. Regulations of Massachusetts Architectural Access Board (MAAB).

See Appendix to Item 701-020 for MHD standards and applicable MAAB regulations.

SUBGRADE AND GRAVEL BORROW BASE:

Existing walk surfaces shall be broken up, removed, and disposed of off the site by the Contractor. All depressions shall be filled with gravel borrow and compacted.

Shape the subgrade parallel to finish grade of the sidewalk and compact as specified under Item 170-001.

All depressions shall be filled with gravel borrow and compacted.

Install Gravel Borrow base to the depth indicated on the Drawings and compact as specified under Item 151-001. The top of the gravel borrow base shall be parallel to the finish grade of the sidewalk.

Where excessively large roots interfere with sidewalk construction, the cement concrete shall be “boxed” around the tree trunk for a distance of at least 18 inches from the edge of the trunk. Roots protruding beyond 18 inches may be cut as directed by the Engineer.

Only sheet mesh shall be used. Mesh shall rest on concrete bricks and be installed at mid-depth in the concrete. Rolled mesh shall not be permitted.

FORMS:

1. Side forms and transverse forms shall be smooth, free from warp, and resistant to springing out of shape. Forms shall be of the same thickness as the proposed walk.
2. Mortar and dirt shall be completely removed from forms that have been previously used. The forms shall be well staked and thoroughly grades and set to the established line and grade of the walk. The upper edge of the forms shall conform to the finished grade of the sidewalk.
3. The forms shall be set to provide a cross slope for drainage not to exceed 1.6%.
4. Oil forms before placing concrete.

PLACING AND FINISHING CONCRETE (BROOM FINISH):

1. Concrete shall be placed in alternate slabs 30 feet long.
2. Place concrete to the depth indicated on the Drawings.
3. Preformed expansion joint fillers shall be 1/2-inch in thickness. Preformed expansion joint fillers shall be placed adjacent to or around existing structures, where directed.
4. No finishing shall occur while water is present.
5. Finishing operations shall be delayed until all bleed water and water sheen has left the surface and the concrete has started to stiffen.
6. After water sheen has disappeared, edging operations shall be completed.
7. After edging and jointing operations, the surface shall be floated. Immediately following floating, the surface shall be steel-troweled. Tooled joints shall be rerun before and after troweling to maintain uniformity. After troweling, the surface shall be brushed by drawing as soft-bristled push broom with a long handle over the surface to produce a non-slip surface.
8. Ensure that the concrete is of uniform composition throughout, particularly in handling the concrete between the mixer and placement.
9. The surface of the concrete shall be uniformly scored into rectangular blocks of not more than 4 square yards.

- a. The depth of scoring shall be 1/4 of the thickness of the sidewalk.
 - b. Follow the scoring pattern as indicated on the Drawings.
 - c. Where new sidewalk meets existing, the scoring pattern shall match the existing pattern.
 - d. Consult the Engineer for special scoring pattern for sidewalk where the width of the sidewalk exceeds 6 feet.
9. The application of neat cement to surfaces in order to hasten hardening is prohibited. The finishing of concrete surfaces shall be done by experienced and competent cement finishers approved by the Engineer. When complete, the sidewalks and driveways shall be kept moist and protected from traffic and weather for at least 3 days. Curing compound approved by the Engineer or other methods approved by the Engineer may be used.

WHEELCHAIR RAMPS AND DETECTABLE WARNING SURFACE:
See Item 701-020.

METHOD OF MEASUREMENT AND PAYMENT

ITEM NO. 701-001

METHOD OF MEASUREMENT

Concrete sidewalks and driveways, regardless of depth, with one course mesh welded wire fabric will be measured per square yard installed in place. No distinction will be made for sidewalks or driveways.

BASIS OF PAYMENT

Concrete sidewalks and driveways will be paid for at the Contract Unit Price per square yard. Payment at the unit price shall include full compensation for all labor materials, equipment and supervision to install one square yard of concrete sidewalk regardless of depth, including formwork, expansion joints, wire mesh, cutting and removing tree routes, placement, finishing, scoring, and stamping the patterns indicated on the Plans.

Fine Grading and Compaction –Subgrade Areas will be paid for under Item 170-001.

Gravel Borrow will be paid for under Item 151-001.

Detectable Warning Surface will be paid for under Item 701-020.

Pay Item

Pay Unit

ITEM NO. 701-001

**CEMENT CONCRETE SIDEWALKS
& DRIVEWAYS (ALL THICKNESSES)**

SQUARE YARD

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ITEM NO. 701-020 CEMENT CONCRETE WHEELCHAIR RAMPS EACH**DESCRIPTION**

Work under this Item consists of constructing wheel chair ramps in the sidewalks as shown on the enclosed sketches in accordance with 521 CMR: Architectural Access Board, and as directed by the Engineer. Work under this item also includes furnishing and installing Detectable Warning Panels.

SAMPLE AND SHOP DRAWINGS

Submit the following for approval of Detectable Warning Panels:

1. Product data.
2. Certificate of Compliance from the manufacturer
3. Standard and custom color chart.
4. Sample 24 inches by 24 inches.
5. Manufacturer's installation procedures.

MATERIALS

Concrete: Per Item 701-001.

Detectable Warning Surface**General:**

1. Detectable warnings shall consist of a surface of truncated domes aligned in a square grid pattern.
2. Truncated domes in a detectable warning surface shall have a base diameter of 0.9 inches minimum to 1.4 inches maximum, a top diameter of 50% of the base diameter minimum to 65% of the base diameter maximum, and a height of 0.2 inches.
3. Truncated domes in a detectable warning surface shall have a center-to-center spacing of 2 inches minimum and 2.4 inches maximum, and a base-to-base spacing of 0.65 inches minimum, measured between the most adjacent domes on square grid.
4. Detectable warning surfaces shall contrast visually with adjacent walking surfaces either light-on-dark, or dark-on-light.

Material:

1. Materials: Detectable warning surface shall consist of a homogenous glass and carbon reinforced composite which is colorfast and UV Stable.
2. Color shall be contrast visually with the adjacent walking surface, either light-on-dark, or dark-on-light. Provide manufacturer's custom color chart. Color shall be selected by the Engineer.
3. Composite products relying on paint coatings or "UV Coatings" for color stability are not acceptable.
4. Composite tiles shall be a minimum of 24 inches wide.

The panel can be precast concrete, cast-in-place concrete or other suitable material permanently applied to the ramp. The Contractor is urged to visit the US Access Board's website for a list of manufacturers for these panels.

(visit www.access-board.com click on "Publications", go to "Public Rights of Way", go to "Detectable Warnings: Synthesis of US and International Practice")

EXECUTION

INSTALLATION:

Provide the services of a representative of the manufacturer of the detectable warning surface tiles for the following:

1. Pre-construction meeting with Contractor and Engineer.
2. Installation of the at least the first two ramps with detectable warning surface.

Location:

1. The detectable warning surface shall be located so that the edge nearest the curb line is 6 inches minimum and 8 inches maximum from the curb line.
2. Detectable warning surfaces shall extend 24 inches minimum in the direction of travel and the full width of the curb ramp, landing, or blended transition.

Installation:

1. Install cast-in-place type tiles into poured concrete in accordance with the manufacturer's recommendations.
2. Tile surface between the domes shall be flush with finish of adjacent concrete walk surface.

METHOD OF MEASUREMENT AND PAYMENT

ITEM NO. 701-020

METHOD OF MEASUREMENT

The area included in the payment of each ramp shall not exceed 150 square feet of surface area, regardless of the size of the ramp necessary to conform to ADA & AAB slope requirements. Areas of any new ramp that exceeds 150 square feet, shall be paid under the relevant sidewalk item (Item 701-001).

BASIS OF PAYMENT

CEMENT CONCRETE WHEELCHAIR RAMPS shall be paid based on the accepted Contract bid price per each ramp. This payment shall include all removal and disposal of portions of existing edgestone and walks, all excavation, gravel, grading, replacement of edgestone and patching of walks, sawcutting of existing concrete sidewalks, all cutting and trimming, all labor, tools, equipment, hot-mix asphalt, cement concrete, all other necessary materials, transportation, shipping costs, detectable warning panels, and all other incidental work necessary to complete ramps to the satisfaction of the Engineer, and in compliance

with the most current Federal ADAAG (Americans with Disabilities Act Accessibility Guidelines) Codes and the Massachusetts Architectural Access Board (MAAB) whichever is more stringent.

Pay Item	Pay Unit
ITEM NO. 701-020 CEMENT CONCRETE WHEELCHAIR RAMPS	EACH

APPENDICES TO ITEM NO. 701-020:

1) Massachusetts Architectural Access Board Regulations for Curb Cuts and Walkways – see following pages.

2) Massachusetts Department of Transportation, Highway Division (MHD) Standard Details:

- M/E 107.2.1R9 WCR on narrow SW w/ detectable warning panel)
- M/E 107.6.5R (Detectable warning panel for WCR)
- M/E 107.9.0 (Curb transition length for WCR)

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Appendix to Item 701-020

Massachusetts Architectural Access Board Regulations

521 CMR 21.00: CURB CUTS

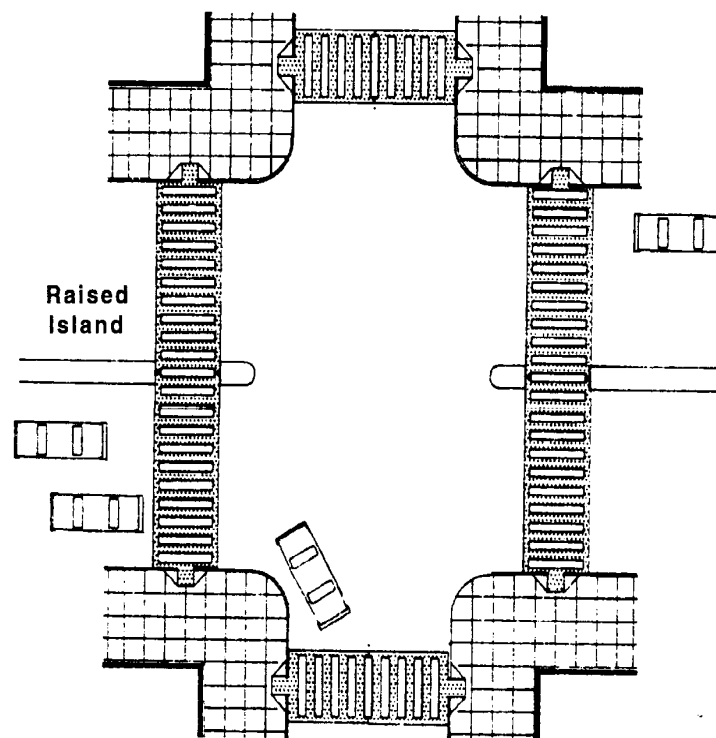
21.1 GENERAL

Whenever *sidewalks, walkways, or curbs* on streets and ways are *constructed, reconstructed, or repaired*, *curb cuts* are required. All *curb cuts* shall comply with the following:

21.2 LOCATION

Curb cuts shall occur wherever an *accessible route* crosses a curb and at the following locations:

- 21.2.1 *Curb cuts* are required at each corner of each intersection, located within the crosswalk and/or the pedestrian path of travel. *Curb cuts* shall be perpendicular to the curb at street crossings and each shall have a *level* landing at the top. At marked crossings, the bottom of the *ramp* run, exclusive of flared sides, shall be wholly contained within the marked crossing. **See Fig. 21a.** The crosswalk/pedestrian path of travel must also be perpendicular to the curb.



**Curb Cuts at Intersection
Figure 21a**

Appendix to Item 701-020

Massachusetts Architectural Access Board Regulations

Exception: Where pedestrian right-of-way established width will not accommodate a perpendicular *curb cut* and landing, a parallel public *sidewalk curb cut* with a *level* landing at its bottom shall be provided instead of a perpendicular *curb cut*.

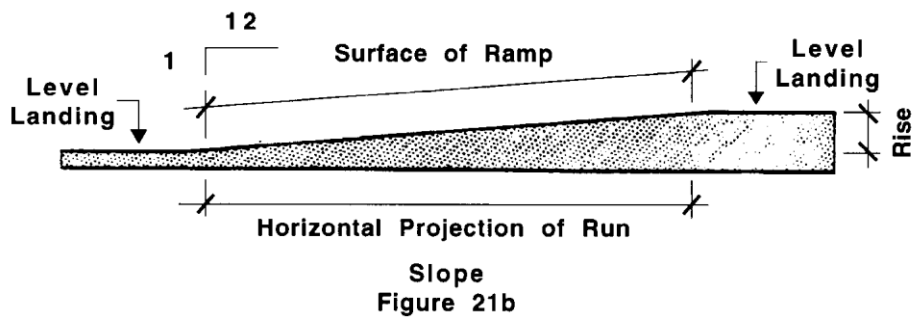
- 21.2.1.1 Apex *curb cuts*: Where site constraints prevent the installation of a perpendicular *curb cut* or a parallel *curb cut* with a level landing, an apex curb cut is allowed. Site constraints include the following:
- a. Driver or pedestrian line of sight to or from the front of the level landing on the ramp is impaired, preventing safe observation of crosswalks or approaching traffic at the intersection by a significant immovable or unalterable streetscape feature such as a building, structure or historic element, etc.
 - b. Stop line is beyond the allowed limit as stated in the Manual on Uniform Traffic Control Devices.
 - c. Vaults containing electrical, telecommunications, etc. that are under or on the existing sidewalk.
 - d. Large radius intersections which are 30 feet or greater.
- 21.2.1.2 When apex *curb cuts* are installed a 48 inch (48" = 1219mm) landing shall also be provided at the bottom of the *curb cut* and located within the marked crosswalk.
- 21.2.2 Reciprocal *curb cuts*: When *curb cuts* or *sidewalks* are being *constructed* or *reconstructed* on one side of the street, and when such *curb cuts* or *sidewalks* are connected to an opposite side of the street by one or more pedestrian paths of travel, then at least one *curb cut* shall be provided on the opposite side of the street where such side is controlled by the same owner.
- 21.2.3 Driveways: *Curb cuts* are required at driveways intersecting *sidewalks* when the driveway has side curbs.
- 21.2.4 Raised Islands: Any raised islands in crossings shall be cut through *level* with the street or have *curb cuts* at both sides and a *level* area at least 48 inches (48" = 1219mm) long between the *curb cuts* in the part of the island intersected by the crossings.
- 21.2.5 Obstructions: *Curb cuts* shall be located or protected to prevent their obstruction by parked vehicles.

Appendix to Item 701-020

Massachusetts Architectural Access Board Regulations

21.3 SLOPE

The least possible slope should be used for any ramp. The maximum slope shall be one-in-12 (1:12) (8.3%). Where *sidewalks* are too narrow to install a straight-line *curb cut* at a slope of one-in-12 (1:12) (8.3%), the sides of the *curb cut* shall not exceed one-in-12 (1:12) (8.3%). **See Fig. 21b.** The maximum cross-slope for any *curb cut* shall be 1:50 (2%). (There is no tolerance allowed on slope requirements). (Refer to 521 CMR 2.4.4d).



