

INVITATION FOR BIDS

(IFB # 14-87-Rebid)

Symphony Park CONSTRUCTION OF A NEW PARK

Bid Opening: 11:00 AM, Wednesday, July 9, 2014



CITY OF SOMERVILLE, MASSACHUSETTS

Joseph A. Curtatone, Mayor

Purchasing Department
Angela M. Allen, Purchasing Director

Luisa Oliveira
Office Strategic Planning & Community Development.
City of Somerville
93 Highland Avenue
Somerville, MA 02143
PH: 617-625-6600 x2529
FX: 617-625-0722

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Symphony Park – CONSTRUCTION OF A NEW PARK

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**PART 1 SECTION 00020:
CITY OF SOMERVILLE MASSACHUSETTS
INVITATION TO BID
SYMPHONY PARK – CONSTRUCTION OF A NEW PARK
Bid No. 14-87-Rebid**

**Enclosed you will find an invitation to bid for:
SYMPHONY PARK – CONSTRUCTION OF A NEW PARK**

46 Pearl St., at the corner of Pearl and Florence Streets in East Somerville, MA 02143.

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, June 18, 2014** upon deposit of \$ 50.00 for each set in the form of a check made payable to the City of Somerville. **The deposit will be non-refundable.** Any person requesting additional sets will be required to pay a nonrefundable fee for each additional set in the amount of \$ 50.00, per set.

An *Optional* Pre-Bid Conference and optional site visit, will be held on Wednesday, June 25, 2014 at 11:00 AM, Somerville City Hall, Alderman's Chambers, 2nd Floor, 93 Highland Avenue, Somerville, MA 02143.

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, July 9, 2014.** Please mark the outside of all bid envelopes with the following:

“Bid #14-87-Rebid, Symphony Park” 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) Bid Form for Alternates**
- 3) Unit Price Form**
- 4) Somerville Living Wage Form**
- 5) Acknowledgement of Notice to Bidders**
- 6) Quality Requirements Form**
- 7) Certificate of Non-Collusion & Tax Compliance**
- 8) Certificate of Signature Authority**
- 9) Signature Form complete when submitting your bid.**
- 10) Reference Form**
- 11) 5% Bid Deposit**
- 12) 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.

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PART 1, SECTION 2:

INSTRUCTIONS TO BIDDERS

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

1. NAME OF PROJECT

Symphony Park – CONSTRUCTION OF A NEW PARK

2. AWARDING AUTHORITY

The City of Somerville (City), acting by and through the Purchasing Department, invites sealed bids for the Symphony Park, in accordance with contract documents.

OSPCD Contact:

Luisa Oliveira
Office of Strategic Planning & Community Development
City of Somerville
93 Highland Avenue
Somerville, MA 02143
Phone (617) 625-6600 x2529
Fax: (617) 625-0722

3. LANDSCAPE ARCHITECT:

**Groundview LLC
5 Dell Street
Somerville, MA 02145
617-548-9688**

Contact: Eden Dutcher
edendutcher@groundviewdesign.com

4. LOCATION OF PROJECT

46 Pearl Street Somerville, MA

5. BRIEF DESCRIPTION OF WORK MORE PARTICULARLY DESCRIBED IN THE PLANS AND SPECIFICATIONS INCLUDED AS PART OF THIS BID PACKAGE.

Construction documents for this project have been prepared by Groundview LLC, Landscape Architects who will act as the agent of the City, overseeing 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 scope of work is to create a small pocket park (less than .2 acres), located on a residential lot once occupied by the Hadleys, an important family in the music legacy of Somerville. The existing site is an open lot retained along Forence Street by a CMU wall. The design of the new park includes re-grading the site to provide access from Florence Street and providing a central walking path, lawn and performance area, a small community garden, passive seating areas, planting beds and a low-flow water feature. The ornamental metal seating and pergola furnishings are custom designed. Lighting design includes low-voltage accent lighting integrated with the pergola. There will be a storm water collection system that reuses water for irrigation. Please consult the plans and specifications for full scope of work, including important permitting requirements.

The contractor will be responsible for providing as-built drawings and a maintenance manual at final completion. The City will not assume maintenance of Symphony Park until final completion and a park walk-through/review meeting with the Somerville Department of Public Works at which all systems and maintenance plans will be reviewed and approved by the Somerville Department of Public Works. After this approval, the contractor will submit the maintenance manual and as-built drawings to the City.

6. ESTIMATED CONSTRUCTION COST OF THE PROJECT

The estimated cost for the project is \$ 500,000.00

7. PROJECT SCHEDULE:

Estimated Construction Start: September 1, 2014

Date of Substantial Completion: May 15, 2015

Date of Final Completion: June 1, 2015

100% completion of all work.

Bidders are instructed to note the firmness of 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 September 1, 2014, 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 September 1, 2014.

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.

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 617-242-6000
100 First Avenue
Charlestown Navy Yard
Boston, MA 02129

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

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

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

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

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

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

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

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

A T & T Broadband 981-658-0400, x2210
Attn: Mr. Rich Ferrucci
760 Main Street
Malden, MA 01887

Somerville Public Works Department 617-625-6600, x5200
One Franey Road
Somerville, MA 02145

Somerville Fire Department 617-625-6600, x8100
266 Broadway
Somerville, MA 02143

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 BID 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 park projects similar in magnitude within the last six (6) years.

12. PRE-BID CONFERENCE QUESTIONS AND INFORMATION

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An Optional Pre-Bid Conference, will be held on Wednesday, June 25, 2014 at 11:00 AM, Somerville City Hall, Aldermen's Chambers, 2nd Floor, 93 Highland Avenue, Somerville, MA 02143.

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, June 26, 2014**; 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

Optional Pre-bid Conference (and site visit)	11:00 AM	Wednesday, June 25, 2014
Deadline for Questions	12:30 PM	Thursday, June 26, 2014
Proposals Due and Bids Opened	11:00 AM	Wednesday, July 9, 2014
Evaluation of Bid Documentation Begins		July 9, 2014
Anticipated Contract Award		August 2014
Anticipated Notice to Proceed		August 2014
Commencement of Work		September 1, 2014

13. 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, July 9, 2014**, 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.

14. 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)

Bid Form for Alternates (Section 00310)

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/corp/Certificates/Certificate_Request.asp or call Tel: (617) 727-9640 for more information.

15. PREVAILING and DAVIS BACON WAGE RATE REQUIREMENTS

The contractor shall pay the greater of either Davis Bacon or Mass. Prevailing Wage Rates. The applicable prevailing and Davis Bacon 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 wages at no less than the greater of either Davis Bacon or 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.

16. 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/corp/Certificates/Certificate_Request.asp

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 lowest responsible and eligible bidder. All required bid documents must be provided to be deemed responsible and eligible.

21. MAINTENANCE MANUAL AND AS-BUILT DRAWING REQUIREMENTS

Upon Final Completion of all park construction, the contractor shall submit: two complete copies of a park 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 park 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 complete landscape maintenance plan with recommended maintenance schedules and procedures for all park systems including: watering, fertilization, spring start up procedures, fall clean-up, irrigation and water systems shut-down procedures, and park winterization procedures;
 - 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;
- List of all plant material, and sizes of plant containers;
- 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 landscape architect.

3) The Compact Discs shall include an electronic copy of all as-built drawings.

PART 1 SECTION 3

Symphony Park

(IFB # 14-87-Rebid)

BID SUBMISSION DOCUMENTS

BIDDERS NAME: _____

This Bid Submission includes the following:

- _____ Form for General Bid
- _____ Bid Form for Alternates
- _____ 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

**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:

Symphony Park

in accordance with the accompanying plans and specifications prepared by

**Groundview LLC
5 Dell Street
Somerville, MA 02145
617-548-9688**

Contact: Eden Dutcher
edendutcher@groundviewdesign.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. While the proposed contract price does not include the items listed on the attached "Bid Form for Alternates," 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 park 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: _____.

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 ____ 2014.

On behalf of :

(Undersigned Bidder Business Name)

(Business Address) and (Telephone)

By:

(Name and Address of Person Signing Bid)

(Title of Person Signing bid)

BID FORM FOR ALTERNATES

(SEE SPECIFICATIONS SECTION 01230)

Symphony Park
City of Somerville, MA

*PLEASE PRINT CLEARLY *

The following are ALTERNATES which, if adopted by the City, shall either increase or decrease the Contractor's base bid contract price and lump sum bid. The City reserves the right to determine the lowest eligible bidder on the basis of the base bid or the adoption of the ALTERNATE, selected in order, and in combination with the base bid. (For example: Base Bid, Base Bid + Alternate 1)

Alternate number	Change	Description	Price Change
1	ADD	Rain Harvester Sistrern System shown on C-2 of the drawings.	ADD \$ _____
2	ADD	Storage Cabinet shown on L-1.00 & L-5.05 of the drawings, and 02805 CUSTOM METAL FABRICATION of the specifications. Musical Elements described in 02800 SITE IMPROVEMENTS of the specifications.	ADD \$ _____
3	ALTERNATE	Replace all thirty-one (31) 2-2 1/2" caliper trees with 3-3 1/2" caliper trees shown on L-4.00 of the drawings.	ADD \$ _____
4	ADD	Two (2) trash & recycling units shown on L-1.00 of the drawings and 02800 SITE IMPROVEMENTS of the specifications.	ADD \$ _____
5	ALTERNATE	Replace all concrete units with granite units for Permeable Unit Pavers, Stacked Unit Steps, and Stacked Unit Walls as shown on L-1.00, L-5.01 & L-5.02 of the drawings and 02501 SITE GRANITE of the specifications.	ADD \$ _____

SYMPHONY PARK
CITY OF SOMERVILLE

	Item Description (All references to items shall correspond to work as described in the relevant portions of the Construction Documents including all required materials for installation, ie. Subbase preparation, bases, beddings, footings, coring, trenching, wiring, mulching, guying, maintenance, etc.)	UNIT	ADDITIONS	DEDUCTIONS
	02100 Site Preparation			
2100-01	removal and stockpile of concrete pavement for optional reuse (disposal if not reused)	sf		
2100-02	removal and disposal of bituminous concrete pavement	sf		
2100-03	removal and store existing granite curb for re-setting	lf		
2100-04	removal and disposal of existing concrete unit masonry wall	lf		
2100-05	removal and disposal of chainlink fence & footings	lf		
2100-06	treatment of japanese knotweed	sf		
2100-07	clearing, grubbing, stripping and stockpile of topsoil for optional reuse (disposal if not reused)	sf		
2100-08	removal and disposal of trees, stumps and root system	ea		
	02200 earthwork			
2200-01	removal and disposal of soil	cy		
2200-02	gravel fill (Token Amount)	cy		
2200-03	sand fill	cy		
2200-04	(granular base course)	(included w/ improvement costs)		
2200-05	(granular subbase course)	(included w/ improvement costs)		
2200-06	(granular setting bed)	(included w/ improvement costs)		
	02500 site paving			
02500-01	concrete paving	sf		
02500-01	stonedust paving	sf		
02500-01	metal edging	lf		
02500-01	bituminous concrete roadway patch	sf		
	02501 site granite			
2501-01	salvaged granite steps	lf		
2501-02	salvaged granite seat	ea		
2501-03	re-set granite curb	lf		
	02502 site unit masonry			
2502-01	permeable unit paving	sf		
2502-02	stacked unit steps	ea		
2502-03	stacked unit wall (4"-36" ht)	lf		
2502-04	metal edging	lf		

SYMPHONY PARK
CITY OF SOMERVILLE

	02510 water distribution			
2510-01	water cabinet	ea		
2510-02	1" copper pipe	lf		
2510-03	valve box	ea		
2510-04	water meter	ea		
2510-05	backflow preventer	ea		
2510-06	2000 gallon sistern frame & cover	ea		
2510-07	rain harvest pump, float switchs and wiring	ea		
	02630 storm drainage			
2630-01	4" sch 40 PVC perf pipe	lf		
2630-02	6" solid pvc Drain			
2630-03	trench drain	ea		
2630-04	catch basin	ea		
	02800 site improvments			
2800-01	6'-0" metal fabric fence	lf		
2800-02	3'-0" metal fabric fence	lf		
2800-03	6'-0" wood panel fence	lf		
2800-04	trench drain grate	ea		
2800-05	area drain grate	ea		
2800-06	trash & recycling unit	ea		
2800-07	bike rack	ea		
2800-08	commerative medallion	ea		
2800-09	park signage: name sign with post	ea		
2800-10	park signage: park regulation sign, attached to park sign post	ea		
2800-11	park signage: community garden regulation sign,	ea		
2800-12	music elements	ls		
	02805 custom metal fabrication			
2805-01	handrail	ea		
2805-02	water runnel	lf		
2805-03	water runnel actication bollard	ea		
2805-04	hose bib bollard	ea		
2805-05	trellis	ea		
2805-06	storage cabinet	ea		
2805-07	bench a	ea		
2805-08	bench b	ea		
2805-09	bench c	ea		
2805-10	bench d	ea		
2805-11	bench e	ea		
2805-12	pergola	ea		

SYMPHONY PARK
CITY OF SOMERVILLE

	02810 irrigation			
2810-01	irrigation controller	ea		
2810-02	rain sensor	ea		
2810-03	spray head & pipe/sleeve as required for lawns	sf		
2810-04	drip lines & pipe/sleeve as required for plant beds and tree wells	sf		
	02900 planting			
2900-01	planting soil	cy		
2900-02	planting soil with reinforcing for steep slopes	cy		
2900-03	canopy trees: 2-2.5" caliper	ea		
2900-04	deciduous shoots: 24" tall	ea		
2900-05	shrubs, groundcover & grasses: 4" pot	ea		
2900-06	shrubs, groundcover & grasses: 1 gallon	ea		
2900-07	shrubs, groundcover & grasses: 2 gallon	ea		
2900-08	shrubs, groundcover & grasses: 3 gallon	ea		
2900-09	vines: 10 gal	ea		
2900-10	bulbs: per 100 qty	ea		
2900-11	lawn	sf		
2900-12	mulch	cy		
	16100 electric			
16100-01	power outlet	ea		
16100-02	electric panel	ea		
16100-03	electric meter	ea		
16100-04	electric cabinet	ea		
16100-05	3" galv steel conduit	lf		
16100-06	schedule 40 PVC conduit, dia as req.	lf		
16100-07	handhold	ea		
16100-08	pergola light fixture	ea		
16100-09	pergola light transformer	ea		
	03300 cast-in-place concrete			
3300-01	planter wall	lf		
3300-02	(concrete paving, bases, pads, footings, etc)	(included w/ improvement costs)		



SOMERVILLE LIVING WAGE ORDINANCE CERTIFICATION FORM

CITY OF SOMERVILLE CODE OF ORDINANCES SECTION 2-397 et seq¹

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 address of each employee, the number of hours worked, the gross wages, a copy of the social

¹Copies of the Ordinance are available upon request to the Purchasing Department.

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 7/1/2013 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.

Part 1 Section 3: BID SUBMISSION DOCUMENTS

NOTICE TO BIDDERS BID #14-87-Rebid

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

SECTION A. Sealed bids for: **Symphony Park**. 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, July 9, 2014 at 11:00 A.M.** at which time and place they will be publicly opened and read.

An Optional Pre-Bid Conference will be held on Wednesday, June 25, 2014 at 11:00 AM, Somerville City Hall, Aldermen's Chambers, 2nd Floor, 93 Highland Avenue, Somerville, MA 02143.

SECTION B. Forms of price bid, specifications and terms of contract can be obtained at the Purchasing Department office on or after **Wednesday, June 18, 2014.**

SECTION C. Bid envelopes shall be clearly marked as follows: "**Bid No: 14-87-Rebid, Bid for Symphony Park**".

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)
Davis Bacon and 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 Park 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?		
Optional: Vendor: Are you a State Office for Minority and Women Owned Business Assistance (SOMWBA) certified minority- or woman-owned business?		



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 (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)



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: _____

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# 14-87-Rebid Symphony Park**

Bidder must provide references from three municipalities for similar municipal park 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:_____

BID BOND OR GUARANTY

BIDDER TO INSERT HERE

Prevailing Wage Rates
Davis Bacon Wage Rates
Payroll Submission Forms

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 _____

MASSACHUSETTS WEEKLY CERTIFIED PAYROLL REPORT FORM



Company's Name:		Address:		Phone No.:		Payroll No.:														
Employer's Signature:		Title:		Contract No.:		Work Week Ending:														
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 (%)	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)		Project Gross Wages (H)
	☐																			
	☐																			
	☐																			
	☐																			
	☐																			
	☐																			
	☐																			

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.



DEVAL L. PATRICK
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

RACHEL KAPRIELIAN
Secretary
HEATHER E. ROWE
Director

Awarding Authority: City of Somerville

Contract Number:

City/Town: SOMERVILLE

Description of Work: IFB #14-87, Symphony Park - Construction of a new park in East Somerville, MA.

Job Location: 46 Pearl Street Somerville, MA

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.
- Awarding authorities 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.
- 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. Once a contractor has been selected by the awarding authority, the wage schedule shall be made a part of the contract for that project. The wage schedule must be posted in a conspicuous place at the work site during 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 regardless of 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 Training (DAT). Apprentices must keep his/her apprentice identification [card](#) on his/her person during all work hours on the project. If an apprentice rate is listed on the prevailing wage schedule for the trade in which an apprentice is registered with the DAT, the apprentice 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 DAT, 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. 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 directly to the awarding authority 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.

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
Construction						
(2 AXLE) DRIVER - EQUIPMENT <i>TEAMSTERS JOINT COUNCIL NO. 10 ZONE A</i>	12/01/2013	\$32.05	\$9.41	\$8.80	\$0.00	\$50.26
	06/01/2014	\$32.40	\$9.41	\$8.80	\$0.00	\$50.61
	08/01/2014	\$32.40	\$9.91	\$8.80	\$0.00	\$51.11
	12/01/2014	\$32.40	\$9.91	\$9.33	\$0.00	\$51.64
	06/01/2015	\$32.75	\$9.91	\$9.33	\$0.00	\$51.99
	08/01/2015	\$32.75	\$10.41	\$9.33	\$0.00	\$52.49
	12/01/2015	\$32.75	\$10.41	\$10.08	\$0.00	\$53.24
	06/01/2016	\$33.25	\$10.41	\$10.08	\$0.00	\$53.74
	08/01/2016	\$33.25	\$10.91	\$10.08	\$0.00	\$54.24
	12/01/2016	\$33.25	\$10.91	\$10.89	\$0.00	\$55.05
(3 AXLE) DRIVER - EQUIPMENT <i>TEAMSTERS JOINT COUNCIL NO. 10 ZONE A</i>	12/01/2013	\$32.12	\$9.41	\$8.80	\$0.00	\$50.33
	06/01/2014	\$32.47	\$9.41	\$8.80	\$0.00	\$50.68
	08/01/2014	\$32.47	\$9.91	\$8.80	\$0.00	\$51.18
	12/01/2014	\$32.47	\$9.91	\$9.33	\$0.00	\$51.71
	06/01/2015	\$32.82	\$9.91	\$9.33	\$0.00	\$52.06
	08/01/2015	\$32.82	\$10.41	\$9.33	\$0.00	\$52.56
	12/01/2015	\$32.82	\$10.41	\$10.08	\$0.00	\$53.31
	06/01/2016	\$33.32	\$10.41	\$10.08	\$0.00	\$53.81
	08/01/2016	\$33.32	\$10.91	\$10.08	\$0.00	\$54.31
	12/01/2016	\$33.32	\$10.91	\$10.89	\$0.00	\$55.12
(4 & 5 AXLE) DRIVER - EQUIPMENT <i>TEAMSTERS JOINT COUNCIL NO. 10 ZONE A</i>	12/01/2013	\$32.24	\$9.41	\$8.80	\$0.00	\$50.45
	06/01/2014	\$32.59	\$9.41	\$8.80	\$0.00	\$50.80
	08/01/2014	\$32.59	\$9.91	\$8.80	\$0.00	\$51.30
	12/01/2014	\$32.59	\$9.91	\$9.33	\$0.00	\$51.83
	06/01/2015	\$32.94	\$9.91	\$9.33	\$0.00	\$52.18
	08/01/2015	\$32.94	\$10.41	\$9.33	\$0.00	\$52.68
	12/01/2015	\$32.94	\$10.41	\$10.08	\$0.00	\$53.43
	06/01/2016	\$33.44	\$10.41	\$10.08	\$0.00	\$53.93
	08/01/2016	\$33.44	\$10.91	\$10.08	\$0.00	\$54.43
	12/01/2016	\$33.44	\$10.91	\$10.89	\$0.00	\$55.24
ADS/SUBMERSIBLE PILOT <i>PILE DRIVER LOCAL 56 (ZONE 1)</i>	08/01/2013	\$84.21	\$9.80	\$18.17	\$0.00	\$112.18
	08/01/2014	\$87.36	\$9.80	\$18.17	\$0.00	\$115.33
	08/01/2015	\$90.51	\$9.80	\$18.17	\$0.00	\$118.48
AIR TRACK OPERATOR <i>LABORERS - ZONE 1</i>	12/01/2013	\$34.10	\$7.30	\$12.70	\$0.00	\$54.10
	06/01/2014	\$34.85	\$7.30	\$12.70	\$0.00	\$54.85
	12/01/2014	\$35.60	\$7.30	\$12.70	\$0.00	\$55.60
	06/01/2015	\$36.35	\$7.30	\$12.70	\$0.00	\$56.35
	12/01/2015	\$37.10	\$7.30	\$12.70	\$0.00	\$57.10
	06/01/2016	\$37.85	\$7.30	\$12.70	\$0.00	\$57.85
	12/01/2016	\$38.85	\$7.30	\$12.70	\$0.00	\$58.85
For apprentice rates see "Apprentice- LABORER"						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
ASBESTOS REMOVER - PIPE / MECH. EQUIPT. <i>HEAT & FROST INSULATORS LOCAL 6 (BOSTON)</i>	12/01/2013	\$30.68	\$10.40	\$5.95	\$0.00	\$47.03
	06/01/2014	\$31.58	\$10.40	\$5.95	\$0.00	\$47.93
	12/01/2014	\$32.48	\$10.40	\$5.95	\$0.00	\$48.83
	06/01/2015	\$33.43	\$10.40	\$5.95	\$0.00	\$49.78
	12/01/2015	\$34.38	\$10.40	\$5.95	\$0.00	\$50.73
ASPHALT RAKER <i>LABORERS - ZONE 1</i>	12/01/2013	\$33.60	\$7.30	\$12.70	\$0.00	\$53.60
	06/01/2014	\$34.35	\$7.30	\$12.70	\$0.00	\$54.35
	12/01/2014	\$35.10	\$7.30	\$12.70	\$0.00	\$55.10
	06/01/2015	\$35.85	\$7.30	\$12.70	\$0.00	\$55.85
	12/01/2015	\$36.60	\$7.30	\$12.70	\$0.00	\$56.60
	06/01/2016	\$37.35	\$7.30	\$12.70	\$0.00	\$57.35
	12/01/2016	\$38.35	\$7.30	\$12.70	\$0.00	\$58.35
For apprentice rates see "Apprentice- LABORER"						
ASPHALT/CONCRETE/CRUSHER PLANT-ON SITE <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2013	\$40.49	\$10.00	\$14.18	\$0.00	\$64.67
	For apprentice rates see "Apprentice- OPERATING ENGINEERS"					
BACKHOE/FRONT-END LOADER <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2013	\$40.49	\$10.00	\$14.18	\$0.00	\$64.67
	For apprentice rates see "Apprentice- OPERATING ENGINEERS"					
BARCO-TYPE JUMPING TAMPER <i>LABORERS - ZONE 1</i>	12/01/2013	\$33.60	\$7.30	\$12.70	\$0.00	\$53.60
	06/01/2014	\$34.35	\$7.30	\$12.70	\$0.00	\$54.35
	12/01/2014	\$35.10	\$7.30	\$12.70	\$0.00	\$55.10
	06/01/2015	\$35.85	\$7.30	\$12.70	\$0.00	\$55.85
	12/01/2015	\$36.60	\$7.30	\$12.70	\$0.00	\$56.60
	06/01/2016	\$37.35	\$7.30	\$12.70	\$0.00	\$57.35
	12/01/2016	\$38.35	\$7.30	\$12.70	\$0.00	\$58.35
For apprentice rates see "Apprentice- LABORER"						
BLOCK PAVER, RAMMER / CURB SETTER <i>LABORERS - ZONE 1</i>	12/01/2013	\$34.10	\$7.30	\$12.70	\$0.00	\$54.10
	06/01/2014	\$34.85	\$7.30	\$12.70	\$0.00	\$54.85
	12/01/2014	\$35.60	\$7.30	\$12.70	\$0.00	\$55.60
	06/01/2015	\$36.35	\$7.30	\$12.70	\$0.00	\$56.35
	12/01/2015	\$37.10	\$7.30	\$12.70	\$0.00	\$57.10
	06/01/2016	\$37.85	\$7.30	\$12.70	\$0.00	\$57.85
	12/01/2016	\$38.85	\$7.30	\$12.70	\$0.00	\$58.85
For apprentice rates see "Apprentice- LABORER"						
BOILER MAKER <i>BOILERMAKERS LOCAL 29</i>	01/01/2010	\$37.70	\$6.97	\$11.18	\$0.00	\$55.85

Classification

Effective Date

Base Wage

Health

Pension

**Supplemental
Unemployment**

Total Rate

Apprentice - BOILERMAKER - Local 29

Effective Date - 01/01/2010

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

Notes:

Apprentice to Journeyworker Ratio:1:5

BRICK/STONE/ARTIFICIAL MASONRY (INCL. MASONRY WATERPROOFING)	02/01/2014	\$48.06	\$10.18	\$18.15	\$0.00	\$76.39
BRICKLAYERS LOCAL 3 (BOSTON)	08/01/2014	\$48.96	\$10.18	\$18.22	\$0.00	\$77.36
	02/01/2015	\$49.52	\$10.18	\$18.22	\$0.00	\$77.92
	08/01/2015	\$50.42	\$10.18	\$18.29	\$0.00	\$78.89
	02/01/2016	\$50.99	\$10.18	\$18.29	\$0.00	\$79.46
	08/01/2016	\$51.89	\$10.18	\$18.37	\$0.00	\$80.44
	02/01/2017	\$52.46	\$10.18	\$18.37	\$0.00	\$81.01

Classification
Effective Date
Base Wage
Health
Pension
**Supplemental
Unemployment**
Total Rate
Apprentice - BRICK/PLASTER/CEMENT MASON - Local 3 Boston
Effective Date - 02/01/2014

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$24.03	\$10.18	\$18.15	\$0.00	\$52.36
2	60	\$28.84	\$10.18	\$18.15	\$0.00	\$57.17
3	70	\$33.64	\$10.18	\$18.15	\$0.00	\$61.97
4	80	\$38.45	\$10.18	\$18.15	\$0.00	\$66.78
5	90	\$43.25	\$10.18	\$18.15	\$0.00	\$71.58

Effective Date - 08/01/2014

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$24.48	\$10.18	\$18.22	\$0.00	\$52.88
2	60	\$29.38	\$10.18	\$18.22	\$0.00	\$57.78
3	70	\$34.27	\$10.18	\$18.22	\$0.00	\$62.67
4	80	\$39.17	\$10.18	\$18.22	\$0.00	\$67.57
5	90	\$44.06	\$10.18	\$18.22	\$0.00	\$72.46

Notes:
Apprentice to Journeyworker Ratio:1:5

BULLDOZER/GRADER/SCRAPER <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2013	\$40.11	\$10.00	\$14.18	\$0.00	\$64.29
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
CAISSON & UNDERPINNING BOTTOM MAN <i>LABORERS - FOUNDATION AND MARINE</i>	12/01/2013	\$34.45	\$7.30	\$12.90	\$0.00	\$54.65
	06/01/2014	\$35.20	\$7.30	\$12.90	\$0.00	\$55.40
	12/01/2014	\$35.95	\$7.30	\$12.90	\$0.00	\$56.15
	06/01/2015	\$36.70	\$7.30	\$12.90	\$0.00	\$56.90
	12/01/2015	\$37.45	\$7.30	\$12.90	\$0.00	\$57.65
	06/01/2016	\$38.20	\$7.30	\$12.90	\$0.00	\$58.40
	12/01/2016	\$39.20	\$7.30	\$12.90	\$0.00	\$59.40
For apprentice rates see "Apprentice- LABORER"						
CAISSON & UNDERPINNING LABORER <i>LABORERS - FOUNDATION AND MARINE</i>	12/01/2013	\$33.30	\$7.30	\$12.90	\$0.00	\$53.50
	06/01/2014	\$34.05	\$7.30	\$12.90	\$0.00	\$54.25
	12/01/2014	\$34.80	\$7.30	\$12.90	\$0.00	\$55.00
	06/01/2015	\$35.55	\$7.30	\$12.90	\$0.00	\$55.75
	12/01/2015	\$36.30	\$7.30	\$12.90	\$0.00	\$56.50
	06/01/2016	\$37.05	\$7.30	\$12.90	\$0.00	\$57.25
	12/01/2016	\$38.05	\$7.30	\$12.90	\$0.00	\$58.25
For apprentice rates see "Apprentice- LABORER"						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
CAISSON & UNDERPINNING TOP MAN <i>LABORERS - FOUNDATION AND MARINE</i>	12/01/2013	\$33.30	\$7.30	\$12.90	\$0.00	\$53.50
	06/01/2014	\$34.05	\$7.30	\$12.90	\$0.00	\$54.25
	12/01/2014	\$34.80	\$7.30	\$12.90	\$0.00	\$55.00
	06/01/2015	\$35.55	\$7.30	\$12.90	\$0.00	\$55.75
	12/01/2015	\$36.30	\$7.30	\$12.90	\$0.00	\$56.50
	06/01/2016	\$37.05	\$7.30	\$12.90	\$0.00	\$57.25
	12/01/2016	\$38.05	\$7.30	\$12.90	\$0.00	\$58.25
For apprentice rates see "Apprentice- LABORER"						
CARBIDE CORE DRILL OPERATOR <i>LABORERS - ZONE 1</i>	12/01/2013	\$33.60	\$7.30	\$12.70	\$0.00	\$53.60
	06/01/2014	\$34.35	\$7.30	\$12.70	\$0.00	\$54.35
	12/01/2014	\$35.10	\$7.30	\$12.70	\$0.00	\$55.10
	06/01/2015	\$35.85	\$7.30	\$12.70	\$0.00	\$55.85
	12/01/2015	\$36.60	\$7.30	\$12.70	\$0.00	\$56.60
	06/01/2016	\$37.35	\$7.30	\$12.70	\$0.00	\$57.35
	12/01/2016	\$38.35	\$7.30	\$12.70	\$0.00	\$58.35
For apprentice rates see "Apprentice- LABORER"						
CARPENTER <i>CARPENTERS -ZONE 1 (Metro Boston)</i>	03/01/2014	\$40.83	\$9.80	\$15.91	\$0.00	\$66.54
	09/01/2014	\$41.85	\$9.80	\$15.91	\$0.00	\$67.56
	03/01/2015	\$42.87	\$9.80	\$15.91	\$0.00	\$68.58

Apprentice - CARPENTER - Zone 1 Metro Boston**Effective Date - 03/01/2014**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$20.42	\$9.80	\$1.57	\$0.00	\$31.79
2	60	\$24.50	\$9.80	\$1.57	\$0.00	\$35.87
3	70	\$28.58	\$9.80	\$11.20	\$0.00	\$49.58
4	75	\$30.62	\$9.80	\$11.20	\$0.00	\$51.62
5	80	\$32.66	\$9.80	\$12.77	\$0.00	\$55.23
6	80	\$32.66	\$9.80	\$12.77	\$0.00	\$55.23
7	90	\$36.75	\$9.80	\$14.34	\$0.00	\$60.89
8	90	\$36.75	\$9.80	\$14.34	\$0.00	\$60.89

Effective Date - 09/01/2014

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$20.93	\$9.80	\$1.57	\$0.00	\$32.30
2	60	\$25.11	\$9.80	\$1.57	\$0.00	\$36.48
3	70	\$29.30	\$9.80	\$11.20	\$0.00	\$50.30
4	75	\$31.39	\$9.80	\$11.20	\$0.00	\$52.39
5	80	\$33.48	\$9.80	\$12.77	\$0.00	\$56.05
6	80	\$33.48	\$9.80	\$12.77	\$0.00	\$56.05
7	90	\$37.67	\$9.80	\$14.34	\$0.00	\$61.81
8	90	\$37.67	\$9.80	\$14.34	\$0.00	\$61.81

Notes:**Apprentice to Journeyworker Ratio:1:5**

CEMENT MASONRY/PLASTERING

BRICKLAYERS LOCAL 3 (BOSTON)

01/01/2014	\$43.60	\$10.90	\$18.71	\$1.30	\$74.51
07/01/2014	\$43.77	\$10.90	\$18.71	\$1.30	\$74.68
01/01/2015	\$44.69	\$10.90	\$18.71	\$1.30	\$75.60
07/01/2015	\$45.29	\$10.90	\$18.71	\$1.30	\$76.20
01/01/2016	\$46.21	\$10.90	\$18.71	\$1.30	\$77.12

Classification
Effective Date
Base Wage
Health
Pension
**Supplemental
Unemployment**
Total Rate
Apprentice - CEMENT MASONRY/PLASTERING - Eastern Mass (Boston)
Effective Date - 01/01/2014

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$21.80	\$10.90	\$12.21	\$1.30	\$46.21
2	60	\$26.16	\$10.90	\$13.71	\$1.30	\$52.07
3	65	\$28.34	\$10.90	\$14.71	\$1.30	\$55.25
4	70	\$30.52	\$10.90	\$15.71	\$1.30	\$58.43
5	75	\$32.70	\$10.90	\$16.71	\$1.30	\$61.61
6	80	\$34.88	\$10.90	\$17.71	\$1.30	\$64.79
7	90	\$39.24	\$10.90	\$18.71	\$1.30	\$70.15

Effective Date - 07/01/2014

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$21.89	\$10.90	\$12.21	\$1.30	\$46.30
2	60	\$26.26	\$10.90	\$13.71	\$1.30	\$52.17
3	65	\$28.45	\$10.90	\$14.71	\$1.30	\$55.36
4	70	\$30.64	\$10.90	\$15.71	\$1.30	\$58.55
5	75	\$32.83	\$10.90	\$16.71	\$1.30	\$61.74
6	80	\$35.02	\$10.90	\$17.71	\$1.30	\$64.93
7	90	\$39.39	\$10.90	\$18.71	\$1.30	\$70.30

Notes:

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

Apprentice to Journeyworker Ratio:1:3

CHAIN SAW OPERATOR	12/01/2013	\$33.60	\$7.30	\$12.70	\$0.00	\$53.60
LABORERS - ZONE 1	06/01/2014	\$34.35	\$7.30	\$12.70	\$0.00	\$54.35
	12/01/2014	\$35.10	\$7.30	\$12.70	\$0.00	\$55.10
	06/01/2015	\$35.85	\$7.30	\$12.70	\$0.00	\$55.85
	12/01/2015	\$36.60	\$7.30	\$12.70	\$0.00	\$56.60
	06/01/2016	\$37.35	\$7.30	\$12.70	\$0.00	\$57.35
	12/01/2016	\$38.35	\$7.30	\$12.70	\$0.00	\$58.35
For apprentice rates see "Apprentice- LABORER"						
CLAM SHELLS/SLURRY BUCKETS/HEADING MACHINES	12/01/2013	\$41.49	\$10.00	\$14.18	\$0.00	\$65.67
OPERATING ENGINEERS LOCAL 4						
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
COMPRESSOR OPERATOR	12/01/2013	\$28.11	\$10.00	\$14.18	\$0.00	\$52.29
OPERATING ENGINEERS LOCAL 4						
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
DELEADER (BRIDGE)	01/01/2014	\$45.91	\$7.85	\$16.10	\$0.00	\$69.86
PAINTERS LOCAL 35 - ZONE 1	07/01/2014	\$46.76	\$7.85	\$16.10	\$0.00	\$70.71
	01/01/2015	\$47.66	\$7.85	\$16.10	\$0.00	\$71.61
	07/01/2015	\$48.56	\$7.85	\$16.10	\$0.00	\$72.51
	01/01/2016	\$49.51	\$7.85	\$16.10	\$0.00	\$73.46
	07/01/2016	\$50.46	\$7.85	\$16.10	\$0.00	\$74.41
	01/01/2017	\$51.41	\$7.85	\$16.10	\$0.00	\$75.36

Classification
Effective Date
Base Wage
Health
Pension
**Supplemental
Unemployment**
Total Rate
Apprentice - PAINTER Local 35 - BRIDGES/TANKS
Effective Date - 01/01/2014

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$22.96	\$7.85	\$0.00	\$0.00	\$30.81
2	55	\$25.25	\$7.85	\$3.66	\$0.00	\$36.76
3	60	\$27.55	\$7.85	\$3.99	\$0.00	\$39.39
4	65	\$29.84	\$7.85	\$4.32	\$0.00	\$42.01
5	70	\$32.14	\$7.85	\$14.11	\$0.00	\$54.10
6	75	\$34.43	\$7.85	\$14.44	\$0.00	\$56.72
7	80	\$36.73	\$7.85	\$14.77	\$0.00	\$59.35
8	90	\$41.32	\$7.85	\$15.44	\$0.00	\$64.61

Effective Date - 07/01/2014

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$23.38	\$7.85	\$0.00	\$0.00	\$31.23
2	55	\$25.72	\$7.85	\$3.66	\$0.00	\$37.23
3	60	\$28.06	\$7.85	\$3.99	\$0.00	\$39.90
4	65	\$30.39	\$7.85	\$4.32	\$0.00	\$42.56
5	70	\$32.73	\$7.85	\$14.11	\$0.00	\$54.69
6	75	\$35.07	\$7.85	\$14.44	\$0.00	\$57.36
7	80	\$37.41	\$7.85	\$14.77	\$0.00	\$60.03
8	90	\$42.08	\$7.85	\$15.44	\$0.00	\$65.37

Notes:

Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

DEMO: ADZEMAN

LABORERS - ZONE I

12/01/2013	\$33.50	\$7.30	\$12.70	\$0.00	\$53.50
06/01/2014	\$34.25	\$7.30	\$12.70	\$0.00	\$54.25
12/01/2014	\$35.00	\$7.30	\$12.70	\$0.00	\$55.00
06/01/2015	\$35.75	\$7.30	\$12.70	\$0.00	\$55.75
12/01/2015	\$36.50	\$7.30	\$12.70	\$0.00	\$56.50

For apprentice rates see "Apprentice- LABORER"

DEMO: BACKHOE/LOADER/HAMMER OPERATOR

LABORERS - ZONE I

12/01/2013	\$34.50	\$7.30	\$12.70	\$0.00	\$54.50
06/01/2014	\$35.25	\$7.30	\$12.70	\$0.00	\$55.25
12/01/2014	\$36.00	\$7.30	\$12.70	\$0.00	\$56.00
06/01/2015	\$36.75	\$7.30	\$12.70	\$0.00	\$56.75
12/01/2015	\$37.50	\$7.30	\$12.70	\$0.00	\$57.50

For apprentice rates see "Apprentice- LABORER"

DEMO: BURNERS

LABORERS - ZONE I

12/01/2013	\$34.25	\$7.30	\$12.70	\$0.00	\$54.25
06/01/2014	\$35.00	\$7.30	\$12.70	\$0.00	\$55.00
12/01/2014	\$35.75	\$7.30	\$12.70	\$0.00	\$55.75
06/01/2015	\$36.50	\$7.30	\$12.70	\$0.00	\$56.50
12/01/2015	\$37.25	\$7.30	\$12.70	\$0.00	\$57.25

For apprentice rates see "Apprentice- LABORER"

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
DEMO: CONCRETE CUTTER/SAWYER <i>LABORERS - ZONE 1</i>	12/01/2013	\$34.50	\$7.30	\$12.70	\$0.00	\$54.50
	06/01/2014	\$35.25	\$7.30	\$12.70	\$0.00	\$55.25
	12/01/2014	\$36.00	\$7.30	\$12.70	\$0.00	\$56.00
	06/01/2015	\$36.75	\$7.30	\$12.70	\$0.00	\$56.75
	12/01/2015	\$37.50	\$7.30	\$12.70	\$0.00	\$57.50
For apprentice rates see "Apprentice- LABORER"						
DEMO: JACKHAMMER OPERATOR <i>LABORERS - ZONE 1</i>	12/01/2013	\$34.25	\$7.30	\$12.70	\$0.00	\$54.25
	06/01/2014	\$35.00	\$7.30	\$12.70	\$0.00	\$55.00
	12/01/2014	\$35.75	\$7.30	\$12.70	\$0.00	\$55.75
	06/01/2015	\$36.50	\$7.30	\$12.70	\$0.00	\$56.50
	12/01/2015	\$37.25	\$7.30	\$12.70	\$0.00	\$57.25
For apprentice rates see "Apprentice- LABORER"						
DEMO: WRECKING LABORER <i>LABORERS - ZONE 1</i>	12/01/2013	\$33.50	\$7.30	\$12.70	\$0.00	\$53.50
	06/01/2014	\$34.25	\$7.30	\$12.70	\$0.00	\$54.25
	12/01/2014	\$35.00	\$7.30	\$12.70	\$0.00	\$55.00
	06/01/2015	\$35.75	\$7.30	\$12.70	\$0.00	\$55.75
	12/01/2015	\$36.50	\$7.30	\$12.70	\$0.00	\$56.50
For apprentice rates see "Apprentice- LABORER"						
DIRECTIONAL DRILL MACHINE OPERATOR <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2013	\$40.11	\$10.00	\$14.18	\$0.00	\$64.29
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
DIVER <i>PILE DRIVER LOCAL 56 (ZONE 1)</i>	08/01/2013	\$56.14	\$9.80	\$18.17	\$0.00	\$84.11
	08/01/2014	\$58.24	\$9.80	\$18.17	\$0.00	\$86.21
	08/01/2015	\$60.34	\$9.80	\$18.17	\$0.00	\$88.31
DIVER TENDER <i>PILE DRIVER LOCAL 56 (ZONE 1)</i>	08/01/2013	\$40.10	\$9.80	\$18.17	\$0.00	\$68.07
	08/01/2014	\$41.60	\$9.80	\$18.17	\$0.00	\$69.57
	08/01/2015	\$43.10	\$9.80	\$18.17	\$0.00	\$71.07
DIVER TENDER (EFFLUENT) <i>PILE DRIVER LOCAL 56 (ZONE 1)</i>	08/01/2013	\$60.15	\$9.80	\$18.17	\$0.00	\$88.12
	08/01/2014	\$62.40	\$9.80	\$18.17	\$0.00	\$90.37
	08/01/2015	\$64.65	\$9.80	\$18.17	\$0.00	\$92.62
DIVER/SLURRY (EFFLUENT) <i>PILE DRIVER LOCAL 56 (ZONE 1)</i>	08/01/2013	\$84.21	\$9.80	\$18.17	\$0.00	\$112.18
	08/01/2014	\$87.36	\$9.80	\$18.17	\$0.00	\$115.33
	08/01/2015	\$90.51	\$9.80	\$18.17	\$0.00	\$118.48
DRAWBRIDGE OPERATOR (Construction) <i>ELECTRICIANS LOCAL 103</i>	03/01/2014	\$44.45	\$13.00	\$14.68	\$0.00	\$72.13
	09/01/2014	\$45.12	\$13.00	\$14.70	\$0.00	\$72.82
	03/01/2015	\$45.84	\$13.00	\$14.72	\$0.00	\$73.56
	09/01/2015	\$46.80	\$13.00	\$14.75	\$0.00	\$74.55
	03/01/2016	\$47.75	\$13.00	\$14.78	\$0.00	\$75.53
For apprentice rates see "Apprentice- ELECTRICIAN"						
ELECTRICIAN <i>ELECTRICIANS LOCAL 103</i>	03/01/2014	\$44.45	\$13.00	\$14.68	\$0.00	\$72.13
	09/01/2014	\$45.12	\$13.00	\$14.70	\$0.00	\$72.82
	03/01/2015	\$45.84	\$13.00	\$14.72	\$0.00	\$73.56
	09/01/2015	\$46.80	\$13.00	\$14.75	\$0.00	\$74.55
	03/01/2016	\$47.75	\$13.00	\$14.78	\$0.00	\$75.53

Classification

Effective Date Base Wage Health Pension Supplemental
Unemployment Total Rate

Apprentice - ELECTRICIAN - Local 103
Effective Date - 03/01/2014

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	\$17.78	\$13.00	\$0.53	\$0.00	\$31.31
2	40	\$17.78	\$13.00	\$0.53	\$0.00	\$31.31
3	45	\$20.00	\$13.00	\$11.04	\$0.00	\$44.04
4	45	\$20.00	\$13.00	\$11.04	\$0.00	\$44.04
5	50	\$22.23	\$13.00	\$11.37	\$0.00	\$46.60
6	55	\$24.45	\$13.00	\$11.70	\$0.00	\$49.15
7	60	\$26.67	\$13.00	\$12.03	\$0.00	\$51.70
8	65	\$28.89	\$13.00	\$12.37	\$0.00	\$54.26
9	70	\$31.12	\$13.00	\$12.69	\$0.00	\$56.81
10	75	\$33.34	\$13.00	\$13.03	\$0.00	\$59.37

Effective Date - 09/01/2014

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	\$18.05	\$13.00	\$0.54	\$0.00	\$31.59
2	40	\$18.05	\$13.00	\$0.54	\$0.00	\$31.59
3	45	\$20.30	\$13.00	\$11.05	\$0.00	\$44.35
4	45	\$20.30	\$13.00	\$11.05	\$0.00	\$44.35
5	50	\$22.56	\$13.00	\$11.38	\$0.00	\$46.94
6	55	\$24.82	\$13.00	\$11.71	\$0.00	\$49.53
7	60	\$27.07	\$13.00	\$12.04	\$0.00	\$52.11
8	65	\$29.33	\$13.00	\$12.38	\$0.00	\$54.71
9	70	\$31.58	\$13.00	\$12.71	\$0.00	\$57.29
10	75	\$33.84	\$13.00	\$13.05	\$0.00	\$59.89

Notes :

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

Apprentice to Journeyworker Ratio:2:3***

ELEVATOR CONSTRUCTOR	01/01/2012	\$52.45	\$8.78	\$6.96	\$0.00	\$68.19
ELEVATOR CONSTRUCTORS LOCAL 4						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
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Apprentice - ELEVATOR CONSTRUCTOR - Local 4

Effective Date - 01/01/2012

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$26.23	\$8.78	\$0.00	\$0.00	\$35.01
2	55	\$28.85	\$8.78	\$6.96	\$0.00	\$44.59
3	65	\$34.09	\$8.78	\$6.96	\$0.00	\$49.83
4	70	\$36.72	\$8.78	\$6.96	\$0.00	\$52.46
5	80	\$41.96	\$8.78	\$6.96	\$0.00	\$57.70

Notes:

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

Apprentice to Journeyworker Ratio:1:1

ELEVATOR CONSTRUCTOR HELPER <i>ELEVATOR CONSTRUCTORS LOCAL 4</i>	01/01/2012	\$38.59	\$8.78	\$6.96	\$0.00	\$54.33
For apprentice rates see "Apprentice - ELEVATOR CONSTRUCTOR"						
FENCE & GUARD RAIL ERECTOR <i>LABORERS - ZONE 1</i>	12/01/2013	\$33.60	\$7.30	\$12.70	\$0.00	\$53.60
	06/01/2014	\$34.35	\$7.30	\$12.70	\$0.00	\$54.35
	12/01/2014	\$35.10	\$7.30	\$12.70	\$0.00	\$55.10
	06/01/2015	\$35.85	\$7.30	\$12.70	\$0.00	\$55.85
	12/01/2015	\$36.60	\$7.30	\$12.70	\$0.00	\$56.60
	06/01/2016	\$37.35	\$7.30	\$12.70	\$0.00	\$57.35
	12/01/2016	\$38.35	\$7.30	\$12.70	\$0.00	\$58.35
For apprentice rates see "Apprentice- LABORER"						
FIELD ENG.INST.PERSON-BLDG,SITE,HVY/HWY <i>OPERATING ENGINEERS LOCAL 4</i>	05/01/2014	\$38.87	\$10.00	\$14.18	\$0.00	\$63.05
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
FIELD ENG.PARTY CHIEF-BLDG,SITE,HVY/HWY <i>OPERATING ENGINEERS LOCAL 4</i>	05/01/2014	\$40.29	\$10.00	\$14.18	\$0.00	\$64.47
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
FIELD ENG.ROD PERSON-BLDG,SITE,HVY/HWY <i>OPERATING ENGINEERS LOCAL 4</i>	05/01/2014	\$20.92	\$10.00	\$14.18	\$0.00	\$45.10
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
FIRE ALARM INSTALLER <i>ELECTRICIANS LOCAL 103</i>	03/01/2014	\$44.45	\$13.00	\$14.68	\$0.00	\$72.13
	09/01/2014	\$45.12	\$13.00	\$14.70	\$0.00	\$72.82
	03/01/2015	\$45.84	\$13.00	\$14.72	\$0.00	\$73.56
	09/01/2015	\$46.80	\$13.00	\$14.75	\$0.00	\$74.55
	03/01/2016	\$47.75	\$13.00	\$14.78	\$0.00	\$75.53
For apprentice rates see "Apprentice- ELECTRICIAN"						
FIRE ALARM REPAIR / MAINTENANCE / COMMISSIONING <i>ELECTRICIANS LOCAL 103</i>	03/01/2014	\$33.44	\$13.00	\$13.03	\$0.00	\$59.47
	09/01/2014	\$33.84	\$13.00	\$13.05	\$0.00	\$59.89
	03/01/2015	\$34.38	\$13.00	\$13.06	\$0.00	\$60.44
	09/01/2015	\$35.10	\$13.00	\$13.08	\$0.00	\$61.18
	03/01/2016	\$35.81	\$13.00	\$13.10	\$0.00	\$61.91
For apprentice rates see "Apprentice- TELECOMMUNICATIONS TECHNICIAN"						
FIREMAN (ASST. ENGINEER) <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2013	\$33.76	\$10.00	\$14.18	\$0.00	\$57.94

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
FLAGGER & SIGNALER <i>LABORERS - ZONE 1</i>	12/01/2013	\$20.50	\$7.30	\$12.70	\$0.00	\$40.50
	06/01/2014	\$20.50	\$7.30	\$12.70	\$0.00	\$40.50
	12/01/2014	\$20.50	\$7.30	\$12.70	\$0.00	\$40.50
	06/01/2015	\$20.50	\$7.30	\$12.70	\$0.00	\$40.50
	12/01/2015	\$20.50	\$7.30	\$12.70	\$0.00	\$40.50
	06/01/2016	\$20.50	\$7.30	\$12.70	\$0.00	\$40.50
	12/01/2016	\$20.50	\$7.30	\$12.70	\$0.00	\$40.50
For apprentice rates see "Apprentice- LABORER"						
FLOORCOVERER <i>FLOORCOVERERS LOCAL 2168 ZONE 1</i>	03/01/2014	\$39.87	\$9.80	\$16.96	\$0.00	\$66.63

Apprentice - FLOORCOVERER - Local 2168 Zone 1

Effective Date - 03/01/2014

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$19.94	\$9.80	\$1.79	\$0.00	\$31.53
2	55	\$21.93	\$9.80	\$1.79	\$0.00	\$33.52
3	60	\$23.92	\$9.80	\$11.59	\$0.00	\$45.31
4	65	\$25.92	\$9.80	\$11.59	\$0.00	\$47.31
5	70	\$27.91	\$9.80	\$13.38	\$0.00	\$51.09
6	75	\$29.90	\$9.80	\$13.38	\$0.00	\$53.08
7	80	\$31.90	\$9.80	\$15.17	\$0.00	\$56.87
8	85	\$33.89	\$9.80	\$15.17	\$0.00	\$58.86

Notes:

Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

FORK LIFT/CHERRY PICKER <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2013	\$40.49	\$10.00	\$14.18	\$0.00	\$64.67
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
GENERATOR/LIGHTING PLANT/HEATERS <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2013	\$28.11	\$10.00	\$14.18	\$0.00	\$52.29
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
GLAZIER (GLASS PLANK/AIR BARRIER/INTERIOR SYSTEMS) <i>GLAZIERS LOCAL 35 (ZONE 1)</i>	01/01/2014	\$41.20	\$7.85	\$16.10	\$0.00	\$65.15
	07/01/2014	\$42.05	\$7.85	\$16.10	\$0.00	\$66.00
	01/01/2015	\$42.95	\$7.85	\$16.10	\$0.00	\$66.90
	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

Classification
Effective Date
Base Wage
Health
Pension
**Supplemental
Unemployment**
Total Rate
Apprentice - GLAZIER - Local 35 Zone 1
Effective Date - 01/01/2014

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$20.60	\$7.85	\$0.00	\$0.00	\$28.45
2	55	\$22.66	\$7.85	\$3.66	\$0.00	\$34.17
3	60	\$24.72	\$7.85	\$3.99	\$0.00	\$36.56
4	65	\$26.78	\$7.85	\$4.32	\$0.00	\$38.95
5	70	\$28.84	\$7.85	\$14.11	\$0.00	\$50.80
6	75	\$30.90	\$7.85	\$14.44	\$0.00	\$53.19
7	80	\$32.96	\$7.85	\$14.77	\$0.00	\$55.58
8	90	\$37.08	\$7.85	\$15.44	\$0.00	\$60.37

Effective Date - 07/01/2014

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$21.03	\$7.85	\$0.00	\$0.00	\$28.88
2	55	\$23.13	\$7.85	\$3.66	\$0.00	\$34.64
3	60	\$25.23	\$7.85	\$3.99	\$0.00	\$37.07
4	65	\$27.33	\$7.85	\$4.32	\$0.00	\$39.50
5	70	\$29.44	\$7.85	\$14.11	\$0.00	\$51.40
6	75	\$31.54	\$7.85	\$14.44	\$0.00	\$53.83
7	80	\$33.64	\$7.85	\$14.77	\$0.00	\$56.26
8	90	\$37.85	\$7.85	\$15.44	\$0.00	\$61.14

Notes:

Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

HOISTING ENGINEER/CRANES/GRADALLS

12/01/2013

\$40.49

\$10.00

\$14.18

\$0.00

\$64.67

OPERATING ENGINEERS LOCAL 4

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
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Apprentice - OPERATING ENGINEERS - Local 4

Effective Date - 12/01/2013

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	55	\$22.27	\$10.00	\$0.00	\$0.00	\$32.27
2	60	\$24.29	\$10.00	\$14.18	\$0.00	\$48.47
3	65	\$26.32	\$10.00	\$14.18	\$0.00	\$50.50
4	70	\$28.34	\$10.00	\$14.18	\$0.00	\$52.52
5	75	\$30.37	\$10.00	\$14.18	\$0.00	\$54.55
6	80	\$32.39	\$10.00	\$14.18	\$0.00	\$56.57
7	85	\$34.42	\$10.00	\$14.18	\$0.00	\$58.60
8	90	\$36.44	\$10.00	\$14.18	\$0.00	\$60.62

Notes:

Apprentice to Journeyworker Ratio:1:6

HVAC (DUCTWORK)	02/01/2014	\$42.76	\$9.82	\$19.74	\$2.17	\$74.49
<i>SHEETMETAL WORKERS LOCAL 17 - A</i>	08/01/2014	\$43.61	\$9.82	\$19.74	\$2.17	\$75.34
	02/01/2015	\$44.51	\$9.82	\$19.74	\$2.17	\$76.24
	08/01/2015	\$45.51	\$9.82	\$19.74	\$2.17	\$77.24
	02/01/2016	\$46.51	\$9.82	\$19.74	\$2.17	\$78.24
	08/01/2016	\$47.66	\$9.82	\$19.74	\$2.17	\$79.39
	02/01/2017	\$48.76	\$9.82	\$19.74	\$2.17	\$80.49
	08/01/2017	\$49.86	\$9.82	\$19.74	\$2.17	\$81.59
	02/01/2018	\$51.01	\$9.82	\$19.74	\$2.17	\$82.74

For apprentice rates see "Apprentice- SHEET METAL WORKER"

HVAC (ELECTRICAL CONTROLS)	03/01/2014	\$44.45	\$13.00	\$14.68	\$0.00	\$72.13
<i>ELECTRICIANS LOCAL 103</i>	09/01/2014	\$45.12	\$13.00	\$14.70	\$0.00	\$72.82
	03/01/2015	\$45.84	\$13.00	\$14.72	\$0.00	\$73.56
	09/01/2015	\$46.80	\$13.00	\$14.75	\$0.00	\$74.55
	03/01/2016	\$47.75	\$13.00	\$14.78	\$0.00	\$75.53

For apprentice rates see "Apprentice- ELECTRICIAN"

HVAC (TESTING AND BALANCING - AIR)	02/01/2014	\$42.76	\$9.82	\$19.74	\$2.17	\$74.49
<i>SHEETMETAL WORKERS LOCAL 17 - A</i>	08/01/2014	\$43.61	\$9.82	\$19.74	\$2.17	\$75.34
	02/01/2015	\$44.51	\$9.82	\$19.74	\$2.17	\$76.24
	08/01/2015	\$45.51	\$9.82	\$19.74	\$2.17	\$77.24
	02/01/2016	\$46.51	\$9.82	\$19.74	\$2.17	\$78.24
	08/01/2016	\$47.66	\$9.82	\$19.74	\$2.17	\$79.39
	02/01/2017	\$48.76	\$9.82	\$19.74	\$2.17	\$80.49
	08/01/2017	\$49.86	\$9.82	\$19.74	\$2.17	\$81.59
	02/01/2018	\$51.01	\$9.82	\$19.74	\$2.17	\$82.74

For apprentice rates see "Apprentice- SHEET METAL WORKER"

HVAC (TESTING AND BALANCING - WATER)	03/01/2013	\$49.34	\$8.75	\$14.39	\$0.00	\$72.48
<i>PIPEFITTERS LOCAL 537</i>						

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

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
HVAC MECHANIC <i>PIPEFITTERS LOCAL 537</i>	03/01/2013	\$49.34	\$8.75	\$14.39	\$0.00	\$72.48
For apprentice rates see "Apprentice- PIPEFITTER" or "PLUMBER/PIPEFITTER"						
HYDRAULIC DRILLS <i>LABORERS - ZONE 1</i>	12/01/2013	\$34.10	\$7.30	\$12.70	\$0.00	\$54.10
	06/01/2014	\$34.85	\$7.30	\$12.70	\$0.00	\$54.85
	12/01/2014	\$35.60	\$7.30	\$12.70	\$0.00	\$55.60
	06/01/2015	\$36.35	\$7.30	\$12.70	\$0.00	\$56.35
	12/01/2015	\$37.10	\$7.30	\$12.70	\$0.00	\$57.10
	06/01/2016	\$37.85	\$7.30	\$12.70	\$0.00	\$57.85
	12/01/2016	\$38.85	\$7.30	\$12.70	\$0.00	\$58.85
For apprentice rates see "Apprentice- LABORER"						
INSULATOR (PIPES & TANKS) <i>HEAT & FROST INSULATORS LOCAL 6 (BOSTON)</i>	09/01/2013	\$42.11	\$10.95	\$12.10	\$0.00	\$65.16
	09/01/2014	\$44.11	\$10.95	\$12.10	\$0.00	\$67.16

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

Effective Date - 09/01/2013

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$21.06	\$10.95	\$9.00	\$0.00	\$41.01
2	60	\$25.27	\$10.95	\$9.62	\$0.00	\$45.84
3	70	\$29.48	\$10.95	\$10.24	\$0.00	\$50.67
4	80	\$33.69	\$10.95	\$10.86	\$0.00	\$55.50

Effective Date - 09/01/2014

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$22.06	\$10.95	\$9.00	\$0.00	\$42.01
2	60	\$26.47	\$10.95	\$9.62	\$0.00	\$47.04
3	70	\$30.88	\$10.95	\$10.24	\$0.00	\$52.07
4	80	\$35.29	\$10.95	\$10.86	\$0.00	\$57.10

Notes:

