INVITATION FOR BID (IFB)

IFB #15-108
(Re-bid of IFB#15-105)

Prospect Hill Tower Stabilization

CITY OF SOMERVILLE, MASSACHUSETTS
Mayor Joseph A. Curtatone

RELEASED:
July 1, 2015

DUE BY:

- **Filed Sub-bids: July 16, 2015 11:00 A.M.**
- **General bids: July 23, 2015 11:00 A.M.**

DELIVER TO:

City of Somerville
Purchasing Department
Attn: Angela M. Allen
93 Highland Avenue
Somerville, MA 02143

PART 1: BIDDING INSTRUCTIONS AND FORMS

Invitation to Bid

Instructions to Bidders

Bid Submission Documents
Bidders Note: all forms in this sub-section shall be submitted with bid.

Other Bid Documents
Division of Labor and Industries Prevailing Wage Rates
Division of Labor and Industries Statement of Compliance
General Terms and Conditions

PART 2: SAMPLE CONSTRUCTION CONTRACT

Sample Contract

- Appendix A – Scope of Work (including Technical Specifications)*
- Appendix B – Contractor's Bid Price; Form for General Bid , Bid Form for Alternates (From Bid Book)
- Appendix C – General Terms and Conditions*
- Appendix D – Insurance Requirements
- Appendix E – Prevailing Wage Rates and Living Wage
- Appendix F – Certificate of Good Standing (for corporations)
- 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

*Appendix to be included in contract by reference

PART 3: TECHNICAL SPECIFICATIONS

PART 1: BIDDING INSTRUCTIONS AND FORMS

CITY OF SOMERVILLE, MASSACHUSETTS
INVITATION TO BID

PROSPECT HILL TOWER STABILIZATION
Bid No. IFB #15-108 (Re-bid of IFB #15-105)

Enclosed you will find an invitation to bid for the above-referenced project at Prospect Hill Park located at **58 Munroe Street, Somerville, MA 02143.**

Plans and specifications will be available online from the City's Purchasing Department web page: http://www.somervillema.gov/departments/finance/purchasing/bids and via email by request to amallen@somervillema.gov.

A Pre-Bid Conference and site visit, will be held on Thursday, July 9, 2015 at 10:00 a.m., 58 Munroe Street, Somerville, MA 02143. Participants shall convene at park at this address.

Filed Sub-bids will be received at the Purchasing Department, 1st Floor, City Hall, 93 Highland Avenue, Somerville, MA 02143 until **Thursday, July 16, 2015 at 11:00 a.m.** at which time all general bids will be publicly opened and read aloud.

Filed Sub-bids for this project are for: **Ornamental Iron**

Sealed general bids will be received at the Purchasing Department, 1st Floor, City Hall, 93 Highland Avenue, Somerville, MA 02143 until **Thursday, July 23, 2015 at 11:00 a.m.** at which time all general bids will be publicly opened and read aloud.

Please mark the outside of all sealed bid envelopes (for filed sub-bids and general bids) with the following: **"IFB #15-108 Prospect Hill Tower Stabilization."** Filed sub-bidders shall also indicate on the envelope which trade(s) are included in the enclosed bid(s).

BIDS SUBMITTED MUST BE AN ORIGINAL.

The completion of the forms provided and listed in Part 1, Section 3 is necessary for consideration of a potential contract award. When submitting bid documents, please refer to Part I, Section 3 where the Bidder's Checklist appears and retain the order of documents as originally provided.

All general bids and filed sub-bids shall be accompanied by a bid deposit in the form of a certified, cashier's or treasurer's check issued by a responsible bank or trust company made payable to the City of Somerville, or a bid bond, in an amount not less than five percent (5%) of the value of the bid. Massachusetts Prevailing Wage Rates apply to this procurement. For building construction contracts over $100,000, the City of Somerville's Responsible Employer Ordinance applies.

CITY HALL HOURS: WE ARE OPEN MONDAY THROUGH WEDNESDAY, 8:30AM THROUGH 4:30PM, UNTIL 7:30 P.M. ON THURSDAYS, AND CLOSE ON FRIDAYS AT 12:30 P.M.

INSTRUCTIONS TO BIDDERS

(M.G.L. Chapter 149 – Construction - Competitive Sealed Bids)

1. NAME OF PROJECT

Prospect Hill Tower Stabilization

2. AWARDING AUTHORITY

The City of Somerville (City), acting by and through the Purchasing Department, invites sealed bids for the above referenced project in accordance with the Contract Documents.

Contact (during bidding phase and pre-award):
Angela M. Allen
Director of Purchasing

City of Somerville
93 Highland Avenue
Somerville, MA 02143
Phone (617) 625-6600 x3400

3. ARCHITECT:

TBA Architects, Inc.
43 Bradford Street
Concord, MA 01742

Contact: Russel Feldman, Principal
Phone: (781) 893-5828

4. LOCATION OF PROJECT

The location of the Prospect Hill Tower is in Prospect Hill Park at 58 Munroe Street, Somerville, MA.

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

The City seeks construction repairs to Prospect Hill Tower. The project involves but is not limited to masonry re-pointing and stone setting; restoration of iron railings, staircase, doors, concrete retaining wall; replacement of upper floor slab.

6. PROJECT SCHEDULE:

Construction Start:	estimated August 2015
Substantial Completion:	120 days from Notice to Proceed
Final Completion:	30 days from Substantial Completion

Bidders are instructed to note the firmness of the dates of 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 State, and four complete originals of the contract with wet-signed 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.

7. GOVERNING LAW

Massachusetts General Laws, c. 149M.

8. 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.

9. PERMIT FEES

Contractor is responsible for all permits. Fees for City of Somerville permits are waived.

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

- All general bidders must be DCAMM certified for Masonry (applies only to contracts valued at $100,000 or more). All filed-sub bidders must be DCAMM certified in the respective sub-trade indicated for this bid.

11. PRE-BID CONFERENCE QUESTIONS AND INFORMATION

A Pre-Bid Conference and site visit, will be held on Thursday, July 9, 2015 at 10:00 a.m., at Prospect Hill Park (58 Munroe Street). Participants shall convene at this address.

All questions regarding the project and this Invitation to Bid should be in writing, submitted to Angela M. Allen, 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 amallen@somervillema.gov.

Questions must be submitted in writing **by 12:00 noon, Friday, July 10, 2015,** and they will be answered in writing 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

Pre-bid Conference	10:00 a.m.	July 9, 2015
Deadline for Questions	12:00 noon	July 10, 2015
Filed Sub-Bids Due and Opened	**11:00 a.m.**	**July 16, 2015**
General Bids Due and Opened	**11:00 a.m.**	**July 23, 2015**
Anticipated Contract Award		August 2015
Anticipated Notice to Proceed (NTP)		August 2015
Commencement of Work		August 2015
Project Completion		120 days from NTP

12. BID SUBMISSION TIME AND PLACE OF BID OPENING

Sealed bids (clearly identified as a bid and endorsed with the name and address of the bidder) must be received **no later than 11:00 a.m.** by the Purchasing Department, first floor, City Hall, 93 Highland Avenue, Somerville, MA, 02143 on or before **July 16, 2015 for FILED SUB BIDS and July 23, 2015 for GENERAL BIDS**, at which time they will be publicly opened and read aloud. In the event City Hall is closed, the deadline shall be 11:00 a.m**.** on the next day City Hall is open for business.

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

13. BID SUBMISSION REQUIREMENTS

Bid Signature

A bid must be signed as follows: 1) if the bidder is an individual, by her/him personally; 2) if the bidder is a partnership, by the name of the partnership, followed by the signature of each general partner; and 3) if the bidder is a corporation or limited liability company (LLC), by the authorized officer, whose signature must be a person named on the Corporate Secretary's Certificate of Authority or Certificate of Authority for an LLC (see required forms in this bid package).

Changes and Addenda

If any changes are made to this IFB, an addendum will be issued. Addenda will be posted on the city's purchasing web-page (http://www.somervillema.gov/departments/finance/purchasing/bids) and notification of all addenda and the link to such addenda will be e-mailed 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 in whole or in part any and all bids, if the City determines that cancellation or rejection serves the best interests of the City.

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:

Bid Submission Documents. Refer to Bidder's Checklist on following pages and ensure that all required forms are included with bid.

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.

14. APPLICABLE WAGE RATES:

The contractor shall pay Massachusetts state prevailing wage rates. The applicable 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. The form can be found in the bid submission documents.

15. SAMPLE CONSTRUCTION CONTRACT

The successful bidder shall execute with the City of Somerville a 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 B) include:

Certificate of Authority (for corporations and LLC's if the contract is signed by 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 Corporation's or LLC's behalf)

Appendix D: Insurance Certificates – evidencing minimum coverage as follows:
General Liability: $1,000,000 per occurrence, $2,000,000 aggregate
Automobile Liability: $500,000 per occurrence, $1,000,000 aggregate
Workman's Compensation: statutory coverage

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. The Contractor must obtain all permits as necessary.

19. RESERVATION OF RIGHTS

The City reserves the right to extend the deadline for submission of bids, to request supplemental information, to waive minor informalities, and reserves the right 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 responsive and eligible.

Bidder's Checklist

IFB #15-108

Prospect Hill Tower Stabilization

BID SUBMISSION DOCUMENTS

BIDDER'S NAME: _____

This Bid Submission includes the following:

____ General Bid Form *OR* Sub-Bid Form

____ Acknowledgement of Notice to Bidders

____ Quality Requirements

____ Somerville Living Wage Form

____ Responsible Employer Ordinance Form (applicable for projects $100K and more)

____ Certificate of Non-Collusion and Tax Compliance

_____Certificate of Signature Authority

_____Reference Form

_____Subcontractor Form

_____ OSHA Compliance Certification

_____5% Statutory Bid Bond or Guaranty

_____Prevailing Wage Compliance Form

_____DCAMM Certificate of Eligibility and Update Statement (not applicable for projects under $100,000)

SECTION 00300
GENERAL BID FORM

Bid of_____(hereinafter called "Bidder")*

(____) a corporation, organized and existing under the laws of the state of

_____

(____) a partnership

(____) a joint venture

(____) an individual doing business as _____

* Insert corporation, partnership or individual as applicable.

To the City of Somerville, (hereinafter called "Owner"):

A. The Bidder, in compliance with your invitation for bids for the Prospect Hill Tower Stabilization having examined the plans and specifications with related documents and the site of the proposed work, and being familiar with all of the conditions surrounding the construction of the proposed project including the availability of materials and labor, hereby proposes to furnish all labor, materials, and supplies, and to construct the project in accordance with the contract documents within the time set forth below, and at the prices stated below. These prices are to cover all expenses incurred in performing the work required under the contract documents, of which this proposal is a part.

   The Bidder hereby agrees to commence work under this contract on or before a date to be specified in written "Notice to Proceed" of the Owner, and to fully complete the project within one hundred twenty (120) consecutive calendar days thereafter.

B. This Bid includes the following addenda:

   No._____Dated:_____

   No._____Dated:_____

   No._____Dated:_____

   No._____Dated:_____

   No._____Dated:_____

C. The Bidder agrees to perform the bid work described in the specifications and shown on the plans for the following contract price (in words and numbers please):

_____

_____

Alternates: List price for each alternate individually. Per the provisions of MGL c149, alternates will be cumulative.

Alternate 1: Add _____ $ _____

Alternate 2: Add _____ $ _____

D. The subdivision of the proposed contract price is as follows:
Item 1. The work of the General Contractor, being all work other than that covered by Item 2 (in words and numbers please):

_____

_____

Item 2. Sub-bids as follows:

Sub-trade	Name of Sub-Bidder		Amount	Bond Required "Yes" or "No"
Ornamental Iron			$	
Subtotal, Item #2			$	

E. The undersigned agrees that, if he is selected as general contractor, he will within five (5) days, Saturdays, Sundays and legal holidays excluded, after presentation thereof by the awarding authority, execute a contract in accordance with the terms of this bid and furnish a performance bond and also a labor and materials or payment bond, each of a surety company qualified to do business under the laws of the commonwealth and satisfactory to the awarding authority and each in the sum of the contract price, the premiums for which are to be paid by the general contractor and are included in the contract price.

The undersigned hereby certifies that he is able to furnish labor that can work in harmony with all other elements of labor employed or to be employed on the work and that he will comply fully with all laws and regulations applicable to awards made subject to section forty-four A.

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

Pursuant to M.G.L. CH. 62C, Sec 49A, I certify under the penalties of perjury that I, to my best knowledge and belief, have filed all state tax returns and paid all State Taxes required under law.

Respectfully

submitted: Date:___

By:_____ (Signature)

_____
(Name of Bidder)

(SEAL - if bid is by a corporation)

_____
(Title)

_____
(Business Address)

_____
(City and State)

_____
(Telephone Number)

_____
(Email Address)

CERTIFICATE of TAX COMPLIANCE

Pursuant to M.G.L. CH. 62C, Sec 49A, I certify under the penalties of perjury that I, to my best knowledge and belief, have filed all state tax returns and paid all State Taxes required under law.

Respectfully submitted:

Date:_____

By:_____
(Signature)

_____
(Name of Bidder)

(SEAL - if bid is by a corporation)

_____
(Title)

_____
(Business Address)

_____
(City and State)

_____
(Telephone Number)

END OF CERTIFICATE OF TAX COMPLIANCE

CERTIFICATE AS TO CORPORATE BIDDER

I_____,

certify that I am the_____of the Corporation named as bidder

the within Bid Form; that_____who signed said Bid Form in behalf of

the Bidder was then_____of said Corporation; that I know his

signature and that his signature hereto is genuine and that said Bid form was duly signed,

sealed and executed for and in behalf of said Corporation by authority of its governing body.

(Corporate Seal)

_____ _____

Name Title

This Certificate must be completed where Bidder is a Corporation, and should be so completed by its Clerk. In the event that the Clerk is the person signing the Proposal on behalf of the Corporation, this Certificate must be completed by another Officer of the Corporation.

END OF CERTIFICATE AS TO CORPORATE BIDDER

ATTACHMENT TO BID FORM

Name of Bidder:

_____

A. The names and addresses of all persons interested in this proposal, as principals other than the undersigned, are as follows:

_____

_____

_____

_____

B. The bidder is (an): Individual Partnership Corporation Joint Venture Trust

1. If a bidder is a partnership, state names and residential addresses of all partners:

_____

_____

_____

2. If a bidder is a corporation, state the following:

Corporation is incorporated in the state of _____

Its President is _____

Its Treasurer is _____

3. If the bidder is a Joint Venture, state the names and business addresses of each person, firm or company that is party to the Joint Venture:

_____

_____

_____

4. If the bidder is a Trust, state the names and residential addresses of all Trustees.

_____

C. The undersigned offers the following information as evidence for its qualifications to perform the work as bid upon according to all requirements of the plans and specifications

1. Have been in business under the present business name for_____years.

2. Ever failed to complete any work awarded? _____

List no fewer than three recent projects with the name of the architect/engineer on which you served as in the same capacity *for work of similar character* as required for the above named project:. (Include additional material if available.)

Project	Architect (individual in charge, telephone)	Contract Value

D. Bank Reference:

END OF ATTACHMENT TO BID FORM

SECTION 00400
SUB-BID FORM

Filed-Sub Bid for the Ornamental Iron Trade

To all General Bidders except those excluded:

A. The undersigned proposes to furnish all labor and materials required for completing, in accordance with the hereinafter described plans, specifications and addenda, all the work specified in Sections

No. _____

_____ and any plans specified in such sections prepared by

TBA ARCHITECTS, INC. 43 Bradford Street, Concord, Massachusetts 01742

For the Prospect Hill Tower Stabilization, Prospect Hill Park, Somerville, MA

For the contract price specified below, subject to additions and deductions according to the terms of the specifications the Sub-Bidder agrees to perform the Sub-Bid work described in the specifications and shown on the plans for the following contract price (in words and numbers, please):

_____

_____

Alternates: List price for each alternate individually. Per the provisions of MGL c149, alternates will be cumulative

Alternate 1: Add _____ $ _____

Alternate 2: Add _____ $ _____

B. This Sub-Bid includes the following addenda:

No._____ Dated:_____

No._____ Dated:_____

No._____ Dated:_____

No._____ Dated:_____

No._____ Dated:_____

C. This Sub-bid

- ❑ may be used by any general bidder except:

_____

_____

- ❑ may only be used by the following general bidders:

_____

_____

To exclude general bidders, darken the box on one line only and fill in the blanks following that box. Do not answer this section if no general bidders are excluded.

D. The undersigned agrees that, if he is selected as Sub-contractor, he will within five (5) days, Saturdays, Sundays, and legal holidays excluded, after presentation thereof by the general bidder selected as the general contractor, execute the Contract in accordance with the terms of this Sub-bid, and contingent upon the general bid by such general bidder, who shall pay the premiums therefor, and furnish a performance bond and also a payment bond each of a surety company qualified to do business under the laws of the Commonwealth and satisfactory to the Awarding Authority, and each in the full sum of the sub-contract price.

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

Name	Class of Work	Bid Price
		$
		$
		$
		$

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

G. The undersigned further agrees to be bound to the General Contractor by the terms of the drawings and specifications, including all general conditions therein, and addenda, and to assume toward it all the obligations and responsibilities that the General Contractor under the contract document assumes toward the Awarding Authority.

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

1. Have been in business under present business name _____years.

2. Ever failed to complete any work awarded? _____

3. List one or more recent buildings with names of the general contractor and architect on which you served as a sub-contractor for work of similar character as required for the above-named building.

Building	Architect	General Contractor	Amount of Contract

4. Bank reference _____

I. The undersigned hereby certifies that he is able to furnish labor that can work in harmony with all other elements of labor employed or to be employed on the work; that all

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

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

Date_____

_____
(Name of Sub-bidder)

By _____ (Title and Name of Person Signing Bid)

_____
(Business Address)

_____
(City and State)

_____
(Telephone Number)

_____
(Email Address)

CERTIFICATE AS TO CORPORATE SUB-BIDDER

I_____,

certify that I am the_____of the Corporation named as Sub-Bidder the within Sub-Bid Form; that_____who signed said Sub-Bid Form in behalf of the Sub-Bidder was then_____of said Corporation; that I know his signature and that his signature hereto is genuine and that said Sub-Bid form was duly signed, sealed and executed for and in behalf of said Corporation by authority of its governing body.

(Corporate Seal)

_____ _____
Name Title

This Certificate must be completed where Sub-Bidder is a Corporation, and should be so completed by its Clerk. In the event that the Clerk is the person signing the Proposal on behalf of the Corporation, this Certificate must be completed by another Officer of the Corporation.