21.4 TRANSITIONS

Transitions from *curb cuts* to *walks*, gutters, or streets shall be flush or free of changes in *level* greater than 1/2 inch (1/2" = 13mm). Maximum slopes of adjoining gutters, road surface immediately adjacent to the curb cuts, or accessible route shall not exceed one-in-20 (1:20) (5%).

21.5 DRAINAGE

Grading and drainage shall be designed to minimize pooling of water, accumulation of ice, or flow of water across the base of the *curb cut*.

21.6 WIDTH

The minimum width of a *curb cut* shall be 36 inches (36" = 914mm), exclusive of flared sides. **See Fig. 21c.**

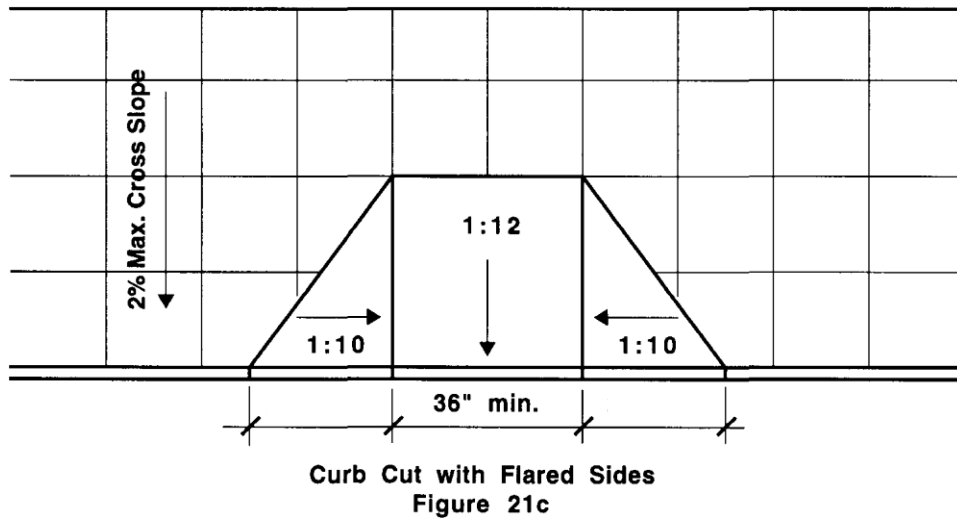
21.6.1 Landing width: Where a perpendicular *curb cut* is provided, a landing the width of the *curb cut* shall be provided at the top of the *curb cut*. The landing shall be 48 inches (48" = 1219mm) in length. The slope of said landing shall not exceed one-in-50 (1:50) (2%) in any direction.

21.7 FLARED SIDES

Sides of *curb cuts* shall extend at least 24 inches (24" = 610mm) at the curb. The maximum slope of the flare is one-in-ten (1:10) (10%). Curbing at the flared sides must blend with the slope of the flared sides. **See Fig. 21c.**

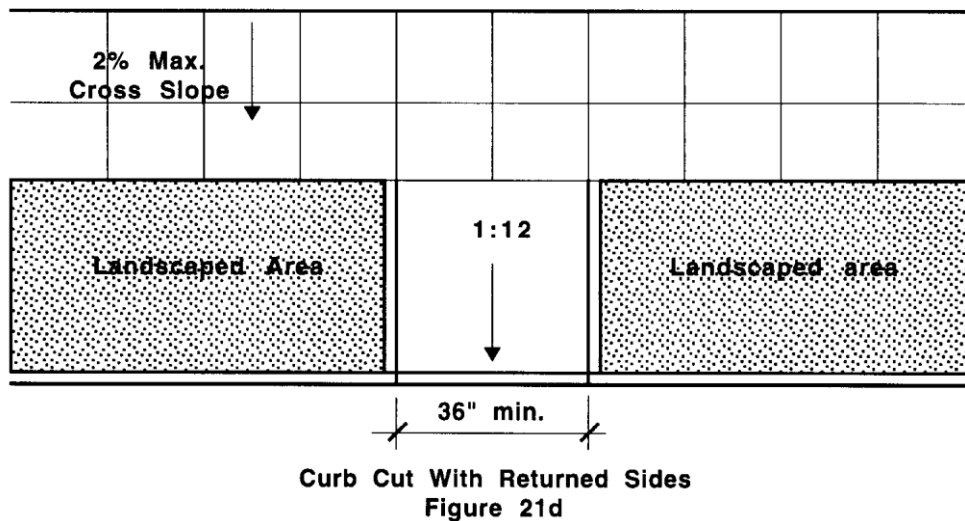
Appendix to Item 701-020

Massachusetts Architectural Access Board Regulations



21.8 RETURNED SIDES

Curb cuts with returned sides are only permitted where they are protected by handrails pursuant to **521 CMR 24.5, Handrails** or where pedestrian travel across the *ramp* is obstructed by permanently installed street hardware or landscaping. See **Fig. 21d**.

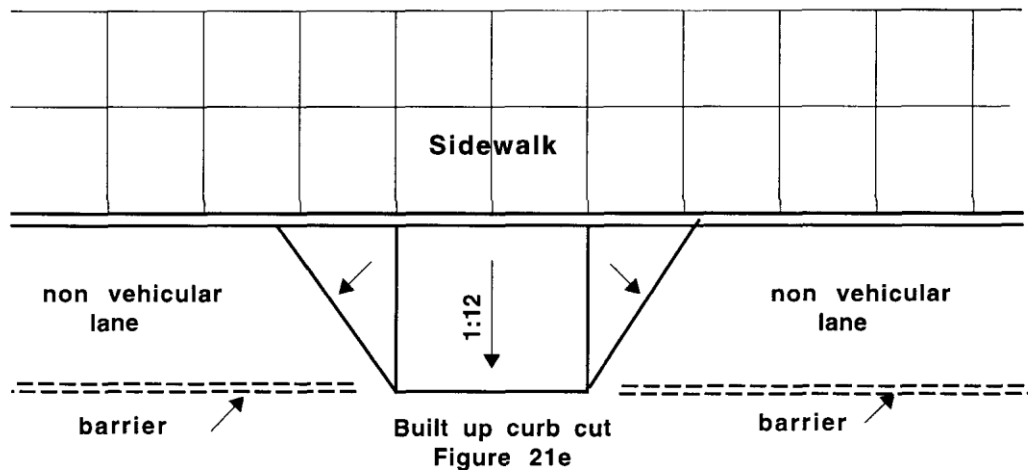


21.9 BUILT-UP CURB CUTS

Built-up *curb cuts* are allowed only where they do not project into vehicular traffic lanes. See **Fig. 21e**.

Appendix to Item 701-020

Massachusetts Architectural Access Board Regulations



21.10 PEDESTRIAN STREET CROSSINGS

Where provided, pedestrian street crossings at, above, or below grade shall comply with the following:

- 21.10.1 Crossing controls shall be raised from or flush with their housings and shall be a minimum of two inches (2" = 51mm) in the smallest dimension. The force required to activate controls shall be no greater than 5 lbs.
- 21.10.2 Location: Controls shall be located as close as practicable to the *curb cut* serving the controlled crossing and shall permit operation from a *clear ground space*.
- 21.10.3 Mounting Height: Pedestrian-actuated crossing controls shall be a maximum of 42 inches (42" = 1067mm) above the finished *sidewalk*.
- 21.10.4 *Clear ground space*: A stable and firm area, complying with **521 CMR 6.5, Forward Reach**, or **521 CMR 6.6, Side Reach** shall be provided at the controls. Where a parallel approach is provided, controls shall be within ten inches (10" = 254mm) horizontally of and centered on the *clear ground space*. Where a forward approach is provided, controls shall abut and be centered on the *clear ground space*.

21.11 DETECTABLE WARNINGS - Reserved until further notice.

21.12 ACCESSIBLE PEDESTRIAN SIGNALS - Reserved.

Appendix to Item 701-020

Massachusetts Architectural Access Board Regulations

521 CMR 22.00: WALKWAYS

22.1 GENERAL

Walkways shall include but not be limited to all *walks*, *sidewalks*, overpasses, bridges, tunnels, underpasses, plazas, courts and other pedestrian pathways, and shall comply with the following requirements:

22.2 WIDTH

Width of *walkways* shall be not less than 48 inches (48" = 1219mm), excluding curb stones. An unobstructed path of travel shall be provided which is at least 36 inches (36" = 914mm) *clear*, excluding curb stones.

22.3 GRADE

Walkways with a running slope greater than one-in-20 (1:20) (5%) are ramps and shall comply with **521 CMR 24.00: RAMPS**.

22.3.1 Nowhere shall the *cross slope* of *walkways* exceed one-in-50 (1:50) (2%). (Refer to 521 CMR 2.4.4d.)

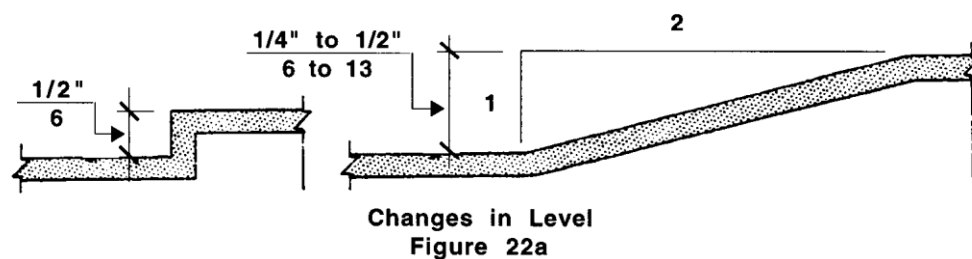
Exception: *Sidewalks* on streets and ways shall be considered *walkways*, with the exception that if the slope of the natural topography exceeds one-in-20 (1:20) (5%) a *ramp* is not required.

22.3.2 Nowhere shall the surface slope of any plaza area exceed one-in-50 (1:50) (2%).

22.4 LEVEL CHANGES

Walkways shall have continuous common surfaces, not interrupted by steps or changes in *level* greater than 1/4 inch (1/4" = 6mm).

22.4.1 Changes in *level* between 1/4 inch and 1/2 inch (1/4" and 1/2" = 6mm and 13mm) shall be beveled with a slope no greater than 1:2 (50%). See **Fig. 22a**.



22.4.2 Changes in level greater than 1/2 inch (1/2" = 13mm) shall require a *curb cut*, *walkway*, *ramp*, elevator, or platform lift that complies with **521 CMR 21.00: CURB CUTS**, **521 CMR 22.00: WALKWAYS**, **521 CMR 24.00: RAMPS** or **521 CMR 28.00: ELEVATORS**.

Appendix to Item 701-020

Massachusetts Architectural Access Board Regulations

22.5 SURFACE

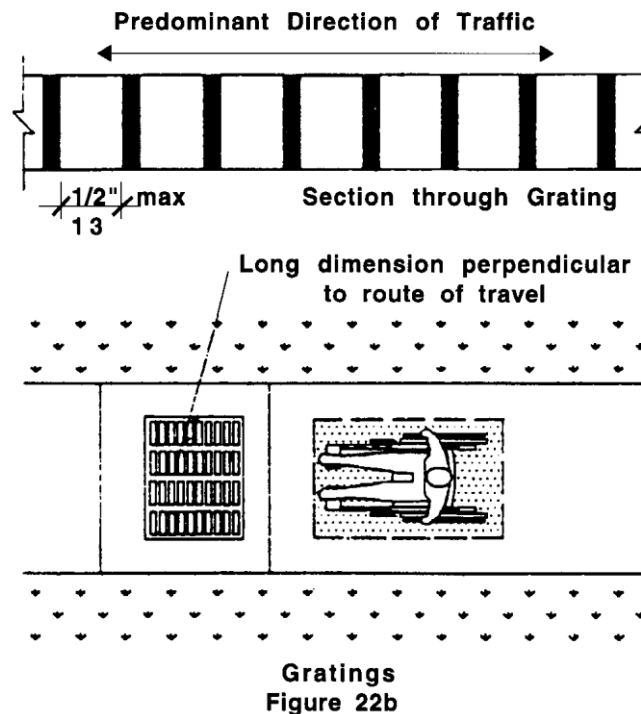
Walkway surfaces shall be stable, and firm and shall lie generally in a continuous plane with a minimum of surface warping.

22.6 DRAINAGE

Grading and drainage shall be designed to minimize pooling of water or accumulation of ice or flow of water across *walkways*.

22.7 GRATINGS

If gratings are located in walking surfaces, they shall have spaces no greater than 1/2 inch (1/2" = 13mm) wide in the direction of the flow of travel. If gratings have elongated openings, then they shall be placed so that the long dimension is perpendicular to the dominant direction of travel. See **Fig. 22b**.



22.8 INTERSECTIONS

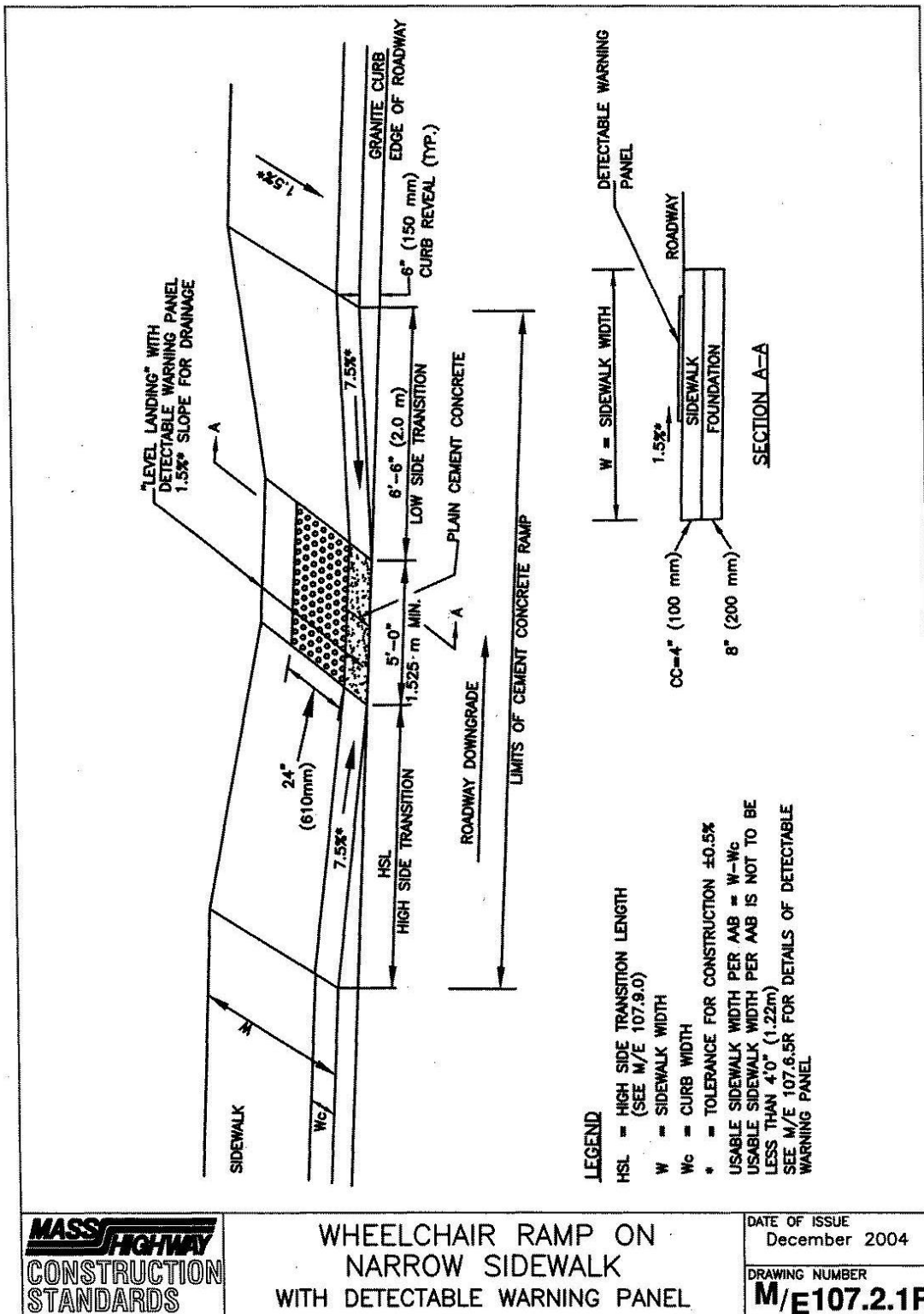
Wherever a *walkway* crosses or joins streets, public ways, driveways or parking lots, it shall comply with the following:

- 22.8.1 The intersecting surfaces shall blend to a common *level* with a slope no greater than 1:20 (5%), or a *curb cut* shall be installed in compliance with **521 CMR 21.00: CURB CUTS**.