Steps are 1 year

Apprentice to Journeyworker Ratio:1:4

IRONWORKER/WELDER <i>IRONWORKERS LOCAL 7 (BOSTON AREA)</i>	03/16/2014	\$41.19	\$7.70	\$19.25	\$0.00	\$68.14
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Classification
Effective Date
Base Wage
Health
Pension
**Supplemental
Unemployment**
Total Rate
Apprentice - IRONWORKER - Local 7 Boston
Effective Date - 03/16/2014

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$24.71	\$7.70	\$19.25	\$0.00	\$51.66
2	70	\$28.83	\$7.70	\$19.25	\$0.00	\$55.78
3	75	\$30.89	\$7.70	\$19.25	\$0.00	\$57.84
4	80	\$32.95	\$7.70	\$19.25	\$0.00	\$59.90
5	85	\$35.01	\$7.70	\$19.25	\$0.00	\$61.96
6	90	\$37.07	\$7.70	\$19.25	\$0.00	\$64.02

Notes:

** Structural 1:6; Ornamental 1:4

Apprentice to Journeyworker Ratio:**

JACKHAMMER & PAVING BREAKER OPERATOR	12/01/2013	\$33.60	\$7.30	\$12.70	\$0.00	\$53.60
LABORERS - ZONE 1	06/01/2014	\$34.35	\$7.30	\$12.70	\$0.00	\$54.35
	12/01/2014	\$35.10	\$7.30	\$12.70	\$0.00	\$55.10
	06/01/2015	\$35.85	\$7.30	\$12.70	\$0.00	\$55.85
	12/01/2015	\$36.60	\$7.30	\$12.70	\$0.00	\$56.60
	06/01/2016	\$37.35	\$7.30	\$12.70	\$0.00	\$57.35
	12/01/2016	\$38.35	\$7.30	\$12.70	\$0.00	\$58.35

For apprentice rates see "Apprentice- LABORER"

LABORER	12/01/2013	\$33.35	\$7.30	\$12.70	\$0.00	\$53.35
LABORERS - ZONE 1	06/01/2014	\$34.10	\$7.30	\$12.70	\$0.00	\$54.10
	12/01/2014	\$34.85	\$7.30	\$12.70	\$0.00	\$54.85
	06/01/2015	\$35.60	\$7.30	\$12.70	\$0.00	\$55.60
	12/01/2015	\$36.35	\$7.30	\$12.70	\$0.00	\$56.35
	06/01/2016	\$37.10	\$7.30	\$12.70	\$0.00	\$57.10
	12/01/2016	\$38.10	\$7.30	\$12.70	\$0.00	\$58.10

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - LABORER - Zone 1
Effective Date - 12/01/2013

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$20.01	\$7.30	\$12.70	\$0.00	\$40.01
2	70	\$23.35	\$7.30	\$12.70	\$0.00	\$43.35
3	80	\$26.68	\$7.30	\$12.70	\$0.00	\$46.68
4	90	\$30.02	\$7.30	\$12.70	\$0.00	\$50.02

Effective Date - 06/01/2014

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$20.46	\$7.30	\$12.70	\$0.00	\$40.46
2	70	\$23.87	\$7.30	\$12.70	\$0.00	\$43.87
3	80	\$27.28	\$7.30	\$12.70	\$0.00	\$47.28
4	90	\$30.69	\$7.30	\$12.70	\$0.00	\$50.69

Notes:
Apprentice to Journeyworker Ratio:1:5
LABORER: CARPENTER TENDER
LABORERS - ZONE 1

12/01/2013	\$33.35	\$7.30	\$12.70	\$0.00	\$53.35
06/01/2014	\$34.10	\$7.30	\$12.70	\$0.00	\$54.10
12/01/2014	\$34.85	\$7.30	\$12.70	\$0.00	\$54.85
06/01/2015	\$35.60	\$7.30	\$12.70	\$0.00	\$55.60
12/01/2015	\$36.35	\$7.30	\$12.70	\$0.00	\$56.35
06/01/2016	\$37.10	\$7.30	\$12.70	\$0.00	\$57.10
12/01/2016	\$38.10	\$7.30	\$12.70	\$0.00	\$58.10

For apprentice rates see "Apprentice- LABORER"

LABORER: CEMENT FINISHER TENDER
LABORERS - ZONE 1

12/01/2013	\$33.35	\$7.30	\$12.70	\$0.00	\$53.35
06/01/2014	\$34.10	\$7.30	\$12.70	\$0.00	\$54.10
12/01/2014	\$34.85	\$7.30	\$12.70	\$0.00	\$54.85
06/01/2015	\$35.60	\$7.30	\$12.70	\$0.00	\$55.60
12/01/2015	\$36.35	\$7.30	\$12.70	\$0.00	\$56.35
06/01/2016	\$37.10	\$7.30	\$12.70	\$0.00	\$57.10
12/01/2016	\$38.10	\$7.30	\$12.70	\$0.00	\$58.10

For apprentice rates see "Apprentice- LABORER"

LABORER: HAZARDOUS WASTE/ASBESTOS REMOVER
LABORERS - ZONE 1

12/01/2013	\$33.50	\$7.30	\$12.70	\$0.00	\$53.50
06/01/2014	\$34.25	\$7.30	\$12.70	\$0.00	\$54.25
12/01/2014	\$35.00	\$7.30	\$12.70	\$0.00	\$55.00
06/01/2015	\$35.75	\$7.30	\$12.70	\$0.00	\$55.75
12/01/2015	\$36.50	\$7.30	\$12.70	\$0.00	\$56.50

For apprentice rates see "Apprentice- LABORER"

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
LABORER: MASON TENDER <i>LABORERS - ZONE 1</i>	12/01/2013	\$33.60	\$7.30	\$12.70	\$0.00	\$53.60
	06/01/2014	\$34.35	\$7.30	\$12.70	\$0.00	\$54.35
	12/01/2014	\$35.10	\$7.30	\$12.70	\$0.00	\$55.10
	06/01/2015	\$35.85	\$7.30	\$12.70	\$0.00	\$55.85
	12/01/2015	\$36.60	\$7.30	\$12.70	\$0.00	\$56.60
	06/01/2016	\$37.35	\$7.30	\$12.70	\$0.00	\$57.35
	12/01/2016	\$38.35	\$7.30	\$12.70	\$0.00	\$58.35
For apprentice rates see "Apprentice- LABORER"						
LABORER: MULTI-TRADE TENDER <i>LABORERS - ZONE 1</i>	12/01/2013	\$33.35	\$7.30	\$12.70	\$0.00	\$53.35
	06/01/2014	\$34.10	\$7.30	\$12.70	\$0.00	\$54.10
	12/01/2014	\$34.85	\$7.30	\$12.70	\$0.00	\$54.85
	06/01/2015	\$35.60	\$7.30	\$12.70	\$0.00	\$55.60
	12/01/2015	\$36.35	\$7.30	\$12.70	\$0.00	\$56.35
	06/01/2016	\$37.10	\$7.30	\$12.70	\$0.00	\$57.10
	12/01/2016	\$38.10	\$7.30	\$12.70	\$0.00	\$58.10
For apprentice rates see "Apprentice- LABORER"						
LABORER: TREE REMOVER <i>LABORERS - ZONE 1</i>	12/01/2013	\$33.35	\$7.30	\$12.70	\$0.00	\$53.35
	06/01/2014	\$34.10	\$7.30	\$12.70	\$0.00	\$54.10
	12/01/2014	\$34.85	\$7.30	\$12.70	\$0.00	\$54.85
	06/01/2015	\$35.60	\$7.30	\$12.70	\$0.00	\$55.60
	12/01/2015	\$36.35	\$7.30	\$12.70	\$0.00	\$56.35
	06/01/2016	\$37.10	\$7.30	\$12.70	\$0.00	\$57.10
	12/01/2016	\$38.10	\$7.30	\$12.70	\$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>	12/01/2013	\$33.60	\$7.30	\$12.70	\$0.00	\$53.60
	06/01/2014	\$34.35	\$7.30	\$12.70	\$0.00	\$54.35
	12/01/2014	\$35.10	\$7.30	\$12.70	\$0.00	\$55.10
	06/01/2015	\$35.85	\$7.30	\$12.70	\$0.00	\$55.85
	12/01/2015	\$36.60	\$7.30	\$12.70	\$0.00	\$56.60
	06/01/2016	\$37.35	\$7.30	\$12.70	\$0.00	\$57.35
	12/01/2016	\$38.35	\$7.30	\$12.70	\$0.00	\$58.35
For apprentice rates see "Apprentice- LABORER"						
MARBLE & TILE FINISHERS <i>BRICKLAYERS LOCAL 3 - MARBLE & TILE</i>	02/01/2014	\$36.66	\$10.18	\$16.83	\$0.00	\$63.67
	08/01/2014	\$37.37	\$10.18	\$16.90	\$0.00	\$64.45
	02/01/2015	\$37.82	\$10.18	\$16.90	\$0.00	\$64.90
	08/01/2015	\$38.53	\$10.18	\$16.97	\$0.00	\$65.68
	02/01/2016	\$38.98	\$10.18	\$16.97	\$0.00	\$66.13
	08/01/2016	\$39.68	\$10.18	\$17.05	\$0.00	\$66.91
	02/01/2017	\$40.14	\$10.18	\$17.05	\$0.00	\$67.37

Classification

**Effective Date Base Wage Health Pension Supplemental
Unemployment Total Rate**

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

Effective Date - 02/01/2014

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$18.33	\$10.18	\$16.83	\$0.00	\$45.34
2	60	\$22.00	\$10.18	\$16.83	\$0.00	\$49.01
3	70	\$25.66	\$10.18	\$16.83	\$0.00	\$52.67
4	80	\$29.33	\$10.18	\$16.83	\$0.00	\$56.34
5	90	\$32.99	\$10.18	\$16.83	\$0.00	\$60.00

Effective Date - 08/01/2014

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$18.69	\$10.18	\$16.90	\$0.00	\$45.77
2	60	\$22.42	\$10.18	\$16.90	\$0.00	\$49.50
3	70	\$26.16	\$10.18	\$16.90	\$0.00	\$53.24
4	80	\$29.90	\$10.18	\$16.90	\$0.00	\$56.98
5	90	\$33.63	\$10.18	\$16.90	\$0.00	\$60.71

Notes:

Apprentice to Journeyworker Ratio:1:3

MARBLE MASONS,TILELAYERS & TERRAZZO MECH	02/01/2014	\$48.10	\$10.18	\$18.15	\$0.00	\$76.43
BRICKLAYERS LOCAL 3 - MARBLE & TILE	08/01/2014	\$49.00	\$10.18	\$18.22	\$0.00	\$77.40
	02/01/2015	\$49.56	\$10.18	\$18.22	\$0.00	\$77.96
	08/01/2015	\$50.46	\$10.18	\$18.29	\$0.00	\$78.93
	02/01/2016	\$51.03	\$10.18	\$18.29	\$0.00	\$79.50
	08/01/2016	\$51.93	\$10.18	\$18.37	\$0.00	\$80.48
	02/01/2017	\$52.50	\$10.18	\$18.37	\$0.00	\$81.05

Classification
Effective Date
Base Wage
Health
Pension
**Supplemental
Unemployment**
Total Rate
Apprentice - MARBLE-TILE-TERRAZZO MECHANIC - Local 3 Marble & Tile
Effective Date - 02/01/2014

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$24.05	\$10.18	\$18.15	\$0.00	\$52.38
2	60	\$28.86	\$10.18	\$18.15	\$0.00	\$57.19
3	70	\$33.67	\$10.18	\$18.15	\$0.00	\$62.00
4	80	\$38.48	\$10.18	\$18.15	\$0.00	\$66.81
5	90	\$43.29	\$10.18	\$18.15	\$0.00	\$71.62

Effective Date - 08/01/2014

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$24.50	\$10.18	\$18.22	\$0.00	\$52.90
2	60	\$29.40	\$10.18	\$18.22	\$0.00	\$57.80
3	70	\$34.30	\$10.18	\$18.22	\$0.00	\$62.70
4	80	\$39.20	\$10.18	\$18.22	\$0.00	\$67.60
5	90	\$44.10	\$10.18	\$18.22	\$0.00	\$72.50

Notes:
Apprentice to Journeyworker Ratio:1:5

MECH. SWEEPER OPERATOR (ON CONST. SITES) OPERATING ENGINEERS LOCAL 4	12/01/2013	\$40.11	\$10.00	\$14.18	\$0.00	\$64.29
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
MECHANICS MAINTENANCE OPERATING ENGINEERS LOCAL 4	12/01/2013	\$40.11	\$10.00	\$14.18	\$0.00	\$64.29
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
MILLWRIGHT (Zone 1) MILLWRIGHTS LOCAL 1121 - Zone 1	04/01/2014	\$35.73	\$9.80	\$16.21	\$0.00	\$61.74
	10/01/2014	\$36.68	\$9.80	\$16.21	\$0.00	\$62.69
	04/01/2015	\$37.64	\$9.80	\$16.21	\$0.00	\$63.65

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
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Apprentice - MILLWRIGHT - Local 1121 Zone 1

Effective Date - 04/01/2014

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	55	\$19.65	\$9.80	\$4.48	\$0.00	\$33.93
2	65	\$23.22	\$9.80	\$13.36	\$0.00	\$46.38
3	75	\$26.80	\$9.80	\$14.18	\$0.00	\$50.78
4	85	\$30.37	\$9.80	\$14.99	\$0.00	\$55.16

Effective Date - 10/01/2014

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	55	\$20.17	\$9.80	\$4.48	\$0.00	\$34.45
2	65	\$23.84	\$9.80	\$13.36	\$0.00	\$47.00
3	75	\$27.51	\$9.80	\$14.18	\$0.00	\$51.49
4	85	\$31.18	\$9.80	\$14.99	\$0.00	\$55.97

Notes:

Steps are 2,000 hours

Apprentice to Journeyworker Ratio:1:5

MORTAR MIXER LABORERS - ZONE 1	12/01/2013	\$33.60	\$7.30	\$12.70	\$0.00	\$53.60
	06/01/2014	\$34.35	\$7.30	\$12.70	\$0.00	\$54.35
	12/01/2014	\$35.10	\$7.30	\$12.70	\$0.00	\$55.10
	06/01/2015	\$35.85	\$7.30	\$12.70	\$0.00	\$55.85
	12/01/2015	\$36.60	\$7.30	\$12.70	\$0.00	\$56.60
	06/01/2016	\$37.35	\$7.30	\$12.70	\$0.00	\$57.35
	12/01/2016	\$38.35	\$7.30	\$12.70	\$0.00	\$58.35
For apprentice rates see "Apprentice- LABORER"						
OILER (OTHER THAN TRUCK CRANES, GRADALLS) OPERATING ENGINEERS LOCAL 4	12/01/2013	\$20.96	\$10.00	\$14.18	\$0.00	\$45.14
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
OILER (TRUCK CRANES, GRADALLS) OPERATING ENGINEERS LOCAL 4	12/01/2013	\$24.43	\$10.00	\$14.18	\$0.00	\$48.61
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
OTHER POWER DRIVEN EQUIPMENT - CLASS II OPERATING ENGINEERS LOCAL 4	12/01/2013	\$40.11	\$10.00	\$14.18	\$0.00	\$64.29
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
PAINTER (BRIDGES/TANKS) PAINTERS LOCAL 35 - ZONE 1	01/01/2014	\$45.91	\$7.85	\$16.10	\$0.00	\$69.86
	07/01/2014	\$46.76	\$7.85	\$16.10	\$0.00	\$70.71
	01/01/2015	\$47.66	\$7.85	\$16.10	\$0.00	\$71.61
	07/01/2015	\$48.56	\$7.85	\$16.10	\$0.00	\$72.51
	01/01/2016	\$49.51	\$7.85	\$16.10	\$0.00	\$73.46
	07/01/2016	\$50.46	\$7.85	\$16.10	\$0.00	\$74.41
	01/01/2017	\$51.41	\$7.85	\$16.10	\$0.00	\$75.36

Apprentice - PAINTER Local 35 - BRIDGES/TANKS**Effective Date - 01/01/2014**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$22.96	\$7.85	\$0.00	\$0.00	\$30.81
2	55	\$25.25	\$7.85	\$3.66	\$0.00	\$36.76
3	60	\$27.55	\$7.85	\$3.99	\$0.00	\$39.39
4	65	\$29.84	\$7.85	\$4.32	\$0.00	\$42.01
5	70	\$32.14	\$7.85	\$14.11	\$0.00	\$54.10
6	75	\$34.43	\$7.85	\$14.44	\$0.00	\$56.72
7	80	\$36.73	\$7.85	\$14.77	\$0.00	\$59.35
8	90	\$41.32	\$7.85	\$15.44	\$0.00	\$64.61

Effective Date - 07/01/2014

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$23.38	\$7.85	\$0.00	\$0.00	\$31.23
2	55	\$25.72	\$7.85	\$3.66	\$0.00	\$37.23
3	60	\$28.06	\$7.85	\$3.99	\$0.00	\$39.90
4	65	\$30.39	\$7.85	\$4.32	\$0.00	\$42.56
5	70	\$32.73	\$7.85	\$14.11	\$0.00	\$54.69
6	75	\$35.07	\$7.85	\$14.44	\$0.00	\$57.36
7	80	\$37.41	\$7.85	\$14.77	\$0.00	\$60.03
8	90	\$42.08	\$7.85	\$15.44	\$0.00	\$65.37

Notes:

Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

PAINTER (SPRAY OR SANDBLAST, NEW) *

* If 30% or more of surfaces to be painted are new construction,

NEW paint rate shall be used. *PAINTERS LOCAL 35 - ZONE 1*

01/01/2014	\$42.60	\$7.85	\$16.10	\$0.00	\$66.55
07/01/2014	\$43.45	\$7.85	\$16.10	\$0.00	\$67.40
01/01/2015	\$44.35	\$7.85	\$16.10	\$0.00	\$68.30
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

Apprentice - PAINTER Local 35 Zone 1 - Spray/Sandblast - New**Effective Date - 01/01/2014**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$21.30	\$7.85	\$0.00	\$0.00	\$29.15
2	55	\$23.43	\$7.85	\$3.66	\$0.00	\$34.94
3	60	\$25.56	\$7.85	\$3.99	\$0.00	\$37.40
4	65	\$27.69	\$7.85	\$4.32	\$0.00	\$39.86
5	70	\$29.82	\$7.85	\$14.11	\$0.00	\$51.78
6	75	\$31.95	\$7.85	\$14.44	\$0.00	\$54.24
7	80	\$34.08	\$7.85	\$14.77	\$0.00	\$56.70
8	90	\$38.34	\$7.85	\$15.44	\$0.00	\$61.63

Effective Date - 07/01/2014

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$21.73	\$7.85	\$0.00	\$0.00	\$29.58
2	55	\$23.90	\$7.85	\$3.66	\$0.00	\$35.41
3	60	\$26.07	\$7.85	\$3.99	\$0.00	\$37.91
4	65	\$28.24	\$7.85	\$4.32	\$0.00	\$40.41
5	70	\$30.42	\$7.85	\$14.11	\$0.00	\$52.38
6	75	\$32.59	\$7.85	\$14.44	\$0.00	\$54.88
7	80	\$34.76	\$7.85	\$14.77	\$0.00	\$57.38
8	90	\$39.11	\$7.85	\$15.44	\$0.00	\$62.40

Notes:

Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

PAINTER (SPRAY OR SANDBLAST, REPAINT)

PAINTERS LOCAL 35 - ZONE 1

01/01/2014	\$40.66	\$7.85	\$16.10	\$0.00	\$64.61
07/01/2014	\$41.51	\$7.85	\$16.10	\$0.00	\$65.46
01/01/2015	\$42.41	\$7.85	\$16.10	\$0.00	\$66.36
07/01/2015	\$43.31	\$7.85	\$16.10	\$0.00	\$67.26
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 - 01/01/2014

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$20.33	\$7.85	\$0.00	\$0.00	\$28.18
2	55	\$22.36	\$7.85	\$3.66	\$0.00	\$33.87
3	60	\$24.40	\$7.85	\$3.99	\$0.00	\$36.24
4	65	\$26.43	\$7.85	\$4.32	\$0.00	\$38.60
5	70	\$28.46	\$7.85	\$14.11	\$0.00	\$50.42
6	75	\$30.50	\$7.85	\$14.44	\$0.00	\$52.79
7	80	\$32.53	\$7.85	\$14.77	\$0.00	\$55.15
8	90	\$36.59	\$7.85	\$15.44	\$0.00	\$59.88

Effective Date - 07/01/2014

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$20.76	\$7.85	\$0.00	\$0.00	\$28.61
2	55	\$22.83	\$7.85	\$3.66	\$0.00	\$34.34
3	60	\$24.91	\$7.85	\$3.99	\$0.00	\$36.75
4	65	\$26.98	\$7.85	\$4.32	\$0.00	\$39.15
5	70	\$29.06	\$7.85	\$14.11	\$0.00	\$51.02
6	75	\$31.13	\$7.85	\$14.44	\$0.00	\$53.42
7	80	\$33.21	\$7.85	\$14.77	\$0.00	\$55.83
8	90	\$37.36	\$7.85	\$15.44	\$0.00	\$60.65

Notes:

Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

PAINTER (TRAFFIC MARKINGS)	12/01/2013	\$33.35	\$7.30	\$12.70	\$0.00	\$53.35
LABORERS - ZONE 1	06/01/2014	\$34.10	\$7.30	\$12.70	\$0.00	\$54.10
	12/01/2014	\$34.85	\$7.30	\$12.70	\$0.00	\$54.85
	06/01/2015	\$35.60	\$7.30	\$12.70	\$0.00	\$55.60
	12/01/2015	\$36.35	\$7.30	\$12.70	\$0.00	\$56.35
	06/01/2016	\$37.10	\$7.30	\$12.70	\$0.00	\$57.10
	12/01/2016	\$38.10	\$7.30	\$12.70	\$0.00	\$58.10

For Apprentice rates see "Apprentice- LABORER"

PAINTER / TAPER (BRUSH, NEW) *	01/01/2014	\$41.20	\$7.85	\$16.10	\$0.00	\$65.15
* If 30% or more of surfaces to be painted are new construction, NEW paint rate shall be used. PAINTERS LOCAL 35 - ZONE 1	07/01/2014	\$42.05	\$7.85	\$16.10	\$0.00	\$66.00
	01/01/2015	\$42.95	\$7.85	\$16.10	\$0.00	\$66.90
	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 - PAINTER - Local 35 Zone 1 - BRUSH NEW**Effective Date - 01/01/2014**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$20.60	\$7.85	\$0.00	\$0.00	\$28.45
2	55	\$22.66	\$7.85	\$3.66	\$0.00	\$34.17
3	60	\$24.72	\$7.85	\$3.99	\$0.00	\$36.56
4	65	\$26.78	\$7.85	\$4.32	\$0.00	\$38.95
5	70	\$28.84	\$7.85	\$14.11	\$0.00	\$50.80
6	75	\$30.90	\$7.85	\$14.44	\$0.00	\$53.19
7	80	\$32.96	\$7.85	\$14.77	\$0.00	\$55.58
8	90	\$37.08	\$7.85	\$15.44	\$0.00	\$60.37

Effective Date - 07/01/2014

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$21.03	\$7.85	\$0.00	\$0.00	\$28.88
2	55	\$23.13	\$7.85	\$3.66	\$0.00	\$34.64
3	60	\$25.23	\$7.85	\$3.99	\$0.00	\$37.07
4	65	\$27.33	\$7.85	\$4.32	\$0.00	\$39.50
5	70	\$29.44	\$7.85	\$14.11	\$0.00	\$51.40
6	75	\$31.54	\$7.85	\$14.44	\$0.00	\$53.83
7	80	\$33.64	\$7.85	\$14.77	\$0.00	\$56.26
8	90	\$37.85	\$7.85	\$15.44	\$0.00	\$61.14

Notes:

Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

PAINTER / TAPER (BRUSH, REPAINT)

PAINTERS LOCAL 35 - ZONE 1

01/01/2014	\$39.26	\$7.85	\$16.10	\$0.00	\$63.21
07/01/2014	\$40.11	\$7.85	\$16.10	\$0.00	\$64.06
01/01/2015	\$41.01	\$7.85	\$16.10	\$0.00	\$64.96
07/01/2015	\$41.91	\$7.85	\$16.10	\$0.00	\$65.86
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 - 01/01/2014

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$19.63	\$7.85	\$0.00	\$0.00	\$27.48
2	55	\$21.59	\$7.85	\$3.66	\$0.00	\$33.10
3	60	\$23.56	\$7.85	\$3.99	\$0.00	\$35.40
4	65	\$25.52	\$7.85	\$4.32	\$0.00	\$37.69
5	70	\$27.48	\$7.85	\$14.11	\$0.00	\$49.44
6	75	\$29.45	\$7.85	\$14.44	\$0.00	\$51.74
7	80	\$31.41	\$7.85	\$14.77	\$0.00	\$54.03
8	90	\$35.33	\$7.85	\$15.44	\$0.00	\$58.62

Effective Date - 07/01/2014

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$20.06	\$7.85	\$0.00	\$0.00	\$27.91
2	55	\$22.06	\$7.85	\$3.66	\$0.00	\$33.57
3	60	\$24.07	\$7.85	\$3.99	\$0.00	\$35.91
4	65	\$26.07	\$7.85	\$4.32	\$0.00	\$38.24
5	70	\$28.08	\$7.85	\$14.11	\$0.00	\$50.04
6	75	\$30.08	\$7.85	\$14.44	\$0.00	\$52.37
7	80	\$32.09	\$7.85	\$14.77	\$0.00	\$54.71
8	90	\$36.10	\$7.85	\$15.44	\$0.00	\$59.39

Notes:

Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1
PANEL & PICKUP TRUCKS DRIVER
TEAMSTERS JOINT COUNCIL NO. 10 ZONE A

12/01/2013	\$31.88	\$9.41	\$8.80	\$0.00	\$50.09
06/01/2014	\$32.23	\$9.41	\$8.80	\$0.00	\$50.44
08/01/2014	\$32.23	\$9.91	\$8.80	\$0.00	\$50.94
12/01/2014	\$32.23	\$9.91	\$9.33	\$0.00	\$51.47
06/01/2015	\$32.58	\$9.91	\$9.33	\$0.00	\$51.82
08/01/2015	\$32.58	\$10.41	\$9.33	\$0.00	\$52.32
12/01/2015	\$32.58	\$10.41	\$10.08	\$0.00	\$53.07
06/01/2016	\$33.08	\$10.41	\$10.08	\$0.00	\$53.57
08/01/2016	\$33.08	\$10.91	\$10.08	\$0.00	\$54.07
12/01/2016	\$33.08	\$10.91	\$10.89	\$0.00	\$54.88

PIER AND DOCK CONSTRUCTOR (UNDERPINNING AND DECK)
PILE DRIVER LOCAL 56 (ZONE 1)

08/01/2013	\$40.10	\$9.80	\$18.17	\$0.00	\$68.07
08/01/2014	\$41.60	\$9.80	\$18.17	\$0.00	\$69.57
08/01/2015	\$43.10	\$9.80	\$18.17	\$0.00	\$71.07

PILE DRIVER
PILE DRIVER LOCAL 56 (ZONE 1)

08/01/2013	\$40.10	\$9.80	\$18.17	\$0.00	\$68.07
08/01/2014	\$41.60	\$9.80	\$18.17	\$0.00	\$69.57
08/01/2015	\$43.10	\$9.80	\$18.17	\$0.00	\$71.07

Apprentice - PILE DRIVER - Local 56 Zone 1**Effective Date - 08/01/2013**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$20.05	\$9.80	\$18.17	\$0.00	\$48.02
2	60	\$24.06	\$9.80	\$18.17	\$0.00	\$52.03
3	70	\$28.07	\$9.80	\$18.17	\$0.00	\$56.04
4	75	\$30.08	\$9.80	\$18.17	\$0.00	\$58.05
5	80	\$32.08	\$9.80	\$18.17	\$0.00	\$60.05
6	80	\$32.08	\$9.80	\$18.17	\$0.00	\$60.05
7	90	\$36.09	\$9.80	\$18.17	\$0.00	\$64.06
8	90	\$36.09	\$9.80	\$18.17	\$0.00	\$64.06

Effective Date - 08/01/2014

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

Notes:**Apprentice to Journeyworker Ratio:1:3**

PIPEFITTER & STEAMFITTER

03/01/2013

\$49.34

\$8.75

\$14.39

\$0.00

\$72.48

PIPEFITTERS LOCAL 537

Apprentice - PIPEFITTER - Local 537**Effective Date - 03/01/2013**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	\$19.74	\$8.75	\$6.50	\$0.00	\$34.99
2	45	\$22.20	\$8.75	\$14.39	\$0.00	\$45.34
3	60	\$29.60	\$8.75	\$14.39	\$0.00	\$52.74
4	70	\$34.54	\$8.75	\$14.39	\$0.00	\$57.68
5	80	\$39.47	\$8.75	\$14.39	\$0.00	\$62.61

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	12/01/2013	\$33.60	\$7.30	\$12.70	\$0.00	\$53.60
LABORERS - ZONE 1	06/01/2014	\$34.35	\$7.30	\$12.70	\$0.00	\$54.35
	12/01/2014	\$35.10	\$7.30	\$12.70	\$0.00	\$55.10
	06/01/2015	\$35.85	\$7.30	\$12.70	\$0.00	\$55.85
	12/01/2015	\$36.60	\$7.30	\$12.70	\$0.00	\$56.60
	06/01/2016	\$37.35	\$7.30	\$12.70	\$0.00	\$57.35
	12/01/2016	\$38.35	\$7.30	\$12.70	\$0.00	\$58.35

For apprentice rates see "Apprentice- LABORER"

PLUMBERS & GASFITTERS	03/01/2014	\$49.41	\$9.82	\$14.29	\$0.00	\$73.52
PLUMBERS & GASFITTERS LOCAL 12	09/01/2014	\$50.41	\$9.82	\$14.29	\$0.00	\$74.52
	03/01/2015	\$51.41	\$9.82	\$14.29	\$0.00	\$75.52
	09/01/2015	\$52.41	\$9.82	\$14.29	\$0.00	\$76.52
	03/01/2016	\$53.56	\$9.82	\$14.29	\$0.00	\$77.67
	09/01/2016	\$54.61	\$9.82	\$14.29	\$0.00	\$78.72
	03/01/2017	\$55.61	\$9.82	\$14.29	\$0.00	\$79.72

Apprentice - PLUMBER/GASFITTER - Local 12

Effective Date - 03/01/2014

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	35	\$17.29	\$9.82	\$5.33	\$0.00	\$32.44
2	40	\$19.76	\$9.82	\$6.02	\$0.00	\$35.60
3	55	\$27.18	\$9.82	\$8.08	\$0.00	\$45.08
4	65	\$32.12	\$9.82	\$9.47	\$0.00	\$51.41
5	75	\$37.06	\$9.82	\$10.85	\$0.00	\$57.73

Effective Date - 09/01/2014

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	35	\$17.64	\$9.82	\$5.33	\$0.00	\$32.79
2	40	\$20.16	\$9.82	\$6.02	\$0.00	\$36.00
3	55	\$27.73	\$9.82	\$8.08	\$0.00	\$45.63
4	65	\$32.77	\$9.82	\$9.47	\$0.00	\$52.06
5	75	\$37.81	\$9.82	\$10.85	\$0.00	\$58.48

Notes:

** 1:2; 2:6; 3:10; 4:14; 5:19/Steps are 1 yr
Step4 with lic\$54.58 Step5 with lic\$60.90

Apprentice to Journeyworker Ratio:**

PNEUMATIC CONTROLS (TEMP.)	03/01/2013	\$49.34	\$8.75	\$14.39	\$0.00	\$72.48
PIPEFITTERS LOCAL 537						

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

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
PNEUMATIC DRILL/TOOL OPERATOR <i>LABORERS - ZONE 1</i>	12/01/2013	\$33.60	\$7.30	\$12.70	\$0.00	\$53.60
	06/01/2014	\$34.35	\$7.30	\$12.70	\$0.00	\$54.35
	12/01/2014	\$35.10	\$7.30	\$12.70	\$0.00	\$55.10
	06/01/2015	\$35.85	\$7.30	\$12.70	\$0.00	\$55.85
	12/01/2015	\$36.60	\$7.30	\$12.70	\$0.00	\$56.60
	06/01/2016	\$37.35	\$7.30	\$12.70	\$0.00	\$57.35
	12/01/2016	\$38.35	\$7.30	\$12.70	\$0.00	\$58.35
For apprentice rates see "Apprentice- LABORER"						
POWDERMAN & BLASTER <i>LABORERS - ZONE 1</i>	12/01/2013	\$34.35	\$7.30	\$12.70	\$0.00	\$54.35
	06/01/2014	\$35.10	\$7.30	\$12.70	\$0.00	\$55.10
	12/01/2014	\$35.85	\$7.30	\$12.70	\$0.00	\$55.85
	06/01/2015	\$36.60	\$7.30	\$12.70	\$0.00	\$56.60
	12/01/2015	\$37.35	\$7.30	\$12.70	\$0.00	\$57.35
	06/01/2016	\$38.10	\$7.30	\$12.70	\$0.00	\$58.10
	12/01/2016	\$39.10	\$7.30	\$12.70	\$0.00	\$59.10
For apprentice rates see "Apprentice- LABORER"						
POWER SHOVEL/DERRICK/TRENCHING MACHINE <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2013	\$40.49	\$10.00	\$14.18	\$0.00	\$64.67
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
PUMP OPERATOR (CONCRETE) <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2013	\$40.49	\$10.00	\$14.18	\$0.00	\$64.67
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
PUMP OPERATOR (DEWATERING, OTHER) <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2013	\$28.11	\$10.00	\$14.18	\$0.00	\$52.29
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>	05/01/2014	\$27.73	\$7.48	\$8.65	\$0.00	\$43.86
	07/01/2014	\$27.73	\$7.73	\$8.65	\$0.00	\$44.11
	05/01/2015	\$27.88	\$7.73	\$8.92	\$0.00	\$44.53
	07/01/2015	\$27.88	\$7.98	\$8.92	\$0.00	\$44.78
	05/01/2016	\$28.03	\$7.98	\$9.31	\$0.00	\$45.32
	07/01/2016	\$28.03	\$8.23	\$9.31	\$0.00	\$45.57
	05/01/2017	\$28.18	\$8.23	\$9.72	\$0.00	\$46.13
	07/01/2017	\$28.18	\$8.48	\$9.72	\$0.00	\$46.38
READY-MIX CONCRETE DRIVER <i>TEAMSTERS LOCAL 25a</i>	05/01/2014	\$30.99	\$7.48	\$8.65	\$0.00	\$47.12
	07/01/2014	\$30.99	\$7.73	\$8.65	\$0.00	\$47.37
	05/01/2015	\$31.14	\$7.73	\$8.92	\$0.00	\$47.79
	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>	12/01/2013	\$40.11	\$10.00	\$14.18	\$0.00	\$64.29
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

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
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>	05/01/2011	\$27.49	\$6.34	\$6.23	\$0.00	\$40.06
As of 9/1/09 Carpentry work on wood-frame residential WEATHERIZATION projects shall be paid the RESIDENTIAL WOOD FRAME CARPENTER rate.						

Apprentice - CARPENTER (Residential Wood Frame) - Zone 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>	12/01/2013	\$33.60	\$7.30	\$12.70	\$0.00	\$53.60
	06/01/2014	\$34.35	\$7.30	\$12.70	\$0.00	\$54.35
	12/01/2014	\$35.10	\$7.30	\$12.70	\$0.00	\$55.10
	06/01/2015	\$35.85	\$7.30	\$12.70	\$0.00	\$55.85
	12/01/2015	\$36.60	\$7.30	\$12.70	\$0.00	\$56.60
	06/01/2016	\$37.35	\$7.30	\$12.70	\$0.00	\$57.35
	12/01/2016	\$38.35	\$7.30	\$12.70	\$0.00	\$58.35
For apprentice rates see "Apprentice- LABORER"						
ROLLER/SPREADER/MULCHING MACHINE <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2013	\$40.11	\$10.00	\$14.18	\$0.00	\$64.29
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
ROOFER (Inc.Roofers Waterproofing &Roofers Damproofg) <i>ROOFERS LOCAL 33</i>	02/01/2014	\$39.21	\$10.50	\$10.70	\$0.00	\$60.41
	08/01/2014	\$40.11	\$10.50	\$10.70	\$0.00	\$61.31
	02/01/2015	\$41.01	\$10.50	\$10.70	\$0.00	\$62.21
	08/01/2015	\$41.91	\$10.50	\$10.70	\$0.00	\$63.11
	02/01/2016	\$42.81	\$10.50	\$10.70	\$0.00	\$64.01

Classification
Effective Date
Base Wage
Health
Pension
**Supplemental
Unemployment**
Total Rate
Apprentice - ROOFER - Local 33
Effective Date - 02/01/2014

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$19.61	\$10.50	\$3.38	\$0.00	\$33.49
2	60	\$23.53	\$10.50	\$10.70	\$0.00	\$44.73
3	65	\$25.49	\$10.50	\$10.70	\$0.00	\$46.69
4	75	\$29.41	\$10.50	\$10.70	\$0.00	\$50.61
5	85	\$33.33	\$10.50	\$10.70	\$0.00	\$54.53

Effective Date - 08/01/2014

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$20.06	\$10.50	\$3.38	\$0.00	\$33.94
2	60	\$24.07	\$10.50	\$10.70	\$0.00	\$45.27
3	65	\$26.07	\$10.50	\$10.70	\$0.00	\$47.27
4	75	\$30.08	\$10.50	\$10.70	\$0.00	\$51.28
5	85	\$34.09	\$10.50	\$10.70	\$0.00	\$55.29

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

Apprentice to Journeyworker Ratio:**
ROOFER SLATE / TILE / PRECAST CONCRETE
ROOFERS LOCAL 33

02/01/2014	\$39.46	\$10.50	\$10.70	\$0.00	\$60.66
08/01/2014	\$40.36	\$10.50	\$10.70	\$0.00	\$61.56
02/01/2015	\$41.26	\$10.50	\$10.70	\$0.00	\$62.46
08/01/2015	\$42.16	\$10.50	\$10.70	\$0.00	\$63.36
02/01/2016	\$43.06	\$10.50	\$10.70	\$0.00	\$64.26

For apprentice rates see "Apprentice- ROOFER"

SHEETMETAL WORKER
SHEETMETAL WORKERS LOCAL 17 - A

02/01/2014	\$42.76	\$9.82	\$19.74	\$2.17	\$74.49
08/01/2014	\$43.61	\$9.82	\$19.74	\$2.17	\$75.34
02/01/2015	\$44.51	\$9.82	\$19.74	\$2.17	\$76.24
08/01/2015	\$45.51	\$9.82	\$19.74	\$2.17	\$77.24
02/01/2016	\$46.51	\$9.82	\$19.74	\$2.17	\$78.24
08/01/2016	\$47.66	\$9.82	\$19.74	\$2.17	\$79.39
02/01/2017	\$48.76	\$9.82	\$19.74	\$2.17	\$80.49
08/01/2017	\$49.86	\$9.82	\$19.74	\$2.17	\$81.59
02/01/2018	\$51.01	\$9.82	\$19.74	\$2.17	\$82.74

Classification

Effective Date Base Wage Health Pension Supplemental
Unemployment Total Rate

Apprentice - SHEET METAL WORKER - Local 17-A
Effective Date - 02/01/2014

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	\$17.10	\$9.82	\$4.28	\$0.00	\$31.20
2	40	\$17.10	\$9.82	\$4.28	\$0.00	\$31.20
3	45	\$19.24	\$9.82	\$8.70	\$1.13	\$38.89
4	45	\$19.24	\$9.82	\$8.70	\$1.13	\$38.89
5	50	\$21.38	\$9.82	\$9.49	\$1.22	\$41.91
6	50	\$21.38	\$9.82	\$9.74	\$1.23	\$42.17
7	60	\$25.66	\$9.82	\$11.05	\$1.40	\$47.93
8	65	\$27.79	\$9.82	\$11.84	\$1.48	\$50.93
9	75	\$32.07	\$9.82	\$13.41	\$1.66	\$56.96
10	85	\$36.35	\$9.82	\$14.48	\$1.82	\$62.47

Effective Date - 08/01/2014

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	\$17.44	\$9.82	\$4.28	\$0.00	\$31.54
2	40	\$17.44	\$9.82	\$4.28	\$0.00	\$31.54
3	45	\$19.62	\$9.82	\$8.70	\$1.13	\$39.27
4	45	\$19.62	\$9.82	\$8.70	\$1.13	\$39.27
5	50	\$21.81	\$9.82	\$9.49	\$1.22	\$42.34
6	50	\$21.81	\$9.82	\$9.74	\$1.23	\$42.60
7	60	\$26.17	\$9.82	\$11.05	\$1.40	\$48.44
8	65	\$28.35	\$9.82	\$11.84	\$1.48	\$51.49
9	75	\$32.71	\$9.82	\$13.41	\$1.66	\$57.60
10	85	\$37.07	\$9.82	\$14.48	\$1.82	\$63.19

Notes:

Steps are 6 mos.

Apprentice to Journeyworker Ratio:1:4

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

12/01/2013	\$32.34	\$9.41	\$8.80	\$0.00	\$50.55
06/01/2014	\$32.69	\$9.41	\$8.80	\$0.00	\$50.90
08/01/2014	\$32.69	\$9.91	\$8.80	\$0.00	\$51.40
12/01/2014	\$32.69	\$9.91	\$9.33	\$0.00	\$51.93
06/01/2015	\$33.04	\$9.91	\$9.33	\$0.00	\$52.28
08/01/2015	\$33.04	\$10.41	\$9.33	\$0.00	\$52.78
12/01/2015	\$33.04	\$10.41	\$10.08	\$0.00	\$53.53
06/01/2016	\$33.54	\$10.41	\$10.08	\$0.00	\$54.03
08/01/2016	\$33.54	\$10.91	\$10.08	\$0.00	\$54.53
12/01/2016	\$33.54	\$10.91	\$10.89	\$0.00	\$55.34

SPECIALIZED EARTH MOVING EQUIP > 35 TONS
TEAMSTERS JOINT COUNCIL NO. 10 ZONE A

12/01/2013	\$32.63	\$9.41	\$8.80	\$0.00	\$50.84
06/01/2014	\$32.98	\$9.41	\$8.80	\$0.00	\$51.19
08/01/2014	\$32.98	\$9.91	\$8.80	\$0.00	\$51.69
12/01/2014	\$32.98	\$9.91	\$9.33	\$0.00	\$52.22
06/01/2015	\$33.33	\$9.91	\$9.33	\$0.00	\$52.57
08/01/2015	\$33.33	\$10.41	\$9.33	\$0.00	\$53.07
12/01/2015	\$33.33	\$10.41	\$10.08	\$0.00	\$53.82
06/01/2016	\$33.83	\$10.41	\$10.08	\$0.00	\$54.32
08/01/2016	\$33.83	\$10.91	\$10.08	\$0.00	\$54.82
12/01/2016	\$33.83	\$10.91	\$10.89	\$0.00	\$55.63

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
SPRINKLER FITTER	03/01/2014	\$53.58	\$8.42	\$13.60	\$0.00	\$75.60
<i>SPRINKLER FITTERS LOCAL 550 - (Section A) Zone 1</i>	10/01/2014	\$54.73	\$8.42	\$13.60	\$0.00	\$76.75
	01/01/2015	\$54.73	\$8.42	\$13.75	\$0.00	\$76.90
	03/01/2015	\$55.73	\$8.42	\$13.75	\$0.00	\$77.90
	10/01/2015	\$56.88	\$8.42	\$13.75	\$0.00	\$79.05
	01/01/2016	\$56.88	\$8.67	\$13.90	\$0.00	\$79.45
	03/01/2016	\$57.88	\$8.67	\$13.90	\$0.00	\$80.45
	10/01/2016	\$59.03	\$8.67	\$13.90	\$0.00	\$81.60
	03/01/2017	\$60.03	\$8.67	\$13.90	\$0.00	\$82.60

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

Effective Date - 03/01/2014

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	35	\$18.75	\$8.42	\$8.25	\$0.00	\$35.42
2	40	\$21.43	\$8.42	\$8.25	\$0.00	\$38.10
3	45	\$24.11	\$8.42	\$8.25	\$0.00	\$40.78
4	50	\$26.79	\$8.42	\$8.25	\$0.00	\$43.46
5	55	\$29.47	\$8.42	\$8.25	\$0.00	\$46.14
6	60	\$32.15	\$8.42	\$8.25	\$0.00	\$48.82
7	65	\$34.83	\$8.42	\$8.25	\$0.00	\$51.50
8	70	\$37.51	\$8.42	\$8.25	\$0.00	\$54.18
9	75	\$40.19	\$8.42	\$8.25	\$0.00	\$56.86
10	80	\$42.86	\$8.42	\$8.25	\$0.00	\$59.53

Effective Date - 10/01/2014

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	35	\$19.16	\$8.42	\$8.25	\$0.00	\$35.83
2	40	\$21.89	\$8.42	\$8.25	\$0.00	\$38.56
3	45	\$24.63	\$8.42	\$8.25	\$0.00	\$41.30
4	50	\$27.37	\$8.42	\$8.25	\$0.00	\$44.04
5	55	\$30.10	\$8.42	\$8.25	\$0.00	\$46.77
6	60	\$32.84	\$8.42	\$8.25	\$0.00	\$49.51
7	65	\$35.57	\$8.42	\$8.25	\$0.00	\$52.24
8	70	\$38.31	\$8.42	\$8.25	\$0.00	\$54.98
9	75	\$41.05	\$8.42	\$8.25	\$0.00	\$57.72
10	80	\$43.78	\$8.42	\$8.25	\$0.00	\$60.45

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	12/01/2013	\$40.11	\$10.00	\$14.18	\$0.00	\$64.29
<i>OPERATING ENGINEERS LOCAL 4</i>						
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
TAMPERS, SELF-PROPELLED OR TRACTOR DRAWN	12/01/2013	\$40.11	\$10.00	\$14.18	\$0.00	\$64.29
<i>OPERATING ENGINEERS LOCAL 4</i>						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
TELECOMMUNICATION TECHNICIAN	03/01/2014	\$33.44	\$13.00	\$13.03	\$0.00	\$59.47
ELECTRICIANS LOCAL 103	09/01/2014	\$33.84	\$13.00	\$13.05	\$0.00	\$59.89
	03/01/2015	\$34.38	\$13.00	\$13.06	\$0.00	\$60.44
	09/01/2015	\$35.10	\$13.00	\$13.08	\$0.00	\$61.18
	03/01/2016	\$35.81	\$13.00	\$13.10	\$0.00	\$61.91

Apprentice - TELECOMMUNICATION TECHNICIAN - Local 103

Effective Date - 03/01/2014

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	\$13.38	\$13.00	\$0.40	\$0.00	\$26.78
2	40	\$13.38	\$13.00	\$0.40	\$0.00	\$26.78
3	45	\$15.05	\$13.00	\$10.29	\$0.00	\$38.34
4	45	\$15.05	\$13.00	\$10.29	\$0.00	\$38.34
5	50	\$16.72	\$13.00	\$10.54	\$0.00	\$40.26
6	55	\$18.39	\$13.00	\$10.79	\$0.00	\$42.18
7	60	\$20.06	\$13.00	\$11.04	\$0.00	\$44.10
8	65	\$21.74	\$13.00	\$11.29	\$0.00	\$46.03
9	70	\$23.41	\$13.00	\$11.54	\$0.00	\$47.95
10	75	\$25.08	\$13.00	\$11.79	\$0.00	\$49.87

Effective Date - 09/01/2014

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	\$13.54	\$13.00	\$0.41	\$0.00	\$26.95
2	40	\$13.54	\$13.00	\$0.41	\$0.00	\$26.95
3	45	\$15.23	\$13.00	\$10.30	\$0.00	\$38.53
4	45	\$15.23	\$13.00	\$10.30	\$0.00	\$38.53
5	50	\$16.92	\$13.00	\$10.55	\$0.00	\$40.47
6	55	\$18.61	\$13.00	\$10.80	\$0.00	\$42.41
7	60	\$20.30	\$13.00	\$11.05	\$0.00	\$44.35
8	65	\$22.00	\$13.00	\$11.30	\$0.00	\$46.30
9	70	\$23.69	\$13.00	\$11.55	\$0.00	\$48.24
10	75	\$25.38	\$13.00	\$11.80	\$0.00	\$50.18

Notes:

Apprentice to Journeyworker Ratio:1:1

TERRAZZO FINISHERS	02/01/2014	\$47.00	\$10.18	\$18.15	\$0.00	\$75.33
BRICKLAYERS LOCAL 3 - MARBLE & TILE	08/01/2014	\$47.90	\$10.18	\$18.22	\$0.00	\$76.30
	02/01/2015	\$48.46	\$10.18	\$18.22	\$0.00	\$76.86
	08/01/2015	\$49.36	\$10.18	\$18.29	\$0.00	\$77.83
	02/01/2016	\$49.93	\$10.18	\$18.29	\$0.00	\$78.40
	08/01/2016	\$50.83	\$10.18	\$18.37	\$0.00	\$79.38
	02/01/2017	\$51.40	\$10.18	\$18.37	\$0.00	\$79.95

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
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Apprentice - TERRAZZO FINISHER - Local 3 Marble & Tile

Effective Date - 02/01/2014

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$23.50	\$10.18	\$18.15	\$0.00	\$51.83
2	60	\$28.20	\$10.18	\$18.15	\$0.00	\$56.53
3	70	\$32.90	\$10.18	\$18.15	\$0.00	\$61.23
4	80	\$37.60	\$10.18	\$18.15	\$0.00	\$65.93
5	90	\$42.30	\$10.18	\$18.15	\$0.00	\$70.63

Effective Date - 08/01/2014

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$23.95	\$10.18	\$18.22	\$0.00	\$52.35
2	60	\$28.74	\$10.18	\$18.22	\$0.00	\$57.14
3	70	\$33.53	\$10.18	\$18.22	\$0.00	\$61.93
4	80	\$38.32	\$10.18	\$18.22	\$0.00	\$66.72
5	90	\$43.11	\$10.18	\$18.22	\$0.00	\$71.51

Notes:

Apprentice to Journeyworker Ratio:1:3

TEST BORING DRILLER	12/01/2013	\$34.70	\$7.30	\$12.90	\$0.00	\$54.90
LABORERS - FOUNDATION AND MARINE	06/01/2014	\$35.45	\$7.30	\$12.90	\$0.00	\$55.65
	12/01/2014	\$36.20	\$7.30	\$12.90	\$0.00	\$56.40
	06/01/2015	\$36.95	\$7.30	\$12.90	\$0.00	\$57.15
	12/01/2015	\$37.70	\$7.30	\$12.90	\$0.00	\$57.90
	06/01/2016	\$38.45	\$7.30	\$12.90	\$0.00	\$58.65
	12/01/2016	\$39.45	\$7.30	\$12.90	\$0.00	\$59.65
For apprentice rates see "Apprentice- LABORER"						
TEST BORING DRILLER HELPER	12/01/2013	\$33.42	\$7.30	\$12.90	\$0.00	\$53.62
LABORERS - FOUNDATION AND MARINE	06/01/2014	\$34.17	\$7.30	\$12.90	\$0.00	\$54.37
	12/01/2014	\$34.92	\$7.30	\$12.90	\$0.00	\$55.12
	06/01/2015	\$35.67	\$7.30	\$12.90	\$0.00	\$55.87
	12/01/2015	\$36.42	\$7.30	\$12.90	\$0.00	\$56.62
	06/01/2016	\$37.17	\$7.30	\$12.90	\$0.00	\$57.37
	12/01/2016	\$38.17	\$7.30	\$12.90	\$0.00	\$58.37
For apprentice rates see "Apprentice- LABORER"						
TEST BORING LABORER	12/01/2013	\$33.30	\$7.30	\$12.90	\$0.00	\$53.50
LABORERS - FOUNDATION AND MARINE	06/01/2014	\$34.05	\$7.30	\$12.90	\$0.00	\$54.25
	12/01/2014	\$34.80	\$7.30	\$12.90	\$0.00	\$55.00
	06/01/2015	\$35.55	\$7.30	\$12.90	\$0.00	\$55.75
	12/01/2015	\$36.30	\$7.30	\$12.90	\$0.00	\$56.50
	06/01/2016	\$37.05	\$7.30	\$12.90	\$0.00	\$57.25
	12/01/2016	\$38.05	\$7.30	\$12.90	\$0.00	\$58.25
For apprentice rates see "Apprentice- LABORER"						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
TRACTORS/PORTABLE STEAM GENERATORS <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2013	\$40.11	\$10.00	\$14.18	\$0.00	\$64.29
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
TRAILERS FOR EARTH MOVING EQUIPMENT <i>TEAMSTERS JOINT COUNCIL NO. 10 ZONE A</i>	12/01/2013	\$32.92	\$9.41	\$8.80	\$0.00	\$51.13
	06/01/2014	\$33.27	\$9.41	\$8.80	\$0.00	\$51.48
	08/01/2014	\$33.27	\$9.91	\$8.80	\$0.00	\$51.98
	12/01/2014	\$33.27	\$9.91	\$9.33	\$0.00	\$52.51
	06/01/2015	\$33.62	\$9.91	\$9.33	\$0.00	\$52.86
	08/01/2015	\$33.62	\$10.41	\$9.33	\$0.00	\$53.36
	12/01/2015	\$33.62	\$10.41	\$10.08	\$0.00	\$54.11
	06/01/2016	\$34.12	\$10.41	\$10.08	\$0.00	\$54.61
	08/01/2016	\$34.12	\$10.91	\$10.08	\$0.00	\$55.11
	12/01/2016	\$34.12	\$10.91	\$10.89	\$0.00	\$55.92
TUNNEL WORK - COMPRESSED AIR <i>LABORERS (COMPRESSED AIR)</i>	12/01/2013	\$45.58	\$7.30	\$13.30	\$0.00	\$66.18
	06/01/2014	\$46.33	\$7.30	\$13.30	\$0.00	\$66.93
	12/01/2014	\$47.08	\$7.30	\$13.30	\$0.00	\$67.68
	06/01/2015	\$47.83	\$7.30	\$13.30	\$0.00	\$68.43
	12/01/2015	\$48.58	\$7.30	\$13.30	\$0.00	\$69.18
	06/01/2016	\$49.33	\$7.30	\$13.30	\$0.00	\$69.93
	12/01/2016	\$50.33	\$7.30	\$13.30	\$0.00	\$70.93
For apprentice rates see "Apprentice- LABORER"						
TUNNEL WORK - COMPRESSED AIR (HAZ. WASTE) <i>LABORERS (COMPRESSED AIR)</i>	12/01/2013	\$47.58	\$7.30	\$13.30	\$0.00	\$68.18
	06/01/2014	\$48.33	\$7.30	\$13.30	\$0.00	\$68.93
	12/01/2014	\$49.08	\$7.30	\$13.30	\$0.00	\$69.68
	06/01/2015	\$49.83	\$7.30	\$13.30	\$0.00	\$70.43
	12/01/2015	\$50.58	\$7.30	\$13.30	\$0.00	\$71.18
	06/01/2016	\$51.33	\$7.30	\$13.30	\$0.00	\$71.93
	12/01/2016	\$52.33	\$7.30	\$13.30	\$0.00	\$72.93
For apprentice rates see "Apprentice- LABORER"						
TUNNEL WORK - FREE AIR <i>LABORERS (FREE AIR TUNNEL)</i>	12/01/2013	\$37.65	\$7.30	\$13.30	\$0.00	\$58.25
	06/01/2014	\$38.40	\$7.30	\$13.30	\$0.00	\$59.00
	12/01/2014	\$39.15	\$7.30	\$13.30	\$0.00	\$59.75
	06/01/2015	\$39.90	\$7.30	\$13.30	\$0.00	\$60.50
	12/01/2015	\$40.65	\$7.30	\$13.30	\$0.00	\$61.25
	06/01/2016	\$41.40	\$7.30	\$13.30	\$0.00	\$62.00
	12/01/2016	\$42.40	\$7.30	\$13.30	\$0.00	\$63.00
For apprentice rates see "Apprentice- LABORER"						
TUNNEL WORK - FREE AIR (HAZ. WASTE) <i>LABORERS (FREE AIR TUNNEL)</i>	12/01/2013	\$39.65	\$7.30	\$13.30	\$0.00	\$60.25
	06/01/2014	\$40.40	\$7.30	\$13.30	\$0.00	\$61.00
	12/01/2014	\$41.15	\$7.30	\$13.30	\$0.00	\$61.75
	06/01/2015	\$41.90	\$7.30	\$13.30	\$0.00	\$62.50
	12/01/2015	\$42.65	\$7.30	\$13.30	\$0.00	\$63.25
	06/01/2016	\$43.40	\$7.30	\$13.30	\$0.00	\$64.00
	12/01/2016	\$44.40	\$7.30	\$13.30	\$0.00	\$65.00
For apprentice rates see "Apprentice- LABORER"						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
VAC-HAUL <i>TEAMSTERS JOINT COUNCIL NO. 10 ZONE A</i>	12/01/2013	\$32.34	\$9.41	\$8.80	\$0.00	\$50.55
	06/01/2014	\$32.69	\$9.41	\$8.80	\$0.00	\$50.90
	08/01/2014	\$32.69	\$9.91	\$8.80	\$0.00	\$51.40
	12/01/2014	\$32.69	\$9.91	\$9.33	\$0.00	\$51.93
	06/01/2015	\$33.04	\$9.91	\$9.33	\$0.00	\$52.28
	08/01/2015	\$33.04	\$10.41	\$9.33	\$0.00	\$52.78
	12/01/2015	\$33.04	\$10.41	\$10.08	\$0.00	\$53.53
	06/01/2016	\$33.54	\$10.41	\$10.08	\$0.00	\$54.03
	08/01/2016	\$33.54	\$10.91	\$10.08	\$0.00	\$54.53
	12/01/2016	\$33.54	\$10.91	\$10.89	\$0.00	\$55.34
WAGON DRILL OPERATOR <i>LABORERS - ZONE 1</i>	12/01/2013	\$33.60	\$7.30	\$12.70	\$0.00	\$53.60
	06/01/2014	\$34.35	\$7.30	\$12.70	\$0.00	\$54.35
	12/01/2014	\$35.10	\$7.30	\$12.70	\$0.00	\$55.10
	06/01/2015	\$35.85	\$7.30	\$12.70	\$0.00	\$55.85
	12/01/2015	\$36.60	\$7.30	\$12.70	\$0.00	\$56.60
	06/01/2016	\$37.35	\$7.30	\$12.70	\$0.00	\$57.35
	12/01/2016	\$38.35	\$7.30	\$12.70	\$0.00	\$58.35
For apprentice rates see "Apprentice- LABORER"						
WASTE WATER PUMP OPERATOR <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2013	\$40.49	\$10.00	\$14.18	\$0.00	\$64.67
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
WATER METER INSTALLER <i>PLUMBERS & GASFITTERS LOCAL 12</i>	03/01/2014	\$49.41	\$9.82	\$14.29	\$0.00	\$73.52
	09/01/2014	\$50.41	\$9.82	\$14.29	\$0.00	\$74.52
	03/01/2015	\$51.41	\$9.82	\$14.29	\$0.00	\$75.52
	09/01/2015	\$52.41	\$9.82	\$14.29	\$0.00	\$76.52
	03/01/2016	\$53.56	\$9.82	\$14.29	\$0.00	\$77.67
	09/01/2016	\$54.61	\$9.82	\$14.29	\$0.00	\$78.72
	03/01/2017	\$55.61	\$9.82	\$14.29	\$0.00	\$79.72
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>	09/01/2013	\$25.66	\$8.70	\$4.48	\$0.00	\$38.84
For apprentice rates see "Apprentice- LINEMAN"						
CABLEMAN (Underground Ducts & Cables) <i>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104</i>	09/01/2013	\$36.55	\$8.70	\$6.58	\$0.00	\$51.83
For apprentice rates see "Apprentice- LINEMAN"						
DRIVER / GROUNDMAN CDL <i>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104</i>	09/01/2013	\$29.94	\$8.70	\$6.05	\$0.00	\$44.69
For apprentice rates see "Apprentice- LINEMAN"						
DRIVER / GROUNDMAN -Inexperienced (<2000 Hrs) <i>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104</i>	09/01/2013	\$23.52	\$8.70	\$5.24	\$0.00	\$37.46
For apprentice rates see "Apprentice- LINEMAN"						
EQUIPMENT OPERATOR (Class A CDL) <i>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104</i>	09/01/2013	\$36.35	\$8.70	\$9.43	\$0.00	\$54.48
For apprentice rates see "Apprentice- LINEMAN"						
EQUIPMENT OPERATOR (Class B CDL) <i>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104</i>	09/01/2013	\$32.08	\$8.70	\$6.59	\$0.00	\$47.37
For apprentice rates see "Apprentice- LINEMAN"						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
GROUNDMAN <i>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104</i>	09/01/2013	\$23.52	\$8.70	\$3.72	\$0.00	\$35.94
For apprentice rates see "Apprentice- LINEMAN"						
GROUNDMAN -Inexperienced (<2000 Hrs.) <i>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104</i>	09/01/2013	\$19.25	\$8.70	\$2.85	\$0.00	\$30.80
For apprentice rates see "Apprentice- LINEMAN"						
JOURNEYMAN LINEMAN <i>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104</i>	09/01/2013	\$42.77	\$8.70	\$11.78	\$0.00	\$63.25

Apprentice - LINEMAN (Outside Electrical) - East Local 104

Effective Date - 09/01/2013

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$25.66	\$8.70	\$4.24	\$0.00	\$38.60
2	65	\$27.80	\$8.70	\$4.71	\$0.00	\$41.21
3	70	\$29.94	\$8.70	\$5.43	\$0.00	\$44.07
4	75	\$32.08	\$8.70	\$6.16	\$0.00	\$46.94
5	80	\$34.22	\$8.70	\$6.88	\$0.00	\$49.80
6	85	\$36.35	\$8.70	\$7.62	\$0.00	\$52.67
7	90	\$38.49	\$8.70	\$8.83	\$0.00	\$56.02

Notes:

Apprentice to Journeyworker Ratio:1:2

TELEDATA CABLE SPLICER <i>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104</i>	07/16/2012	\$26.33	\$4.18	\$2.79	\$0.00	\$33.30
TELEDATA LINEMAN/EQUIPMENT OPERATOR <i>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104</i>	07/16/2012	\$24.78	\$4.18	\$2.74	\$0.00	\$31.70
TELEDATA WIREMAN/INSTALLER/TECHNICIAN <i>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104</i>	07/16/2012	\$24.78	\$4.18	\$2.74	\$0.00	\$31.70
TREE TRIMMER <i>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104</i>	01/29/2012	\$17.18	\$3.37	\$0.00	\$0.00	\$20.55
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>	01/29/2012	\$15.15	\$3.37	\$0.00	\$0.00	\$18.52
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
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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) unless otherwise specified.