END OF CERTIFICATE AS TO CORPORATE SUB-BIDDER

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ATTACHMENT TO SUB- BID FORM

Name of Sub-Bidder: _____

A. The names and addresses of all persons interested in this proposal, as principals other than the undersigned, are as follows:

_____

_____

_____

_____

B. The Sub-Bidder is (an): Individual Partnership Corporation Joint Venture Trust

1. If a Sub-Bidder is a partnership, state names and residential addresses of all partners:

_____

_____

_____

2. If a Sub-Bidder is a corporation, state the following:

Corporation is incorporated in the state of _____

Its President is _____

Its Treasurer is _____

3. If the Sub-Bidder is a Joint Venture, state the names and business addresses of each person, firm or company that is party to the Joint Venture:

_____

_____

_____

4. If the Sub-Bidder is a Trust, state the names and residential addresses of all Trustees.

_____

_____

_____

C. The undersigned offers the following information as evidence for its qualifications to perform the work as bid upon according to all requirements of the plans and specifications

1. Have been in business under the present business name for _____ years.

2. Ever failed to complete any work awarded? _____

   List no fewer than three recent projects with the name of the general contractor and architect/engineer on which you served as in the same capacity *for work of similar character* as required for the above named project:. (Include additional material if available.)

Project	Architect (individual in charge, telephone)	General Contractor individual in charge, telephone)	Contract Value

D. Bank Reference:

_____

_____

END OF ATTACHMENT TO SUB-BID FORM

NOTICE TO BIDDERS
IFB #15-108

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

SECTION A. **Sealed filed sub-bids** will be received at the office of the Purchasing Director, 93 Highland Avenue, Somerville, MA 02143 no later than **July 16, 2015 at 11:00 a.m.** at which time and place they will be publicly opened and read. **Sealed general bids** will be received at the office of the Purchasing Director, 93 Highland Avenue, Somerville, MA 02143 no later than **July 23, 2015 at 11:00 a.m.** at which time and place they will be publicly opened and read.

A Pre-Bid Conference and site visit, will be held on July 9, 2015 at 10:00 am.

SECTION B. Bid package including all bid forms, specifications and terms of contract can be obtained online or from the Purchasing Department on or after **July 1, 2015.**

SECTION C. Bid envelopes shall be clearly marked as follows: **"IFB #15-108, Prospect Hill Tower Stabilization."**

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
Prevailing Wage Rates
Responsible Employer Ordinance (applies only to projects $100,000 and above)

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 (Labor and Materials) Bond in the amount of 100% of the total contract price will be required by the City.

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. See Bidder's Checklist and insert documentation with bid.

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

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 final 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 projects within the past six (6) years?		
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?		
Is the General Contractor and Filed Sub-Bidder DCAMM Certified?		
Optional: Vendor: Are you a State Office for Minority and Women Owned Business Assistance (SOMWBA) certified minority- or woman-owned business?		

SOMERVILLE LIVING WAGE ORDINANCE CERTIFICATION FORM

CITY OF SOMERVILLE CODE OF ORDINANCES SECTION 2-397 et seq[*].

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

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

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

CERTIFICATIONS

1. The undersigned shall pay no less than the Living Wage to all covered employees who directly expend their time on the contract or subcontract with the City of Somerville.

2. The undersigned shall post a notice, (copy enclosed), to be furnished by the contracting City Department, informing covered employees of the protections and obligations provided for in the Somerville Living Wage Ordinance, and that for assistance and information, including copies of the Ordinance, employees should contact the contracting City Department. Such notice shall be posted in each location where services are performed by covered employees, in a conspicuous place where notices to employees are customarily posted.

3. The undersigned shall maintain payrolls for all covered employees and basic records relating hereto and shall preserve them for a period of three years. The records shall contain the name and address of each employee, the number of hours worked, the gross wages, a copy of the social

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

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

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

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

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

CERTIFIED BY:

Signature: _____
(Duly Authorized Representative of Vendor)

Title: _____

Name of Vendor:_____

Date: _____

INSTRUCTIONS: PLEASE POST

NOTICE TO ALL EMPLOYEES
REGARDING PAYMENT OF LIVING WAGE

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

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

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

CITY OF SOMERVILLE
ORDINANCE NO. 2008-08
IN THE BOARD OF ALDERMEN: June 12, 2008

Be it ordained by the Board of Aldermen, in session assembled, that the Code of Ordinances of the City of Somerville, is hereby amended by adding a new Section 2-355 as follows:

Sec. 2-355. Responsible Employer Ordinance.

(a) The Board of Aldermen hereby finds and determines that the failure of certain construction firms awarded contracts funded by the City to include and enforce provisions requiring compliance with state laws governing the payment of prevailing wages, the provision of workers compensation coverage, and the proper classification of individuals as employees and not as independent contractors, as well as provisions concerning health insurance coverage and state-certified apprenticeship programs, is injurious to the life, health and happiness of individuals employed by such firms and is deleterious to the quality of life in the City where most of such individuals reside.

(b) Every contract awarded by the City under G. L. c. 149, § 44A (2) where the amount of the contract is more than one-hundred thousand dollars, and any subcontract awarded in connection with any such general contract where the amount of such subcontract is more than twenty-five thousand dollars, shall be deemed to incorporate by reference the provisions of sub-parts (1) through (5) of this subsection together with the provisions of subsections (c), (d) and (e) of this section.

1. The bidder and all subcontractors under the bidder shall comply with the requirements of G. L. c. 149 concerning the payment of prevailing wage rates to their employees;
2. The bidder and all subcontractors under the bidder must maintain and participate in a bona fide apprentice training program as defined by G. L. c. 23, §§ 11H & 11I for each apprenticeable trade or occupation represented in its workforce that is approved by the division of apprentice training of the department of labor and workforce development of the Commonwealth and must abide by the apprentice to journeymen ratio for each trade prescribed therein in the performance of the contract;
3. The bidder and all subcontractors under the bidder must offer, at its expense, hospitalization and medical benefits for all individuals employed on the project or coverage which is comparable to the hospitalization and medical benefits provided by the health and welfare plans in the applicable craft recognized by G. L. c. 149, § 26, in establishing minimum wage rates. All such plans shall meet or exceed state requirements for such plans.
4. The bidder and all subcontractors under the bidder must maintain appropriate industrial accident insurance coverage in accordance with G. L. c. 152 for all individuals employed on the project;
5. The bidder and all subcontractors under the bidder must properly classify individuals employed on the project as employees rather than independent contractors and comply with all laws concerning workers' compensation insurance coverage, unemployment taxes, social security taxes and income taxes as respects all such employees.

(c) All bidders and all subcontractors under such bidders who are awarded, or otherwise obtain, contracts from the city on projects governed by G. L. c. 149, § 44A (2), shall comply with the obligations described in sub-parts (1) through (5) of subsection (b) of this section for the entire duration of their work on the project, and an officer of each such bidder or subcontractor under the

bidder shall certify under oath and in writing on a weekly basis that they are in compliance with these obligations.

(d) Any bidder or subcontractor under the bidder who fails to comply with any of the obligations described in sub-parts (1) through (5) of subsection (b) of this section for any period of time, or fails to comply with the weekly certification obligations described in subsection (c) of this subsection shall be subject to any or all of the following sanctions:

1. temporary suspension of work on the project until compliance is obtained; or,
2. withholding by the City of payment due under the contract until compliance is obtained; or,
3. permanent removal from any further work on the project; or,
4. recovery by the city from the general contractor of 1/10 of 1% of the general contract or $ 1,000.00, whichever sum is greater, in the nature of liquidated damages assessed for each week that the general contractor is in non-compliance or, if a subcontractor is in non-compliance, the recovery by the city from the general contractor as a back charge against the subcontractor of 1/10 of 1% of the subcontract price, or $ 400.00, whichever sum is greater, in the nature of liquidated damages assessed for each week that the subcontractor is in non-compliance.

(e) In addition to these sanctions a general bidder or contractor shall be equally liable for any violation of the obligations described in sub-parts (l) through (5) of subsection (b) of this section committed by any of its subcontractors or sub bidders, excepting only those violations which arise from work performed by subcontractors with subcontracts governed by G. L. c. 149, § 44F. Any contractor or subcontractor who has been determined to have violated any of the provisions of subsections (b) or (c) of this section shall be barred from performing any work on any future contracts awarded by the City for six months for the first violation, three years for the second violation, and permanently for a third violation.

(f) The provisions of this section shall not apply to construction projects for which the low general bid was less than one-hundred thousand dollars, or to work performed pursuant to subcontracts governed by G. L. 149, § 44F where the bid for such subcontract was less than twenty-five thousand dollars.

Receipt Acknowledged _____day of _____,_____.

_____
Name of Vendor

By: _____
Name

Its: _____
Title

_____
Signature

CITY OF SOMERVILLE
Responsible Employer Ordinance

WEEKLY COMPLIANCE FORM

In accordance with the Code of Ordinances of the City of Somerville, Section 2-355, all general contractors and all subcontractors under such general contractors who are awarded, or otherwise obtain, contracts from the city on projects governed by G. L. c. 149, § 44A (2), shall comply with the obligations described in sub-parts (1) through (5) of subsection (b) of this section for the entire duration of their work on the project, and an officer of each such general contractor or subcontractor under the general contractor where the amount of such subcontract is more than $25,000.00, shall certify under oath and in writing on a weekly basis that they are in compliance with these obligations.

STATEMENT OF COMPLIANCE

Date _____

Period _____

1, _____, _____
(Print Name) (Title)

Do hereby state that _____ is in compliance with all
(Contractor or Subcontractor)

requirements of the City of Somerville's Responsible Employer Ordinance, City Ordinance Section 2-355, for the duration of all work performed on the

_____ by this general contractor or
(Building or Project)

subcontractor.

_____
(Signature)
Signed under the pains and penalties of perjury

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: _____

Print

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: _____ ***AFFIX CORPORATE SEAL HERE***
(**Clerk or Secretary)**
Printed Name: _____

Printed Title:_____

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

Print

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.

Name	Title

5. **Signature**:_____

Printed Name: _____

Printed Title:_____

Date: _____ Print

Past Performance Reference Title:	
Contract Number	
Contract Value	
Period of Performance	
POC Name & Title	
Telephone	
Fax	
Email	
Summary of supplies or services provided	

SUB-CONTRACTOR FORM

Please list below any sub-contractors that will be involved with this project.

1. Company Name: _____

   Service Provided: _____

   Contact Name: _____

   Phone # _____

2. Company Name: _____

   Service Provided: _____

   Contact Name: _____

   Phone # _____

3. Company Name: _____

   Service Provided: _____

   Contact Name: _____

   Phone # _____

OSHA Compliance Certification

OSHA GENERAL CONTRACTOR CERTIFICATION FORM

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

GENERAL CONTRACTOR'S CERTIFICATION – BID FORM

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

> (1) that I am able to furnish labor that can work in harmony with all other elements of labor employed or to be employed in the work; (2) that all employees to be employed at the worksite will have successfully completed a course in construction safety and health approved by the United States Occupational Safety and Health Administration that is at least 10 hours in duration at the time the employee begins work and who shall furnish documentation of successful completion of said course with the first certified payroll report for each employee; and (3) that all employees to be employed in the work subject to this bid have successfully completed a course in construction safety and health approved by the United States Occupational Safety and Health Administration that is at least 10 hours in duration.

As used in this certification, the word "person" shall mean any natural person, business, partnership, corporation, union, committee, club, or other organization, entity, or group of individuals.

Signature: _____
(Individual Submitting Bid)
Duly Authorized

Name of Business or Entity:_____

Date: _____

RETURN THIS FORM WITH YOUR BID

OSHA FILED SUB-BIDDER CERTIFICATION FORM

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

FILED SUB-BIDDER CERTIFICATION – BID FORM

I, the undersigned, hereby certify under penalties of perjury that:

> (1) that I am able to furnish labor that can work in harmony with all other elements of labor employed or to be employed in the work; (2) that all employees to be employed at the worksite will have successfully completed a course in construction safety and health approved by the United States Occupational Safety and Health Administration that is at least 10 hours in duration at the time the employee begins work and who shall furnish documentation of successful completion of said course with the first certified payroll report for each employee; and (3) that all employees to be employed in the work subject to this bid have successfully completed a course in construction safety and health approved by the United States Occupational Safety and Health Administration that is at least 10 hours in duration.

As used in this certification, the word "person" shall mean any natural person, business, partnership, corporation, union, committee, club, or other organization, entity, or group of individuals.

Signature: _____
(Individual Submitting Filed Sub-Bid)
Duly Authorized

Name of Business or Entity:_____

Bid Number and Title: _____

Date: _____

RETURN THIS FORM WITH YOUR BID

BID BOND OR GUARANTY

BIDDER TO INSERT HERE

Prevailing Wage Compliance Form

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:	Tax Payer ID 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:

Employee Name & Complete Address	Employee is OSHA 10 Certified (?)	Work Classification:	Appr. Rate (%)	Hours Worked Su.	Mo.	Tu.	We.	Th.	Fr.	Sa.	Project Hours (A) All Other Hours	Hourly Base Wage (B)	"Employer" Hourly Fringe Benefit Contributions: Health & Welfare Insurance (C)	ERISA Pension Plan (D)	Supp. Unemp. (E)	(B+C+D+E) Total Hourly Prev. Wage (F)	(A x F) Project Gross Wages (G) Total Gross Wages	Check No. (H)
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	☐																	
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	☐																	
	☐																	

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.

Date recieved by awarding authority
/ /

DCAMM Certificate of Eligibility and Update Statement

Bidder to Insert Here (may be in separate envelope if desired)

Other Bid Documents

- The following documents do not need to be submitted as part of the bid.

- The bidder's signature on the Form for General Bid confirms that the bidder acknowledges and agrees to the requirements in the entire bid package.

Division of Labor and Industries Wage Rates

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

Prevailing Wage Rates

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

CHARLES D. BAKER
Governor

KARYN E. POLITO
Lt. Governor

RONALD L. WALKER, II
Secretary

JEAN ZEILER
Acting Director

Awarding Authority: City of Somerville

Contract Number:

City/Town: SOMERVILLE

Description of Work: Prospect Hill Tower Stabilization: Project involves masonry re-pointing and stone setting; restoration of iron railings, staircase, doors, concrete retaining wall; replacement of upper floor slab.

Job Location: 58 Munroe Street at Prospect Hill Park

Information about Prevailing Wage Schedules for Awarding Authorities and Contractors

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

Issue Date: 05/08/2015 **Wage Request Number:** 20150508-031

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
Construction						
(2 AXLE) DRIVER - EQUIPMENT	12/01/2014	$32.40	$9.91	$9.33	$0.00	$51.64
TEAMSTERS JOINT COUNCIL NO. 10 ZONE A	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	12/01/2014	$32.47	$9.91	$9.33	$0.00	$51.71
TEAMSTERS JOINT COUNCIL NO. 10 ZONE A	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	12/01/2014	$32.59	$9.91	$9.33	$0.00	$51.83
TEAMSTERS JOINT COUNCIL NO. 10 ZONE A	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	08/01/2014	$87.36	$9.80	$18.17	$0.00	$115.33
PILE DRIVER LOCAL 56 (ZONE 1)	08/01/2015	$90.51	$9.80	$18.17	$0.00	$118.48
AIR TRACK OPERATOR	12/01/2014	$35.35	$7.30	$12.95	$0.00	$55.60
LABORERS - ZONE 1	06/01/2015	$36.10	$7.30	$12.95	$0.00	$56.35
	12/01/2015	$36.85	$7.30	$12.95	$0.00	$57.10
	06/01/2016	$37.60	$7.30	$12.95	$0.00	$57.85
	12/01/2016	$38.60	$7.30	$12.95	$0.00	$58.85
For apprentice rates see "Apprentice- LABORER"						
ASBESTOS REMOVER - PIPE / MECH. EQUIPT.	12/01/2014	$32.48	$10.40	$5.95	$0.00	$48.83
HEAT & FROST INSULATORS LOCAL 6 (BOSTON)	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	12/01/2014	$34.85	$7.30	$12.95	$0.00	$55.10
LABORERS - ZONE 1	06/01/2015	$35.60	$7.30	$12.95	$0.00	$55.85
	12/01/2015	$36.35	$7.30	$12.95	$0.00	$56.60
	06/01/2016	$37.10	$7.30	$12.95	$0.00	$57.35
	12/01/2016	$38.10	$7.30	$12.95	$0.00	$58.35
For apprentice rates see "Apprentice- LABORER"						
ASPHALT/CONCRETE/CRUSHER PLANT-ON SITE	12/01/2014	$42.39	$10.00	$14.30	$0.00	$66.69
OPERATING ENGINEERS LOCAL 4	06/01/2015	$43.14	$10.00	$14.30	$0.00	$67.44
	12/01/2015	$44.39	$10.00	$14.30	$0.00	$68.69
	06/01/2016	$45.14	$10.00	$14.30	$0.00	$69.44
	12/01/2016	$46.39	$10.00	$14.30	$0.00	$70.69
	06/01/2017	$47.39	$10.00	$14.30	$0.00	$71.69
	12/01/2017	$48.39	$10.00	$14.30	$0.00	$72.69

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

Apprentice - *BOILERMAKER - Local 29*

Effective Date - 01/01/2010

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

Notes:

Apprentice to Journeyworker Ratio:1:5

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

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

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

Effective Date - 02/01/2015

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

Effective Date - 08/01/2015

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

Notes:

Apprentice to Journeyworker Ratio:1:5

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

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
CAISSON & UNDERPINNING TOP MAN *LABORERS - FOUNDATION AND MARINE*	12/01/2014	$34.55	$7.30	$13.15	$0.00	$55.00
	06/01/2015	$35.30	$7.30	$13.15	$0.00	$55.75
	12/01/2015	$36.05	$7.30	$13.15	$0.00	$56.50
	06/01/2016	$36.80	$7.30	$13.15	$0.00	$57.25
	12/01/2016	$37.80	$7.30	$13.15	$0.00	$58.25
For apprentice rates see "Apprentice- LABORER"						
CARBIDE CORE DRILL OPERATOR *LABORERS - ZONE 1*	12/01/2014	$34.85	$7.30	$12.95	$0.00	$55.10
	06/01/2015	$35.60	$7.30	$12.95	$0.00	$55.85
	12/01/2015	$36.35	$7.30	$12.95	$0.00	$56.60
	06/01/2016	$37.10	$7.30	$12.95	$0.00	$57.35
	12/01/2016	$38.10	$7.30	$12.95	$0.00	$58.35
For apprentice rates see "Apprentice- LABORER"						
CARPENTER *CARPENTERS -ZONE 1 (Metro Boston)*	03/01/2015	$42.30	$9.80	$16.48	$0.00	$68.58