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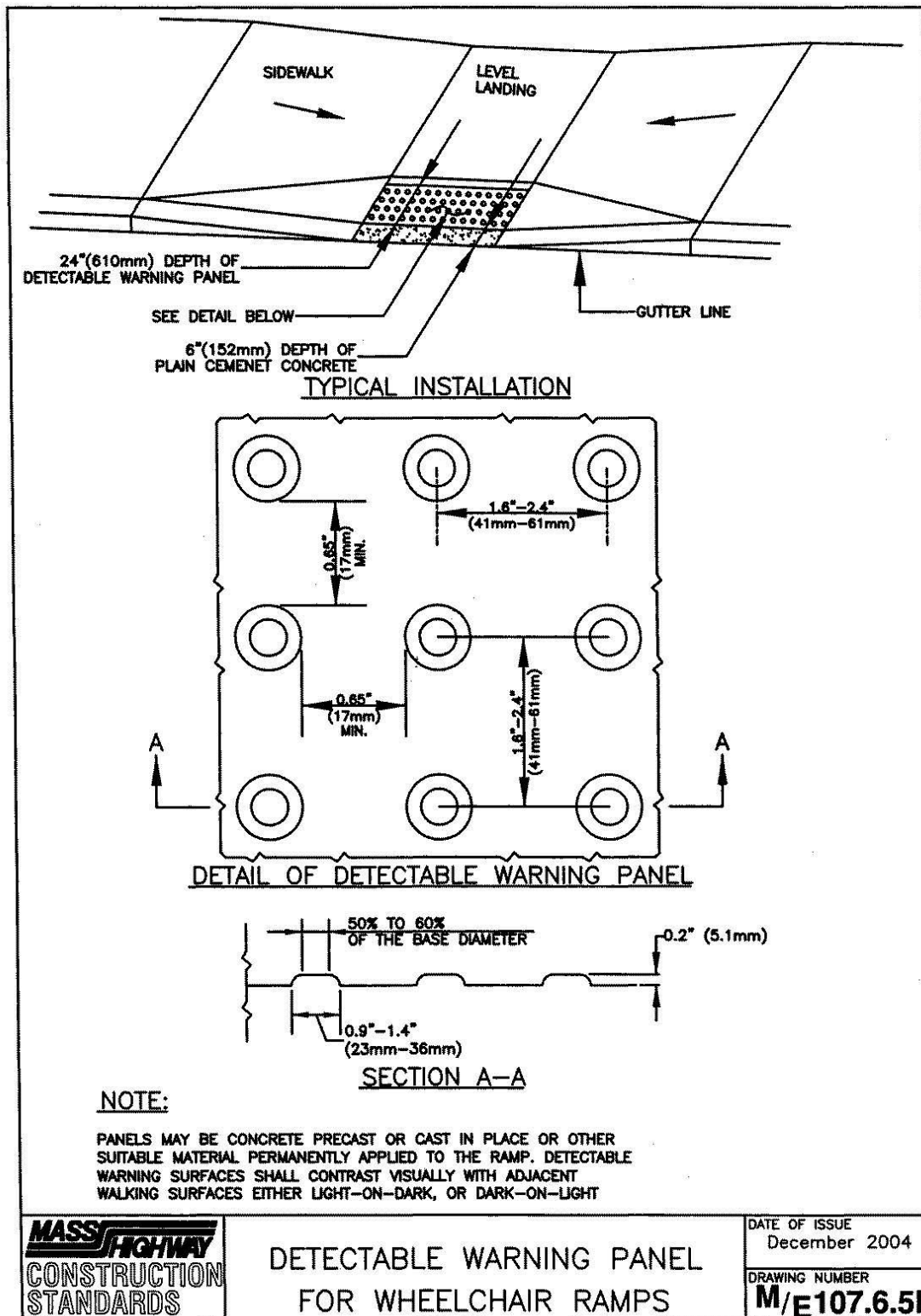
Appendix to Item 701-020

Massachusetts Highway Dept. Standard Details WCRs



Appendix to Item 701-020

Massachusetts Highway Dept. Standard Details WCRs



Appendix to Item 701-020

Massachusetts Highway Dept. Standard Details WCRs

ROADWAY PROFILE GRADE	*HIGH SIDE TRANSITION LENGTH	
	METRIC UNITS	ENGLISH UNITS
0	2.0 m	6'-6"
>0⇒1	2.3 m	7'-8"
>1⇒2	2.7 m	9'-0"
>2⇒3	3.3 m	11'-0"
>3⇒4	4.3 m	14'-0"
>4	4.6 m Max	15'-0" Max

NOTE:

*BASED ON A DESIGN SLOPE OF 7.5% AND
A REVEAL OF 150 mm (6").



CURB TRANSITION LENGTH
FOR WHEELCHAIR RAMPS

DATE OF ISSUE
December 2001

DRAWING NUMBER
M/E 107.9.0

End of Appendix to Item 701-020

ITEM NO. 702-001**HOT MIX ASPHALT WALKWAY****SQUARE YARD****DESCRIPTION**

Furnish and install walks as indicated and specified.

ACCESSIBILITY CODES:

521 CMR Rules and Regulations of the AAB and ADA shall be adhered to on this Project.

Sidewalks shall conform to the applicable requirements of current editions of following:

- a. Massachusetts Department of Transportation Highway Division Standard Specifications.
- b. Massachusetts Department of Transportation Highway Division Wheelchair Ramp Standards.
- c. American with Disabilities Act Accessibility Guidelines.
- d. Regulations of Massachusetts Architectural Access Board.

See Appendix to Item 701-020 for MHD standards and applicable MAAB regulations.

MATERIALS

HOT MIX ASPHALT Sidewalks shall be Class I HOT MIX ASPHALT and conform to Section M3, Subsection 3.11.00 of the MHD Standard Specification.

CONSTRUCTION METHODS

Installation shall conform to Section 701 of MHD Standard Specifications.

The Contractor shall construct walkways in accordance with all applicable accessibility standards, including those referenced above.

Shape the subgrade parallel to finish grade of the sidewalk and compact as specified under Item 170-001.

All depressions shall be filled with gravel borrow and compacted.

Install Gravel Borrow base to the depth indicated on the Drawings and compact as specified under Item 151-001. The top of the gravel borrow base shall be parallel to the finish grade of the sidewalk.

Where excessively large roots interfere with sidewalk construction, the cement concrete shall be “boxed” around the tree trunk for a distance of at least 18 inches from the edge of the trunk. Roots protruding beyond 18 inches may be cut as directed by the Engineer.

METHOD OF MEASUREMENT AND PAYMENT**ITEM NO. 702-001****METHOD OF MEASUREMENT**

HOT MIX ASPHALT walkways will be measured per square yard installed in place. No distinction will be made for sidewalks or driveways.

BASIS OF PAYMENT

HOT MIX ASPHALT walkways will be paid for at the Contract Unit Price per square yard. Payment at the unit price shall include full compensation for all labor materials, equipment and supervision to install one square yard of HOT MIX ASPHALT walkway, including cutting and removing tree routes, placement and compaction.

Fine Grading and Compaction –Subgrade Areas will be paid for under Item 170-001.

Gravel Borrow will be paid for under Item 151-001.

Pay Item		Pay Unit
ITEM NO. 702-001	HOT MIX ASPHALT WALKWAY	SQUARE YARD

(Remainder of page is intentionally blank)

ITEM NO. 703-801 CONCRETE WHEEL STOP WITH DELINEATORS LINEAR FOOT**GENERAL****DESCRIPTION**

Furnish and install precast concrete wheel stops with two high-visibility delineators mounted to each, as indicated on the Drawings and specified herein.

QUALITY ASSURANCE

Manufacturers of precast concrete wheel stops and delineators shall have been in the business of manufacturing the respective products for a period of at least 5 years.

SUBMITTALS

Submit name and qualifications of manufacturer of wheel stops and delineators. Include number of years in business.

Submit shop drawings and product data on precast concrete wheel stops.

Submit produce data on delineators.

Submit method of fastening delineators to wheel stops.

MATERIALS**PRECAST CONCRETE WHEEL STOPS**

Precast concrete wheel stops shall be of the size and configuration indicated on the Drawings. Precast concrete shall be a minimum of 4,000 psi.

DELINEATORS

Delineators shall be impact-resistant, bolt-on, polyurethane units with a reboundable one-piece top part of the post to provide impact resistance. Provide 3 stripes with high-visibility reflected sheeting conforming to ASTM D 4956, Type 5.

CONSTRUCTION METHODS

Install wheel stops in locations indicated on the Drawings. Insert 3/4-in. diameter rods to secure wheel stops into pavement. **Do not install rods where wheel stops are installed on the bridge deck.**

Fasten delineators to wheel stops in accordance with the approved shop drawings.

METHOD OF MEASUREMENT AND PAYMENT**ITEM NO. 703-801****METHOD OF MEASUREMENT**

The length of wheel stops shall be measured along the traffic side length of the wheel stop.

BASIS OF PAYMENT

CONCRETE WHEEL STOP WITH DELINEATORS will be paid for at the Contract unit price per linear foot.

Pay Item		Pay Unit
ITEM NO. 703-801	CONCRETE WHEEL STOP WITH DELINEATORS	LINEAR FEET

(Remainder of page is intentionally blank)

ITEM NO. 706-880 HEAVY DUTY INTERLOCKING CONCRETE PAVERS SQUARE FOOT**GENERAL**

Provide heavy duty interlocking concrete pavers as indicated on the Drawings and as specified herein. The work includes furnishing and installing pavers for the speed table at Newton Street, including the bedding sand and joint sand.

SUBMITTALS

Submit the following:

- A. Sieve analysis per ASTM C 136 for grading of bedding and joint sand.
- B. Concrete pavers:
 - 1. Four representative full-size samples of each paver type, thickness, color, finish that indicate the range of color variation and texture expected in the finished installation. Color(s) selected by the Engineer from manufacturer's available colors.
 - 2. Accepted samples become the standard of acceptance for the work.
 - 3. Test results from an independent testing laboratory for compliance of concrete pavers with ASTM C 936.
 - 4. Manufacturer's catalog product data, installation instructions, and material safety data sheets for the safe handling of the specified materials and products.

STANDARDS:

Where references are made in these Specifications to Standard Specifications, codes, etc., of the U.S. Government, State or local authorities, or professional and industrial societies and associations, the applicable portions thereof shall govern as fully as if they were recited at length herein, and shall include all revisions thereto issued as of the date of the Notice to Contractors pertaining hereto.

- 1. **Standard Specifications:** "Standard Specifications for Highway and Bridges", Massachusetts Department of Transportation, Highway Division (MHD), latest edition and all supplements.
- 2. **AASHTO:** American Association of State Highway and Transportation Officials, Standard Specifications, latest edition.
- 3. **ASTM:** American Society of Testing and Materials "Annual Book of ASTM Standards", latest edition.
- 4. **ADA:** Americans with Disabilities Act, latest edition and latest edition of the "Accessibility Guidelines for Buildings and Facilities, Transportation Facilities and Transportation Vehicles" of the United States Architectural and Transportation Barriers Compliance Board.
- 5. **AAB:** Architectural Access Board, Commonwealth of Massachusetts Regulation Chapter 521 CMR, latest edition.

MATERIALS

General

Concrete pavers shall be interlocking "L" shape blocks designed for heavy duty AASHTO H-20 loading.

Pavers shall be gray in color.

Product

Concrete pavers shall be Uni-Anchorlock by Ideal Concrete Block Company, Inc., Pavestone Company, or approved equal.

Bedding and Joint Sand

Provide bedding and joint sand as follows:

1. Washed, clean, non-plastic, free from deleterious or foreign matter, symmetrically shaped, natural or manufactured from crushed rock.
2. Sieve according to ASTM C 136.
3. Bedding Sand Material Requirements: Conform to the grading requirements of ASTM C-33 with modifications as shown in Table 1.