- * Ratios are expressed in allowable number of apprentices to journeymen or fraction thereof.
- ** Multiple ratios are listed in the comment field.
- *** APP to JM; 1:1, 2:2, 2:3, 3:4, 4:4, 4:5, 4:6, 5:7, 6:7, 6:8, 6:9, 7:10, 8:10, 8:11, 8:12, 9:13, 10:13, 10:14, etc.
- **** APP to JM; 1:1, 1:2, 2:3, 2:4, 3:5, 4:6, 4:7, 5:8, 6:9, 6:10, 7:11, 8:12, 8:13, 9:14, 10:15, 10:16, etc.

General Decision Number: MA140013 06/13/2014 MA13

Superseded General Decision Number: MA20130013

State: Massachusetts

Construction Types: Heavy (Heavy and Marine)

Counties: Barnstable, Bristol, Dukes, Essex, Middlesex, Nantucket, Norfolk, Plymouth and Suffolk Counties in Massachusetts.

HEAVY AND MARINE CONTRUCTION PROJECTS

Modification Number	Publication Date
0	01/03/2014
1	01/31/2014
2	03/07/2014
3	03/28/2014
4	05/09/2014
5	06/06/2014
6	06/13/2014

BOIL0029-001 10/01/2009

	Rates	Fringes
BOILERMAKER.....	\$ 38.25	17.04

BRMA0001-011 09/01/2013		

FOXBORO CHAPTER

BRISTOL (Attleboro, Berkley, Dighton, Mansfield, North Attleboro, Norton, Raynham, Rehoboth, Seekonk, Taunton); NORFOLK, (Bellingham, Canton, Dedham, Foxboro, Franklin, Norfolk, Norwood, Plainville, Sharon, Walpole, Westwood, Wrentham); and PLYMOUTH (Lakeville)

	Rates	Fringes
Bricklayer/Cement Mason.....	\$ 45.96	29.74

BRMA0001-012 09/01/2013		

LOWELL CHAPTER

MIDDLESEX (Acton, Ashby, Ayer, Bedford, Billerica, Boxboro, Carlisle, Chemsford, Dracut, Dunstabale, Ft Devens, Groton, Littleton, Lowell, North Acton, Pepperell, Shirley, South Acton, Tewksbury, Townsend, Tyngsboro, West Acton, Westford, Wilmington)

	Rates	Fringes
BRICKLAYER.....	\$ 45.96	29.74

BRMA0001-013 09/01/2013		

LOWELL CHAPTER

MIDDLESEX (Ashland, Framingham, Holliston, Hopkinton, Hudson, Maynard, Natick, Sherbourn, Stow); and NORFOLK (Medfield, Medway, Millis)

	Rates	Fringes
BRICKLAYER.....	\$ 45.96	29.74

BRMA0003-001 02/01/2013		

	Rates	Fringes
Marble & Tile Finisher.....	\$ 36.20	25.08
Marble, Tile & Terrazzo		
Workers.....	\$ 47.45	27.22
TERRAZZO FINISHER.....	\$ 46.35	26.43

BRMA0003-003 02/01/2014		

BOSTON CHAPTER

MIDDLESEX (Arlington, Cambridge, Everett, Malden, Medford, Melrose, Somerville); NORFOLK (Brookline, Milton); and SUFFOLK

	Rates	Fringes
BRICKLAYER.....	\$ 48.06	28.70

BRMA0003-011 02/01/2014		

LYNN CHAPTER

ESSEX (Amesbury, Andover, Beverly, Boxford, Danvers, Essex, Georgetown, Gloucester, Groveland, Hamilton, Haverhill, Ipswich, Lawrence, Lynn, Lynnfield, Manchester, Marblehead, Merrimac, Methuen, Middleton, Nahant, Newbury, Newburyport, North Andover, Peabody, Rockport, Rowley, Salisbury, Salem, Saugus, Swampscott, Topsfield, Wakefield, Wenham, West Newbury); and MIDDLESEX (North Reading, Reading, Wakefield)

	Rates	Fringes
Bricklayer/Cement Mason.....	\$ 48.06	28.70

BRMA0003-012 02/01/2014		

	Rates	Fringes
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BRICKLAYER

WALTHAM CHAPTER -
 MIDDLESEX (Belmont,
 Burlington, Concord,
 Lexington, Lincoln,
 Stoneham, Sudbury,
 Waltham, Watertown,
 Wayland, Weston,
 Winchester, Woburn).....\$ 48.06 28.70

 BRMA0003-014 02/01/2014

QUINCY CHAPTER

PLYMOUTH COUNTY (Abington, Bridgewater, Brockton, Carver,
 Duxbury, East Bridgewater, Halifax, Hanover, Hanson, Hingham,
 Hull, Kingston, Marshfield, Middleboro, Norwell, Pembroke,
 Plymouth, Rockland, Scituate, West Bridgewater, Whitman)

	Rates	Fringes
Bricklayer/Cement Mason.....	\$ 48.06	28.70

 BRMA0003-025 02/01/2014

NEW BEDFORD CHAPTER

BARNSTABLE; BRISTOL (Acushnet, Darmouth, Fairhaven, Fall River,
 Freetown, New Bedford, Somerset, Swansea, Westport); DUKES;
 NANTUCKET; PLYMOUTH (Marion, Mattapoisett, Rochester, Wareham)

	Rates	Fringes
Bricklayer/Cement Mason.....	\$ 48.06	28.70

 BRMA0003-033 02/01/2014

NEWTON CHAPTER

MIDDLESEX (Newton); NORFOLK (Dover, Needham, Wellesley)

	Rates	Fringes
Bricklayer, Plasterer.....	\$ 48.06	28.70

 CARP0026-003 09/01/2013

BRISTOL (Attleborough, North Attleborough); ESSEX; MIDDLESEX
 (Except Belmont, Cambridge, Everett, Malden, Medford,
 Somerville); AND NORFOLK (Bellingham, Braintree, Canton,
 Cohasset, Foxboro, Franklin, Medfield, Medway, Millis,
 Needham, Norfolk, Norwood, Plainville, Quincy, Sharon, Walpole,
 Wellesley, Westwood, Weymouth, Wrentham) COUNTIES

	Rates	Fringes
CARPENTER.....	\$ 34.28	26.06

CARP0033-003 09/01/2013		

MIDDLESEX (Belmont, Cambridge, Everett, Malden, Medford, Somerville); NORFOLK (Brookline, Dedham, Milton); AND SUFFOLK COUNTIES

	Rates	Fringes
CARPENTER.....	\$ 40.10	26.56

CARP0056-001 08/01/2013		

All of SUFFOLK COUNTY; and those areas of BARNSTABLE, BRISTOL, ESSEX, MIDDLESEX, NORFOLK, and PLYMOUTH COUNTIES situated INSIDE Boston Beltway (I-495) and North of Cape Cod Canal. ALL of DUKES and NANTUCKET COUNTIES

	Rates	Fringes
PILEDRIVERMAN.....	\$ 40.10	28.57

CARP0056-002 08/01/2013		

The areas of BARNSTABLE, BRISTOL, PLYMOUTH, and NORFOLK COUNTIES situated OUTSIDE Boston Beltway (I-495) and South of Cape Cod Canal

	Rates	Fringes
PILEDRIVERMAN.....	\$ 40.10	28.57

CARP0056-003 08/01/2013		

Those areas of ESSEX and MIDDLESEX COUNTIES situated OUTSIDE Boston Beltway (I-495)

	Rates	Fringes
PILEDRIVERMAN.....	\$ 40.10	28.57

CARP0056-004 08/01/2013		

	Rates	Fringes
DIVER TENDER.....	\$ 40.10	28.57
DIVER.....	\$ 56.14	28.57

CARP0424-001 09/01/2013		

NORFOLK (Braintree, Quincy, Cohasset, Weymouth, etc.) PLYMOUTH
(Duxbury, Hanover, Hull, Hingham, Marshfield, Norwell, Pembroke
Rockland, Scituate)

	Rates	Fringes
CARPENTER.....	\$ 34.28	26.06

CARP0624-002 09/01/2013		

BARNSTABLE; BRISTOL (Except Attleboro & North Attleboro);
DUKES; NANTUCKET; NORFOLK (Avon, Holbrook, Randolph,
Stoughton); PLYMOUTH (Bridgewater, Kingston, Lakeville,
Middleboro, Plymouth, S. Hanover, Whitman)

	Rates	Fringes
CARPENTER.....	\$ 40.10	26.56

CARP1121-001 04/01/2014		

	Rates	Fringes
MILLWRIGHT.....	\$ 35.73	26.81

* ELEC0096-001 06/01/2014		

MIDDLESEX (Ashby, Ashland, Ayer, Ft. Devens, Groton, Hopkinton,
Hudson, Marlboro, Pepperell, Shirley, Stow, Townsend)

	Rates	Fringes
ELECTRICIAN.....	\$ 38.12	11%+17.03
Teledata System Installer.....	\$ 25.86	3%+17.37

ELEC0099-001 06/01/2013		

BRISTOL (Attleboro, North Attleboro, Seekonk)

	Rates	Fringes
ELECTRICIAN.....	\$ 34.08	62.86%
Teledata System Installer.....	\$ 25.56	14.26%+13.57

ELEC0103-002 09/01/2013		

ESSEX (Amesbury, Andover, Boxford, Georgetown, Groveland,
Haverhill, Lawrence, Merrimac, Methuen, Newbury, Newburyport,
North Andover, Rowley, Salisbury, West Newbury); MIDDLESEX
(Bedford, Billerica, Boxboro, Burlington, Carlisle, Chelmsford,
Dracut, Dunstable littleton, Lowell, North Reading, Tewksbury,
Tyngsboro, Westford, Wilmington)

	Rates	Fringes
ELECTRICIAN.....	\$ 43.96	28.04

ELEC0103-004 09/01/2013		

ESSEX (Beverly, Danvers, Essex, Gloucester, Hamilton, Ipswich, Manchester, Marblehead, Middleton, Peabody, Rockport, Salem, Topsfield, Wenham)

	Rates	Fringes
ELECTRICIAN.....	\$ 43.96	28.04

ELEC0103-005 09/01/2013		

ESSEX (Lynn, Lynnfield, Nahant, Saugus, Swampscott); MIDDLESEX (Acton, Arlington, Belmont, Cambridge, Concord, Everett, Framingham, Holliston, Lexington, Lincoln, Malden, Maynard, Medford, Melrose, Natick, Newton, Reading, Sherborn, Somerville, Stoneham, Sudbury, Wakefield, Waltham, Watertown, Wayland, Weston, Winchester, Woburn); NORFOLK (Bellingham, Braintree, Brookline, Canton, Cohasset, Dedham, Dover, Foxboro, Franklino, Medfield, Medway, Millis, Milton, Needham, Norfolk, Norwood, Quincy, Sharon, Walpole, Wellesley, Westwood, Weymouth, Wrentham); PLYMOUTH (Hingham and Hull); SUFFOLK

	Rates	Fringes
ELECTRICIAN.....	\$ 43.96	28.04

ELEC0104-001 09/03/2012		

	Rates	Fringes
Line Construction:		
Cableman.....	\$ 41.97	19.08+A
Equipment Operator.....	\$ 35.67	17.54+A
Groundman.....	\$ 23.08	11.85+A
Lineman.....	\$ 41.97	19.08+A

A. PAID HOLIDAYS: New Year's Day; Memorial Day; Independence Day; Labor Day; Thanksgiving Day; Christmas Day and Columbus Day, provided the employee has been employed 5 working days prior to any one of the listed holidays.

ELEC0223-002 09/01/2013		
BARNSTABLE, BRISTOL (Except Attleboro, North Attleboro, Seekonk); DUKES; NANTUCKET; PLYMOUTH (Except Hingham and Hull Twps); NORFOLK (Avon, Halbrook, Randolph, Sloughton)		

	Rates	Fringes
ELECTRICIAN.....	\$ 36.41	32.25%+7.70

 ENGI0004-009 12/01/2013

	Rates	Fringes
Power equipment operators:		
Group 1.....	\$ 40.49	25.02
Group 2.....	\$ 40.11	25.02
Group 3.....	\$ 28.11	25.02
Group 4.....	\$ 33.76	25.02
Group 5.....	\$ 20.96	25.02
Group 6.....	\$ 24.43	25.02

HOURLY PREMIUM FOR BOOM LENGTHS (Including Jib):

Over 150 ft.	+2.12
Over 185 ft.	+3.72
Over 210 ft.	+5.23
Over 250 ft.	+7.92
Over 295 ft.	+10.97
Over 350 ft.	+12.76

FOOTNOTE FOR POWER EQUIPMENT OPERATORS:

A. PAID HOLIDAYS: New Year's Day, Washington,s Birthday,
 Labor Day, Memorial Day, Independence Day, Patriot's Day,
 Columbus Day, Veteran's Day, Thanksgiving Day, Christmas Day

POWER EQUIPMENT OPERATORS CLASSIFICATIONS [HEAVY CONSTRUCTION]

GROUP 1: Power shovel; crane; truck crane; derrick; pile
 driver; trenching machine; mechanical hoist pavement
 breaker; cement concrete paver; dragline; hoisting engine;
 three drum machine; pumpcrete machine; loaders; shovel
 dozer; front end loader; mucking machine; shaft hoist;
 steam engine; backhoe; gradall; cable way; fork lift;
 cherry picker; boring machine; rotary drill; post hole
 hammer; post hole digger; asphalt plant on job site;
 concrete batching and/or mixing plant on job site; crusher
 plant on job site; paving concrete mixer; timber jack

GROUP 2: Sonic or vibratory hammer; grader; scraper; tandem
 scraper; bulldozer; tractor; mechanic - maintenance; York
 rake; mulching machine; paving screed machine; stationary
 steam boiler; paving concrete finishing machine; grout
 pump; portable steam boiler; portable steam generator;
 roller; spreader; asphalt paver; locomotives or machines
 used in place thereof; tamper (self propelled or
 tractor-draw); cal tracks; ballast regulator; rail anchor
 machine; switch tamper; tire truck

GROUP 3: Pumps (1-3 grouped); compressor; welding machines
 (1-3 grouped); generator; sighting plant; heaters (power
 driven, 1- 5); syphon-pulsometer; concrete mixer; valves
 controlling permanent plant air steam, conveyor, wellpoint

system (operating)

GROUP 4: Assitant engineer (fireman)

GROUP 5: Oiler (other than truck cranes and gradalls)

GROUP 6: Oiler (on truck cranes and gradalls)

POWER EQUIPMENT OPERATORS CASSIFICATIONS [MARINE
CONSTRUCTION]

Group 1: Shovel; crane; truck crane; cherry picker; derrick;
pile driver; two or more drum machines; lighters; derrick
boats; trenching machines; mechanic hoist pavement
breakers; cement concrete pavers; draglines; hoisting
engines; pumpcrete machines; elevating graders; shovel
dozer; front end loader; backhoe; gradall; cable ways;
boring machine; rotary drill; post hole hammer; post hole
digger; fork lift; timber jack; asphalt plant (on site);
concrete batching and/or mixing plant (on site); crusher
plant (on site); paving concrete mixer

Group 2: Portable steam boiler; portable steam generator;
sonic or vibratory hammer; grader; scraper; tandem scraper;
concrete pump; bulldozer; tractor; York rake; mulching
machine; roller; spreader; tamper (self-propelled or
tractor-drawn); asphalt paver; concrete mixer with side
loader; mechanic - maintenance; cal tracks; ballast
regulator; switch tamper; rail anchor machine; tire truck

Group 3: Pumps (1-3 grouped); comressor; welding machines
(1-3 grouped); generator; lighting plant; heaters (power
driven 1-5); syphon-pulsometer; concrete mixer; valves
controlling permanent plant air or steam; conveyor; well
point systems; auger (powered by independent engines and
attached to pile drivers); hydraulic saws

Group 4: Fireman

Group 5: Assistant engineer (other than truck crane and
gradall)

Group 6: Assistant engineer (on truck crane and gradall)

IRON0007-001 03/16/2014

AREA 1: BRISTOL (Easton); ESSEX (Beverly, Gloucester, Lynn,
Lynnfield, Manchester, Marblehead, Nahant, Salem, Saugus,
Swampscott); MIDDLESEX (Arlington, Bedford, Belmont,
Burlington, Cambridge, Concord, Everett, Framingham, Lexington,
Lincoln, Malden, Maynard, Medford, Melrose, Natick, Newton,
Reading, Sherborn, Somerville, Stoneham, Sudbury, Wakefield,
Waltham, Watertown, Wayland, Weston, Winchester, Woburn);
NORFOLK (Except Medway); PLYMOUTH (Abington, Bridgewater,
Brocton, Duxbury, East Bridgewater, Halifax, Hanover, Hanson,
Hingham, Hull, Kingston, Marshfield, Norwell, Pembroke,

Plymouth, Plympton, Rockland, Scituate, West Bridgewater,
Whitman); SUFFOLK

AREA 2: ESSEX (Amesbury, Andover, Boxford, Danvers, Essex,
Georgetown, Hamilton, Haverhill, Ipswich, Lawrence, Merrimac,
Methuen, Newbury, Newburyport, North Andover, Rockport, Rowley,
Salisbury, Topsfield, Wenham, West Newbury); MIDDLESEX
(Action, Billerica, Carlisle, Chelmsford, Dracut, Dunstable,
Groton, Groveland, Littleton, Lowell, Middleton, North Reading,
Pepperell, Tewksbury, Tyngsboro, Westford, Wilmington)

	Rates	Fringes
IRONWORKER		
AREA 1.....	\$ 41.19	27.80
AREA 2.....	\$ 36.78	27.80

IRON0007-010 03/16/2014

MIDDLESEX (Ashby, Ashland, Ayer, Boxboro, Holliston, Hopkinton,
Hudson, Marlboro, Shirley, Stow, Townsend); NORFOLK (Medway)

	Rates	Fringes
IRONWORKER.....	\$ 40.89	27.80

IRON0037-002 03/16/2014

BARNSTABLE; BRISTOL (Acushnet, Attleboro, Berkley, Dartmouth,
Dighton, Fairhaven, Fall River, Freetown, Mansfield, New
Bedford, North Attleboro, Norton, Raynham, Rehoboth, Seekonk,
Somerset, Swansea, Taunton, Westport); DUKES; NANTUCKET;
NORFOLK (Billingham, Franklin, Plainville, Wrentham); PLYMOUTH
(Lakeville, Marion, Mattapoisett, Middleboro, Rochester,
Wareham)

	Rates	Fringes
IRONWORKER.....	\$ 33.56	22.77

LABO0022-006 12/01/2012

SUFFOLK COUNTY (Boston, Chelsea, Revere, Winthrop, Deer & Nut
Islands); MIDDLESEX COUNTY (Arlington, Belmont, Burlington,
Cambridge, Everett, Malden, Medford, Melrose, Reading,
Somerville, Stoneham, Wakefield, Winchester, Winthrop and
Woburn only); NORFOLK COUNTY (Brookline, Dedham, and Milton
only)

	Rates	Fringes
Laborers:		
GROUP 1.....	\$ 32.30	20.40

GROUP 2.....	\$ 32.55	20.40
GROUP 3.....	\$ 33.05	20.40
GROUP 4.....	\$ 33.30	20.40
GROUP 5.....	\$ 20.50	20.40
GROUP 6.....	\$ 34.30	20.40

LABORERS CLASSIFICATIONS

GROUP 1: Laborers; carpenter tenders; cement finisher tenders

GROUP 2: Asphalt raker; fence and guard rail erector; laser beam operator; mason tender; pipelayer; pneumatic drill operator; pneumatic tool operator; wagon drill operator

GROUP 3: Air track operator; block paver; rammer; curb setter

GROUP 4: Blaster; powderman

GROUP 5: Flagger

GROUP 6: Asbestos Abatement; Toxic and Hazardous Waste Laborers

LABO0022-012 12/01/2012

Counties of BARNSTABLE; BRISTOL; DUKES; ESSEX; NANTUCKET; PLYMOUTH; MIDDLESEX (With the exception of Arlington, Belmont, Burlington, Cambridge, Everett, Malden, Melrose, Reading, Somerville, Stoneham, Wakefield, Winchester, Winthrop and Woburn); NORFOLK (With the exception of Brookline, Dedham, and Milton)

	Rates	Fringes
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Laborers:

GROUP 1.....	\$ 29.60	19.50
GROUP 2.....	\$ 29.85	19.50
GROUP 3.....	\$ 30.35	19.50
GROUP 4.....	\$ 30.60	19.50
GROUP 5.....	\$ 20.50	19.50
GROUP 6.....	\$ 31.60	19.50

LABORERS CLASSIFICATIONS

GROUP 1: Laborers; carpenter tenders; cement finisher tenders

GROUP 2: Asphalt raker; fence and guard rail erector; laser beam operator; mason tender; pipelayer; pneumatic drill operator; pneumatic tool operator; wagon drilloperator

GROUP 3: Air track operator; block paver; rammer; curb setter; hydraulic & similar self powere drills

GROUP 4: Blaster; powderman

GROUP 5: Flagger

GROUP 6: Asbestos Abatement; Toxic and Hazardous Waste
Laborers

LABO0022-013 12/01/2012

	Rates	Fringes
Laborers:		
(FREE AIR OPERATION):		
SHIELD DRIVEN AND LINER		
PLATE IN FREE AIR)		
GROUP 1.....	\$ 32.90	20.30+A
GROUP 2.....	\$ 32.90	20.30+A
(OPEN AIR CASSONS,		
UNDERPINNING AND TEST		
BORING INDUSTRIES):		
TEST BORING & WELL DRILLING		
Driller.....	\$ 33.70	19.85+A
Laborer.....	\$ 32.30	19.85+A
(OPEN AIR CASSONS,		
UNDERPINNING AND TEST		
BORING INDUSTRIES):		
OPEN AIR CASSON,		
UNDERPINNING WORK & BORING		
CREW		
Bottom man.....	\$ 33.45	19.85+A
Laborers; Top man.....	\$ 32.30	19.85+A
(TUNNELS, CAISSON &		
CYLINDER WORK IN		
COMPRESSED AIR)		
GROUP 1.....	\$ 30.35	20.30+A
GROUP 2.....	\$ 40.83	20.30+A
GROUP 3.....	\$ 40.83	20.30+A
GROUP 4.....	\$ 40.83	20.30+A
GROUP 5.....	\$ 40.83	20.30+A
GROUP 6.....	\$ 42.83	20.30+A
CLEANING CONCRETE AND		
CAULKING TUNNEL (Both New		
& Existing)		
GROUP 1.....	\$ 32.90	20.30+A
GROUP 2.....	\$ 32.90	20.30+A
ROCK SHAFT, CONCRETE		
LINING OF SAME AND TUNNEL		
IN FREE AIR		
GROUP 1.....	\$ 30.35	20.30+A

GROUP 2.....	\$ 32.90	20.30+A
GROUP 3.....	\$ 32.90	20.30+A
GROUP 4.....	\$ 32.90	20.30+A
GROUP 5.....	\$ 34.90	20.30+A

LABORERS CLASSIFICATIONS for TUNNELS, CAISSON & CYLINDER WORK
IN COMPRESSED AIR

GROUP 1: Powder watchman; Top man on iron bolt; change house attendant

GROUP 2: Brakeman; trackman; groutman; tunnel laborer; outside lock tender; lock tender; guage tender

GROUP 3: Motorman, miner

GROUP 4: Blaster

GROUP 5: Mucking machine operator

GROUP 6: Hazardous Waste work within the "HOT" zone. (A premium of two dollars \$2.00 per hour over the basic wage rate.

LABORERS CLASSIFICATIONS for (FREE AIR OPERATION): SHIELD
DRIVEN AND LINER PLATE IN FREE AIR

GROUP 1: Miner; miner welder; conveyor operator; motorman; mucking machine operator; nozzle man; grout man-; pumps, shaft and tunnel steel and rodman; shield and erector arm operators, mole nipper, outside motorman, burner, TBM operator, safety miner; laborer topside; heading motormen; erecting operators; top signal men

GROUP 2: Brakeman; trackman

LABORERS CLASSIFICATIONS FOR CLEANING CONCRETE AND CAULKING
TUNNEL (Both New & Existing)

GROUP 1: Concrete workers; strippers and form movers (wood & steel), cement finisher

GROUP 2: Form erector (wood & steel and all accessories)

LABORERS CLASSIFICATIONS for ROCK SHAFT, CONCRETE LINING OF
SAME AND TUNNE IN FREE AIR

GROUP 1: Change house attendants

GROUP 2: Laborers, topside, bottom men (when heading is 50 ft. from shaft) and all other laborers

GROUP 3: Brakeman; trackman; tunnel laborers; shaft laborers

GROUP 4: Miner; cage tender; bellman

GROUP 5: Hazardous Waste work within the "HOT" zone. (A premium of two dollars \$2.00 per hour over the basic wage rate)

FOOTNOTE FOR LABORERS:

A. PAID HOLIDAYS: New Year's Day, Washington's Birthday, Patriot's Day, Memorial Day, Independence Day, Labor Day, Columbus Day, Veteran's Day, Thanksgiving Day, and Christmas Day

LAB01421-001 06/01/2011

WRECKING LABORERS:

	Rates	Fringes
Laborers: (Wrecking)		
Group 1.....	\$ 31.05	19.75
Group 2.....	\$ 31.80	19.75
Group 3.....	\$ 32.05	19.75
Group 4.....	\$ 27.05	19.75
Group 5.....	\$ 30.15	19.75
Group 6.....	\$ 31.05	19.75

Group 1: Adzeman, Wrecking Laborer.

Group 2: Burners, Jackhammers.

Group 3: Small Backhoes, Loaders on tracks, Bobcat Type Loaders, Hydraulic "Brock" Type Hammer Operators, Concrete Cutting Saws.

Group 4: Yardman (Salvage Yard Only).

Group 5: Yardman, Burners, Sawyers.

Group 6: Asbestos, Lead Paint, Toxic and Hazardous Waste.

PAIN0035-001 01/01/2013

BARNSTABLE BRISTOL; DUKES; ESSEX; NANTUCKET; PLYMOUTH
(Remainder of NORFOLK; MIDDLESEX AND SUFFOLK COUNTIES)

	Rates	Fringes
Painters:		
NEW CONSTRUCTION:		
Bridge.....	\$ 45.01	24.40
Brush, Taper.....	\$ 34.51	24.40
Spray, Sandblast.....	\$ 35.91	24.40
REPAINT:		
Bridge.....	\$ 45.01	24.40
Brush, Taper.....	\$ 32.57	24.40

Spray, Sandblast.....	\$ 33.97	24.40
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PAIN0035-015 01/01/2013

MIDDLESEX (Cambridge, Everett, Malden, Medford, Somerville)
SUFFOLK COUNTY (Boston, Chelsea) NORFOLK COUNTY (Brookline)

Rates	Fringes
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Painters:

NEW CONSTRUCTION:

Brush, Taper.....	\$ 40.30	24.40
Spray, Sandblast.....	\$ 41.70	24.40

REPAINT:

Bridge.....	\$ 38.36	24.40
Brush, Taper.....	\$ 38.36	24.40
Spray, Sandblast.....	\$ 39.76	24.40

PLAS0534-001 07/01/2012

ESSEX; MIDDLESEX; NORFOLK AND SUFFOLK COUNTY

Rates	Fringes
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CEMENT MASON/CONCRETE FINISHER...	\$ 35.50	31.01
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PLUM0004-001 03/01/2013

MIDDLESEX (Ashby, Ayer-West of Greenville branch of Boston and
Maine Railroad, Ft. Devens, Groton, Shirley, Townsend)

Rates	Fringes
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Plumbers and Pipefitters.....	\$ 40.01	24.21
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PLUM0012-001 09/01/2013

ESSEX (Ames, Andover, Beverly, Boxford, Byfield, Danvers,
Essex, Georgetown, Gloucester, Groveland, Hamilton, Haverhill,
Ipswich, Lawrence, Manchester, Marblehead, Merrimac, Methuen,
Middleton, Newbury, Newburyport, North Andover, Peabody,
Rockport, Rowley, Salem, Salisbury, Topsfield, Wenham, West
Newbury)

Rates	Fringes
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PLUMBER.....	\$ 44.98	24.56
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PLUM0012-003 09/01/2013

ESSEX (Ames, Andover, Beverly, Boxford, Byfield, Danvers,
Essex, Georgetown, Gloucester, Groveland, Hamilton, Haverhill,
Ipswich, Lawrence, Manchester, Marblehead, Merrimac, Methuen,
Middleton, Newbury, Newburyport, North Andover, Peabody,

Rockport, Rowley, Salem, Salisbury, Topsfield, Wenham, West Newbury)

	Rates	Fringes
Plumber, Pipefitter, Steamfitter.....	\$ 44.98	24.56

PLUM0012-006 09/01/2013

ESSEX (Lynn, Lynnfield, Nahant, Saugus, and Swampscott);
MIDDLESEX (Acton, Arlington, Ashland, Ayer - except W. of
Greenville Branch of Boston & Maine RR, Bedford, Belmont,
Billerica, Boxboro, Burlington, Cambridge, Carlisle,
Chelmsford, Concord, Dracut, Dunstable, Everett, Framingham,
Hudson, Holliston, Hopkinton, Lexington, Lincoln, Littleton,
Lowell, Malden, Marlboro, Maynard, Medford, Melrose, Natick,
Newton, North Reading, Pepperell, Reading, Sherborn,
Somerville, Stoneham, Stow, Sudbury, Tewksbury, Tyngsboro,
Wakefield, Waltham, Watertown, Wayland, Westford, Wilmington,
Winchester, Woburn); NORFOLK (Bellingham, Braintree,
Brookline, Canton, Cohasset, Dedham, Dover, Foxboro, Franklin,
Medfield, Medway, Millis, Milton, Needham, Norfolk, Norwood,
Plainville, Quincy, Sharon, Walpole, Wellesley, Westwood,
Weymouth, Wrentham); PLYMOUTH (Hingham, Hull, Scituate);
SUFFOLK

	Rates	Fringes
PLUMBER.....	\$ 49.06	24.56

PLUM0051-005 03/01/2014

BARNSTABLE; BRISTOL; DUKES; NANTUCKET; NORFOLK (Avon, Holbrook,
Randolph, Stoughton) PLYMOUTH (Remainder of County)

	Rates	Fringes
Plumbers and Pipefitters.....	\$ 35.51	27.32

PLUM0537-001 09/01/2013

MIDDLESEX (Arlington, Cambridge, Everett, Malden, Medford,
Melrose, Reading, Wakefield, Winchester and Woburn); NORFOLK
(Bellingham, Braintree, Brookline, Canton Cashasset, Dedham,
Foxboro, Franklin, Millis, Milton, Sharon, Walpole, Westwood,
and Wrenthan); PLYMOUTH (Hingham, Hull, Scituate); ESSEX (Ames,
Andover, Beverly, Boxford, Byfield, Danvers, Essex, Georgetown,
Gloucester, Groveland, Hamilton, Haverhill, Ipswich,
Lawrence, Lynn, Lynnfield, Manchester, Marblehead, Merrimac,
Methuen, Middleton, Nahant, Newbury, Newburyport, North
Andover, Peabody, Rockport, Rowley, Salem, Salisbury, Saugus,
Swampscott, Topsfield, Wenham, West Newbury)

	Rates	Fringes
PIPEFITTER.....	\$ 47.94	26.51

TEAM0379-001 08/01/2013

	Rates	Fringes
Truck drivers:		
Group 1.....	\$ 30.78	18.37+A+B
Group 2.....	\$ 30.95	18.37+A+B
Group 3.....	\$ 31.02	18.37+A+B
Group 4.....	\$ 31.14	18.37+A+B
Group 5.....	\$ 31.24	18.37+A+B
Group 6.....	\$ 31.53	18.37+A+B
Group 7.....	\$ 31.82	18.37+A+B

POWER TRUCKS \$.25 DIFFERENTIAL BY AXLE

TUNNEL WORK (UNDERGROUND ONLY) \$.40 DIFFERENTIAL BY AXLE

HAZARDOUS MATERIALS (IN HOT ZONE ONLY) \$2.00 PREMIUM

TRUCK DRIVERS CLASSIFICATIONS

Group 1: Station wagons; panel trucks; and pickup trucks

Group 2: Two axle equipment; & forklift operator

Group 3: Three axle equipment and tireman

Group 4: Four and Five Axle equipment

Group 5: Specialized earth moving equipment under 35 tons
other than conventional type trucks; low bed; vachual;
mechanics, paving restoration equipment

Group 6: Specialized earth moving equipment over 35 tons

Group 7: Trailers for earth moving equipment (double hookup)

FOOTNOTES:

A. PAID HOLIDAYS: New Year's Day, Washington's Birthday,
Memorial Day, Independence Day, Labor Day, Patriot's Day,
Columbus Day, Veteran's Day, Thanksgiving Day and Christmas
Day

B. PAID VACATION: Employees with 4 months to 1 year of
service receive 1/2 day's pay per month; 1 week vacation
for 1 - 5 years of service; 2 weeks vacation for 5 - 10
years of service; and 3 weeks vacation for more than 10
years of service

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

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Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29CFR 5.5 (a) (1) (ii)).

The body of each wage determination lists the classification and wage rates that have been found to be prevailing for the cited type(s) of construction in the area covered by the wage determination. The classifications are listed in alphabetical order of "identifiers" that indicate whether the particular rate is union or non-union.

Union Identifiers

An identifier enclosed in dotted lines beginning with characters other than "SU" denotes that the union classification and rate have found to be prevailing for that classification. Example: PLUM0198-005 07/01/2011. The first four letters , PLUM, indicate the international union and the four-digit number, 0198, that follows indicates the local union number or district council number where applicable , i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. The date, 07/01/2011, following these characters is the effective date of the most current negotiated rate/collective bargaining agreement which would be July 1, 2011 in the above example.

Union prevailing wage rates will be updated to reflect any changes in the collective bargaining agreements governing the rates.

0000/9999: weighted union wage rates will be published annually each January.

Non-Union Identifiers

Classifications listed under an "SU" identifier were derived from survey data by computing average rates and are not union rates; however, the data used in computing these rates may include both union and non-union data. Example: SULA2004-007 5/13/2010. SU indicates the rates are not union majority rates, LA indicates the State of Louisiana; 2004 is the year of the survey; and 007 is an internal number used in producing the

wage determination. A 1993 or later date, 5/13/2010, indicates the classifications and rates under that identifier were issued as a General Wage Determination on that date.

Survey wage rates will remain in effect and will not change until a new survey is conducted.

WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

- * an existing published wage determination
- * a survey underlying a wage determination
- * a Wage and Hour Division letter setting forth a position on a wage determination matter
- * a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour Regional Office for the area in which the survey was conducted because those Regional Offices have responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.

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END OF GENERAL DECISION

Applicability

The Project or Program to which the construction work covered by this contract pertains is being assisted by the United States of America and the following Federal Labor Standards Provisions are included in this Contract pursuant to the provisions applicable to such Federal assistance.

A. 1. (i) Minimum Wages. All laborers and mechanics employed or working upon the site of the work, will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act (29 CFR Part 3), the full amount of wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the contractor and such laborers and mechanics. Contributions made or costs reasonably anticipated for bona fide fringe benefits under Section 1(b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of 29 CFR 5.5(a)(1)(iv); also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs, which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period.

Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill, except as provided in 29 CFR 5.5(a)(4). Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein: Provided, That the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classification and wage rates conformed under 29 CFR 5.5(a)(1)(ii) and the Davis-Bacon poster (WH-1321) shall be posted at all times by the contractor and its subcontractors at the site of the work in a prominent and accessible, place where it can be easily seen by the workers.

(ii) (a) Any class of laborers or mechanics which is not listed in the wage determination and which is to be employed under the contract shall be classified in conformance with the wage determination. HUD shall approve an additional classification and wage rate and fringe benefits therefor only when the following criteria have been met:

(1) The work to be performed by the classification requested is not performed by a classification in the wage determination; and

(2) The classification is utilized in the area by the construction industry; and

(3) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.

(b) If the contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and HUD or its designee agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken shall be sent by HUD or its designee to the Administrator of the Wage and Hour Division, Employment Standards Administration, U.S. Department of Labor, Washington, D.C. 20210. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise HUD or its designee or will notify HUD or its designee within the 30-day period that additional time is necessary. (Approved by the Office of Management and Budget under OMB control number 1215-0140.)

(c) In the event the contractor, the laborers or mechanics to be employed in the classification or their representatives, and HUD or its designee do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), HUD or its designee shall refer the questions, including the views of all interested parties and the recommendation of HUD or its designee, to the Administrator for determination. The Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise HUD or its designee or will notify HUD or its designee within the 30-day period that additional time is necessary. (Approved by the Office of Management and Budget under OMB Control Number 1215-0140.)

(d) The wage rate (including fringe benefits where appropriate) determined pursuant to subparagraphs (1)(ii)(b) or (c) of this paragraph, shall be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.

(iii) Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the contractor shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof.

(iv) If the contractor does not make payments to a trustee or other third person, the contractor may consider as part

of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program. Provided, That the Secretary of Labor has found, upon the written request of the contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the contractor to set aside in a separate account assets for the meeting of obligations under the plan or program. (Approved by the Office of Management and Budget under OMB Control Number 1215-0140.)

2. Withholding. HUD or its designee shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld from the contractor under this contract or any other Federal contract with the same prime contractor, or any other Federally-assisted contract subject to Davis-Bacon prevailing wage requirements, which is held by the same prime contractor so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees and helpers, employed by the contractor or any subcontractor the full amount of wages required by the contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee or helper, employed or working on the site of the work, all or part of the wages required by the contract, HUD or its designee may, after written notice to the contractor, sponsor, applicant, or owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased. HUD or its designee may, after written notice to the contractor, disburse such amounts withheld for and on account of the contractor or subcontractor to the respective employees to whom they are due. The Comptroller General shall make such disbursements in the case of direct Davis-Bacon Act contracts.

3. (i) Payrolls and basic records. Payrolls and basic records relating thereto shall be maintained by the contractor during the course of the work preserved for a period of three years thereafter for all laborers and mechanics working at the site of the work. Such records shall contain the name, address, and social security number of each such worker, his or her correct classification, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in Section 1(b)(2)(B) of the Davis-bacon Act), daily and weekly number of hours worked, deductions made and actual wages paid. Whenever the Secretary of Labor has found under 29 CFR 5.5 (a)(1)(iv) that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in Section 1(b)(2)(B) of the Davis-Bacon Act, the contractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been

communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs. (Approved by the Office of Management and Budget under OMB Control Numbers 1215-0140 and 1215-0017.)

(ii) (a) The contractor shall submit weekly for each week in which any contract work is performed a copy of all payrolls to HUD or its designee if the agency is a party to the contract, but if the agency is not such a party, the contractor will submit the payrolls to the applicant sponsor, or owner, as the case may be, for transmission to HUD or its designee. The payrolls submitted shall set out accurately and completely all of the information required to be maintained under 29 CFR 5.5(a)(3)(i) except that full social security numbers and home addresses shall not be included on weekly transmittals. Instead the payrolls shall only need to include an individually identifying number for each employee (e.g., the last four digits of the employee's social security number). The required weekly payroll information may be submitted in any form desired. Optional Form WH-347 is available for this purpose from the Wage and Hour Division Web site at <http://www.dol.gov/esa/whd/forms/wh347instr.htm> or its successor site. The prime contractor is responsible for the submission of copies of payrolls by all subcontractors. Contractors and subcontractors shall maintain the full social security number and current address of each covered worker, and shall provide them upon request to HUD or its designee if the agency is a party to the contract, but if the agency is not such a party, the contractor will submit the payrolls to the applicant sponsor, or owner, as the case may be, for transmission to HUD or its designee, the contractor, or the Wage and Hour Division of the Department of Labor for purposes of an investigation or audit of compliance with prevailing wage requirements. It is not a violation of this subparagraph for a prime contractor to require a subcontractor to provide addresses and social security numbers to the prime contractor for its own records, without weekly submission to HUD or its designee. (Approved by the Office of Management and Budget under OMB Control Number 1215-0149.)

(b) Each payroll submitted shall be accompanied by a "Statement of Compliance," signed by the contractor or subcontractor or his or her agent who pays or supervises the payment of the persons employed under the contract and shall certify the following:

(1) That the payroll for the payroll period contains the information required to be provided under 29 CFR 5.5 (a)(3)(ii), the appropriate information is being maintained under 29 CFR 5.5(a)(3)(i), and that such information is correct and complete;

(2) That each laborer or mechanic (including each helper, apprentice, and trainee) employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in 29 CFR Part 3;

(3) That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of work performed, as specified in the applicable wage determination incorporated into the contract.

(c) The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 shall satisfy the requirement for submission of the "Statement of Compliance" required by subparagraph A.3.(ii)(b).

(d) The falsification of any of the above certifications may subject the contractor or subcontractor to civil or criminal prosecution under Section 1001 of Title 18 and Section 231 of Title 31 of the United States Code.

(iii) The contractor or subcontractor shall make the records required under subparagraph A.3.(i) available for inspection, copying, or transcription by authorized representatives of HUD or its designee or the Department of Labor, and shall permit such representatives to interview employees during working hours on the job. If the contractor or subcontractor fails to submit the required records or to make them available, HUD or its designee may, after written notice to the contractor, sponsor, applicant or owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR 5.12.

4. Apprentices and Trainees.

(i) **Apprentices.** Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Office of Apprenticeship Training, Employer and Labor Services, or with a State Apprenticeship Agency recognized by the Office, or if a person is employed in his or her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Office of Apprenticeship Training, Employer and Labor Services or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice. The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who

is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman's hourly rate) specified in the contractor's or subcontractor's registered program shall be observed. Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeymen hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination. In the event the Office of Apprenticeship Training, Employer and Labor Services, or a State Apprenticeship Agency recognized by the Office, withdraws approval of an apprenticeship program, the contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(ii) **Trainees.** Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the U.S. Department of Labor, Employment and Training Administration. The ratio of trainees to journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration. Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman wage rate on the wage determination which provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by

the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. In the event the Employment and Training Administration withdraws approval of a training program, the contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(iii) Equal employment opportunity. The utilization of apprentices, trainees and journeymen under 29 CFR Part 5 shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR Part 30.

5. Compliance with Copeland Act requirements. The contractor shall comply with the requirements of 29 CFR Part 3 which are incorporated by reference in this contract

6. Subcontracts. The contractor or subcontractor will insert in any subcontracts the clauses contained in subparagraphs 1 through 11 in this paragraph A and such other clauses as HUD or its designee may by appropriate instructions require, and a copy of the applicable prevailing wage decision, and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in this paragraph.

7. Contract termination; debarment. A breach of the contract clauses in 29 CFR 5.5 may be grounds for termination of the contract and for debarment as a contractor and a subcontractor as provided in 29 CFR 5.12.

8. Compliance with Davis-Bacon and Related Act Requirements. All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 CFR Parts 1, 3, and 5 are herein incorporated by reference in this contract

9. Disputes concerning labor standards. Disputes arising out of the labor standards provisions of this contract shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR Parts 5, 6, and 7. Disputes within the meaning of this clause include disputes between the contractor (or any of its subcontractors) and HUD or its designee, the U.S. Department of Labor, or the employees or their representatives.

10. (I) Certification of Eligibility. By entering into this contract the contractor certifies that neither it (nor he or she) nor any person or firm who has an interest in the contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of Section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1) or to be

awarded HUD contracts or participate in HUD programs pursuant to 24 CFR Part 24.

(ii) No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of Section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1) or to be awarded HUD contracts or participate in HUD programs pursuant to 24 CFR Part 24.

(iii) The penalty for making false statements is prescribed in the U.S. Criminal Code, 18 U.S.C. 1001. Additionally, U.S. Criminal Code, Section 1 01 0, Title 18, U.S.C., "Federal Housing Administration transactions", provides in part: "Whoever, for the purpose of . . . influencing in any way the action of such Administration..... makes, utters or publishes any statement knowing the same to be false..... shall be fined not more than \$5,000 or imprisoned not more than two years, or both."

11. Complaints, Proceedings, or Testimony by Employees. No laborer or mechanic to whom the wage, salary, or other labor standards provisions of this Contract are applicable shall be discharged or in any other manner discriminated against by the Contractor or any subcontractor because such employee has filed any complaint or instituted or caused to be instituted any proceeding or has testified or is about to testify in any proceeding under or relating to the labor standards applicable under this Contract to his employer.

B. Contract Work Hours and Safety Standards Act. The provisions of this paragraph B are applicable where the amount of the prime contract exceeds \$100,000. As used in this paragraph, the terms "laborers" and "mechanics" include watchmen and guards.

(1) Overtime requirements. No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which the individual is employed on such work to work in excess of 40 hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of 40 hours in such workweek.

(2) Violation; liability for unpaid wages; liquidated damages. In the event of any violation of the clause set forth in subparagraph (1) of this paragraph, the contractor and any subcontractor responsible therefor shall be liable for the unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in subparagraph (1) of this paragraph, in the sum of \$10 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of 40 hours without payment of the overtime wages required by the clause set forth in subparagraph (1) of this paragraph.

(3) Withholding for unpaid wages and liquidated damages. HUD or its designee shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld, from any moneys payable on account of work performed by the contractor or subcontractor under any such contract or any other Federal contract with the same prime contract, or any other Federally-assisted contract subject to the Contract Work Hours and Safety Standards Act which is held by the same prime contractor such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in subparagraph (2) of this paragraph.

(4) Subcontracts. The contractor or subcontractor shall insert in any subcontracts the clauses set forth in subparagraph (1) through (4) of this paragraph and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in subparagraphs (1) through (4) of this paragraph.

C. Health and Safety. The provisions of this paragraph C are applicable where the amount of the prime contract exceeds \$100,000.

(1) No laborer or mechanic shall be required to work in surroundings or under working conditions which are unsanitary, hazardous, or dangerous to his health and safety as determined under construction safety and health standards promulgated by the Secretary of Labor by regulation.

(2) The Contractor shall comply with all regulations issued by the Secretary of Labor pursuant to Title 29 Part 1926 and failure to comply may result in imposition of sanctions pursuant to the Contract Work Hours and Safety Standards Act, (Public Law 91-54, 83 Stat 96). 40 USC 3701 et seq.

(3) The contractor shall include the provisions of this paragraph in every subcontract so that such provisions will be binding on each subcontractor. The contractor shall take such action with respect to any subcontractor as the Secretary of Housing and Urban Development or the Secretary of Labor shall direct as a means of enforcing such provisions.

Division of Labor and Industries Statement of Compliance

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

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:

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 or 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 borne, 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 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, of 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 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 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 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

Symphony Park
00430

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,

Part 1, Section 4: OTHER BID DOCUMENTS

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

S A M P L E C O N T R A C T

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: **Symphony Park**

CONTRACTOR: Vendor
 Address
 Townname, Ma

ACCORDING TO SPECIFICATIONS CONTAINED HEREIN

**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: Luisa Oliveira

Address: City Hall, 3rd floor, 93 Highland Avenue, Somerville, MA 02143

Telephone: 617-625-6600, x.2529 Fax: 617-625-0722

E-Mail: afranzen@somervillema.gov

DESIGN PROFESSIONAL:

Name: **Groundview LLC**

Address: **5 Dell Street
Somerville, MA 02145**

Contact: Eden Dutcher

Phone: 617-548-9688

edendutcher@groundviewdesign.com

Profession: Architect [☐] Landscape Architect [X] Engineer [☐]

FUNDING SOURCE: Federal [☐] State [☐] City [X]

THIS CONTRACT IS A:

Sample Contract

Part 1, Section 4: OTHER BID DOCUMENTS

- X Public Works Contract estimated to cost more than \$10,000 subject to the bidding requirements of G.L. c. 30, § 39M
- 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)

Sample Contract

Part 1, Section 4: OTHER BID DOCUMENTS

X Appendix G - Procurement Documentation (includes Advertisement; Notice to Bidders)

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: The Contract shall begin on September 1, 2014 and end on June 1, 2015.

(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 \$_____ .
- (b) Liquidated Damages: The Contractor and the City agree to a Liquidated Damages sum of \$250.00 per calendar day.

SIGNATURE PAGE FOLLOWS

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 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)

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

APPENDIX B
Contractor's Bid Price - Form for General Bid
(From Bid Book)

APPENDIX C
General Conditions
(From Bid Book)

**APPENDIX D
INSURANCE REQUIREMENTS**

**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.

APPENDIX E
PREVAILING WAGE RATES
DAVIS BACON WAGE RATES
AND LIVING WAGE FORM

DAVIS BACON AND PREVAILING WAGE RATES

INSERT MANUALLY



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.

²Copies of the Ordinance are available upon request to the Purchasing Department.

Part 1, Section 4: OTHER BID DOCUMENTS

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 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 7/1/2013 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.

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.

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

APPENDIX G
PROCUREMENT DOCUMENTATION
ADVERTISEMENTS, NOTICE TO BIDDERS, ETC.

Part 1, Section 4: OTHER BID DOCUMENTS

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)

Part 1, Section 4: OTHER BID DOCUMENTS

(Business name, address and telephone number)

Sample Contract

APPENDIX I
PERFORMANCE BOND AND PAYMENT BOND
FOR CONTRACTS OVER \$2000

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 Zero New Washington Street Community Park and Off-Leash Recreation Area 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

Sample Contract

Part 1, Section 4: OTHER BID DOCUMENTS

original term thereof, and any extensions thereof which may be granted by the Owner, with 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

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 Zero New Washington Street
Community Park and Off-Leash Recreation Area.

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

Part 1, Section 4: OTHER BID DOCUMENTS

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 Site Improvements at Perry Park
and Stone Place Park with 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)

Part 1, Section 4: OTHER BID DOCUMENTS

Sample Contract

PART 3: TECHNICAL SPECIFICATIONS

DOCUMENT TITLE	SECTION
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DIVISION 1 - General Requirements

01110	Control Work Materials	01110
01220	Unit Price Form	01220
01230	Alternates	01230
01330	Permits	01330
01562	Dust Control	01562
01570	Environmental Protections	01570
01577	Rodent Control	01577
01580	Project Signs	01580
01720	Construction Layout	01720

DIVISION 2 – Site Work

02100	Site Preparation	02100
02200	Earthwork	02200
02500	Site Paving	02500
02501	Site Granite	02501
02502	Site Unit Masonry	02502
02510	Water Distribution	02510
02630	Storm Drainage	02630
02800	Site Improvements	02800
02805	Custom Metal Fabrication	02805
02810	Irrigation	02810
02900	Planting	02900

DIVISION 3 – Concrete

03300	Concrete	03300
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DIVISION 16 – Electrical

16100	Electrical	16100
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END OF SECTION

SECTION 01110
CONTROL OF WORK AND MATERIALS

PART 1 - GENERAL

1.01 PROVISIONS INCLUDED

- A. The conditions and general requirements of the Contract, Division 0 and applicable parts of Division 1, apply to the work under this Section.

1.02 SUMMARY

- A. To be included, but not limited to the following:

1. Coordination
 - a. Project Management
 - b. Schedule
 - c. Progress Meetings
 - d. Submittals
 - e. Request For Interpretation (RFI)
 - f. Change in Work
 - g. Payments
 - h. Close-out
2. Protections
3. Temporary Controls
4. Quality Control
5. Materials and Equipment
6. Cleaning Up

PART 2 - PRODUCTS (NOT APPLICABLE)

PART 3 - EXECUTION

3.01 COORDINATION

A. PROJECT MANAGEMENT

1. One project manager should be assigned for the duration of the project. This project manager should attend all progress meetings and be the main contact for the project.

B. SCHEDULE

1. Daily Schedule: Unless specifically authorized by the City, in writing, the work must be conducted between the hours of 7:00 a.m. and 6:00 p.m. on Monday through Saturday. No work is to be done on Sundays other than for emergencies, or unless specifically authorized by the City.
2. Construction Schedule: As specified in 'Notice to Bidders', provide preliminary schedule within 10 days of award of project and a Gantt-type schedule within 15 days.
 - a. Update Construction Schedule for weekly Progress Meetings:
 - 1) Identification of activities that have changed.
 - 2) Changes in early and late start dates.
 - 3) Changes in early and late finish dates.
 - 4) Changes in activity durations in workdays.
 - 5) Changes in the critical path.

- b. The Contractor shall be responsible for scheduling its activities and the activities of the subcontractors involved, to meet the completion date or milestones, established for the contract. Scheduling of the work shall be coordinated with the City and the Landscape Architect.
- c. Change in Contract Time requirements: Section 00430 – General Conditions

C. PROGRESS MEETINGS

- 1. Conduct progress meetings at weekly intervals with Landscape Architect, City, and others necessary to conclude matters relating to the Work. Landscape Architect will record and distribute meeting minutes.

D. SUBMITTALS

- 1. The following include but are not limited to submittals as required in the technical specifications sections for the Landscape Architect's approval.
 - a. Product Data: submit manufacturer's specifications and installation instructions.
 - b. Shop Drawings: Submit shop drawings for the following components showing attachment methods, fabrication, casting and hardware.
 - c. Samples: submit material, color, and/or finish samples as required for selection/confirmation.
 - d. Certificates: submit material certificates signed by material producer and Contractor. Provide certifications stating materials comply with requirements.
 - e. Field Samples: Mock-ups as outlined below:
 - 1. Schedule field sample construction so that field samples can be reviewed by the Landscape Architect a minimum of 7 days prior to installation of paving surfaces represented by field samples.
 - 2. Locate field sample panels in areas as directed by the Landscape Architect.
 - 3. Continue to construct field samples until acceptable. Rejected samples shall be removed from the site.
 - 4. Final samples shall remain undisturbed and shall be maintained for the duration of construction, becoming the standard for acceptance of all proposed elements. Samples shall show all aspects of finish paving appearance including color, jointing, edge treatment, sealing, cleanliness and fastening.
 - 5. Remove panels from site at completion of project, unless otherwise directed by the Landscape Architect.
 - 6. Construct field sample panels or areas for each different type of paving system to demonstrate ability to achieve types of setting bed, joints, color, and surface texture required.
 - 7. Provide field samples simulating actual design and execution conditions for paving materials, mixing of paving materials, installation sequence, curing, use of temporary protective coating system, and methods for correction of defective work.
 - f. Qualifications: Submit test reports for information for the limited purpose of assessing conformance with information given and the design concept expressed in the Contract Documents. See Testing requirements in this Section
 - g. Test Reports: Submit test reports for information for the limited purpose of assessing conformance with information given and the design concept expressed in the Contract Documents. See Testing requirements in this Section

- h. Guarantees and Warranties: as specified in Section 00430 – General Conditions
 - 1) Guarantees start a time of Acceptance.
 - 2) Warranties start at time of Substantial Completion.
- i. Maintenance Kit, Spare Parts and Materials: Provide products, spare parts, maintenance and extra materials in quantities specified in individual specification Sections.
- 2. Submit a preliminary schedule of submittals within 10 days of award of contract.
- 3. All submittals shall be submitted in six (6) copies within four (4) weeks after the award of the contract, and shall be in not more than three (3) submittal packages so that a manual can be prepared for office and field reference. Alternatively, submittals may be made and distributed digitally with the approval of the City via email or File Transfer Protocol (FTP) site.
- 4. Submit all documents and data in a collated, manual format, with six (6) manuals to be submitted. Include a Table of Contents of the material for reference. The submittal is to be entire and complete, addressing all furnishings and installation.
- 5. Submit all required product or material samples concurrent with the materials/equipment information manuals described above. Each submittal shall reference its appropriate specification section, part and paragraph.

E. REQUESTS FOR INTERPRETATION (RFIs)

- 1. Procedure: Immediately on discovery of the need for interpretation of the Contract Documents, and if not possible to request interpretation at Project meeting, prepare and submit an RFI in the form specified.
 - a. RFIs shall originate with Contractor. RFIs submitted by entities other than Contractor will be returned with no response.
 - b. Coordinate and submit RFIs in a prompt manner so as to avoid delays in Contractor's work or work of subcontractors.
- 2. Content of the RFI: Include a detailed, legible description of item needing interpretation and the following:
 - a. Project name.
 - b. Date.
 - c. Name of Contractor.
 - e. Name of Landscape Architect.
 - f. RFI number, numbered sequentially.
 - g. Specification Section number and title and related paragraphs, as appropriate.
 - h. Drawing number and detail references, as appropriate.
 - i. Field dimensions and conditions, as appropriate.
 - j. Contractor's suggested solution(s). If Contractor's solution(s) impact the Contract Time or the Contract Sum, Contractor shall state impact in the RFI.
 - k. Contractor's signature.
 - l. Attachments: Include drawings, descriptions, measurements, photos, Product Data, Shop Drawings, and other information necessary to fully describe items needing interpretation.
- 3. Landscape Architect will review each RFI, determine action required, and return it. Allow seven working days for Landscape Architect's response for each RFI.
- 4. On receipt of Landscape Architect's action, update the RFI log and immediately distribute the RFI response to affected parties. Review response and notify Landscape Architect within seven days if Contractor disagrees with response.
- 5. Prepare, maintain, and submit a tabular log of RFIs organized by the RFI number.

F. CHANGE IN WORK

- 1. Change Orders and Change Directives as specified in Section 00430 – General Conditions

G. PAYMENTS

1. Payments as specified in Section 00430 – General Conditions

H. PROJECT CLOSE-OUT

1. SUBSTANTIAL COMPLETION

- a. Substantial Completion as specified in Section 00430 – General Conditions
- b. Submit a written request for inspection for Substantial Completion. On receipt of request, Landscape Architect will proceed with inspection and notify Contractor of unfulfilled requirements. Contractor will prepare the Certificate of Substantial Completion after inspection or Landscape Architect will notify of items that must be completed or corrected before certificate will be issued.
- c. Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.
- d. List of incomplete items will form the basis of requirements for Final Completion.