Apprentice - *CARPENTER - Zone 1 Metro Boston*

Effective Date - 03/01/2015

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$21.15	$9.80	$1.63	$0.00	$32.58
2	60	$25.38	$9.80	$1.63	$0.00	$36.81
3	70	$29.61	$9.80	$11.59	$0.00	$51.00
4	75	$31.73	$9.80	$11.59	$0.00	$53.12
5	80	$33.84	$9.80	$13.22	$0.00	$56.86
6	80	$33.84	$9.80	$13.22	$0.00	$56.86
7	90	$38.07	$9.80	$14.85	$0.00	$62.72
8	90	$38.07	$9.80	$14.85	$0.00	$62.72

Notes:

Apprentice to Journeyworker Ratio:1:5

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

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

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

Effective Date - 01/01/2015

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

Effective Date - 07/01/2015

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

Notes:

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

Apprentice to Journeyworker Ratio:1:3

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

For apprentice rates see "Apprentice- LABORER"

CLAM SHELLS/SLURRY BUCKETS/HEADING MACHINES *OPERATING ENGINEERS LOCAL 4*	12/01/2014	$43.39	$10.00	$14.30	$0.00	$67.69
	06/01/2015	$44.14	$10.00	$14.30	$0.00	$68.44
	12/01/2015	$45.39	$10.00	$14.30	$0.00	$69.69
	06/01/2016	$46.14	$10.00	$14.30	$0.00	$70.44
	12/01/2016	$47.39	$10.00	$14.30	$0.00	$71.69
	06/01/2017	$48.39	$10.00	$14.30	$0.00	$72.69
	12/01/2017	$49.39	$10.00	$14.30	$0.00	$73.69

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
COMPRESSOR OPERATOR *OPERATING ENGINEERS LOCAL 4*	12/01/2014	$29.40	$10.00	$14.30	$0.00	$53.70
	06/01/2015	$29.92	$10.00	$14.30	$0.00	$54.22
	12/01/2015	$30.79	$10.00	$14.30	$0.00	$55.09
	06/01/2016	$31.31	$10.00	$14.30	$0.00	$55.61
	12/01/2016	$32.18	$10.00	$14.30	$0.00	$56.48
	06/01/2017	$32.87	$10.00	$14.30	$0.00	$57.17
	12/01/2017	$33.56	$10.00	$14.30	$0.00	$57.86
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
DELEADER (BRIDGE) *PAINTERS LOCAL 35 - ZONE 1*	01/01/2015	$47.66	$7.85	$16.10	$0.00	$71.61
	07/01/2015	$48.56	$7.85	$16.10	$0.00	$72.51
	01/01/2016	$49.51	$7.85	$16.10	$0.00	$73.46
	07/01/2016	$50.46	$7.85	$16.10	$0.00	$74.41
	01/01/2017	$51.41	$7.85	$16.10	$0.00	$75.36

Apprentice - *PAINTER Local 35 - BRIDGES/TANKS*

Effective Date - 01/01/2015

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

Effective Date - 07/01/2015

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

Notes:

Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

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

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

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *ELECTRICIAN - Local 103*

Effective Date - 03/01/2015

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

Effective Date - 09/01/2015

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

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

Apprentice to Journeyworker Ratio:2:3***

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

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

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 *ELEVATOR CONSTRUCTORS LOCAL 4*	01/01/2012	$38.59	$8.78	$6.96	$0.00	$54.33
For apprentice rates see "Apprentice - ELEVATOR CONSTRUCTOR"						
FENCE & GUARD RAIL ERECTOR *LABORERS - ZONE 1*	12/01/2014	$34.85	$7.30	$12.95	$0.00	$55.10
	06/01/2015	$35.60	$7.30	$12.95	$0.00	$55.85
	12/01/2015	$36.35	$7.30	$12.95	$0.00	$56.60
	06/01/2016	$37.10	$7.30	$12.95	$0.00	$57.35
	12/01/2016	$38.10	$7.30	$12.95	$0.00	$58.35
For apprentice rates see "Apprentice- LABORER"						
FIELD ENG.INST.PERSON-BLDG,SITE,HVY/HWY *OPERATING ENGINEERS LOCAL 4*	05/01/2015	$40.22	$10.00	$14.30	$0.00	$64.52
	11/01/2015	$40.80	$10.00	$14.30	$0.00	$65.10
	05/01/2016	$41.69	$10.00	$14.30	$0.00	$65.99
	11/01/2016	$42.28	$10.00	$14.30	$0.00	$66.58
	05/01/2017	$43.16	$10.00	$14.30	$0.00	$67.46
	11/01/2017	$43.89	$10.00	$14.30	$0.00	$68.19
	05/01/2018	$44.60	$10.00	$14.30	$0.00	$68.90
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
FIELD ENG.PARTY CHIEF-BLDG,SITE,HVY/HWY *OPERATING ENGINEERS LOCAL 4*	05/01/2015	$41.65	$10.00	$14.30	$0.00	$65.95
	11/01/2015	$42.24	$10.00	$14.30	$0.00	$66.54
	05/01/2016	$43.13	$10.00	$14.30	$0.00	$67.43
	11/01/2016	$43.73	$10.00	$14.30	$0.00	$68.03
	05/01/2017	$44.62	$10.00	$14.30	$0.00	$68.92
	11/01/2017	$45.35	$10.00	$14.30	$0.00	$69.65
	05/01/2018	$46.07	$10.00	$14.30	$0.00	$70.37
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
FIELD ENG.ROD PERSON-BLDG,SITE,HVY/HWY *OPERATING ENGINEERS LOCAL 4*	05/01/2015	$21.68	$10.00	$14.30	$0.00	$45.98
	11/01/2015	$22.02	$10.00	$14.30	$0.00	$46.32
	05/01/2016	$22.54	$10.00	$14.30	$0.00	$46.84
	11/01/2016	$22.89	$10.00	$14.30	$0.00	$47.19
	05/01/2017	$23.42	$10.00	$14.30	$0.00	$47.72
	11/01/2017	$23.84	$10.00	$14.30	$0.00	$48.14
	05/01/2018	$24.27	$10.00	$14.30	$0.00	$48.57
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
FIRE ALARM INSTALLER *ELECTRICIANS LOCAL 103*	03/01/2015	$45.17	$13.00	$15.40	$0.00	$73.57
	09/01/2015	$46.13	$13.00	$15.43	$0.00	$74.56
	03/01/2016	$47.08	$13.00	$15.46	$0.00	$75.54
For apprentice rates see "Apprentice- ELECTRICIAN"						
FIRE ALARM REPAIR / MAINTENANCE / COMMISSIONING*ELECTRICIANS LOCAL 103*	03/01/2015	$33.88	$13.00	$13.70	$0.00	$60.58
	09/01/2015	$34.60	$13.00	$13.72	$0.00	$61.32
	03/01/2016	$35.31	$13.00	$13.74	$0.00	$62.05
For apprentice rates see "Apprentice- TELECOMMUNICATIONS TECHNICIAN"						
FIREMAN (ASST. ENGINEER) *OPERATING ENGINEERS LOCAL 4*	12/01/2014	$35.33	$10.00	$14.30	$0.00	$59.63
	06/01/2015	$35.95	$10.00	$14.30	$0.00	$60.25
	12/01/2015	$37.00	$10.00	$14.30	$0.00	$61.30
	06/01/2016	$37.62	$10.00	$14.30	$0.00	$61.92
	12/01/2016	$38.66	$10.00	$14.30	$0.00	$62.96
	06/01/2017	$39.50	$10.00	$14.30	$0.00	$63.80
	12/01/2017	$40.33	$10.00	$14.30	$0.00	$64.63
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
FLAGGER & SIGNALER *LABORERS - ZONE 1*	12/01/2014	$20.50	$7.30	$12.95	$0.00	$40.75
	06/01/2015	$20.50	$7.30	$12.95	$0.00	$40.75
	12/01/2015	$20.50	$7.30	$12.95	$0.00	$40.75
	06/01/2016	$20.50	$7.30	$12.95	$0.00	$40.75
	12/01/2016	$20.50	$7.30	$12.95	$0.00	$40.75
For apprentice rates see "Apprentice- LABORER"						
FLOORCOVERER *FLOORCOVERERS LOCAL 2168 ZONE I*	09/01/2014	$40.40	$9.80	$17.21	$0.00	$67.41

Apprentice - *FLOORCOVERER - Local 2168 Zone I*

Effective Date - 09/01/2014

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

Notes:

Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
FORK LIFT/CHERRY PICKER *OPERATING ENGINEERS LOCAL 4*	12/01/2014	$42.39	$10.00	$14.30	$0.00	$66.69
	06/01/2015	$43.14	$10.00	$14.30	$0.00	$67.44
	12/01/2015	$44.39	$10.00	$14.30	$0.00	$68.69
	06/01/2016	$45.14	$10.00	$14.30	$0.00	$69.44
	12/01/2016	$46.39	$10.00	$14.30	$0.00	$70.69
	06/01/2017	$47.39	$10.00	$14.30	$0.00	$71.69
	12/01/2017	$48.39	$10.00	$14.30	$0.00	$72.69
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
GENERATOR/LIGHTING PLANT/HEATERS *OPERATING ENGINEERS LOCAL 4*	12/01/2014	$29.40	$10.00	$14.30	$0.00	$53.70
	06/01/2015	$29.92	$10.00	$14.30	$0.00	$54.22
	12/01/2015	$30.79	$10.00	$14.30	$0.00	$55.09
	06/01/2016	$31.31	$10.00	$14.30	$0.00	$55.61
	12/01/2016	$32.18	$10.00	$14.30	$0.00	$56.48
	06/01/2017	$32.87	$10.00	$14.30	$0.00	$57.17
	12/01/2017	$33.56	$10.00	$14.30	$0.00	$57.86
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
GLAZIER (GLASS PLANK/AIR BARRIER/INTERIOR SYSTEMS) *GLAZIERS LOCAL 35 (ZONE 1)*	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 - 01/01/2015

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$21.48	$7.85	$0.00	$0.00	$29.33
2	55	$23.62	$7.85	$3.66	$0.00	$35.13
3	60	$25.77	$7.85	$3.99	$0.00	$37.61
4	65	$27.92	$7.85	$4.32	$0.00	$40.09
5	70	$30.07	$7.85	$14.11	$0.00	$52.03
6	75	$32.21	$7.85	$14.44	$0.00	$54.50
7	80	$34.36	$7.85	$14.77	$0.00	$56.98
8	90	$38.66	$7.85	$15.44	$0.00	$61.95

Effective Date - 07/01/2015

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

Notes:
Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

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

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *OPERATING ENGINEERS - Local 4*

Effective Date - 12/01/2014

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

Effective Date - 06/01/2015

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

Notes:

Apprentice to Journeyworker Ratio:1:6

HVAC (DUCTWORK) *SHEETMETAL WORKERS LOCAL 17 - A*	02/01/2015	$43.28	$10.20	$20.54	$2.22	$76.24
	08/01/2015	$44.28	$10.20	$20.54	$2.22	$77.24
	02/01/2016	$45.28	$10.20	$20.54	$2.22	$78.24
	08/01/2016	$46.43	$10.20	$20.54	$2.22	$79.39
	02/01/2017	$47.53	$10.20	$20.54	$2.22	$80.49
	08/01/2017	$48.63	$10.20	$20.54	$2.22	$81.59
	02/01/2018	$49.78	$10.20	$20.54	$2.22	$82.74
For apprentice rates see "Apprentice- SHEET METAL WORKER"						
HVAC (ELECTRICAL CONTROLS) *ELECTRICIANS LOCAL 103*	03/01/2015	$45.17	$13.00	$15.40	$0.00	$73.57
	09/01/2015	$46.13	$13.00	$15.43	$0.00	$74.56
	03/01/2016	$47.08	$13.00	$15.46	$0.00	$75.54
For apprentice rates see "Apprentice- ELECTRICIAN"						

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

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

Effective Date - 09/01/2014

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

Notes:

Steps are 1 year

Apprentice to Journeyworker Ratio:1:4

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

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *IRONWORKER - Local 7 Boston*

Effective Date - 03/16/2015

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

Notes:

** Structural 1:6; Ornamental 1:4

Apprentice to Journeyworker Ratio:**

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

Apprentice - *LABORER - Zone 1*

Effective Date - 12/01/2014

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

Effective Date - 06/01/2015

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

Notes:

Apprentice to Journeyworker Ratio:1:5

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

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

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

Effective Date - 02/01/2015

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

Effective Date - 08/01/2015

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

Notes:

Apprentice to Journeyworker Ratio:1:3

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

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

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

Effective Date - 02/01/2015

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

Effective Date - 08/01/2015

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

Notes:

Apprentice to Journeyworker Ratio:1:5

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

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *MILLWRIGHT - Local 1121 Zone 1*

Effective Date - 04/01/2015

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

Notes:

Steps are 2,000 hours

Apprentice to Journeyworker Ratio:1:5

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

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
PAINTER (BRIDGES/TANKS) *PAINTERS LOCAL 35 - ZONE 1*	01/01/2015	$47.66	$7.85	$16.10	$0.00	$71.61
	07/01/2015	$48.56	$7.85	$16.10	$0.00	$72.51
	01/01/2016	$49.51	$7.85	$16.10	$0.00	$73.46
	07/01/2016	$50.46	$7.85	$16.10	$0.00	$74.41
	01/01/2017	$51.41	$7.85	$16.10	$0.00	$75.36

Apprentice - *PAINTER Local 35 - BRIDGES/TANKS*

Effective Date - 01/01/2015

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

Effective Date - 07/01/2015

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

Notes:

Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

PAINTER (SPRAY OR SANDBLAST, NEW) * * If 30% or more of surfaces to be painted are new construction, NEW paint rate shall be used.*PAINTERS LOCAL 35 - ZONE 1*	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

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

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

Effective Date - 01/01/2015

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$22.18	$7.85	$0.00	$0.00	$30.03
2	55	$24.39	$7.85	$3.66	$0.00	$35.90
3	60	$26.61	$7.85	$3.99	$0.00	$38.45
4	65	$28.83	$7.85	$4.32	$0.00	$41.00
5	70	$31.05	$7.85	$14.11	$0.00	$53.01
6	75	$33.26	$7.85	$14.44	$0.00	$55.55
7	80	$35.48	$7.85	$14.77	$0.00	$58.10
8	90	$39.92	$7.85	$15.44	$0.00	$63.21

Effective Date - 07/01/2015

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

Notes:
Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

PAINTER (SPRAY OR SANDBLAST, REPAINT) *PAINTERS LOCAL 35 - ZONE 1*	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 - 01/01/2015

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$21.21	$7.85	$0.00	$0.00	$29.06
2	55	$23.33	$7.85	$3.66	$0.00	$34.84
3	60	$25.45	$7.85	$3.99	$0.00	$37.29
4	65	$27.57	$7.85	$4.32	$0.00	$39.74
5	70	$29.69	$7.85	$14.11	$0.00	$51.65
6	75	$31.81	$7.85	$14.44	$0.00	$54.10
7	80	$33.93	$7.85	$14.77	$0.00	$56.55
8	90	$38.17	$7.85	$15.44	$0.00	$61.46

Effective Date - 07/01/2015

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

Notes:
Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

PAINTER (TRAFFIC MARKINGS) *LABORERS - ZONE 1*	12/01/2014	$34.60	$7.30	$12.95	$0.00	$54.85
	06/01/2015	$35.35	$7.30	$12.95	$0.00	$55.60
	12/01/2015	$36.10	$7.30	$12.95	$0.00	$56.35
	06/01/2016	$36.85	$7.30	$12.95	$0.00	$57.10
	12/01/2016	$37.85	$7.30	$12.95	$0.00	$58.10
For Apprentice rates see "Apprentice- LABORER"						
PAINTER / TAPER (BRUSH, NEW) * * If 30% or more of surfaces to be painted are new construction, NEW paint rate shall be used.*PAINTERS LOCAL 35 - ZONE 1*	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 - *PAINTER - Local 35 Zone 1 - BRUSH NEW*

Effective Date - 01/01/2015

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$21.48	$7.85	$0.00	$0.00	$29.33
2	55	$23.62	$7.85	$3.66	$0.00	$35.13
3	60	$25.77	$7.85	$3.99	$0.00	$37.61
4	65	$27.92	$7.85	$4.32	$0.00	$40.09
5	70	$30.07	$7.85	$14.11	$0.00	$52.03
6	75	$32.21	$7.85	$14.44	$0.00	$54.50
7	80	$34.36	$7.85	$14.77	$0.00	$56.98
8	90	$38.66	$7.85	$15.44	$0.00	$61.95

Effective Date - 07/01/2015

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

Notes:
Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

PAINTER / TAPER (BRUSH, REPAINT) *PAINTERS LOCAL 35 - ZONE 1*	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 - 01/01/2015

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$20.51	$7.85	$0.00	$0.00	$28.36
2	55	$22.56	$7.85	$3.66	$0.00	$34.07
3	60	$24.61	$7.85	$3.99	$0.00	$36.45
4	65	$26.66	$7.85	$4.32	$0.00	$38.83
5	70	$28.71	$7.85	$14.11	$0.00	$50.67
6	75	$30.76	$7.85	$14.44	$0.00	$53.05
7	80	$32.81	$7.85	$14.77	$0.00	$55.43
8	90	$36.91	$7.85	$15.44	$0.00	$60.20

Effective Date - 07/01/2015

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$20.96	$7.85	$0.00	$0.00	$28.81
2	55	$23.05	$7.85	$3.66	$0.00	$34.56
3	60	$25.15	$7.85	$3.99	$0.00	$36.99
4	65	$27.24	$7.85	$4.32	$0.00	$39.41
5	70	$29.34	$7.85	$14.11	$0.00	$51.30
6	75	$31.43	$7.85	$14.44	$0.00	$53.72
7	80	$33.53	$7.85	$14.77	$0.00	$56.15
8	90	$37.72	$7.85	$15.44	$0.00	$61.01

Notes:
Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

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

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *PILE DRIVER - Local 56 Zone 1*

Effective Date - 08/01/2014

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

Effective Date - 08/01/2015

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

Notes:

Apprentice to Journeyworker Ratio:1:3

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

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *PIPEFITTER - Local 537*

Effective Date - 03/01/2015

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

Effective Date - 09/01/2015

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

Notes:

** 1:3; 3:15; 1:10 thereafter / Steps are 1 yr.
Refrig/AC Mechanic **1:1;1:2;2:4;3:6;4:8;5:10;6:12;7:14;8:17;9:20;10:23(Max)

Apprentice to Journeyworker Ratio:**

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

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *PLUMBER/GASFITTER - Local 12*

Effective Date - 03/01/2015

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

Effective Date - 09/01/2015

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

Notes:

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

Apprentice to Journeyworker Ratio:**

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

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
POWER SHOVEL/DERRICK/TRENCHING MACHINE *OPERATING ENGINEERS LOCAL 4*	12/01/2014	$42.39	$10.00	$14.30	$0.00	$66.69
	06/01/2015	$43.14	$10.00	$14.30	$0.00	$67.44
	12/01/2015	$44.39	$10.00	$14.30	$0.00	$68.69
	06/01/2016	$45.14	$10.00	$14.30	$0.00	$69.44
	12/01/2016	$46.39	$10.00	$14.30	$0.00	$70.69
	06/01/2017	$47.39	$10.00	$14.30	$0.00	$71.69
	12/01/2017	$48.39	$10.00	$14.30	$0.00	$72.69
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
PUMP OPERATOR (CONCRETE) *OPERATING ENGINEERS LOCAL 4*	12/01/2014	$42.39	$10.00	$14.30	$0.00	$66.69
	06/01/2015	$43.14	$10.00	$14.30	$0.00	$67.44
	12/01/2015	$44.39	$10.00	$14.30	$0.00	$68.69
	06/01/2016	$45.14	$10.00	$14.30	$0.00	$69.44
	12/01/2016	$46.39	$10.00	$14.30	$0.00	$70.69
	06/01/2017	$47.39	$10.00	$14.30	$0.00	$71.69
	12/01/2017	$48.39	$10.00	$14.30	$0.00	$72.69
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
PUMP OPERATOR (DEWATERING, OTHER) *OPERATING ENGINEERS LOCAL 4*	12/01/2014	$29.40	$10.00	$14.30	$0.00	$53.70
	06/01/2015	$29.92	$10.00	$14.30	$0.00	$54.22
	12/01/2015	$30.79	$10.00	$14.30	$0.00	$55.09
	06/01/2016	$31.31	$10.00	$14.30	$0.00	$55.61
	12/01/2016	$32.18	$10.00	$14.30	$0.00	$56.48
	06/01/2017	$32.87	$10.00	$14.30	$0.00	$57.17
	12/01/2017	$33.56	$10.00	$14.30	$0.00	$57.86
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
READY MIX CONCRETE DRIVERS after 4/30/10 (Drivers Hired After 4/30/2010)*TEAMSTERS LOCAL 25a*	05/01/2015	$27.88	$7.73	$8.92	$0.00	$44.53
	07/01/2015	$27.88	$7.98	$8.92	$0.00	$44.78
	05/01/2016	$28.03	$7.98	$9.31	$0.00	$45.32
	07/01/2016	$28.03	$8.23	$9.31	$0.00	$45.57
	05/01/2017	$28.18	$8.23	$9.72	$0.00	$46.13
	07/01/2017	$28.18	$8.48	$9.72	$0.00	$46.38
READY-MIX CONCRETE DRIVER *TEAMSTERS LOCAL 25a*	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 *OPERATING ENGINEERS LOCAL 4*	12/01/2014	$41.99	$10.00	$14.30	$0.00	$66.29
	06/01/2015	$42.73	$10.00	$14.30	$0.00	$67.03
	12/01/2015	$43.97	$10.00	$14.30	$0.00	$68.27
	06/01/2016	$44.72	$10.00	$14.30	$0.00	$69.02
	12/01/2016	$45.95	$10.00	$14.30	$0.00	$70.25
	06/01/2017	$46.94	$10.00	$14.30	$0.00	$71.24
	12/01/2017	$47.93	$10.00	$14.30	$0.00	$72.23
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
RESIDENTIAL WOOD FRAME (All Other Work) *CARPENTERS -ZONE 1 (Residential Wood)*	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 **	05/01/2011	$27.49	$6.34	$6.23	$0.00	$40.06

** The Residential Wood Frame Carpenter classification applies only to the construction of new, wood frame residences that do not exceed four stories including the basement. *CARPENTERS -ZONE 1 (Residential Wood)*

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

Apprentice - *CARPENTER (Residential Wood Frame) - Zone 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

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
RIDE-ON MOTORIZED BUGGY OPERATOR *LABORERS - ZONE 1*	12/01/2014	$34.85	$7.30	$12.95	$0.00	$55.10
	06/01/2015	$35.60	$7.30	$12.95	$0.00	$55.85
	12/01/2015	$36.35	$7.30	$12.95	$0.00	$56.60
	06/01/2016	$37.10	$7.30	$12.95	$0.00	$57.35
	12/01/2016	$38.10	$7.30	$12.95	$0.00	$58.35
For apprentice rates see "Apprentice- LABORER"						
ROLLER/SPREADER/MULCHING MACHINE *OPERATING ENGINEERS LOCAL 4*	12/01/2014	$41.99	$10.00	$14.30	$0.00	$66.29
	06/01/2015	$42.73	$10.00	$14.30	$0.00	$67.03
	12/01/2015	$43.97	$10.00	$14.30	$0.00	$68.27
	06/01/2016	$44.72	$10.00	$14.30	$0.00	$69.02
	12/01/2016	$45.95	$10.00	$14.30	$0.00	$70.25
	06/01/2017	$46.94	$10.00	$14.30	$0.00	$71.24
	12/01/2017	$47.93	$10.00	$14.30	$0.00	$72.23
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
ROOFER (Inc.Roofer Waterproofng &Roofer Damproofg) *ROOFERS LOCAL 33*	02/01/2015	$40.11	$10.50	$11.60	$0.00	$62.21
	08/01/2015	$41.01	$10.50	$11.60	$0.00	$63.11
	02/01/2016	$41.91	$10.50	$11.60	$0.00	$64.01

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *ROOFER - Local 33*

Effective Date - 02/01/2015

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

Effective Date - 08/01/2015

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

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

Apprentice to Journeyworker Ratio:**

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

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

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

Effective Date - 02/01/2015

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

Effective Date - 08/01/2015

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

Notes:
Steps are 6 mos.

Apprentice to Journeyworker Ratio:1:4

SIGN ERECTOR *PAINTERS LOCAL 35 - ZONE 1*	06/01/2013	$25.81	$7.07	$7.05	$0.00	$39.93

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

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

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

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

Effective Date - 03/01/2015

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

Effective Date - 10/01/2015

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

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

Apprentice to Journeyworker Ratio:1:3

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

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

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

Apprentice - *TELECOMMUNICATION TECHNICIAN - Local 103*

Effective Date - 03/01/2015

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

Effective Date - 09/01/2015

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

Notes:

Apprentice to Journeyworker Ratio:1:1

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

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

Effective Date - 02/01/2015

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

Effective Date - 08/01/2015

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

Notes:

Apprentice to Journeyworker Ratio:1:3

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

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

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
WAGON DRILL OPERATOR *LABORERS - ZONE 1*	12/01/2014	$34.85	$7.30	$12.95	$0.00	$55.10
	06/01/2015	$35.60	$7.30	$12.95	$0.00	$55.85
	12/01/2015	$36.35	$7.30	$12.95	$0.00	$56.60
	06/01/2016	$37.10	$7.30	$12.95	$0.00	$57.35
	12/01/2016	$38.10	$7.30	$12.95	$0.00	$58.35
For apprentice rates see "Apprentice- LABORER"						
WASTE WATER PUMP OPERATOR *OPERATING ENGINEERS LOCAL 4*	12/01/2014	$42.39	$10.00	$14.30	$0.00	$66.69
	06/01/2015	$43.14	$10.00	$14.30	$0.00	$67.44
	12/01/2015	$44.39	$10.00	$14.30	$0.00	$68.69
	06/01/2016	$45.14	$10.00	$14.30	$0.00	$69.44
	12/01/2016	$46.39	$10.00	$14.30	$0.00	$70.69
	06/01/2017	$47.39	$10.00	$14.30	$0.00	$71.69
	12/01/2017	$48.39	$10.00	$14.30	$0.00	$72.69
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
WATER METER INSTALLER *PLUMBERS & GASFITTERS LOCAL 12*	03/01/2015	$50.21	$10.32	$14.89	$0.00	$75.42
	09/01/2015	$51.21	$10.32	$14.89	$0.00	$76.42
	03/01/2016	$52.36	$10.32	$14.89	$0.00	$77.57
	09/01/2016	$53.41	$10.32	$14.89	$0.00	$78.62
	03/01/2017	$54.41	$10.32	$14.89	$0.00	$79.62
For apprentice rates see "Apprentice- PLUMBER/PIPEFITTER" or "PLUMBER/GASFITTER"						
Outside Electrical - East						
CABLE TECHNICIAN (Power Zone) *OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104*	09/01/2013	$25.66	$8.70	$4.48	$0.00	$38.84
For apprentice rates see "Apprentice- LINEMAN"						
CABLEMAN (Underground Ducts & Cables) *OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104*	09/01/2013	$36.55	$8.70	$6.58	$0.00	$51.83
For apprentice rates see "Apprentice- LINEMAN"						
DRIVER / GROUNDMAN CDL *OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104*	09/01/2013	$29.94	$8.70	$6.05	$0.00	$44.69
For apprentice rates see "Apprentice- LINEMAN"						
DRIVER / GROUNDMAN -Inexperienced (<2000 Hrs) *OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104*	09/01/2013	$23.52	$8.70	$5.24	$0.00	$37.46
For apprentice rates see "Apprentice- LINEMAN"						
EQUIPMENT OPERATOR (Class A CDL) *OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104*	09/01/2013	$36.35	$8.70	$9.43	$0.00	$54.48
For apprentice rates see "Apprentice- LINEMAN"						
EQUIPMENT OPERATOR (Class B CDL) *OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104*	09/01/2013	$32.08	$8.70	$6.59	$0.00	$47.37
For apprentice rates see "Apprentice- LINEMAN"						
GROUNDMAN *OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104*	09/01/2013	$23.52	$8.70	$3.72	$0.00	$35.94
For apprentice rates see "Apprentice- LINEMAN"						
GROUNDMAN -Inexperienced (<2000 Hrs.) *OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104*	09/01/2013	$19.25	$8.70	$2.85	$0.00	$30.80
For apprentice rates see "Apprentice- LINEMAN"						
JOURNEYMAN LINEMAN *OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104*	09/01/2013	$42.77	$8.70	$11.78	$0.00	$63.25

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

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 *OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104*	07/16/2012	$26.33	$4.18	$2.79	$0.00	$33.30
TELEDATA LINEMAN/EQUIPMENT OPERATOR *OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104*	07/16/2012	$24.78	$4.18	$2.74	$0.00	$31.70
TELEDATA WIREMAN/INSTALLER/TECHNICIAN *OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104*	07/16/2012	$24.78	$4.18	$2.74	$0.00	$31.70
TREE TRIMMER *OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104*	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 *OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104*	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.

Additional Apprentice Information:

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

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

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

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

GENERAL TERMS & CONDITIONS

APPENDIX C
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 CDR Maguire Inc. 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, licenses, and inspections required by any **City** department shall be waived.

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 breech of contract and shall operate as immediate termination thereof.

ARTICLE 9: TESTS AND INSPECTIONS

9.1. Access.

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

9.2. Tests and Inspections.

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

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

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

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

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

ARTICLE 10

UNCOVERING AND CORRECTING WORK

10.1. Uncovering Work.

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

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

10.2. Correcting Work.

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

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

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

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

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

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

10.3. Acceptance of Nonconforming Work.

10.3.1 If, instead of requiring correction or removal and replacement of defective or nonconforming Work, the **City** prefers to accept Work which is not in accordance with the requirements of the Contract Documents, the **City** may do so instead of requiring its removal and correction, in which case the **Contractor** shall pay all claims, costs, losses, and damages attributable to the **City's** evaluation of and determination to accept such defective or non-conforming 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 or 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 that 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 that 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 of 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

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 deemed to have been duly served on the **Design Professional** if it is sent or hand-delivered to any member or officer of the **Design Professional**.

ARTICLE 21: MISCELLANEOUS PROVISIONS

21.1. Governing Law.

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

21.2. Venue.

21.2.1. Venue for any court action or proceeding shall be Middlesex County in the Commonwealth of Massachusetts only. The **Contractor**, all Subcontractors, and Suppliers waive any and all jurisdictional and venue defenses.

21.3. Successors and Assigns.

21.3.1. The **Contractor** shall not assign, in whole or in part, its rights and obligations

under the Contract Documents without prior written consent of the **City**. An assignment without the prior written consent of the **City** shall not relieve the **Contractor** of its obligations thereunder.

21.3.2. The **City** and the **Contractor** respectively bind themselves, their partners, successors, assigns, and legal representatives to the other party hereto and to partners, successors, assigns, and legal representatives of such other party in respect to covenants, agreements, and obligations contained in the Contract Documents.

21.4. Statutory Limitation Period.

21.4.1. It is expressly agreed that the obligations of the **Contractor** hereunder arise out of contractual duties, and that the failure of the **Contractor** to comply with the requirements of the Contract Documents shall constitute a breach of contract, not a tort, for the purpose of applicable statutes of limitations and repose. Any cause of action which the **City** may have on account of such failure shall be deemed to accrue only when the **City** has obtained actual knowledge of such failure, not before.

21.5. Rights and Remedies.

21.5.1. Duties and obligations imposed by the Contract Documents and rights and remedies available thereunder shall be in addition to and not a limitation of duties, obligations, rights, and remedies otherwise imposed or available by law.

21.5.2. No action or failure to act by the **City**, the **Design Professional,** or the **Contractor** shall constitute a waiver of a right or duty afforded them under the Contract, nor shall such action or failure to act constitute approval of or acquiescence in a breach thereunder, except as may be specifically agreed in writing.

PART 2 - SAMPLE CONSTRUCTION CONTRACT

- 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
  - Appendix J – Prevailing Wage Rates and Compliance Form

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

CONTRACT NUMBER

PURCHASE ORDER # AND AMOUNT

BID NUMBER

Capital Projects and Planning
ISSUING DEPARTMENT

XXXXX xx , 20XX – YYYYY yy, 20XX
CONTRACT PERIOD

CITY OF SOMERVILLE

PUBLIC CONSTRUCTION CONTRACT

CONTRACTOR: Vendor
Address
City, State, Zip Code

FOR: **Project Name**

ACCORDING TO SPECIFICATIONS CONTAINED HEREIN

CITY OF SOMERVILLE
OWNER-CONTRACTOR PUBLIC CONSTRUCTION AGREEMENT

AGREEMENT made this _____day of _____, 20XX, 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: Prospect Hill Tower Stabilization

PROJECT MANAGER:
Name: Ed Nuzzo, Project Manager, Capital Projects & Planning
Robert T. King, PE, Director, Capital Projects & Planning
Address: One Franey Road, Somerville, MA 02145
Telephone: (617) 625 - 6660
E-Mail: enuzzo@somervillema.gov
rking@somervillema.gov

DESIGN PROFESSIONAL:

TBA Architects, Inc.
43 Bradford Street
Concord, MA 01742

Contact: Russel Feldman, Principal
Phone: (781) 893-5828

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

THIS CONTRACT IS A:

___ 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

_X_ Public Building Contract estimated to cost more than $100,000, subject to the bidding requirements of G.L. c. 149, §44A(D).

(Chapter 149 and Chapter 30 contain interrelated provisions. When a provision applies only to Chapter 149 s. 44A contracts or only to Chapter 30, s. 39M contracts, it is so noted herein. Otherwise, any section of Chapter 30 or Chapter 149 cited in this contract shall be deemed to apply to both types of contracts.)

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 attached or incorporated by reference as part of this Agreement.

_X_ Certificate of Authority

_*_ Appendix A - Scope of Services - Misc. Bid Documents: includes a brief description of the Project, the Plans and Technical Specifications (Plans on File) and Addenda issued during the bid process

_X_ Appendix B - Contractor's Bid Price; Form for General Bid

_X**_ Appendix C - General Conditions

_X**_ Appendix D - Insurance Requirements with Contractor's Insurance Certificate(s)

_X_ Appendix E - Wage Rates; Living Wage

_X_ Appendix F - Certificate of Good Standing (for corporations)

_X_ Appendix G – Public Notices

_X_ Appendix H - Statement of Management (over $100,000)

X Appendix I - Performance Bond and Payment Bond, if contract is over $2,000

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: MM/DD/YYYY and remain active for up to XX months. The period of performance is defined by the Notice to Proceed, Substantial Completion and Final Completion dates.

(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 on or before: MM/DD/YYYY

(c) Date of Substantial Completion: The Contractor shall achieve Substantial Completion of the Work on or before MM/DD/YYYY, XX(X) calendar days from the Date of Commencement of 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) Dates of Final Completion: on or before MM/DD/YYYY, XX calendar days following the Date of Substantial Completion.

Section 4. CONTRACT SUM AND LIQUIDATED DAMAGES

(1) The contract sum shall be $contract amount. The contract sum may be increased or decreased by change order, as quantities which have been estimated in the bid documents become known, or as other additions or deletions to the work are made, or if the work is interrupted or suspended by the City, all as set forth herein.

(2) Liquidated Damages: The Contractor and the City agree to a Liquidated Damages sum of $500.00 per calendar day for failure to meet the deadlines set forth in Sections 3(c), or (d).

Section 5. CHANGES IN THE CONTRACT

(a) Suspension, Delay, or Interruption due to order of Awarding Authority.

(1) The Awarding Authority may order the General Contractor in writing to suspend, delay, or interrupt all or any part of the work for such period of time as it may determine to be appropriate for the convenience of the Awarding Authority; provided, however, that if there is a suspension, delay, or interruption for fifteen days or more or due to a failure of the Awarding Authority to act within the time specified in this contract, the Awarding Authority shall make an adjustment in the contract price for any increase in the cost of performance of this contract but shall not include any profit to the General Contractor on such increase; and provided further, that the Awarding Authority shall not make any adjustment in the contract price under this provision for any suspension, delay, interruption, or failure to act to the extent that such is due to any cause for which this contract provides for an equitable adjustment of the contract price under any other contract provisions.

(2) The General Contractor must submit the amount of a claim under provision (1) to the Awarding Authority 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 Awarding Authority shall not approve any costs in the claim incurred more than twenty days before the General Contractor notified the Awarding Authority in writing of the act or failure to act involved in the claim.

(3) A Subcontractor shall have the same rights against the General Contractor for payment for an increase in the cost of its performance as provisions (1) and (2) give the General Contractor against the Awarding Authority, but nothing in provisions (1) and (2) shall in any way change, modify or alter any other rights which the General Contractor or the Subcontractor may have against each other.

(b) Change Orders.