Table 1
Grading Requirements for Bedding Sand
ASTM C 33

Sieve Size	Percent Passing
3/8 in.	100
No. 4	95 to 100
No. 8	85 to 100
No. 16	50 to 85
No. 30	25 to 60
No. 50	10 to 30
No. 100	2 to 10
No. 200	0 to 1

4. Joint Sand Material Requirements: Conform to the grading requirements of ASTM C 144 as shown with modifications in Table 2 below:

Table 2
Grading Requirements for Joint Sand

	ASTM C 144 Natural Sand	ASTM C 144 Manufactured Sand
Sieve Size	Percent Passing	Percent Passing
No. 4	100	100
No. 8	95 to 100	95 to 100
No. 16	70 to 100	70 to 100
No. 30	40 to 75	40 to 100
No. 50	10 to 35	20 to 40
No. 100	2 to 15	10 to 25
No. 200	0 to 1	0 to 10

INSTALLATION

- A. Spread bedding sand evenly over the base course and screed to a nominal 1 in. thickness, not exceeding 1 1/2 in. thickness. Spread bedding sand evenly over the base course and screed rails, using the rails and/or edge restraints to produce a nominal 1 in. thickness, allowing for specified variation in the base surface.
 - 1. Do not disturb screeded sand.
 - 2. Screeded area shall not substantially exceed that which is covered by pavers in one day.
 - 3. Do not use bedding sand to fill depressions in the base surface.
- B. Lay pavers in pattern parallel to the walkway. Place units hand tight without using hammers. Make horizontal adjustments to placement of laid pavers with rubber hammers and pry bars as required.
- C. Provide joints between pavers between 1/16 in. and 3/16 in. wide. No more than 5% of the joints shall exceed 1/4 in. wide to achieve straight bond lines.
- D. Joint (bond) lines shall not deviate more than $\pm 1/2$ in. over 50 ft. from string lines.
- E. Fill gaps at the edges of the paved area with cut pavers or edge units.
- F. Saw cut pavers to be placed along the edge to create a straight edge against the adjacent pavement.
- G. All cut pavers exposed to vehicular tires shall be no smaller than one-third of a whole paver.
- H. Use a low-amplitude plate compactor capable of at least minimum of 4,000 lbf (18 kN) at a frequency of 75 to 100 Hz to vibrate the pavers into the sand. Remove any cracked or damaged pavers and replace with new units.
- I. Simultaneously spread, sweep and compact dry joint sand into joints continuously until full. This will require at least 4 to 6 passes with a plate compactor. Do not compact within 6 ft of unrestrained edges of paving units.
- J. Remove excess sand from surface when installation is complete.

FIELD QUALITY CONTROL

- A. The final surface tolerance from grade elevations shall not deviate more than $\pm 3/8$ in. under a 10 ft straightedge.
- B. Check final surface elevations for conformance to the Grading Plans.
- C. Lippage: No greater than 1/8 in. difference in height between adjacent pavers.
- D. Finish surface shall conform to ADA and MAAB regulations, including the seam between the concrete pavers and adjacent concrete and HOT MIX ASPHALT pavement.

METHOD OF MEASUREMENT AND PAYMENT

ITEM NO. 706-880

Measurement for HEAVY DUTY INTERLOCKING CONCRETE PAVERS shall be by the square foot of signs installed in place.

Payment for HEAVY DUTY INTERLOCKING CONCRETE PAVERS shall be by the Contract Unit Price per square foot, complete in place including joint sand and bedding sand, and other appurtenant work.

Pay Item

Pay Unit

ITEM NO. 706-880

**HEAVY DUTY INTERLOCKING
CONCRETE PAVERS**

SQUARE FOOT

(Remainder of page is intentionally blank)

ITEM NO. 707-999 REMOVE AND RESET STREET FURNITURE EACH

GENERAL

This work shall consist of the removing and reinstalling street furniture items including trash receptacles, benches, and bike racks as required to construction new sidewalks and wheelchair ramps as indicated on the Drawings and as specified herein.

Obtain details and/or shop drawings of the items from the City before removal. If details are not available from the City, the Contractor shall obtain installation details from the item manufacturer.

MATERIALS

Provide new stainless steel hardware as required for the reinstallation of each item.

EXECUTION

Carefully remove the item from the concrete sidewalk or base.

Protect the item and store on or near the site until ready to reinstall.

Reinstall item on concrete sidewalk at the pre-existing location, unless otherwise directed by the Engineer. Fasten in place according to the details provided by the City and/or manufacturer.

The Contractor shall install all items level and with plumb vertical alignment.

Any incidence of damage to any item during installation shall be reported immediately to the Engineer, remedial action shall be decided, and repairs made to the satisfaction of the Engineer.

METHOD OF MEASUREMENT AND PAYMENT

ITEM NO. 707-999

METHOD OF MEASUREMENT

REMOVE AND RESET STREET FURNITURE will measured per each, complete in place and approved by the Engineer.

BASIS OF PAYMENT

REMOVE AND RESET STREET FURNITURE will be paid for at the contract price per each for each Item. Such price and payment shall be full compensation for all the work and materials required and specified under this Item to complete the work. Payment shall include full compensation for removal, protection, temporary storage and re-installation, including provision of new hardware.

Item No.	Pay Item	Pay Unit
ITEM NO. 707-999	REMOVE AND RESET STREET FURNITURE	EACH

(Remainder of page is intentionally blank)

ITEM NO. 740-001**ENGINEER'S FIELD OFFICE AND RELATED
EQUIPMENT FOR ENGINEER****MONTH****GENERAL****DESCRIPTION**

The requirements of this item shall consist of furnishing all labor, materials and equipment and performing all work to satisfactorily provide and maintain the Engineer's Field Office as described in this section. The work shall also include winterizing and connection of water, sewer, electric, telephone, and internet services.

All electrical and plumbing work shall be done in accordance with the National and Massachusetts Electrical Code and the Massachusetts Plumbing Code, respectively.

MATERIAL**FIELD OFFICES**

- A. The Contractor shall provide and maintain a temporary field office for the Engineer. **If available, the Contractor is encouraged to rent office or retail space within 1,000 feet of the project area.** If space is not available, the Contractor shall provide a temporary field office trailer at a location within 500 feet of the project area. The exact location shall be at the discretion of City.
- B. Provide a separate conference room space with conference table and chairs to accommodate twelve (12) persons.
- C. In addition, the Contractor shall provide a new separate trailer of not less than 300 square feet on the site for City's Project Representative. The trailer shall have bars on the windows and locking doors. The trailer shall be set on concrete blocks, with the area beneath the trailer enclosed in exterior grade plywood with two coats of paint as approved by the Engineer. The field office trailer shall contain the following standard equipment:
 - 2 Offices
 - Venetian blinds on windows.
 - Windows to be glazed with polycarbonate.
 - 2 Shelves
 - 1 Plan Table
 - 1 Lavatory complete with automatic electric hot water heater, and supply of soap, toilet paper, and paper towels
 - 1 small refrigerator
 - 1 microwave oven
 - Air Conditioners
 - 1 Wardrobe Closet
 - 1 Plan rack with holders
 - 2 Fire Extinguishers
 - 1 Indoor/Outdoor thermometer
 - 1 100-ft. steel tape
 - 1 Plumb bob

The field office shall be equipped with the following furnishings:

- 1 Water Cooler with hot and cold water; water will be supplied by the Contractor for the duration of the project.
- 1 Electrostatic dry copy machine, legal size (8 1/2" x 14") to be selected by the Engineer.
- 2 Metal (fire resistant) four drawer filing cabinets with locks and keys
- 1 Metal Drafting Table 3' x 6'
- 2 Metal swivel type drafting stools with backs.
- 1 Metal office desks with Formica tops
- 1 Metal swivel desk chairs with arms, casters, and adjustable tilt
- 2 2 Light fluorescent drafting desk lamps
- 6 Metal straight back chairs
- 1 Electric water cooler
- 1 Metal cabinet type first aid kit
- 2 Metal lockers 18 inch wide by 24 inch deep 6 feet 6 inches high
- 1 100 LF measuring tape
- 4 25-ft. measuring tapes (to remain the property of the City)
- 1 Measuring wheel with a 15-in. minimum diameter
- 2 Telephones provided in the trailer with all services paid for by the Contractor.
- 1 First aid kit-large metal cabinet type
- 1 winterized outdoor faucet
- 1 MassDOT Highway Division "Standard Specifications for Highways and Bridges" latest edition, including "Supplemental Specifications" latest edition to become the property of the City
- 1 "Manual on Uniform Traffic Control Devices" latest edition, (MUTCD) to become the property of the City
- 1 Massachusetts State Building Code (to remain the property of City)
- 2 Complete sets of Contract Documents, including full-size and half-size drawings and specifications.

PHONE, CAMERA & LAP-TOP COMPUTER:

The Contractor shall provide high-speed internet access and all voice and data plans as necessary to maintain full functionality of all equipment provided. All furnished equipment shall be current model year. Any equipment that may fail under this provision shall be replaced within 48 hours of notification, at no additional cost to the City.

The following items to remain the property of the City on completion of project:

EXECUTION

The Contractor shall submit catalogs and vendors data for the equipment and furnishing to be furnished for approval by the Engineer.

Unless specifically stated, all office equipment and furnishings shall remain the property of the Contractor upon the completion of all work under this contract.

WATER, SEWER, ELECTRICAL AND TELEPHONE:

The Contractor shall perform and be responsible for all cost associate with the all work necessary, including excavation and backfill for installation, use and removal of water, sewer, electrical and telephone service. The Contractor shall insulate the water and sewer lines to prevent them from freezing. The Contractor shall install and maintain 3 phone lines for use of the Engineer.

The Contractor shall provide suitable toilet facilities for its staff and additional facilities for the workmen on the job, including personnel of sub-contractors and file sub-contractors.

Chemical toilets and their maintenance shall meet requirements of state and local health regulations and ordinances and shall be subject to the approval of the Engineer.

MAINTENANCE:

All sewer, water, electric and telephone services shall be continuously connected. Electric lights and current, proper heating, hot and cold water, satisfactorily cooled drinking water and telephones shall be available at all times both night and day. The toilets and laboratories shall be maintained in continual service; trash, garbage and other wastes shall be properly and satisfactorily disposed of. Janitor service, to keep the quarters and equipment neat and clean as acceptable working space, shall be furnished regularly, at least once per week. Repairs and painting shall be made from time to time, as required and as directed by the Engineer.

The Contractor shall furnish a supply of fluorescent light bulbs and copy paper as approved by the Engineer.

The Contractor shall also provide snow removal of access and parking areas.

INSURANCE

At the time the field office is made available to the Engineer, the Contractor shall furnish evidence to the Engineer that insurance in the amount of \$2,500.00 (non-deductible) has been obtained which will protect the City and/or its employees or agents against loss of property in the field office from fire, theft, storm or flood. The insurance will be kept in effect during the entire period of occupancy, with evidence of all necessary renewals being promptly forwarded to the Engineer.

In the case of fire, theft or breakdown, all equipment involved shall be repaired or replaced by the Contractor within 48 hours.

In the event the field office is destroyed or rendered untenable for any reasons, it shall be replaced within two weeks, or as directed.

METHOD OF MEASUREMENT AND PAYMENT

ITEM NO. 740-001

The Engineer's field office will be measured on a monthly basis.

The Engineer's Field Office and equipment will be paid for at unit price bid per month for Engineer's Field Office, complete and as required which price shall include full compensation for all services (heat, gas, water, sanitary, telephone, etc.) for all labor, material, fencing, surfacing, equipment, servicing (including general inside cleaning at least once a week), and incidentals necessary to provide, equip, maintain, insure, remove and dispose of materials used for the field office and clean the site as directed.

Pay Item

Pay Unit

**ITEM NO. 740-001 ENGINEER'S FIELD OFFICE AND
RELATED EQUIPMENT FOR
ENGINEER**

MONTH

ITEM NO. 751-090**STRUCTURAL LOAM****CUBIC YARD****GENERAL**

Provide a mixture of gap-graded gravels (made of crushed stone), clay loam, and a hydrogel stabilizing agent to keep the mixture from separating in order to provide an integrated, root penetrable, high strength pavement system.

MATERIAL

STRUCTURAL LOAM shall be a mix of crushed stone, hydrogel and screened loam.

Crushed Stone – 1-1/2-Inch:

Durable crushed rock free from dust, clay or trash. Crushed stone shall be free from a detrimental quantity of thin, flat, elongated or other objectionable pieces. A detrimental quantity will be considered as any amount in excess of 15% of the total weight. The crushed stone shall meet the following gradation:

<u>U.S. Standard Sieve Size</u>	<u>Percent Passing by Weight</u>
2 inch	100
1-1/2 inch	90 - 100
3/4 inch	0 - 10
No. 4	0 - 5
No. 200	0 – 0.5

Screened Loam: MHD Standards Specifications, Material Specification M1.05.0 Loam Borrow.

EXECUTION**A. Preparation of Structural Loam:**

1. Structural Loam shall be mixed on site and immediately installed. It shall not be stockpiled.
2. Place a layer of crushed stone 4 to 6 inches thick on compacted subgrade.
3. Lightly apply dry hydrogel spreading it evenly on top of the stone.
4. Place moist screened loam on top, covering the stone and filling the interstitial spaces between the stones.
5. Turn and mix the stone and loam until a uniform blend is produced.
6. Compact the mixture with a plate compactor.
7. Repeat the procedure until the compacted thickness is 24 inches.
8. The concrete sidewalk is installed on top of the structural loam.

METHOD OF MEASUREMENT AND PAYMENT

ITEM NO. 751-090

METHOD OF MEASUREMENT

STRUCTURAL LOAM will be measured by the cubic yard placed and compacted to the limits on the Drawings and specified herein.

BASIS OF PAYMENT

STRUCTURAL LOAM will be paid for at the Contract Unit Price per cubic yard. The unit price shall be full compensation for all labor, equipment, materials and supervision necessary to furnish, place and compact one cubic yard of STRUCTURAL LOAM. Include the following costs: Furnishing, placing, compacting, and testing of materials; and dust control measures.

Pay Item

Pay Unit

ITEM NO. 751-090 STRUCTURAL LOAM

CUBIC YARD

(Remainder of page is intentionally blank)

ITEM NO. 801-301	3 INCH NON-METALLIC CONDUIT	LINEAR FOOT
ITEM NO. 801-302	3 INCH NON-METALLIC CONDUIT	
	UNDER ROADWAYS	LINEAR FOOT
ITEM NO. 806-301	3 INCH METALLIC (GALVANIZED STEEL)	
	CONDUIT	LINEAR FOOT

GENERAL

Furnish and install conduit for traffic signal systems as indicated on the Drawings and as specified herein.

The work shall conform to the requirements of Section 801 of the MHD Standard Specifications, except as modified herein.

MATERIALS

Materials shall be in accordance with the Commonwealth of Massachusetts, Massachusetts Department of Transportation Highway Division, Standard Specifications for Highways and Bridges (MHD Standard Specifications).

Non-metallic conduit shall be used for all underground runs unless specified otherwise. Schedule 80 conduit shall be used under traveled roadways, shoulders, and driveways; schedule 40 conduit shall be used at all other underground locations.

Rigid metallic conduit shall be used for all above ground runs for connections into the controller or from the power source.

EXECUTION

The Contractor shall provide and install all conduit and necessary fittings at the locations noted on the Plans. Conduits shall be capped during construction using manufactured seals to prevent entrance of water and debris. The conduits shall be cleaned before pulling wire.

The conduit shall be laid in the trench in the designed formation using precast concrete block or plastic spacers for spacing conduit. Electric and signal wires shall be placed in separate conduits.

Conduit shall be installed in not less than twenty foot lengths, except at the ends of runs or at bends. Conduit shall be free of cracks and chipped ends. The Contractor shall furnish and have available at the job site a sufficient quantity of conduit so that cracked pieces or those with chipped ends may be discarded.

Repairs to conduits will not be permitted. All individual lengths of broken, cracked, chipped, or impaired conduit shall be removed and replaced with new conduit.