3. LIST OF INCOMPLETE ITEMS (PUNCH LIST)

- a. Landscape Architect will submit a punch list of items needing correction including, if necessary, areas disturbed by Contractor that are outside the limits of construction. These items will need to be resolved prior to request for final inspection.

2. FINAL COMPLETION

- a. Inspection: Submit a written request for final inspection for acceptance. On receipt of request, Landscape Architect will either proceed with inspection or notify Contractor of unfulfilled requirements. Landscape Architect will prepare a final Certificate for Payment after inspection or will notify Contractor of construction that must be completed or corrected before certificate will be issued. The Landscape Architect, the City and a representative from the Department of Public Works must be present at the final inspection.
- b. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.

4. RECORD DOCUMENTS

- a. Upon Final Completion of all park construction, the contractor shall submit: four complete copies of a park maintenance manual, and four copies of an as-built drawing set, with four compact disc (CD) copies of the as-built drawings.
- b. The City will not issue the final check for park 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 complete landscape maintenance plan with recommended maintenance schedules and procedures for all park systems including: watering, fertilization, spring start up procedures, fall clean-up, irrigation and water systems shut-down procedures, and park winterization procedures;
- A letter from the contractor stating the period of guaranty for all parts, materials, and workmanship, from the date of Acceptance;
- 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;

- List of all plant material, and sizes of plant containers; including warranty dates and maintenance responsibilities of the contractor.
 - 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 landscape architect.
- 3) The Compact Discs shall include an electronic copy of all as-built drawings.
6. MAINTENANCE KIT, SPARE PARTS AND MATERIALS
- a. Deliver to and place in location as directed. Obtain receipt prior to final payment.

3.02 PROTECTIONS

- A. GENERAL: The site is located within a densely populated residential neighborhood. Contractor shall take great care to minimize traffic disturbance, noise, dust and other nuisances.
- B. SITE INVESTIGATION: The Contractor acknowledges that he has satisfied himself as to the conditions existing at the site of the work, the type of equipment required to perform this work, the quality and quantity of the materials furnished insofar as this information is reasonably ascertainable from an inspection of the site, as well as from information presented by the drawings and specifications made a part of this contract. Any failure of the Contractor to acquaint himself with available information will not relieve him from the responsibility for estimating properly the difficulty or cost of successfully performing the work. The City assumes no responsibility for any conclusion or interpretation made by the Contractor on the basis of the information made available by the City.
- C. CARE AND PROTECTION OF PROPERTY: The Contractor shall be responsible for the preservation of all public and private property - - INCLUDING ABUTTERS OF THE SITE - - , and shall use every precaution necessary to prevent damage thereto. If any direct or indirect damage is done to public or private property by or on account of any act, omission, neglect, or misconduct in the execution of the work on the part of the Contractor, such property shall be promptly restored by the Contractor, at his expense, to a condition similar or equal to that existing before the damage was done, to the satisfaction of the Landscape Architect.
- D. PROTECTION AND RELOCATION OF EXISTING STRUCTURES AND UTILITIES:
1. All existing buildings, utilities, pipes, poles, wires, fences, curbing, property line markers and other structures which the Landscape Architect decides must be preserved in place without being temporarily or permanently relocated, shall be carefully supported and protected from damage by the contractor. Should such property be damaged, it shall be restored by the Contractor, at no additional cost to the City.
 2. The Contractor shall determine the location of all underground structures and utilities (including existing water services, drain lines, electrical lines, and sewers). Services to buildings shall be maintained, and all costs or charges resulting from damage thereto shall be paid by Contractor.
 3. When fences interfere with the Contractor's operations, coordinate with Landscape Architect on how to proceed.
 4. On paved surfaces the Contractor shall not use or operate tractors, bulldozers, or other power-operated equipment with treads or wheels which are shaped so as to cut or otherwise damage such surfaces.

5. All property damaged by the Contractor's operations shall be restored to a condition at least equal to that in which it was found immediately before work was begun. Suitable materials and methods shall be used for such restoration.
6. Restoration of existing property and structures shall be carried out as promptly as practicable and shall not be left until the end of the construction period.

E. MAINTENANCE OF FLOW:

1. The Contractor shall at his own cost, provide for the flow of sewers and drains interrupted during the progress of the work, and shall immediately cart away and dispose of all offensive matter. The entire procedure of maintaining existing flow shall be fully discussed with the Landscape Architect well in advance of the interruption of any flow.
2. All existing drainage facilities including, but not limited to; brooks, streams, canals, channels, ditches, culverts, catch basins and drainage piping shall be adequately safeguarded so as not to impede drainage or to cause siltation of downstream areas in any manner whatsoever. If the Contractor damages or impairs any of the aforesaid drainage facilities, he shall repair the same within the same day.
3. At the conclusion of the work, the Contractor shall remove all silt in drainage structures caused by his operations as described in CLEANING UP in this Section.

F. SAFETY AND HEALTH REGULATIONS: This project is subject to the Safety and Health regulations of the U.S. Department of Labor set forth in 29 CFR, Part 1926, and to the Massachusetts Department of Labor and Industries, Division of Industrial Safety "Rules and Regulations for the Prevention of Accidents in Construction Operations (454 CMR 10.0 et. seq.)." Contractors shall be familiar with the requirements of these regulations.

G. WEATHER PROTECTION: In conformance with Sections 44F and 44G of Chapter 149 of the General Laws of Massachusetts, the General Contractor shall install weather protection and shall furnish adequate heat in the area so protected during the months of November through March. Standards for such specifications shall be established by the Director of Building Construction in the Executive Office for Administration and Finance.

H. HAZARDOUS WASTE: Should the Contractor, while performing work under this contract, uncover hazardous materials, as defined in Massachusetts Hazardous Waste Regulations 310 CMR 30.00, he shall immediately notify the Landscape Architect. The Contractor is not, and has no authority to act as, a handler, generator, operator or disposer of hazardous or toxic substances found or identified at the site, and the City shall undertake all such functions.

3.03 TEMPORARY CONTROLS

A. ELECTRIC SERVICE:

1. The Contractor shall make all necessary applications and arrangements and pay for all fees and charges for electrical energy for power and light necessary for the proper completion of this contract during its entire progress. The Contractor shall provide and pay for all temporary wiring, switches, connections, and meters.
2. There shall be sufficient electric lighting so that all work may be done in a workmanlike manner where there is not sufficient daylight.

B. OPEN EXCAVATIONS:

1. All open excavations shall be adequately safeguarded by providing temporary barricades, caution signs, lights and other means to prevent accidents to persons, and damage to property. The Contractor shall, at his own expense, provide suitable and safe means for completely covering all open excavations and for accommodating travel when work is not in progress.

2. The length of open trench will be controlled by the particular surrounding conditions but shall always be confined to the limits prescribed by the Landscape Architect.
3. If the excavation becomes a hazard, or if it excessively restricts traffic at any point, then special construction procedures shall be taken, such as limiting the length of trench and prohibiting stocking excavated material in the street.
4. All street and site excavations shall be completely closed at the end of each work day. Backfilling or use of steel plates of adequate strength to carry traffic shall be used.

C. MAINTENANCE OF TRAFFIC:

1. Unless permission to close the street is received in writing from the proper authority, all excavated materials and equipment shall be placed so that vehicular and pedestrian traffic may be safely maintained at all times.
2. Should the Chief of Police deem it necessary, uniformed officers will be assigned to direct traffic. The Contractor shall make all arrangements in obtaining uniformed officers required.
 - a. Contractor shall provide the Traffic Control Officer with a minimum of 24 hours notice indicating the time of day, street location and confirm number of officers required for traffic control.
 - b. Contractor shall give the Traffic Control Officer a minimum of 2 hours prior cancellation notice should Contractor determine that due to weather or conditions beyond his control he would not need the scheduled officers.
 - c. Contractor shall pay for officer(s) at the prevailing rate established by the local police department should officers not be needed and the Contractor fails to cancel the officers as noted in 2.01.B above.
3. The Contractor shall at his own expense, as directed by the Police Traffic Control/Safety Officer, provide and erect acceptable barricades, barrier fences, traffic signs, and all other traffic devices not specifically covered in a bid item, to protect the work from traffic, pedestrians, and animals. He shall provide sufficient temporary lighting such as lanterns/flashers (electric battery operated) or other approved illuminated traffic signs and devices to afford adequate protection to the traveling public, at no additional cost to the City.
4. The Contractor shall furnish all construction signs that are deemed necessary by and in accordance with Part VI of the Manual on Uniform Traffic Control Devices as published by the U.S. Department of Transportation. In addition, the Contractor may be required to furnish up to 128 square feet of additional special construction warning signs. Size and exact wording of signs shall be determined by the Landscape Architect during construction.
5. The intent of policing is to ensure public safety by direction of traffic. Police officers are not to serve as watchmen to protect the Contractor's equipment and materials.
6. Nothing contained herein shall be construed as relieving the Contractor of any of his responsibilities for protection of persons and property under the terms of the Contract.
7. Upon award of the contract, the vendor shall provide the City of Somerville Traffic and Parking office with a Traffic Management Plan that addresses City Parking Requirements during the period of Construction.

- D. SANITARY REGULATIONS: Sanitary conveniences for the use of all persons employed on the work, properly screened from public observation, shall be provided in sufficient numbers in such manner and at such locations as may be approved. The contents shall be removed and disposed of in a satisfactory manner as the occasion requires. The Contractor shall rigorously prohibit the committing of nuisances within, on or about the work. Any employees found violating these provisions shall be discharged and not again employed on the work without the written consent of the Landscape Architect. The sanitary conveniences specified above shall be the obligation and responsibility of the Contractor.

E. STAGING:

1. There is no staging area provided outside the boundary of the park.

3.04 QUALITY CONTROL

A. QUALITY ASSURANCE/CONTROL OF INSTALLATION

2. Monitor quality control over suppliers, manufacturers, products, services, site conditions, and workmanship, to produce work of specified quality.
3. Comply fully with manufacturers' instructions, including each step in sequence.
4. Should manufacturers' instructions conflict with Contract Documents, notify the Landscape Architect.
5. Perform work by persons qualified to produce workmanship of specified quality.
6. Comply with specified standards as a minimum quality for the work except when more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.
7. Secure Products in place with positive anchorage devices designed and sized to withstand stresses, vibration, physical distortion or disfigurement.

B. TESTING

1. Testing procedures as specified in Section 00430 – General Conditions
2. With the approval of the City, the Contractor will employ services of an independent firm to perform inspection and testing. Contractor shall be required to pay for all services required.
3. The independent firm will perform inspections, tests, and other service specified in the individual specification Sections and as required by the Landscape Architect.
4. Reports will be submitted by the independent firm to the Landscape Architect, in duplicate indicating observations and results of tests and indicating compliance or non-compliance with the Contract Documents.
5. Cooperate with independent firm; furnish samples of materials, design mix, equipment, tools, and provide storage and assistance as required.
 - a. Make arrangements with independent firm and pay for additional samples and tests required for contractor's use.
 - b. Notify Landscape Architect and independent firm 24 hours prior to expected time of operations requiring services.
 - c. The location for all testing to be performed shall be determined by the Landscape Architect.
6. Correct all defects appearing under test and repeat tests until no defects are disclosed. Retesting required because of non-conformance to specified requirements shall be performed by the same independent firm on instructions by the Landscape Architect. Payment for retesting will be charged to the Contractor.

C. REJECTED MATERIALS AND DEFECTIVE WORK:

1. Materials furnished by the Contractor and condemned by the Landscape Architect as unsuitable or not in conformity with the specifications shall forthwith be removed from the work by the Contractor, and shall not be made use of elsewhere in the work.
2. Any errors, defects or omissions in the execution of the work or in the materials furnished by the Contractor, even though they may have been passed or overlooked or have appeared after the completion of the work, discovered at any time before the final payment is made hereunder, shall be forthwith rectified and made good by and at the expense of the Contractor and in a manner satisfactory to the Landscape Architect.

3. The Contractor shall reimburse the City for any expense, losses or damages incurred in consequence of any defect, error, omission or act of the Contractor or his employees, as determined by the Landscape Architect, occurring previous to the final payment.

3.05 MATERIALS AND EQUIPMENT

A. HAULING, HANDLING AND STORAGE OF MATERIALS:

1. The Contractor shall, at his own expense, handle and haul all materials furnished by him and shall remove any of his surplus materials at the completion of the work.
2. The Contractor shall provide suitable and adequate storage for equipment and materials furnished by him that are liable to injury and shall be responsible for any loss of or damage to any equipment or materials by theft, breakage, or otherwise. Contractor shall make note that site is very small with limited area for stockpiling and storage of materials. Contractor is responsible for securing accommodations for material storage as needed.
3. All excavated materials and equipment to be incorporated in the Work shall be placed so as not to injure any part of the Work or existing facilities and so that free access can be had at all times to all parts of the Work and to all public utility installations in the vicinity of the work. Materials and equipment shall be kept neatly piled and compactly stored in such location as will cause a minimum of inconvenience to public travel and adjoining owners, tenants and occupants.
4. The Contractor shall be responsible for all damages to the work under construction during its progress and until final completion and acceptance even though partial payments have been made under the Contract.
5. The Contractor shall be responsible for installing and maintaining construction fence per the contract drawings. Fencing shall be secured at the end of each work day and fortified as required by the Landscape Architect and City throughout construction based on attempts by the public to gain access to the site.

3.07 CLEANUP

A. DAILY CLEANUP:

1. The Contractor shall clean up, at least daily, all refuse, rubbish, scrap and surplus material, debris and unneeded construction equipment resulting from the construction operations and sweep the area. The site of the work and the adjacent areas affected thereby shall at all times present a neat, orderly and workmanlike appearance.
2. Upon written notification by the Landscape Architect, the Contractor shall within 24 hours clean up those areas, which in the Landscape Architect's opinion are in violation of this section and the above referenced sections of the specifications.
3. If in the opinion of the Landscape Architect, the referenced areas are not satisfactorily cleaned up, all other work on the project shall stop until the cleanup is satisfactory.

B. MATERIAL OR DEBRIS IN DRAINAGE FACILITIES:

1. Where material or debris has washed or flowed into or has been placed in existing watercourses, ditches, gutters, drains, pipes, structures, such material or debris shall be entirely removed and satisfactorily disposed of during progress of the work, and the ditches, channels, drains, pipes, structures, and work shall, upon completion of the work, be left in a clean and neat condition.

C. REMOVAL OF TEMPORARY BUILDINGS, STRUCTURES AND EQUIPMENT:

1. On or before completion of the work, the Contractor shall, unless otherwise specifically directed or permitted in writing, tear down and remove all temporary buildings and structures built by him; shall remove all temporary works, tools and machinery or other construction equipment furnished by him; shall remove all rubbish from any grounds which he has occupied; shall remove silt fences and hay bales used

for trapping sediment; and shall leave the roads and all parts of the property and adjacent property affected by his operations in a neat and satisfactory condition.

D. RESTORATION OF DAMAGED PROPERTY:

1. The Contractor shall restore or replace, when and as directed, any property damaged by his work, equipment or employees, to a condition at least equal to that existing immediately prior to the beginning of operations. To this end the Contractor shall do as required all necessary highway or driveway, walk and landscaping work. Materials, equipment, and methods for such restoration shall be as approved by the Landscape Architect.

E. FINAL CLEANUP:

1. Before acceptance by the City, the Contractor shall perform a final cleanup to bring the construction site to its original or specified condition. This cleanup shall include removing all trash and debris off of the premises. Before acceptance, the Landscape Architect shall approve the condition of the site.

END OF SECTION

BID FORM FOR ALTERNATES

(SEE SPECIFICATIONS SECTION 01230)

Symphony Park
City of Somerville, MA

*PLEASE PRINT CLEARLY *

The following are ALTERNATES which, if adopted by the City, shall either increase or decrease the Contractor's base bid contract price and lump sum bid. The City reserves the right to determine the lowest eligible bidder on the basis of the base bid or the adoption of the ALTERNATE, selected in order, and in combination with the base bid. (For example: Base Bid, Base Bid + Alternate 1)

Alternate number	Change	Description	Price Change
1	ADD	Rain Harvester Sistrern System shown on C-2 of the drawings.	ADD \$ _____
2	ADD	Storage Cabinet shown on L-1.00 & L-5.05 of the drawings, and 02805 CUSTOM METAL FABRICATION of the specifications. Musical Elements described in 02800 SITE IMPROVEMENTS of the specifications.	ADD \$ _____
3	ALTERNATE	Replace all thirty-one (31) 2-2 1/2" caliper trees with 3-3 1/2" caliper trees shown on L-4.00 of the drawings.	ADD \$ _____
4	ADD	Two (2) trash & recycling units shown on L-1.00 of the drawings and 02800 SITE IMPROVEMENTS of the specifications.	ADD \$ _____
5	ALTERNATE	Replace all concrete units with granite units for Permeable Unit Pavers, Stacked Unit Steps, and Stacked Unit Walls as shown on L-1.00, L-5.01 & L-5.02 of the drawings and 02501 SITE GRANITE of the specifications.	ADD \$ _____

SYMPHONY PARK
CITY OF SOMERVILLE

	Item Description (All references to items shall correspond to work as described in the relevant portions of the Construction Documents including all required materials for installation, ie. Subbase preparation, bases, beddings, footings, coring, trenching, wiring, mulching, guying, maintenance, etc.)	UNIT	ADDITIONS	DEDUCTIONS
	02100 Site Preparation			
2100-01	removal and stockpile of concrete pavement for optional reuse (disposal if not reused)	sf		
2100-02	removal and disposal of bituminous concrete pavement	sf		
2100-03	removal and store existing granite curb for re-setting	lf		
2100-04	removal and disposal of existing concrete unit masonry wall	lf		
2100-05	removal and disposal of chainlink fence & footings	lf		
2100-06	treatment of japanese knotweed	sf		
2100-07	clearing, grubbing, stripping and stockpile of topsoil for optional reuse (disposal if not reused)	sf		
2100-08	removal and disposal of trees, stumps and root system	ea		
	02200 earthwork			
2200-01	removal and disposal of soil	cy		
2200-02	gravel fill (Token Amount)	cy		
2200-03	sand fill	cy		
2200-04	(granular base course)	(included w/ improvement costs)		
2200-05	(granular subbase course)	(included w/ improvement costs)		
2200-06	(granular setting bed)	(included w/ improvement costs)		
	02500 site paving			
02500-01	concrete paving	sf		
02500-01	stonedust paving	sf		
02500-01	metal edging	lf		
02500-01	bituminous concrete roadway patch	sf		
	02501 site granite			
2501-01	salvaged granite steps	lf		
2501-02	salvaged granite seat	ea		
2501-03	re-set granite curb	lf		
	02502 site unit masonry			
2502-01	permeable unit paving	sf		
2502-02	stacked unit steps	ea		
2502-03	stacked unit wall (4"-36" ht)	lf		
2502-04	metal edging	lf		

SYMPHONY PARK
CITY OF SOMERVILLE

	02510 water distribution			
2510-01	water cabinet	ea		
2510-02	1" copper pipe	lf		
2510-03	valve box	ea		
2510-04	water meter	ea		
2510-05	backflow preventer	ea		
2510-06	2000 gallon sistern frame & cover	ea		
2510-07	rain harvest pump, float switchs and wiring	ea		
	02630 storm drainage			
2630-01	4" sch 40 PVC perf pipe	lf		
2630-02	6" solid pvc Drain			
2630-03	trench drain	ea		
2630-04	catch basin	ea		
	02800 site improvments			
2800-01	6'-0" metal fabric fence	lf		
2800-02	3'-0" metal fabric fence	lf		
2800-03	6'-0" wood panel fence	lf		
2800-04	trench drain grate	ea		
2800-05	area drain grate	ea		
2800-06	trash & recycling unit	ea		
2800-07	bike rack	ea		
2800-08	commerative medallion	ea		
2800-09	park signage: name sign with post	ea		
2800-10	park signage: park regulation sign, attached to park sign post	ea		
2800-11	park signage: community garden regulation sign,	ea		
2800-12	music elements	ls		
	02805 custom metal fabrication			
2805-01	handrail	ea		
2805-02	water runnel	lf		
2805-03	water runnel actication bollard	ea		
2805-04	hose bib bollard	ea		
2805-05	trellis	ea		
2805-06	storage cabinet	ea		
2805-07	bench a	ea		
2805-08	bench b	ea		
2805-09	bench c	ea		
2805-10	bench d	ea		
2805-11	bench e	ea		
2805-12	pergola	ea		

SYMPHONY PARK
CITY OF SOMERVILLE

	02810 irrigation			
2810-01	irrigation controller	ea		
2810-02	rain sensor	ea		
2810-03	spray head & pipe/sleeve as required for lawns	sf		
2810-04	drip lines & pipe/sleeve as required for plant beds and tree wells	sf		
	02900 planting			
2900-01	planting soil	cy		
2900-02	planting soil with reinforcing for steep slopes	cy		
2900-03	canopy trees: 2-2.5" caliper	ea		
2900-04	deciduous shoots: 24" tall	ea		
2900-05	shrubs, groundcover & grasses: 4" pot	ea		
2900-06	shrubs, groundcover & grasses: 1 gallon	ea		
2900-07	shrubs, groundcover & grasses: 2 gallon	ea		
2900-08	shrubs, groundcover & grasses: 3 gallon	ea		
2900-09	vines: 10 gal	ea		
2900-10	bulbs: per 100 qty	ea		
2900-11	lawn	sf		
2900-12	mulch	cy		
	16100 electric			
16100-01	power outlet	ea		
16100-02	electric panel	ea		
16100-03	electric meter	ea		
16100-04	electric cabinet	ea		
16100-05	3" galv steel conduit	lf		
16100-06	schedule 40 PVC conduit, dia as req.	lf		
16100-07	handhold	ea		
16100-08	pergola light fixture	ea		
16100-09	pergola light transformer	ea		
	03300 cast-in-place concrete			
3300-01	planter wall	lf		
3300-02	(concrete paving, bases, pads, footings, etc)	(included w/ improvement costs)		

SECTION 01230
ALTERNATES

PART 1 - GENERAL

1.01 PROVISIONS INCLUDED

- A. The conditions and general requirements of the Contract, Division 0 and applicable parts of Division 1, apply to the work under this Section.

1.02 SUMMARY

- A. The Schedule of Alternates included in this Section lists all the Alternates that appear in the Contract Documents, and the Specification Sections, which are affected by each Alternate.
- B. For each of the alternates scheduled at the end of this Section, state the amount in the proposal to be added to or deducted from the Contract Sum for the work.
- C. Consult the individual Specification Sections for detailed requirements of each Alternate.

1.03 GENERAL INSTRUCTIONS

- A. Each Bidder shall be held fully responsible for examining the scope of the Alternates generally defined herein and for recognizing any modifications to his work caused by any Alternate.
- B. The Bid Alternate Price shall be complete cost, including overhead, profit, bonds, insurance, transportation, and all other costs connected with, or incidental to the work described.
- C. Alternates listed below in the Schedule of Alternates are listed in order. The Contract will be awarded on the basis of the Base Bid only or the Base Bid plus Alternate 1, Base Bid plus Alternates 1 and 2, or Base Bid plus Alternates 1, 2 and 3.

1.04 ALTERNATES

- A. Definition: "Alternates" are alternate products, materials, equipment, systems, methods, units of work or major elements of the construction, which may, at the Authority's option and under the terms established by the Contract or Agreement, be selected for the work in lieu of the corresponding requirements of the Contract Documents.
- B. Alternate Requirements: A Schedule of Alternates is included at the end of this Section. Each alternate is defined using abbreviated language, recognizing that the Contract Documents define the requirements. Coordinate related work to ensure that work affected by each alternate is complete and properly interfaced with work of each selected alternate.
- C. Provide written proposals for each alternate on the Bid Form for Authority's consideration. Each proposal amount shall include the entire cost of the alternate portion of the work including overhead, profit, and other costs including cost of interfacing and coordinating the alternate with related and adjacent work.

1.05 SCHEDULE OF ALTERNATES

ADD ALTERNATES

1. (ADD) Rain Harvester Ssystem System (shown on C-2).
2. (ADD) Storage Cabinet (shown on L-1.00, L5.05, 02805 Custom Metal Fabrication) and Musical Elements (shown on 02800 Site Improvements).
3. (ALTERNATE) Replace all thirty-one (31) 2-2 ½" caliper trees with 3-3 ½" caliper trees (shown on L-4.00).
4. (ADD) Two (2) trash & recycling units (shown on L-1.00 and 02800 Site Improvements).
5. (ALTERNATE) Replace all concrete units with granite units for Permeable Unit Pavers, Stacked Unit Steps, and Stacked Unit Wall (shown on L-1.00 and 02501 Site Granite).

PART 2 PRODUCTS
Not Used.

PART 3 EXECUTION
Not Used.

END OF SECTION

SECTION 01350
PERMITS

PART 1 - GENERAL

1.01 PROVISIONS INCLUDED

- A. The conditions and general requirements of the Contract, Division 0 and applicable parts of Division 1, apply to the work under this Section.

1.02 SUMMARY

- A. The Contractor shall be responsible for obtaining all permits required to complete the work of this contract, to provide all coordination and furnish all bonds, assurances and required warranties. As applicable, the Contractor shall be responsible for any/all fees associated with the securing of permits necessary for the execution of the work of this contract. Should any street work be required, an approved City contractor shall perform it.

1.03 PERMITS BY CONTRACTOR

- A. The Contractor shall prepare permit applications and obtain applicable permits after the contract is awarded, bearing all expenses. All required permits shall be obtained, INCLUDING BUT NOT LIMITED TO the following:
 - 1. Backflow Preventers
 - 2. Trench Permit for trenching in the Public Way (520 CMR 14.00)
 - 3. Electrical Permit
 - a. Contractor is responsible for submitting all NSTAR work orders and permit fees.
 - 4. Plumbing Permit

1.04 QUALIFICATIONS

- A. Drain layer's license required.

1.05 DIGSAFE

- A. Contact Digsafe seventy-two (72) hours prior to initiating work at telephone #1-888-344-7233.

PART 2 - MATERIALS

- 2.01 All materials and equipment shall conform to permit requirements and the City's standards for utilities, excavation, backfill, patching, and surveying or other work unless otherwise stated in these specifications. Coordinate as necessary with the appropriate City official and/or private utility.
- 2.02 Standard permit fees for plumbing, electric and building shall be waived per City of Somerville.
- 2.03. Water fees for all meters and water usage much be paid by the contractor

PART 3 - EXECUTION

- 3.01 Execute all work per permit requirements. All plumbing and electric work to be approved by City Inspectors, sidewalk ramps to be approved by City Engineer.

END OF SECTION

SECTION 01562
DUST CONTROL

PART 1 - GENERAL

1.01 PROVISIONS INCLUDED

- A. The conditions and general requirements of the Contract, Division 0 and applicable parts of Division 1, apply to the work under this Section.

1.02 SUMMARY

- A. This section of the specification covers the control of dust via calcium chloride and water.

PART 2 - MATERIALS

2.01 Calcium Chloride

- A. Calcium chloride shall conform to the requirements of AASHTO-M 144, Type I or Type II and Specification for Calcium Chloride, ASTM D98. The calcium chloride shall be packaged in moisture proof bags or in airtight drums with the manufacturer, name of product, net weight, and percentage of calcium chloride guaranteed by the manufacturer legibly marked on each container.
- B. Calcium chloride failing to meet the requirements of the aforementioned specifications or that which has become caked or sticky in shipment, may be rejected by the Landscape Architect and City.

2.02 Water

- A. Water shall not be brackish and shall be free from oil, acid, and injurious alkali or vegetable matter.

PART 3 - EXECUTION

3.01 Application

- A. Calcium chloride shall be applied when ordered by the Landscape Architect or City and only in areas which will not be adversely affected by the application. See Section 01570, ENVIRONMENTAL PROTECTION.
- B. Calcium chloride shall be uniformly applied at the rate of 1-1/2 pounds per square yard or at any other rate as directed by the Landscape Architect or City. Application shall be by means of a mechanical spreader, or other approved methods. The number and frequency of applications shall be determined by the Landscape Architect and City.
- C. Water may be sprinkler applied with equipment including a tank with gauge equipped pressure pump and a nozzle-equipped spray bar.
- D. Water shall be dispersed through the nozzle under a minimum pressure of 20 pounds per square inch, gauge pressure.

END OF SECTION

SECTION 01570
ENVIRONMENTAL PROTECTION

PART 1 - GENERAL

1.01 PROVISIONS INCLUDED

- A. The conditions and general requirements of the Contract, Division 0 and applicable parts of Division 1, apply to the work under this Section.

1.02 SUMMARY

- A. The work covered by this section of the specifications consists of furnishing all labor, materials, tools and equipment and performing all work required for the prevention of environmental pollution during and as a result of construction operations under this contract.

- 1. Implementation
 - 2. Area of Construction Activity
 - 3. Protection of Water Resources
 - 4. Protecting and Minimizing Exposed Areas
 - 5. Location of Storage Areas
 - 6. Protection of Landscape
 - 7. Clearing and Grubbing
 - 8. Discharge of Dewatering Operations
 - 9. Dust Control
 - 10. Separation and Replacement of Topsoil
 - 11. Baled Hay or Straw
 - 12. Silt Fence
 - 13. Noise Control
- 1.03 NOTIFICATION

- A. The Landscape Architect or City will notify the Contractor in writing of any non-compliance with the foregoing provisions. The Contractor shall, after receipt of such notice, immediately take corrective action. Such notice, when delivered to the Contractor or his authorized representative at the site of the work, shall be deemed sufficient for the purpose. If the Contractor fails to act promptly, the Landscape Architect or City may order stoppage of all or part of the work until satisfactory corrective action has been taken. No claim for an extension of time or for excess costs or damage incurred by the Contractor as a result of time lost due to any stop work orders shall be made unless it was later determined that the Contractor was in compliance.

PART 2 - MATERIALS – NOT USED

PART 3 - EXECUTION

3.01 IMPLEMENTATION

- A. Prior to commencement of work, the Contractor shall meet with the Landscape Architect and City to develop mutual understandings relative to compliance of the environmental protection program.
- B. The Contractor shall submit for approval details and literature fully describing environmental protection methods to be employed in carrying out construction activities.

3.02 AREA OF CONSTRUCTION ACTIVITY

- A. Insofar as possible, the Contractor shall confine his construction activities to those areas defined by the Contract Drawings and Specifications. All land resources within the project boundaries and outside the limits of permanent work performed under this contract shall be preserved in their present condition or be restored to a condition, after completion of construction, at least equal to that which existed prior to work under this contract. The Contractor shall keep the active vehicular access to the site clear of debris, equipment and vehicles at all times for

Fire Department access. All Contractor vehicles to be parked on the job site, unless authorized by City representative and Department of Traffic and Parking. (Permits are available at the Contractor's expense for on-street parking through the Department of Traffic and Parking.) There shall be no vehicle idling, per City Ordinance.

3.03 PROTECTION OF WATER RESOURCES

- A. The Contractor shall not pollute streams, lakes or reservoirs with fuels, oils, bitumens, calcium chloride, acids, solvents, or other harmful materials. The Contractor shall also prevent the transport of soil, dirt, and salt to surface streams, wetlands, and/or catch basins. It is the Contractor's responsibility to comply with all applicable Federal, State, County and Municipal laws regarding pollution of rivers and streams.
- B. Special measures should be taken to insure against spillage of any pollutants into public waters, and run-off of demolition site sediments into stormwater collection systems. Measures shall include placement of haybales around catchbasins and along temporary construction fencing, as required.

3.04 PROTECTING AND MINIMIZING EXPOSED AREAS

- A. The Contractor shall limit the area of land which is exposed and free from vegetation during construction. In areas where the period of exposure will be greater than two (2) months, temporary vegetation, mulching or other protective measures shall be provided as specified.
- B. The Contractor shall take account of the conditions of the soil where temporary cover crop will be used to insure that materials used for temporary vegetation are adaptive to the sediment control. Materials to be used for temporary vegetation shall be approved by the Landscape Architect and City.

3.05 LOCATION OF STORAGE AREAS

- A. The location of the Contractor's storage areas for equipment and/or materials shall be upon cleared portions of the job site or areas to be cleared as a part of this project, and shall require written approval of the Landscape Architect and City. Plans showing storage facilities for equipment and materials shall be submitted for approval of the Landscape Architect and City.
- B. No excavated materials or materials used in backfill operations shall be deposited within a minimum distance of one hundred (100) feet of any watercourse or any drainage facility. Adequate measures for erosion and sediment control such as the placement of baled hay or straw around the downstream perimeter of stockpiles shall be employed to protect any downstream areas from siltation.
- C. There shall be no storage of equipment or materials in areas designated on the Contract Drawings as within a wetlands buffer zone.
- D. The Landscape Architect or City may designate a particular area or areas where the Contractor may store materials used in his operations. Temporary storage trailers shall be installed at Contractor's cost.
- E. Storage areas in cross-country locations shall be restored to pre-construction conditions with the planting of native species of trees and shrubs.

3.06 PROTECTION OF LANDSCAPE

- A. The Contractor shall not deface, injure, or destroy trees or shrubs nor remove or cut them without written authority from the Owner. No ropes, cables, or guys shall be fastened to or attached to any existing nearby trees for anchorages unless specifically authorized by the Landscape Architect or City. Excavating machinery and cranes shall be of suitable type and be operated with care to prevent injury to trees which are not to be removed, particularly overhanging branches and limbs. The Contractor shall, in any event, be responsible for any damage resulting from such use.

- B. Branches, limbs, and roots shall not be cut except by permission of the Landscape Architect or City. All cutting shall be smoothly and neatly done without splitting or crushing. When there is unavoidable injury to branches, limbs and trunks of trees, the injured portions shall be neatly trimmed and covered with an application of grafting wax or tree healing paint as directed.
- C. Where, in the opinion of the Landscape Architect or City or as indicated on the Drawings, trees may possibly be defaced, bruised, injured, or otherwise damaged by the Contractor's equipment or by his blasting or other operations, the Contractor shall protect such trees by placing protective measures as shown on the drawings. Any trees or landscape feature scarred or damaged by the Contractor's equipment or operations shall be restored as nearly as possible to its original condition at the expense of the Contractor. The Landscape Architect or City will decide what method of restoration shall be used, and whether damaged trees shall be treated and healed or removed and disposed.
- D. Cultivated hedges, shrubs, and plants which could be injured by the Contractor 's operations shall be protected by suitable means or shall be dug up, balled and temporarily replanted and maintained. After construction operations have been substantially completed, they shall be replanted in their original positions and cared for until growth is re-established. If cultivated hedges, shrubs, and plants are injured to such a degree as to affect their growth or diminish their beauty or usefulness, but hey shall be replaced by items of a kind and quality at least equal to that existing at the start of the work.

3.07 CLEARING AND GRUBBING

- A. The Contractor shall clear and grub only on the Owner's land or the Owner's easements, and only the area required for demolition operations, as approved by the Landscape Architect or City.

3.08 DISCHARGE OF DEWATERING OPERATIONS

- A. Any water that is pumped and discharged from the trench and/or excavation as part of the Contractor's water handling shall be filtered by an approved method prior to its discharge into a receiving water or drainage system.
- C. The pumped water shall be filtered through baled hay, a vegetative filter strip or a vegetated channel to trap sediment occurring as a result of the construction operations. The vegetated channel shall be constructed such that the discharge flow rate shall not exceed a velocity of more than 1 foot per second. Accumulated sediment shall be cleared from the channel periodically.
- D. Contaminated dewatering effluent shall be handled, and if necessary, disposed of in accordance with applicable regulations and permits. Any required monitoring and analysis of the effluent shall be performed by the Contractor and the laboratory results shall be submitted to the Landscape Architect and City.
- E. Water pumped or drained from excavations, water courses, or other structures encountered in the work shall be disposed of in strict compliance with pertinent federal, state and local environmental regulations. Any damage caused by or resulting from dewatering operations shall be the sole responsibility of the Contractor.

3.09 DUST CONTROL

- A. During the progress of the work, the Contractor shall conduct his operations and maintain the area of his activities, including sweeping and sprinkling of streets as necessary, to minimize creation and dispersion of dust. If the Landscape Architect or City decides it is necessary to use calcium chloride for more effective dust control, the Contractor shall furnish and spread the material, as directed. Calcium chloride shall be as specified under Section 01562, DUST CONTROL. Dust control requirements shall be strictly enforced by the City

3.10 SEPARATION AND REPLACEMENT OF TOPSOIL

- A. Topsoil shall be carefully removed from cross-country areas where excavations are to be made, and separately stored to be used again as directed. The topsoil shall be stored in an area acceptable to the Landscape Architect or City and adequate measures shall be employed to prevent erosion of said material.

3.11 EROSION CONSTROL

- A. It shall be the responsibility of the Contractor to render the site erosion-free. If needed, install materials and measures required to control soil erosion resulting from construction operations, stormwater runoff, and wind. Such work includes installation of erosion control devices or mulching areas as directed by the Landscape Architect to provide temporary protection. Stabilize disturbed areas within seven (7) days of final grading or within two days if area is not to be final graded immediately. Maintain disturbed areas until the establishment of permanent planting.
- B. SILT FENCE shall be installed on the down slope side of construction.
- C. HAYBALES shall be placed in a row with ends tightly abutting the adjacent bales. Each bale shall be securely anchored by at least two stakes driven through the bales. The first stake in each bale shall be angled toward the previously laid bale to force the bales together. Soil should be compacted on the upslope side of the bales.
- D. CATCH BASIN FILTERS shall be placed at all catch basins and/or inlets to drainage structures that may be affected by the work of this project.

3.13 NOISE CONTROL

- A. The Contractor shall adhere to the City ordinances for Noise Control throughout the construction period. Noise control will be strictly enforced by the City.
- B. No construction shall occur between 6pm-7am Monday through Saturday, or any time on Sunday. Any exemption to prohibited construction hours must be authorized by a City representative.
- C. Contractor shall not permit engine idling on the job site. This shall be enforced through random, unannounced periodic inspections by City Officials.

END OF SECTION

SECTION 01577
RODENT CONTROL

PART 1 - GENERAL

1.01 PROVISIONS INCLUDED

- A. The conditions and general requirements of the Contract, Division 0 and applicable parts of Division 1, apply to the work under this Section.

1.02 SUMMARY

- A. This section specifies requirements for rodent control activities by the Contractor at all work and laydown (or staging) areas in connection with this Contract.
- B. The Contractor shall retain the services of a licensed rodent exterminator to conduct an inspection of the work and laydown areas and report on the presence of rodents and take any necessary measures to eliminate existing rodent populations prior to start of work. All rodent control to be in place and approved prior to any equipment delivery or demolition.

1.03 SUBMITTALS: IN ACCORDANCE WITH REQUIREMENTS OF GENERAL SPECIFICATIONS, SUBMIT THE FOLLOWING:

- A. Within ten days after Notice to Proceed, submit to the Landscape Architect a written description of rodent control measures to be used and the areas to be included in the program.
- B. Provide the name and background of the licensed rodent exterminator retained to provide any necessary rodent eradication measures prior to start of work. The licensed rodent exterminator must be approved by City Director of Inspectional Services.

PART 2 - PRODUCTS

2.01 CONTAINERS:

Use metal or heavy-duty plastic refuse containers with tight-fitting lids for disposal of all garbage, or trash associated with food. These containers shall not have openings that allow access by rodents.

PART 3 - EXECUTION

3.01 WORK AND LAYDOWN AREAS WITHIN THE CONTRACT AREA:

- A. Before mobilization begins, obtain written verification from the rodent exterminator that rodent populations have been effectively controlled in areas to be occupied.
- B. Following site clearing and before demolition, excavation, or construction, inspect work and laydown areas and remove all remaining trash, debris, and weeds.
- C. Maintain work and laydown areas free of trash, garbage, weeds, and debris. Provide and enforce proper use of refuse containers to ensure that rodents and other pests are not harbored or attracted.
- D. Designate specific locations as lunch and coffee break areas to prevent random disposal of garbage and trash. Keep those areas free of litter and garbage, and provide refuse containers as described in 2.01 of this section. Keep refuse containers upright with their lids shut tight.
- E. Have all refuse containers emptied daily to maintain site sanitation.
- F. Notify the Landscape architect within 24 hours whenever rodents (rats or mice) or signs of rodent activity (burrows or droppings) are observed in work or laydown areas. Take appropriate action to locate and control the rodents.

3.02 LAYDOWN AREAS OUTSIDE THE CONTRACT AREA:

- A. Implement pest control at all laydown areas that are not areas of this Contract, but that are used by the Contractor in connection with this Contract. Undertake rodent control at least two weeks prior to use of the area and with time to ensure that the site is free of rodent populations (rats and mice) prior to site occupancy. Maintain the site free of rodents throughout the duration of its use.
- B. Clear laydown areas of trash, debris, and weeds prior to occupancy. Initiate those actions only after rodent populations have been effectively controlled.
- C. Maintain laydown areas free of trash, garbage, weeds, and debris. Provide and enforce proper use of refuse containers to ensure that rodents and other pests are not harbored or attracted.
- D. Dispose of all garbage or trash associated with food in refuse containers with tight-fitting lids as described in 2.01 of this Section. Have refuse containers emptied daily to maintain site sanitation.

END OF SECTION

SECTION 01580
PROJECT SIGNS

PART 1 - GENERAL

1.01 PROVISIONS INCLUDED

- A. The conditions and general requirements of the Contract, Division 0 and applicable parts of Division 1, apply to the work under this Section.

1.02 SUMMARY

- A. Provide all materials, labor, mountings and incidentals for one (1) temporary construction sign, four feet by eight feet (4' x 8'), and one (1) 'Pardon the Inconvenience' sign, two feet by four feet (2' x 4'), installed in a location directed by the Landscape Architect.

PART 2 - MATERIALS

2.01 SIGNS

- A. Signs shall be made of durable, exterior plywood or metal, securely mounted to wood posts or attached to existing fencing, as directed by the Landscape Architect. Sign shall be professionally lettered. Electric file with wording and layout to be supplied to Contractor by the Landscape Architect. Submit samples of color and a Shop Drawing indicating lettering layouts to Landscape Architect for approval.
 - 1. One (1) sign shall be a project sign (or banner) and will include color renderings of the final park layout as well as the City Seal, 311 Logo and other pertinent information to be provided by the Owner's Representative. See examples included herein.
- B. Sign shall be securely mounted with galvanized metal attachments and shall be framed so as to be durable. All attachments and mountings shall be child safe and vandal resistant. Should a project banner be provided, it may be securely attached to construction fencing.

C. Sample Project Sign:



D. Sample 'Pardon the Inconvenience' Sign:



PART 3 - EXECUTION

3.01 PLACEMENT

- A. Sign shall be installed facing the street or access point to the construction area so as to be visible and inform the general public. Where possible, the sign should be located so as not to conflict with the construction activity nor to require moving during the construction process.

END OF SECTION

SECTION 01720
CONSTRUCTION LAYOUT

PART 1 - GENERAL

1.01 PROVISIONS INCLUDED

- A. The conditions and general requirements of the Contract, Division 0 and applicable parts of Division 1, apply to the work under this Section.

1.02 SUMMARY

- A. The work under this section shall consist of field staking the horizontal and vertical alignment of all essential features and proposed work, including fields, courts, sidewalks, fencing, drainage, electrical and utility structures, plantings, and other related features as shown on the plans, by a registered Engineer or Land Surveyor. The Contractor shall familiarize himself with the existing conditions and shall be responsible for locating or re-establishing survey field ties, property lines, and benchmarks indicated on the plans.
- C. Existing survey tie information if available shall be provided by the City, or the Landscape Architect upon request.

1.02 QUALIFICATIONS & SUBMITTALS

- A. The Contractor shall engage the services of a Professional Engineer or Land Surveyor Registered in the Commonwealth of Massachusetts and shall submit the name, address, and registration number of such person or persons to the Engineer in writing.
- B. Whenever reference is made on the plans or in these specifications to a Land Surveyor registered in the Commonwealth of Massachusetts, the Contractor may substitute a Registered Professional Engineer, except that only a Registered Land Surveyor will be permitted to conduct property line or boundary surveys.

PART 2 - MATERIALS

2.01 LAYOUT AND STAKING

- A. The Contractor shall be responsible for furnishing all stakes, pins, and grade markings as required to implement the work of layout and staking and shall make all field adjustments ordered by the Landscape Architect at no extra cost to the City.
- B. Upon request by the Landscape Architect or The City, the Contractor shall make available to the City survey instruments and operator necessary to check the proposed vertical and horizontal alignments at no extra cost.

PART 3 - EXECUTION

3.01 SURVEY LAYOUT

- A. The Contractor shall use the alignments shown on the plans to establish the layout of all proposed features and shall perform field adjustments as ordered by the Landscape Architect or The City.
- B. The Surveyor shall lay out the essential or necessary grades and locations of site furnishings, footings, pavements, utilities, structures and other proposed elements. The surveyor shall verify the location of any existing spikes, stakes, pipes, drill holes, etc. and shall be responsible for their accuracy. Proposed features shall be located in relation to dimensions shown on the drawings and as adjusted by the Landscape Architect.
- C. The Contractor shall inform the Landscape Architect and The City when the general layout is completed and shall not begin excavation until the Landscape Architect approves the various alignments. Any discrepancies

encountered in field conditions shall be reported to the Landscape Architect and The City immediately and shall be adjusted as directed.

- D. The Contractor shall be responsible for maintaining the correct vertical and horizontal alignment of all elements, which responsibility shall not be waived by the Landscape Architect's approval of basic layout and stakeout.
- E. The Contractor is responsible for meeting the following ADA construction tolerances:
 - 1. Final graded surface of all pedestrian pavement areas is to comply to Federal ADA accessibility regulations with a maximum allowed running slope of less than 5% and a maximum allowed cross slope of less than 2%. The Contractor shall be responsible for demonstrating adherence to these regulations at the time of final acceptance and prior to contract completion and final payment.
 - 2. Final graded surfaces of all vehicular pavement areas designated for ADA accessibility on the contract drawings are to comply to Federal ADA accessibility regulations with a maximum allowed running slope of less than 5% and maximum allowed cross slope of less than 2%.
 - 3. All paved surfaces are to have a minimum of 1% cross slope on all finished surfaces, which should be pitched to drain as shown on contract drawings.

END OF SECTION

SECTION 02100
SITE PREPARATION

PART 1 - GENERAL

1.01 PROVISIONS INCLUDED

- A. The conditions and general requirements of the Contract, Division 0 and applicable parts of Division 1, apply to the work under this Section.

1.02 SUMMARY

- A. Provide all labor, equipment, implements and materials required to prepare site for construction as shown on the Drawings and specified herein.
- B. To be included, but not limited to the following:
 - 1. Temporary construction fence
 - 2. Protection of existing 48" caliper European Beech (*Fagus sylvatica*) tree
 - 3. Protection of existing conditions to remain and surroundings
 - 4. Control of Japanese Knotweed (*Polygonum cuspidatum*) using herbicide and mechanical equipment
 - 5. Clearing, grubbing, and tree removal
 - 6. Removal and stockpiling of materials for optional re-use
 - 7. Removal and disposal of materials

1.03 REFERENCES

- A. Except as modified by governing codes and by the Contract Documents, comply with applicable provisions and recommendations of the following:
 - 1. Mass DOT (Massachusetts Department of Transportation) formerly Massachusetts Highway Department (MHD) Standard Specifications (for Highways and Bridges), latest edition, including all addenda.
 - 2. TCIA: Tree Care Industry Association, Pruning Standards: "Standards for Pruning Shade Trees," and "Standards for Pesticide Application Operations" latest editions, NAA, P.O. Box 1094, Meeting Place Mall, Route 101, Amherst, NH 03031.

1.04 QUALITY ASSURANCE

- A. As required per SECTION 01110 – Control of Work and Materials
 - 1. The licensed herbicide applicator shall submit license material for Landscape architect's approval. Applicator shall have a minimum of five years experience with invasive plant treatment and shall submit proof of such experience. All herbicide application shall conform to Mass Pesticide Laws and Regulations per the Department of Agricultural Resources Pesticide Bureau. Contractor shall have a minimum of five years experience, including the control of invasive species of Japanese Knotweed (*Polygonum cuspidatum*). All applicators must have a Massachusetts Pesticide License. Mixing, applying and/or disposing of herbicides shall always be in accordance with instructions on the labels. All applicators must wear the required personal protective equipment specified on the label.
 - 2. The Contractor will submit a copy of the Massachusetts Certified Applicator license.
 - 3. The Contractor shall submit his Management Strategy. Prior to start of any invasive control treatment, the contractor shall submit in writing a management proposal and schedule for control. Plan shall include method of treatment for each species, herbicides and quantities estimated, approximate treatment time,

method of removing and disposing plant material (stems, trunks, branches, and roots), and monitoring and re-treatment schedule. Based on treatment results and construction and planting activity, the contractor shall submit a second schedule and plan for the second year of treatment through to the end of the contract. Management schedule shall be submitted to the Landscape architect and the Landscape Architect, and to the representative for the Trustees of Preservations.

4. Contractor shall submit to the Landscape architect a comprehensive record of herbicide application showing dates, locations, target plants, materials and quantities used.
5. All herbicide application shall conform to Mass Pesticide Laws and Regulations per the Department of Agricultural Resources Pesticide Bureau.

PART 2 - MATERIALS

2.01 TEMPORARY CONSTRUCTION FENCE

- A. Unless otherwise indicated, type of 5-foot temporary chain link fencing shall be Contractor's option. Following types are acceptable:
 1. New materials or previously used salvaged chain link fencing in good condition.
 2. Posts: Galvanized steel pipe of diameter to provide rigidity. Post shall be suitable for setting in concrete footings, driving into ground, anchoring with base plates, or inserting in precast concrete blocks.
 3. Fabric: Woven galvanized steel wire mesh. Provide in continuous lengths to be wire tied to fence posts or prefabricated into modular pipe-framed fence panels.
- B. Gates: Provide gates of the quantity and size indicated on the Contract Drawings or required for functional access to Site.
 1. Lock: combination lock with code coordinated with Landscape Architect and the City.
 1. Fabricate of same material as used for fencing.
 2. Vehicle gates:
 - a. Minimum width: 20 feet to allow access for emergency vehicles.
 - b. Capable of manual operation by one person.

2.01 HERBICIDES

- A. Herbicides shall be labeled for the method of treatment and shall meet regulation requirements. All herbicides used shall be Massachusetts Department of Agricultural Resources (MDAR) approved materials for Sensitive Areas.

2.03 BACKFILL

- A. The Contractor shall provide suitable compacted gravel borrow backfill as specified under Section 02200 EARTHWORK to fill holes or voids left by removal of site features.
- B. The Contractor shall provide all pipe cap ends, mortar, brick and other material needed to cap off or plug pipes of various sizes and kinds. Materials used shall comply with requirements of applicable utility company and/or City of Somerville.

2.04 ABANDONED UTILITIES

- A. Plugs installed at the open ends of the pipe in the abandoned structures shall be 12-inch thick Class "B" cement concrete, or 8-inch thick masonry as approved by the City of Somerville.

- B. Precast cement concrete plugs that are used shall meet the requirements for Class “B” type concrete and shall be free of cracks and spalls. Brick masonry plugs shall be made of brick meeting the requirements of ASTM C32, for grade SS, hard brick.
- C. Mortar shall be composed of Portland cement, hydrated lime, and sand in the volume of sand shall not exceed three (3) times the sum of the volumes of cement and lime. The proportions of cement and lime shall be as directed and may vary from 1:1/4 for dense hard-burned brick to 1:3/4 for softer brick. In general, mortar for grade SS brick shall be mixed in the volume proportions of 1:1/2:4-1/2; Portland cement to hydrated lime to sand.
- D. Material proposed as fill for abandoned structures shall be ¾” crushed stone meeting the specifications of Section 02200: Earthwork.

PART 3 – EXECUTION

3.01 TEMPORARY CONSTRUCTION FENCE

- A. Install construction fence to be sturdy and secure with combination lock. Coordinate layout and location of fence with Landscape Architect.

3.02 PROTECTION OF EXISTING 48” CALIPER EUROPEAN BEECH TREE

- A. The Contractor shall protect existing 48” caliper Beech tree above all else.
- B. Before commencing site demolition, the Contractor shall verify the extents of the beech roots with the on-site approval of the Landscape Architect and install protection fence delineating these extents. No work shall be done within these extents without coordination with the Landscape Architect.
- C. Prior to the commencement of site improvements within this boundary, verify work with Landscape Architect.

3.03 PROTECTION OF EXISTING CONDITIONS TO REMAIN AND SURROUNDINGS

- A. The Contractor shall take adequate precautions to protect all utilities, walks, roads, streets, curbs, pavements, trees and planting, on or off the premises, and shall repair and replace with the same or better materials and workmanship and as directed by the Landscape Architect, any damage caused by construction.
- B. Where an existing utility is encountered which is not indicated, or which is determined to be a different utility service than that indicated, promptly notify the Landscape Architect before further action.

3.04 CONTROL OF JAPANESE KNOTWEED (POLYGONUM CUSPIDATUM)

- A. Japanese Knotweed shall be treated in locations as identified on the plans and as located in the field by the Landscape architect, the Landscape Architect and the representative of the Trustees of Reservations.. For small clumps where the stem is 3/8-1/2 inch or larger in width, the preferred method of treatment shall be stem-injection or cut-stem application due to the urban conditions of the area.
- B. Injection tool, needles and marking tool shall be a prefabricated system conforming to the design, quality and manufacturing standards of J. K. International, LLC, 5027 136th St. SE Snohomish, WA 98296; 888-302-3996 (telephone), www.jkinjectiontools.com or approved equal.
- C. Cut-stem application may be used in lieu of the injection gun. Canes cut for application shall be disposed of on-site and shall be monitored for re-growth for the duration of the contract. Cutting, removal and monitoring of pile shall be incidental to this item.
- D. Foliar spray shall be back-pack spray only, unless otherwise approved by the Landscape architect.

- E. Injection Procedure: Applications shall be made just below the first or second node above the ground to allow for translocation to the root system. A hole in the back of the stem needs to be created to allow pressurized water to escape. An injection gun will do this at the time of injection. Otherwise, use a probe to create a small opening on either side of the stem. Injection gun or syringe shall be metered to inject proper amount of herbicide and the dose shall be delivered as recommended by the manufacturer of the tool or in a downward diagonal through one of the two holes closest to the applicator. A permanent marker may be attached to the injection gun so that stem is marked at time of injection. Otherwise, stem must be separately marked. Plants will normally take up herbicide within 20 minutes of injection. Rates will depend on herbicide used and shall be per the manufacturer's label for specific application.
1. To the extent possible, every stem shall be injected as each cane has its own separate rhizome system. Each stem injected must be marked with a permanent marker to indicate which stems have been injected. Cutting of canes for treatment is not necessary with injection method. Spot spraying of foliage should be used on stems that are too small to successfully inject.
 2. When canes are dead and as approved by the Landscape architect, remove canes and dispose as specified herein.
- F. Cut Stem Application: Stem shall be cut between the first and second node and herbicide shall be delivered into the stem cavity. A dye shall be used to mark stems treated.
1. Rates will depend on herbicide used and shall be per the manufacturer's label for specific application.
- G. Foliar Application: Foliar application shall consist of a low pressure, low-volume spray with marking pigment to identify treated plants. Spraying shall be done during the bloom season, August through September. Steps shall be taken to ensure herbicide does not come in contact with surrounding vegetation.
1. Japanese Knotweed and Poison Ivy may be cut earlier in the season and then the re-growth sprayed in August-September to more easily apply back-pack sprayed herbicide and avoid desirable vegetation. It is best to spray when the knotweed is in bloom or just past blooming because the plant pulls the herbicide into the roots best at that time of year. Allow 6 weeks after mowing before applying herbicide.
 2. Foliar application shall be made with spray equipment designed to apply small droplets over the entire plant (stems and leaves). These may be made with backpack applicators or hose-end sprayers. Applicators shall use care to treat only the target species, and not desirable neighboring vegetation. Foliar applications done within wetland limits shall not contain surfactants and shall meet all wetland requirements.
 3. No spraying shall be done in rain, or when rain is forecast for next 24 hours or under windy conditions in excess of 5 mph. Submit printout of weather predictions from www.noaa.gov for project location to Landscape architect the day prior to commencing with foliar herbicide application.
- H. Prior to start of work Contractor shall indicate in writing the proposed disposal of removed Japanese Knotweed material for approval by the Landscape architect. Unless otherwise directed, all cut Japanese Knotweed stems shall be disposed of on-site so as to avoid potential spread to new locations.
1. Limits of Japanese Knotweed and Poison Ivy to be removed shall be staked in the field for approval by the Landscape architect. Japanese Knotweed canes shall be cut and maintained at a height 4-6 inches. This may require an initial removal of tall canes followed by as many as 8 cuts per growing season. If initial treatment begins once Japanese Knotweed is too tall to mow, cutting shall be by sharp knife and thereafter by mowing or as deemed appropriate by Landscape architect to avoid spreading.
 2. Care shall be taken not to spread rhizomes or crowns by mowing or cutting activities. Care shall be taken to prevent Japanese knotweed from entering any storm drains or waterways.
- I. Cut Japanese Knotweed stems shall be disposed of on-site and monitored for re-growth. All Japanese knotweed roots and rhizomes excavated shall be bagged, held for 4 weeks and then removed from the site and disposed of in

such a manner that they will not re-sprout. Contractor shall be responsible for treating areas of re-growth due to improper disposal.

- J. If the existing ground in the area is disturbed by any of the work or equipment, the Contractor shall rough grade, loam or mulch if necessary and seed the disturbed areas, if so directed, without additional compensation.
- K. **Monitoring**
After initial herbicide treatment for any invasive plant, all treated plants and areas shall be monitored and re-treated as necessary and appropriate throughout the season and for the duration of the two-year contract per the management proposal and schedule for control submitted by Contractor.

3.05 CLEARING, GRUBBING AND TREE REMOVAL

- A. Areas designated to be 'cleared and grubbed' shall be removed of shrubs, underbrush, roots and general debris. Only trees designated on the Drawings shall be removed. No vegetation shall be removed incidentally to other Work without the Landscape Architect's approval. Do not use heavy equipment to remove clippings and debris within the protected root zones of plants to remain. Dispose of trees, shrubs and stumps off-site according to local laws. Burning is not permitted.
- B. Remove trees following TCIA Standards for safety and removal. Trees shall be cut to level with existing grade, as indicated on the Drawings, with stumps and roots removed. All materials removed shall be legally disposed of off-site. Depressions caused by removal of stumps or roots shall be filled and compacted with sandy loam material suitable for filling and compacting. Grade the area around the removed stump flush with surrounding grade, with 6" approved loam.
- C. Trees to be removed whose root zones extend into root zones of trees to remain shall have their root zones trench-cut close to the trunk before removal, so as to minimize damage to root zones of trees to remain.
- D. Fell trees in a manner that avoids damaging other vegetation or structures.
- E. Chipping of trees and branches to produce mulch is optional for re-use on the project.
- F. Have any damage done to tree crowns or root systems of trees to remain repaired immediately by an approved tree surgeon at no cost to the Landscape Architect or the City of Somerville. Repair any accidental injuries to the bark, trunk and branches immediately by pruning and trace cutting with a clean, sharp knife.

3.06 REMOVAL AND STOCKPILING OF MATERIALS FOR OPTIONAL REUSE

- A. Existing concrete pavement and topsoil shall be stockpiled for optional reuse by the Contractor and shall be stored in such a way that there will be no danger from sliding or erosion. If the Contractor decides not to use these materials, it is the responsibility of the Contractor to remove from the site and dispose.
- B. See Section 02501Site Granite for stockpiling and reuse of existing granite on site.

3.07 REMOVAL AND DISPOSSAL OF MATERIALS

- A. Prior to scheduled start of demolition procedures, notify the Landscape Architect, DIG SAFE, the City of Somerville, and all local utilities and authorities owning conduit, wire or pipes to, through or across the site where the structures to be demolished and/or protected are located. In addition, arrange to have all services such as water, gas, steam, electricity low-tension service and telephone disconnected at the service mains in accordance with the rules and regulations governing the utilities involved. All inactive wires, electric services, drops and connections shall be removed and all storm and sanitary sewers leading from structures to be demolished shall be capped at the street line.