(1) No willful and substantial deviation from the plans and specifications shall be made unless authorized in writing by the Awarding Authority or by the Design Professional in charge of the work who is duly authorized by the Awarding Authority to approve such deviations. In order to avoid delays in the prosecution of the work required by the contract, such deviation from the plans and specifications may be authorized by a written order of the Awarding Authority or Design Professional so authorized, to be confirmed at a later time by a written Change Order, signed under penalties of perjury, using AIA Document G701 (or its equivalent). The Change Order shall include the following: (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 therefor; (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 [increase or decrease as the case may be] has been agreed upon between the Contracting Agency and the General Contractor and the amount in dollars of such

adjustment; and (4) that the deviation is in the best interest of the Contracting Authority. The Change Order shall also indicate whether or not the date of substantial completion has been extended. The equitable adjustment in price shall be determined by the unit prices, if any, in the General Contractor's bid; otherwise, it shall be a number which is agreed to by both parties as a fair adjustment and which can be itemized and substantiated to the reasonable satisfaction of the Contracting Authority. Where increases and decreases to the Contract Sum are included in one Change Order, the negotiated allowance for overhead and profit shall be calculated on the basis of the net increase, if any.

(c) Differing Subsurface or Latent Physical Conditions. In accordance with Chapter 30, section 39N of the General Laws, if, during the progress of the work, the Contractor or the Awarding Authority discovers that the actual physical subsurface or latent physical conditions encountered at the site differ substantially or materially from those shown on the plans or indicated in the contract documents, either the Contractor or the Contracting [Awarding] Authority may request an equitable adjustment in the contract price of the contract applying to work affected by the differing site conditions. A request for such an adjustment shall be in writing and shall be delivered by the party making such claim to the other party as soon as possible after such conditions are discovered. Upon receipt of such a claim from a Contractor, or upon its own initiative, the Contracting Authority shall make an investigation of such physical conditions, and, if they differ substantially or materially from those shown on the plans or indicated in the contract documents or from those ordinarily encountered and generally recognized as inherent in work of the character provided for in the plans and contract documents and are of such a nature as to cause an increase or decrease in the cost of performance of the work or a change in the construction methods required for the performance of the work which results in an increase or decrease in the cost of the work, the Contracting Authority shall make an equitable adjustment in the contract price and the contract shall be modified in writing accordingly.

Section 6. PAYMENTS TO THE CONTRACTOR

(a) Progress Payments. The Contractor may submit requests for progress payments (hereafter, "Periodic Estimates") for work completed during the preceding month and for materials not incorporated in the work, but delivered and suitably stored at the site (or some other location agreed upon in writing). The Contractor's progress schedule and schedule of values, as modified by agreement of the parties, may be used by the City as a basis for reviewing the Contractor's Periodic Estimates. In the case of contracts for construction, reconstruction, alteration, remodeling, repair, or demolition of a public building, where the amount is more than two thousand dollars, the Contractor's Periodic Estimate shall contain a separate item for each filed subtrade and sub-subtrade, and a column listing the amount paid to each Subcontractor and sub-Subcontractor as of the date the periodic estimate is filed, as required by Chapter 30, Section 39K, of the General Laws.

(1) Time for Payment. In the case of contracts for construction, reconstruction, alteration, remodeling, repair or demolition of a public building, where the amount is more than two thousand dollars, the City shall, in accordance with Chapter 30, Section 39K, of the General Laws, make payment within fifteen days of receipt of the Contractor's Periodic Estimate;

provided however, that the City may, within seven days of receipt of an estimate which is not in the required form or which is arithmetically incorrect, return the incorrect estimate to the Contractor for correction, whereupon the date of receipt shall be the date of receipt of the corrected Periodic Estimate. For all other construction contracts, progress payments are governed by Chapter 30, Section 39G of the General Laws, and the City is required to make payment within thirty-five days of receipt of a Periodic Estimate.

(2) Retainage prior to Substantial Completion. In all construction contracts, the City may hold back a retainage of up to five percent of each progress payment to ensure satisfactory completion of the work. In addition, the City may withhold any amounts in dispute, including disputed change orders and direct payments owed to Subcontractors pursuant to Chapter 30, Section 39F of the General Laws.

(b) Payment upon Substantial Completion. In the case of contracts for construction, reconstruction, alteration, repair, remodeling, or demolition of a public building, where the amount is more than $2,000, Chapter 30, Section 39K, of the General Laws governs payment upon substantial completion. For all other contracts, Chapter 30, Section 39F of the General Laws governs payment upon substantial completion.

(1) Definition of Substantial Completion. Substantial Completion shall mean either a) that the work, or portion of the work, has been completed, except for work having a contract price of less than one percent (1%) of the then adjusted total contract price; or b) that substantially all of the work has been completed and opened to public use, except for minor incomplete or unsatisfactory work items that do not materially impair the usefulness of the work.

(2) Certificate of Substantial Completion. The Contractor shall give written notice to the City when the Contractor is of the opinion that the work has been substantially completed. Within twenty-one days of receipt of such notice, provided there is no dispute as to whether the work has been substantially completed, a Certificate of Substantial Completion signed by the City's Design Professional, or a written Declaration of Substantial Completion signed by the Executive Director of Mayor’s Office of Strategic Planning and Community Development (on AIA form # G701 or its equivalent) shall be given to the Contractor. The date of such Certificate or Declaration shall be the Effective Date of Substantial Completion, subject to the provisions of Chapter 30, Section 39J, of the General Laws. If the City does not agree that the work has been substantially completed, the City or the City's Design Professional shall, within the twenty-one day period, present the Contractor with a written, itemized list of incomplete or unsatisfactory work items sufficient to demonstrate that the work has not been substantially completed. If the City fails to respond within the twenty-one day period, the date of the Contractor's notification of substantial completion shall become the "Effective Date of Substantial Completion". Within fifteen days after the effective date of the City's 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 work items and, unless delayed by causes beyond his control, the Contractor shall complete all such work items within forty-five days after receipt of said list or before the date of substantial completion in the contract, whichever is later. If the Contractor fails to complete such work within such time, the City may send the Contractor a notice in writing by certified mail, return receipt requested, instructing the Contractor that if the work is not completed with seven days after receipt of the notice, the

contract will be terminated and the City will complete the incomplete or unsatisfactory work items and charge the cost of the same to the Contractor and the Contractor's sureties.

(3) Retainage after Substantial Completion. Within sixty-five days after the Effective Date of Substantial Completion, the City shall pay the Contractor all but one percent retainage, minus: a) the amount of any disputed work item; and b) five (5) percent of the value of plant materials in the ground; and c) the City's estimated cost of completing all incomplete and unsatisfactory work items. The City shall also deduct 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 Chapter 30, Section 39F of the General Laws. The five (5) percent retainage of the value of all plant materials in the ground shall be withheld by the City until final acceptance of such plant materials at the end of the guarantee period.

(c) Final Payment. The City shall make final payment to the Contractor within thirty days of completion of the work and submission of all documentation required.

IF FORMS FOR WAGE CERTIFICATIONS AND OTHER DOCUMENTATION ARE SUPPLIED BY THE CITY TO THE CONTRACTOR, THE CONTRACTOR SHALL SUBMIT DOCUMENTATION ON SUCH FORMS.

(d) Interest. If the City fails to pay the Contractor within the time periods mandated by statute, the City shall pay interest to the Contractor in accordance with Chapter 30, Sections 39G and 39K, whichever is applicable.

Section 7. PAYMENT OF SUBCONTRACTORS.

In accordance with Chapter 30, Section 39F of the General Laws, the subparagraphs a) through h) of this section shall be binding on contracts awarded pursuant to Chapter 30, Section 39M of the General Laws, and paragraphs a) through i) shall be binding on contracts awarded pursuant to Chapter 149, Section 44A of the General Laws:

(a) Immediately after the Contractor receives payment on account of a periodic estimate, the Contractor shall pay each Subcontractor the amount paid for labor performed and 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 to the Contractor.

(b) Not later than the sixty-fifth day after each Subcontractor substantially completes his 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 immediately 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 subparagraphs a) and b) of this section for the labor performed and 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 been included in a payment to the Contractor or which is to be included in a payment to the Contractor for payment to the Subcontractor as provided in subparagraphs a) and b), the City shall act upon the demand as provided in this section.

(d) If, within seventy 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. 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 days after the Subcontractor has delivered to 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 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 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 (1) retained by the City as the estimated cost of completing incomplete or unsatisfactory items of work, (2) specified in any court proceedings barring such payment, or (3) 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 (3) if the reply is not sworn to, or for which the sworn reply does not contain the detailed breakdown required by subparagraph (d). The City shall make further direct payment to the Subcontractor immediately after the removal of any basis for deductions set forth in (1) or (2) above.

(f) The City shall promptly deposit disputed amounts 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 subparagraph (f) 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 the 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 the Contractor amounts which, together with the above-mentioned bank deposits, are sufficient to satisfy all unpaid demands for direct payment received from Subcontractors. All such amounts shall be earmarked for direct payments to such Subcontractors, whose claims shall have priority over all other creditors of the Contractor.

(i) If the Subcontractor does not receive payment as provided in subparagraph (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 the same when due less the deductions provided for in subparagraph (a), the Subcontractor may demand direct payment by following the procedure in subparagraph (d) and the Contractor may file a sworn reply as provided in that same subparagraph. 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 subparagraph (e), (f) (g) and (h).

Section 8. PREVAILING WAGE REQUIREMENTS.

(1) The Contractor shall pay wages at no less than the wage rates set forth in Appendix E, incorporated as part of this Agreement: namely, State Prevailing Wage Rates; provided, however, that if any department of the City should make use of this Contract for a project which is federally funded, then the Contractor shall pay wages at the higher of the two rates. If a labor classification is not listed the Contractor shall notify THE CITY'S PROJECT MANAGER FOR THIS PROJECT and request instructions. In addition, the Contractor shall:

a) pay wages at least once a week;
b) submit payroll information on a weekly basis in a format approved by THE CITY'S PROJECT MANAGER FOR THIS PROJECT, numbered in numerical sequence and signed by the Contractor (including forms for weeks when the Contractor is not on the site, in which case there shall be a notation to the effect "no work this payroll period" and a date anticipated for resuming work);

(2) The Contractor shall submit to THE CITY'S PROJECT MANAGER FOR THIS PROJECT within the first week of construction:

a) a list of apprenticeship programs with which the Contractor is affiliated;

b) the number of apprentices on the Project employed by the Contractor.

c) a list of the Contractor's employee fringe benefits;

d) a copy of each project schedule, including the anticipated commencement date for each Subcontractor; and

e) a list of each Subcontractor's suppliers and material men.

(3) The Contractor shall include language similar to the above in all subcontracts.

Section 9. EQUAL EMPLOYMENT OPPORTUNITY/NONDISCRIMINATION

a) the Contractor shall not discriminate against any employee or applicant for employment because of race, color, religion, sex, marital status, sexual orientation, national origin, age, disability, Vietnam Era veteran status or because an employee or applicant is a recipient of federal, state, or local public assistance or housing subsidies; and

b) the Contractor shall not discriminate, in any stage of the contract from award to completion, in the selection or retention of Subcontractors, suppliers, and material men, or in the procurement of materials or supplies, or the rental of equipment, on the basis of race, religion, sex, marital status, sexual orientation, national origin, age, disability, Vietnam Era veteran status, or because an individual is a recipient of federal, state, or local public assistance or housing subsidies; and

c) the Contractor shall post an equal employment opportunity notice in conspicuous places at the worksite, shall make copies of such notice available to employees and job applicants, and shall send such notice to each labor union or representative of workers with which the Contractor has a collective bargaining agreement or other contract or understanding; and

d) the Contractor shall, to the greatest extent feasible, give employment and on-site training opportunities, to lower-income, minority, women, and disabled members of the local community and shall award subcontracts, when possible, to Minority Business Enterprises (MBE) and Women Business Enterprises (WBE).

e) the Contractor shall include language similar to the above in all subcontracts.

Section 10. COPELAND ANTI-KICKBACK ACT.

If this contract is in excess of $2,000 and is federally funded, the Contractor shall comply with the Copeland "Anti-Kickback Act" (18 U.S.C. 874 and 29 CFR Part 3) more fully set forth in Appendix E attached hereto, and shall not induce any person employed in the construction, completion, or repair of a public building or public work, to give up any part of the compensation to which he would otherwise be entitled.

Section 11. WORK HOURS AND SAFETY STANDARDS.

If this contract is in excess of $2,000 and is federally funded, the Contractor shall comply with Sections 103 and 107 of the Contract Work Hours Safety Standards Acts (40 U.S.C. 327-333), as supplemented by Department of Labor regulations at 29 CFR part 5. To that end, the Contractor shall compute the wages of every mechanic and laborer on the basis of a standard workweek of 40 hours. Work in excess of the standard workweek is permissible, provided that the worker is compensated at a rate of not less than 1-1/2 times the basic rate of pay for all hours worked in excess of 40 hours in the workweek. The Contractor shall ensure that no laborer or mechanic is required to work in surroundings or under working conditions which are unsanitary, hazardous, or dangerous.

Section 12. CLEAN AIR ACT AND FEDERAL WATER POLLUTION CONTROL ACT.

If this contract is in excess of $100,000 and is federally funded, the Contractor shall comply with all applicable standards, orders, or regulations issued pursuant to the Clean Air Act (42 U.S.C. 7401 et seq.) and the Federal Water Pollution Control Act as amended (33 U.S.C. 1251 et seq.)

Section 13. CONTRACTOR'S CERTIFICATIONS.

The Contractor hereby certifies under oath:

(a) That if this Contract is in excess of $100,000 and is federally funded, the Contractor will abide by the Byrd Anti-Lobbying Amendment (31 U.S.C.1352), and more specifically:

(1) That no federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress, in connection with the awarding of this Federal contract and the extension, continuation, renewal, amendment, or modification of this Federal contract; and

(2) That if any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, the Contractor will complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying", in accordance with its instructions; and

(3) That the Contractor will include the language of this certification in all subcontracts, and that all subContractors shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this the award of this contract was made. Any person who fails to file the required certification shall be subject to a civil penalty of not less than $10,000 and not more than $100,000 for each failure.

(b) Drug-Free Workplace Act of 1988 (42 U.S.C. 701):
That, if this Contract is federally funded, the Contractor will provide a drug-free workplace and comply with the HUD rules contained in 24 CFR part 24M, including notification to employees that the unlawful manufacture, distribution, dispensing, possession or use of a controlled substance is prohibited; that action will be taken against employees violating the prohibition; and that an employee who is convicted of manufacturing, distributing, dispensing, possession, or use of a controlled substance may be terminated or required to participate in a drug abuse assistance or rehabilitation program approved for such purpose by a Federal, State, or local health, law enforcement, or other appropriate agency.

(c) Debarment and Suspension: That the Contractor is a duly licensed general Contractor, and

(1) That neither the Contractor nor any of its principal employees are on the General Services Administration's List of Parties Excluded from Federal Procurement or Nonprocurement Programs [E.O. 12549 and E.O. 12689 at 24 CFR part 24, applicable to contracts exceeding the small purchase threshold of fixed by 41 U.S.C. 403 (11)]; and

(2) That the Contractor has not been debarred or suspended by any state agency or city or town in the Commonwealth of Massachusetts.

(d) Organization and Authority: That the Contractor is a duly organized and validly existing _____ (corporation/general partnership/limited partnership, trust, or sole proprietorship) and is qualified to do business and is in good standing in the Commonwealth of Massachusetts; that this Contract has been duly executed and delivered on behalf of the Contractor by its Vice President pursuant to and in full compliance with the authority granted by the Contractor's organizational documents and/or (in the case of a corporation) by a vote taken at duly called meeting at which a quorum was present and voting; that such authority is still in full force and effect as of the date of execution of this Contract; and that the person executing this Contract is the present holder of the title which he or she purports to hold.

(e) Noncollusion: That the bid upon which this Contract was based was made without collusion or fraud with any other person and was in all respects bona fide and fair. As used in this paragraph, the word "person" shall mean any natural person, joint venture, partnership, corporation, or other business or legal entity.

(f) Tax Compliance: That the Contractor is in full compliance with all federal and state laws relating to income taxes, and has paid all real estate and personal property/excise taxes, water charges, fines and other municipal lien charges due to the City of Somerville, and the Contractor's Federal Tax Identification Number is # 04-3173785.

Section 14. CONTRACTOR'S RECORDS.

(2) Federal Requirements: The Contractor shall permit the City, HUD and/or any other administering agency named herein, the Comptroller General of the United

States, or any of their duly authorized representatives, to have access to any books, documents, papers, and records of the Contractor which are directly pertinent to a specific HUD program for the purpose of making audits, examinations, excerpts, and transcriptions.

(3) State Requirements: In accordance with G.L. Chapter 30, §39R, for contracts in an amount or estimated amount greater than $100,000: (i) the General Contractor shall make and keep for at least six years after final payment, books, records, and accounts which in reasonable detail accurately and fairly reflect the transactions and dispositions of the Contractor; and (ii) until the expiration of six years after final payment, the office of the Inspector General and the Commissioner of Capital Asset Management and Maintenance shall have the right to examine any books, documents, papers or records of the Contractor or of his subContractors that directly pertain to and involve transactions relating to the Contractor or his subContractors; and (iii) the Contractor shall describe any change in the method of maintaining records or recording transactions which materially affect any statements filed with the Awarding Authority, including in his description the date of the change and reasons therefor and shall accompany said description with a letter from the Contractor's independent certified public accountant approving or otherwise commenting on the changes; and (iv) the Contractor shall have filed a Statement of Management on Internal Accounting Controls, as described in paragraph "(1)" below prior to the execution of the Contract; and (v) the Contractor has filed prior to execution of the Contract and will continue to file annually, an Audited Financial Statement for the most recent completed fiscal year as set forth in paragraph "(2)" below.

a) The Statement of Management on Internal Accounting Controls is a written statement certifying that the system of internal accounting controls of the Contractor and its subsidiaries reasonably assures that transactions are executed in accordance with management's general and specific authorization; 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; that access to assets is permitted only in accordance with management's general or specific authorization; and that recorded accountability for assets is compared with the existing assets at reasonable intervals and appropriate action was taken with respect to any difference.

b) The Audited Financial Statement is a statement prepared and signed by an
   a. independent certified public accountant, stating that he has examined the Statement of Management on internal accounting controls, and expressing an opinion as to (i) whether such representations of management are, in addition, reasonable with respect to transactions and assets in amount which would be material when measured in relation to the applicant's financial statements.

The Contractor shall annually file with the Commissioner of Capital Asset Management and Maintenance during the term of the contract a financial statement prepared by an independent certified public accountant on the basis of an audit by such accountant. The final statement filed shall include the date of final payment. All statements shall be accompanied by an accountants report. Such statements shall be made available to the Awarding Authority upon request.