The width and depth of trench shall be in accordance with the Commonwealth of Massachusetts, Massachusetts Department of Transportation Highway Division, Standard Specifications for Highways and Bridges (MHD Standard Specifications).

METHOD OF MEASUREMENT AND PAYMENT**ITEM NO. 801-301****ITEM NO. 801-302****ITEM NO. 806-301**

Measurement per linear foot for various types and sizes of conduit will be horizontally along the centerline of each individual conduit installed in place.

Furnishing and installing of conduit of various types and sizes will be paid for at the Contract unit price per linear foot of each individual conduit installed under the respective Item. Payment shall include full compensation for trench excavation to the depths required to provide for laying the conduit as shown on the Drawings, furnishing all materials, transporting, protecting and installing (including joining) all conduit and fittings, placing and compacting bedding and backfill material (specified under General Earthwork Requirements), and all else in connection with the laying of the drain pipe for which there is no separate pay Item. All conduits shall be left in a clean manner with no sediment accumulation.

Pay Item		Pay Unit
ITEM NO. 801-301	3 INCH NON-METALLIC CONDUIT	LINEAR FOOT
ITEM NO. 801-302	3 INCH NON-METALLIC CONDUIT UNDER ROADWAYS	LINEAR FOOT
ITEM NO. 806-301	3 INCH METALLIC (GALVANIZED STEEL) CONDUIT	LINEAR FOOT

(Remainder of page is intentionally blank)

ITEM NO. 811-310**PULL BOX 12 X 12 INCHES****EACH****GENERAL**

Furnish and install pull boxes for traffic signal systems as indicated on the Drawings and as specified herein.

The work shall conform to the requirements of Section 801 of the MHD Standard Specifications, except as modified herein.

MATERIALS

All pull boxes on this project shall be 12 inch by 12 inch.

EXECUTION

Pull Boxes shall be built to the lines, grades, dimensions and designs shown on the plans and details hereinafter, with the necessary frames covers etc. Construction methods for precast concrete units shall conform to the relevant provisions of Section 901, and Subsection M4.02.14 of the MHD Specifications. Frames and covers shall be LeBaron S612 (80 lbs), or equivalent.

METHOD OF MEASUREMENT AND PAYMENT**ITEM NO. 811-310**

Measurement will be for each pull box installed in place.

Furnishing and installing of pull boxes will be paid for at the Contract unit price per each installed in place. Payment shall include full compensation for trench excavation to the depths required to provide for install the pull box as shown on the Drawings, furnishing all materials, transporting, protecting and installing pull boxes, placing and compacting bedding and backfill material (specified under General Earthwork Requirements), and all else in connection with the installation of pull boxes for which there is no separate pay Item. Any incidental work for materials for which no basis of payment is provided will be considered as completely covered by the unit price bid. All pull boxes shall be left in a clean manner with no sediment accumulation.

Pay Item**Pay Unit****ITEM NO. 811-310 PULL BOX 12 X 12 INCHES****EACH**

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ITEM NO. 815-701	TRAFFIC CONTROL SIGNAL – PROSPECT STREET & SOMERVILLE AVENUE	LUMP SUM
ITEM NO. 815-702	TRAFFIC CONTROL SIGNAL – WASHINGTON STREET, WEBSTER AVENUE, SOMERVILLE AVENUE & BOW STREET	LUMP SUM
ITEM NO. 815-703	TRAFFIC CONTROL SIGNAL – PROSPECT STREET & WEBSTER AVENUE	LUMP SUM
ITEM NO. 815-704	<u>ADD ALTERNATIVE 1: TRAFFIC CONTROL SIGNAL – BOW STREET & WARREN STREET</u>	LUMP SUM
ITEM NO. 815-098	FOOTING COST ADJUSTMENT	VERTICAL LINEAR FOOT

GENERAL

Furnish and install traffic signal systems for the various intersections as indicated on the Drawings and as specified herein. Existing traffic signals at intersections shall be maintained until new signals are functional.

The work shall conform to the requirements of Section 815 of the MHD Standard Specifications, except as modified herein.

Shop drawings and material data for traffic signal system shall be provided.

MATERIALS

The work of this Section shall include the furnishing and installation of part or all of the following items: controllers, cabinets and foundations; anchor bolts and foundations for mast arms; signal posts and foundations; signal heads; backplates; fire preemption detection systems; video detection; wireless Ethernet communication for interconnect between signals, all cable and wiring; ground rods, equipment grounding and bonding; service connection and meter post; pole risers, and all other equipment, materials and incidental costs necessary to provide a complete, fully operational traffic control signal systems as specific herein and as shown on the plans. All required mast arms for installation will be supplied by the City of Somerville. The Locations are as follows:

1. Location 1 – Prospect Street / Somerville Avenue / Washington Street
2. Location 2 – Webster Avenue / Somerville Avenue / Washington Street
3. Location 3 – Prospect Street / Webster Avenue
4. Location 4 – Somerville Avenue / Bow Street / Warren Street

The following equipment shall be furnished and installed as specified on plans:

A. Traffic controller and cabinet

1. The traffic signal controller units (CU), malfunction management units (MMU), detector amplifiers, cabinet power supply, bus interface units (BIUs) and all other ancillary traffic signal control components included in the traffic control cabinet shall comply with the National Electrical Manufacturers Association (NEMA) Standard No. TS 2-1998, Traffic

Controller Assemblies with National Transportation Communications for ITS Protocol (NTCIP) Requirements.

2. The traffic controllers supplied shall conform to Section 3 “Controller Units” of the NEMA TS 2 Standard. The traffic controllers shall be supplied in a TS 2 Type 1 Configuration as required in the list of major traffic signal items included on the plans for each intersection location. Specifically, the controller units (CU) shall be supplied as actuated controllers with NTCIP capabilities; defined as Type A1N in Subsection 3.2 of the NEMA TS 2 Standard.
3. The TS 2 Type 1 cabinet shall, at a minimum, meet the requirements of configuration 3 as defined in Table 5-2, “Type 1 Configurations” of the NEMA TS 2 Standard and according to the Item numbers listed above and on the traffic signal plans. Provide cabinets that allow for 50% more equipment to be installed by the City at a future time.

B. Malfunction Management Unit

1. The malfunction management unit (MMU) shall comply with Section 4 of the NEMA TS 2 standard. The MMU shall be capable of operating as either a Type 16 with 16 channels (8 vehicle, 4 pedestrian, 4 overlap) or a Type 12 with 12 channels (8 vehicles, 4 overlap). The MMU’s supplied shall be configured to operate as Type 16 units.
2. The MMU’s in either the Type 16 or Type 12 configuration shall be capable of operating in a NEMA TS 2 Type 1 cabinet, a NEMA TS 2 Type 2 cabinet, or a NEMA TS 1 cabinet without loss of functionality.

C. Bus Interface Units

1. The Bus Interface Units (BIU) shall comply with Section 8 of the NEMA TS 2 Standard. The BIU shall be fully interchangeable with any other manufacturer’s unit and interchangeable in a NEMA TS 2 Type 2 cabinet assembly.
2. At a minimum the BIU shall perform the interface function between port 1 at the controller unit and the loop detector rack assembly and the terminal facilities. The cabinets shall be supplied with the appropriate number of BIUs required to provide an operating traffic control signal according to the plans and these specifications.
3. As a minimum, two LED indicators shall be provided on the BIU front panel. One indicator shall serve a dual use; as a power on indication and as a diagnostic indicator for proper operation of the device. The second indicator shall serve as a transmit indicator illuminating each time data is transmitted.

D. Cabinet Power Supply

1. A power supply shall be supplied and installed in the TS 2 cabinet. As a minimum, the power supply shall meet all requirements of Paragraph 5.3.5 of the NEMA TS 2 Standard. The unit shall be AC line powered and provide regulated DC power, unregulated AC power, a line frequency reference for the rack mounted loop amplifiers, bus interface units, load switches and other auxiliary cabinet equipment as required.

2. The power supply shall be either shelf mounted or installed as part of the loop detector rack assembly. The unit shall contain four LED indicators on the front panel to indicate the four outputs;

+ 12 VDC +/- 1 VDC @ 2.0 amps,
+ 24 VDC +/- 2 VDC @ 2.0 amps,
AC @ 250 milliamps, and
60 z line frequency reference.

A test point terminal shall also be located on the units front panel for + 24 VDC and logic ground testing.

E. Load Switches

1. Load switches shall comply with Subsection 6.2 of the NEMA TS 2 standard. All load switches shall utilize optically isolated encapsulated modular solid state relays. Discrete components on circuit boards are not acceptable.
2. Load switch indicator lights shall be LED-type and wired on the input side of the device.

F. Flasher

1. Flashers shall comply with Subsection 6.3 of the NEMA TS 2 standard and be equipped with two output indicator lights which will show flashing power out to the cabinet assembly.
2. Flash transfer relays shall comply with Subsection 6.4 of the NEMA TS 2 standard.

G. Video Detection

1. The Contractor shall provide Video Detection Systems to detect vehicles (Gridsmart 360 Camera or approved equal). The system shall also provide full motion video output showing zones highlighted during detection for fine-tuning. All hardware and software within the traffic signal cabinet shall be NEMA TS-2 compliant.
2. Prior to installation of the Video Detection System a detailed site survey shall be conducted by a factory trained and certified representative. The site survey shall ensure that the design of the camera, camera location, camera optics, and video/data interconnect is appropriate for the application.
3. The supplier of the Video Detection System shall supervise the installation and testing of the Video Detection System and computer software. A factory certified representative from the supplier shall be on site during installation.
4. The Video Detection System shall provide a minimum of 20 detection zones. The system shall provide flexible, user configurable detection zone placement at any orientation within the field of view of the Video Detection System Camera. It shall be possible to overlap detection zones. It shall be possible to configure the Video Detection System to provide detection signals to the traffic signal controller, which is comprised of Boolean combinations of detection zones.

5. The Video Detection System shall provide failsafe operation whereby it places continuous vehicle calls to the traffic signal controller on all detection zones in the event it senses unacceptable video from the Video Detection System Camera.
6. The Video Detection System shall provide count & presence detection performance with at least 96% accuracy under normal (day and night) conditions.
7. The Video Detection System shall be comprised of a Video Detection System Camera, Video Detection System Cable, and Video Detection System Hardware.
8. The Video Detection System Camera shall operate without degradation over a temperature range of -34 to 60 degrees Celsius at a relative humidity of 10% to 90% condensing. The Video Detection System Cameras shall be housed in a water resistant, dust proof NEMA-4 housing. The housing shall be field rotatable to allow for proper alignment between the camera and the traveled road surface. The Video Detection System Cameras shall prevent the formation of ice and condensation in cold weather and allow the camera to operate correctly while exposed to precipitation and direct sunlight.
9. The Video Detection System Cable shall interconnect the Video Detection System Camera with the Video Detection System Hardware in the traffic signal control cabinet. The Video Detection System Cable shall meet the design requirements of the Video Detection System Camera manufacturer, and shall be designed and manufactured specifically for the Video Detection System Camera supplied. Cable shall be capable of withstanding the rigors of outdoor environments, including all combinations of precipitation, heat and cold from -34 to 74 degrees Celsius, and direct exposure to sunlight without exhibiting any signs of deterioration over time.
10. The Video Detection System Hardware shall operate without degradation over a temperature range of -34 to 74 degrees Celsius at a relative humidity of 10% to 90% condensing. They shall include interface device(s) which shall be installed in the traffic control cabinet.
11. The Video Detection System Hardware shall include all necessary cables for interconnection to the traffic signal controller, AC power service, and a modem for remote access of all video detection data including counts, classifications, and speed.

H. Surge Protection

1. Wherever expensive electronic equipment is located (cabinets, cameras, etc.), each input & output should be surge protected except traffic signal outputs. Signal outputs from load switches do not need surge suppression since the load switches act as surge suppressors.
2. The surge protector must be electrically connected to the nearest grounded metal structure or nearest ground rod.
3. Surge protection for all video, loop, pedestrian button, and pre-emption connections should have peak surge current protection of at least 10K amperes with a response time of less than 5 nanoseconds. The product complies when a lab report from an independent test laboratory stating the product passes this specification is submitted with the shop drawings.
4. Units shall be unconditionally warranted for at least 10 years.

I. Signal Heads

1. Signal heads mounted on mast arms shall be rigidly attached to the mast arms, with the bottom of all signals at the same height. All traffic signal lenses shall be 12 inch in diameter unless otherwise noted on the plans. Louvered backplates shall be 5 inch provided on all signal heads as noted on the plans. All signal heads shall be equipped with 12 inch ball or arrow light emitting diode (LED) modules.

J. LED Traffic Signal Housings

1. All Red, Yellow, and Green signal housings shall conform to the following: The LED signal module shall conform to "Vehicle Traffic Control Signal Heads – Part 2: Light Emitting Diode (LED) Vehicle Traffic Signal Modules", July 1998 Version or most current version, Institute of Transportation Engineers (ITE), 525 School St., S.W., Suite 410, Washington DC 20024-2797, Telephone: (202) 554-8050, FAX: (202) – 863-5486 and shall conform to the following: (In the case of a conflict, the special provision shall overrule.). LED signal modules must be type tested and approved by the MHD according to the requirements of Subsection 815.21, of the MHD Specifications.
2. LED signal modules shall fit without modifications into existing traffic signal housings conforming to "Vehicle Traffic Control Signal Heads" (VTCSH) published in the Equipment and Materials Standards of the Institute of Transportation Engineers. The LED signal module shall be a single, self-contained device not requiring onsite assembly for installation. LED signal assembly construction shall conform to ASTM specifications for the materials. Each LED signal module shall comprise a smooth surfaced Red and Green UV stabilized polycarbonate outer shell, multiple LED light sources, a power supply and a polycarbonate back cover assembled in a gasketed or silicon sealed unit.
3. The minimum luminous intensity values and light output shall be maintained within the rated input voltage of 117 Volts AC. LED signal modules shall not be allowed to fall short of the minimum intensity values at any of the 44 measuring points of the standard when lamp is turned on cold for measurements and after a 30 minute warm-up time period at 100% duty cycle.
4. The maximum wattage for 12 inch ball should be 20 watts and 10 watts for 12 inch arrow. The LED sources shall not be powered above the 70% of the manufacturer's specified rated load. This shall be clearly shown in layman's terms through calculations, schematics, catalogue cuts, etc. The LED sources shall be made of the type shown clearly in a catalogue cut or similar literature.

L. Pedestrian Heads

1. Pedestrian head indications shall be illuminated LED type displaying the full-filled graphical symbols of a walking person and upraised hand, both within a single housing and a countdown timer.
2. APS Pedestrian push button controls shall be raised from or flush with their housings and shall be a minimum of 1 inch in the smallest dimension. The force required to activate the controls shall be no greater than 5 lbs. Verbal message utilized by the APS system shall be coordinated with the City of Somerville.