- B. The Contractor shall, prior to conducting any demolition or removal of rubbish or debris from the site, furnish on a form supplied to the Landscape Architect, written evidence satisfactory to the Landscape Architect that he has an approved dumping location for debris and/or spoil from his demolition and excavation activities.
- C. Items shown on the Drawings or designated by notation to be removed shall be removed from the site and properly and legally disposed of by the Contractor after review in the field by the Landscape Architect and/or representative of the City of Somerville.
- D. Completely demolish and remove all foundations, slabs, and footings and other below grade structures indicated on the Drawings unless otherwise specified or called out in the Drawings.
- E. If the Contractor runs into rock or old building foundation during excavation, follow the procedures spelled out in the Earthwork section. If the Contractor runs into old utility lines during excavation, notify Landscape Architect and City immediately. Contractor shall plug or cap abandoned utilities pending permission from Landscape Architect.

END OF SECTION

SECTION 02200
EARTHWORK

PART 1 - GENERAL

1.01 PROVISIONS INCLUDED

- A. The general provisions of the Contract, including General and Supplementary General Conditions, and Division 1 General Requirements, apply to work specified in this Section.

1.02 SUMMARY

- A. Work Included: Earthwork includes, but is not necessarily limited to the following:
 - 1. Excavation and backfill for utilities and below grade structures including foundations.
 - 2. Preparation of subgrade for slabs, pavements and landscaping including base courses.
 - 3. Excavation and disposal of unsuitable materials.
 - 4. Shoring, bracing, and support of excavations as necessary.
 - 5. Drainage and dewatering as necessary to perform work in the dry.
 - 6. Placement and compaction of fill.
 - 7. Moisture conditioning of materials to permit placement as specified.
 - 8. Off-site disposal of excess and unsuitable materials.
 - 9. Protection of existing structures, utilities and landscape.
 - 10. Trench excavation for pipes and conduit.
 - 11. Coordination with utility companies.
- B. Related Work Specified in Other Sections:
 - 1. Section 02100 – Site Preparation
 - 2. Section 02500- Site Paving
 - 3. Section 02510- Site Unit Masonry
 - 4. Section 02510 – Water Distribution
 - 5. Section 02630- Storm Drainage
 - 6. Section 02771- Curbs and Walls
 - 7. Section 02800- Site Improvements
 - 8. Section 02810- Irrigation
 - 9. Section 02900 – Planting
 - 10. Section 03300-Cast-in-Place Concrete
 - 11. Section 16100 - Electrical

1.03 REFERENCES

- A. Comply with applicable requirements of the following standards. Where these standards conflict with other specified requirements, the most restrictive requirements govern.
- B. American Society for Testing and Materials (ASTM):
 - 1. ASTM C 136, Sieve Analysis of Fine and Coarse Aggregates
 - 2. ASTM D 1556, Density of Soil In Place by the Sand-Cone Method
 - 3. ASTM D 1557, Moisture-Density Relations of Soils and Soil-Aggregate Mixtures Using 10-lb. (4.54-kg) Rammer and 18-in. (457-mm) Drop

4. ASTM D 2922, Test methods for Density of Soil and Soil Aggregate in Place by Nuclear Methods (Shallow Depths).
 5. ASTM D 3017, Test Method for Water Content of Soil and Rock in Place by Nuclear Methods (Shallow Depths).
 6. ASTM D 422, Particle Size Analysis of Soils
- C. Commonwealth of Massachusetts:
1. Massachusetts Highway Department, "Standard Specifications for Highways and Bridges."
 2. Commonwealth of Massachusetts Building Code.
- D. American Association of State Highway and Transportation Officials (AASHTO).
1. AASHTO T-11: Standard Method of Test for Amount of Material Finer than 0.075mm sieve in aggregate.
 2. AASHTO T-27: Standard Method of test for sieve analysis of fine and coarse aggregates.
- E. American National Standards Institute (ANSI).
1. ANSI A 10.7: Safety Requirements for Transportation, Storage, Handling and Use of Commercial Explosives and Blasting Agents in the Construction Industry.

1.04 DEFINITIONS

A. Excavation Classifications:

1. General Excavation: All excavation on-site including but not limited to:
 - a. Excavation of Unsuitable Material
 - b. Excavation for Pavements
 - c. Trench Excavation for Pipes and Conduit

General excavation includes off-site disposal of all unsuitable materials not otherwise used on-site.
2. Earth Excavation: Excavation of all soil and existing pavement, utilities, foundations, slabs and other items indicated to be demolished. Earth excavation also includes excavation for landscape areas.
3. Finished grade: Required final grade elevations as indicated on the Drawings. Spot elevations govern over proposed contours. Uniformly slope project site areas between proposed finished grades or between proposed and existing grades.
4. Subgrade: Required surface of natural soil, borrow fill or compacted fill. This surface is immediately beneath proposed topsoil, concrete and bituminous base course, or other surfacing material.
5. Unsuitable Material: Existing fills, organic or other deleterious material encountered within the pavement areas and zone of influence of site structures.
6. Trench: The word trench means excavations having vertical sides the depth of which exceeds the width, made for utility excavations and the like.

1.05 SUBMITTALS

- A. Product data and Sieve Analysis for all soil materials to be used from off-site and from on-site sources, including but not limited to the following:
 - 1. Gravel Bedding and Base Course
 - 2. Crushed Stone
 - 3. Common Fill
 - 4. Granular Fill
 - 5. Sand Fill
- B. Test reports: Submit test reports for each soil material at least 10 working days before the anticipated date of use on-site.
 - 1. Gradations: Including semi-log plot with “envelopes” of specification limits shown.
 - 2. Moisture content (optimum and field).
 - 3. Densities (maximum laboratory and in-place).
- C. A 50 lb. sample of each on-site or off-site material proposed for use when so requested by the Architect or Owner's Geotechnical Consultant.
 - 1. Deliver samples to office of the Architect or Owner's Geotechnical Consultant, as directed.
- D. Do not bring soil materials to the site without approval by the Owner. Submit to the Landscape Architect for review at least three weeks prior to use the following information:
 - 1. Location of the borrow site.
 - 2. Present and past usage of the source site if not a commercial borrow pit.

1.06 QUALITY CONTROL

- A. The Owner may retain a Geotechnical Consultant to perform on-site observation during construction operations. The services of the Owner's Geotechnical Consultant may include, but not be limited to the following:
 - 1. Observation during excavation and dewatering within controlled fill areas.
 - 2. Observation during backfilling and compacting operations within controlled fill areas and other areas as appropriate.
 - 3. Observation and assessment of bearing surfaces (subgrades).
- B. The Owner's Geotechnical Consultant's presence does not include supervision or direction of work by the Contractor, his employees, or agents. Neither the presence of the Owner's Geotechnical Consultant nor any observations performed by him, nor any notice or failure to give notice, shall excuse the Contractor from deficiencies in the construction.
- C. The Owner reserves the right to modify the Owner's Geotechnical Consultant services.
- D. Test soils shall be in accordance with the following:

	<u>Property</u>	<u>ASTM Test Method</u>
1.	Particle-Size Analysis	D 422
2.	Soil Density (In place)	D 1556 or D2922
3.	Moisture-Density	D 1557

- E. Excavation and Handling of On-Site Soils: Coordinate disposal activities as required to complete the work described in this Section. Legally dispose of unsuitable excavated materials requiring special handling.
 - 1. Contractor is responsible for sampling and testing materials to assess the disposal requirements.
 - 2. Contractor is responsible for the disposal of materials which require off-site transportation (special handling) under a Bill of Lading and/or Uniform Hazardous Waste Manifest under regulations of the Massachusetts Department of Environmental Protection (DEP).

1.07 SEQUENCING AND SCHEDULING

- A. As construction proceeds, notify the Landscape Architect prior to start of earthwork operations which require observation.
- B. Coordinate the installation of the gas main with the gas company.

PART 2 - PRODUCTS

2.01 SOURCE OF MATERIALS

- A. Obtain material from required on-site excavation where suitable material is available.
- B. Process and reuse of on site concrete and bituminous materials.

2.02 FILL MATERIALS

- A. On-site material for use as compacted fill consisting of natural, inorganic, granular soil, taken from areas of excavation after stripping of topsoil and removal of unsuitable material.
 - 1. Excavate soil materials to be used as fill or backfill, based on information submitted by the Contractor to Architect, in accordance with current environmental practice in the Commonwealth of Massachusetts.
 - 2. Materials may be rejected for use based on the results of the evaluation. Remove off-site materials which are rejected for use at the Contractor's expense.
 - 3. Existing on-site concrete material may be crushed and processed. Material must be free of contaminants and conform to gradation requirements indicated with this section for the specified fill material.
- B. Material containing organic matter, topsoil, organic silt or peat is unsuitable for use as fill or backfill in paved areas or backfills for structures or utilities. Topsoil may be reused in landscape areas as the upper layer for planting, provided it is screened and amended to meet the requirements specified in Section 02900, Lawns and Planting.
- C. Fill material shall be free from ice and snow, rocks with a diameter greater than 2/3 of the loose lift thickness, and foreign matter, such as construction debris, trash, wood, roots, leaves, sod, and organic matter.

- D. Grade fill material within the specified limits. Determine gradation of materials in accordance with ASTM D422.

1. Gravel Bedding and Base Course: Hard, durable sand and gravel, crushed quarry rock or crushed gravel, from off-site sources shall be free from ice and snow, roots, sod, rubbish, and other deleterious or organic matter and graded within the following limits:

<u>Sieve Size</u>	<u>% Passing by Weight</u>
3"	100
½ in	50-85
No. 4	40-75
No. 10	30-60
No. 40	10-35
No. 100	5-20
No. 200	2-8

2. Crushed Stone: Durable, crushed stone or gravel from off-site sources shall be free from ice and snow, sand, clay, loam, or other deleterious material and uniformly graded within the following limits:

<u>Sieve Size</u>	<u>% Passing by Weight</u>
1 in.	100
¾ in.	90-100
½ in.	10-50
⅜ in.	0-20
No. 4	0-5

3. Open Graded Stone: Durable, processed stone from off-site sources shall be free from ice and snow, sand, clay, loam, or other deleterious material and graded within the following limits:

Granular Base (1-1/2"-3") open graded stone, ASHTO #1 gradation:

<u>Sieve Size</u>	<u>% Passing by Weight</u>
3 in.	100
3-1/2 in.	90-100
2-1/2 in.	25-60
1-1/2 in.	0-15
¾"	0-5

Granular Medial Base (¾"-1") open graded stone AHSTO #57 gradation:

<u>Sieve Size</u>	<u>% Passing by Weight</u>
1-1/2 in.	100
1 in.	95-100
½ in.	25-60
No. 4	0-10
No. 8	0-5

Granular Setting Bed (1/4"-3/8") open graded stone ASHTO #8 gradation:

<u>Sieve Size</u>	<u>% Passing by Weight</u>
1/2 in.	100
3/8 in.	85-100
No. 4	10-30
No. 8	0-10
No. 16	0-5

4. Common Fill: Material free from frozen soil, roots, sod, rubbish and other deleterious or organic matter, graded within the following limits:

<u>Sieve Size</u>	<u>% Passing by Weight</u>
6 in.	100
No. 4	30-95
No. 200	0-30

5. Sand Fill: Sand, graded within the following limits:

<u>Sieve Size</u>	<u>% Passing by Weight</u>
No. 4	100
No. 200	0-8

2.03 PLASTIC MARKING TAPE

- A. Material: Acid and alkali resistant polyethylene film, 6 in. wide, with a minimum thickness of 0.004 in., minimum strength of 1750 psi lengthwise and 1500 psi crosswise with an elongation factor of 350 percent. Imprint tape with a continuous inscription identifying the specific utility or service.
- B. Tape Colors:

<u>Utility or Service</u>	<u>Color</u>
Gravity sewer and storm drain	Green
Gas Main	Yellow
Water main	Blue

PART 3 - EXECUTION

3.01 DRAINAGE AND DEWATERING

- A. Provide adequate pumping and drainage facilities to keep excavated areas sufficiently dry from groundwater and/or surface runoff so as not to adversely affect construction procedures or cause excessive disturbance of underlying natural ground or excavation bottom.
- B. Grade and ditch the site as necessary to direct surface runoff away from open excavations, subgrade surfaces and adjacent property. Maintain drainage at all times.

- C. Dispose of water from trenches and excavations in such a manner as will not cause injury to public health or to public or private property. Comply with requirements of SWPPP and MWRA Construction Dewatering Permit. Do not cause erosion or siltation due to methods of disposal of pumped effluent, and conform to requirements of Section 02370, Erosion and Sediment Control.
- D. Do not place fills, pour concrete, or install piping and appurtenances in excavations containing free water.
- E. Provide sufficient pumping equipment, in good working order, to remove free water.
- F. Where, in the opinion of the Owner's Geotechnical Consultant, pumping of excavations is not effective in maintaining a dry firm subgrade, employ other dewatering methods acceptable to the Owner's Geotechnical Consultant. This may include the use of well points, or deep well dewatering, or a combination of these and other methods.

3.02 PROTECTION OF EXISTING STRUCTURES AND UTILITIES

- A. Execute the Work in such a manner as to prevent damage to adjacent property and other property and existing improvements such as, but not limited to, buildings, streets, curbs, paving, utility lines and structures, monuments, bench marks and other public and private property. Protect existing structures and foundations from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by earthwork operations.
- B. In case of any damage or injury caused in the performance of the work, make good such damage or injury to the satisfaction of, and without additional cost to the Owner. Repair or replace existing roads, sidewalks, and curbs damaged during the project work to their original condition at the completion of operations. Replace existing benchmarks, monuments, and other reference points which are disturbed or destroyed.

3.03 PROTECTION OF EXISTING LANDSCAPE

- A. Exercise care to preserve the natural landscape and conduct construction operations so as to prevent destruction, scarring, or defacing of the natural surroundings in the vicinity of the Work.
 - 1. Except where clearing is required for permanent works, protect trees, shrubbery, and vegetation from damage which may be caused by the Contractor's construction operations. Protect existing trees to remain from damage with fencing or other means acceptable to the Architect.
 - 2. Move crews and equipment within the right-of-way and over routes provided for access to the work in a manner which prevents damage to property. Where unnecessary destruction, scarring, damage, or defacing occurs as a result of the Contractor's operations, repair, replant, reseed, or otherwise correct the damage at no expense to the Owner.

3.04 SHORING

- A. Open excavations in general should have side slopes conforming to applicable OSHA standards. Provide shoring and/or bracing at the Contractor's expense and designed by a Professional Engineer.
- B. Provide shoring and/or bracing at excavations as required to assure safety against collapse of earth at the sides of excavations; as required for support of adjacent structures, streets or utilities; or as required to comply with Federal, State, and local regulations codes or ordinances.
- C. Carefully remove all shoring and bracing not ordered left in place in such a manner as to not endanger the construction of other structures, utilities or property whether public or private. Immediately refill all voids left after withdrawal of shoring with sand and rammed with tools especially adapted to that purpose or otherwise compacted as directed to achieve the required density.

3.05 GENERAL EXCAVATION

- A. Brace, underpin and support structures, pipes, pavement, earth, and other property liable to damage from excavation operations as required to prevent damage and movement.
- B. As excavation approaches underground utilities and structures, excavate using hand tools. Such manual excavation is incidental to normal excavation and no special payment will be made.
- C. Carry excavation for pipe and other items far enough below underside of item to accommodate bedding material.
- D. Fill excavations which extend below indicated or specified levels ("over-excavation") to those levels with compacted Granular Fill or Crushed Stone.
- E. If bearing surface of subgrade which is to receive fill, structure, concrete, or other construction becomes softened, disturbed, or unstable, remove unsuitable material down to a firm bearing surface and replace with suitable compacted material. Protect Subgrade from further disturbance until construction item is placed. Do not excavate wider than required to set, brace, and remove forms for concrete, install structures, piping, or perform other necessary work unless otherwise specified. Width of trench at 12 in. above top of pipe or conduit is not greater than the sum of outside diameter of the pipe or the conduit plus 2 ft. (pipe O.D. + 2 ft.). Slope sides of trench above this level, at an angle 45 degrees or less from vertical, from this level to grade. In materials where sloping walls are not stable, brace trench walls to prevent sloughing and collapse.
- F. Frost: Do not excavate to full indicated depth when freezing temperatures may be expected unless concrete can be poured immediately after the excavation has been completed. Protect the excavation from frost if placement of concrete is delayed. Where concrete is exposed to freezing temperatures, protect to prevent frost penetration into the soil below.

3.06 EXCAVATION OF UNSUITABLE MATERIAL

- A. General: Excavate all unsuitable material to firm natural ground within the zone of influence of structures in the manner specified below and in the Contract Drawings. Unsuitable material is defined in Paragraph 1.04.A.5.
- B. Follow a construction procedure which permits visual identification of firm natural ground. In the event that groundwater is encountered, the Engineer may require that the size of the open excavation be limited to that which can be handled by the Contractor's chosen method of dewatering and which will allow visual observation of the bottom and backfilling in the dry.

3.07 EXCAVATION FOR PAVEMENTS

- A. Remove existing topsoil, subsoil and fills within 3' of finished grade from below proposed pavement. Proofroll the natural subgrade with at least 10 passes of a self-propelled vibratory roller with a drum weight of not less than 10,000 pounds. If soft or unstable areas are detected during proofing, overexcavate and replace with controlled compacted Granular Fill as necessary.
- B. Cut surface under pavements to comply with cross-sections, required base course layers, elevations and grades as indicated.
- C. Excavate surface under pavements to comply with cross-sections, elevations and grades as indicated.
- D. Remove abandoned utility pipes located within 18-inches of pavement base course elevations. Cap the ends of abandoned utility pipes left in-place.

3.08 TRENCH EXCAVATION FOR PIPES AND CONDUIT

- A. Excavate trenches to uniform width, sufficient to provide working room and a minimum of 12 inches of clearance on both sides of pipe or conduit.
- B. Excavate trenches and conduit to depth indicated or required to establish indicated slope and invert elevations and to support bottom of pipe or conduit on undisturbed soil.
 - 1. For pipes or conduit less than 6 inches in nominal size, and for flat-bottomed, multiple-duct conduit units, do not excavate beyond indicated depths. Hand-excavate bottom cut to accurate elevations and support pipe or conduit on undisturbed soil.
- C. For pipes and equipment 6 inches or larger in nominal size, shape bottom of trench to fit bottom of pipe for 90 degrees (bottom 1/4 of the circumference). Fill depressions with tamped sand backfill. At each pipe joint, dig bell holes to relieve pipe bell of loads ensure continuous bearing of pipe barrel on bearing surface.

pipe and fittings, to install in the prepared trench and to test the line prior to backfilling.

3.9 USE OF FILL MATERIALS

- A. Common Fill: Fill in landscaped areas, fill below pavement to an elevation of three feet below grade. Do not place common fill below pavement within 3 feet of finished grade.
- B. Gravel Bedding and Base Course: Base course fill under pavements and from top of common fill to base of pavement section.
- C. Granular Fill: Fill below gravel base courses and safety surface.
- D. Crushed Stone: Fill placed in a wet environment.
- E. Sand Fill: Fill around utility pipes, bedding material and as indicated on the Drawings.
- F. On-site material may be used as fill, provided it meets the required specification for intended use and is maintained at suitable moisture content to allow the specified compaction.

3.10 FILL, BACKFILL, AND COMPACTION

- A. Proofrolling: Prior to placement of the initial fill layer proofroll the exposed natural ground, by making 2-4 passes with a vibratory drum roller with a minimum drum weight of 10,000 pounds.
- B. Backfill excavations below finished grade. Remove temporary planking, timbering, forms, debris, and refuse before backfill is placed.
- C. Backfill after the Architect or Owner's Geotechnical Consultant has observed and approved operations. Give prompt notice that the work is ready for observation, and allow sufficient time for making necessary observations.
- D. In order to prevent lateral movement, exercise care in placing backfill adjacent to foundation walls, retaining walls, utility lines and other structures. Backfill on opposite sides of structures at approximately the same elevation to prevent unbalanced earth pressure. During backfilling, the difference in elevation of backfill on opposite sides of the structure shall not exceed 24 inches, except as noted. Where backfill of buried wall is only on one side, only hand-operated roller or plate compactors shall be used within a lateral distance of 5 feet of back of wall for walls less than 15 feet high and within 10 feet of back of wall for walls more than 15 feet high.
- E. Except as otherwise noted, tolerance of top surface of completed backfill shall be ± 2 inches from true grade indicated, and variations from indicated tolerance shall approximately compensate within each 100 square feet area.
- F. Compact Subgrade and backfill of indicated areas or structures as specified in the following table. Allow the Owner's Geotechnical Consultant sufficient time to make necessary observations and tests. Base the degree of compaction upon a maximum dry density as determined in accordance with ASTM D-1557.

COMPACTION TABLE

Minimum
Degree of

	<u>Areas</u>	<u>Compaction</u>
1.	Pavement base courses	95%
2.	Below pavement subbase and base courses	90%
3.	Trench backfill	90%
4.	Common fill within the top two feet (2') of grade in grass areas	90%
5.	In grass areas below two feet (2') from grade	85%

Reference is made to the following table for layer thickness, equipment, and number of passes. These are minimum standards only and in no way relieve the contractor of his obligation to achieve the above stated degree of compaction by whatever additional effort is necessary.

Compaction Method	<u>Maximum Stone Size</u>		<u>Maximum Loose Lift Thickness</u>		<u>Minimum Number of Passes</u>	
	BELOW STRUCTURES AND PAVEMENT	LESS CRITICAL AREAS	BELOW STRUCTURES AND PAVEMENT	LESS CRITICAL AREAS	BELOW STRUCTURES AND PAVEMENT	LESS CRITICAL AREAS
Hand-operated vibratory plate or light roller in confined areas	4"	5"	6"	8"	4	4
Hand-operated vibratory drum rollers weighing at least 1,000# in confined areas	6"	8"	10"	12"	4	4
Light vibratory drum roller <i>minimum weight at drum 8,000#</i> <i>minimum dynapac force 10,000#</i>	8"	12"	12"	18"	4	4
Medium vibratory drum roller <i>minimum weight at drum 10,000#</i> <i>minimum dynapac force 20,000#</i>	8"	12"	12"	24"	6	6

Place fill in horizontal layers. Where the horizontal layer meets a rising slope, key the layer into the slope by cutting a bench into the slope during the spreading of each lift.

H. Apply compaction requirements to the material directly below the indicated supported item (base course or structure), and to all material above the undisturbed earth and enclosed by the following planes:

1. Horizontal plane at the elevation of the bottom of the supported item (base course or structure), within a perimeter line located 2 feet beyond the exterior face or edge of item.

2. Flat sloping planes extending from the perimeter line downward and outward at 45° angle with the horizontal, to where the planes intersect undisturbed earth. Where zones of higher and lower percentages of compaction overlap, that of the higher percentage applies.
- I. Backfilling of utility trenches.
 1. After pipes and joints have been inspected and approved by the Architect or Engineer, carefully place and tamp bearing material in 6 inch layers around the pipe for uniform bearing.
 2. Install marker tape as specified.
 3. Place backfill in 6 inch lifts and compact to the required density.
 4. Refer to the Sections describing utility installations for special backfill requirements.
 - J. Preparation of subgrade in paved area.
 1. Shape Subgrade to line, grade and cross section, and proof-compact with a minimum of 6 passes of a vibratory drum roller (with a minimum static drum weight of 10,000 pounds, capable of at least 20,000 pounds of dynamic force). Excavate any weak or soft spots identified during proof-rolling and replace with compacted granular fill. Include plowing, discing, and any moistening or aerating required to obtain specified compaction.
 2. Bring low areas resulting from removal of unsatisfactory material or excavation of Work up to required grade with Granular Fill, and shape the entire Subgrade to line, grade and cross section, and compact as specified.
 3. After compaction the surface of the subgrade for paved areas shall not show deviation greater than 1 inch when tested with a 10 foot straightedge applied both parallel and at right angles to the centerline of the area.
 4. The elevation of the finished subgrade shall not vary more than 1 inch from the established grade and cross section.
 - K. Base courses.
 1. Base course consists of placing base material, in layers of specified thickness, over subgrade to support bituminous concrete. See other Division One sections for paving specifications.
 2. During construction, maintain lines and grades including crown and cross-slope of base course.
 3. Place shoulders along edges of base course to prevent lateral movement. Construct shoulders of gravel base material, placed in such quantity to compact to the thickness of each base course layer. Compact and roll at least a 2 foot width of shoulder simultaneously with compacting and rolling of each layer of base course.
 4. Place base course material on prepared subgrade in layers of uniform thickness, conforming to indicated cross-section and thickness. Maintain optimum moisture content for compacting base material during placement operations.
 5. When a compacted base course is shown to be 6 inches or less, place material in a single layer. When shown to be more than 6 inches thick, place material in equal layers, except no single layer shall be more than 6 inches or less than 3 inches in thickness when compacted.
 6. The elevation of the finish base course shall not vary more than 3/4 inch under a 10 foot straightedge.

- L. Do not place fill over frozen soil. Remove frozen soil prior to the placement of fill.

3.11 MOISTURE CONTROL OF FILL

- A. Uniformly distribute moisture content as practicable within each lift, and adjust as necessary to obtain the specified compaction.
- B. Moisture condition material which does not contain sufficient moisture to be compacted to the specified densities by methods approved by the Owner's Geotechnical Consultant.
- C. Dry material containing excess moisture to a proper moisture content for compaction before placing and compacting. Remove and replace excessively moist soils or scarify by use of plows, discs, or other approved methods, and air-dry to meet the above requirements. If the fill can not be dried within 48 hours of placement, remove and replace with drier fill.
- D. Materials which are within the moisture requirements specified above, but which display pronounced elasticity or deformation under the action of earthmoving and compaction equipment, shall be reduced to Optimum Moisture Content, or below, and recompacted to secure stability.
- E. In the event that exposed subgrades and fills become inundated remove excess water prior to placement of fills or paving activities.
- F. Protect fill areas by grading to drain and providing a smooth surface that will readily shed water. Grade the surface of the areas in such a manner as to prevent ponding of surface runoff in areas to receive compacted fill.

3.12 MAINTENANCE

- A. Protect newly graded areas from traffic and erosion, and keep free of trash and debris. Repair and re-establish grades in settled, eroded, and rutted areas to specified tolerances.
- B. Where completed areas are disturbed by subsequent construction operations or adverse weather, scarify the surface, re-shape, and compact to required density prior to further construction.
- C. Maintain ditches and drains along the subgrade so they drain effectively at all times.
- D. Storage or stockpiling of materials on the finished subgrade will not be permitted.

3.13 DISPOSAL OF EXCESS AND WASTE MATERIALS

- A. Remove waste materials including trash, debris and excess excavated materials from the property of the Owner.

END OF SECTION

SECTION 02500
SITE PAVING

PART 1 - GENERAL

1.01 PROVISIONS INCLUDED

- A. The conditions and general requirements of the Contract, Division 0 and applicable parts of Division 1, apply to the work under this Section.

1.02 SUMMARY

- A. Provide all labor, equipment, implements and materials required to furnish, install, construct and perform all site improvements complete as shown on the Drawings and specified herein.
- B. To be included, but not limited to the following:
 - 1. Concrete Paving
 - 2. Stonedust Paving

1.03 REFERENCES

- A. Except as modified by governing codes and by the Contract Documents, comply with applicable provisions and recommendations of the following
 - 1. MA MassDOT (Massachusetts Department of Transportation) formerly Massachusetts Highway Department (MHD) Standard Specifications (for Highways and Bridges), latest edition, including all addenda.
 - 2. ASSHTO: American Association of State Highway and Transportation Officials, latest edition.
 - 3. ASTM International: American Society for Testing and Materials International, latest edition.
 - 4. CPSC: Consumer Product Safety Council.
 - 5. ADA: Americans with Disabilities Act and its current regulations.
 - 6. MAAB: Massachusetts Architectural Access Board.
 - 7. ACI: American Concrete Institute

1.04 SUBMITTALS

- A. Provide complete Shop Drawings and/or samples and catalog cuts for all items called for on the Drawings and as specified and in accordance with applicable requirements under Division 1.
- B. Samples: submit material, color, and/or finish samples as required for selection/confirmation:
 - 1. Stonedust Paving aggregate
 - 2. Metal Edging
- C. Certificates: submit material certificates signed by material producer and Contractor. Provide certifications stating materials comply with requirements.

1.05 QUALITY ASSURANCE

- A. As required per SECTION 01110 – Control of Work and Materials

1.06 PRODUCT HANDLING AND STORAGE

- A. As required per SECTION 01110 – Control of Work and Materials

1.07 SITE CONDITIONS

- A. As required per SECTION 01110 – Control of Work and Materials

PART 2 – MATERIALS

2.01 CONCRETE PAVING

- A. Concrete: as specified in Section 03300 – Cast-in-Place Concrete
- B. Aggregate: Grey, matching aggregate specified for Granular Surfacing in this section.
- C. Joints: Saw-cut control joints. Locate all joints for concrete paving as indicated on the Drawings.
- D. Finish: Medium Broom
- E. Base Materials: Granular Base as specified in Section 02300 – Earthworks

2.02 STONDUST PAVING

- B. Stonedust: provided by Reed Custom Soils, 888-475-5526, 125 Turnpike Street, Canton, MA 02021 or approved equal.

1. Aggregate: Grey, matching aggregate specified for Granular Surfacing in this section.

2. Clean, hard, durable particles or fragments of 1/4" minus select crushed stone. Fines shall be evenly mixed throughout the aggregate. Crushed fines graded as follows:

3. Percentage of weight passing a square mesh sieve AASHTO T11-82 and T27-82:

Sieve Size	% Passing
3/8"	100
#4	97.7
#8	75.2
#16	50.4
#30	35.5
#50	23.5
#100	11.9
#200	8.0
Bulk Specific Gravity	2.660
Specific Gravity	2.689
Apparent Specific Gravity	2.738
Absorption	1.070

- C. Stabilizer: organic non-toxic binder .

1. "Stabilizer" by Stabilizer, Inc. Phoenix, Arizona (800-336-2468) and distributed by Reed Custom Soils, 888-475-5526, 125 Turnpike Street, Canton, MA 02021 or approved equal.

- D. Base Materials: Granular Base as specified in Section 02300 – Earthworks

2.03 METAL EDGING

- A. AsphaltEdge, 4x3, Black Duraflex by Permaloc, 1 (800) 356-9660 or approved equal.
- B. Spiral steel spike, 3/8" x 10", 12" on center

PART 3 - CONSTRUCTION METHODS

3.01 CONCRETE PAVING

- A. Installation requirement as specified in Section 03300 – Cast-in-Place Concrete

3.02 STONEDUST PAVING

- A. Stabilized Stonedust Mixing:

1. Mix Stonedust aggregate with stabilizing material according to the manufacturer's specifications. Final Stabilized stonedust surface must comply with ADA Regulations.
2. If materials are dry, add five (5) to ten (10) percent water by weight during mixings.
3. Apply Stabilized Stonedust aggregate at a depth of 3". Review Recommended Application Guidelines: 3" Compacted Surface (1 ton per 65. sq. ft.).
4. Thoroughly mix Stabilizer with crushed stone aggregate screenings prior to placing of Stabilized mix. It is essential that Stabilizer be mixed thoroughly and uniformly through the crushed aggregate screenings to achieve a successful result. The Stabilizer locks the fines together trapping the larger crushed aggregate screenings. The Stabilizer does not act directly on larger aggregate screening. Blending is best accomplished with a truck-mounted mixer; a portable mechanical mixer may be used. Blend for a minimum of 15 minutes prior to placing on subgrade.
5. Place the Stabilized Stonedust screenings on the prepared subgrade, and rake smooth using a steel rake to desired grade and cross section. Place to avoid segregation, in one layer of 3-inch minimum thickness. Do not apply stonedust screenings deeper than 3 inches in one lift.
6. Spread stonedust while material is dry, uniformly covering the course to a minimum depth of four (4) inches when compacted and the depth required to provide crown and pitch as indicated on the drawings.
 - a. Spread and compact in three layers as follows:

First layer 1/2" to 3/4" deep
Second layer 2-1/4" to 2-1/2" deep
Third layer 1" deep
7. Work first layer into base course prior to placing second layer and compact. Place second layer to required depth after compacting first layer and compact. Place third layer to required depth after compacting second and compact.

- F. Lines and Levels:

1. Lines and Levels: Install all Stabilized stonedust screenings work true to grade, properly coinciding with adjacent work and elevations. Provide a finished surface uniform in texture and appearance. Do not permit finished work to vary more than 1/8 in. in 10 ft. from true profile and cross section.
2. Compact with plate vibrator until surface elevations are within tolerances specified herein. Vibrator will be high-frequency, low amplitude, mechanical flat plate vibrator having plate area of a minimum of 2.75 sq. ft. and sufficient to meet field quality controls as stated herein. Vibrator to be capable of 3500 to 10,000 lbs. of centrifugal compaction force.
3. Roll with steel wheeled roller weighing not more than five (5) tons compacting surface course mixture to a density of 95 percent at optimum moisture content. Hand tamp around trees and near edges of pavement to avoid damage to adjoining curbs, stairs, lawns, tree roots and other work.

G. Watering:

1. Water heavily to achieve the full 3" depth moisture penetration. This is best achieved by using a hose with an adjustable nozzle set to a coarse spray; pressure should not disturb leveled surface. A one-hour application at a rate of +/- 20gpm per 1,000 sq. t. of trail mix surface seems to achieve the desired full depth moisture penetration. Water activates Stabilizer; consequently, it is essential that the full depth of Stabilized material is saturated. Test for depth of water penetration by random inspection of paving cores. After inspection, fill core holes with material removed, smooth and hand tamp to match adjoining trail surface grade. (Let watered paving mix stand 6-24 hours until surface water is no longer present; the paving mix should then be moist but not wet.

H. Grading:

1. When surface areas have been rolled and it becomes necessary to add a thin layer of crushed stone aggregate screenings (not mixed) to bring the surface to grade, the previously rolled or compacted area shall be raked to provide a bond with the added material.

3.03 METAL EDGING

- A. Install material per manufacturer's specifications.

3.04 PROTECTION

- A. Protect all installed paving surfaces from damage resulting from subsequent construction activity on the site.

END OF SECTION

SECTION 02501
SITE GRANITE

PART 1 - GENERAL

1.01 PROVISIONS INCLUDED

- A. The conditions and general requirements of the Contract, Division 0 and applicable parts of Division 1, apply to the work under this Section.

1.02 SUMMARY

- A. Provide all labor, equipment, implements and materials required to furnish, install, construct and perform all site improvements complete as shown on the Drawings and specified herein.
- B. To be included, but not limited to the following:
 - 1. Salvaged Granite Stair
 - 2. Salvaged Granite Seat
 - 3. Re-set Granite Curb
 - 4. **ALTERNATE #5:** Granite for Permeable Unit Pavers, Stacked Unit Steps, and Stacked Unit Wall

1.03 REFERENCES

- A. Except as modified by governing codes and by the Contract Documents, comply with applicable provisions and recommendations of the following
 - 1. MA MassDOT (Massachusetts Department of Transportation) formerly Massachusetts Highway Department (MHD) Standard Specifications (for Highways and Bridges), latest edition, including all addenda.
 - 2. ASSHTO: American Association of State Highway and Transportation Officials, latest edition.
 - 3. ASTM International: American Society for Testing and Materials International, latest edition.
 - 4. CPSC: Consumer Product Safety Council.
 - 5. ADA: Americans with Disabilities Act and its current regulations.
 - 6. MAAB: Massachusetts Architectural Access Board.
 - 7. ACI: American Concrete Institute

1.04 SUBMITTALS

- A. Provide complete Shop Drawings and/or samples and catalog cuts for all items called for on the Drawings and as specified and in accordance with applicable requirements under Division 1.
- B. Product Data: submit manufacturer's specifications and installation instructions for:
 - 1. Mortar for setting bed
 - 2. Grout for joints
 - 3. Granite Cleaner
- B. Shop Drawings: Submit shop drawings for the following components showing attachment methods, fabrication, casting and hardware:
 - 1. Salvaged Granite Stair
 - 2. Salvaged Granite Seat
- E. Certificates: submit material certificates signed by material producer and Contractor. Provide certifications stating materials comply with requirements.

- 1. dowels
- 1.05 QUALITY ASSURANCE
 - A. As required per SECTION 01110 – Control of Work and Materials
- 1.06 PRODUCT HANDLING AND STORAGE
 - A. As required per SECTION 01110 – Control of Work and Materials
- 1.07 SITE CONDITIONS
 - A. As required per SECTION 01110 – Control of Work and Materials

PART 2 – PRODUCTS

2.01 SALVAGED GRANITE STAIR AND SEAT

- B. Granite shall be from salvaged granite, found on site.
 - 1. Coordinate salvaged granite selection in coordination with salvaged granite schedule in drawings and Landscape Architect.
 - 2. Salvaged granite blocks approved for re-use following submittals process shall be carefully stacked on pallets. Blocks damaged in any manner will be rejected and shall be replaced with new material at no additional cost to the Landscape Architect.
 - 3. Granite shall be saw-cut to dimensions show on the Drawings.
 - 4. Thermal finish salvaged granite stair treads if required by Landscape Architect.

2.02 RE-SET GRANITE CURB

- A. Granite for Curb shall be re-use of existing curb, Type VA4 and shall meet the requirements of M9.04.1 of the Massachusetts Highway Department Standard Specifications for highways and bridges.
- B. Bituminous concrete roadway patch to match existing roadway section.
- C. Concrete cradle shall meet the requirements of concrete as specified in Section 03300 Cast in Place Concrete.

2.03. **ALTERNATE #5: GRANITE FOR PERMEABLE UNIT PAVERING, STACKED UNIT STEPS, AND STACKED UNIT WALL**

- A. Project is based on the unit modules shown on Drawings and must comply with these modules:
 - 1. Permeable Unit Paving: 17 5/8"x17 5/8"x2"
 - 2. Stacked Unit Steps: 17 5/8"x17 5/8"x4"
 - 3. Stacked Unit Wall: 17 5/8"x17 5/8"x4"
- B. Units shall be fabricated by: Fletcher Granite, 534 Groton Road, Westford, MA 01886, 401-232-2040, or approved equal by Landscape Architect.
 - 1. Color & finish: Chelmsford Grey with the tops & bottoms sawn and the edges split.
- C. Granular Subbase: See granular base material as specified in Section 02200 – Earthworks
- D. Granular Base: See granular subbase material as specified in Section 02200 – Earthworks

- E. Granular Setting Bed: See granular setting bed material as specified in Section 02200 – Earthworks
- F. Joints: See granular setting bed material as specified in Section 02200 – Earthworks

2.04 SETTING BED MORTAR

- A. Setting bed mortar shall conform to ASTM C 270, Type S, except that latex polymer additive shall be mixed with cementitious materials and aggregate in lieu of water.
 - 1. Cement: conform to ASTM C 150, Type I, complying with the staining requirements of ASTM C 91 for not more than 0.03% water soluble alkali. Furnish Type I, except Type III may be used for setting granite in cold weather.
 - 2. Sand: conform to ASTM C 144.
 - 3. Hydrated lime: conform to ASTM C 207.
 - 4. Latex polymer additive: one of the following:
 - a. Laticrete #3701 Mortar manufactured by Laticrete International, Woodbridge, CT.
 - b. Hydroment Acrylic Mortar Admixture supplied by Bostik, Middleton, MA.
 - c. Silpro #C21 manufactured by Silpro Masonry Systems, Ayer, MA.
 - d. Or Equal

2.05 MORTAR GROUT FOR POINTING

- A. Mortar grout for pointing of joints: consist of one part white Portland cement, two parts sand, mortar coloring additive, and latex polymer additive.
 - 1. White Portland cement; ASTM C 150, complying with staining requirements of ASTM C 91 for not more than 0.03% water soluble alkali. Furnish Type I, except Type III for setting granite in cold weather.
 - 2. Mortar coloring additive: SGS colors, manufactured by Solomon Grind Chem Service, Springfield, IL 62705 or equal. Mortar coloring additive shall have mineral oxide pigment and be certified by supplier to be resistant to alkali, light, and weather, and be of a chemical composition unaffected by cement and free of water and soluble salts. Color pigment shall not exceed 10% of Portland cement in mortar. Owner's Representative shall approve color of mortar.
 - 3. Latex polymer additive: one of the following:
 - a. Laticrete #3701 manufactured by Laticrete International, Woodbridge, CT.
 - b. Grout Additive supplied by Bostik, Middleton, MA.
 - c. Silpro #C21 manufactured by Silpro Masonry Systems, Ayer, MA.
 - d. Or Equal.

2.06 DOWELS

- A. Dowels to conform to ASTM 276 and A479 for type 304 stainless steel and shall be manufactured by one of the following:
 - 1. Hohmann and Barnard, Inc., Hauppauge, NY 11787
 - 2. The Weston Company, Route #215, P.O. Box 397, Gainesville, VA 22065, phone #703.349.1200
 - 3. Dur-O-Wal, Inc., 601 North Point Road, Baltimore, MD 21237, phone #800.368.2035.
 - 4. Or Equal.

2.07 GRANITE CLEANING MATERIALS

- A. Granite cleaning materials: Acceptable materials include mild soap and water, non-acid type cleaners and stiff fiber brushes. Wire brushes and caustic cleaners are unacceptable. Provide one of the following:
 - 1. Sure Clean #600 Detergent manufactured by ProSoCo, Inc., Kansas City, KS
 - 2. #101 Masonry Restorer/Cleaner manufactured by Diedrich Chemicals and Restoration Technologies, Inc, 300 A East Oak Street, Oak Creek, WI 53154.
 - 3. Or Equal

2.08 SAND

- A. Conform to the requirements of Section M4.02.02 - Sand for Cement Mortar.

2.09 WATER

- A. Water shall conform to the Requirements of Section M4.02.02.B - Water.

2.10 JOINT FILLER

- A. Sponge rubber in conformance to AASHTO M-153-65, Type I, Fed. Spec. HH-F- 341F, Type II, Class A and ASTM D-1752-67, Type I and be one of the following:
 - 1. Sealtight Sponge Rubber Expansion Joint Filler, manufactured by W.R. Meadows, Inc., Elgin, IL.
 - 2. Vulkem 116 manufactured by Mameko International.
 - 3. Sikaflex-1A manufactured by Sika Chemical Corp.
 - 4. Sonalastic NP-1 manufactured by Sonnenborn Building Products.
 - 5. Or Equal.

2.11 BACKER ROD

- A. Continuous round rod of 100% closed cell polyethylene foam, complying with requirements of ASTM C-272.

2.12 JOINT SEALANT

- A. Two or more part, self-leveling, polyurethane based elastomeric sealant, complying with ASTM C920, Fed. Spec. TT-S-00227E Type 1 Class A, having Shore A hardness of not less than 40 ± 5 when tested according to ASTM D2240, cured modulus of elasticity at 100% elongation of not more than 150 psi when tested according to ASTM D412, and tear resistance of not less than 50 lbs./inch when tested according to ASTM D624.
 - 1. Provide one of the following:
 - a. Pecora Urexpan NR-200
 - b. Tremco THC 900
 - c. Sika 1A, SL
 - d. Or Equal
 - 2. Where joint surfaces contain bituminous materials, provide modified sealant compatible with bituminous materials encountered.

2.13 EXPANSION DOWELS AND SLEEVES

- A. Stainless steel bars, complying with ASTM A276, Type 304, with smooth end cuts. Provide bar in dimensions and size indicated on Drawings. Provide expansion caps with compatible waxed tube sleeve, which permit at least 1 inch movement.

2.14 FOOTINGS

- A. Concrete for the footings will be cast in place cement concrete as specified in Section 03300 - Cast-In-Place Concrete. Top of concrete footings shall be below finished grade.

2.15 BASE MATERIALS

- A. Granular Base as specified in Section 02200 – Earthwork

PART 3 – EXECUTION

3.01 SALVAGED STONE INSTALLATION

- A. Salvaged granite stair and bench shall be fabricated and installed by the Contractor as detailed on the Drawings, as approved shop drawings and according to recommended site conditions verified by fabricator in the field before construction and as reviewed by the Landscape Architect. Mortar and Grout shall not be applied in temperatures below 40 degrees F. or above 90 degrees F, or in the rain, or as recommended by the Manufacturer, which is more stringent.

3.02 RE-SET GRANITE CURBING:

- A. Removal and resetting and/or removal and replacing of granite curbing shall be in accordance with Section 580 of the latest edition of the MassDOT Standard Specifications for Highways and Bridges. The curbing shall have a 7-inch reveal unless otherwise required by the Landscape Architect. Contractor shall note that existing curbing along Quincy Street shall be maintained and protected and that the only curbing work to be done will be the installation of salvaged curb within the park.
- B. Except as modified herein or on the drawings, installation of curbing shall conform to Section 500 of the MassDOT Standard Specifications for Highways and Bridges.
- C. Excavation shall be made to the bottom of the 6-inch gravel base below the curbing, the trench being sufficiently wide to permit thorough tamping. The base shall be compacted to a firm, even surface and shall be approved by the Landscape Architect.
- D. The curbing shall be set on edge and settled into place with a heavy wooden hand-rammer, to the line and grade required, straight and true for the full depth. The joints of the stone curbing shall be pointed with mortar for the full depth of the curbing. At approximately 50-foot intervals, a 1/2-inch joint shall not be filled with mortar but left free for expansion. The ends of the stone curbing at driveways and intersections shall be cut at a bevel or rounded as required by the Landscape Architect.
- E. The trench for the stone curbing shall be backfilled with approved material; the first layer to be 4-inches in depth, thoroughly rammed; the other layers to be more than 6- inches in depth and thoroughly rammed until the trench is filled.
- F. Where indicated on the plans, or as required, drainage openings shall be made through the curbing at the elevations and of the size required.

3.05 STONE CLEANING

- A. Following a minimum pavement curing period of 3 weeks, clean mortared granite surfaces following manufacturer's directions, with an approved liquid masonry cleaner, which is specifically made for removing cement mortar, as specified, from the color stone installed. Use fiber brushes to remove all mortar film and mortar

stains. Test clean a 4-foot square sample area of pavement for review by Landscape Architect prior to proceeding with the balance of work.

- B. Protect all adjacent pavements, lawns and plantings from contact with cleaning fluids by completely covering with polyethylene film or other approved method prior to beginning work.
- C. Cleaning fluids shall be manually applied, the use of power spray equipment shall not be allowed.
- D. Remove all extraneous mortar from utility covers and other site surfaces.
- E. Pre-wet area to be cleaned; apply cleaner and scrub with fiber brushes; let cleaner sit for no longer than twenty minutes before rinsing surface thoroughly in accordance with cleaner manufacturer's instructions.
- F. Contractor shall replace paving and other materials damaged by the cleaning operation.

3.06 PROTECTION OF COMPLETED WORK

- A. Secure and protect masonry work from access or use of any kind for a minimum of two weeks after mortar has been applied to insure that mortar has set up and is secure.

END OF SECTION

SECTION 02502
SITE UNIT MASONRY

PART 1 - GENERAL

1.01 PROVISIONS INCLUDED

- A. The conditions and general requirements of the Contract, Division 0 and applicable parts of Division 1, apply to the work under this Section.

1.02 SUMMARY

- A. Provide all labor, equipment, implements and materials required to furnish, install, construct and perform all site improvements complete as shown on the Drawings and specified herein.
- B. To be included, but not limited to the following:
 - 1. Permeable Unit Paving
 - 2. Stacked Unit Steps
 - 3. Stacked Unit Walls
 - 4. Metal Edging

1.03 REFERENCES

- A. Except as modified by governing codes and by the Contract Documents, comply with applicable provisions and recommendations of the following
 - 1. MA MassDOT (Massachusetts Department of Transportation) formerly Massachusetts Highway Department (MHD) Standard Specifications (for Highways and Bridges), latest edition, including all addenda.
 - 2. ASSHTO: American Association of State Highway and Transportation Officials, latest edition.
 - 3. ASTM International: American Society for Testing and Materials International, latest edition.
 - 4. CPSC: Consumer Product Safety Council.
 - 5. ADA: Americans with Disabilities Act and its current regulations.
 - 6. MAAB: Massachusetts Architectural Access Board.
 - 7. ACI: American Concrete Institute

1.04 SUBMITTALS

- A. Provide complete Shop Drawings and/or samples and catalog cuts for all items called for on the Drawings and as specified and in accordance with applicable requirements under Division 1.
- B. Design Data: submit design mixes for:
 - 1. Setting bed.
- C. Product Data: submit manufacturer's specifications and installation instructions for:
 - 1. Permeable Unit Paving
 - 2. Concrete Adhesive
 - 3. Metal Edging sample & color
- D. Samples: submit material, color, and/or finish samples as required for selection/confirmation:
 - 1. Furnish not less than four individual concrete pavers, and finish required Samples shall exhibit the full color range of pavers to be provided.
 - 2. Metal Edging sample & color

- E. Certificates: submit material certificates signed by material producer and Contractor. Provide certifications stating materials comply with requirements.
- F. Field Sample, Mock-ups:
 - 1. No sample wall mock-up required. Coordinate with landscape architect upon placement of no fewer than 20 units of the seven new walls.
- G. Qualifications:
 - 1. Work under this Section shall be performed by workmen experienced and familiar with required construction procedures and under full time supervision of a qualified supervisor.
- H. Maintenance Kit, Spare Parts and Material:
 - 1. At the completion of construction, the Contractor shall provide to the City Department of Public Works, Parks Maintenance Division, 10 units of each unit type for wall and paving.

1.05 QUALITY ASSURANCE

- A. As required per SECTION 01110 – Control of Work and Materials

1.06 PRODUCT HANDLING AND STORAGE

- A. Supplier to carefully pack and band pavers for shipment. Following shipping, store pavers on skids or pallets, covered with non-staining, waterproof membrane and protected from weather. Evenly place and stack skids to evenly distribute weight of paver materials and to prevent breakage, cracking, and damage. Store materials to allow air to circulate around material. Pavers shall not be permitted to be in direct contact with ground during storage.
- B. Handle, store, mix and apply setting materials in strict compliance with manufacturer's recommendations and instructions.
- C. Damaged pavers will be rejected and replaced with new materials at no additional cost to Owner.
- D. Protect finished surfaces adjacent to paving work from soiling, staining, and other damage.

1.07 SITE CONDITIONS

- A. As required per SECTION 01110 – Control of Work and Materials
- B. Cold Weather Protection:
 - 1. Remove ice or snow formed on pavers or base by carefully applying heat until top surface is dry to touch.
 - 2. Remove paver work damaged by freezing conditions.
- C. Cold Weather Protection for Completed Paver Work:

Mean Daily

Air Temperatures

Procedures

40° - 32°F.

Protect paving work from rain or snow for at least 24 hours by covering with weather-resistant membrane.

32° - 25°F.

Completely cover paver work with weather - resistive membrane for at least 24 hours.

25° - 20°F.

Completely cover paver work with insulating blankets or similar protection for at least 24 hours.

20°F. - below

Maintain paver work at temperature above 32°F. for 24 hours using enclosures and supplementary heat.

1. Do not use frozen materials or materials mixed or coated with ice or frost.
2. Do not build on frozen work; remove and replace paver work damaged by heat or freezing.
3. Protect partially completed paver work against weather when work is not in progress.

PART 2 – MATERIALS

2.01 UNIT MASONRY

- A. Project is based on the unit masonry modules shown on Drawings and must comply with these modules:
 1. Permeable Unit Paving: 17 5/8"x17 5/8"x2"
 2. Stacked Unit Steps: 17 5/8"x17 5/8"x4" with beveled edge along all top, bottom and all four corners.
 3. Stacked Unit Wall: 17 5/8"x17 5/8"x4" with beveled edge along all top, bottom and all four corners.
- B. Units shall be: Prest Paver by Hanover Prest Paving Company, 240 Bender Road, Hanover Pennsylvania 17331, phone # 717.637.0500 or approved equal by Landscape Architect.
 1. Color: Cream, Finish: Tudor
 2. When tested for compressive strength in accordance with ASTM 170-90, "Standard Test Method for Compressive strength of Dimension Stone." pavers shall be produced to meet or exceed the following test results: average compressive strength of 9,000 pounds per square inch at 28 days, an absorption rate of less than 5% at 50 cycles of freeze thaw testing, and a density of 155.0 pound per cubic foot.
- C. Granular Subbase as specified in Section 02200 – Earthworks
- D. Granular Base as specified in Section 02200 – Earthworks
- E. Granular Setting Bed as specified in Section 02200 – Earthworks
- F. Joints: See granular setting bed material as specified in Section 02200 – Earthworks
- G. Surface sealant for all concrete paver pavement shall be Sure Klean Weatherseal SLX 100 Water and Oil Repellent, manufactured by ProSoCo Company, Inc.; or approved equal.
 1. Provide five (5) year labor and materials warranty.

2.02 CONCRETE ADHESIVE

- A. As approved by Landscape Architect.

2.03 METAL EDGING

- A. Aluminum edging shall be PermaLoc StructurEdge Aluminum Edging, manufactured by PermaLoc, Holland, MI, 49424 or approved equal. Aluminum edging shall be shop fabricated from aluminum alloy 6063-T6, 3/16 inch thick x 2-1/4 inch deep, with standard black baked-on acrylic paint finish. Edging shall be furnished in 16-foot lengths.
 1. Adjacent sections shall be adjoined using a 4 inch sliding, locking connector of aluminum alloy 6063-T6.
 2. Stakes shall be spiral steel spikes with insulating plastic washers 10 inches x 3/8 inch.

PART 3 - CONSTRUCTION METHODS

3.01 PREPARATION

- A. Coordinate layout and installation of paving with layout and installation of adjacent paving, curbing, walls and other site improvements to ensure proper alignments.
- B. Make corrections as required to base courses provided under Section 02200 - Earthwork, to bring base courses to the proper sections and elevations.

3.02 PREPARATION GRANULAR BASE, SUBBASE AND SETTING BED COURSES

- A. Compact subgrade to achieve a 95% minimum compaction rate consistent throughout subgrade.
- B. Place aggregate base course in 2" to 3" lifts and as specified in Section 02200 - Earthwork.
- C. Compact to achieve a 95% minimum compaction rate consistent throughout gravel base.
- D. Final surface of gravel base to be left 1/8" higher than adjacent surfaces to allow for settlement.

3.03 PAVER INSTALLATION

- A. Set pavers on setting bed with permeable joints in patterns shown on Drawings. Continually check surface of finished line and grade with straight edge. Correct deficiencies. Do not cut pavers unless verified with Landscape Architect. Machine cuts only. Minimum paver size to be no smaller than 1/2 unit size. Final surface of pavers to be left 1/8" higher than adjacent surfaces to allow for settlement.
- B. Sweep dry joint granular setting bed material into joints until completely filled. Compact pavers using a low amplitude plate compactor capable of at least 5,000 lbf compaction at a frequency of 75 hz to 100 hz. and vibrate until completely filled. Two to three passes minimum. Fog surface with water to compact mix into joints. Repeat process until joints are compacted and filled. Clean stains immediately. Do not compact within 3 feet of unrestrained edges of the paving units.
- C. Work within 3 feet of the laying face to be left fully compacted with granular setting bed material -filled joints at end of each day. Cover laying face with plastic sheets overnight if not closed with cut and compacted pavers.
- D. Protect installed units with plywood panels against uneven settlement and misalignment. If settlement occurs producing mismatch of more than 1/16 inch at interface between pavers and other pavements prior to final acceptance, relay pavers near interface for sufficient distance to provide smooth transition between paving surfaces and satisfactory match between pavers and adjacent surfaces.

3.04 ADJUST AND CLEAN

- A. Remove and replace paver pieces, which are broken, chipped, stained and otherwise damaged. Remove and replace pavers which are misaligned, not to grade and do not match adjoining granite work. Provide new matching units, install and point-up joints to eliminate evidence of replacement. Repair defective and unsatisfactory joints to provide neat, uniform appearance.
- B. Sweep areas of pavers clean of excess granular setting bed material.
- C. Clean paver work to remove stains, dirt and other discoloration or blemishes. Commence cleaning operations following granite construction. Follow manufacturer's instructions for use, handling and application of masonry cleaners. Provide polyethylene covers or other temporary protection of lawn, plants and other non-working areas adjacent to masonry cleaning. Remove coverings immediately following cleaning operations. Collect and remove residual cleaning solutions from site.

3.05 METAL EDGING

- A. Install material per manufacturer's specifications.

3.06 PROTECTION

- A. Protect all installed paving surfaces from damage resulting from subsequent construction activity on the site.

END OF SECTION

SECTION 02510
WATER DISTRIBUTION

PART 1 - GENERAL

1.01 PROVISIONS INCLUDED

- A. The general provisions of the Contract, including General and Supplementary General Conditions, and Division 1 General Requirements, apply to work specified in this Section.

1.02 SUMMARY

A. Work Included:

1. Work under this section shall include a new on-site water service to support the Water Spray Area, irrigation system, hose bib, and drinking fountain, as indicated on the drawings.
2. Responsibilities will include furnishing and installing of type "K" piping as sized on the plans, tapping sleeves, corporation stops and boxes, curb stops and boxes, thrust blocks, straps and clamps for pipe restraints, strainers, backflow preventers, testing and disinfection (sterilization) of mains, installation of required backflow preventers, and all other specified work and connections as shown on the plans and details. The work by the Contractor shall be performed in accordance with the recognized plumbing standards and all applicable standards. The work shall include all fittings and piping and other appurtenances necessary for complete and proper installation of the work, including connections to the existing work. All lines shown are approximate and must be coordinated with other utilities or site improvements to be installed.
3. All work herein described and/or shown on the Plans shall be in strict accordance with the best-recognized practices for water service installations. The standards set forth in the selection of materials and supplies are intended to conform to those adopted by the Owner, and the Contractor shall further familiarize himself with the Owner's requirements when the occasion or choice of materials or supplies so demand.
4. The Owner, through their authorized agents, reserves the right to make inspections of the work during its manufacture or progress. The City Plumbing Inspector must be notified of all work and City permit approval process followed. All plumbing work shall be inspected or approved by City Plumbing Inspector before any backfilling occurs. Photos are not acceptable. Contact information to be provided by Owner's Representative to Contractor.

B. Related Work Specified in Other Sections:

1. Excavation, trenching, backfilling: Section 02200 Earthwork.

1.03 REFERENCED STANDARDS

- A. American Society for Testing and Materials (ASTM).
 - 1. ASTM E548: Generic Criteria for Use in the Evaluation of Testing and Inspection Agencies.
- B. American Water Works Association (AWWA).
 - 1. AWWA B300: Hypochlorites.
 - 2. AWWA B301: Chlorine - Liquid.
 - 3. AWWA C500: Gate Valves 3 through 48 Inch NPS, for Water and Sewage Systems.
 - 4. AWWA C502: Dry Barrel Fire Hydrants.
 - 5. AWWA C601: Disinfecting Water Mains

1.04 SUBMITTALS

- A. Product data: Submit manufacturer's specifications and installation instructions for all products specified in this section, including pipe, hydrants, valves and post indicators. Obtain Somerville Water Department approvals **prior** to submittal to the Architect.
- B. Disposal method: Submit to the Architect the proposed method for disposal of waste water from flushing, hydrostatic testing and disinfection a minimum of 10 working days before performing flushing.
- C. Test reports: Submit test reports for each test within 10 working days after test completion.
 - 1. Hydrostatic test.
 - 2. Disinfection.

1.05 QUALITY ASSURANCE

- A. Local Regulations: Water system products shall meet the requirements of the Somerville Water Department.
- B. Insurance Requirements: All water system products shall meet the requirements of the Owner's insurance underwriters.
- C. Testing and Inspection Agency Qualifications: An independent testing agency approved by the Architect and acceptable to the City. Testing laboratory approval will be based on compliance with ASTM E 548.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Take particular care not to injure the pipe coating or lining.
- B. Do not place material of any kind inside a pipe or fitting after the lining has been applied.
- C. Inspect pipe and fittings upon delivery and before installing. Replace damaged pipe and fittings at no additional cost to the Owner and remove damaged materials from the work site.

- D. Drain valves and fire hydrants after delivery to prevent freezing. Keep the inside of pipes and fittings free of water, dirt and debris. Plug pipe and fitting ends. Clean pipe interiors again and remove foreign matter just before installation.
- E. Carry pipe to the trench; do not drag it. Limit use of pinch bars and tongs for aligning or turning the pipe to application on the bare ends of the pipe only.
- F. Store rubber gaskets that are not to be installed immediately in a cool and dark place.