(4) Records and statements required to be made, kept or filed under the provisions of this section shall not be public records as defined in G.L. 4, §7 or equivalent federal legislation. They shall not be made available to the public, but shall be available only to the governmental authorities named herein.

Section 15. CONFLICT OF INTEREST LAWS.

The City and the Contractor shall comply with all federal and state conflict of interest statutes and regulations.

Section 16. EVENTS OF DEFAULT.

The following shall be considered Events of Default:

(1) The Contractor makes a written admission of the Contractor's inability to pay debts; or the Contractor becomes the debtor or defendant in (i) a voluntary or involuntary petition in bankruptcy, (ii) a petition for appointment of a receiver, (iii) a levy of an attachment or execution, (iv) an assignment for the benefit of creditors, (v) a winding up or dissolution of a partnership or corporation; or (vi) any other proceeding under which a court of competent jurisdiction assumes custody or control over the Contractor.

(2) The Contractor fails to prosecute the work with such diligence as will, in the reasonable estimation of the City, ensure substantial completion within the time specified in the Contract Documents; and/or

(3) The Contractor is in breach of the Contract Documents and has failed to cure such breach after written notice from the City specifying 1) the breach, 2) what must be done to cure the breach; and 3) the time within which the breach must be cured.

Section 17. REMEDIES UPON DEFAULT.

a. HUD Action. If the Contractor is in default, HUD and/or any other administering agency named herein may, with or without the consent of the City, cancel,

suspend, or terminate this Contract in whole or in part; require the withholding or disallowance all or part of the funding for the project; declare the Contractor ineligible for further Government contracts or avail itself of any other remedies available under the law.

b. City Action. If the Contractor is in default, the City may elect to do any or all of the following: 1) temporarily withhold cash payments pending correction of the deficiency; and/or 2) terminate this Contract, and

(a) hold the Contractor and its sureties liable in damages;

(b) require the Contractor's sureties to complete the Contract;

(c) take possession and use any materials, machinery, implements, and tools on the site, without liability for loss or damage, following which use, the Contractor shall be liable for their removal from the site;

(d) complete the work using the services of another Contractor (in which case the City shall have no obligation to use a competitive process to obtain the lowest contract prices) and look to the Contractor and the Contractor's sureties for the difference between the cost to complete the work and the contract sum hereunder.

Section 18. TERMINATION FOR CONVENIENCE.

(a) The City may terminate this Contract without cause, at any time, effective upon the date of termination specified by written notice to the Contractor, in which case, the Contractor shall be compensated for: (1) sums due under this Contract incurred up to the date of termination for all Work performed and accepted by the City up to the termination date, calculated on a percentage completion basis covering the period of time between the last approved application for payment and the date of termination using the progress schedule and schedule of values. The Contractor shall use its best efforts to mitigate any expenses and shall in no event incur any new obligations after the date of termination.

(1) Payment by the City as provided in this section shall be deemed to fully compensate the Contractor for all expenses and those of any consultants, Subcontractors and suppliers, directly or indirectly attributable to the termination. Lost profits shall not be payable. Any such termination shall not give rise to any cause of action for damages against the City.

(b) Contractor's Duties Upon Termination For Convenience. Upon termination of this Contract without cause, the Contractor shall: (1) immediately stop the Work; (2) stop placing orders and Subcontracts in connection with this Contract; (3) cancel all existing orders and Subcontracts; (4) surrender the site to City in a safe condition; and (5) promptly transfer to City all materials, supplies, work in process, appliances, facilities, equipment and machinery of this Contract, and all work product, plans, drawings, specifications and other information and documents used in connection with Services performed under this Contract. Failure by the Contractor to comply with said duties shall relieve the City of its obligation to compensate the Contractor, as provided for under this section.

Section 19. INSURANCE

The Contractor shall obtain and maintain in full force and effect the insurance coverage required under Appendix D and shall furnish the City with current certificates of insurance **naming the City of Somerville as a certificate holder.**

Section 20. INDEMNIFICATION.

The Contractor shall indemnify, defend, and save harmless the City from and against any and all liabilities, losses, damages, costs, expenses (including reasonable attorneys' fees), causes of

action, suits, claims, and demands and shall pay any judgment entered against the City on account of personal injuries or damage to property arising out of the work of this Contract.

Section 21. NOTICES.

Notices shall be in writing, and may be transmitted by mail, federal express, or fax, provided such transmittal is evidenced by a U.S. Mail or Federal Express return receipt or a fax-generated receipt showing the number to which the fax transmission was made:

(a) to the Contractor, at the address set forth in this Agreement or such other address as the Contractor may have designated from time to time in writing, or to FAX # 781-648-4915.

(b) to the City, addressed to

Purchasing Director
93 Highland Avenue
Somerville, MA 02143
or to FAX # 617-625-1344

Notices shall be deemed given when mailed or faxed.

Section 22. MODIFICATION.

No amendment or modification to this Agreement shall take effect unless it is in writing, signed by all parties.

Section 23. ASSIGNMENT/SUBCONTRACTING.

The Contractor shall not assign or subcontract this Agreement or any portion of the work without the prior written consent of the City.

Section 24. GOVERNING LAW.

This Agreement shall be governed by the laws of the Commonwealth of Massachusetts and the United States of America.

Section 25. SEVERABILITY.

In the event that any provision of this Agreement is found to be legally unenforceable, the remainder of the Agreement shall remain in full force and effect.

Section 26. NON-APPLICABILITY OF FEDERAL REQUIREMENTS.

If this section is checked, it means that this contract has not been funded with federal funds and the obligations and requirements under federal law which are set forth in this contract do not apply.

_____X_____ (check here)

SIGNATURE PAGE FOLLOWS

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 the total contract amount is $_____, and that an unencumbered balance of $_____ is available for the first fiscal year of this contract. I further certify that a sum of $_____ is hereby encumbered against the appropriate account for the purposes of this contract. Further, I certify that as funds become available, I will encumber additional sums as are required under this contract.

_____
Edward Bean, City Auditor

_____
Joseph A. Curtatone
Mayor

_____
Robert T. King, P.E.
Director, Capital Projects & Planning

.
_____
Angela M. Allen, Purchasing Director

Approved as to form:

_____
Francis X. Wright, Jr., City Solicitor

CONTRACTOR:

_____
Signature of Authorized Agent of Contractor

Printed Name:
Title:

Contractor Address:

Federal Tax ID:

FOR CORPORATIONS ONLY:

_____
Clerk's Signature

_____
Clerk's Name

APPENDIX A

Scope of Services – Miscellaneous Bid Documents

Includes a brief description of the project
The Plans and Technical Specifications (Plans on File)
And addenda issued during the bid process.

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

APPENDIX C
General Terms and Conditions
(From Bid Manual)

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.....….....$ One 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:

Workers Compensation.….....$Statutory
Employer's Liability..….....…….$ Statutory

C. AUTOMOBILE LIABILITY INSURANCE AS LISTED BELOW:

Bodily Injury Liability...…….....$ Statutory

l. 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.

4. Please comply with our requirement of a **thirty (30) day** notice of cancellation and note on 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
Wage Rates And Living Wage Form

State Prevailing Wage Rates
Somerville Living Wage Rates Form
Responsible Employer Ordinance

INSERT MANUALLY

APPENDIX F

Certificate Of Good Standing
(For Corporations)

INSERT DOCUMENT FROM BID MANUAL HERE

Certificate of Good Standing: If the bidder is a corporation, a Certificate of Good Standing shall be provided with executed contracts. 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.

APPENDIX G

PUBLIC NOTICES

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 _____

On behalf of _____

(Successful bidder name)

_____

(Address and telephone of successful bidder)

_____

(Name and title of person signing statement)

By:_____

(Signature)

CERTIFIED PUBLIC ACCOUNTANT STATEMENT

In accordance with M.G.L. 30, Section 39R I, _____ a certified public accountant, state that I have examined the above Statement of Management on internal accounting controls, and that in my opinion (1) the representations of management are consistent with the result of management's evaluation of the system of internal accounting controls; and (2) that such representations of management are, in addition, reasonable with respect to transactions and assets in amounts which would be material when measured in relation to the above referenced successful bidder's financial statements.

_____

(Signature)

_____

(Business name, address and telephone number)

APPENDIX I

Performance Bond and Payment Bond (100%)

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, Somerville, MA 02143, 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 *[insert project name]* and the Principal and Surety bind themselves to the Owner for the performance of the contract.

Now, therefore, if the Principal shall well, truly and faithfully perform its duties, all the undertakings, covenants, terms, conditions, and agreements of said contract during the original term thereof, and any extensions thereof which may be granted by the Owner, with

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 , 20____.

CONTRACTOR AS PRINCIPAL	SURETY
_____	_____
(Signature)	(Signature)
Name and Title:	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 02143, 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 *insert project name.*

Now, therefore, if the Principal shall promptly make payment to all persons, firms, subcontractors, and corporations furnishing materials for or performing labor in the prosecution of the work provided for in such contract, and any authorized extension or modification thereof, including all amounts due for materials used in connection with the

work, and all insurance premiums on said work, and for all labor, performed in such work whether by subcontractor or otherwise, then this obligation shall be void; otherwise this bond is remain in full force and effect. Provided, further, that the said Surety for value received hereby agrees that no change, extension of time, alteration or addition to the terms of the contract or to the work to be performed thereunder of the Specifications accompanying the same shall in any wise affect its obligation on this Bond, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the contract or to the work or to the specifications.

Provided, further, that no final settlement between the Owner and the Contractor shall abridge the right of any beneficiary hereunder, whose claim may be unsatisfied.

IN WITNESS WHEREOF, this instrument is executed on this _____day of , 20___.

CONTRACTOR AS PRINCIPAL	SURETY
----------	----------
(Signature)	(Signature)
Name and Title:	Name and Title:
SEAL	SEAL

PART 3 - TECHNICAL SPECIFICATIONS

SECTION 010100

SUMMARY OF WORK

PART 1 GENERAL

1.1 SECTION INCLUDES

1. Contract Description
2. Construction Schedule
3. Work under this Contract
4. Work Sequence
5. Contractor Use of Premises
6. Work to be Performed by Owner
7. Emergency Procedures
8. Field Engineering
9. Reference Standards
10. Pre-Construction Conference
11. Project Meetings
12. Permits, Inspection, and Testing Required by Governing Authorities
13. Safety, Health and Environmental Regulations
14. Protection and Repair of New & Existing Facilities, Surfaces, and Utilities
15. Contract Documents
16. Definitions

1.2 CONTRACT DESCRIPTION

A. Contract

1. Type: Stipulated Sum.
2. This contract will be led by the City of Somerville

Representation:

Owner: City of Somerville
93 Highland Avenue, Somerville, MA 02143

Owner's Representative:

Edward Nuzzo
Capital Projects and Planning
City of Somerville
1 Franey Road, Somerville, MA 02145
Telephone: 617.625.6600 x5121

Architect:

Russel Feldman, Principal
TBA Architects, Inc.
43 Bradford Street, Concord, MA 01742
Telephone (781) 893-5828

1.3 WORK UNDER THIS CONTRACT

A. The work of this contract includes all labor, material, and equipment necessary to perform the work at the Prospect Hill Tower in Somerville as indicated on the contract documents and as specified herein. The general scope of the work is defined as follows:

B. Project Scope of Work:
   1. This scope of work is provided to the General Contractor as a convenience, it is not intended to limit the scope of work outlined in the Construction Documents and includes a base bid and two add alternates.
   2. Work will be performed by a Masonry Prime Contractor with the following filed sub-trade(s):
      a. Ornamental Iron
   3. Base Bid:
      a. Demolish the existing level 4 concrete slab and all steel supports.
      b. Construct a new concrete slab on the top level, replace the floor's existing steel support beams and install additional supports along the slab perimeter and waterproof the slab.
      c. Remove and reinstall the flagpole. Deliver flagpole to and return from City-owned storage site.
      d. Repair the roof drain system including patching existing piping and replacing the cast-in-place floor drain to fit the existing.
      e. Repair the spiral stair and railings, which runs from the level 2 to level 4. Work involves removal of upper level rail. Other stair work will be accomplished on site. Work includes spot welding of the existing to assure secure connections, removing deteriorated paint and rust, prepare for painting, prime and repaint. The work also includes replacement of connections to the concrete and steel structure.
      f. Repair the lower level steel diamond plate stair rail which runs from level 1 to level 2. Repair and reattach existing handrail, to be provided by the City. Secure damaged stair supports. Mechanically remove existing paint and rust, prime and repaint all surfaces.
      g. Rebuild the parapet stones where they have lost their mortar. This will involve repositioning parapet stones where they have become displaced and injection of epoxy adhesives where stones have cracked under the steel slab support structure. No removal of stone will be required. New mortar to match existing in composition and appearance.
      h. Repair the two tower iron entry doors and frames. Any new material will match the existing. The doors will be reset level, existing paint will be removed, surfaces prepared, primed and repainted.
      i. Reset and stabilize the stone wall along the street stair. This will involve repositioning existing stones and sealing the joints between the stone retaining wall and the stair to avoid water infiltration.
      j. Repair and reset the existing decorative wrought iron rail. This will include repair of rotted posts and resetting into the relocated

stones, replacement of missing ornamental elements to match existing, existing paint will be removed, surfaces prepared for new paint, prime and repaint.

k. Repair of the concrete retaining wall alongside the stair. This involves patching of the 1950's vintage retaining wall to eliminate exposed steel and stabilize the wall. Work will include epoxy injection in cracks, removing rust and scale from reinforcing steel, patching the surfaces to match the existing, and stabilizing a portion of the wall with helical tiebacks.

l. Remove graffiti on tower exterior.

C. Add Alternates. Alternates are graphically shown on Sheets A-1.0, A-2.0, A-3.0 and A-4.0.

1. Add alternate #1: Repoint 100% of stone wall on Munroe Street not reset as part of base bid. As for all similar work above, new mortar will match existing in composition and appearance.
2. Add alternate #2 Repoint 100% of tower exterior stone walls not reset or repaired as part of base bid. As for all similar work above, new mortar will match existing in composition and appearance.

1.4 EXAMINATION OF THE SITE AND CONTRACT DOCUMENTS

1. Each General Bidder shall visit the site of the proposed work and shall fully acquaint him or herself with the conditions as they exist so that they may fully understand and evaluate the facilities, difficulties and restrictions attending the execution of the work under this Contract.
2. No questions pertaining to Filed Sub-Bid work will be accepted within 5 days excluding Saturday and Sunday of the Sub-Bid opening, and no questions pertaining to General Bid work will be accepted within 5 days of the General Bid opening.
3. Bidders shall thoroughly examine and be familiar with the Drawings and Specifications. Each General Bidder shall include in their bid any work required in connection with the same that has to be done by trades under their direct control.
4. Plans, surveys, measurements, calculations, estimates, and statements as to the conditions under which the work is to be performed are believed to be correct. Each bidder must satisfy itself by their own investigation and research to conditions affecting the work to be done and labor and material needed and make their bid in reliance thereon.
5. Before ordering any material or doing any work, all measurements shall be verified by the General Contractor at the site. No extra charge or compensation will be allowed on account of the difference between actual dimensions and the measurements indicated on the Drawings. Any difference which may be found shall be submitted to the Designer for consideration before proceeding with the work.
6. The failure or omission of any bidder to receive or examine any form, instrument or document, or to visit the site and acquaint itself with the conditions there existing, shall in no way relieve any bidder from any obligation with respect to their bid.

B. Subcontractors shall carefully inspect all the listed drawings, not just those pertaining particularly to their sub-trade, and shall provide all work normally done by the sub-trade unless specifically called for otherwise, regardless of where among the drawings it appears.

1.5 WORK SEQUENCE

A. The Contractor shall arrange all their work schedules within the hours of 8:00 a.m. to 4:30 p.m. during the regular work week. Hours outside of these days and times shall be arranged with the Project Manager.

B. Work requiring the presence of Somerville City Hall personnel on nights, Sundays, or holidays will not be permitted except in case of emergency, or when approved in writing by the Somerville City Hall Project Manager. After hours work requiring the assistance of Somerville City Hall personnel may result in back charges to the Contractor. Any work to be performed on Saturdays will require the prior approval of the Somerville City Hall Project Manager.

C. For the duration of the project the Project Manager representing the City of Somerville will be:

Edward Nuzzo telephone (617) 869-6505, email ENuzzo@somervillema.gov

1.6 CONTRACTOR USE OF PREMISES

A. Contract limits of construction shall be confined within actual work areas as shown on drawings.

B. Confine apparatus, storage of materials and construction operations to areas agreed to by the Somerville Project Manager and so not to interfere with the normal operating functions of the facility. Do not unreasonably encumber the premises with materials.

C. The City of Somerville can neither accept nor assume responsibility for the security of the Contractor's material or equipment; which is lost, stolen or vandalized. The Contractor is advised to exert caution in placement and storage of their equipment and material.

D. Driveways and Entrances: Keep driveways and entrances serving the premises clear and available to the normal day to day operations, and emergency vehicles at all times. Do not use these areas for parking or storage of materials.

E. Radios, tape players, or other audio entertainment equipment, including personal radio/tape players, shall be allowed on the project site.

1.7 WORK TO BE PERFORMED BY OWNER

1. N.A.

1.8 EMERGENCY PROCEDURES

A. The Contractor shall thoroughly familiarize itself with Emergency Procedures and inform all subcontractors of same. These procedures will be explained at the pre-construction meeting.

B. Emergencies:

In the event of an emergency on-site, telephone for emergency services (ambulance, fire department or police assistance):

1. Telephone for emergency service.

2. Make the scene safe.

3. Render First-Aid if possible.

4. Preserve evidence.

6. Contact the appropriate outside agencies as required by law, including OSHA for multiple injuries (by Contractor), and DEP, NRC, etc.

1.9 REFERENCE STANDARDS

A. For products specified by association or trade standard, comply with requirements of the standard, except when more rigid requirements are specified or are required by applicable codes.

1.10 PRE-CONSTRUCTION CONFERENCE

A. A pre-construction conference to review the work will be conducted by the City.

1.11 PROJECT MEETINGS

A. Project meetings shall be held on a weekly basis subject to discretion of the Project Manager.

1.12 PERMITS, INSPECTION, AND TESTING REQUIRED BY GOVERNING AUTHORITIES

A. If the Contract Documents, laws, ordinances, rules, regulations or orders of any public authority having jurisdiction require any portion of the work to be inspected, tested or approved, the General Contractor shall give the Designer and such Authority timely notice of its readiness so the Designer may observe such inspection and testing.