3. Pedestrian push buttons shall be located as close as practicable to the sidewalk curb ramp serving the controlled crossing and shall permit operation from a clear ground space. If two crosswalks, oriented in different directions, end at or near the same location, the positioning of pedestrian pushbuttons and/or legends on the pedestrian push button signs should clearly indicate which crosswalk signal is actuated by each pedestrian push button.
4. A maximum mounting height of 3.5 feet above the finish sidewalk grade shall be used for pedestrian push buttons. Signage for APS system shall comply with the MUTCD 2009.
5. Signal posts and bases shall be aluminum shafts with cast aluminum transformer bases. Signal base foundations shall not obstruct a sidewalk or crosswalk so that passage by physically challenged persons is impaired.
6. All local controller, malfunction management unit, and amplifier software shall be supplied with the latest available revision. Any software upgrades released by the manufacturer shall be supplied at no charge to the City of Somerville for a period of five years after acceptance of the traffic signal installations.
7. Each programmable local hardware component (controller, malfunction management unit, and detector amplifier) shall be initially programmed by the Contractor based on information contained on the plans. Three sets of hard copy programming per device shall be supplied in three ring binders supplied by the CONTRACTOR.
8. All computer system, controller, conflict monitor and amplifier software shall be supplied with the latest available revision and be Y2K compatible. Any software upgrades released by the manufacturer shall be supplied at no charge to the City. Minor upgrade releases such as version 2.10 to 2.11 or 2.20 are considered minor and shall be supplied to the City at no charge.

M. Mast Arms and Mast Arm Foundations

1. Mast arm foundations shall be fabricated and constructed in conformance with the Interim 1998 AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals and the Contract Documents.
2. Mast arms and poles shall comply with City of Somerville specifications, as included in Attachment D to the Technical Specifications.
3. For all mast arm pole foundation designs shall be submitted to the Engineer for review.
4. Contractor responsible for soil borings for mast arm foundation design.

N. Emergency Vehicle Pre-emption

1. Emergency vehicle pre-emption shall be provided. The preemption system shall be infrared series of emergency vehicle preemption hardware. Hardware shall be installed in the same cabinet as the controller. This will include a phase selector in the cabinet, confirmation strobe(s), and optical detectors as shown on the plans and all cable and electrical connections required for a functional system.
2. Preemption signals shall be serviced on a first detected, first served basis

3. When optical energy impulses are received at the intersection, control of the signals shall transfer to the controller's internal pre-emption logic which shall cause the signal controller to show a selected display identical to one of the color interval displays normally available as specified, which will assist the vehicle through the intersection without cross street conflict. After the vehicle has passed through the intersection, control of the signals shall then return to normal operation which shall restore the appropriate timings that were in effect prior to pre-emption.
4. Minimum green and normal vehicle clearance interval times shall be maintained on phases that are to be terminated by preemption demand.
5. Confirmation strobe shall be illuminated whenever any emergency preemption green is on.
6. Contractor shall install pre-emption system, and once in place, contact local fire department for testing.
7. Contractor shall submit shop drawings for the preemption system to the Engineer for review prior to installation.

EXECUTION

The Contractor shall install and perform testing of the equipment grounding system in the presence of the Engineer in accordance with the MHD Specifications.

After the Contractor has finished installing controllers and all other associated signal equipment and after Contractor has set the signal equipment to operate as specified in the contract documents, the fine tuning, adjusting, and testing period shall begin. During this period, the Contractor, under the direction of the Engineer will make necessary adjustments and tests to ensure safe and efficient operation of the equipment. This period shall not last for less than 30 days. No request for final acceptance will be considered until successful completion of the testing period.

After the initial 30-day period the Contractor shall make adjustments to the signal timing on up to three occasions. Engineer will provide updated timing plans based on the remote data collection.

METHOD OF MEASUREMENT AND PAYMENT

ITEM NO. 815-701

ITEM NO. 815-702

ITEM NO. 815-703

ITEM NO. 815-704

MEASUREMENT

Except for the work of Items 801-30,801-302, 806-301, 811-310, and 815-098, all traffic signal work will be measured as a lump sum for each intersection.

Measurement under Item 815-098 will be by the vertical linear foot when authorized by the Engineer.

PAYMENT

The lump sum price bid for this item shall be full compensation for all labor, materials and equipment necessary or incidental to the installation of the complete signal system, and the removal of the existing flashing signal components at each respective intersection.

No separate payment will be made for excavation, backfill, concrete, temporary installations, restoration of damaged facilities or other incidental work but all costs in connection therewith shall be included in the Lump Sum price bid.

The cost of maintenance of the proposed traffic signal equipment shall be deemed to be included in the various traffic signal contract items, and no additional payments shall be made thereof, except as provided by Subsection 7.17 of the MHD Specifications as amended..

Payment under Item 815-098 will be at the Contract unit price per vertical linear foot when authorized by the Engineer.

Pay Item	Pay Unit
ITEM NO. 815-701 TRAFFIC CONTROL SIGNAL – PROSPECT STREET & SOMERVILLE AVENUE	LUMP SUM
ITEM NO. 815-702 TRAFFIC CONTROL SIGNAL – WASHINGTON STREET, WEBSTER AVENUE, SOMERVILLE AVENUE & BOW STREET	LUMP SUM
ITEM NO. 815-703 TRAFFIC CONTROL SIGNAL – PROSPECT STREET & WEBSTER AVENUE	LUMP SUM
ITEM NO. 815-704 <u>ADD ALTERNATIVE 1 - TRAFFIC</u> CONTROL SIGNAL – BOW STREET & WARREN STREET	LUMP SUM
ITEM NO. 815-098 FOOTING COST ADJUSTMENT	VERTICAL LINEAR FOOT

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ITEM NO. 820-700**ROADWAY LIGHTING MODIFICATIONS****LUMP SUM****DESCRIPTION:**

Under this Item, work shall consist of furnishing and installing complete in place one new light pole with arm suitable for accepting one luminaire. The light pole location shall be confirmed in the field and approved by the Engineer. The work also includes connecting the new light pole to the existing City lighting circuit and lighting controller, including new conduit, handhole, and wiring as necessary.

PRODUCTS**Light Pole and Luminaire**

City Standard

Concrete Lightpole Foundation

pre-cast concrete foundations shall be designed and manufactured to the Pole Manufacturer Specification, for bending movements, axial force, shear force, torsion force, anchor bolt diameter and bolt circle.

Concrete foundations shall conform to the MHD Standard Specifications Section 901, for 4000 psi, 3/4 in. aggregate concrete.

Pre-Cast Electric Handhole

Precast unit and heavy duty frame and cover shall be capable of withstanding an AASHTO H20 vehicle load.

Conduit

Schedule 80 PVC

Conductors

The cable type shall be USE-RHH-RHW-XLP with a voltage rating as recommended by the cable manufacturer. The cable shall be copper stranded with an insulation thickness of approximately 60 mils. The insulation shall be equal to cross-linked polyethylene. Use color-coding tape such as 3M Scotch 35. Furnish and install #6 Bare Copper ground wire, which runs from the Control Center to and/or through the handholes, to the luminaire.

The conductor insulation shall be cross linked polyethylene and the rating shall be 90 degree C wet or dry. Color coding shall be black for Phase A and red or blue for Phase B. Conductors No. 8 AWG and smaller shall be fully color coded by the manufacturer with larger conductors color coded per the NEC. Conductors shall be No. 10 AWG minimum and sized as indicated on the Drawings and as specified in this specification section. Conductors connecting from the electric handholes up the pole to the luminaire shall be No. 10 AWG.

EXECUTION**INSTALLATION**

A. Install concrete lightpole foundation as follows:

1. Excavation shall be made to the minimum depth necessary to install the light pole foundation.
2. The foundation shall be installed perfectly plumb and at the proper elevation as indicated on the Drawings.

3. Backfill shall be placed around the foundation and compact in accordance with the General Earthwork Requirements section of these Specifications. No large rocks or large pieces of concrete or organic material shall be included in the backfill material.

B. Install precast electrical handhole as follows:

1. Handholes shall have an approved expansion joint filter material between it and any abutting, bituminous cement and/or concrete and be installed on 6 inch of Gravel Borrow as shown on the Drawings. Gravel Borrow shall to Item 151-001.
2. The Contractor shall install a 3/4 inch 56T star insert in the handholes centered along the 24 inch wall and about 3 inch above the height of the conduit entrance. This insert will be used as the anchor point for a small rack to support the cable inside the handhole. This rack shall be constructed to keep the cable splices off the bottom of the handhole and out of the possible water table that might develop from the surrounding areas.
3. The Contractor shall furnish and install complete in place, 3/4 inch by 8 ft copper-clad ground rod or equal, connected to ground wire using an exothermic weld in the proposed handhole(s) as directed by the Engineer; a ground rod shall be installed in each proposed handhole throughout the entire system and as herein directed to complete a satisfactory grounded system. The ground rod installation shall measure 25 Ohms to earth maximum; supplemental ground rods shall be driven and bonded together to meet this requirement and requirements described in NEC Article 250. Likewise, all handhole covers shall be bonded to the grounding system to avoid electric shock if any individual accidental contact occurs; the bonding jumper shall be connected to allow removal of the cover by service personnel. All ground rod connections shall be exothermically welded. The Contractor shall submit to the Engineer prior to installation, a location layout for these proposed ground rod(s) for the Engineer's approval.
4. Excavate, backfill and compact in accordance with the General Earthwork Requirements included in these Specifications. Pre-cast concrete unit shall be placed in excavation from which all loose material has been removed. All conduits, ground rods or other items shall be rigidly in place for proper connections.
5. After installation of handholes, the remaining excavation shall be filled, compacted and graded. Grading, planting and/or patching shall be completed to match the surrounding area in its finished conditions.

D. Install conduit as follows:

1. Excavate and backfill in accordance with the General Earthwork Requirements included in these Specifications.
2. Conduit shall be mounted beneath grade, buried at least 24 inches
3. Backfill with Gravel Borrow, as specified in Item 151-001.
4. All conduit beneath a roadway shall be reinforced concrete encased and as indicated on the Drawings and in accordance with the MHD Standard Specification Section 901, 4000 psi, 3/4 in. aggregate.

5. Conduit shall be 1-inch minimum and sized as indicated on the Drawings. Conduit connecting from the Electric Handholes to the concrete pole base shall be 1-1/2 inch.

E. Install pole as follows:

1. Use web fabric slings (not chain or cable) to raise and set pole.
2. Mount pole to foundation with leveling nuts and flat-washers, and tighten top nuts (including flat-washers and locknuts) to torque level as specified by the pole manufacturer.
3. Secure pole level, plumb, and square.
4. Align bolts according to template furnished by pole manufacturer, and align pole to roadway.
5. Install pole and mounting arm in accordance with the manufacturer's installation requirements.

E. Install each luminaire as follows:

1. Install each luminaire so that it is plumb, level, and square.
2. Install each fixture on pole to be level with finished surface.
3. Install lamps in each fixture.
4. Make grounding in accordance with NEC and Contract Drawings.
5. Install label on pole indicating lighting fixture power supply (e.g.: 120 V, 60 Hz, single phase.)

F. Install conductors as follows:

1. All cable splices must be insulated properly against moisture. Method of Water Proof Splices shall be approved by the Engineer.
2. The new electrical wiring shall be tested for continuity, grounds, resistance to ground, insulation resistance, shorts and opens. This shall be done by means of a 1000-volt Megohm - Meter Test.
3. After installation of the new wiring system, complete with required splices, but prior to the final connection to the new load center, the lamp ballast primary shall be disconnected and each circuit shall be tested with a 1000-volt megger. Test on each circuit shall be between each phase conductor where required. When the insulation resistance is less than 100 megohms between an insulated conductor and an uninsulated conductor, or less than 200 megohms between two insulated conductors, the Contractor shall locate the point or points at fault and eliminate.
4. The tests shall be performed in the presence of the Engineer.

5. The test results shall be submitted to the Engineer for further review and acceptance. If any results are questionable or inconsistent, the Contractor shall repeat the tests and make any necessary corrections at the request of the Engineer. No wiring system will be accepted until these tests are satisfactorily performed and approved.
6. The Contractor shall furnish repairs or replacements, which are indicated by this test to produce a fault-free system. All of this work will be performed at the Contractor's expense.
7. The dielectric strength of all splices shall be at least equal to that of the cable insulation.
8. All conductor connections/splices shall be UL Listed for wet locations and installed in accordance with the NEC.

GROUNDING

- A. The entire lighting system must be properly grounded in keeping with all applicable local codes and regulations. The grounding consists of connecting all of the non-current carrying metal parts of the system to the ground rods control centers and to the ground rods located in the handholes included non-current carrying metal parts is the metal cabinets and lighting standards. Complete electrical continuity must be obtained from the Control Cabinet ground to the ground point inside the lighting standard. It is noted that all conduits used in this lighting project are of ground wire system from each of the control centers to each street light standard.
- B. Ground metal poles/support structures.
 1. "Grounding and Bonding."
 - a. Install grounding conductor pigtail in the base for connecting luminaire to grounding system.
 - b. Provide a sufficient length of grounding conductor to extend a minimum of 12 inches outside the hand hole.
- C. Tighten electrical connectors and terminals according to manufacturer's published torque-tightening values. If manufacturer's torque values are not indicated, use those specified in UL486A and UL486B.
- D. The poles shall be grounded in a manner to protect the structure and support from stray currents.

CONNECTIONS

- A. Tighten electrical connectors and terminals according to manufacturer's published torque-tightening values. If manufacturer's torque values are not indicated, use those specified in UL 486A and UL 486B.
- B. Use Loctite-RTV in all fasteners before installation.

FIELD QUALITY CONTROL

- A. Inspect each installed fixture for damage. Replace damaged fixtures and components.

METHOD OF MEASUREMENT AND PAYMENT

ITEM NO. 820-700

MEASUREMENT

The work of Item 820-700 will be measured as a lump sum.

PAYMENT

Payment shall be made for work under this Item at the contract lump sum price, which shall include all labor, materials, transportation, equipment, removal, excavation, coordination with Eversource, backfill, compaction, disposal, complete in place, and all other work necessary to complete the specified work to the satisfaction of the Engineer

Pay Item

Pay Unit

ITEM NO. 820-700

ROADWAY LIGHTING MODIFICATIONS

LUMP SUM

(Remainder of page is intentionally blank)

ITEM NO. 824-001**RECTANGULAR RAPIDLY FLASHING
BEACON SYSTEM****LUMP SUM****GENERAL**

Furnish and install RECTANGULAR RAPID FLASHING BEACON (RRFB) SYSTEM as indicated on the Drawings and as specified herein.

The work shall conform to the requirements of Section 8245 of the MHD Standard Specifications, except as modified herein.

MATERIALS

The RRFB system shall be compliant with the MUTCD Interim Approval for Optional Use of Rectangular Rapid Flashing Beacons. The RRFB system shall include two RRFB units and corresponding W6-1 (Pedestrian) crossing warning sign with a diagonal downward arrow (W16-7P) plaque mounted on standard poles/pedestal bases to be installed to either side of a crosswalk. At each pole, LED displays shall be provided for each direction of travel.