1.07 SITE CONDITIONS

- A. Site information: Perform site survey, research public utility records, and verify existing utility locations. Verify that water service piping may be installed in compliance with the original design and referenced standards.

PART 2 - PRODUCTS

2.01 BEDDING AND BACKFILL MATERIAL

- A. Bedding and backfill material shall conform to Section 02300.

2.02 TYPE K COPPER PIPE

- A. Copper pipe for buried service diameter as stated on plans, as required, shall be soft, annealed, seamless copper tubing conforming to Federal Specification WW-T-799E or ASTM Standard B88-76, Type "K".
- B. Copper service pipe for installation in meter pits, valves, manholes, and backflow preventer cabinets, 3 inch diameter and smaller, shall be ASTM B88, Type "K", hard copper tubing.
- C. Fittings and specials: Joints in the copper service shall be kept to a minimum.
 - 1. For buried application, joints shall be made with cast brass three-part compression couplings or flared tube fittings conforming to ANSI Standard Specifications B16.26, latest issue. Bends in copper service pipe, particularly gooseneck bends, shall be made with tool especially designed for the purpose.
 - 2. Pipe joints inside meter vaults and backflow preventer cabinets shall be fittings conforming to ANSI B16.18 cast bronze solder fittings, or ANSI B16.22 wrought copper solder fittings and couplings. Solder shall be ASTM B32, Grade 95 TA, up to 250 degrees. Solder threaded bronze fittings will be used for connections of pipe to meters, strainers, valves, backflow preventers and pipe nipples.

2.03 BACKFLOW PREVENTERS & METER

- A. Backflow preventer for shall be 1" Reverse Pressure devices, Watts #009-M2Q2, or approved equal. Backflow preventer for the irrigation system shall be 1.5" Reverse Pressure devices, Watts #009-M2Q2, or approved equal. All Backflow preventers to be

approved by the City's Plumbing Inspector prior to installation.

- B. Water meters shall be as furnished by the Somerville Water Department. The Contractor shall provide all coordination and pay all fees associated with the water meter installation. Meter shall be installed, inspected and approved by the Somerville Water Department prior to any water use at park.

2.04 BACKFLOW PREVENTER CABINET

- A. The backflow preventer chamber shall be a standard manufactured item or custom built, conforming to the Contract details and requirements herein. The cabinet shall be constructed of aluminum, .125" thick, painted with an approved black powder coating system and mounted on a concrete pad. The cabinet shall be furnished in the dimensions and shall contain louvers at the top of the doors, louvers at the sides and back, metal vandal resistant box over the handle/padlock area. All louvers shall contain insect screens. No lifting eye bolts or holes shall be permitted in the top/roof of the cabinet. A local manufacturer of custom-sized cabinets is Commercial Sheetmetal Co., Inc. of Canton, MA 02021, Tel. 781-828-7900.
- B. Provide the materials, labor and equipment necessary for the installation of the following cast-in place concrete foundations for cabinet, in accordance with these Specifications, Contract Drawings, Utility & City requirements and all applicable codes & regulations. Concrete foundation complete with reinforcing rebar, ground rods, water sleeve entrances, etc. as required and as directed by Owner or Engineer. Contractor responsible for coordinating foundation dimensions to be 6-inches wider than cabinet base dimensions, on all four sides. Cabinet grounding to include a buried loop on all four sides, connected to the two buried ground rods. Foundations shall be built with 3,000 psi. minimum concrete, on a base of 12" crushed gravel. Reinforcing rod to be #3 or #4 (as shown) grade 60 bars and shall conform to ASTM A-615 (latest revision). Reinforcing rods shall not be installed any closer than 2" from the face of the concrete.

2.05 VALVE BOXES

- A. Valve boxes shall be of cast iron with cover of the extension type with slide adjustment and with flared ends. The box shall be self-draining in the closed position.
- B. The minimum thickness of the metal shall be 3/16 inch.
- C. The valve box shall be of such length as will be adapted, without full extension, to the depth of cover required over the pipe at the valve location.
- D. Valve box lids and bases shall be provided. The word WATER shall be cast in the valve box lid.
- E. Furnish valve box extension pieces, as required.
- F. Provide valve operating wrenches.

- G. The same manufacturer shall provide all items specified.

2.09 CONCRETE

- A. Concrete: Furnish concrete materials and mixes conforming to Section 03310, Cast in Place Concrete, with a minimum compressive strength of 3000 psi at 28 days.

2.10 RESTRAINING BRACKETS

- A. Restraining brackets: Fabricate from steel. Coat brackets with a coat of mastic.
- B. Washers: Steel or cast iron, with holes 1/8 inch larger in diameter than rods.

2.11 CHLORINATING MATERIALS

- A. Chlorinating materials shall conform to the following.
 - 1. Liquid chlorine: AWWA B301.
 - 2. Sodium hypochlorite: AWWA B300.

PART 3 - EXECUTION

3.01 GENERAL EXECUTION REQUIREMENTS

- A. Installation shall be in accordance with NFPA No. 24, unless otherwise specified.
- B. Adjacent sanitary gravity sewers.
 - 1. Maintain 10 feet horizontal or 18 inch vertical separation to sanitary sewers.
 - 2. Where specified separation cannot be achieved encase the sanitary sewer in 4 inches of concrete.
- C. Do not install in the same trench with sanitary gravity sewers, sanitary force main sewers, gas lines, or electric wiring.
- D. Trenches shall be kept free of water and as dry as possible during bedding, laying and jointing and for as long a period as required. Pipe shall not be laid in water or when trench conditions are unsuitable for the work.
- E. Each pipe shall be laid accurately to the line and grade shown on the Drawings. Minimum cover shall be 5 feet, unless otherwise indicated on the Drawings.
- F. Pipe laying will not be allowed to begin at any point other than at an existing valve, fitting, tapping sleeve, or end of line.
- G. When work is not in progress, plug open ends of pipe and fittings so that trench water or other material will not enter the pipe or fitting.
- H. Before conducting a hydrostatic test and disinfection of the water service lines, thoroughly clean water service lines by flushing with water to remove debris. Minimum water flow shall be 750 gallons per minute.

1. At conclusion of flushing, existing water lines shall be isolated from water service lines installed under this Contract.
 2. Water must be prearranged with the City of Somerville. Fees will be the responsibility of the Contractor.
- I. Comply with other installation requirements required by the City of Somerville Water Department.
1. It is the Contractor's responsibility to ascertain the extent of additional installation requirements required by the local authority.

3.02 INSTALLATION

- A. Valves, fittings and boxes.
1. Install in accordance with the specifications for the pipe to which they are to be connected.
 2. Make valve joints and fitting joints as shown on the Drawings.
 3. Valves shall bear no stresses due to loads from the adjacent pipe.
 4. Install restraining brackets as shown on the Drawings.
 5. Set valves and valve boxes plumb and centered on the valves.

3.03 BACKFILLING AND COMPACTION

- A. Backfilling and compaction shall be in accordance with Section 02200.
- B. Special backfilling and compaction requirements.
1. As soon as possible after the joint is made, sufficient bedding material, in 6 inch layers, shall be placed along the pipe to springline, and compacted to prevent pipe movement off line or grade.
 2. Do not backfill until testing and disinfection has been completed.
 3. Install metallic marker tape as specified in Section 02200.

3.04 FIELD TESTING

- A. General:
1. Perform field tests on water service lines as specified in this section. Provide all labor, equipment and incidentals required for testing. The cost of the field testing shall not be charged to the cash allowance for testing laboratory services.
 2. Perform, at no additional cost to the Owner, additional field tests on water service lines required by the City. Prior to beginning testing, ascertain the extent of additional testing required by the Somerville Water Department.
 3. If there is disagreement between standards as required by the Contract Documents and the City, the stricter standards shall govern.
 4. Begin testing each section of water service line within 10 working days after completion of that section; except where a section of a water service line is provided with concrete

thrust blocking for fittings or hydrants, do not perform hydrostatic tests until at least 5 days after installation of the concrete thrust blocking.

5. Give a minimum of 48 hours notice to the Somerville Water Department and to the Architect. Do not perform testing of the water system without a representative of the Water Department present.
6. Should the water service line fail to meet the requirements specified, the Contractor shall perform the necessary work, including retesting, at no additional cost to the Owner.
7. The Contractor shall be responsible for the method by which waste water from flushing, hydrostatic testing and disinfection will be disposed of after flushing, testing and disinfection is completed.

B. Hydrostatic Test:

1. Perform hydrostatic pressure test on piping as soon as possible after the pipe is laid, the joints completed, fire hydrants permanently installed, and the trench partially backfilled, leaving the joints exposed for examination. Test each newly laid piping or valved section of piping. Test concurrently for pressure and leakage.
2. Test Procedure: Test in accordance with the City of Somerville Specifications. Fill the pipe with water and expel the air. Then raise the water pressure, based on the elevation of the lowest point of the section under test corrected to the gauge location, to test pressure specified and hold this pressure for duration specified. While maintaining pressure, measure leakage by metering the flow of water into the pipe. Open and close each valve several times during the test.
 - a. Test duration: 2 hours.
 - b. Test pressure: 150 psi.
3. Leakage is defined as the quantity of water to be supplied into the newly laid pipe, or any valved section of piping, necessary to maintain the specified test pressure after the pipe has been filled with water and the air expelled. Maximum allowable leakage shall be as required by the City of Somerville Water Department.
4. Carefully examine exposed pipe, joints, fittings, hydrants and valves during the partially open trench test.
5. When test results exceed the maximum leakage specified, make corrections and retest. Correct visible leaks regardless of test results.

C. Disinfection.

1. Disinfect water and fire services lines with the specified chlorinating material in accordance with AWWA C651.
2. The chlorinating material shall provide a dosage of not less than 50 ppm and shall be introduced into the water service lines in a manner approved by the Architect. The chlorinating material shall not be introduced into the line in a dry solid state.

3. Retain treated water in the water service line for a minimum of 8 hours; treated water shall contain not less than 10 ppm of chlorine throughout the line at the end of the retention period.
4. Open and close each valve on the lines being disinfected several times during the contact period.
5. Flush the line with clean water until the residual chlorine is reduced to less than 0.2 ppm. Open and close each fire hydrant on the line several times during the flushing period.
6. From several points on the line, take samples of water in proper sterilized containers for bacterial examination.
7. Repeat disinfection until test results indicate the absence of pollution for at least 2 full days. The water service lines will not be accepted until satisfactory bacteriological results have been obtained.

END OF SECTION 02510

SECTION 02630
STORM DRAINAGE

PART 1 - GENERAL

1.01 PROVISIONS INCLUDED

- A. The general provisions of the Contract including the General and Supplementary Conditions and Division 1 General Requirements apply to the work of this Section.

1.02 SUMMARY

- A. Work Included: Storm drainage systems
- B. Related Work Specified in Other Sections:
 - 1. Excavation, trenching and backfilling: Section 02200, Earthwork.
 - .

1.03 REFERENCED STANDARDS

- A. American Society for Testing and Materials (ASTM).
 - 1. ASTM A48: Standard Specification for Gray Iron Castings.
 - 2. ASTM E548: Generic Criteria for Use in the Evaluation of Testing and Inspection Agencies.
 - 3. AASHTO M294-94: Corrugated Polyethylene Pipe, 12-inch to 36-inch diameter.
 - 4. ASTM F405: Standard Specification for Corrugated Polyethylene Tubing and Fittings.
 - 5. ASTM F667: Standard Specifications for Large Diameter Corrugated Polyethylene Tubing and Fittings.

1.04 SUBMITTALS

- A. Product data for area drains,, pipe and fittings.
- B. Test reports. Submit alignment test reports for each section of pipe within 10 working days after test completion.

1.05 QUALITY ASSURANCE

- A. Work in Public Ways: Conform to the requirements of the City of Somerville Department of Public Works.
- B. Testing and Inspection Agency Qualifications: An independent testing agency approved by the Architect. Testing laboratory approval will be based on compliance with ASTM E 548.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Particular care shall be taken not to injure the pipe coating or lining.
- B. Inside of pipes and fittings shall be kept free of dirt and debris. Plug pipe and fitting ends.

- C. Pipe shall be carried and not dragged to the trench.
- D. Use of pinch bars and tongs for aligning or turning the pipe will be permitted only on the bare ends of the pipe.
- E. Store rubber gaskets in a cool and dark place.

1.07 SITE CONDITIONS

- A. Site information: Perform site survey, research public utility records, and verify existing utility locations. Verify that storm sewerage system piping may be installed in compliance with original design and referenced standards.

PART 2 - PRODUCTS

2.01 BEDDING AND BACKFILL MATERIAL

- A. Bedding and backfill material shall conform to Section 02300.

2.02 PIPE MATERIALS

- A. Pipe: Schedule 40 PVC pipe be Type I Grade I, with a Cell Classification of 12454 as defined in ASTM D1784, trade name designation H707 PVC.

2.03 AREA DRAINS AND OTHER STRUCTURES

- A. Area Drains: The drain basins required for this contract shall be manufactured from PVC pipe stock, utilizing a thermo-molding process to reform the pipe stock to the specified configuration. The drainage pipe connection stubs shall be manufactured from PVC pipe stock and formed to provide a watertight connection with the specified pipe system. This joint tightness shall conform to ASTM D3212 for joints for drain and sewer plastic pipe using flexible elastomeric seals. The flexible elastomeric seals shall conform to ASTM F477. The pipe bell spigot shall be joined to the main body of the drain basin or catch basin. The raw material used to manufacture the pipe stock that is used to manufacture the main body and pipe stubs of the surface drainage inlets shall conform to ASTM D1784 cell class 12454.
- B. Frames & Grates: The grates shall be the NDS 6" square grate and shall be provided painted black.
- C. Concrete blocks: ASTM C 139; at least 5 inches but not more than 8 inches in thickness, nor less than 8 inches in length, and of such shape that the joints can be effectively sealed and bonded with cement mortar. Use the following materials for manufacture of concrete blocks:
 - 1. Portland Cement: ASTM C 150, Type IIA.
 - 2. Cement Mortar: ASTM C 270, Type M. Use ASTM C 150, Type IIA cement.

- D. Precast Concrete Structures: ASTM C 478, except that portland cement shall conform to ASTM C 150, Type IIA; fabricate from concrete having a minimum compressive strength of 4000 psi at 28 days.
 - 1. At Contractor's option cast-in-place bases may be used. Concrete shall be as specified. Concrete shall be protected from freezing and moisture loss for 7 days.
 - 2. Joints for precast reinforced concrete sections shall be O-ring rubber gaskets or compressible filler such as Kent Seal No. 2 joint sealant or approved equal.
- E. Brick: ASTM C 32, Grade MS.
 - 1. Portland Cement for Mortar: ASTM C 150, Type IIA
 - 2. Mortar Mix: ASTM C 270, Type M.
- F. Cast-in-place concrete and reinforcing steel: Conform to Section 03310, unless otherwise specified.
 - 1. Cement for cast-in-place bases, inverts and benches shall conform to ASTM C 150, Type IIA.
- G. Pipe connections:
 - 1. Portland Cement for Mortar: ASTM C 150, Type IIA
 - 2. Mortar Mix: ASTM C 270, Type M.
- H. Cement mortar parging: ASTM C 270, Type M.
- I. Precast Concrete Adjustment Rings: Fabricate from concrete which has a minimum compressive strength of 5000 psi at 28 days, and steel reinforcement conforming to ASTM A615, Grade 60. Reinforcement shall have 1 inch minimum cover.

PART 3 - EXECUTION

3.01 GENERAL INSTALLATION REQUIREMENTS

- A. Trenches shall be kept free of water and as dry as possible during bedding, laying and jointing and for as long a period as required. Pipe shall not be installed in water or when trench conditions are unsuitable for the work.
- B. Each pipe shall be installed accurately to the line and grade shown on the Drawings.
- C. Pipe laying will not be allowed to begin at any point other than a manhole, catch basin or other appurtenance.
- D. Pipes entering or leaving manholes, catch basins and other structures shall not exceed 2 feet in length as measured from the inside wall face.
- E. Pipes entering or leaving manholes, catch basins or structures shall extend a minimum of 1 inch into the manhole, catch basin or structure as measured from the inside wall face.

- F. Pipe laying shall proceed upgrade with the spigot ends of bell and spigot pipe, and the tongue ends of tongue and groove pipe pointing in the direction of the flow.
- G. When work is not in progress, open ends of pipe and fittings shall be plugged so that trench water or other material will not enter the pipe or fitting.
- H. The full length of each section of pipe shall rest solidly upon the pipe bed, with recesses excavated to accommodate bells, couplings and joints.
- I. Pipe cutting:
 - 1. Where required, sections of pipe may be cut to provide shorter sections of pipe necessary for the construction. Cut pipe in accordance with the pipe manufacturer's recommendations, and subject to the approval of the Architect.
 - 2. In general, to cut pipe, use a saw or milling process approved by the pipe manufacturer; do not use an impact device, such as a hammer and chisel, to break the pipe. The pipe shall be cut, not broken. The cut end of the pipe shall be square to the axis of the pipe and any rough edges ground smooth.
- J. Before testing storm drainage lines, thoroughly clean pipe by flushing with water to remove debris.
 - 1. Each run of pipe between manholes or catch basins shall be flushed individually and the debris caught in and removed from the lower manhole or catch basin.
 - 2. The Contractor shall make a visual inspection of storm drainage lines, manholes and catch basins after flushing to verify that all debris has been removed.

3.02 EXCAVATION

- A. Excavation shall be in accordance with Section 02300.

3.03 INSTALLATION

- A. PVC Plastic Pipe and Fittings: Join pipe, tubing, and fittings with couplings for soiltight joints according to AASHTO "Standard Specifications for Highway Bridges," Division II, Section 26.4.2.4 "Joint Properties" and manufacturer's written instructions.

3.04 BACKFILLING AND COMPACTION

- A. Backfilling and compaction shall be in accordance with Section 02300, and with the following:
 - 1. As soon as possible after the joint is made, and cement mortar allowed to cure, place sufficient bedding material, in 6 inch layers, along the pipe to springline, and compact to prevent pipe movement off line or grade.
 - 2. Do not backfill until testing has been completed.

3.05 CONCRETE TANK CONSTRUCTION

- A. General:
 - 1. Install on compacted gravel base.
 - 2. The invert channels shall be smooth and semicircular in shape conforming to the inside of the adjacent drain section. Changes in direction of flow shall be made with a smooth curve of as large a radius as the size of the manhole will permit. Changes in size and grade of the channels shall be made gradually and evenly.
 - 3. The invert channels shall be formed directly in the concrete of the manhole base, or shall be built up with brick and mortar.
 - 4. The floor of the manhole outside the channels shall be smooth and shall slope toward the channels not less than 1 inch per foot nor more than 2 inches per foot.
 - 5. Manhole steps shall be provided in all manholes. Steps shall be cast into the walls of the manholes so as to form a continuous ladder with a distance of 12 inches between steps.
- B. Pipe connections;
 - 1. Pipe connections into precast bases shall be sealed with cement mortar.
 - 2. Pipe connections into concrete block or brick bases shall be sealed with cement mortar.
- C. Jointing:
 - 1. Install brick radially or in stretcher courses with every sixth course installed as a stretcher course or radially.
 - 2. Mortar joints shall be completely filled and shall be smooth and free from surplus mortar on the inside of the manhole.
 - 3. Install O-ring rubber gaskets between precast concrete sections in accordance with the manufacturer's recommendations.
 - 4. Fully bed the joint between precast concrete sections in compressible filler and smooth to a uniform surface on both the interior and exterior of the manhole.
- D. Frames and covers:
 - 1. Set frames on cement mortared brick courses to required grade and concentric with the opening.
 - 2. Fill voids beneath the bottom flange and in the brick courses to make a water tight fit. Place a ring of cement mortar 1 inch thick, minimum, around the outside of the bottom flange, extending to the top edge of the frame, around the frame circumference.
 - 3. Parge brick on the exterior and interior with a layer of cement mortar parging, 1/2 inch minimum thickness.
 - 4. Clean the cover seats, and set covers in the frames.

3.06 AREA DRAIN CONSTRUCTION

- A. General: Install on compacted gravel base.
- B. Pipe connections: Seal with cement mortar.
- C. Jointing:
 - 1. Install brick radially or in stretcher courses with every sixth course installed as a stretcher course or radically.

2. Mortar joints shall be completely filled and shall be smooth and free from surplus mortar on the inside of the catch basin.
3. Install O-ring rubber gaskets between precast concrete sections in accordance with the manufacturer's recommendations.
4. Fully bed the joint between precast concrete sections in compressible filler and smooth to a uniform surface on both the interior and exterior of the catch basin.

D. Frames, and covers or gratings:

1. Set frames on cement mortared brick courses to required grade and concentric with the opening.
2. Fill voids beneath the bottom flange and in the brick courses to make a water tight fit. Place a ring of cement mortar 1 inch thick, minimum, around the outside of the bottom flange, extending to the top edge of the frame, all around the frame circumference.
3. Parge brick on the exterior and interior with a layer of cement mortar parging, 1/2 inch minimum thickness.
4. Clean the cover and grating seats, and set covers and gratings in the frames.

3.07 FIELD TESTING AND INSPECTION

- A. Testing and inspection is the responsibility of the Contractor. The Contractor, at his option, may perform the specified testing of the storm drainage lines, or have an independent testing laboratory perform the testing.
- B. Alignment Test: Check each straight run of storm drainage pipe for gross deficiencies by holding a light in a manhole, or catch basin or the last section of pipe installed before connection is made; it shall show a full circle of light through the run of pipe when viewed from the adjoining end of line. The test must be completed after backfilling of the trench but prior to installation of subbase, paving or topsoil.
- C. Perform additional field tests on storm drainage which are required by the City.
 1. It is the Contractor's responsibility to ascertain the extent of additional testing required by the City.
 2. If there is disagreement between standards as required by the City and the Contract Documents, the stricter shall govern.
- D. Complete testing within 10 working days after installation of storm drainage.
 1. If a section of storm drainage line is not to be installed until later in the construction schedule, the sections of storm drainage line installed shall be tested within 10 working days after completion, with the other sections tested after their installation.
- F. Should the storm drainage pipe as installed fail to meet the requirements specified, the Contractor shall perform the necessary remedial work, including retesting, at no additional cost to the Owner, to meet the requirements specified.

END OF SECTION 02630

SECTION 02800
SITE IMPROVEMENTS

PART 1 - GENERAL

1.01 PROVISIONS INCLUDED

- A. The conditions and general requirements of the Contract, Division 0 and applicable parts of Division 1, apply to the work under this Section.

1.02 SUMMARY

- A. Provide all labor, equipment, implements and materials required to furnish, install, construct and perform all site improvements complete as shown on the Drawings and specified herein.

- B. To be included, but not limited to the following:

1. 6'-0" and 3'-0" Metal Fabric Fence
2. 6'-0" Wood Panel Fence
3. Trench Drain & Cover
4. Area Drain & Cover
5. **ALTERNATE #4:** Trash & Recycling Unit
6. Bike Rack
7. Commemorative Medallion
8. Park Signage
9. **ALTERNATE #2:** Music Elements for Storage Cabinet

1.03 REFERENCES

- A. Except as modified by governing codes and by the Contract Documents, comply with applicable provisions and recommendations of the following
1. MassDOT (Massachusetts Department of Transportation) formerly Massachusetts Highway Department (MHD) Standard Specifications (for Highways and Bridges), latest edition, including all addenda.
 2. ASSHTO: American Association of State Highway and Transportation Officials, latest edition.
 3. ASTM International: American Society for Testing and Materials International, latest edition.
 4. CPSC - Consumer Product Safety Council.
 5. ADA - Americans with Disabilities Act and its current regulations.
 6. AWS: American Welding Society.
 7. SSPC: Steel Structures Painting Council.
 8. American Foundryman's Association.

1.04 SUBMITTALS

- A. Provide all submittals called for on the Drawings and as specified and in accordance with applicable requirements under Division 1, Section 01110 – Control of Work and Materials.
- B. Product Data: submit manufacturer's specifications and installation instructions for:
1. 6'-0" and 3'-0" Metal Fabric Fence
 2. 6'-0" Wood Panel Fence
 3. Trash & Recycling Units
 4. Bike Rack
 5. Music Elements for Storage Cabinet
- C. Shop Drawings: Submit shop drawings for the following components showing attachment methods, fabrication, casting and hardware:
1. 6'-0" and 3'-0" Metal Fabric Fence
 2. 6'-0" Wood Panel Fence
 3. Trash & Recycling Units

4. Bike Rack
 5. Commemorative Medallion
 6. Park Signage
- D. Samples: submit material, color, and/or finish samples as required for selection/confirmation:
1. 6'-0" and 3'-0" Metal Fabric Fence
 2. 6'-0" Wood Panel Fence
 3. Trash & Recycling Units
 4. Bike Rack
 5. Commemorative Medallion
 6. Park Signage
- E. Certificates: submit material certificates signed by material producer and Contractor. Provide certifications stating materials comply with requirements.
- F. Maintenance Kit, Spare Parts and Material:
1. At the completion of construction, the Contractor shall provide to the City Department of Public Works, Parks Maintenance Division, a Maintenance Kit containing all touch-up paint, maintenance instructions, spare parts, and other maintenance materials provided by the manufacturers of all improvements.
 2. The Maintenance Kit shall be delivered in a single container clearly labeled with SYMPHONY PARK, and each item shall be identified as to the source.
- 1.05 QUALITY ASSURANCE
- A. As required per SECTION 01110 – Control of Work and Materials
- 1.06 PRODUCT HANDLING AND STORAGE
- A. As required per SECTION 01110 – Control of Work and Materials
- 1.07 SITE CONDITIONS
- A. As required per SECTION 01110 – Control of Work and Materials

PART 2 - PRODUCTS

- 2.01 6'-0" and 3'-0" METAL FABRIC FENCE
- A. 6'-0" and 3'-0" Metal Fabric Fence shall be manufactured by Omega II, 1735 St-Elzear Blvd. West, Laval (Quebec) Canada H7L 3N6, 800 836-6342 or approved equal.
- B. Model: Elite, 6' height, round post and cap.
- 2.02 6'-0" WOOD PANEL FENCE
- A. The fence shall be equivalent to "DEERFIELD" as manufactured by Walpole Woodworkers, Inc. or approved equal.
- B. Materials:
1. All fencing shall be fabricated of Northern White Cedar. All lumber shall be sound, straight, well seasoned and rough sawn.
 2. All fences shall be shop fabricated with all holes pre-drilled as required for on-site assembly.
 3. Posts and top shall match existing wood fence along property line, with a rough finish. The bottom feet of the posts shall be treated with cunapsol on all sides. Each post shall have mortises suitable for the backing rails used.
 4. Each of the three horizontal backing rails shall match existing wood fence along property line.
 5. The fence boards shall match existing wood fence along property line.
 6. The fence shall be factory pre-stained with a color approved by the Landscape Architect.

C. Hardware:

1. Each board shall be fastened to the backing rails with 1-3/4-inch long aluminum screw nails, as a minimum.
2. All bolts, washers, nuts, etc. shall be in accordance with the requirements of AASHTO-M183 and shall be galvanized after fabrication to meet the requirements of ASTM A153.
3. Ledge pins shall be a minimum of 1-inch by 2-inch thick, made of galvanized steel.

2.03 TRENCH AND AREA DRAIN & COVER

A. Trench and Area Cover and Drain shall be provided by ACO Drain, 800-543-4764, or approved equal.

1. Drain: KlassikDrain K200, 8" wide drain.
2. Cover: Type 481Q, Iron Decorative, black, Heelsafe® Anti-Slip

2.04 **ALTERNATE #4:** TRASH & RECYCLING UNIT

B. Trash & Recycling Unit shall be manufactured by BigBelly Solar, 50 Brook Road Needham MA 02494, 888-820-0300 or approved equal.

C. Model: BigBelly+SmartBelly Double Station.

1. Outdoor use
2. Left component: Big Belly with HP-T: Black Hopper w/ "Trashman" icon
3. Right component: SmartBelly with FP-SS-BLUE-TEXT: Blue Faceplate w/ "Bottles, Cans, Paper" text
4. Side-Skins: SKIN-T&R: Side-skins for "Trash & Recycle"

2.05 BIKE RACK

A. Bike racks shall be manufactured by Cycle-Safe Inc, 5211 Cascade Rd. SE, Suite 210, Grand Rapids, Michigan 49546, 888-950-6531 or approved equal.

B. The racks will be a "vintage style" with a Somerville custom "Powderhouse" rack plate as per Cycle-Safe Inc.'s design of September 6, 2007.

C. Finish and color: Black

2.06 COMMEMORATIVE MEDALLION

A. Medallion shall be a 1/4" thick, bronze medallion with reverse-etched lettering and artwork, of the size and approximate design shown on the Drawings. The raised lettering and details shall have a brushed satin finish; the background shall be sandblasted. Medallion fabrication and finish shall be ADA compliant.

1. The design shown on the Drawings is a representative design showing the approximate complexity and detailing of the medallion. The final design will be as supplied to the Contractor by the Landscape Architect. The size of the medallion will remain unchanged.

B. The medallion shall have four (4) anchor rods affixed to the back side, suitable for setting into a concrete slab. Pins shall be cast or grouted in place.

1. Grout, if used, shall be a non-shrink, exterior, epoxy cement grout.

2.07 PARK SIGNAGE

A. See templates at the end of this section.

1. Name Sign with Post: Contractor to provide one (1) Double-sided Name sign with Post and will be 18" wide by 24" tall and shall include post as specified below. Sign will be printed double-sided, and mounted to pole along long edge. Mounting hardware shall be included to attach signs to poles. Landscape Architect shall determine and approve final placement on site.

3. Park Regulation Sign: Contractor to provide one (1) Double-sided Regulation sign and will be 18" wide by 18" tall. Mounting hardware shall be included to attach signs to Name Sign Post, below Name Sign. Landscape Architect shall determine and approve final placement on site.
4. Community Garden Regulation Sign: Contractor to provide one (1) Single-sided Community Garden regulation sign and will be 18" wide by 18" tall. Sign shall include a metal backing plate and tamper proof bolts in order to attach sign to wall. Landscape Architect shall determine and approve final placement on site.
4. Non-Potable Water Sign: Contractor to provide one (1) Single-sided sign that will be 18" wide by 18" tall. Sign shall include a metal backing plate and tamper proof bolts in order to attach sign to wall. Landscape Architect shall determine and approve final placement on site.

- B. **LAYOUT AND ARTWORK**: Landscape Architect will provide sign language and electronic layout file to contractor, but it shall be the responsibility of the contractor to convert those files to the proper electronic format. The contractor shall provide final proofs of all signs to Landscape Architect for approval before manufacture.

Signage artwork and text may be vinyl or silk screened. If vinyl is used, the artwork and text shall have a non-yellowing, UV- resistant, urethane clear coat applied to protect the vinyl and provide a graffiti resistant coating. Vendor shall provide color samples and paint color and product specifications to the Landscape Architect before manufacture.

- C. **PAINTING AND FINISHES**: All signs, poles, and hardware including nuts, bolts, and welds shall be painted a dark hunter green. Signs shall be painted on front, back, and edges. Paint will include two (2) coats primer, and two (2) coats paint. Background Color will be Pantone PMS 350–hunter green. Lettering and images shall be in white.
- D. **SIGN STOCK**: Signs shall be ¼ inch aluminum stock. All signs shall have rounded corners.
- E. **POSTS**: Shall be 3"-square, 16-ft. steel pole, ¼" thick, with tack welded angle brackets and permanently attached ball finial caps. Vendor shall provide a sample of the pole stock and ball finial to the City representative upon request.

2.08 ALTERNATE #2: MUSICAL ELEMENTS FOR STORAGE CABINET

- A. Instruments provided by BoomWhackers, P.O. Box 126, Fort Worth, TX 76101, Phone: 800-424-4724, Fax: 817-332-5654 or approved equal.
1. Boomwhacker C Major Diatonic Scale Set (BWDG): Two (2) sets
 2. Boomwhacker Bass Diatonic Set (BWJG): Two (2) sets
 3. Boomwhacker Chromatics Set (BWCG): Two (2) sets
 4. Boomwhacker Chromatics Bass Set (BWKG): Two (2) sets
 5. Boomwhacker Treble Extension Set (BWEG): Two (2) sets
 6. Boomwhacker Octavator Tube Caps 8 (OC8G): Two (2) sets
 7. Xylo Tote Tube Holder: Two (2)
 8. Boomwhacker Mallets: Two (2) sets
 9. Chroma-Notes Handbells C Major Diatonic Scale Set (CNHB-D): Two (2) sets
 10. Chroma-Notes Handbells Chromatic Add-Ons (CNHB-C): Two (2) sets
 11. Chroma-Notes Handbells Extension Set (CNHB-EX): Two (2) sets
 12. Building Blocks Children's Songs, Volume 1, songbook: 1 book
 13. Building Blocks Children's Songs, Volume 2, songbook: 1 book
 14. Sheet Music Sign: Six (6) signs. Single-sided signs that will be 18" wide by 18" tall, attached to exterior of storage cabinet. Sign fabrication and finish as specified in 2.06 Park Signage. Landscape Architect shall artwork and determine final placement.

2.09 FOOTINGS

- A. Concrete for the footings will be cast in place cement concrete as specified in Section 03300 - Cast-In-Place Concrete. Top of concrete footings shall be below finished grade.

2.10 BASE MATERIALS

- A. Granular Base as specified in Section 02200 – Earthwork

PART 3- EXECUTION

3.01 6'-0" and 3'-0" METAL FABRIC FENCE

- A. Fence shall be installed as shown on the Drawings and per manufacturer's instructions and in accordance with approved field verification and Shop Drawings.

3.02 6'-0" WOOD PANEL FENCE

- A. Wood panel fence shall be mounted as shown on the Drawings and per manufacturer's instructions and in accordance with approved Shop Drawings.
- B. The fence top and bottom shall be installed straight and true. Posts and boards shall be racked to follow finished grade. All posts and boards shall be installed parallel and plumb. All rails shall be installed parallel and true.

3.03 TRASH & RECYCLING UNITS

- A. Trash and Recycling Units shall be mounted per manufacturer's instructions and in accordance with approved Shop Drawings.

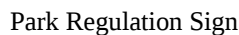
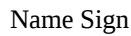
3.04 BIKE RACKS

- A. Bicycle racks shall be installed as shown on the Drawings and per manufacturer's instructions and in accordance with approved Shop Drawings.

3.05 COMMEMORATIVE MEDALLION

- A. Commemorative Medallion shall be installed as shown on the Drawings and per manufacturer's instructions and in accordance with approved Shop Drawings.

- A. Park Signage shall be mounted as shown on the Drawings and per manufacturer's instructions and in accordance with approved Shop Drawings.
- B. Examples:



SITE IMPROVEMENTS
02800- 6

SECTION 02805
CUSTOM METAL FABRICATIONS

PART 1 - GENERAL

1.01 PROVISIONS INCLUDED

- A. The conditions and general requirements of the Contract, Division 0 and applicable parts of Division 1, apply to the work under this Section.

1.02 SUMMARY

- A. Provide all labor, equipment, implements and materials required to furnish, install, construct and perform all site improvements complete as shown on the Drawings and specified herein.
- B. To be included, but not limited to the following:
1. Handrail
 2. Water Runnel
 3. Water Runnel Activation Bollard
 4. Hose Bib Bollard
 5. Trellis
 6. **ALTERNATE #2:** Storage Cabinet
 7. Bench A, B, C, D, E
 8. Pergola

1.03 REFERENCES

- A. Except as modified by governing codes and by the Contract Documents, comply with applicable provisions and recommendations of the following
1. MassDOT (Massachusetts Department of Transportation) formerly Massachusetts Highway Department (MHD) Standard Specifications (for Highways and Bridges), latest edition, including all addenda.
 2. ASSHTO: American Association of State Highway and Transportation Officials, latest edition.
 3. ASTM International: American Society for Testing and Materials International, latest edition.
A27 Steel Castings, Carbon, for General Application
A36 Structural Steel
A47 Ferritic Malleable Iron Castings
A48 Grey Iron Castings
A53 Pipe, Steel, Black and Hot-Dipped, Zinc-Coated Welded and Seamless
A123 Zinc (Hot-Galvanized) Coatings on Products Fabricated from Rolled, Pressed, and Forged Steel Shapes, Plates, Bars, and Strips
A153 Zinc Coating (Hot-Dip) on Iron and Steel Hardware
A386 Zinc Coating (Hot-Dip) on Assembled Steel Products
 4. CPSC - Consumer Product Safety Council.
 5. ADA - Americans with Disabilities Act and its current regulations.
 6. AWS: American Welding Society.
 7. SSPC: Steel Structures Painting Council.
 8. American Foundryman's Association.

1.04 SUBMITTALS

- A. Provide all submittals called for on the Drawings and as specified and in accordance with applicable requirements under Division 1, Section 01110 – Control of Work and Materials.
- B. Product Data: submit manufacturer's specifications and installation instructions for:

1. Water Runnel Activation Bollard Valve
 2. Runnel Nozzle
 3. Hose Bib
 4. Non-shrink Grout
 5. Epoxy
- C. Shop Drawings: Submit shop drawings for the following components showing attachment methods, fabrication, casting and hardware:
1. Handrail
 2. Water Runnel
 3. Water Runnel Activation Bollard
 4. Hose Bib Bollard
 5. Trellis
 6. Storage Cabinet
 7. Bench A, B, C, D, E
 8. Pergola
- D. Samples: submit material, color, and/or finish samples as required for selection/confirmation:
1. Handrail
 2. Water Runnel
 3. Water Runnel Activation Bollard
 4. Hose Bib Bollard
 5. Trellis
 6. Storage Cabinet
 7. Bench A, B, C, D, E
 8. Pergola
- E. Qualifications: Contractor shall submit verification to the Landscape Architect, which states that all proposed fabricators of custom metal work have produced products of a similar nature and quality to that which is specified and that each manufacturer is capable of producing the quantity of site furnishings required by the contract within the time allocated in the project schedule.
1. Metal Fabricator shall have a minimum of five years experience in successfully producing metal fabrications similar to the specified items in comparable projects.
 2. Welders shall be certified and shall have passed the AWS Qualification Test within the past 12 months.
- F. Maintenance Kit, Spare Parts and Material:
1. At the completion of construction, the Contractor shall provide to the City Department of Public Works, Parks Maintenance Division, a Maintenance Kit containing all touch-up paint, maintenance instructions, spare parts, and other maintenance materials provided by the manufacturers of all improvements.
 2. The Maintenance Kit shall be delivered in a single container clearly labeled with SYMPHONY PARK, and each item shall be identified as to the source.
- G. Warranty: Provide warranty that all materials furnished and work executed under this Section comply with Specifications and authorized changes.
1. Warranty: Provide galvanizer's standard warranty that materials will be free from 10 percent or more visible rust for 20 years.
- H. Structural Performance: Provide completed assemblies which, when installed, comply with the following minimum requirements for structural performance without exceeding the allowable design working stress of the

materials involved, including anchors and connections. Apply each load to produce the maximum stress in each respective component of each metal fabrication and record testing data.

1. All custom metal fabrications shall be capable of withstanding at minimum the following loads applied as indicated: Concentrated load of 400 pounds applied at any point, non-concurrently, vertically downward or horizontally. Uniform load of 50 pounds per linear foot applied non-concurrently, vertically downward or horizontally.
2. Structural Review and Approval of all custom metal work structures must be provided by the metal fabricator. Landscape Architecting and changes to structure to achieve structural approval shall be contractor's responsibility. Changes to structure shall be approved by Landscape Architect. Provide signed structural drawings that all materials furnished and work executed under this Section comply with Specifications and authorized changes.

1.05 QUALITY ASSURANCE

A. As required per SECTION 01110 – Control of Work and Materials

B. Quality assurances for metal materials and construction methods:

1. Workmanship and finish shall be equal to the best practice of modern shops for each item of work. Exposed surfaces shall have smooth finish and sharp, well defined lines and arrises. Sections shall be well formed to shape and size with sharp lines and angles; curved work shall be sprung evenly to dimensioned radii curves. Castings shall have sharp corners and edges, and shall be clean, smooth, and true to pattern. Welding shall be in accordance with the Welding Code of the AWS. All welding, except as otherwise indicated, shall extend the entire length of joints. All welded face joints shall be ground flush and smooth. All welds shall be watertight. Ornamental metalwork shall be cut, drilled, countersunk, and tapped as required for the attachment of other work where shown on the drawings or when instructions for such work are given on the shop drawings. Ornamental metalwork to be built in with concrete or masonry shall be of the form required for anchorage, or shall be provided with suitable anchors or expansion shields.
2. All metal fabrication shall be accomplished using the highest standards of workmanship. Individual steel pieces shall be saw cut and carefully fit together. All connections shall be full welded and ground flush and smooth. All fabricated steel items shall be fine sanded throughout to produce a high standard of surface smoothness. All surfaces and connections shall be without visible grinding marks, surface differentiation or variation.

1.06 PRODUCT HANDLING AND STORAGE

A. As required per SECTION 01110 – Control of Work and Materials

1.07 SITE CONDITIONS

A. As required per SECTION 01110 – Control of Work and Materials

PART 2 – PRODUCTS

2.01 CUSTOM METAL FABRICATIONS

- A. Handrail, Water Runnel, Water Runnel Activation Bollard, Hose Bib Bollard, Trellis, **ALTERNATE #2:** Storage Cabinet, Bench A, B, C, D, E, Pergola, as shown on the Drawings, shall be fabricated by:

Somerville Ornamental Ironwork;
11 George St, Somerville, MA 02145,
(617) 666-8872

or approved equal by the Landscape Architect.

- C. Metal for Handrail, Water Runnel Activation Bollard, Hose Bib Bollard, Trellis, **ALTERNATE #2:** Storage Cabinet, Bench A, B, C, D, E, Pergola used in the fabrication and installation of the metal site fabrications of this Section shall conform to the following specifications:

1. Steel Tubing: Steel for fabrication shall be in conformance with ASTM A500 Grade B requirements and steel sections for tubing shall have a one-quarter inch minimum wall thickness, unless otherwise noted on the Drawings.
2. Steel Sheet and Bar Stock: shall be in conformance with ASTM A36. Match to dimensions of existing, as shown on the Drawings, or as finalized in shop drawing structural calculations.

- D. Metal for Water Runnel used in the fabrication and installation of the metal site fabrications of this Section shall conform to the following specifications:

1. Stainless Steel Structural C channel: shall be hot rolled tapered in conformance with ASTM A276.

- E. All metal used in the fabrication and installation of the metal site fabrications of this Section shall conform to the following specifications:

3. Stainless Steel anchor bolts, elements and hardware shall conform to ASTM A666, be AISI Type 305 conforming to the requirements of ASTM A193.
4. Miscellaneous Bolts, Screws, and Fasteners for Fencing: ASTM A307 (smaller than 5/8") and ASTM A325 (greater than 5/8").
5. Bolts and Nuts: Regular hex. head extending 3/8" min and 5/8" max, beyond nut when tight.
6. Machine Screws: Flat Head, square drive.
7. Plain Washers: Round.
8. Lock Washers: Helical Spring type.
9. Provide labels to each piece or panel to facilitate field assembly. Assemble the metal panels and railings as much as possible in the Shop with minimum field assembly required.

- F. All welding procedures shall conform to the current standards of the AWS. All welds shall be as designated on the Drawings and shall be ground smooth and flush to a neat finish. All welds shall be watertight and care shall be taken to minimize distortion due to heat. Metal shall not be galvanized nor color finished prior to completing all welding and grinding of welds.

- G. Finish: finish shall be ColorGalvThermoset as provided by The Duncan Group, Duncan Galvanizing, 69 Norman Street, Everett, MA 02149, 800-638-101, or approved equal galvanized, polyester powder coat finish by the Landscape Architect.
1. Finish and color: to be black as selected from standard Duncan color & finish chart.
 2. Hot-Dip Galvanizing: For steel exposed to the elements, weather or corrosive environments and other steel indicated to be galvanized, provide coating for iron and steel fabrications applied by the hot-dip process. Galvanizing bath shall contain special high grade zinc and other earthy materials.
 - a. Basis-of-Design: Duragalv by Duncan Galvanizing.
 - b. Comply with ASTM A 123 for fabricated products and ASTM A 153 for hardware.
 - c. Provide thickness of galvanizing specified in referenced standards.
 - d. Fill vent holes after galvanizing, if applicable, and grind smooth.
 - e. Galvanizing shall exhibit a rugosity (smoothness) 4 rug or less (16-20 microns of variation) when measured by a profilometer over a 1 inch straight line on the surface of elements that are less than 24 pounds per running foot. Profilometer shall be capable of operating in 1 micron increments.
 3. High-Performance Thermosetting Based Coating: Provide coating matching approved samples. Factory-applied metal coatings shall be applied in a facility acceptable to the coating manufacturer. Factory applied coating shall include an architectural grade primer. Full cure of the coating system shall be verified by the coating manufacturer's recommended test methods. Coatings must meet or exceed the criteria for the following categories as stipulated by the coatings manufacturer. All testing was performed on lab prepared panels.
 - a. Basis-of-Design: Duncan Colorgalv ThermosetSM by Duncan Galvanizing.
 - b. Coating shall meet or exceed the following criteria as established by the coating manufacturer.
 - 1) Adhesion: ASTM D 3359, no loss.
 - 2) Hardness: ASTM D 3363 (pencil), H min.
 - 3) Falling Sand: ASTM D 968 20L/mil.
 - 4) Salt Spray: ASTM B 117, passes 3000 hrs.
 - 5) Humidity: ASTM D 2247, 3000 hours, few #8 blisters.
 - 6) Impact Resistance (3mm): ASTM D 2794, no loss.
 - 7) Color Retention: ASTM D 2244, 5 year less than or equal to 5 delta E.
 - 8) Chalk Resistance: ASTM D 4214, #8 rating.
 - 9) Gloss Retention: ASTM D 523, greater than or equal to 30 percent retention.
 - 10) Erosion Resistance: ASTM B 244, less than 10 percent film loss.
 - 11) Compliance: AAMA 2604.
 - c. Warranty: Provide galvanizer's standard warranty that materials will be free from 10 percent or more visible rust for 20 years.

2.02 WATER RUNNEL PLUMBING

- A. Activation Bollard Valve shall be 'Symmons Showeroff Valve' by Symmons Industries, Inc. 31 Brooks Drive, Braintree, MA 02184, 800-796-6667 or approved equal by Landscape Architect. Valve should be stainless steel and have adjustable run times. Include fittings as required to connect to water service.

- B. Activation Bollard Infeed and Outfeed shall be stainless steel braided hose. Size as required to connect to water service.
- C. Nozzle shall be 'Pod Spray' by Vortex Aquatic Structures Intl, 1-877-VORTEX, or approved equal by Landscape Architect. Include fittings as required to connect to water service.
- D. Concrete thrust blocks shall be installed in locations as indicated or as ordered by the Landscape Architect. Installation of thrust blocks shall include furnishing and placing the concrete and any additional excavation as required. Straps in conjunction with thrust blocks shall be furnished and installed where shown on the plans or directed by the Landscape Architect.

2.03 HOSE BIB BOLLARD PLUMBING

- A. Hose Bib shall be 3/4" exposed, non-freeze yard hydrant. Depth of bury shall be 2 feet. Bronze interior parts and galvanized steel casing with bronze valve housing and 1/8" IP drain port in housing. Yard hydrants shall be as manufactured by Zurn Industries, Inc., Hydromechanics Division, 1801 Pittsburgh Ave., Erie, OA (814) 455-0921 or approved equal.

2.04 NON-SHRINK GROUT

- A. Non-shrink grout for all site improvement base plates, footing settings and anchor bolts shall conform to requirements of ASTM C11077, Grade B or C. Unless otherwise indicated, requirements for consistency, working time and temperature range shall be determined by the Contractor to suit working conditions.

2.05 EPOXY

- A. Epoxy for setting anchor bolts/threaded rods and stone: Bonstone A-124/B-414x manufactured by Bonstone Materials Corporation, 5828 Northy 97th Street, Milwaukee, Wisconsin 53224, ph# 414.463.2580, or equal.

2.06 FOOTINGS

- A. Concrete for the footings will be cast in place cement concrete as specified in Section 03300 Cast-In-Place Concrete. Top of concrete footings shall be below finished grade unless otherwise specified.

2.07 BASE MATERIALS

- A. Granular Base as specified in Section 02200 Earthwork.

PART 3- EXECUTION

3.01 CUSTOM METAL FABRICATIONS

- A. Confirm overall dimensions of shop constructed structures to assure proper fit of all components on the site before fabrication.
- B. Steel fabrication shall be accomplished using the highest standards of workmanship. Individual steel pieces to be welded shall be saw cut and carefully fitted together. All connections shall be full welded and ground flush and smooth. All fabricated steel items shall be fine sanded throughout prior to finishing to produce a high standard of surface smoothness. All surfaces and connections shall be without visible grinding marks, surface differentiation or variation.
- D. Shop Welding: All welds shall be done in the shop according to welding requirements specified. All exposed welds shall be ground smooth so that no roughness is visible after galvanizing and finishing. Grinding shall maintain

specified required thicknesses and structural integrity of welds. Field Welding: Welding in the field shall be avoided and permitted only with approval of the Landscape Architect. Comply with AWS D1.1 - AWS D1.4 as applicable for procedures of manual metal-arc welding, appearance and quality of welds, and correction methods for defective welds.

- E. Coordinate and furnish anchorage devices, setting drawings, diagrams, templates, instructions, and directions for installation of sleeves, bolts, and other miscellaneous items to be embedded or attached to concrete or masonry work. Fabricator shall provide all coordination required with installers to insure proper assembly and erection in the field.
- F. Clean surrounding concrete and/or masonry surfaces and roughen if required to improve bonding. Clean bottom surface of leveling plates immediately prior to installation. Take care when drilling through pavements and tightening bolts to maintain pavement integrity without cracking or breaking. All paving damaged during fence installation will be required to be repaired to acceptable condition.
- G. Perform cutting, drilling, and fitting required for installation of Work of this Section. Avoid field cutting and drilling of fencing to greatest extent possible and only with approval of the Landscape Architect. All field cuts and minor breaks in finish and galvanizing shall be prepared, primed, and painted per requirements for touch-up field painted galvanized surfaces.
- H. Brace work rigid and secure to surrounding construction. Provide temporary bracing or anchors as required.
- I. Shop Welding: All welds shall be done in the shop according to welding requirements specified. All exposed welds shall be ground smooth so that no roughness is visible after galvanizing and finishing. Grinding shall maintain specified required thicknesses and structural integrity of welds. Field Welding: Welding in the field shall be avoided and permitted only with approval of the Landscape Architect. Comply with AWS D1.1- AWS D1.4 as applicable for procedures of manual metal-arc welding, appearance and quality of welds, and correction methods for defective welds.
- J. Field verify and adjust sections of the work prior to anchoring to ensure matching alignments and stability of members at abutting joints.
- K. Report to and submit field revision sketches to the Landscape Architect for approval before installation any assemblies and field fittings that do not match expected conditions that will require field cutting, drilling, and/or alignments that do not match the Drawings and design criteria specified.
- L. Contractor shall take all precautions not to damage custom metalwork and metalwork finishes during installation. If finish is damaged, the Contractor shall follow the galvanizer's instructions for repairing the finish.
- M. Clean all Custom Metalwork after erection.

3.02 WATER RUNNEL SYSTEM

- A. Installation: The installation and backfilling of all pipe, fittings and other related items shall be installed and tested in conformance with the requirements set forth in these specifications. Pipe shall be set with a minimum cover of 24" above the invert of the pipe. All pipe shall be pitched to drain by gravity back to the plumbing box..
- B. Operation: At project completion, provide complete operations and maintenance manuals for the water runnel and activation bollard feature to the City Representative.
- C. The Contractor is responsible for laminating and mounting a start-up and shutdown instructions sheet for all controls inside the plumbing box.

- D. System Startup and Shutdown: The General Contractor shall be responsible for the start-up and shut down of the water runnel systems during the calendar years 2015 through 2016. To this end, the system must be successfully started up upon completion of the work of this contract and then again during the spring of 2016 for summer operation. Any items not functioning properly shall be repaired or replaced to the satisfaction of the City. The Contractor shall also be responsible for the complete winterization of the system in 2015.

END OF SECTION

SECTION 02810
IRRIGATION

PART 1 - GENERAL

1.01 PROVISIONS INCLUDED

- A. The conditions and general requirements of the Contract, Division 0 and applicable parts of Division 1, apply to the work under this Section.

1.02 SUMMARY

- A. Provide all labor, equipment, implements and materials required to furnish, install, construct and perform all site improvements complete as shown on the Drawings and specified herein.
- B. New design/build sprinkler system with automatic controls for lawn, plant beds and tree wells including, but not limited to: staking out the system; trenching; jacking or boring and sleeving; assembly of system; flushing; backfilling and compacting; testing the system; adjustment; and repair of features disturbed by installation of the system.

1.03 SUBMITTALS

- A. Provide all submittals called for on the Drawings and as specified and in accordance with applicable requirements under Division 1, Section 01110 – Control of Work and Materials.
- B. Product Data: submit manufacturer's specifications and installation instructions for:
 - 1. All proposed equipment to be installed
- C. Shop Drawings: Submit shop drawings for the following components showing attachment methods, fabrication, casting and hardware:
 - 1. Submit complete irrigation system drawings to serve the lawns and plant beds indicated on the Planting Plan. THE DESIGN OF THE SPRINKLER LAYOUT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. The system shall be able to produce an application equal to 1/2 inch of water twice per week over the area to be irrigated (a total application equal to one inch per week). Each 1/2 inch application shall be applied over a period of six hours.
 - 2. Shop drawings of the irrigation system layout shall show exact location of all fittings and equipment items as well as all pipe sizes. Piping shall be sized to accommodate heads and zones being used. Spacing of heads shall not exceed manufacturer's maximum recommendation with a 5 mph wind.
 - 3. Design the system to utilize compressed air to blow out the system to winterize it. Place quick coupling valves in the system as required to insure a means of getting air into the various areas. Piping between the control valve in the water cabinet and the irrigation system shall also be capable of being winterized. Provide drains to prevent freeze damage.
 - 4. Provide initial irrigation design plan for approval before commencing construction or installing any pavements;
- E. Certificates: submit material certificates signed by material producer and Contractor. Provide certifications stating materials comply with requirements.
- F. Maintenance Kit

1. Provide the Owner with a minimum of two of each size and type of sprinkler head, nozzle, key and wrench used on the project.
2. Record Drawings: Include changes in sizes, grades, locations and dimensions, and indicate with dimensions and grades all underground pipes, conduits, junctions, connections, heads, valves, drains, ends and route of control wires. Identify all valves as to size, station and number. Record principal dimensions of concealed work.
3. Furnish a complete parts list (in duplicate) for all parts of the system. Provide two bound operation and maintenance manuals including written operating and winterizing instructions, and a schedule indicating the length of time each valve is to be open to produce a given amount of precipitation.

1.04 QUALITY ASSURANCE

A. As required per SECTION 01110 – Control of Work and Materials

B. TESTING

1. After all new sprinkler piping and risers are in place and connected, use a full head of water to flush out the system for at least three minutes through the heads furthest from the point of connection. After the system is thoroughly flushed, cap the risers and pressure test the system. Prior to hydrostatic testing, center load piping with a small amount of backfill to prevent arching or slipping under pressure. Expose all joints during testing.
2. Test all piping systems with a continuous and static water pressure of 150 PSI measured at the highest point of the section being tested for a period of not less than one hour. Pipe joints shall hold tight at the pressure head stated. Repair leaks resulting from tests and retest until no leakage or loss of pressure is evident in the system.
3. At the conclusion of the pressure test, complete assembly and test for operation in accordance with the design requirements under normal operating pressure. This shall include a coverage test to determine if water coverage is complete and adequate. Correct any inadequacies of coverage disclosed. Demonstrate a complete operating cycle of the entire system to the satisfaction of the Landscape Architect.

B. GUARANTEE: The Contractor shall guarantee that for a period of one year after final acceptance, the irrigation system shall be free of defects in materials and workmanship and shall replace and correct any such defect at no expense to the Owner.

C. COMPLETENESS AND COMPATIBILITY: The intent of this Section of the Specifications is to obtain a complete irrigation system, ready to operate, having all parts compatible, connected and tested for dependable operation. Review and approval of drawings, brochures or samples furnished by the Contractor shall not relieve the Contractor of such responsibility.

D. INSTRUCTION: Provide one professional instruction session to the Owner's maintenance personnel when the system is installed and ready for operation.

E. MAINTENANCE: The Contractor shall be responsible for the first fall shutdown including blowout and draining of all lines in the presence of the Owner's maintenance personnel. The Contractor shall be responsible for start up the following spring including any adjustment in sprinkler heights and zone pressures. Reset heads as required during the first year.

F. CONDUCT OF THE WORK: Maintain skilled journeymen on the work during progress, together with a competent superintendent who has the authority to act for the Contractor in all matters pertaining to the work.

G. PROTECTION: Exercise all care in areas over plumbing or electrical lines and so as not to puncture waterproofing membranes, filter fabrics or rigid insulations. Protect all installed plant material. Replace all permanent features disturbed by installation of this system.

1.05 PRODUCT HANDLING AND STORAGE

- A. As required per SECTION 01110 – Control of Work and Materials

1.06 SITE CONDITIONS

- A. As required per SECTION 01110 – Control of Work and Materials

1.07 PERMITS AND INSPECTIONS

- A. As required per SECTION 01350 – Permits

PART 2 – MATERIALS

2.01 GENERAL

- A. The irrigation system to be installed shall be a single controller with multiple zones (label zones on irrigation controller), turf and landscape irrigation system supplied from municipal water. The system shall be designed for a flow rate (GPM) and dynamic pressure (PSI) as are available from the street connection; inform Landscape Architect promptly if flow or pressure is insufficient.
- B. System shall be design/build, and shall provide 100% coverage of all lawn, planting beds and tree wells, without overspray onto paths, pavements, walls, or structures. Pop-up spray heads shall be used for lawn areas; drip irrigation shall be used in planting beds and tree wells.
- C. System shall include two (2) quick connects for hose connections.
- D. **ALTERNATE #1:** Irrigation system shall connect to Rain Harvester System for water source. See Drawing C-2.

2.02 PIPE AND FITTINGS

- A. Water Service Supply Pressure Pipe: Type K heavy and hard temper copper conforming to Federal Specification WW-T-799. Solder all joints with solder consisting of 95% tin and 5% antimony.
- B. Main Line and Lateral Zone Pipe (1-1/2 inches and larger): Flame retardant Class 160 unplasticized polyvinyl chloride pipe conforming to ASTM D2241.
- C. Lateral Zone Pipe (1-1/2 inches and smaller on the discharge side of control valves): Flame retardant polyethylene pipe, long life 100, Type II PE-23-6 conforming to ASTM D2239.
- D. Risers: Flame retardant Schedule 80 unplasticized polyvinyl chloride pipe.
- E. Sleeves
 - 1. Under paved areas: Flame retardant Schedule 80 unplasticized polyvinyl chloride pipe, with a minimum diameter of two times the diameter of the pipe passing through the sleeve.
 - 2. Roof and wall penetrations: Josam 26400 series.
- F. Fittings:
 - 1. Copper Pipe Fittings: Cast bronze or wrought copper.
 - 2. Galvanized Steel Pipe Fittings: Malleable mild iron.
 - 3. Polyvinyl Chloride Pipe Fittings: Flame retardant Schedule 40 solvent weld Type One.
 - 4. Polyethylene Pipe Fittings: Flame retardant insert type, double clamped with pinch on clamps.