B. Permit fees, if required, will be waived by the City.

1.13 SAFETY, HEALTH AND ENVIRONMENTAL REGULATIONS

A. In addition to provisions of the Contract and General Conditions, each General Contractor and subcontractor shall observe the following stipulations:

1. Perform all work in accordance with federal and with Massachusetts Department of Labor and Industries safety and health standards and guidelines and provide a healthful and safe work conditions.
2. Maintain a written hazard communication program in accordance with OSHA 29CFR 1910.1200. Keep MATERIAL SAFETY DATA SHEETS (MSDS) on site and upon request provide MSDS sheets for materials used in the construction.
3. All Hot Works, including cutting, welding, brazing, etc., shall include the following equipment and procedures.
    a. Contractor must provide a minimum of an approved and operable 20 BC rated fire extinguisher near each LPG operation approved by a recognized testing laboratory.
    b. An approved and operable fire extinguisher must be kept in the work area.
    c. At least one (1) workman must remain at the work area for (1) hour after the use of the torch or flame-producing device has ceased.

1.14 PROTECTION & REPAIR OF NEW AND EXISTING FACILITIES, SURFACES, & UTILITIES

A. The Contractor shall be responsible for exercising necessary care to avoid damage to City property.

B. The Contractor shall secure the work area and equipment at the end of each workday and shall provide hardware and locks where required.

C. The General Contractor shall take precaution in execution of work for demolition of existing structures and materials not to disturb or damage any existing structures, landscaping, walks, roads, etc. scheduled to remain. The Contractor shall restore any damaged items to original condition and as directed by the Designer or Project Manager.

D. Protect finished surfaces, including jambs and soffits of openings used as passageways, through which equipment and materials are handled.

E. Provide protection for finished floor surfaces in traffic areas prior to allowing equipment or materials to be moved over such surfaces.

F. In event of damage, promptly make replacements and repairs to the approval of the Project Designer and. Project Manager and at no additional cost to the Owner.

1.15 CONTRACT DOCUMENTS

A. A reasonable number of sets of contract plans and specifications will be furnished by the Owner immediately after signing of the contract, one of which shall be maintained intact at the site for reference by authorized representatives of the City. If additional copies are required, the Contractor shall be responsible for obtaining additional copies and all associated costs.

1.16 DEFINITIONS

A. Words in the singular shall also mean and include the plural, wherever the context so indicates, and words in the plural shall mean the singular, wherever the context so indicates.

B. Wherever the terms "shown on drawings" are used in the specifications, they shall mean "noted", "indicated", "scheduled", "detailed", or shall refer to any other diagrammatic or written reference made on the drawings.

C. Wherever the term "provide" is used in the specifications or on the drawings it will mean "furnish" and "install", "connect", "apply", "erect", "construct", or similar terms, unless otherwise indicated in the contract documents.

D. Wherever the term "material" is used in the specifications it will mean any "product", "equipment", "device", "assembly", or "item" required under the Contract, as indicated by trade or brand name, manufacturer's name, standard specifications reference or to other description.

E. The terms "approved" or "approval" shall mean the written approval of the Designer or Project Manager.

F. The term "specifications" shall mean all information contained in the bound or unbound volume, including all "Contract Documents" defined herein, except for the drawings.

G. "Concealed" means hidden from sight in chases, furred spaces, shafts, hung ceilings, embedded in construction or in crawl spaces.

H. "Exposed" means not installed underground or "concealed" as defined above.

I. "Architect" shall refer to TBA Architects, Inc.

J. "Designer" shall refer to the licensed professional designer of record for the project.

K. "Hazardous Waste" shall refer to a waste, or combination of wastes, which because of its quantity, concentration, or physical, chemical or infectious characteristics may cause, or significantly contribute to an increase in serious irreversible, or incapacitating reversible illness or pose a substantial present or potential hazard to human health, safety, or welfare or to the environment when improperly treated, stored, transported, used or disposed of, or otherwise managed, however, not to include solid or dissolved materials in irrigation return flows or industrial discharges which are point sources subject to permits under section 402 of the Federal Water Pollution Control Act of 1967 as amended, or source, special nuclear, or by product material as defined by the Atomic Energy Act of 1954."

PART 2 - NOT USED

PART 3 - NOT USED

END OF SECTION

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SECTION 01 20 00
PRICE AND PAYMENT PROCEDURES

1.1 GENERAL REQUIREMENTS

A. Division 1, General Conditions, Supplementary General Conditions, the drawings, and all other parts of the Contract Documents are hereby made a part of this section.

1.2 SECTION INCLUDES

A. Schedule of values.

B. Applications for payment.

C. Change procedures.

D. Defect assessment.

E. Unit Prices.

F. Alternates

1.3 SCHEDULE OF VALUES

A. Submit printed schedule on AIA Form G703 - Continuation Sheet for G702. Contractor's standard form or electronic media printout will be considered but must be approved by the Architect.

B. Submit Schedule of Values in duplicate within 15 days after date of Owner-Contractor Agreement.

C. Format: Utilize Table of Contents of this Project Manual. Identify each line item with number and title of major specification Section. Identify site mobilization, bonds and insurance.

D. Include in each line item, separate lines for materials and labor.

E. Include within each line item, direct proportional amount of Contractor's overhead and profit.

F. Revise schedule to list approved Change Orders, with each Application for Payment.

1.4 APPLICATIONS FOR PAYMENT

A. Submit three copies of each application on AIA Form G702 - Application and Certificate for payment and AIA G703 - Continuation Sheet for G702.

B. Content and Format: Utilize Schedule of Values for listing items in Application for Payment.

C. Submit updated construction schedule with each Application for Payment.

D. Payment Period: Applications will be submitted monthly for review and approval by Architect. Payment period after approval: 20 days.

E. Substantiating Data: When Architect requires substantiating information, submit data justifying dollar amounts in question. Include the following with Application for Payment:
   1. Construction progress schedules, revised and current.

1.5 CHANGE PROCEDURES

A. Submittals: Submit name of individual authorized to receive change documents, and be responsible for informing others in Contractor's employ or Subcontractors of changes to the Work.

B. The Architect will advise of minor changes in the Work not involving adjustment to Contract Sum/Price or Contract Time by issuing supplemental instructions on AIA Form G710.

C. The Architect may issue a Proposal Request Notice of Change including a detailed description of proposed change with supplementary or revised Drawings and specifications, a change in Contract Time for executing the change. Contractor will prepare and submit estimate within 5 days.

D. Contractor may propose changes by submitting a request for change to Architect, describing proposed change and its full effect on the Work. Include a statement describing reason for the change, and effect on Contract Sum/Price and Contract Time with full documentation and a statement describing effect on Work by separate or other Contractors. Document requested substitutions in accordance with Section 016000.

E. Construction Change Directive: Architect may issue directive, on AIA Form G713 Construction Change Directive signed by Owner, instructing Contractor to proceed with change in the Work, for subsequent inclusion in a Change Order. Document will describe changes in the Work, and designate method of determining any change in Contract Sum/Price or Contract Time. Promptly execute change.

F. Time and Material Change Order: Submit itemized account and supporting data after completion of change, within time limits indicated in Conditions of the Contract. In Time and Material Change Orders, the Contractor will be allowed a 15% markup for General Contractor work and 5% markup for Subcontractor work. Architect will determine change allowable in Contract Sum/Price and Contract Time as provided in Contract Documents.

G. Maintain detailed records of work done on Time and Material basis. Provide full information required for evaluation of proposed changes, and to substantiate costs for changes in the Work.

H. Document each quotation for change in cost or time with sufficient data to allow evaluation of quotation.

I. Change Order Forms: AIA G701.

J. Execution of Change Orders: Architect will issue Change Orders for signatures of parties as provided in Conditions of the Contract.

1.6 DEFECT ASSESSMENT

A. Replace the Work, or portions of the Work, not conforming to specified requirements.

B. If, in the opinion of the Architect it is not practical to remove and replace the Work, the Architect will direct appropriate remedy or adjust payment.

C. The defective Work may remain, but unit sum/price will be adjusted to new sum/price at discretion of Owner.

D. Defective Work will be partially repaired to instructions of Architect and unit sum/price will be adjusted to new sum/price at discretion of Owner.

E. Individual specification sections may modify these options or may identify specific formula or percentage sum/price reduction.

F. Authority of Architect to assess defects is final.

G. The Authority of the Owner to identify payment adjustments is final.

H. Non-Payment For Rejected Products: Payment will not be made for rejected products for any of the following:
   1. Products wasted or disposed of in a manner that is not acceptable.
   2. Products determined as unacceptable before or after placement.
   3. Products not completely unloaded from transporting vehicle.
   4. Products placed beyond lines and levels of required Work.
   5. Products remaining on hand after completion of the Work.
   6. Loading, hauling, and disposing of rejected products.

1.7 UNIT PRICES: not used

1.8 ALTERNATES:

A. Alternates quoted on Bid Forms will be reviewed and accepted or rejected at Owner's option in accordance with the provisions of MGL chapter 149 section 44 G(b). Accepted Alternates will be identified in Owner-Contractor Agreement.

B. Coordinate related work and modify surrounding work.

C. Schedule of Alternates: See Summary of Work and Bid Form

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

Not Used.

END OF SECTION

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SECTION 01 30 00
ADMINISTRATIVE REQUIREMENTS

PART 1 GENERAL

1.1 REQUIREMENTS

A. Division 1, General Conditions, Supplementary General Conditions, the Drawings, and all other parts of the Contract Documents are hereby made a part of this Section.

1.2 SECTION INCLUDES

A. Coordination and project conditions.

B. Preconstruction meeting.

C. Progress meetings.

D. Cutting and patching.

E. Special procedures.

1.3 COORDINATION AND PROJECT CONDITIONS

A. This project is to be performed on a building within a public park. Contractor will take every effort to minimize the impact of the work on the park users. Contractor will inform the Owner two days before any work that will impact egress or access to the park.

B. Owner will provide certain facilities to Contractor, specifically storage for the flagpole and parking permits, only after proper coordination with the Project Manager.

C. Coordinate scheduling, submittals, and Work of various sections of Project Manual to ensure efficient and orderly sequence of installation of interdependent construction elements, with provisions for accommodating items installed later.

D. Utility service to the site is limited, as detailed in Section 015000. Verify utility requirements and characteristics of operating equipment can be accommodated. Coordinate work of various sections having interdependent responsibilities for installing, connecting to, and placing in service, operating equipment.

E. Coordinate completion and clean-up of Work of separate sections in preparation for Substantial Completion.

F. Coordinate access to site for correction of defective Work and Work not in accordance with Contract Documents, to minimize disruption of Owner's activities.

1.4 PRECONSTRUCTION MEETING

A. Owner will schedule meeting after Notice of Award.

B. Attendance Required: Owner, Architect, Contractor, Filed Sub-Contractors.

C. Agenda:
1. Execution of Owner-Contractor Agreement.
2. Submission of executed bonds and insurance certificates.
3. Distribution of Contract Documents.
4. Submission of list of Subcontractors, list of products, schedule of values, and progress schedule.
5. Designation of personnel representing parties in Contract, Filed Sub-Contractors, and Architect/Engineer.
6. Procedures and processing of field decisions, submittals, substitutions, applications for payments, proposal request, Change Orders, and Contract closeout procedures.
7. Protection of existing work and paving.
8. Scheduling.

1.5 PROGRESS MEETINGS

A. Contractor will be available for meetings throughout progress of the Work at no less than bi-monthly intervals.

B. Attendance Required: Job superintendent, Owner, Architect, as appropriate to agenda topics for each meeting.

C. Agenda:
1. Review minutes of previous meetings.
2. Review of Work progress.
3. Field observations, problems, and decisions.
4. Identification of problems impeding planned progress.
5. Review of submittals schedule and status of submittals.
6. Review of off-site fabrication and delivery schedules.
7. Maintenance of progress schedule.
8. Corrective measures to regain projected schedules.
9. Planned progress during succeeding work period.
10. Coordination of projected progress.
11. Maintenance of quality and work standards.
12. Effect of proposed changes on progress schedule and coordination.
13. Other business relating to Work.

1.6 PRODUCT DATA

A. Product Data: Submit to Architect for review for limited purpose of checking for conformance with information given and design concept expressed in Contract Documents.

B. Submit number of copies Contractor requires, plus two copies Architect will retain.

C. Mark each copy to identify applicable products, models, options, and other data. Supplement manufacturers' standard data to provide information specific to this Project.

D. After review, produce copies and distribute in accordance with SUBMITTAL PROCEDURES article and for record documents described in Section 01700.

1.7 SHOP DRAWINGS

A. Shop Drawings: Submit to Architect for review for limited purpose of checking for conformance with information given and design concept expressed in Contract Documents.

B. After review, produce copies and distribute in accordance with SUBMITTAL PROCEDURES article and for record documents described in Section 01700.

1.8 SAMPLES

A. Samples: Submit to Architect for review for limited purpose of checking for conformance with information given and design concept expressed in Contract Documents.

B. Samples For Selection as Specified in Product Sections:
   1. Submit to Architect for aesthetic, color, or finish selection.
   2. Submit samples of finishes to demonstrate match with specifications.

C. Submit samples to illustrate functional and aesthetic characteristics of Products, with integral parts and attachment devices. Coordinate sample submittals for interfacing work.

D. Include identification on each sample, with full Project information.

E. Submit number of samples specified in individual specification sections; Architect will retain one sample.

F. Reviewed samples which may be used in the Work are indicated in individual specification sections.

1.9 TEST REPORTS

A. Submit for Architect's knowledge as contract administrator or for Owner.

B. Submit test reports for information for limited purpose of assessing conformance with information given and design concept expressed in Contract Documents.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

3.1 EXAMINATION

A. Examine existing conditions prior to commencing work.

3.2 CUTTING AND PATCHING

A. Employ skilled and experienced installer to perform cutting and patching.

B. Execute cutting, fitting, and patching including excavation and fill, to complete Work, and to:
   1. Fit the several parts together, to integrate with other Work.
   2. Uncover Work to install or correct ill-timed Work.
   3. Remove and replace defective and non-conforming Work.
   4. Remove samples of installed Work for testing.
   5. Provide openings in elements of Work for penetrations of mechanical and electrical Work.

C. Execute work by methods to avoid damage to other Work, and to provide proper surfaces to receive patching and finishing.

D. Cut masonry and concrete materials using masonry saw or core drill.

E. Restore Work with new products in accordance with requirements of Contract Documents.

F. Fit Work tight to pipes, sleeves, ducts, conduit, and other penetrations through surfaces.

G. Maintain integrity of wall, ceiling, or floor construction; completely seal voids.

H. Refinish surfaces to match adjacent finishes. For continuous surfaces, refinish to nearest intersection; for assembly, refinish entire unit.

I. Identify hazardous substances or conditions exposed during the Work to Architect/Engineer for decision or remedy.

3.3 SPECIAL PROCEDURES

A. Protection of parking area. Contractor is responsible to protect areas where they are allowed to park and will be required to return the lot in the present condition.

B. Materials: As specified in product sections; match existing with new products for patching and extending work.

C. Employ skilled and experienced installer to perform alteration work.

D. Cut, move, or remove items as necessary for access to alterations and renovation Work. Replace and restore at completion.

E. Remove unsuitable material not marked for salvage, including rotted wood, corroded metals, and deteriorated masonry and concrete. Replace materials as specified for finished Work.

F. Remove debris and abandoned items from area and from concealed spaces.

G. Prepare surface and remove surface finishes to permit installation of new work and finishes.

H. Close openings in exterior surfaces to protect existing work from weather and extremes of temperature and humidity.

I. Remove, cut, and patch Work in manner to minimize damage and to permit restoring products and finishes to original condition.

J. Where new Work abuts or aligns with existing, provide smooth and even transition. Patch Work to match existing adjacent Work in texture and appearance.

K. When finished surfaces are cut so that smooth transition with new Work is not possible, terminate existing surface along straight line at natural line of division and submit recommendation to Architect for review.

L. Where change of plane of 1/4 inch or more occurs, submit recommendation for providing smooth transition; to Architect for review.

M. Patch or replace portions of existing surfaces which are damaged, lifted, discolored, or showing other imperfections.

N. Finish surfaces as specified in individual product sections.

END OF SECTION

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SECTION 01 40 00
QUALITY REQUIREMENTS

PART 1 GENERAL

1.1 REQUIREMENTS

A. Division 1, General Conditions, Supplementary General Conditions, the Drawings, and all other parts of the Contract Documents are hereby made a part of this Section.

1.2 SECTION INCLUDES

A. Quality control and control of installation.

B. Tolerances

C. References.

D. Mock-up requirements.

E. Testing and inspection services.

F. Manufacturers' field services.

G. Examination.

H. Preparation.

1.3 QUALITY CONTROL AND CONTROL OF INSTALLATION

A. This is an historic property and an Icon for the City of Somerville. Work is to be performed to meet the Secretary of the Interior's Standards for Rehabilitation of Historic Properties and performed by companies and workers experienced in historic renovation and restoration their respective trades.

B. Monitor quality control over suppliers, manufacturers, products, services, site conditions, and workmanship, to produce Work of specified quality.

C. Comply with manufacturers' instructions, including each step in sequence.

D. When manufacturers' instructions conflict with Contract Documents, request clarification from Architect before proceeding.

E. Comply with specified standards as minimum quality for the Work except where more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.

F. Perform Work by persons qualified to produce required and specified quality. The Masonry Prime Contractor shall have no less than five years' experience in masonry repair. Ornamental Iron filed subcontractors shall have no less than five years' experience in working on historic wrought iron

elements. See individual sections for further specific experience requirements.

G. Verify field measurements are as indicated on Shop Drawings or as instructed by manufacturer.

H. Secure products in place with positive anchorage devices designed and sized to withstand stresses, vibration, physical distortion, or disfigurement.

1.4 TOLERANCES

A. Monitor fabrication and installation tolerance control of products to produce acceptable Work. Do not permit tolerances to accumulate.

B. Comply with manufacturers' tolerances. When manufacturers' tolerances conflict with Contract Documents, request clarification from Architect before proceeding.

C. Adjust products to appropriate dimensions; position before securing products in place.

1.5 REFERENCES

A. For products or workmanship specified by association, trade, or other consensus standards, comply with requirements of standard, except when more rigid requirements are specified or are required by applicable codes.

B. Conform to reference standard by date of issue current on date of Contract Documents, except where specific date is established by code.

C. When specified reference standards conflict with Contract Documents, request clarification from Architect before proceeding.

D. Neither contractual relationships, duties, nor responsibilities of parties in Contract nor those of Architect shall be altered from Contract Documents by mention or inference otherwise in reference documents.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify existing site conditions and substrate surfaces are acceptable for subsequent Work. Beginning new Work means acceptance of existing conditions.