EXECUTION

Installation of RRFB system and signage shall follow manufacturer's recommendations for proprietary products and shall meet applicable requirements of the Standard Specifications for the various non-proprietary components of the work.

The system shall be designed to operate from a 120VAC power source and shall include an electric meter socket and a circuit breaker of appropriate rating.

The system shall be designed to operate over a temperature range from -30F to + 165F. Wiring diagrams and manuals shall be supplied for all equipment installed as part of the System. Documentation shall involve instructions for set up and troubleshooting of all components in the system.

The RRFB system shall include a warrantee by its supplier for two (2) years from the date of installation.

The system shall utilize a pushbutton for activation at each pole. A sign shall be located at each pushbutton with the legend "Push Button to turn on Warning Lights". The system shall include ADA compliant pushbuttons and include logic to allow use of APS pushbuttons. If an APS system is utilized a verbal message "Flashing yellow lights are on" shall be repeated for the duration of flashing.

Beacon Dimensions and Placement in Sign Assembly:

- a. Each RRFB shall consist of two rectangular-shaped yellow indications, each with an LED-array based light source. Each RRFB indication shall be a minimum of approximately 5 inches wide by approximately 2 inches high.
- b. The two RRFB indications shall be aligned horizontally, with the longer dimension horizontal and with a minimum space between the two indications of approximately seven inches (7 in), measured from inside edge of one indication to inside edge of the other indication.
- c. The outside edges of the RRFB indications, including any housings, shall not project beyond the outside edges of the W6-1 sign.

d. A small LED light integral to the pushbutton or RRFB directed at and visible to pedestrians shall be provided to give confirmation that the RRFB is in operation.

Beacon Flashing Requirements:

a. When activated, the two yellow indications in each RRFB shall flash in a rapidly alternating "wig-wag" flashing sequence (left light on, then right light on).

b. Each of the two yellow indications of an RRFB shall have 70 to 80 periods of flashing per minute and shall have alternating but approximately equal periods of rapid pulsing light emissions and dark operation. During each of its 70 to 80 flashing periods per minute, one of the yellow indications shall emit two rapid pulses of light and the other yellow indication shall emit three rapid pulses of light.

c. The flash rate of each individual yellow indication, as applied over the full on-off sequence of a flashing period of the indication, shall not be between 5 and 30 flashes per second, to avoid frequencies that might cause seizures.

d. The light intensity of the yellow indications shall meet the minimum specifications of Society of Automotive Engineers (SAE) standard J595 (Directional Flashing Optical Warning Devices for Authorized Emergency, Maintenance, and Service Vehicles) dated January 2005.

Beacon Operation:

a. The RRFB shall be normally dark, shall initiate operation only upon pedestrian actuation, and shall cease operation at a predetermined time after the pedestrian actuation.

b. All RRFBs associated with a given crosswalk shall, when activated, simultaneously commence operation of their alternating rapid flashing indications and shall cease operation simultaneously.

c. Duration of flashing after activation shall be based on pedestrian clearance time required by the MUTCD (18 SECONDS). This time setting shall be adjustable by the user.

RRFB system (Two RRFB units and corresponding W6-1 and W16-7P plaque mounted on standard poles/pedestal bases installed on either side of a crosswalk) shall be operational after mid-block crosswalk on Somerville Avenue has been installed.

METHOD OF MEASUREMENT AND PAYMENT

ITEM NO. 824-001

MEASUREMENT

The work of Item 824-001 will be measured as a lump sum for each completed and accepted installation.

PAYMENT

The lump sum price bid for this item shall be full compensation for all labor, materials and equipment necessary or incidental to the installation of the complete RECTANGULAR RAPID FLASHING BEACON SYSTEM.

No separate payment will be made for excavation, backfill, concrete, temporary installations, conduit, electrical connections, restoration of damaged facilities or other incidental work but all costs in connection therewith shall be included in the Lump Sum price bid.

Pay Item	Pay Unit
ITEM NO. 824-001 RECTANGULAR RAPIDLY FLASHING BEACON SYSTEM	LUMP SUM

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ITEM NO. 828-001**PERMANENT TRAFFIC SIGNAGE****SQUARE FEET****GENERAL**

Provide permanent traffic signage as indicated on the Drawings and as specified herein. The work includes warning signs, parking regulatory signs, other regulatory signs, street name signs, destination signs and other signs as indicated on the Drawings.

In general, the work of this Item shall conform to Section 828 of the MHD Standard Specifications and the MUTCD, except as otherwise indicated on the Drawings or specified herein.

MATERIALS

Permanent Traffic Signs: aluminum panels in accordance with subsections 828.42 and 828.50 through 828.53 of the MHD Standard Specifications and the following:

1. Sign panels shall be fabricated from flat sheet aluminum sheeting, ASTM B209, Alloy 6061-T6 not less than 0.080 inches thick.
2. The sign background shall be reflective sheeting conforming to Federal specification - L-S-300A. The reflective sheeting shall include a precoated pressure sensitive adhesive or a tack free heat activated adhesive either of which shall be applied exactly as specified by the sheeting manufacturer to recommended, properly prepared flat surfaces without necessity of additional adhesive coats on the reflective sheeting or application surface. The reflective sheeting and its application shall conform to the requirements of the MHD Specifications, material specification M9.30.1 Reflective Sheeting. The sign lettering shall be as noted on Drawings.
3. Unless otherwise noted typefaces shall be Helvetica medium and shall be industry standard normal letter spacing.
4. Typefaces and letter spacing shall be approved by the Engineer before final manufacture.
5. Application of all lettering, arrows, and other artwork shall be by photographic silk screen. No modification of typefaces or layout rules and the arrow/circle will be permitted without approval by the Engineer.

Sign posts shall be in conformance with Massachusetts DOT Standard Drawings for Sign and Supports, Type P-5 Channel Post. Post for street name sign shall be galvanized steel pipe with a nominal 2-3/8 inches outer diameter and a weight of at least 3.65 pounds per linear foot.

EXECUTION**REMOVAL OF EXISTING TRAFFIC SIGNS:**

Refer to Items 874-200 and 874-300.

ERECTION OF PERMANENT TRAFFIC SIGNS:

As adjacent construction is completed, install new traffic signs. Install parking regulatory signs before parking is permitted in areas where new curbing and sidewalk is installed.

Furnish and install shims, tabs, clips, screws, nuts, bolts, spacer sleeves, brackets, supports and all necessary items to make the complete installation.

Install sign posts in concrete to a depth of three feet below finished grade.

Where indicated, erect sign on street light pole. Otherwise, all signs shall be installed on sign posts. The exact location of all signs will be determined by the Engineer. Prior to installation, the Contractor shall provide a field layout using stakes, paint, chalk, and/or other marking to indicate the location of each sign post.

METHOD OF MEASUREMENT AND PAYMENT

ITEM NO. 828-001

Measurement for PERMANENT TRAFFIC SIGNS shall be by the square foot of signs installed in place.

Payment for PERMANENT TRAFFIC SIGNS shall be by the Contract Unit Price per square foot, complete in place including new support posts and assemblies, and other appurtenant work.

Removal of existing traffic signage is included in Items 874-200 and 874-300.

Pay Item

Pay Unit

ITEM NO. 828-001 PERMANENT TRAFFIC SIGNAGE

SQUARE FEET

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ITEM NO. 850-001	TRAFFIC CONTROL SERVICES	ALLOWANCE
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GENERAL

- A. The Contractor shall contact the City of Somerville Police Department to have its officers protect traffic and pedestrians on roadway and walkways that will be interfered with by the Contractor's operation. Where traffic is maintained, the work shall be so conducted and guarded that there shall exist, at all times, a safe passageway for all.
- B. Only law enforcement officers shall be employed on highways under the care and control or jurisdiction of the City.
- C. Only law enforcement officers shall be employed on highways under the care and control or jurisdiction of the MassDOT.
- D. Law enforcement officers shall be employed by the Contractor on a temporary basis, and be considered employees of the Contractor for payment purposes only.

BASIS OF PAYMENT**ITEM NO. 850-001**

- A. The Contractor shall include in its bid allowance of the amounts set forth in the bid proposal section for each item for furnishing Traffic Control Services. Payments to be made under this item shall only be for amounts actually paid by the Contractor to provide satisfactory Traffic Control Services as stipulated herein. No allowance for overhead shall be included, it having been considered to be included for payment in prices stipulated for all other numbered items in the Proposal.
- B. The Contractor shall submit, with each request for payment under this item, a certified statement listing names, dates, rate of pays, hours of service rendered, and total amount paid to each Police Officer.

Pay Item**Pay Unit**

ITEM NO. 850-001	TRAFFIC CONTROL SERVICES	ALLOWANCE
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ITEM NO. 850-002 TRAFFIC MANAGEMENT DURING CONSTRUCTION**LUMP SUM****GENERAL**

Work under this Item shall include preparing and implementing traffic control plans and devices and also providing, placing, erecting, maintaining, and removing all necessary barricades, barriers, fences, and signage to prevent injury to persons or damage to property.

Work shall include providing, installing, maintaining and removing (when work is completed) of temporary traffic control devices for the purpose of maintaining vehicular traffic, protecting that traffic from construction operations, and for providing safe and ADA-accessible pedestrian pathways that provide continuous access along at least one sidewalk for the entire length of each street within the Project area.

The Contractor shall provide safe warning and demarcation of the Contractor staging areas.

Traffic control devices shall include concrete barriers, barrier fencing (chain link), other barricades, temporary signage, temporary pavement markings, and other devices. These devices shall conform to the applicable requirements of the Standard Specifications (Massachusetts DOT Highway Division) and the Federal Highway Administration Manual on Uniform Traffic Control Devices (MUTCD), latest edition.

The Contractor is responsible for the installation of adequate safety precautions for the protection of the traveling and walking public, on streets within the Project Area, and the Contractor's personnel. All materials provided by the Contractor under this Item shall remain the property of the Contractor upon completion of the project.

Comply with the requirements of Section 01015 with regard to the maintenance of traffic operations and the sequence of the switchover to two-way operations on Webster Avenue and Prospect Street.

MATERIALS

- A. All barriers, barrier fences, traffic signs, and other traffic devices shall conform to the Manual of Uniform Traffic Control Devices and the following:
 - 1. Barriers shall be precast concrete, double faced and moveable, in accordance with Massachusetts Department of Transportation Highway Division (MHD) standards.
 - 2. Barrier fence used in the street shall be 8-foot high chain link fence in 10-foot sections, with end posts on each section. The posts shall not be core-drilled into the pavement, but shall be supported on concrete blocks or base plates for easy removal and relocation as work proceeds and if directed by the Engineer. The fabric shall be no tighter than a 3-inch mesh. Tighter meshes that restrict sight distance will not be permitted.
- B. Materials for signs shall conform to the MHD Standard Specifications, Sections 828 and 840 except the plywood material shall conform to the following:
 - 1. Plywood sign panels and independent route markers shall be fabricated from 5 ply 5/8-inch thick Medium Density Overlaid (MDO) Exterior Type, A-B both sides surface in natural color and the whole conforming with the requirements and tests for the above as set forth in U.S. Product Standards PSI-74 for Construction and Industrial Plywood. AR plywood shall

- bear the grade trademark of an approved testing agency. The entire sign face shall be reflectorized sheeting conforming to M9.30.0, Type III, High Performance, of the MHD Standard Specifications.
- C. Sign posts shall be in conformance with Massachusetts DOT Standard Drawings for Sign and Supports, Type P-5 Channel Post.
 - D. Reflectorized Drums: Reflectorized drums with warning lights shall be non-metallic conforming to MHD Standard Specifications material subsection M9.30.9. Newly developed products providing equivalent target value and stability that are acceptable to the Engineer may be used.
 - 1. Warning lights shall conform to MUTCD Subsection 6D-5 for Type A or Type C.
 - E. Pavement marking material shall be an acrylic type, low VOC, fast drying white traffic paint (M7.01.23) conforming to MHD Standard Specifications, Section M7, Subsection M7.01.
 - F. All other materials as part of this section shall be as specified in the MHD Standard Specifications, Section 850-Materials.
 - G. Materials required under this section need not be new but must be physically capable of performing their intended function. Any materials that, in appearance or performance are not in such condition, shall be removed and immediately replaced.

EXECUTION

GENERAL

Install traffic control devices prior to the start of construction activities.

Provide at least 72 hours notice of lane closures (for staging area and if necessary for other construction logistics) to:

- 1. City.
- 2. Police Department
- 3. Fire Department
- 4. EMS
- 5. MBTA Bus Operations

Traffic devices shall be installed in accordance with the Drawings, the MHD Standard Specifications, MUTCD and as directed by the Engineer.

All traffic control devices shall be maintained in good conditions. Damaged traffic control devices shall be removed and replaced at no additional cost to the City.

All personnel who are working within travel or parking lanes, unless protected by concrete barriers or fencing, shall wear MassDOT-approved safety vests. The Contractor shall furnish such vests and maintain a sufficient supply of such at the work site for the Contractor's use and for the Engineer and City personnel assigned to the project, as well as for those visiting the worksite.

TRAFFIC MANAGEMENT PLAN

Comply with the traffic management plan shown on the Drawings and the following:

- A. Maintain existing traffic patterns on all streets unless otherwise specified.
- B. The switchover of traffic on Webster Avenue and Prospect Street from one-way to two-way operations must be in accordance with the sequence of operations specified in Section 01015.
- C. **The Contractor shall submit traffic management plans for all work in the street that is not covered by traffic management plans included in the Drawings. Traffic management plans must be approved by the City Traffic Engineer before they are implemented.**

RESTORATION:

- A. The Contractor shall remove all traffic control devices, signage, pavement markings, and other measures when no longer required or needed. The Contractor shall repair any damage caused by such measures being implemented, at no additional cost to the City.
- B. Restoration of Pavement Markings:
 - 1. After removal of all traffic control devices, restore crosswalks by repainting, using traffic paint as specified in the MassDOT Standard Specifications.

METHOD OF MEASUREMENT AND PAYMENT

ITEM NO. 850-002

All work under this Item shall be paid for as a lump sum. The lump sum price shall constitute full payment for all material, labor and equipment required or incidental to the satisfactory completion of the work as described above.

Pay Item

Pay Unit

**ITEM NO. 850-002 TRAFFIC MANAGEMENT
DURING CONSTRUCTION**

LUMP SUM

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ITEM NO. 852-100	TEMPORARY CONSTRUCTION SIGNS	SQUARE FEET
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GENERAL

Work under this Item includes providing, installing, maintaining, and removal of temporary construction signs for the protection of the traveling public and working personnel during construction and maintenance operations.