- G. Solvent: Of a type approved by the pipe fitting manufacturer.
- 2.03 SPRINKLER HEADS: Heavy duty equal to Rainbird 1806-SAM and 1812-SAM pop up spray sprinkler heads that pop up not less than 6 inches and have positive heavy duty retraction. Heads shall be easily serviced from the top. Heads shall have proper rate of flow, area, shape, coverage and operating pressure to produce the specified application rate.
- 2.04 VALVES
- A. Manual Control Valves: All brass or bronze threaded gate valves with double disc wedge, integral taper seat and non-rising stem, rated 200 PSI.
 - B. Remote Control Valves: Heavy cast bronze, normally closed type, equal to Rainbird EFA-CP-PRS series pressure regulating electric remote control valve of the required size rated 15-200 PSI with flow adjustment stem and exhaust petcock. Valves shall be serviceable without removing body from pipe.
 - C. Manual Drain Valves: Straight or angle globe valves of appropriate size, pressure and temperature rating. Valves shall be all brass or bronze with soft rubber discs and swivel type holders, integral-taper seats and heavy duty non-rising stems. Provide valves with wheel operators or wrenches.
 - D. Automatic Drain Valves: Equal to Weathermatic No. 910.
 - E. Backflow Preventer: Equal to reduced pressure principle backflow preventer No. 825Y as manufactured by Febco Sales, Inc., Fresno CA with standard gate valves, strainer and flanges, meeting all state and local regulations, sized to match pipe connection, and rated at 150 PSI working pressure.
 - F. Valve Boxes: Equal to Ametex Series 10-170-001 box of appropriate size with necessary extensions and locking lid for all valves buried below grade.
- 2.05 CONTROL EQUIPMENT
- A. Automatic controller shall be of a compatible type for operating the remote control valves and shall be completely electric in operation, not employing hydraulic tubing or introducing water or other fluids subject to freezing or leakage into the controller.
 - B. Controller shall have an appropriate number of stations with solid state electronic station timing with a 24 hour program clock and a 14 day calendar to start an automatic watering cycle any hour, any day or days over a repeating 14 day cycle. Timer to provide automatic and independently variable timing of 0 to 60 minutes for each station. Controller shall provide for selection of manual, semi-automatic or automatic operation. There shall be no lag time between sections or stations. If the timing mechanism of the controller has to be removed from the field of service, the controller shall be capable of continued manual operation. It shall be possible to make minor timing adjustments to the controller in the field.
 - C. Controller shall have water budgeting feature, cycle and soak feature, sensor input terminal with an internal transformer. Terminal strip connection shall be easily accessible. The controller shall be U.L. listed, 120 volt, 60 Hertz, A.C. type.
 - D. Controller shall be as manufactured by Rain Bird model ESP-12LXM, Hunter Industries model ICC-1200PL or Approved Equal.
 - E. Station quantity shall be minimum of 12.
 - F. Controller shall be located in a lockable, weather resistant cabinet. Coordinate placement within new electric cabinet.
- 2.06 AUTOMATIC RAIN SENSOR

- A. Rain sensor shall be plastic in construction with adjustable interruption point, 1/2-inch IPS threads with wireless transmitter. Rain sensor shall be manufactured by Hunter Industries, model WRC, or Approved Equal.
 - B. Location to be approved in the field with Owner's Representative and Landscape Architect.
 - C. Contractor shall provide batteries for the wireless system. Spare parts to be submitted to the Department of Public Works.
- 2.07 AIR HOSE CONNECTION: Provide a one inch quick coupling valve air hose connection of an approved design installed on the discharge side of the back flow preventer through the master valve at a location inside the water cabinet approved by the Landscape Architect so that the entire system, or parts thereof, can be drained by blowing it out with compressed air.
- 2.08 ELECTRICAL ITEMS: All electrical items shall be new and UL approved. Wire shall be type UF, single conductor, solid copper, plastic insulated, underground feeder cable and of the size required (14 gauge minimum) to meet current requirements, lengths of runs and operating pressure without excessive voltage drop. Wire type and method of installation shall be in accordance with local codes for NEC Class II circuits of 30V ac or less. Wire shall be color coded white (common) and red or black (control). Provide input and output surge protection devices. Make splices with Penetite (PY) splice kits or equal.

PART 3 - EXECUTION

3.01 GENERAL

- A. Construct the irrigation system to the sizes and at the locations indicated on the approved shop drawings.

3.02 EXCAVATING AND BACKFILLING

- A. Excavating, backfilling and compaction required for proper installation of the work shall be in accordance with the requirements of Section 02300, EARTHWORK, of these Specifications except as herein modified.
- B. Keep trenches free of obstruction and debris that would tend to damage pipe. Trenches for pipe shall be straight with bottoms on uniform slopes to drainage points. Unless otherwise indicated, required by law, or not possible, provide the following minimum cover, measuring from the top of the pipe to finish grade.

<u>Location</u>	<u>Minimum Cover</u>
Under roads and walks	24 inches
All other	18 inches
Water supply pipe	60 inches

- C. Do not cover or enclose work until it has been inspected, tested and approved. All backfill material shall be free from rock, large stones or other unsuitable substances that may cause damage to the pipe. Backfill placed within 4 inches of pipe shall have 100% of the material passing a 1/4 inch sieve. Backfill trenches when the pipe is cool to avoid excessive contraction in cold weather. Backfill in 6 inch maximum layers and compact to 95% compaction by thoroughly flooding and drying backfill twice.

3.03 WATER SOURCE

- A. **ALTERNATE #1:** Irrigation system shall connect to Rain Harvester System for water source. See Drawing C-2.

3.04 INSTALLATION

- A. Connect pipe at point of connection inside water cabinet in location approved by Landscape Architect. Provide all offsets, bends, etc., as required to properly install the system. Make all offsets, bends, reductions, etc., with factory manufactured long radius fittings of strength, finish, etc., corresponding to that of adjacent pipe. Bending of pipe is not acceptable. Make provisions for expansion and contraction when installing pipe.
- B. Install backflow preventer inside water cabinet upstream of shut off valve in an accessible location to facilitate inspection and servicing. Install a minimum of 12 inches above the elevation of the highest sprinkler head. Install air hose connection inside water cabinet on sprinkler head side of shut off valve.
- C. Carefully inspect all pipe before and after it is installed. Defective pipe will be rejected. Make adjustments to line and grade by scraping away or filling in under pipe body. Lay pipe at a slight slope to minimize low points. Do not lay pipe in water or mud.
- D. Cap or plug all openings as soon as lines have been installed to prevent the entrance of foreign materials. Remove only as necessary to complete installation. Keeps ends of pipe securely capped until connections are made.
- E. Saw cut pipe to measurements established with square ends, reamed and clean of all particles, curls or burrs on inside and outside of cut edge. Use hacksaw or tube cutter designed for copper work. Make the interior of the pipe and all joint surfaces clean and free of foreign matter before joining pipe.
- F. Assemble the system so that all joints are watertight and all heads plumb. Install pipe in a manner providing for expansion and contraction as recommended by manufacturer. Install plastic pipe according to manufacturer's instructions.
- G. Clean surfaces to be soldered with extra fine wet/dry sandpaper. Do not use steel wool. Clean until all discoloration is removed and the metal is bright and smooth. Remove oxides by sand cloth, brush, etc. Removal of oxides or discoloration of pipe and fittings by acids or self cleaning flux is not permitted. Join fittings with a thin, uniform and complete coating of solder and non-corrosive flux to the cleaned surfaces of the tube and fittings. Combination flux and solder is not acceptable. When joints are soldered, remove excess solder with a cloth or brush leaving a fillet of solder in the chamber at the end of the fitting. Leave all piping plumb and true and within proper pitch for draining after soldering.
- H. Make all connections between plastic pipe and metal valves or pipe with threaded fittings. Apply a non-hardening pipe dope equal to Bakerseal to male threads.
- I. Solvent weld joints in accordance with manufacturer's instructions. Wipe pipe and fittings free of all excess solvent. Obtain tight, inseparable joints. Allow joints to cure at least 24 hours at temperature over 40 degrees F.
- J. Snake pipe in the trench before backfilling. In trenches where the pipe temperature exceeds 90 degrees F., cover the pipe with a minimum of 6 inches of loose backfill, cure for 48 hours after completion of the last weld and flush water through the pipe until the discharge temperature is below 90 degree F., before the hydrostatic test is made.
- K. Pipe clearances: Maintain a 6 inch minimum horizontal clearance between irrigation lines in the same trench, and a 2 inch minimum vertical clearance between pipes which cross over each other. Lay no pipes within 12 inches of other utilities. No pipes are permitted parallel to or directly over another pipe.
- L. Provide suitable concrete thrust blocks wherever tees and elbows are installed in the main line assembly, at points of connection to main lines and as recommended by pipe manufacturer. Pour thrust blocks so that all sides subject to thrust or load are against undisturbed earth. Sides not subject to thrust may be formed.
- M. Install automatic drain valves at low points of non-pressure lines wherever necessary to insure complete drainage of zone lines. Install manual drain valves at low points of pressure mains. Valves shall discharge into gravel drainage layer of planter over roof and into drainage pits consisting of one cubic foot minimum of 1/2 inch crushed stone wrapped in filter fabric in other locations.

- N. Install remote control valves. Group together where practical. Place no closer than 12 inches to walls. House in valve boxes with tops set flush with finish grade. Clean and test the interiors of valves for opening and closing before setting. Set valves with stems plumb and perpendicular. Do not allow valve boxes to rest on pipes.
- O. Adjust sprinkler heads again as required after lawns and planting have been accepted. Set risers plumb and perpendicular.
- P. Install controller at location approved by Landscape Architect. Connect remote control valves to new controller in a clockwise sequence to correspond to station setting. Bury all wires beside pipe. Bundle multiple wires and tape together at not over 10 foot intervals. Provide a 12 inch expansion coil of wire at each valve to which controls are connected. In addition, provide 12 inch expansion coils in wires at not over 50 foot intervals.
- Q. Electrical installation: Make connections to electrical system as required for proper operation of the automatic control system. Electrical installations shall be in accordance with NEC requirements. Provide conduit where control circuitry passes through site walls and beneath paving. Install wires in all other locations in the pipe trench protected by the pipe wherever possible. Make wall sleeves tight to preclude drainage water. Solder all wire splices or join by positive mechanical connectors. Properly insulate splices. Make all splices waterproof and only at valve connections.

END OF SECTION

SECTION 02930
PLANTING

PART 1 - GENERAL

1.01 PROVISIONS INCLUDED

- A. The conditions and general requirements of the Contract, Division 0 and applicable parts of Division 1, apply to the work under this Section.

1.02 SUMMARY

- A. Provide all labor, equipment, implements and materials required to furnish, install, construct and perform all site improvements complete as shown on the Drawings and specified herein.
- B. To be included, but not limited to the following:
 - 1. Preparation of final sub-grade in planting areas
 - 2. Preparation and placement of Planting Soil.
 - 3. Fiber Reinforcement for Steep Slopes
 - 4. finish grading
 - 5. planting
 - 6. mulching
 - 7. sodding
 - 8. guarantee

1.03 REFERENCES

- A. Except as modified by governing codes and by the Contract Documents, comply with applicable provisions and recommendations of the following
 - 1. MassDOT (Massachusetts Department of Transportation) formerly Massachusetts Highway Department (MHD) Standard Specifications (for Highways and Bridges), latest edition, including all addenda.
 - 2. ASSHTO: American Association of State Highway and Transportation Officials, latest edition.
 - 3. ASTM International: American Society for Testing and Materials International, latest edition.
 - 2. American Association of Nurserymen, American Standards for Nursery Stock, (ANSI Z60.1), latest edition, published by the American Association of Nurserymen, 1250 I Street, N.W., Suite 500 Washington, D.C. 20005.
 - 4. ANSI: American National Standards Institute.
 - 5. AOAC: Association of Official Agricultural Chemists.
 - 6. USDA: United States Department of Agriculture.

1.04 SUBMITTALS

- A. Provide all submittals called for on the Drawings and as specified and in accordance with applicable requirements under Division 1, Section 01110 – Control of Work and Materials.
- B. Product Data: submit manufacturer's specifications and installation instructions for:
 - 1. Fiber Reinforcement
 - 2. Pre Planting Fertilizer
 - 3. Post Planting Fertilizer
 - 4. Antidesiccant

5. Soil Amendments: If requested, furnish Landscape Architect with duplicate copies of invoices for soil amendments used. Sampling and testing of each lot will be at the discretion of Landscape Architect. If and when bulk delivery and/or custom mixing of soil amendments is authorized, provide Landscape Architect with written notarized affidavit certifying the weight, analysis, name of manufacturer and warranty for each item.
- D. Samples: submit material, color, and/or finish samples as required for selection/confirmation:
1. Base Topsoil
 2. Organic Amendment Materials
 3. Sand for Root Zone Medium
 4. Fiber Reinforcement
 5. Bark Mulch
 6. Anchoring Assemblies
- E. Certificates: submit material certificates signed by material producer and Contractor. Provide certifications stating materials comply with requirements.
1. Submit certification of Massachusetts state arborist.
- E. Test Reports for Topsoil, Planting Soil and Subsoil: Submit sample from each proposed source for testing and approval. Deliver samples to testing laboratory and pay costs. Send testing report directly to Landscape Architect.
1. Inform testing agency soil test is for both tree, shrub and lawn planting.
 2. Mechanical and chemical analysis shall be conducted by a public extension service agency or a certified private testing laboratory in accordance with the current "standards" of the Association of Official Agriculture Chemists.
 3. Test soil for agricultural suitability analysis including:
 - a. particle size and characteristics
 - b. soil pH by water pH and buffer (smp) pH tests.
 - c. percentage organic content
 - d. nitrate nitrogen
 - e. ammonium nitrogen
 - f. phosphorus
 - g. potassium
 - h. calcium
 - i. aluminum
 - j. magnesium
 - k. manganese
 - l. Micronutrients
 - m. Toxins including but not limited to lead, cadmium, arsenic and mercury.
 4. Tests shall be by combined hydrometer and wet sieving in compliance with ASTM D422 after destruction of organic matter by ignition.
 5. Test results: test data and recommendations for soil amendments including but not limited to: nitrogen, phosphorus, potassium and limestone.
- G. Plant List:
1. Within 30 days of receipt of Contract, submit plant list for review by Landscape Architect which includes:

- a. Plant materials proposed for project and corresponding nursery source where plants are to be selected.
 - b. Written documentation indicating nursery(s) have (or will have) available the plants in the species, quantity and size(s) shown on Drawings at the time that planting is scheduled to take place
2. Schedule for review at nursery source by Landscape Architect with Contractor present.
3. Substitutions will not be permitted unless authorized in writing by landscape architect. A plant list must be submitted indicating unavailable materials and document a thorough search for materials. For unavailable materials, list sources contacted with telephone number, date and person's name at source.

G. Maintenance Manual:

1. Provide a maintenance manual to Owner describing operations for on-going upkeep of the installed plants. The manual shall address itself to specified types and uses of plants installed, and provide information for care of both newly installed plants and long-term maintenance.
2. Provide specific information on the following items:
 - a. Watering: Watering season; diagnosis of watering need; frequency of watering; amount; time of day; methods and equipment; equipment maintenance.
 - b. Fertilization: Fertilizing seasons; analysis for fertilizer selection; application rates and methods; preparation and conditions; application times; application equipment; post-application operations and care; precautions for fertilizer use.
 - c. Liming: Liming season; analysis for liming; application rate; method and equipment for application.
 - d. Pruning: Pruning goals and purposes; methods and techniques (relate to species); equipment; season; cleanup and disposal; precautions.
 - e. Mulching of beds: Depths of mulch; refreshment and replacement of mulch.
 - f. Miscellaneous plant maintenance: Weeding and weed control; pest and disease control; leaf and litter removal; bed edging; professional assistance for plant care; and plant replacement as necessary.
3. Include a month-by-month calendar of maintenance procedures, indicating operations listed above.
4. Submit a copy of maintenance manual to Owner's Representative for approval. Submit prior to planting completion. Owner's Representative may request revisions to manual to meet intent of project design.
5. Submit three copies of manual to Owner at acceptance meeting for planting work. Acceptance shall not be granted until manual has been submitted and approved.

1.05 QUALITY ASSURANCE

- A. As required per SECTION 01110 – Control of Work and Materials
- B. GUARANTEE: The Contractor shall guarantee Lawns, shrubs, and perennials that for a period of one year and trees for two years after Acceptance.

- C. Perform fine grading and planting under the constant supervision of a qualified foreman with personnel familiar with the accepted procedure of soil preparation and planting.

D. SELECTION AND INSPECTION OF PLANTS

- A. Plants shall be selected by Landscape Architect at place of growth for conformity to specification requirements as to quality, size and variety. Such approval shall not impair right of inspection and rejection upon delivery at site or during progress of work. Cost of replacement shall be borne by Contractor.
- B. Notify Landscape Architect in writing upon selection of planting subcontractor. State name, address, telephone number and supervisor for planting subcontractor.
- C. Schedule selection and tagging of nursery stock so Landscape Architect can tag trees and representative shrubs for project at place of growth. Advise Landscape Architect of schedule a minimum of one month (30 day minimum) in advance of selection/tagging dates so Landscape Architect and Owner can make proper travel arrangements.
- D. Contractor to pay for Landscape Architect's travel expenses from Somerville, MA: air fare, car rental, automobile mileage and tolls; meals and overnight accommodations if necessary, for Landscape Architect's during time period required to select and tag plant material. If Landscape Architect has to make additional trips to select/tag plants in the event that inadequate, insufficient or unacceptable plant material was available at the inspection location, then additional travel expenses to be back-charged to Contractor. If Contractor fails to provide one-month (30 day minimum) notice, any additional travel expenses shall be back-charged to Contractor.
- E. Planting subcontractor shall provide representative to travel with Landscape Architect while tagging plant material.
- F. Notify Landscape Architect a minimum of three business days prior to proposed arrival of plant material on site.
- G. Arrange for adequate manpower and equipment on site at time of plant material inspection and installation to provide complete staked layout and to unload, open and handle plant material during inspection.

1.06 PRODUCT HANDLING AND STORAGE

- A. As required per SECTION 01110 – Control of Work and Materials
- B. Deliver manufactured materials to the job in original, grade sealed containers with legible labels and seals unbroken until ready for use. Remove from containers only at time of installation. Keep protected and dry. Protect materials from direct sunlight.
- C. Do not deliver TOPSOIL or PLANTING SOIL to the site until soil analysis has been approved by the Landscape Architect. Do not deliver topsoil or planting soil to the site in a frozen or muddy condition.
- D. Deliver all SOIL AMENDMENTS to the site in manufacturer's standard containers showing weight, analysis, name of manufacturer and warranty. Append a summary of this product information to each invoice. Store in a weatherproof storage place in such a manner that they will be kept dry and their effectiveness not impaired. Caked or otherwise damaged soil amendments shall be rejected.
- E. PLANT MATERIAL
 - 1. Immediately before digging spray all plant material in full leaf with Antidesiccant, applying an adequate film over trunks, branches, twigs and foliage. Do not prune plants before delivery.

2. Dig, ball and burlap (B&B) plants with firm natural balls of earth of diameter not less than that recommended by ASNS, and of sufficient depth to include the fibrous and feeding roots. Dig balls for collected material at least 1/3 greater in diameter than above.
3. Do not remove container grown material from containers until ready for planting.
4. Label all plants with durable, legible labels stating the correct plant name and size using weather resistant ink or embossed process. Attach securely to all plants, bundles and containers of plant material delivered being careful that those attached directly to plants will not restrict growth.
5. Dig and prepare plants for shipment in a manner that will not cause damage to branches, shape and future development of the plants after replanting. Cover all plant material while in transit.
6. Protect plants at all times from sun and drying winds. Keep plants that cannot be planted immediately upon delivery in the shade, well protected with soil, wet moss or other acceptable material and keep well watered. Plants shall not remain unplanted for longer than 3 days after delivery.
7. Do not bind plants with wire or rope at any time so as to damage the bark or break branches. Lift and handle plants from the bottom of ball only. Plants with cracked or broken balls before or during planting operations shall be rejected.

1.07 SITE CONDITIONS

- A. As required per SECTION 01110 – Control of Work and Materials

PART 2 - MATERIALS

2.01 BASE TOPSOIL

- A. Base Topsoil shall be existing topsoil stripped and stockpiled at the site or shall be imported. Stripped topsoil shall be sampled and tested for grains size distribution and organic content according to tests as specified. Test results shall be reported to the Soil Scientist who may make minor adjustments to specified approximate mixing ratios and mix requirements for each mix type.
- B. Imported Topsoil, as may be required to meet project requirements, shall be taken from a well-drained, arable site, and shall be free of subsoil, large stones, earth clods, sticks, stumps, clay lumps, roots or other objectionable, extraneous matter or debris. Base Topsoil shall also be free of quack-grass rhizomes, *Agropyron Repens*, and the nut-like tubers of nutgrass, *Cyperus Esculentus*, and all other primary noxious weeds. Imported Base Topsoil shall not be delivered or used for planting while in a frozen or muddy condition. Imported Topsoil shall conform to the following grain size distribution for material passing a Number 10 Sieve and following additional requirements:

<u>U.S. Sieve No.</u>	<u>% Passing by Weight</u>	
	<u>Minimum</u>	<u>Maximum</u>
10	100	-
18	85	100
35	60	85
60	40	60
140	32	48
270	26	40
0.002 mm	4	10

- C. Maximum size shall be one-inch largest dimension. The maximum retained on the #10 sieve shall be 20% by weight of the total sample.

- D. The ratio of the particle size for 80% passing (D₈₀) to the particle size for 30% passing (D₃₀) shall be 5.0 or less. (D₈₀/D₃₀ < 5.0)
- E. The organic content shall be between 3.5 and 6.0 percent by weight.

2.02 ORGANIC AMENDMENT MATERIALS (COMPOST):

- A. Organic Material (Compost) as Amendment For Soil Mixes:
 - 1. Compost for amending planting media shall be a stable, humus-like material produced from the aerobic decomposition of biosolid residues. The residues shall consist of compost meeting MA DEP Type 1 requirements or approved equal. The compost shall be a dark brown to black color and be capable of supporting plant growth with appropriate management practices in conjunction with addition of fertilizer and other amendments as applicable, with no visible free water or dust, with no unpleasant odor, and meeting the following criteria as reported by the producer.
 - a. The ratio of carbon to nitrogen shall be in the range of 12:1 to 25:1.
 - b. Stability shall be assessed by the Solvita procedure. Protocols are specified by the Solvita manual (version 4.0). The compost must achieve a maturity index of 6 or more as measured by the Solvita scale. Stability tests shall be conducted by Woods End Research Laboratory, Mt. Vernon, Maine.
 - c. Pathogens/Metals/Vector Attraction reduction shall meet 40 CFR Part 503 rule, Table 3, page 9392, Vol. 58 No. 32, and Commonwealth of Massachusetts 310 CMR 32.00 (for applications to soils with human activity).
 - d. Organic Content shall be at least 40 percent (dry weight). One hundred percent of the material shall pass a 3/8-inch (or smaller) screen. Debris such as metal, glass, plastic, wood (other than residual chips), asphalt or masonry shall not be visible and shall not exceed one percent dry weight. Organic content shall be determined by weight loss on ignition for particles passing a number 10 sieve according to procedures performed by the West Experiment Station at the University of Massachusetts, Amherst or equal as follows. A 50-cc sub-sample of the screened and mixed compost is ground to pass the number 60 sieve. Two to three grams ($\pm$ 0.001g) of ground sample, dried to a constant weight at 105 degrees C is placed into a muffle furnace. The temperature is slowly raised (5C/minute) to 450C and maintained for three hours. The sample is removed to an oven to equilibrate at 105C and the weight is taken. Organic matter is calculated as loss on ignition.
 - e. pH: The pH shall be between 5.5 to 7.2 as determined from a 1:1 soil-distilled water suspension using a glass electrode pH meter American Society of Agronomy *Methods of Soil Analysis*, Part 2, 1986.
 - f. Salinity: Electrical conductivity of a one to five compost to water ratio extract shall not exceed 2.0 mmhos/cm (dS/m).
 - g. The compost shall be screened to 3/8 inch maximum particle size and shall contain not more than 3 percent material finer than 0.002mm as determined by hydrometer test on ashed material. The compost shall have a texture suitable for incorporation without causing loss of hydraulic conductivity of the soil mix.
 - h. Nutrient content shall be determined by the University of Massachusetts Soil Testing Laboratory or equivalent laboratory and utilized to evaluate soil required amendments for the mixed soils. Chemical analysis shall be undertaken for Nitrate Nitrogen, Ammonium Nitrogen, Phosphorus, Potassium, Calcium, Aluminum, Magnesium, Iron, Manganese, Lead, Soluble Salts, Cation Exchange Capacity, soil reaction (pH), and buffer pH.

2.03 SAND FOR ROOT ZONE MEDIUM

- A. Sand for amending topsoil shall be uniformly graded medium to coarse sand consisting of clean, inert

grains of quartz or other durable rock free from topsoil or clay, surface coatings, mica or other deleterious materials with the following gradation.

B. Gradation for Material Passing the Number 10 Sieve:

U.S. Sieve Size Number	<u>% Passing by Weight</u>	
	Minimum	Maximum
10	100	-
18	50	75
35	20	45
80	5	15
140	0	8
270	0	3
0.002mm	0	0.3

B. Maximum size shall be one-inch largest dimension. The maximum retained on the #10 sieve shall be 20% by weight of the total sample.

C. The ratio of the particle size for 70% passing (D₇₀) to the particle size for 20% passing (D₂₀) shall be 3.0 or less. (D₇₀/D₂₀ < 3.0)

2.04 PLANTING BED SOIL

A. On-site Topsoil meeting the requirements specified above shall be combined with imported medium to coarse uniformly-graded Sand and Compost in an approximate mix ratio of one part by volume imported sand to one part by volume topsoil to one part by volume compost, each as specified above, to create a uniform blend which meets the following requirements. (1S:1L:1C)

B. Gradation for Material Passing the Number 10 Sieve:

U.S. Sieve Size Number	<u>% Passing by Weight</u>	
	Minimum	Maximum
10	100	-
18	70	90
35	50	74
60	33	48
140	23	34
270	20	28
0.002mm	4	8

1. Maximum size shall be one inch largest dimension. The maximum retained on the #10 sieve shall be 20% by weight of the total sample.
2. The ratio of the particle size for 80% passing (D₈₀) to the particle size for 30% passing (D₃₀) shall be 6.5 or less. (D₈₀/D₃₀ <6.5)
3. Tests shall be by combined hydrometer and wet sieving in compliance with ASTM D422 after destruction of organic matter by ignition.
4. The saturated hydraulic conductivity of the mix shall be not less than 2 inches per hour according to ASTM D5856-95 (2000) when compacted to a minimum of 86% Standard Proctor, ASTM 698.
5. The organic content shall be between 4.5 and 7.0 percent by weight.

2.05 FIBER REINFORCEMENT FOR STEEP SLOPES

- A. Fiber reinforcement for steep slopes shall be Geofibers supplied and specified by Reed Custom Soils, 888-475-5526, 125 Turnpike Street, Canton, MA 02021 or approved equal.

2.06 SOIL AMENDMENTS

- A. Follow horticultural soil test report recommendations for soil additives for landscape soils.
- B. Superphosphate: finely ground phosphate rock, commonly used for agricultural purposes and shall contain not less than 20 percent available phosphoric acid.
- C. Ground Limestone: dolomitic limestone and contain not less than 50 percent of total carbonates and 25 percent total magnesium with a neutralizing value of at least 100 percent. Material shall be ground to such fineness that 40 percent will pass 100 mesh U.S. standard sieve and 98 percent will pass through 20 mesh U.S. standard sieve.

2.07 EQUIPMENT

- A. Chisel Plow or disk harrow or bucket of backhoe: for subsoil cultivation.
- B. Rotovator or disk harrow: for planting mixture/soil cultivation.

2.08 WATER

- A. Water: furnished by Contractor, unless otherwise specified, and suitable for irrigation and free from ingredients harmful to plant life. Hose and other watering equipment furnished by Contractor.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Verification of Conditions: in the event field conditions are not as shown on Drawings and outlined in the Specifications, notify Owner's Representative in writing.
 1. Spot and Invert Elevations: verify field elevations of site improvements such as drainage and utility fixtures, pavements, existing plantings, and subsurface piping conform to drawings.
 2. Rough grade: verify specified elevations and prior earthwork operations have shaped, trimmed, and finished rough grade.

3.02 PREPARATION

A. Protection:

1. Contractor required to contact Massachusetts One Call Center (ph #1.800632.4949) at least 48 hours (not including weekends or holidays) prior to doing excavation on site. If work is to be done around underground utilities, appropriate authority of utility must be notified of impending work. Hand excavate areas adjacent to utilities. Contractor shall be responsible for damages done by himself or his personnel to existing utilities, which shall be repaired or paid for by Contractor.
2. Prior to installation field locate and protect from damage site improvements such as drainage and utility fixtures, pavements, and existing plantings.
3. Dust Control: upon acceptance of finish grade provide dust control.
4. Erosion Control: upon acceptance of finish grade provide erosion control.
5. Agricultural Chemicals: protect site improvements from contact with agricultural chemicals, soil amendments, and fertilizers.

3.03 PREPARATION OF PLANTING SOIL

- A. Correct deficiencies in soil as directed by soil test results. Thoroughly incorporate amendments into planting mixture to ensure even distribution.
- B. Incorporate pre plant fertilizer at a rate of 30 pounds per cubic yard of planting bed rootzone mix. Amendment rate will be 6 times square foot application rate per cubic yard of planting mixture.

3.04 PLACEMENT OF PLANTING SOIL

- A. After subgrade levels have been reached and drainage enhancement trenches installed, and immediately prior to placing Planting Bed Medium, the entire subgrade area shall be loosened to a minimum depth of four inches utilizing the teeth on the bucket of a backhoe or equivalent equipment.
- A. Planting Bed Medium shall then be spread in lifts not greater than twelve inches and compacted to a density between 82 and 86 percent Standard Proctor Maximum Dry Density. The surface area of each lift shall be scarified by raking prior to placing the next lift.
- B. Place and spread planting medium to a depth greater than required such that after settlement, finished grade conforming to the lines, grades and elevations shown on the Drawings. Ensure proper drainage in an uninterrupted pattern free of hollows and pockets.
- C. Remove stiff clods, lumps, brush, roots, stumps, litter and other foreign material and stones over one inch in diameter and dispose of legally off site.

3.05 SCHEDULE FOR PLANTING AND SODDING

- A. The actual planting and sodding of lawns shall be done only during periods within the season which are normal for such work as determined by weather conditions and by accepted practice in this locality. At the option of, and on the responsibility of the Contractor, planting may be done during unseasonable conditions, or out of season,

without additional compensation subject to the time of work and methods of operation as approved by the Landscape Architect. Plant guarantee periods remain as specified. No frozen ground planting will be allowed.

B. Planting shall be done within the following dates:

- | | | |
|---|-------------|------------------------|
| 1. Deciduous Plants: | Spring: B&B | March 1 to April 30 |
| | Container | March 1 to June 15 |
| | Fall: B&B | Oct. 15 to Dec. 15 |
| | Container | August 15 to Dec. 15 |
| 2. Perennials, Grasses and Ground Covers: | | |
| | Spring: | April 15 to June 30 |
| | Fall: | Sept. 1 to Oct. 30 |
| 3. Sodded lawns shall be done within the following dates: | | |
| 4. Sodding | Spring: | April 1 to May 15 |
| | Fall: | August 15 to October 1 |

3.06 EROSION CONTROL

- A. It shall be the responsibility of the Contractor to render all lawn areas and plant beds erosion free. The Contractor may accomplish this by any of several alternate methods, any of which may be used provided such method is acceptable to the Landscape Architect. Approval of method by Landscape Architect does not free Contractor of responsibility for controlling erosion.

3.07 PLANTING

- A. Inform the Landscape Architect when planting will commence, anticipated delivery date of material and stake locations of all plants and plant beds for approval by the Landscape Architect. Failure to notify the Landscape Architect in advance to arrange proper scheduling, may result in loss of time or removal of any plants not installed as specified or directed.
- B. Install planting soil to depths indicated on the Drawings. Tamp by watering in the soil, adding soil as needed after settling. Once soil is sufficiently dry, spread planting soil smoothly and evenly to meet finish grades. Where no grades are shown, areas shall have a smooth and continual grade between existing or fixed controls and elevations shown on the Drawings. All areas shall slope to drain. Fine grade the bed to remove all ridges and depressions, and clear the surface of all debris and stones one inch or more in diameter. Remove excessive quantities of smaller stones as directed by the Landscape Architect.
1. Do not spread planting soil while either planting soil or subgrade is in an excessively dry, frozen or muddy condition. Uniformly distribute the planting soil to depths indicated on the drawings. Place planting soil only when it can be followed within a reasonable time by planting operations. Remove any weed growth by hand prior to planting. Do not permit weed growth to go to seed.
- C. Excavation of Plant Pits
1. Stake out on the ground locations for plants and obtain approval of Landscape Architect before excavation is begun. Make adjustments in locations as directed.
2. Establish finish grades for plant beds and tree pits. Excavate to depths required and regrade subgrade as necessary. Separate subgrade soils from upper "topsoil" portions and remove subgrade soils immediately wherever encountered during planting operations. Loosen top 6 inches of subgrade in pits and beds

immediately prior to placing planting soil. Sides of plant pits shall be scarified to blend with planting soil mix.

3. If stone, underground construction work, tree roots, poor drainage or obstructions are encountered in the excavation of plant pits, alternate locations may be selected by the Landscape Architect without additional cost. Where locations cannot be changed as determined by the Landscape Architect submit cost required to remove obstructions to a depth of not less than 6 inches below the required pit depth. Proceed with work only after approval of Landscape Architect.
4. Perform drainage test on trees and in representative shrub beds.
 - a. After excavation, fill pit twice successively with water.
 - b. Water shall drain out of plant pit minimum 2 inches per hour.
 - c. Plant pits draining slower than 2 inches per hour will require provision for drainage.
 - d. Documentation: note on the planting plan, pits that pass drainage test and plants that fail drainage test.
5. Notify Landscape Architect in writing of all plant pits without positive drainage or soil conditions which the Contractor considers detrimental to the growth of plant material.

D. Planting Operations

1. Containerized plants shall be removed from containers taking care not to damage roots. The side of the root ball shall be scarified to prevent root-bound condition and plant positioned in planting pit.
2. Set plants in locations as shown on the drawings and as approved by the Landscape Architect. Set plants at the proper height as determined by root flare or base of stems. Remove any soil which over time has been mounded against the trunks of trees or stem bases of shrubs.
3. At this time, ropes or strings on top of ball shall be cut and pulled back. Burlap or cloth wrapping shall be left intact around ball except that portions of wrap that are exposed at top of ball shall be turned under and buried. Non-biodegradable ball wrapping and support wire shall be totally removed from ball and planting pit.
4. Remove nursery plant identification tags.
5. Do not backfill planting beds with planting soil until the exact location of all plants is approved by the Landscape Architect.
6. Mix in Pre Planting Fertilizer with back fill per manufacturer's instructions.
7. Backfill planting soil in layers of not more than 8 inches and tamp each layer before the next layer is placed. When plants have been backfilled approximately 2/3 full, water thoroughly before installing remainder of planting soil to top of pit, eliminating all air pockets. After settlement, the crown of the plant ball shall not be more than one inch lower than the surrounding finish grade. Form saucer around plant pits as indicated on the details.
8. Plant ground cover to within one foot of tree trunks and shrubs newly planted within the area.
9. Mulch immediately after planting operations are completed, covering tree and shrub pits and planting beds with a three inch layer of specified mulch. Taper depth of mulch to be three inches at mulched perimeter and decreasing in depth toward trunk to be flush where trunk or stem meets root ball. Do not place mulch against trunk or stem. Cover tree, shrub and groundcover planting beds with bark mulch.
10. Flood plants with water twice within first 24 hours of time of planting, and water plants during the maintenance period at least twice per week. At each watering thoroughly saturate the soil around each tree or shrub. If sufficient moisture is retained in soil, as determined by Landscape Architect, required watering may be reduced. Each tree will require a minimum of ten gallons of water per watering.

E. Anchoring Assemblies

1. Guy in a taut manner after planting. Plants shall stand plumb after guying.

F. Post Planting Fertilizer

1. Apply Post Planting Fertilizer per manufacturer's instructions, 30 days after planting in planting bed areas.

G. Pruning

1. Prune new plants only at time of planting and in accordance with American Association of Nurserymen standards in such a manner as to preserve the natural character of the plant. Use experienced personnel to perform pruning.
2. Remove all dead wood, suckers and badly bruised or broken branches. Should pruning of damaged branches deform the plant in such a way that it no longer represents the true character of the species, it shall be rejected. In addition, remove approximately 1/4 of all small branching leaf canopy of deciduous plants by thinning out and shortening branches. Do not cut the leader. Trees with leaders removed shall be rejected. Use only clean sharp tools. Make all cuts flush with the trunk or branch using best pruning practices.

3.08 SODDING

- A. Fine grade and sod the designated areas within the limit of work.
- B. Lay the first row of sod in a straight line with the long dimension of strips parallel to the direction of the slope with subsequent rows placed parallel to each other. Stagger lateral joints. Fit sod pieces together tightly so that no joint is visible. Do not stretch or overlap pieces of sod. Tamp sod firmly and evenly by hand or roll with a light weight roller, weighing no more than 150 pounds per foot of roller width, perpendicular to the direction in which sod lengths are laid. Fill all voids between sod pieces with screened topsoil after rolling.
- C. On slopes 3:1 or greater, secure sod by pegging or other approved method. Peg alternate rows of sod with a minimum of 2 pegs per square yard. Drive pegs flush with the surface of the sod with pegs penetrating underlying soil by at least 6".
- D. Water all sod areas immediately with a fine spray after rolling. Water such that the underside of the new sod piece and soil immediately below the sod are thoroughly wet through at least one inch of sod bed below
- E. Cleanup: Upon completion of planting and pruning operations, remove all excess soil and debris from the site and repair any damage caused by these operations.
- F. Post Planting Fertilizer
 1. Apply Post Planting Fertilizer per manufacturer's instructions, 30 days after sodding.

3.09 MAINTENANCE AND PROTECTION

- A. Maintenance and protection of plantings shall begin immediately after each plant is planted and the Landscape Architect has issued the Letter of Substantial Completion. The maintenance period shall continue at least 90 days or until acceptance, whichever is later with the following requirements.
 1. Maintenance of new planting shall consist of pruning, watering, cultivating, weeding, mulching, tightening and repairing of guys, resetting plants to proper grades and/or upright position and restoration of planting saucers.
 2. Furnish and apply such pesticides as necessary to keep these areas free of insect pests and disease. Pesticides shall be approved by the Landscape Architect prior to use. Use in accordance with the specifications of the manufacturer and prevailing Public Health Authority.
 4. Maintain grass plugs by mowing/cutting within first two growing seasons. Mow/cut to 8" when height reaches 12". Mowing/ cutting could be required two or more times during growing season.
 5. Provide temporary protection fences, barriers and signs, where deemed necessary and all other work incidental to proper maintenance. Remove temporary protection devices at the completion of maintenance period.

6. Protect planting areas and plants at all times against trespassing and damage of all kinds for the duration of the maintenance period. If any plants become damaged or injured, treat or replace them as directed by the Landscape Architect at no additional cost to the Owner.
 7. The Owner will be responsible for the maintenance of new planting upon acceptance of the work, continuing through the guarantee period.
- B. Maintenance and protection of new sod lawns shall begin immediately after sodding and the Landscape Architect has issued a letter of Substantial Completion. The maintenance period shall continue at least 90 days or until acceptance, whichever is later with the following requirements.
1. Keep sod moist during the first week after planting and maintain moist soil to a depth of at least 4 inches. After the first week supplement natural rainfall to produce a total of 2 inches per week. Water lawns at least twice per week until acceptance. Do not over water.
 2. Do not attempt first mowing until sod areas are firmly rooted and secure in place. Do not remove more than 40% of the grass leaf in initial or subsequent mowing. Maintain grass at 2 inches in height. Remove grass clippings. Provide at least three mowings and as many as necessary before acceptance.
 3. Maintenance of lawn areas shall consist of watering, weeding, cutting, and raking of leaves. Re-sod areas greater than one square foot which fail to show a uniform stand of grass. To be acceptable, a stand of grass shall have a uniform count of at least 100 live plants per square foot.
 4. Upon acceptance of the work, the Contractor shall be relieved of further responsibility for care and maintenance of the accepted areas. The Owner will be responsible for the maintenance of new lawns upon acceptance of the work, and continuing through the guarantee period.

3.10 INSPECTION AND ACCEPTANCE

- A. At the end of the maintenance and protection period, submit a written request to the Landscape Architect to inspect all work for acceptance at least 10 calendar days before the anticipated date of inspection.
- B. Acceptance of plant material by the Landscape Architect shall be for general conformance to the specified size, character and quality and shall not relieve the Contractor of responsibility for full conformance to the Contract Documents including correct species.
- C. If a substantial number of plants are sickly or dead at the time of inspection, acceptance will not be granted, and the Contractor's responsibility for maintenance of all plants shall be extended until replacements are made. Replacements shall conform in all respects to the Specifications for new plants and shall be planted in the same manner.
- D. Upon acceptance of the work, the Contractor shall be relieved of further responsibility for care and maintenance of the accepted areas. The Owner will be responsible for the maintenance of new planting upon acceptance of the work, and continuing through the guarantee period.

3.11 GUARANTEE PERIOD AND REPLACEMENTS

- A. Lawns, shrubs, and perennials shall be guaranteed for a period of one calendar year after inspection and acceptance and shall be alive and in satisfactory growth at the end of the guarantee period. Trees 2" caliper or greater shall be guaranteed for a period of two calendar years after inspection and acceptance.
- B. Replace without cost to the Owner, and as soon as weather permits, and within a specified planting period, all dead plants and all plants not in a vigorous, thriving condition, as determined by the Landscape Architect during and at the end of the guarantee period. Plants shall be free of dead or dying branches and branch tips, and shall bear foliage of a normal density, size and color. Replacements shall closely match adjacent specimens of the same species. Replacements shall be subject to all requirements stated in this Specification. Make all necessary repairs due to plant replacements at no additional cost to the Owner.

- C. The guarantee of all replacement plants shall extend for an additional period of one year from the date of their acceptance after replacement. In the event that a replacement plant is not acceptable during or at the end of said extended guarantee period, the Owner may elect subsequent replacement or credit for each item.
- D. Make periodic inspections as necessary, at no extra cost to the Owner, during the guarantee period to determine what changes, if any, should be made to the Owner's maintenance program. Submit in writing to the Landscape Architect and Owner any recommended changes.

3.12 FINAL INSPECTION AND ACCEPTANCE

- A. At the end of the guarantee period, submit a written request to the Landscape Architect to inspect all guaranteed work for final acceptance at least 10 calendar days before the anticipated date for final inspection. Upon the Landscape Architect's review of work and finds it complete and in accordance with Drawings and Specifications, the Landscape Architect will issue the Letter of Final Acceptance, at which time project becomes responsibility of Owner.

END OF SECTION

SECTION 03300
CAST-IN-PLACE CONCRETE

PART 1 - GENERAL

1.01 PROVISIONS INCLUDED

- A. The conditions and general requirements of the Contract, Division 0 and applicable parts of Division 1, apply to the work under this Section.

1.02 SUMMARY

- A. Provide all labor, equipment, implements and materials required to furnish, install, construct and perform all site improvements complete as shown on the Drawings and specified herein.

- B. To be included, but not limited to the following:

1. Planter Wall
2. Concrete Footings, Bases and Pads
3. Concrete Paving (02500 Site Paving)

1.03 REFERENCES

- A. Except as modified by governing codes and by the Contract Documents, comply with applicable provisions and recommendations of the following

1. American Concrete Institute (ACI)
2. American Society for Testing and Materials (ASTM)
3. Concrete Reinforcing Steel Institute (CRSI)
4. CRSI - Manual of Standard Practice.
5. AASHTO: American Association of State Highway and Transportation Officials
6. MHD: "Standard Specifications for Highway and Bridges," Massachusetts Highway Department (formerly Massachusetts Department of Public Works), Commonwealth of Massachusetts, latest edition and all supplements.
7. The Americans with Disabilities Act (ADA)
8. MAAB: Massachusetts Architectural Access Board.

1.04 SUBMITTALS

- A. Provide complete Shop Drawings and/or samples and catalog cuts for all items called for on the Drawings and as specified and in accordance with applicable requirements under Division 1.

- B. Product Data: submit manufacturer's specifications and installation instructions for:

1. Concrete design mix
2. Admixtures, each type
3. Curing compounds
4. Nonshrink grout
5. Preformed joint filler
6. Sieve analysis of aggregates
7. Waterproof curing paper

- D. Samples: submit material, color, and/or finish samples as required for selection/confirmation:

1. Preformed joint filler

- E. Certificates: submit material certificates signed by material producer and Contractor. Provide certifications stating materials comply with requirements.

1. Cementitious materials;
2. Steel reinforcement and reinforcement accessories;

3. Fiber reinforcement;
4. Admixtures;
5. Curing compounds
6. Applied finish materials;
7. Joint fillers

1.06 TESTING

- A. DESIGN OF CONCRETE MIX shall be certified by independent testing laboratory. Statement of materials constituting design of mixes (as required by referenced standards) shall be submitted for Owner's Representative's approval within one week following award of Contract.
1. Concrete mix design shall include the following information:
 - a. Proportions of cement, fine and coarse aggregate, and water.
 - b. Water-cement ratio, design strength, slump, and air content.
 - c. Type of cement and aggregates.
 - d. Type and dosage of admixtures.
 - e. Special requirements for pumping.
 - f. Range of ambient temperature and humidity for which the design is valid.
 - g. Special characteristics of mix which require precautions in mixing, placing, finishing, or curing methods to achieve finished product specified.
 2. No concrete shall be delivered to job site until Owner's Representative has approved design mixes.
- B. STANDARD TEST CYLINDERS to determine the compressive strength of the concrete as mixed for the work shall be made by the Contractor in the presence of the Landscape architect at the site. In addition to furnishing the concrete for the test specimens, the Contractor shall furnish approved cylindrical molds (6" x 12") and assist in sampling, fabricating, protecting and curing the specimens. A test cylinder may be ordered from each day's concrete. The Contractor shall include the cost of test cylinders under his base bid.

PART 2 - MATERIALS

2.01 FORMS

- A. Cylindrical Forms: Sonotube Fibre Forms, wax-impregnated strippable forms manufactured by Sonoco Products Company, General Products Division or approved equal, or ABS or PVC plastic reusable forms.
- B. Forms for Exposed Finish: Plywood, metal, metal-framed plywood faced, or other acceptable panel materials. Plywood shall be APA Ref. 1 B-B (Concrete Form), Class I Exterior Grade plywood or B-B or A-C Class I high density overlay concrete form plywood. Formwork materials shall produce smooth, continuous, straight and level surfaces.
- C. Forms for Unexposed Finish: Plywood, lumber or metal, with lumber dressed on at least two edges and one side.
- D. Form Ties: Provide prefabricated, adjustable length galvanized steel snap-off ties, with brackets, cones, come docks and other accessories.
- E. Form Coatings: Commercial formulation compounds that will not bond with, stain or adversely affect concrete.
- F. Forms shall be true to line and free from warp, and shall be of sufficient strength, when staked, to resist the pressure of the concrete without springing. Formwork shall be designed so that sections may be fastened together to prevent vertical or horizontal movement of ends.

2.02 CONCRETE MIX

- A. Concrete: air-entrained type, conforming to ASTM C 94. One copy of Certificate of Delivery required by ASTM C 94 shall be delivered to Owner's Representative immediately upon arrival of each load of concrete at site.
- B. Unless otherwise indicated on Drawings, minimum 28-day compressive strength shall be 4,000 psi.
- C. Concrete slump shall be no less than 2 in. nor greater than 4 in., determined in accordance with ASTM C 143.
- D. Air content by volume shall be 3 to 6%, and shall be tested in accordance with ASTM C 231. "Relative durability factor" of concrete containing air-entrainment admixture shall be at least 90.
- E. Concrete shall contain a water reducing agent to minimize water-cement ratio of mix, at specified slump.
- F. No calcium chloride or admixtures containing calcium chloride shall be added to Concrete. No admixtures other than those specified shall be used in concrete without specific written permission of Owner's Representative.
- G. No additional water, except for amount indicated by design mix shall be added to concrete without prior permission of Owner's Representative.
- H. No concrete shall be placed by pumping methods without prior written approval of Owner's Representative. Should Contractor be allowed to place concrete by pumping methods, pumping procedures, mix design of concrete, and other precautions shall be in accordance with ACI 304 and subject to review by Owner's Representative.

2.03 REINFORCING

- A. Steel reinforcing bars shall conform to ASTM A 615.
 - 1. Bars employed as reinforcement shall be deformed type.
 - 2. Bars employed as dowels where indicated on the Drawings shall be hot-rolled plain rounds.
 - 3. Unless otherwise indicated on the Drawings, reinforcing bars shall be Grade 60.
- B. Welded wire fabric reinforcement shall conform to applicable requirements of ASTM A185. Furnish fabric reinforcement in flat sheets. Fabric reinforcement in rolls will not be permitted.

2.04 CEMENT

- A. Cement: approved brand of American manufactured Portland cement, conforming to ASTM C 150, Type I or II. "Submit manufacturer's name and type of cement for Owner's Representative's approval.
- B. Only one color of cement, all from same manufacturer, shall be used for work.
- C. Do not use Type III cement without Owner's Representative's approval.

2.05 ADMIXTURES

- A. Except as otherwise specified, use of concrete admixtures shall conform to ACI 212.
- B. Admixtures employed shall be produced and serviced by established, reputable manufacturer and used in compliance with manufacturer's recommendations.
- C. Air entraining agent shall conform to ASTM C 260 and shall be "Daravair" or "Darex AEA", manufactured by W.R. Grace & Company; "Airmix" or "Perma-Air", manufactured by The Euclid Chemical Co.; "MB-WR", manufactured by Master Builder's Co., or an approved equal product.

1. When a high range water reducing (HRWR) admixture is used, air-entraining admixture shall be a neutralized vinsol resin solution.
 2. When requested by the Owner's Representative, furnish certification attesting to compliance with these specifications.
- D. Water reducing agent: conform to ASTM C 494, Type A and shall contain no more than 0.05% chloride ions. Water reducing agent: "WRDA with Hycol", manufactured by W.R. Grace & Company;, "Eucon WR-75" manufactured by The Euclid Chemical Co.; "Pozzolith 200N", manufactured by Master Builders's Co., or approved equal product.
1. Water reducing agent: manufactured by same manufacturer as air-entraining agent.
- E. Water reducing agent-retarder: conform to ASTM C 494, Type D and be "Daratard-40", manufactured by W.R. Grace & Company, or an approved equal product.
- F. Fly ash: conform to ASTM C 618, equal to TPA, manufactured by the Trinity Division of General Portland Inc., may be used in non-architecturally exposed concrete. Carbon content shall not exceed 3% by volume.
1. Submit certification attesting to the carbon content and compliance with ASTM C 618.
 2. Maximum replacement of cement with fly ash shall be 15% by weight.
- G. Superplasticizers: Where permitted by Owner's Representative and where indicated in approved concrete design mix, a high-range water-reducing (HRWR) admixture (superplasticizers) complying with ASTM C 494, Type F or Type G, and containing more than 0.05% chloride ions, may be used subject to the following requirements:
1. When a high range water-reducing admixture is used, the air-entraining admixture shall be a neutralized vinsol resin solution.
 2. Concrete shall arrive at the jobsite having a slump conforming to the requirements specified in Paragraph 2.01. HRWR shall be added after the concrete has been thoroughly mixed and the desired initial slump has been achieved.
 3. Water to cement ratio shall not exceed 5.0 gal/cwt (0.42 weight basis).
 4. Pretesting of the concrete shall be performed under guidance of admixture manufacturer's representative to determine dosage, addition times, and compatibility with other admixtures and mixture constituents.
 5. HRWR shall be added at job site and shall be dispensed to truck mixer using automatic dispensing equipment which accurately measured dosage.
 6. Slump after addition of HRWR to concrete shall be no greater than is necessary for proper placement and compaction and shall in no case exceed 7 in.
 7. Air tests shall be run on admixed concrete as placed, and air content shall be within specified limits.
 8. HRWR admixture: "Melment", manufactured by American Admixtures Corp., Chicago, IL; "WRDA-19", manufactured by W. R. Grace & Co.; "Daracem 100", manufactured by W.R. Grace & Co.; "Eucon 37", manufactured by The Euclid Chemical Co.; "Sikament", manufactured by Sika Chemical Co., or approved equal.
 9. Dosage as determined by mix design.

2.06 AGGREGATE

- A. Except as otherwise noted, aggregate shall conform to ASTM C 33.
- B. Maximum size aggregate for sections 16 in. or greater in thickness shall be 1-1/2 in. Maximum size aggregate for sections less than 16 in. thick shall be 3/4-in.
- C. Maximum size of aggregate shall in no case exceed that permitted by ACI 318.

2.07 WATER

- A. Water shall conform to ASTM C 94, Section 4.1.3.

2.08 GROUT

- A. Grout shall be mixed in the proportions of one part Portland cement to two parts sand, by volume. Only sufficient water shall be used to enable grout to barely hold its shape when squeezed into a ball in the hand. Sand for grout shall be ASTM C 33 Fine Aggregate.
- B. Nonshrink grout shall be pre-mixed non-shrinking, high strength grout. Compressive strength in 28 days shall be 5,000 psi minimum, but in no case less than the specified strength of the adjacent concrete. Manufacturer shall provide evidence that the material meets the requirements of the COE CRD-C 621 (558). Grout permanently exposed to view shall be nonoxidizing; metallic grout may be used in other locations.

- 1. Nonshrink grout shall be one of the following, or approved equal:

Manufacturer	Product
Gifford-Hill CO	Supreme
Master Builders Co.	Embeco
U.S. Grout Corporation	Five Star Grout

2.09 CURING MATERIALS

- A. Curing shall be by moist curing. Refer to Section 03300, Par 3.12 for curing procedures.
- B. Curing paper shall be a non-staining, fiber reinforced laminated kraft bituminous product conforming to ASTM C 171. Four mil polyethylene sheeting may be substituted for curing paper.
- C. Curing, Sealing, and Hardening of Interior Concrete Floors/Slabs not Scheduled to receive Finish Floor Material: All Portland cement concrete floors/slabs and aprons in buildings not scheduled to receive applied finishes such as vinyl composition floor tile, shall be cured, sealed and hardened by two applications of "Ashford Formula", manufactured by Curecrete Chemical Company, Inc., Springville, UT 84663-0551; or approved equal. Apply after wet cure is completed.

2.10 BONDING AGENT

- A. Bonding agent for adhering fresh concrete to old shall be Sika Armatec 110, three component, water-based epoxy resin/ portland cement bonding agent, manufactured by Sika Corporation, Lyndhurst, NJ 07071, or approved equal.

2.11 EXPANSION JOINTS

- A. Expansion joints shall be 1/2 in. wide and shall be filled with preformed joint filler.
- B. Expansion joint filler shall be a preformed, non-bituminous type joint filler conforming to ASTM D 1752, Type II, Sealtight Cork Expansion Joint Filler, manufactured by W.R. Meadows, Inc., or approved equal.

1. Joint filler shall be one piece for the full depth and width of the joint.
2. Use of multiple pieces of lesser dimensions to make up the required depth and width of the joint will not be permitted.

PART 3 - CONSTRUCTION

3.01 SUITABILITY OF SUBGRADE

- A. Aggregate subbase to receive concrete slab-on-grade shall be inspected to ensure material is suitable to receive concrete, including compaction. Subgrade unacceptable shall be brought to the attention of Owner's Representative.

3.02 PREPARATION OF SUBGRADE

- A. Subgrade shall be compacted as required to bring top 6 inches of subgrade material immediately below the concrete to a density of not less than 95% at optimum moisture content as determined by ASTM D 1557. Subgrade compaction shall extend for a distance of at least one foot beyond edge of concrete.
 1. Existing subgrade material which will not readily compact shall be removed and replaced with satisfactory materials. Additional materials needed to bring subgrade to line and grade and to replace unsuitable material removed shall conform to Section 02200 - Earthwork.

3.03 REINFORCING

- A. Before being placed in position, thoroughly clean reinforcing of loose mill and rust scale, dirt, ice, and other foreign material which may reduce bond between concrete and reinforcing. Where there is delay in placing concrete after reinforcement is in place, bars shall be reinspected and cleaned.
- B. Bars showing cracks after bending shall be discarded.
- C. Unless otherwise indicated on Drawings, extend reinforcing within 2 in. of formwork and expansion joints. Reinforcing shall continue through control joints. Adjacent sheets of fabric reinforcing shall lap 6 in.
- D. After forms have been coated with form release agent, but before concrete is placed, reinforcing steel and anchors shall be securely wired in the exact position called for, and shall be maintained in that position until concrete is placed and compacted. Chair bars and supports shall be provided in a number and arrangement satisfactory to Owner's Representative.

3.04 CONCRETE PLACEMENT

- A. Before placing concrete, forms and space to be occupied by concrete shall be thoroughly cleaned, and reinforcing steel and embedded metal shall be free from dirt, oil, mill scale, loose rust, paint, and other material which might tend to reduce bond.
- B. Existing concrete, earth, and other water-permeable material against which new concrete is to be placed shall be thoroughly damp when concrete is placed. There shall be no free water on surface.
- C. Concrete, which has set or partially set before placing shall not be employed. Retempering of concrete will not be permitted.
- D. Segregation of concrete shall be prevented during handling; should segregation occur, concrete shall be remixed before it is placed. Concrete shall be placed in the forms in horizontal layers not over one to two feet. thick. Concrete shall not be allowed to drop freely more than 4 ft. If free drop to point of placement must exceed 4 ft., obtain approval of Owner's Representative for proposed method of depositing concrete. Concrete shall not be required to flow over distances greater than 3 ft. in any direction in forms or ground, unless otherwise permitted by Owner's Representative.

- E. Concrete shall be thoroughly spaded, and tamped, and vibrated to secure a solid and homogeneous mass, thoroughly worked around reinforcement and into comers of forms.
 - 1. Apply vibration at point of deposit and in area of freshly placed concrete. Vibrate enough to accomplish thorough compaction and complete embedment of reinforcement and fixtures. Supplement vibration by hand spading in comers and angles of forms to prevent honeycombing.
- F. When joining fresh concrete to concrete which has attained full set, latter shall be cleaned of foreign matter, and mortar scum and laitance shall be removed by chipping and washing. Clean, roughened base surface shall be saturated with water, but shall have no free water on surface. A coat of 1:1 cement-sand grout, approximately 1/8 in. thick, shall be well scrubbed into thoroughly dampened concrete base. New concrete shall be placed immediately, before grout has dried or set.
- G. Concrete surfaces which act as a seat for structural members (other than those resting on grout) shall be troweled to an extremely flat and level surface. If necessary, such surfaces shall be ground off to achieve the required flatness and level.

3.05 EMBEDDED METALS

- A. Posts, sleeves, and similar embedded items will be provided, delivered to the site, under other sections of the specification, for installation under this section.
- B. Where edge angles, etc., have nuts welded on to receive machine screws, the threads of the nuts shall be protected from concrete, and the concrete shall be excluded from the space to be occupied by the screw, by use of wood plugs or other effective means.

3.06 FINISHING VERTICAL CONCRETE

- A. Exposed vertical surfaces shall be formed to produce a "smooth form finish", as defined in ACI 301. Concrete which is exposed to view on exterior of finished structures shall receive smooth rubbed finish, in accordance with ACI 301 and as follows:
 - 1. To permit satisfactory finishing, forms shall be removed from vertical faces of concrete as early as is possible without damaging surface. Immediately after stripping forms, fins or projections left by forms shall be chipped off, and surfaces rubbed smooth.
 - 2. Voids and faults shall be patched. Voids, etc., shall be cleaned out, roughened, thoroughly wetted, coated with neat cement paste, and filled with mortar of cement and sand in same proportions, materials, and color as used in concrete. Surface of the patch shall be flush with the surrounding surface after finishing operations are complete. Surface shall be kept continuously damp until patches are firm enough to be rubbed without damage.
 - 3. Rubbing shall be performed while the surface is wet using carborundum or cement sand brick, to achieve a smooth, uniform, even textured finish. Blend patched and chipped areas to match appearance of rest of surface. No cement wash or plastering will be permitted, and no mortar shall be used except as required above.
- B. Rubbed Finish: After removal of forms, patching and repairing, and while concrete is still green, spread slurry consisting of 1 part portland cement concrete and 1-1/2 part damp, loose sand by volume, over pre-dampened surface. Apply using burlap pads or sponge rubber floats. Remove surplus materials, then rub with clean burlap. Water fog completed surfaces for 7 days min.
- C. As-Formed Finish: Remove fins by stoning, otherwise leave texture imparted by forms.

- D. Vertical surfaces of concrete which will be concealed in finished structure shall be formed to produce a “rough form finish”, as defined in ACI 301.

3.07 FINISHING HORIZONTAL CONCRETE

- A. Screed off and wood-float concrete slabs and pads to smooth surface, true to line and grade, and free of hollows and bumps. Surface shall be dense, smooth, and at exact level and slope required.
- B. Horizontal surfaces of concrete which will be exposed shall be given a light broomed finish, with direction of grooves in concrete surface perpendicular to length of concrete slab or pad. After concrete has set sufficiently to prevent coarse aggregate from being dislodged from surface, but before it has completely set, brooms shall be drawn across it to produce a pattern of small parallel grooves. Broomed surface shall be uniform, with no smooth, unduly rough, or porous spots, or other irregularities. Coarse aggregate shall not be dislodged by brooming operation.
- C. Where finishing is performed before end of curing period, concrete shall not be permitted to dry out, and kept continuously moist from time of placing until end of curing period, or until curing membrane is applied.

3.08 FILLING HOLES

- A. Holes resulting from removal of bolts or tie rods that are not a part of decorative layout of set back cones at wall face shall be solidly filled with cement grout. Holes passing entirely through concrete members shall be filled from inside face, with a plunger-type grease gun or other device that will force mortar through to outside face, holding a canvas sack at exterior surface to assure complete filling. Holes, which do not pass entirely through, shall be filled, using tools, which will permit the opening to be packed thoroughly full. Excess mortar at faces of filled holes shall be struck off flush, with a canvas sack.

3.09 CURING

- A. It is essential concrete be kept continuously damp from time of placement until end of specified curing period. It is equally essential water not be added to surface during floating and troweling operations, and not earlier than 24 hours after concrete placement. Between finishing operations surface shall be protected from rapid drying by a covering of waterproofing paper. Surface shall be damp when covering is placed over it, and shall be kept damp by means of fog spray of water, applied to prevent drying, but not sooner than 24 hours after placing concrete. None of the water so applied shall be troweled or floated into surface.
- B. Concrete surfaces, not otherwise specified, shall be cured by being kept wet with clean water for a period of not less than seven days after placing. Each day the forms are left in place, and kept wet enough to prevent the opening of joints in the forms and the drying out of the concrete, will be counted as one day of curing.
- C. Concrete surfaces shall be cured by completely covering with curing paper.
 - 1. Concrete shall be completely covered with paper with seams lapped at least 2 in. and sealed with tape. Concrete surface shall not be moistened within 24 hours of placing concrete. During curing period surface shall be checked frequently, and sprayed with water or curing compound to prevent drying, but not earlier than 24 hours after placing concrete.
 - 2. Concrete surfaces to receive paint, waterproofing, damproofing, thin-set adhesives and coatings, and similar applied materials, which require bond and adhesion to concrete surfaces, shall be cured using curing paper. The use of curing compounds on these surfaces will not be permitted.
 - 3. Unless otherwise directed by Owner’s Representative, curing period shall be seven days, minimum.

3.10 COLD WEATHER CONCRETING

- A. Materials for concrete shall be heated when concrete is mixed, placed, or cured when the mean daily temperature is below 40 degrees F, or is expected to fall to below 40 degrees F, within 72 hours, and concrete after placing shall be protected by covering, heat, or both.
- B. Details of handling and protecting of concrete during freezing weather shall be subject to approval and direction of Owner's Representative. Procedures shall be in accordance with provisions of ACI 306.
- C. Protect concrete from damage and reduced strength or performance due to weather extremes during mixing, placing and curing. Unless adequate protection is provided, concrete shall not be placed during rain, sleet or snow.
- D. Carefully review phasing requirements and determine scope of cold-weather concreting required.

3.11 HOT WEATHER CONCRETING

- A. Concrete just placed shall be protected from direct rays of the sun and forms and reinforcement just prior to placing shall be sprinkled with cold water. Every effort shall be made to minimize delays resulting in excessive mixing of concrete after arrival on job.
- B. During periods of excessively hot weather (95 degree F, or above) ingredients in concrete shall be cooled and cold mixing water shall be used to maintain temperature of concrete at permissible levels in accordance with provisions of ACI 305. Concrete with a temperature above 95 degrees F, when ready for placement will not be acceptable, and will be rejected.
- C. Temperature records shall be maintained throughout the period of hot weather giving air temperature, general weather conditions (calm, windy, clear, cloudy, etc.) and relative humidity. Records shall include checks on temperature of concrete as delivered and after placing in forms. Data should be correlated with progress of work so that conditions surrounding construction of structure can be ascertained.

3.12 BRACING AND SUPPORTS

- A. Concrete members shall be adequately and safely supported and braced until permanent supports and braces (by whomever supplied) are installed.

3.13 REMOVING FORMS AND SUPPORTS

- A. Except as otherwise specifically authorized by Owner's Representative, forms shall not be removed until concrete has aged for at least three days or following number of day-degrees, whichever is greater.

Location	Day-Deqrees*
Beams and Slabs	500
Walls and Vertical Surfaces	100

* The term day-degrees represents the product of number of days elapsed since time of concrete placement and average dally air temperature at surface of concrete. For example, five days at a daily average temperature of 60 deg. F. equals 300 day-degrees.

- 1. Form removal by methods other than day-degree method will not be permitted.

3.14 BONDING AGENT

- A. Surface: clean, sound, and saturated surface dry but free of standing water. Remove dust, laitance, grease, curing compounds impregnations, waxes, and other foreign matter.

- B. Sandblast existing concrete, or use other mechanical means to achieve surface preparation required by bonding agent manufacturer prior to application of bonding agent.
- C. Apply bonding agent in strict accordance with manufacturer's printed instructions.

3.15 EXPANSION JOINT

- A. Expansion joint: 1/2 in. wide, clean, dry, and free of loose material, dirt, oil and grease, and formed in concrete to width with preformed joint filler in place. Joint filler shall extend full length of expansion joint.
 - 1. Depth of filler shall extend to full thickness of concrete in vertical surfaces and in concealed horizontal surfaces.
 - 2. Depth of filler in exposed horizontal surfaces shall form a 1/2 in. deep sealant recess below finished surface.

3.16 CONTROL JOINTS

- A. Control joints in slab as indicated on Drawings shall be sawn by using a diamond blade concrete power saw. Joints shall be made as soon as possible after concrete is finished and when the surface is stiff enough to support the weight of workmen without damage to the slab. Saw shall cut into slab at least 1 in., but in no case less than 25% of slab depth. Cuts shall be clean, straight and uniform.
- B. Saw cut shall be made accurately to dimensions, line, and spacing indicated.

3.17 PATCHING FORMED SURFACES OF EXPOSED CONCRETE

- A. After forms have been removed, inspect concrete surfaces and patch pour joints, voids, stone pockets, other defective areas and tie holes before concrete is thoroughly dry. Chip away defective areas to depth of not less than 1 in. with edges perpendicular to surface. Wet areas to be patched and space at least 6 in. wide entirely surrounding it, to prevent absorption of water from patching mortar. Do not patch concrete in freezing weather.
- B. Apply chemical bonding agent to surface in accordance with manufacturer's printed instructions, followed immediately by patching mortar. Make patch of same proportions used for concrete except omit coarse aggregate. Add only enough water consistent with requirements for handling and placing.
- C. Thoroughly compact mortar into place and screed off; leave patch slightly higher than surrounding surface. Leave undisturbed for one to two hours to permit initial shrinkage before final finishing. Finish patch to match texture and color of adjoining surface. Completely fill tie holes left by withdrawal of rods and hole left by removal of end of ties. For holes passing entirely through wall, force mortar through with plunger type grease gun. Cure all patches.

3.18 PROTECTION OF CONCRETE SURFACES

- A. Concrete surfaces shall be protected from traffic or damage until surfaces have hardened sufficiently. Use 1/2 inch thick plywood sheets to protect the exposed surfaces.

END OF SECTION

SECTION 16100
ELECTRICAL

PART I – GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions, apply to work of this section.
- B. The Contractor must be familiar with all other Sections of this specifications and the associated Drawings, which affect the scope of work. The General Conditions, all Supplementary and Special Conditions, and all other sections of this specification shall be adhered to, as they apply to this Section. Where paragraphs of this Section conflict with similar paragraphs elsewhere, the more stringent requirements shall prevail.

1.02 DESCRIPTION OF WORK

- A. The Contractor shall furnish a complete finished product, which meets all applicable codes and standards, and the intent and specific requirements of the Drawings and specifications for this project. It is the intent of these specifications that the electrical system shall be suitable in every way for the service (and use) required. All materials and all work, which may be reasonably implied as being incidental to the work of this Section, shall be furnished at no extra cost to the Owner.
- B. As used in this Section, “*provide*” means “furnish and install”, “*furnish*” means “to purchase and deliver to the project site complete with every necessary appurtenance and support”, and “*install*” means “to unload at the delivery point at the site and perform every operation necessary to establish secure mounting and correct operation at the proper location in the project”.
- C. Perform work and provide (furnish and install) material and equipment as shown on Drawings and as specified, or indicated, in this Section of the specifications. Completely coordinate work of this Section with work of other trades and provide a complete and fully functional installation. Drawings and specifications form complimentary requirements; provide work specified and not shown, and work shown and not specified as though explicitly required by both. Although work is not specifically shown or specified, provide supplementary or miscellaneous items, appurtenances, devices and materials obviously necessary for a sound, secure and complete installation.
- D. Remove all debris caused by Contractors’ work.
- E. Provide demolition and relocation of existing electrical items as shown on the drawings.
- F. The work under this section shall require that the Contractor provide all labor,

materials, equipment, tools, supplies and transportation involved in the installation of electrical equipment as specified.

- G. The work to be done under this contract generally includes, but is not limited to the following:

Electrical Demolition

1. Demolish existing services. Coordinate with local utility (NStar Electric) and City for removal of existing light on park side of existing pole.

Electrical System

2. Provide new conduit and handhole system for outdoor electrical work, in locations as shown on Contract Drawings. Provide small handholes (13"x24"x18) in locations as shown with bolted covers and "Electric" logo on cover.
3. Provide new decorative lighting, fixtures, ballasts and bulbs, along with necessary accessories in quantities and locations as shown on Contract Drawings. Lights to be photocontrolled.
4. Provide new NEMA 3R Electrical Cabinet for outdoor power on new cast-in-place concrete foundation. Foundation to include reinforcement, conduit stubs and grounding, per local and NEC requirements. Provide cabinet with service entrance rated distribution panelboard, outdoor NEMA 3R meter socket (NStar standard), circuit breakers and other accessories as shown on Contract Drawings.
6. Provide additional accessories inside of new Electrical Cabinet, including duplex GFCI receptacles, incandescent lamp, time clocks. All lights should be on a photo static switch, and also have a timer override at the panel in the electric box. All the receptacles should also have their own separate switch on the electric panel.
7. Provide electrical feed for new outdoor Electrical Cabinet from existing Florence Street underground electric system, per NStar Electric standard requirements. Service to be 100A, 120/240V single-phase, 3-wire. Routing as shown, or as required by NEC or local authorities (NStar, City, etc.).
8. Provide conduit and cabling for outdoor lighting between fixtures, handholes, Electrical Cabinet, and utility service. Cabling per panel schedules and as shown on Contract Drawings.
9. Provide electric feed to proposed irrigation control cabinet. Provide 1-pole/ 20A, 120V feed to irrigation controller in location as shown on Contract Drawings.
10. Conduits outside below grade to be PVC and conduit outside above grade to be RGS. Conduit sizes required for number of conductors. Conduits in roadway and under public sidewalks to be concrete-encased.
11. Provide all necessary grounding, including ground rods at electrical cabinet location and at each light pole foundation as shown or as required by NEC or local authorities.
12. Provide startup services for new lighting system.
13. Provide other associated electrical equipment necessary for a complete system, shown, or implied in these Specifications and on Contract Drawings.

14. Coordinate with the City and local utility staff for new underground service to site, installation of new conduit, service, pole removal and electrical requirements.

1.03 SITE VISIT

- A. Each bidder shall visit the site of the proposed work and fully acquaint himself with the conditions there relating to construction and labor, and should fully inform himself as to the facilities involved, and the difficulties and restrictions attending the performance of the Contract. The Bidder should thoroughly examine and familiarize himself with Drawings, Technical Specifications and all other Bid and Contract Documents. The Contractor, by the execution of the Contract, shall in no way be relieved of any obligation under it due to his failure to receive or examine any form or legal document or to visit the site and acquaint himself with the conditions there existing and the Owner will be justified in rejecting any claim thereof.

1.04 AS-BUILT DRAWINGS:

- A. After completion of the electrical installation, the Contractor shall furnish an "as-built" drawings showing all conduits, cables, cabinets, transformers, light poles, etc. to scale with dimensions where required. Instruction sheets and parts lists covering all operating equipment will be bound into a folder and furnished to the Owner in duplicate.

1.05 INSTRUCTIONS:

- A. Within 10 days, after completion and testing of the system, the Contractor will instruct the Owner's personnel in the proper operations and maintenance of the system, in a 2-hour training session.

1.06 GUARANTEE

- A. Guarantee work of this Section in writing for one year from date of Owner's acceptance. Repair or replace defective materials, equipment, workmanship and installation that develop within this period, promptly and to Owner's satisfaction and correct damage caused in making necessary repairs or replacements under guarantee with no extra cost to Owner. Contractor shall transfer all equipment warranties for lighting and other systems to Owner.

1.07 REFERENCE STANDARDS AND SPECIFICATIONS

- A. Perform work strictly as required by rules, regulations, standards, codes, ordinances, and laws of local, state, and federal government, and other authorities that have lawful jurisdiction.
- B. All materials and installations shall be in accordance with the latest edition of the Massachusetts Electrical Code, and all applicable local codes and ordinances. Materials and equipment shall be listed by Underwriters Laboratories (UL). Special Attention shall be paid to the latest edition of the following standards:

American National Standards Institute ANSI American Society for Testing & Materials
ASTM Illuminating Engineering Society IES Institute of Electrical & Electronics Engineers
IEEE Insulated Cable Engineers' Association ICEA National Electrical Code NEC National
Electrical Manufacturer's Association NEMA National Electrical Safety Code NESC
InterNational Electrical Testing Association NETA National Fire Protection Association
NFPA Occupational Safety & Health Administration OSHA Underwriter's Laboratories, Inc.
UL

- C. The above listed codes and standards are referenced to establish minimum requirements and wherever this Section requires higher grades of materials and workmanship than required by the listed codes and standards, this Section shall apply. In the event a conflict occurs between the above listed codes and standards and this Section, the more stringent requirement shall govern.

1.08 SUBMITTALS

- A. Within 10 days after Award of General Contract, submit shop drawings and product data on below listed items for approval. Submit copies as requested.
- B. Check, stamp and mark with project name shop drawings and product data before submitting for approval. Specifically indicate on shop drawing transmittal form, or by separate letter any deviations from Contract Documents because of standard shop practice or other reason. Rectify with no extra cost to Owner, deviations which escape Engineer's scrutiny and have not been indicated on shop drawings.

- C. List of materials and equipment requiring shop drawings shall include:

1. Conduits and Wiring
2. Service Cabinets and Equipment
3. Circuit Breakers
4. Meter Sockets
5. Concrete Products and Light Bases
6. Handholes & Manholes
7. Decorative Light Poles
8. Receptacles and covers
9. Grounding materials

- D. The Engineer's review shall be only for conformance with the design concept of the project and compliance with the specifications and Drawings. The responsibility of, and the necessity of, furnishing materials and workmanship required by the specifications and Drawings which may not be indicated on the shop drawings is included under the work of this Section.
- E. The Contractor shall furnish at least two (2) complete sets of operating and instruction manuals for the equipment provided under this Contract. These manuals shall detail the operation, testing, and maintenance of the electrical equipment and systems. Manuals shall be provided upon Engineer's request or upon project completion, whichever comes first.

1.09 INSPECTIONS AND FEES

- A. Obtain all necessary permits and licenses, file necessary plans and pay all fees for permits and inspections. Permit fees are the responsibility of the Contractor as part of his bid, as is all coordination with the local utility (NStar). Contractor is also responsible for obtaining any site-specific utility requirements for this project prior to the start of construction and notifying local utility for all inspections prior to backfilling, etc.

1.10 INTERPRETATION OF DRAWINGS

- A. Drawings are diagrammatic and indicate general arrangement of systems and work included in Contract. Drawings are not intended to specify or show every offset, fitting or component; however, Contract Documents require components and materials whether or not indicated or specified as necessary to make installation complete and operational.
- B. Any work installed contrary to, or without review by, the Engineer shall be subject to change as directed by the Engineer, and no extra compensation will be allowed for making these changes.
- C. Circuit layouts are not intended to show the number of fittings, or other installation details. Additional circuits shall be installed wherever needed to conform to the specific requirements of the equipment or local codes.
- D. As work progresses and for duration of Contract, maintain complete and separate set of prints of Contract Drawings at job site at all times. Record work completed and all changes from original Contract Drawings clearly and accurately, including work installed as a modification or addition to the original design.

1.11 ELECTRIC UTILITY

- A. The Electric Utility for this project is NStar Electric. All coordination with the Electric Utility is the responsibility of the Contractor. All work and materials for the electric service shall be in accordance with the requirements of the Electric Utility, and are to be met under this Section and included in the bid price of the Contractor.

PART II – MATERIALS & PRODUCTS

2.01 GENERAL

- A. Materials and products furnished shall be designed for the intended use, shall meet all requirements of the latest edition of the National Electric Code (NEC), and all local codes.
- B. Materials shall be manufactured in accordance with the standards indicated in this Section, and typical industry standards and codes for the products specified. Materials and equipment shall be Underwriter's Laboratory (UL) listed.
- C. The materials used shall be new, unused, and of the best quality for the intended use. All equipment shall have the manufacturer's name, address, model or type designation, serial number and all applicable ratings clearly marked thereon in a location which can be readily observed after installation. The required information should be marked on durable nameplates that are permanently fastened to the equipment.
- D. Electrical equipment shall at all times during construction be adequately protected against mechanical injury or damage by water. Electrical equipment shall not be stored outside exposed to the elements. If any equipment or apparatus is damaged, such damage shall be repaired at no additional cost, or replaced at no additional cost as directed by the Engineer.

2.02 RACEWAYS

- A. Rigid Metallic Conduit: UL6 and ANSI C80.1.
- B. Flexible Metallic Conduit: UL1. Liquidtight flexible metal conduit shall be used in wet locations.
- C. Polyvinyl Chloride (PVC) Conduit, electrical, gray, Schedule 40 or Schedule 80 as specified, meeting the requirements of UL 651 and NEMA TC-2. If concrete encasement is required, a minimum of 3,000 psi concrete shall be used. All conduits placed under roadways, and subject to vehicular traffic, shall be concrete-encased Schedule 40.
- D. Rigid Galvanized Steel (RGS) conduit shall be used for all power, control signal, and instrumentation wiring, except where noted. Conduit shall be fully threaded at both ends and each length shall be furnished with one threaded coupling. All 90 degree conduit sweeps shall be RGS for all entry and exit into concrete pads and at riser poles, with ground bushings connected to new grounding with minimum #4Awg ground wire for conduit grounding bushings.

- E. Conduits shall be made electrically continuous at coupling and connections to boxes and cabinets by means of joining fasteners or copper bond wires. Conduit shall be connected to grounded structural steel or the ground network. After assembly all conduit locknuts, all EMT coupling fittings, and all bond wire screws shall be set up tight before installation of wiring. Insulated metallic bushings shall be used on all conduits entering panel cabinets, pull-boxes, and wiring gutters, except on branch lighting circuits.
- F. Expansion fittings shall be provided on all conduits as required by the 2008 National Electrical Code, and as required by local and state codes. This includes, but is not limited to, vertical conduit risers coming from below-grade.

2.03 WIRE AND CABLE

- A. Unless otherwise noted, conductors for power, lighting, and grounding *above grade* shall be No. 12 through No. 8 AWG, NEC type THWN/THHN, meeting the requirements of UL 83. Conductors for power and lighting shall be no smaller than No. 12 AWG.
- B. Conductors for power, lighting, grounding, and control *below grade* (and in wet locations) shall be No. 2 AWG and larger, NEC type XHHW (or XHHW-2), meeting the requirements of NEMA WC7 and ICEA S-66-524.
- C. All conductors shall be annealed copper, 98% conductivity, Class B stranded, except conductors used for power and lighting circuits No. 10 AWG and smaller which may be solid. All conductors should be rated for 600 volts or less, with a thermal rating of 90° C.
- D. The outside covering of all wiring for power, lighting, grounding, and control uses shall be color coded to identify polarity as follows:

208Y/120 V. 240D/120 V 480Y/277 V 3 Phase 3 Phase
3 Phase

Phase A Black Black Brown Phase B Red Red

Orange Phase C Blue Orange Yellow Neutral White

White Gray Ground Green Green Green

2.04 WIRE AND CABLE CONNECTORS AND DEVICES

- A. Wire and cable connectors and devices shall meet the requirements of UL 486. Connectors, including miscellaneous nuts, bolts, and washers shall be silicon bronze. Ferrous materials shall not be used. All connectors below grade shall be water-proof secondary type, gel-filled, bolted submersible connectors (gel-port style). No “wire-nuts” are allowed to be used below grade.

2.05 BOXES

- A. Outlet and Switch Boxes: NEMA OS 1. Provide 4 outlets housed in small cabinet to be manufactured from 14 gauge minimum stainless steel with 12 gauge steel back panel, mounted inside. Cabinets to have integral keyed locking mechanism, keyed alike, with provision for pad-lock. Cabinets shall be ventilated type and factory painted black powder-coat.
- B. Pull Boxes, Junction Boxes, and Equipment Enclosures: NEMA ICS 6.
- C. Pull boxes, junction boxes, and equipment enclosures shall be of NEMA Type 1 construction for indoor use, and NEMA Type 3R construction for outdoor or wet location use, unless otherwise noted.
- D. Box sizes shall not be less than that required by the Massachusetts Electrical Code.

2.06 WIRING DEVICES

- A. Wiring Devices: NEMA WD 1.
- B. Wiring devices shall be specification grade, 20 ampere, ivory with Type 302 stainless steel plates. Ground fault current interrupting (GFCI) devices shall be provided where specified and/or required by applicable codes.

2.07 PANELBOARDS

- A. Panelboards: NEMA PB1, and UL 67.
- B. Panelboards shall be door-in-door construction with copper bus. Circuit breakers shall be molded case, thermal magnetic, bolt-on type rated as noted, and rated to match panelboard voltage and interrupting rating. All panelboard doors shall open full 90 degrees without conflict with cabinets and other equipment. No modifications to panelboards or doors shall be made to accommodate installation or removal inside of Electrical Cabinet.
- C. Provide the following panelboards:
 - 1. Panelboard P-1 120/240V, 1-phase, 3-wire, 100A main circuit breaker, 22kA AIC (minimum), 18 circuit panelboard, (acceptable manufacturers: Siemens, Cutler-Hammer, G.E.) NEMA 1 enclosure with the number and size of circuit breakers as listed on the panel schedules provided in the Contract Drawings. Provide spare breakers as listed.

2.08 WARNING TAPE

- A. Warning tape shall be six (6) inches wide, polyethylene not less than 3.5 mil thick with a minimum strength of 1,500 psi. Install 8 inches below final grade. Tape shall be red for electric conduit, and red or yellow for communication conduit. Tape shall have black lettering on two lines as indicated below:
- B. For Electric conduit: CAUTION CAUTION CAUTION BURIED ELECTRIC LINE
BELOW

2.09 ELECTRIC HANDHOLES

- A. Electric Handholes are to be strong, lightweight, and non-conductive, and provided in the locations as shown on the Contract Drawings or as required to install lighting and electrical system. Electric Handholes shall be Ultraviolet (UV) resistant, along with being unaffected by moisture, freezing temperatures, soil, and sub-soil chemicals. Electric handholes to be polymer concrete composite, as approved by Engineer.
- B. Handholes shall be provided with skid-resistant surface covers, with an "Electric" logo. Handholes and Covers shall be design for street-rated, heavy duty applications, meeting the requirements of the either: AASHTO HS-20 or ANSI/SCTE 77-2002 Tier 15 loading, with a minimum design load of 15,000 lbs for both the handhole box and cover. . Covers shall include recessed stainless steel captive bolts of a penta-head design. The nuts for the bolts shall be self-centering and corrosion resistant. Handholes shall meet the requirements of the latest edition of the National Electric Code (2008 or later) with regards to structural integrity, installation methods, grounding of the cover and metallic parts, etc. Handholes shall be UL listed for the intended use.
- C. Color of electric handholes and covers to be green in grass areas and gray in sidewalk areas, as approved by Engineer. Handholes to be installed flush with final grade. A layer of 6-inches of crushed rock shall be installed below and in the bottom of each handhole to assist with drainage, and this compacted gravel base material shall extend out beyond the sidewalls of the handhole. Conduits shall sweep up and be at least 4-inches above top of crushed rock layer.
- D. Handhole size to be 13"W x 24"L x 18"D minimum for this project.

2.10 ELECTRICAL ENCLOSURE & CABINETS

- A. Provide one (1) outdoor NEMA 3R stainless steel, to contain 100A 1-phase, 3-wire, 120/208V panelboard and associated electrical equipment, etc.
- B. Contractor to size cabinet to coordinate with sizes of equipment to be installed within cabinets, including panelboard. Dimensions shown are typical and are for reference only. Cabinet to allow installation and removal of all electrical equipment with no interference between equipment. All equipment doors shall open 90 degrees. Electrical Cabinet doors to be provided with stay-open door catches. Contractor is responsible for coordinating size of this equipment prior to submitting Electrical Cabinet for approval.
- C. Cabinets to be manufactured from 14 gauge minimum stainless steel with 12 gauge steel back panel, mounted inside. Cabinets to have integral keyed locking mechanism, keyed alike, with provision for pad-lock. Cabinets shall be ventilated type and factory painted black powder-coat.

2.11 CAST-IN-PLACE CONCRETE FOUNDATION

- A. Provide the materials, labor and equipment necessary for the installation of the following cast-in place concrete foundations, in accordance with these Specifications, Contract Drawings, Utility & City requirements and all applicable codes & regulations.

1. Electrical Cabinet Foundation: complete with reinforcing rebar, ground rods, grounding connectors, conduit entrances, etc. as shown and as directed by Owner or Engineer. Contractor responsible for coordinating foundation dimensions to be 6-inches wider than cabinet base dimensions, on all four sides. Cabinet grounding to include a buried loop on all four sides, connected to the two buried ground rods as shown.
- B. Foundations shall be built with 3,000 psi. minimum concrete, on a base of crushed gravel and sand, as shown.
- C. Reinforcing rod to be #3 or #4 (as shown) grade 60 bars and shall conform to ASTM A-615 (latest revision). Reinforcing rods shall not be installed any closer than 2" from the face of the concrete.
- D. Provide grounding in the form of one (1) 5/8" diameter x 8'-0" long copperweld ground rod for each foundation, connected with a loop of #1/0Awg bare copper stranded ground wire (as shown), leaving a 3 foot long tail to ground the enclosure, transformers, etc. Buried loop for Electrical Cabinet to be buried approx. 6-8" below finished grade, offset approximately 12-inches from the edge of concrete foundation on all four sides.

2.12 DECORATIVE LIGHTING

- A. Provide lighting as indicated on the drawings. Lighting to be low voltage B-K lighting or equal. Refer to appendix of this specification for product detail information.

PART III – EXECUTION

3.01 GENERAL

- A. This Section covers the requirements for installation of materials, proper workmanship, testing, cleaning, grounding, and work methods to be followed by the Contractor. This Section also includes specific instructions and to be used in conjunction with the contract Drawings. Any discrepancies noted between the specification, Drawings, and actual installation shall be reported immediately to the Owner, Engineer, and Architect. Failure on the part of the Contractor to report discrepancies immediately will be considered negligent and Contractor will be responsible for correcting actions at no cost to Owner.
- B. Contractor is responsible for coordinating work with other trades, Owner, and Architect's schedule. Work will be coordinated such that systems can be properly located, and conflicts and delays are avoided. Contractor shall consider commencement of work acceptance of existing conditions.

3.02 MATERIALS AND WORKMANSHIP

- A. Work shall be executed in workmanlike manner and shall present neat, rectilinear and mechanical appearance when completed. Do not run raceway exposed unless shown exposed on Drawings. Material and equipment shall be new and installed according to manufacturer's recommended best practice so that complete installation shall operate safely and efficiently.

3.03 CONTINUITY OF SERVICES

- A. Do not interrupt existing services without Owner's, Utilities, Engineer's and Architect's approvals.

3.04 TESTING, INSPECTION AND CLEANING

- A. Test wiring and connections for continuity and grounds before fixtures are connected; demonstrate insulation resistance by megger test as required at not less than 500 volts. Insulation resistance between conductors and grounds for secondary distribution systems shall meet National Electrical Code (NEC) and InterNational Electrical Testing Association (NETA) requirements.
- B. Verify and correct as necessary: voltages, tap settings, trip settings and phasing on equipment from secondary distribution system to point of use. Test secondary voltages at transformers, bus in panelboards, and at other locations on distribution systems as necessary. Test secondary voltages under no-load and full-load conditions.
- C. Test lighting fixtures with specified lamps in place for 100 hours. Replace lamps that fail within 90 days after acceptance by Owner at no extra cost to Owner (no exceptions).
- D. Provide necessary testing equipment and testing services.
- E. Failures or defects in workmanship or materials revealed by tests or inspection shall be corrected promptly and retested. Replace defective material.

- F. Clean panels and other equipment. Panelboard interiors shall be cleaned and vacuumed. Equipment with damage to painted finish shall be repaired to Engineer's or Architect's satisfaction. After completion of project, clean exterior surfaces of electrical equipment.

3.05 WIRING METHODS

- A. Install wire and cables in approved raceways as specified and as approved by authorities that have jurisdiction.
- B. Follow homerun circuit numbers and/or notes as shown on Drawings to connect circuits to panelboards. Where homerun circuit numbers are not shown on Drawings, divide similar types of connected loads among phase buses so that currents are approximately equal in normal usage.
- C. Run concealed conduit in as direct lines as possible with a minimum number of bends of longest possible radius. Run exposed conduit parallel to or at right angles to building/field lines. Bends shall be free from dents or flattening. The exact locations and routing of conduit shall be determined by the Contractor subject to the approval of the Owner and Engineer.
- D. Polarity of all electrical connections shall be observed in order to preserve phase relationship in all feeders and equipment.
- E. Splices shall be made in neat, workmanlike manner using approved mechanical connectors. After splicing, insulation equal to that on the spliced wires shall be applied at each splice. Splices are permitted only in junction boxes, outlet boxes, or other permanently accessible locations. Splices installed in electric handholes shall be weather and waterproof, pre-molded polymer splices. Hand taping of splices below-grade is not acceptable.

3.06 GROUNDING

- A. Bond and ground equipment and systems connected under this Section in accordance with standards of the NEC and other applicable regulations and codes.
- B. Conduit system shall be electrically continuous throughout, grounded at service entrance. Equipment frames, enclosures, boxes, etc. shall be grounded by use of green-jacketed (or bare copper) ground, sized as per Table 250-95 of the NEC.
- C. Green bonding jumper shall be installed in flexible conduits.
- D. Copper fittings for ground connections shall conform to the requirements of ASTM B 30. All bolts, u-bolts, cap screws, nuts, and lock washers for copper fitting shall be of approved corrosion-resisting material. Compression connectors required for all below-grade grounding connections. Exothermic (cad-weld) connectors are also acceptable for use below grade. The use of bolted grounding and ground rod connectors below grade is not acceptable.
- E. Ground Rods shall be 5/8" diameter and 8' in length, copperweld as required by applicable codes (NEC, NESC). Bonding connections to ground rods shall be permanent, welded or crimped, with copper connectors. All wire used for grounding shall be no smaller than #4 Awg copper, stranded conductor. Contractor shall bond all meter enclosure cabinets, meter sockets, safety disconnects, conduit grounding bushes, etc.

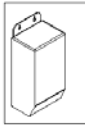
3.07 INSTALLATION OF LIGHTING FIXTURES

- A. Verify construction of light pole foundations is suitable, and provide fixtures, poles, hardware, and other accessories suitable for construction encountered.
- B. Install Lighting System, as specified elsewhere in this Specification. Ground pole steel/aluminum to power system grounding conductor at each pole location, per NEC.
- C. Coordinate installation of fixtures with installation of surrounding materials and landscaping (if applicable). Investigate lighting fixture locations and foundation supports to ensure that no interference exists between lighting fixtures, supports, and other equipment including that provided by other trades. Report any possible interference's to the Architect.

3.08 EXECUTION – INSTALLATION OF ELECTRICAL EQUIPMENT

- A. Contractor to Furnish and Install the following major electrical components, and all necessary minor and expected accessories.
- B. Contractor to meet with local wiring inspector prior to the start of any work and obtain any local site requirements and restrictions, which must be followed. Contractor shall also meet with local utility, any other Town/City officials, as directed by Owner and wire inspector, prior to the start of work, or ordering of materials. Failure to meet with the local officials and utility prior to ordering materials and start of construction will be considered negligent and all necessary corrections resulting from this failure will be at no cost to Owner.
- C. Provide, furnish and install all products and work outlined in Paragraph 1.02.G of this Specification Section.
- D. Provide all grounding of electrical cabinet installations and lighting. Grounding to be installed per installation details and National Electrical Code.
- E. Balance the lighting, receptacle and electrical load evenly on all circuits and on all phases of each circuit.
- F. Provide new handholes and conduit system for lighting and electrical work, in locations as shown on Contract Drawings.
- G. Install all equipment in locations as shown on Contract Drawings. All deviations must be approved, in advance by Owner, Architect and Engineer.
- H. Install all equipment per manufacturer's instructions.
- I. Clean-up excavated areas, and restore with new loam & seed, as directed by Architect.
- J. Provide complete "As-Built" drawings to Engineer & Owner.

Attachment 1 – Decorative Lighting Information



Magnetic Transformer

TR SERIES

PROJECT:	
TYPE:	
CATALOG NUMBER:	
SOURCE:	
NOTES:	

CATALOG NUMBER LOGIC

Example

TR150 - 120

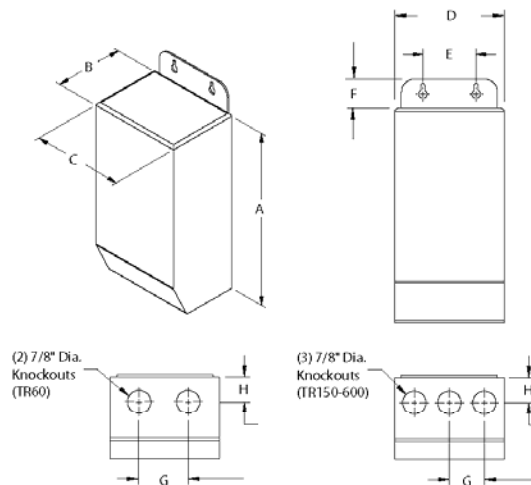
Series

TR60 - 60W Magnetic Transformer
TR150 - 150W Magnetic Transformer
TR300 - 300W Magnetic Transformer
TR600 - 600W Magnetic Transformer

Input Voltage

120 - 120 Volt
277 - 277 volt

DIMENSIONS



TRANSFORMER DATA

All dimensions indicated on this submittal are nominal. Contact Technical Sales if you require more stringent specifications.

Series	Input Voltage	Max. Load	Circuit Breaker	Weight	Height A	Depth B	C	D	E	F	G	H
TR60	120V	60W	8A	3.7 lbs.	7-1/2"	2-15/16"	3"	3-7/64"	1-1/2"	1-1/16"	1-1/2"	3/4"
TR150	120V	150W	25A	6 lbs.	8"	3-3/32"	4-3/32"	5-1/2"	4-1/8"	1-1/8"	1-5/16"	15/16"
TR300	120V	300W	25A	7.13 lbs.	8"	3-3/32"	4-3/32"	5-1/2"	4-1/8"	1-1/8"	1-5/16"	15/16"
TR600	120V	600W	25A	14.9 lbs.	9-13/32"	4-3/32"	4-19/32"	5-3/4"	4-5/8"	1-1/16"	1-1/2"	1-1/4"
TR60	277V	60W	8A	3.7 lbs.	7-1/2"	2-15/16"	3"	3-7/64"	1-1/2"	1-1/16"	1-1/2"	3/4"
TR150	277V	150W	25A	6 lbs.	8"	3-3/32"	4-3/32"	5-1/2"	4-1/8"	1-1/8"	1-5/16"	15/16"
TR300	277V	300W	25A	7.13 lbs.	8"	3-3/32"	4-3/32"	5-1/2"	4-1/8"	1-1/8"	1-5/16"	15/16"
TR600	277V	600W	25A	14.9 lbs.	9-13/32"	4-3/32"	4-19/32"	5-3/4"	4-5/8"	1-1/16"	1-1/2"	1-1/4"

SPECIFICATIONS

Housing
Stainless steel, NEMA Outdoor 3R rated enclosure. (2) (TR60) or (3) (TR150-600) bottom entry 7/8" knockouts provide access to wiring compartment. Riveted, hinged cover opens vertically from bottom to top for service access.

Transformer
Fully encapsulated, Class B Insulated, low voltage magnetic transformer. 120VAC or 277VAC input. 12VAC output (fully loaded): 0.6A (120VAC) or 0.3A (277VAC) maximum no load input current. Manual thermal reset. Secondary circuit breaker. Enclosure temperature <65° C when fully loaded (in 40° C ambient).

For use with halogen and **LED** products. Fully dimmable utilizing magnetic low voltage dimmers. Consult fixture specification for dimming capability.

Output Wiring
See B-K Lighting Low Voltage Design Guide on reverse.

Warranty
Limited five year warranty.

Certification and Listings
Nema Type 3R Enclosure. Suitable for indoor and outdoor use. UL Listed to ANSI/UL Standard 1012.



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SUBMITTAL DATE
7-30-13

SUBMITTAL NUMBER
TR-SERIES

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Low Voltage Guide

Many B-K LIGHTING fixtures operate on 12 volts. Taking advantage of these energy-saving fixtures requires appropriate care in planning the electrical wiring system. To maintain expected lamp performance, we recommend the following procedures in sizing your low-voltage wiring system.

SIZING OF LOW VOLTAGE WIRING

1. Locate and plot fixtures on plan. Choose the lighting equipment necessary to create the desired lighting effects. Mark lamp wattage for each fixture location.
2. Identify potential transformer locations. The ideal locations are those which provide for the shortest possible low voltage distances (inconspicuous areas, behind rocks, shrubbery, etc., within the landscape). UPM, Power Pipe™, Power Pipe II™, or, if available, transformers integral in the fixture are good ways to hide the transformer and reduce voltage drop problems.
3. Add the total wattage for the proposed low voltage run. Measure the wire lengths from the transformer to the fixture locations. Find the distance to the "CENTER OF LOAD" of the low voltage run.

$$\text{CENTER OF LOAD} = \frac{\text{Distance from first to last fixture}}{(2) \text{ Two}} + \text{Distance from transformer to first fixture}$$

4. Using the B-K LIGHTING Wire Selection Table, select the wattage column which applies. Look down the column stopping at a distance, in feet, that is equal or greater than the "CENTER OF LOAD" distance. Look across to find the proper wire size for your layout.

Note: In the event of multiple runs from a given transformer, treat each run separately.

12-VOLT WIRE SELECTION TABLE

WIRE SIZE	TOTAL WATTAGE																
	12	20	24	35	40	50	60	70	80	100	105	120	140	150	160	200	250
12	178	106	89	60	53	42	35	30	26	21	20	17	15	13	—	—	—
10	283	169	141	96	85	67	56	48	42	33	32	28	24	22	19	17	13
8	450	269	225	154	135	107	90	77	67	54	51	45	38	36	31	27	21
6	715	428	357	245	214	171	143	122	107	85	81	71	61	57	49	42	34
	CENTER OF LOAD WIRING DISTANCES IN FEET																

CENTER OF LOAD WIRING DISTANCES IN FEET

The Wire Selection Table provided is based on a maximum allowable voltage drop of 5%. Electrical designs which allow greater than 5% voltage drop, reduce rated light output beyond acceptable levels.

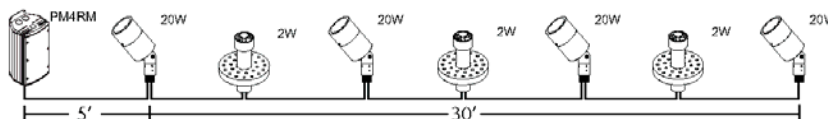
The importance of the proper wire selection is demonstrated below. Both examples have the same total watts and identical overall lengths of wire run, yet require different wire sizes, or multiple wire runs, to operate within the 5% maximum voltage drop B-K LIGHTING criteria.

EXAMPLE:

Total wattage:
(20w x 4) + (2w x 3) = 86 watts

CENTER OF LOAD:
 $\left(\frac{30}{2}\right) + 5' = 20'$

SINGLE WIRE RUN:
12 gauge

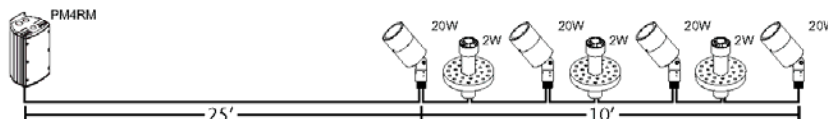


EXAMPLE:

Total wattage:
(20w x 4) + (2w x 3) = 86 watts

CENTER OF LOAD:
 $\left(\frac{10}{2}\right) + 25' = 30'$

SINGLE WIRE RUN:
10 gauge

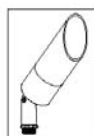


TRANSFORMERS

For areas which are far reaching from fixtures, running 120 volt power to each fixture location with individual transformers, such as TRSS75 or TRSS150, provides an excellent economic solution to voltage drop. These transformers can also be specified in the UPM, Power Pipe™, and Power Pipe II™ transformer housings.

Note: Installations should be in accordance with the National Electric Code and applicable local codes.





B-K LIGHTING
B-K LIGHTING



DELTA STAR™

PROJECT:	
TYPE:	
CATALOG NUMBER:	
SOURCE:	
NOTES:	

CATALOG NUMBER LOGIC

Example DS LED e22 SP A9 BLP 12 11 B 360SL

Material
Blank - Aluminum
B - Brass
S - Stainless Steel

Series
DS - Delta Star™

Source
LED - 'e' Technology with Integral Dimming Driver (25W min. load when dimmed)
**Requires magnetic Low Voltage dimmer*

LED Type
e36 - 8WLED/2.7K
e22 - 8WLED/3K
e23 - 8WLED/4K
e27 - 8WLED/Amber

Optics*
NSP - Narrow Spot (Red Indicator)
SP - Spot (Green Indicator)
MFL - Medium Flood (Yellow Indicator)
WFL - Wide Flood (Blue Indicator)

Adjust-e-Lume® Output Intensity** (Choose factory setting)

A9 (Standard), A8, A7, A6, A5, A4, A3, A2, A1

**Please see Adjust-e-Lume® photometry to determine desired intensity.

Finish

Aluminum Finish			Brass Finish		Premium Finish					
Powder Coat Color	Satin	Wrinkle	Machined	MAC	ABP	Antique Brass Powder	CMG	Cascade Mountain Granite	RMG	Rocky Mountain Granite
Bronze	BZP	BZW	Polished	POL	AMG	Alcunt Mountain Granite	CRI	Cracked Ice	SDS	Sonoran Desert Sandstone
Black	BLP	BLW	Mitique™	MIT	AQW	Antique White	CRM	Cream	SMG	Sierra Mountain Granite
White (Gloss)	WHP	WHW	Stainless Finish		BCM	Black Chrome	HUG	Hunter Green	TXF	Textured Forest
Aluminum	SAP	—	Machined	MAC	BGE	Beige	MDS	Mojave Desert Sandstone	WCP	Weathered Copper
Verde	—	VER	Polished	POL	BPP	Brown Patina Powder	NBP	Natural Brass Powder	WIR	Weathered Iron
			Brushed	BRU	CAP	Clear Anodized Powder	OCP	Old Copper	Also available in RAL Finishes See submittal SUB-1439-00	

Lens Type
12 - Soft Focus Lens
13 - Rectilinear Lens

Shielding
11 - Honeycomb Baffle

Cap Style
A - 45°
B - 90°
D - 45° less Weep Hole
(Interior Use Only)
E - 90° less Weep Hole
(Interior Use Only)

Option
360SL - 360SL™ Rotational Knuckle Mounting System

DRIVER DATA	Input Volts	InRush Current	Dimmable	Operation Ambient Temperature
	12VAC/DC 50/60Hz	<1A (non-dimmed)	Magnetic Low Voltage Dimmer	-10°F-130°F

LM79 DATA

BK No.	CCT (Typ.)	Input Watts (Typ.)	CRI (Typ.)
e36	2700K	8.4	90
e22	3100K	8.4	90
e23	4100K	8.4	75
e27	Amber (590nm)	7.9	—

L70 DATA

Minimum Rated Life (hrs.) 70% of initial lumens (L70)
50,000
50,000
50,000
50,000

*OPTICAL DATA

Beam Type	Angle	Visual Indicator
Narrow Spot	14°	Red Dot
Spot	18°	Green Dot
Medium Flood	25°	Yellow Dot
Wide Flood	36°	Blue Dot

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BKSSL
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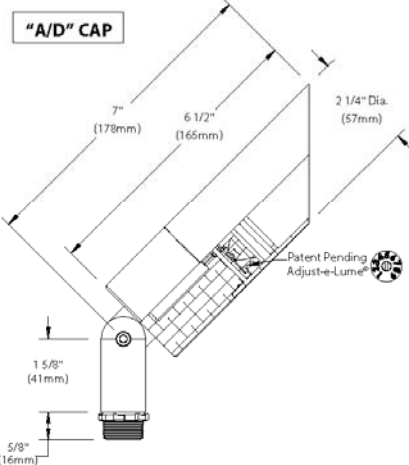
the power of
dimming



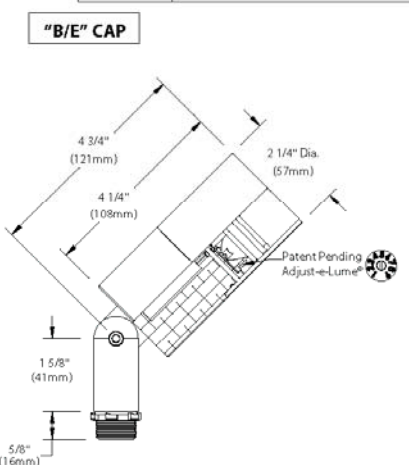
adjust-e-lume[®]
TECHNOLOGY

DELTA STAR™

"A/D" CAP



"B/E" CAP



360 SL™



Horizontal Rotation
(Optional 360SL™ Knuckle)

Accessories (Configure separately)



Power Pipe™



Power Canopy™



Tree Strap™



Stems



Canopies



UPM™



TR Series



Power Pipe™



UPWRM™

All dimensions indicated on this submittal are nominal.
Contact Technical Sales if you require more stringent specifications.

SPECIFICATIONS

GreenSource Initiative™
Metal and packaging components are made from recycled materials. Manufactured using renewable solar energy, produced onsite. Returnable to manufacturer at end of life to ensure cradle-to-cradle handling. Packaging contains no chlorofluorocarbons (CFC's). Use of this product may qualify for GreenSource efficacy and recycling rebate(s). Consult www.bklighting.com/greensource for program requirements.

Materials
Furnished in Copper-Free Aluminum (Type 6061-T6), Brass (Type 360) or Stainless Steel (Type 304).

Body
Fully machined from solid billet. Unibody design provides enclosed, water-proof wireway and integral heat sink for maximum component life. Integral knuckle for maximum mechanical strength. High temperature, silicone 'O' Ring provides water-tight seal.

Knuckle
The LOCK™ (Locking 'O' Ring Compression Knuckle) is comprised of two components. The first is integral to the body and features an interior, machined taper. The second is machined from solid billet and features a second, reverse angle taper. The resultant mechanical taper-lock allows a full 180° vertical adjustment without the use of serrated teeth, which inherently limit aiming. High temperature, silicone 'O' Ring provides water-tight seal and compressive resistance to maintain fixture position. Design withstands 73 lb. static load prior to movement to ensure decades of optical alignment. 1/2" pipe thread for mounting.

Optional 360SL™ additionally provides biaxial source control with 360° horizontal rotation in addition to vertical adjustment.

Cap
Fully machined. Accommodates (1) lens or lower media. Choose from 45° cutoff ('A' or 'D'), or 1" deep bezel with 90°

cutoff ('B' or 'E') cap styles. 'A' and 'B' caps include weep-hole for water and debris drainage. 'D' and 'E' caps exclude weep-hole and are for interior use only.

Lens
Shock resistant, tempered, glass lens is factory adhered to fixture cap and provides hermetically sealed optical compartment. Specify soft focus (#12) or rectilinear (#13) lens.

BKSSL®
Integrated solid state system with 'e' technology is scalable for field upgrade. Modular design with electrical quick disconnects permit field maintenance. High power, forward throw source complies with ANSI C78.377 binning requirements. Exceeds ENERGY STAR® lumen maintenance requirements. LM-80 certified components.

Integral, constant current driver. 12VAC/VDC input. 50/60Hz. Proprietary input control scheme achieves power factor correction and eliminates inrush current. Output, over-voltage, open-circuit, and short circuit protected. Inrush current limited to <1A (non-dimming). Conforms to Safety Std. C22.2 No. 250.13-12.

Line dimmable. For use with low voltage dimmer with dedicated neutral conductor. Minimum 25 watt load required for dimming.

Adjust-e-Lume® (Pat. Pending)
Integral electronics allows dynamic lumen response at the individual fixture. Indexed (100% to 25% nom.) lumen output. Maintains output at desired level or may be changed as conditions require. Specify factory preset output intensity.

Optics
Interchangeable OPTIKIT™ modules permit field changes to optical distribution. Color-coded for easy reference: Narrow Spot (NSP) = Red. Spot (SP) = Green. Medium Flood (MFL) = Yellow. Wide Flood (WFL) = Blue.

Remote Transformer
For use with 12VAC BKSSL remote transformer.

Wiring
Teflon® coated, 18AWG, 600V, 250° C rated and certified to UL 1659 standard.

Hardware
Tamper-resistant, stainless steel hardware. LOCK™ aiming screw is additionally black oxide treated for additional corrosion resistance.

Finish
StarGuard®, our exclusive RoHS compliant, 15 stage chromate-free process cleans and conversion coats aluminum components prior to application of Class 'A' TGAC polyester powder coating. Brass components are available in powder coat or handcrafted metal finish. Stainless steel components are available in handcrafted metal finish. (Brushed finish for interior use only).

Warranty
5 year limited warranty.

Certification and Listing
ETL tested to IESNA LM-79. Lighting Facts Registration per USDOE (www.lightingfacts.com). ETL Listed to ANSI/UL Standard 1838 and UL Standard 8750. Certified to CAN/CSA Standard C22.2 No. 9, CSA TIL B-58B. RoHS compliant. Suitable for indoor or outdoor use. Suitable for use in wet locations. Suitable for installation within 4' of the ground. IP66 Rated. Made in USA.






*Teflon is a registered trademark of DuPont Corporation.
 *Energy Star is a registered trademark of the United States Environmental Protection Agency.

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SUB000930



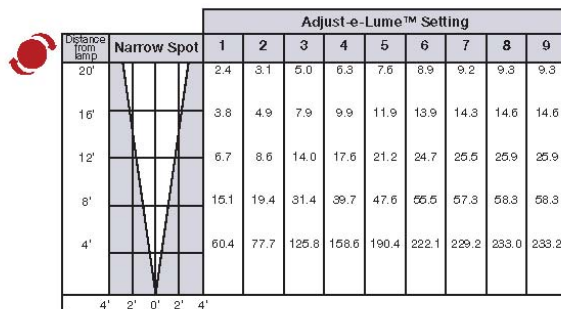
Photometry for use with e36



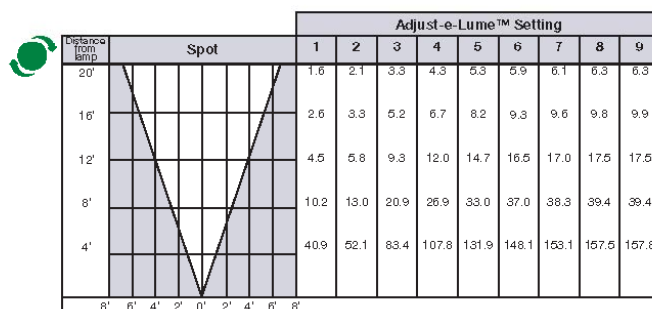
Select OptiKit™ for desired distribution

- RED Narrow Spot (NSP)
- GREEN Spot (SP)
- YELLOW Medium Flood (MFL)
- BLUE Wide Flood (WFL)

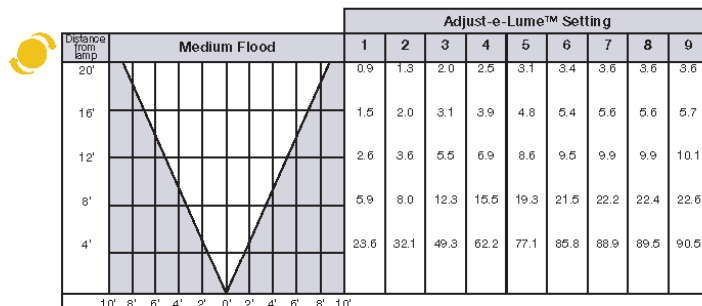
Set adjust-e-lume™ Dial to desired output



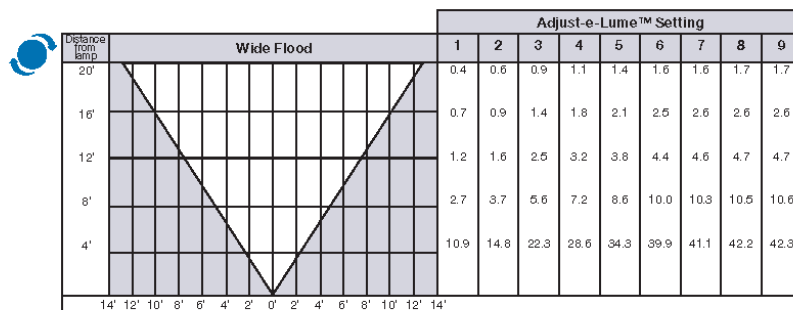
Note: If using No. 11 honeycomb baffle multiply footcandle values by .80



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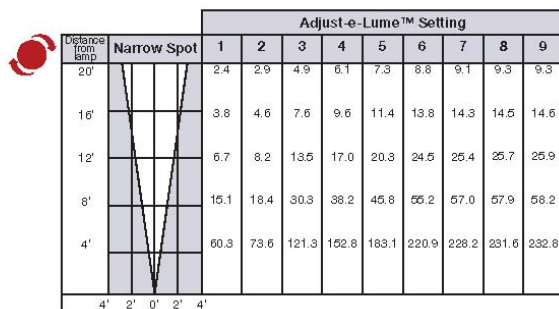
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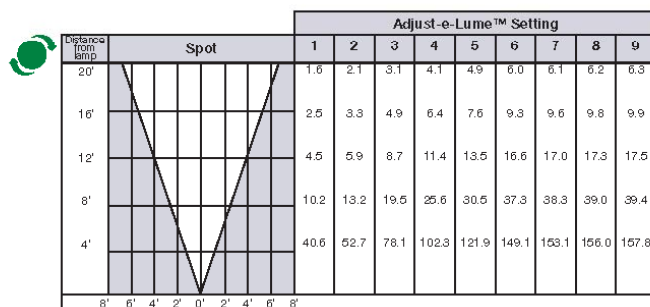
Select OptiKit™ for desired distribution

- RED  **Narrow Spot (NSP)**
- GREEN  **Spot (SP)**
- YELLOW  **Medium Flood (MFL)**
- BLUE  **Wide Flood (WFL)**

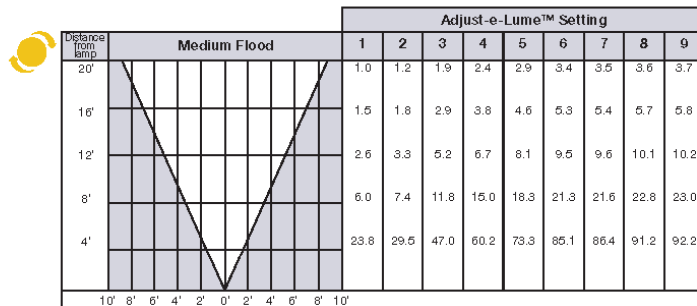
Set adjust-e-lume™ Dial to desired output



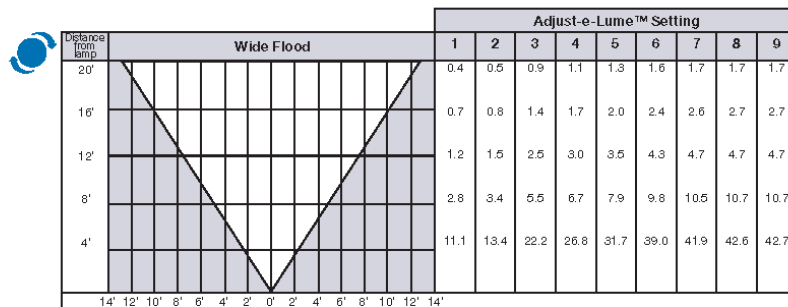
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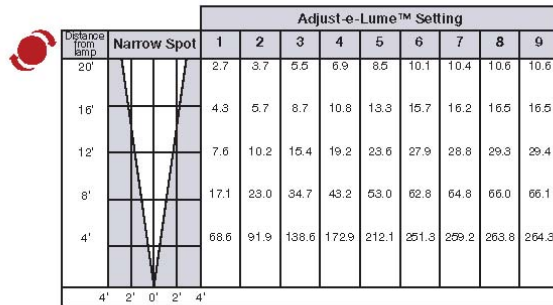
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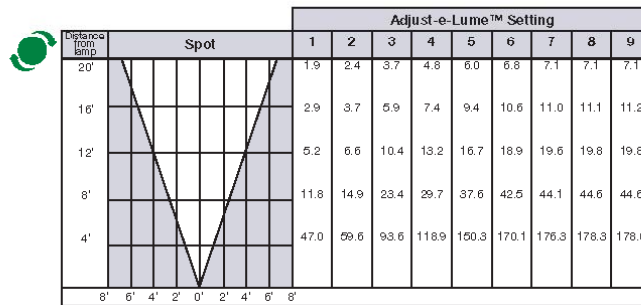
Select OptiKit™ for desired distribution

RED		Narrow Spot (NSP)
GREEN		Spot (SP)
YELLOW		Medium Flood (MFL)
BLUE		Wide Flood (WFL)

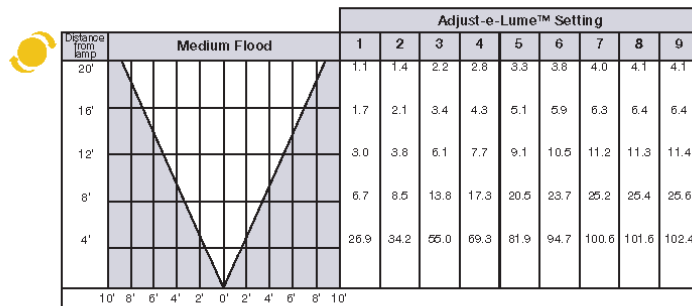
Set adjust-e-lume™ Dial to desired output



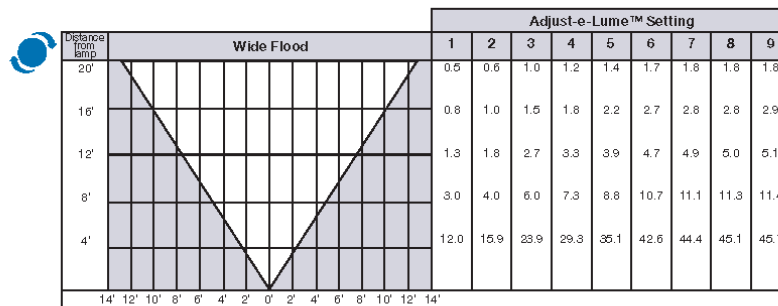
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