MATERIALS

Materials for signs shall conform to the MHD (Massachusetts Department of Transportation [MassDOT], Highway Division) Standard Specifications, Sections 828 and 840 except the plywood material shall conform to the following:

1. Plywood sign panels and independent route markers shall be fabricated from 5 ply 5/8-inch thick Medium Density Overlaid (MDO) Exterior Type, A-B both sides surface in natural color and the whole conforming with the requirements and tests for the above as set forth in U.S. Product Standards PSI-74 for Construction and Industrial Plywood. AR plywood shall bear the grade trademark of an approved testing agency. The entire sign face shall be reflectorized sheeting conforming to M9.30.0, Type III, High Performance, of the MHD Standard Specifications.
2. Interim traffic signage, such as warning and regulatory signs, shall conform to the Drawings and to the Manual of Uniform Traffic Control Devices.

Sign posts for use in lawns and planted areas (or areas where the sidewalk or pavement will be reconstructed under this Project) shall be in conformance with MHD Standard Drawings for Sign and Supports, Type P-5 Channel Post.

Sign posts for use on existing sidewalks that will not be reconstructed by this project shall be metal or wood posts with a base sufficient to make the post stable

EXECUTION

Install temporary signage as indicated on the Drawings and in accordance with the Contractor's approved Traffic Management Plan. The exact location of each sign shall be subject to approval by the Engineer in the field.

Where possible, install temporary signs on existing sign posts, light poles, temporary barriers or barricades. Avoid the installation of new posts in existing concrete sidewalks, unless specifically directed by the Engineer.

Warning signs for motor vehicles shall be mounted at least 6 feet above pavement grade, with 8-foot mounting height preferred. Pedestrian warning signs shall be mounted 3 to 5 feet above grade, so that they are in the line of sight of pedestrians.

Signs that are missing or damaged shall be replaced by the Contractor at no additional cost to the City.

All signs shall be maintained so that they are readable. The Contractor shall clean the signs and remove dirt and soot that accumulates on the face of the sign.

All signs not consistent with the current traffic configuration shall be removed or covered.

REMOVAL:

The Contractor shall remove all temporary construction signage (signs and posts) when no longer required or needed. The Contractor shall repair any damage caused by such measures being implemented, at no additional cost to the City.

METHOD OF MEASUREMENT AND PAYMENT

ITEM NO. 850-100

Measurement for TEMPORARY CONSTRUCTION SIGNS shall be by the square foot of signs installed in place. Regardless of the number of times a sign is used on the Project, it will be measured for payment only once.

Payment for TEMPORARY CONSTRUCTION SIGNS shall be by the Contract Unit Price per square foot.

Pay Item

Pay Unit

ITEM NO. 850-100

TEMPORARY CONSTRUCTION SIGNS

SQUARE FEET

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ITEM NO 854-026	TEMPORARY PAVEMENT MARKINGS – 4-INCH PAINT	LINEAR FOOT
ITEM NO 854-120	PAVEMENT MARKING REMOVAL	LINEAR FOOT

GENERAL

The work of Item 854-026 includes the installation of temporary painted pavement marking, in accordance with the Traffic Management Plan and as directed by the Engineer. Temporary Pavement markings consist of furnishing, applying, maintaining and removing temporary white and yellow reflectorized and black non-reflectorized pavement markings during trucking operations at the Saugus site.

The work of Item 854-120 includes the removal of existing pavement markings (painted or thermoplastic).

The work of these Items shall conform to Section 850 of the MHD Standard Specifications as modified herein.

MATERIALS

Temporary pavement markings shall conform to Section 850.44 of the Standard Specifications.

EXECUTION**Temporary Pavement Markings:**

The Contractor shall provide temporary pavement markings as indicated on the Traffic Management Drawings.

Temporary pavement markers shall be supplemented with tape or painted markings to assure lane delineation.

As the expected reflectivity of the temporary pavement markings, the Contractor shall re-apply the markings every 3 months.

Pavement Marking Removal:

Pavement marking removal shall not cause damage to the pavement or cause drastic change in texture, which could be construed as delineation at night, and shall be approved by the Engineer.

Pavement markings shall be removed to the fullest extent possible by an approved method. Any damage to the pavement or surfacing caused by pavement marking removal shall be repaired by the Contractor at no cost to the City by methods acceptable to the Engineer. MassDOT-approved methods include but are not limited to:

1. Sand blasting using air or water
2. High pressure water
3. Steam or superheated water
4. Mechanical devices such as grinders, sanders, scrapers, scarifiers and wire brushes.

Painting over a pavement marking line by use of asphaltic liquids or paints will not be permitted.

Pavement markings shall be removed before any change is made in the traffic pattern.

Material deposited on the pavement as a result of removing markings shall be removed as the work progresses. Accumulations of sand or other material which might interfere with drainage or could constitute a hazard to traffic will not be permitted.

Where blast cleaning is used for the removal of pavement markings and such removal operation is being performed within 10 feet of a lane occupied by traffic, the residue including dust shall be removed immediately after contact between the sand and the surface being treated- Such removal shall be by a vacuum attachment operating concurrently with the blast cleaning operation, or by other methods approved by the Engineer.

METHOD OF MEASUREMENT AND PAYMENT

ITEM NO. 854-026

ITEM NO. 854-120

MEASUREMENT

Temporary pavement markings shall be measured by the linear foot of marking installed complete in place, as measured by the Engineer.

Pavement marking removal shall be measured by the linear foot of pavement marking actually removed, as measured by the Engineer.

PAYMENT

Payment for Temporary Pavement Markings will be paid for at the Contract unit price per linear foot. Such payment shall include full compensation for furnishing, installing, maintaining and removing the markings.

Payment marking removal will be paid for at the Contract unit price per linear foot. Such payment shall include full compensation for the markings.

Pay Item		Pay Unit
ITEM NO 854-026	TEMPORARY PAVEMENT MARKINGS – 4-INCH PAINT	LINEAR FOOT
ITEM NO 854-120	PAVEMENT MARKING REMOVAL	LINEAR FOOT

ITEM 856-105**PORTABLE CHANGEABLE MESSAGE SIGN****DAY****GENERAL**

Provide two (2) portable changeable message signs for traffic control during construction.

MATERIALS

The Portable Changeable Message Signs shall be temporary traffic control devices with the flexibility to display a variety of messages while meeting the requirements of the latest Manual of Uniform Traffic Control Devices (MUTCD), Section 6F-55. When it is in operating mode, minimum mounting height shall be 7 feet above the roadway to the bottom of the panel, except on vehicle mounted panels which should be mounted as high as possible.

EXECUTION

Locate signs as directed by the Engineer. Signs shall be placed and angled so as to be easily readable by the passing traffic. Signs shall be placed so as not to be a hazard to either motor vehicle traffic or pedestrian traffic. Signs shall not block driveways or sidewalks. Signs shall be on City property.

Relocate signs as construction progresses, when and as directed by the Engineer.

MESSAGE PROGRAMMING

The Contractor shall program, operate and maintain the message on the signs and update such message on a weekly basis. Each message displayed shall have prior approved by the Engineer. All messages shall be related to traffic control during construction. No other messages shall be displayed, unless directed by the Engineer.

REMOVAL

After completion of the project, the Contractor shall remove the remove the signs from the Project area.

The Contractor shall repair any damage done be placement of the sings, including, but not limited to, rutting of lawns, cracking of sidewalks, and any other damage to public or private property. All repairs shall be performed to the satisfaction of the Engineer, at no additional cost to the City.

METHOD OF MEASUREMENT AND PAYMENT**ITEM NO. 856-105****MEASUREMENT**

Provision of PORTABLE CHANGEABLE MESSAGE SIGN will be measured per day a sign is provided and operational and in use at the project site.

PAYMENT

Payment for PORTABLE CHANGEABLE MESSAGE SIGN will be at the Unit Price per each day the sign is operational and in use at the project site. Payment shall include all labor, materials, equipment and supervision for the provision of the sign, maintaining the sign for the duration of the Contract, programming the sign message on the average of once per week, providing power for the sign, and repairing any damage to the sign over the duration of the Contract. Payment shall also include the removal of the sign from the Project site upon completion of construction.

Pay Item**Pay Unit****ITEM NO. 856-105 PORTABLE CHANGEABLE MESSAGE SIGN****DAY**

ITEM NO. 860-001	4-INCH WHITE PAVEMENT MARKINGS	LINEAR FEET
ITEM NO. 860-002	4-INCH YELLOW PAVEMENT MARKINGS	LINEAR FEET
ITEM NO. 860-004	12-INCH WHITE STOP LINES	SQUARE FEET
ITEM NO. 860-005	CROSSWALK STRIPING	SQUARE FEET
ITEM NO. 860-006	PAVEMENT ARROWS AND LEGENDS	SQUARE FEET
ITEM NO. 860-900	GREEN BIKE LANE PAINT	SQUARE FEET

GENERAL:

Furnish and apply permanent reflectorized pavement markings as indicated on the Drawings and in accordance with the MUTCD. Furnish and apply green bike lane paint as indicated on the Drawings and as specified herein.

MATERIAL

Permanent pavement marking material shall be white thermoplastic reflectorized pavement markings (M7.01.03) and yellow thermoplastic reflectorized pavement markings (M7.01.04) conforming to MHD Standard Specifications, Section M7, Subsection M 7.01.

Green bike lane paint shall be a highly specialized coating systems specifically designed for application to asphalt pavement to delineate bicycle lanes. For product specification, see Attachment C to the Technical Specifications.

SAMPLE AND SHOP DRAWINGS

Submit manufacturer's product data/catalog cuts for interim pavement marking material and permanent pavement marking material.

Submit manufacturer's application instructions for interim pavement marking material and permanent pavement marking material.

Submit shop drawings for layout of signs (other than standard MUTCD signs).

MATERIALS:**A. Pavement Marking Materials:**

1. Materials shall be in accordance with the Commonwealth of Massachusetts, Massachusetts Department of Transportation Highway Division, Standard Specifications for Highways and Bridges (MHD Standard Specifications).
2. Interim Pavement Marking Material
 - a. Interim pavement parking material shall be an acrylic type, low VOC, fast drying white traffic paint (M7.01.03) conforming to MHD Standard Specifications, Section M7, Subsection M7.01.
3. Permanent Pavement Marking Material
 - a. Permanent pavement marking material shall be white thermoplastic reflectorized pavement markings (M7.01.03) and yellow thermoplastic reflectorized pavement markings (M7.01.04) conforming to MHD Standard Specifications, Section M7, Subsection M 7.01.

EXECUTION

A. PREPARATION:

1. Clean pavement prior to application of pavement markings so that pavement is dry and free of sand, grease, oil and other foreign substances.

B. INSTALLATION:

1. Pavement Markings:
 - a. Install pavement marking in accordance with the MUTCD. The location and layout of pedestrian crosswalks and stop bars shall be approved by the Engineer. The Contractor shall provide a spray-painted layout of all pavement markings for approval by the Engineer.
 - b. Application of Pavement Markings: Apply pavement marking in accordance with Section 860 of the MHD Specifications.
2. Bike lane paint: apply per the manufacturer's printed application procedures. See Attachment C to the Technical Specifications.

METHOD OF MEASUREMENT AND PAYMENT

ITEM NO. 860-001
ITEM NO. 860-002
ITEM NO. 860-004
ITEM NO. 860-005
ITEM NO. 860-006
ITEM NO. 860-900

Measurement for pavement markings will be by the linear foot or square foot of marking installed complete in place, as measured by the Engineer.

Payment will be at the Contract Unit Price per linear foot or square foot. The unit price shall be full compensation for all labor, equipment, materials and supervision necessary.

Pay Item		Pay Unit
ITEM NO. 860-001	4-INCH WHITE PAVEMENT MARKINGS	LINEAR FEET
ITEM NO. 860-002	4-INCH YELLOW PAVEMENT MARKINGS	LINEAR FEET
ITEM NO. 860-004	12-INCH WHITE STOP LINES	SQUARE FEET
ITEM NO. 860-005	CROSSWALK STRIPING	SQUARE FEET
ITEM NO. 860-006	PAVEMENT ARROWS AND LEGENDS	SQUARE FEET
ITEM NO. 860-900	GREEN BIKE LANE PAINT	SQUARE FEET

(Remainder of page is intentionally blank)

ITEM NO. 874-200	TRAFFIC SIGN REMOVED AND RESET	EACH
ITEM NO. 874-300	TRAFFIC SIGN REMOVED AND DISCARDED	EACH

GENERAL:

Where indicated on the Plans or as directed, remove existing traffic signage and reset or discard.

EXECUTION

Where indicated for removal, completely remove existing signage including existing sign posts. Where signs are attached to utility poles, remove sign and all attachment brackets and hardware.

Unless otherwise indicated on the Plans, fill hole resulting from pole removal. Restore surface with same material as surrounding.

Reset sign and sign post in conformance with the applicable requirements of Item 828-001.

METHOD OF MEASUREMENT AND PAYMENT**ITEM NO. 874-200****ITEM NO. 874-300**

Traffic signs removed and reset or discarded will be measured per each sign.

Payment for traffic signs removed and reset or discarded will be by the Contract Unit Price per each and shall include all labor, materials, and equipment for the removal of the sign, support brackets and hardware, and sign post and for either the resetting or discarding of removed materials. Payment shall also include the cost of new support brackets and attachment hardware for the resetting of signs.

Pay Item	Pay Unit
ITEM NO. 874-200 TRAFFIC SIGN REMOVED AND RESET	EACH
ITEM NO. 874-300 TRAFFIC SIGN REMOVED AND DISCARDED	EACH

(Remainder of page is intentionally blank)

ITEM NO. 875-001	PARKING METER REMOVED AND RESET	EACH
ITEM NO. 875-002	PARKING METER REMOVED AND STACKED	EACH

GENERAL:

Where indicated on the Plans or as directed, remove existing parking meters with posts and reset or stack.

EXECUTION

Prior to removing a parking meter, provide at least 72 hours notice to the City Traffic Engineer. Place “NO PARKING” signage as directed by the Engineer.

Where indicated for removal, completely remove existing parking meter including head and post. In concrete sidewalks, neatly saw cut around the post.

Parking meter heads shall be delivered to the City Traffic Engineer.

Where parking meters are to be relocated, the exact location will be marked in the field by the City Traffic Engineer. Core drill existing concrete sidewalk to install post. Where new sidewalk is indicated on the Drawings, install posts before installing sidewalk.

Obtain meter heads from the City Traffic Engineer and install on posts as directed by the Engineer.

Unless otherwise indicated on the Plans, fill hole resulting from post removal. Restore surface with same material as surrounding, in conformance with the applicable provisions of Item 701-001 for concrete sidewalks and Item 702-001 for HOT MIX ASPHALT sidewalks.

METHOD OF MEASUREMENT AND PAYMENT**ITEM NO. 875-001****ITEM NO. 875-002**

Parking meters removed and reset or stacked will be measured per each meter post.

Payment for parking meters removed and reset or stacked will be by the Contract Unit Price per each and shall include all labor, materials, and equipment for the removal of the post and head and for either the resetting or stacking removed materials.

Pay Item	Pay Unit
ITEM NO. 875-001 PARKING METER REMOVED AND RESET	EACH
ITEM NO. 875-002 PARKING METER REMOVED AND STACKED	EACH