B. Verify existing substrate is capable of structural support or attachment of new Work being applied or attached.

C. Examine and verify specific conditions described in individual specification sections.

D. Verify utility services are available, of correct characteristics, and in correct locations.

3.2 PREPARATION

A. Clean substrate surfaces prior to applying next material or substance.

B. Seal cracks or openings of substrate prior to applying next material or substance.

C. Apply manufacturer required or recommended substrate primer, sealer, or conditioner prior to applying new material or substance in contact or bond.

END OF SECTION

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SECTION 015000
TEMPORARY FACILITIES AND CONTROLS

PART 1 GENERAL

1.1 GENERAL REQUIREMENTS

A. Division 1, General Conditions, Supplementary General Conditions, the Drawings, and all other parts of the Contract Documents are hereby made a part of this Section.

1.2 SUMMARY

A. Temporary Utilities: Electricity, lighting, heat, ventilation, water, and sanitary facilities.
B. Temporary Controls: Barriers, enclosures and fencing, protection of the Work, and water control.
C. Construction Facilities: Parking, storage, progress cleaning, and project signage.
D. Hoisting and Staging.
E. Maintenance of Access.
F. Dust Control.
G. Noise Control.
H. Temporary Storage of Furniture and Equipment.

1.3 TEMPORARY ELECTRICITY

A. There is no electricity at the site. Contractor to provide their own power.

1.4 TEMPORARY LIGHTING FOR CONSTRUCTION PURPOSES

A. There is not lighting at the site. Contractor to provide their own lighting.

1.6 TEMPORARY VENTILATION

A. Ventilate enclosed areas to achieve curing of materials, to dissipate humidity, and to prevent accumulation of dust, fumes, vapors, or gases.

1.7 TEMPORARY WATER SERVICE

A. There is no water available at the site. Contractor to provide their own water.

1.8 TEMPORARY SANITARY FACILITIES

A. Contractor shall provide for sanitary facilities as none exist at the site at a location approved by the Project Manager.

1.9 BARRIERS

A. Provide barricades and covered walkways required by governing authorities.

C. Protect non-owned vehicular traffic, stored materials, site, and structure from damage.

D. Contractor is responsible to protect the existing condition of landscape and paved areas and will be required to return them to their present condition.

1.10 FENCING

A. As required to maintain Contractor's security and protection of the public.

1.11 WATER CONTROL

A. Protect site from puddling or running water due to contractor operations.

1.12 EXTERIOR ENCLOSURES:

A. Protect work area site at base from intrusion during entire construction period and until substantial completion for the project.

1.13 PROTECTION OF INSTALLED WORK

A. Protect installed Work and provide special protection where specified in individual specification sections.

B. Provide temporary and removable protection for installed Products. Control activity in immediate work area to prevent damage.

C. Provide protective coverings at walls, projections, jambs, sills, and soffits of openings.

1.14 SECURITY

A. Provide security and facilities to protect Work, and existing facilities from unauthorized entry, vandalism, or theft.

B. Coordinate with Owner's security program.

1.15 PARKING AND STORAGE

A. The City will provide ten (10) temporary parking permits for construction vehicles. Final number and duration of permits will be arranged with the Project Manager.

B. When site space is not adequate, provide additional off-site parking.

C. The Owner shall make a site available for Contractor's storage of materials for the job to be proposed by Contractor and approved by Project Manager. On site storage security shall be the responsibility of the Contractor.

D. Contractor is responsible for removal and reinstallation of existing flagpole. City will provide storage off site. Contractor to arrange for delivery of flagpole to City, which requires 48 hours' notice to the City prior to delivery of flagpole.

1.16 PROGRESS CLEANING AND WASTE REMOVAL

A. Maintain areas free of waste materials, debris, and rubbish at all times. Maintain site in a clean and orderly condition.

B. Collect and remove waste materials, debris, and rubbish from site daily and dispose off-site.

1.17 REMOVAL OF UTILITIES, FACILITIES, AND CONTROLS

A. Remove temporary utilities, equipment, facilities, materials, prior to Substantial Completion inspection.

B. Clean and repair damage caused by installation or use of temporary work.

C. Restore existing and permanent facilities used during construction to original condition. Restore permanent facilities used during construction to specified condition.

1.18 PROJECT SIGN - NOT REQUIRED

1.19 HOISTING

A. General Contractor: All hoisting equipment and machinery required for the proper and expeditious prosecution and progress of the work shall be furnished, installed, operated and maintained in safe condition by the General Contractor for the use of all Subcontractors' material and/or equipment delivered to the designated hoisting area except that which is specifically required to be provided by the Subcontractors themselves and is so stated in each appropriately related Section of the Specifications, or as indicated below. All costs for hoisting operating services shall be borne by the General Contractor unless specifically excepted in the Contract Documents.

1.20 STAGING

A. All staging, exterior and interior, required to be over eight feet in height, shall be furnished and erected by the General Contractor and maintained in safe condition by him without charge to and for the use of all trades as needed by them for proper execution of their work, except where specified to the contrary in any filed sub-bid Section of the Specification.

B. Any staging that is less than eight feet in height shall be furnished and erected by the applicable sub-contractor.

1.21 MAINTENANCE OF ACCESS

A. The building will not be occupied during the construction project. The General Contractor shall not be required to provide and maintain for the duration of his contract, the means of access and egress to and from the building, for vehicular traffic and the public.

B. The site is a public park and will be kept open for use by the public. The Contractor and all workers shall not occupy park area except as required for the work and as in areas expressly designated by the City's Project Manager.

1.22 DUST CONTROL

A. The park shall be kept free of dust and debris.

B. The General Contractor shall provide adequate means for the purpose of preventing dust caused by construction operations from creating a hazard, nuisance, and from entering park areas throughout the period of the construction contract.

C. This provision does not supersede any specific requirements for methods of construction or applicable general conditions set forth in the Contract Articles with added regard to performance obligations of the General Contractor.

1.23 NOISE CONTROL

A. The site is adjacent to a public park and across the street from a residential neighborhood.

B. Comply with requirements of authorities having jurisdiction. Develop and maintain a noise-abatement program and enforce strict discipline over all personnel to keep noise to a minimum.

C. Execute construction work by methods and by use of equipment which will reduce excess noise.

1. Equip air compressors with silencers, and power equipment with mufflers.
2. Manage vehicular traffic and scheduling to reduce noise.
3. No heavy equipment may be started or idled before 7A.M.

PART 2 PRODUCTS Not Used.

PART 3 EXECUTION Not Used.

END OF SECTION

SECTION 01 60 00
PRODUCT REQUIREMENTS

PART 1 GENERAL

1.1 REQUIREMENTS

A. Division 1, General Conditions, Supplementary General Conditions, the Drawings, and all other parts of the Contract Documents are hereby made a part of this Section.

1.2 SECTION INCLUDES

A. Products.

B. Product delivery requirements.

C. Product storage and handling requirements.

D. Product options.

E. Product substitution procedures.

F. Equipment electrical characteristics and components.

1.3 PRODUCTS

A. Furnish products of qualified manufacturers suitable for intended use. Furnish products of each type by single manufacturer unless specified otherwise.

1.4 PRODUCT DELIVERY REQUIREMENTS

A. Transport and handle products in accordance with manufacturer's instructions.

B. Promptly inspect shipments to ensure products comply with requirements, quantities are correct, and products are undamaged.

C. Provide equipment and personnel to handle products by methods to prevent soiling, disfigurement, or damage.

1.5 PRODUCT STORAGE AND HANDLING REQUIREMENTS

A. Store and protect products in accordance with manufacturers' instructions.

B. Store with seals and labels intact and legible.

C. Store sensitive products in weather tight, climate controlled, enclosures in an environment favorable to product.

D. For exterior storage of fabricated products, place on sloped supports above ground.

E. Provide bonded off-site storage and protection when site does not permit on-site storage or protection.

F. Cover products subject to deterioration with impervious sheet covering. Provide ventilation to prevent condensation and degradation of products.

G. Store loose granular materials on solid flat surfaces in well-drained area. Prevent mixing with foreign matter.

H. Provide equipment and personnel to store products by methods to prevent soiling, disfigurement, or damage.

I. Arrange storage of products to permit access for inspection. Periodically inspect to verify products are undamaged and are maintained in acceptable condition.

1.6 PRODUCT OPTIONS

A. Products Specified by Reference Standards or by Description Only: Any product meeting those standards or description.

B. Products Specified by Named Manufacturers: Products of one of manufacturers named and meeting specifications, no options or substitutions allowed except as mandated by statue.

C. Products Specified by Named Manufacturers with Provision for Substitutions: Submit request for substitution for any manufacturer not named in accordance with the following article. No requests for substitution will be accepted during the bid period except as indicated in bid documents.

1.7 PRODUCT SUBSTITUTION PROCEDURES

A. Architect will consider requests for Substitutions only within 15 days after date of Owner-Contractor Agreement

B. Substitutions may be considered when a product becomes unavailable through no fault of Contractor.

C. Document each request with complete data substantiating compliance of proposed Substitution with Contract Documents.

D. A request constitutes a representation that Contractor:

1. Has investigated proposed product and determined that it meets or exceeds quality level of specified product.

2. Will provide same warranty for Substitution as for specified product.
3. Will coordinate installation and make changes to other Work which may be required for the Work to be complete with no additional cost to Owner.
4. Waives claims for additional costs or time extension which may subsequently become apparent.
5. Will reimburse Owner for review or redesign services associated with re-approval by authorities having jurisdiction.

E. Substitutions will not be considered when they are indicated or implied on Shop Drawing or Product Data submittals, without separate written request, or when acceptance will require revision to Contract Documents.

F. Substitution Submittal Procedure:
1. Product Substitution Request Form. No product substitutions will be considered if submitted without this form. Substitution review requires thorough analysis. The owner and architect make no representations as to the time period for review if product substitutions are submitted with a Product Substitution Form. Form is located at the end of this specification section.
2. Submit three copies of request for Substitution for consideration. Limit each request to one proposed Substitution.
3. Submit Shop Drawings, Product Data, and certified test results attesting to proposed product equivalence. Burden of proof is on proposer.
4. Architect/Engineer will notify Contractor in writing of decision to accept or reject request.

G. Substitutions may be approved on the basis of a change order, with associated changes in contract cost and time, at the discretion of the Owner.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

Not Used.

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SUBSTITUTION REQUEST FORM

Contractor requests for substitutions are presented under the provisions of Specification section 01600 1.7. Substitutions will be considered by the Architect only upon completion of this form accompanied by supporting documentation. Substitutions made without completion of this form will be considered defective work. All information including attachments is to be submitted in TRIPLICATE.

Project: _____

Subcontractor: _____

General Contractor: _____

SUBCONTRACTOR SUBMITTAL

The Subcontractor proposes the following substitution in accordance with the requirements of the Contract Documents:

Scope of Substitution: _____

Specification References: _____

Reasons for proposed substitution: _____

Impact on Schedule: _____

Impact on Guarantees and Warranties: _____

Coordination Required with Adjacent Materials and Related Systems: _____

List all deviations from Specified Requirements: _____

_____

GENERAL CONTRACTOR REPRESENTATION

By forwarding this Request for Substitution, the Contractor represents (check below):

- ☐ It has investigated the proposed product
- ☐ It will provide the same warranty for the substitution as the specified product
- ☐ It meets or exceeds the quality level of specified product.
- ☐ Will coordinate installation and make changes to other work as required at no additional cost
- ☐ Waives claims for additional cost or time
- ☐ Will compensate the Owner for review or redesign services associated with reapproval

Signature below indicates acceptance of responsibility for accuracy and completeness of information included herein.

Authorized Signature: _____ Date: _____

ARCHITECT'S RESPONSE

Review and approval are only for conformance with the design concept and information expressed in the Contract Documents. The Architect's approval of the Contractor's submittals shall not constitute an approval of dimensions or quantities, means or methods, or of an assembly of which the item is a component. Approval shall not relieve the Contractor of any obligations contained in the Construction Documents.

- ☐ Approved
- ☐ Approved As Noted
- ☐ Revise and Resubmit
- ☐ Disapproved

Authorized Signature: _____ Date: _____

END OF SECTION

SECTION 01 70 00

EXECUTION REQUIREMENTS

PART 1 GENERAL

1.1 GENERAL PROVISIONS

A. Division 1, General Conditions, Supplementary General Conditions, the Drawings, and all other parts of the Contract Documents are hereby made a part of this Section.

1.2 SECTION INCLUDES

A. Substantial Completion.

B. Final Acceptance.

C. Punch List.

D. Final cleaning.

E. Protecting installed construction.

F. Manual for materials and finishes.

1.3 SUBSTANTIAL COMPLETION

A. Preliminary Procedures: Before requesting inspection for determining date of Substantial Completion, complete the following. List items below that are incomplete in request.

1. Prepare a list of items to be completed and corrected (punch list), the value of items on the list, and reasons why the Work is not complete.
2. Submit specific warranties, maintenance service agreements, final certifications, and similar documents as indicated below.
3. Obtain and submit releases permitting Owner unrestricted use of the Work and access to services and utilities. Include signed Certificate of Inspection for Use and Occupancy from the local Building Inspector, operating certificates, and similar releases.
4. Deliver tools, spare parts, extra materials, and similar items as indicated below. Label with manufacturer's name and model number where applicable.

5. Terminate and remove temporary facilities from Project site, along with mockups not accepted as part of final Work, construction tools, and similar elements.
6. Complete final cleaning requirements, including touchup painting.
7. Touch up and otherwise repair and restore marred exposed finishes to eliminate visual defects.

B. Inspection: Submit a written request for inspection for Substantial Completion. On receipt of request, Architect and Owner will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will notify Contractor of items, either on Contractor's list or additional items identified by Architect, that must be completed or corrected before certificate of completion will be issued. The time frame for the completion of the "punch list items" shall not exceed the completion date of the contract. Should the "punch list items" not be completed within the specified time frame, the Owner may invoke the rights provided under the General Conditions.

1.4 FINAL ACCEPTANCE

A. Preliminary Procedures: Before requesting final inspection for determining date of Final Completion, complete the following:
1. Submit a final Application for Payment according to Section 012000 "Price and Payment Procedures."

B. Inspection: Submit a written request for final inspection for acceptance. On receipt of request, Architect and Owner will either proceed with inspection or notify Contractor of unfulfilled requirements. 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.
1. Re-inspection: Request re-inspection when the Work identified in previous inspections as incomplete is completed or corrected. Contractor will compensate Owner for any additional charges submitted by Architect for re-inspections.

1.5 LIST OF INCOMPLETE ITEMS (PUNCH LIST)

A. Preparation: Submit two copies of list. Include name and identification of each space and area affected by construction operations for incomplete items and

items needing correction including, if necessary, areas disturbed by Contractor that are outside the limits of construction. Architect will verify or modify submission to establish the final Punch List.

1.6 FINAL CLEANING

A. Execute final cleaning prior to final project assessment.

B. Remove temporary labels, stains and foreign substances, polish transparent and glossy surfaces, broom clean entire roof area.

C. Clean equipment and fixtures to sanitary condition with cleaning materials appropriate to surface and material being cleaned.

D. Do not paint over "UL" and similar labels, including mechanical and electrical nameplates.

E. Wipe surfaces of mechanical and electrical equipment, and similar equipment. Remove excess lubrication, paint and mortar droppings, and other foreign substances.

F. Clean site; sweep paved areas.

G. Remove waste and surplus materials, rubbish, and construction facilities from site.

1.7 PROTECTING INSTALLED CONSTRUCTION

A. Protect installed Work and provide special protection where specified in individual specification sections.

B. Provide temporary and removable protection for installed products. Control activity in immediate work area to prevent damage.

C. Provide protective coverings at walls, projections, jambs, sills, and soffits of openings.

D. Protect finished floors, stairs, and other surfaces from traffic, dirt, wear, damage, or movement of heavy objects, by protecting with durable sheet materials.

1.8 MANUAL FOR MATERIALS AND FINISHES

A. Submit two sets of final volumes within 10 days after final inspection.

B. Building Products, Applied Materials, and Finishes: Include product data, with catalog number, size, composition, and color and texture designations. Include information for re-ordering custom manufactured products.

C. Instructions for Care and Maintenance: Include manufacturer's recommendations for cleaning agents and methods, precautions against detrimental agents and methods, and recommended schedule for cleaning and maintenance.

D. Moisture Protection and Weather Exposed Products: Include product data listing applicable reference standards, chemical composition, and details of installation. Include recommendations for inspections, maintenance, and repair.

E. Additional Requirements: As specified in individual product specification sections.

F. Include listing in Table of Contents for design data, with tabbed fly sheet and space for insertion of data.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

Not Used.

END OF SECTION

SECTION 02 22 50

SELECTIVE DEMOLITION

PART 1 GENERAL

1.1 REQUIREMENTS

A. Attention is directed to the CONTRACT AND GENERAL CONDITIONS and all Sections within DIVISION 1 - GENERAL REQUIREMENTS, which are hereby made a part of this section of the specifications

1.2 SUMMARY

A. Section Includes:
   1. Demolishing designated building equipment and fixtures.
   2. Demolishing designated construction.
   3. Cutting and alterations for completion of the Work.
   4. Removing designated items for reuse.
   5. Protecting items designated to remain.
   6. Removing demolished materials.
   7. Sawcutting of slab.
   8. Coring and cutting existing slab to receive new floor drains.
   9. Minor plumbing demolition of existing facilities (drains) associated with construction.
   10. Site protection including grass, shrubs, trees and flowers.

1.3 RELATED SECTIONS

A. Section 033000 – Cast in Place Concrete

B. Section 040140 – Maintenance of Stone Assemblies

C. Section 057000 – Decorative Metal

D. Section 057300 – Metal Railings

E. Section 310503 – Helical Tiebacks

1.4 SUBMITTALS

A. Division - 1 Submittal Procedures: Requirements for submittals.

1.5 QUALITY ASSURANCE

A. Conform to applicable code for demolition work, dust control, products requiring electrical disconnection and re-connection, and Disposal.

B. Conform to applicable code for procedures when hazardous or contaminated materials are discovered.

C. Obtain required permits from authorities having jurisdiction.

D. Coordinate with Owner to minimize closing or obstructing egress width to any building or site exit.

1.6 SEQUENCING

A. Division 1 - Summary of work

1.7 SCHEDULING

A. Division 1 Submittals Work Schedule

B. Schedule Work to coincide with new construction, repair and replacement.

C. Describe demolition removal procedures and schedules.

1.8 PROJECT CONDITIONS

A. Cease operations immediately if structure appears to be in danger and notify Architect. Do not resume operations until directed.

B. This is an historic property and an Icon for the City of Somerville and within a public park. Conduct all demolition so as to assure minimum damage to the existing building fabric.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

3.1 PREPARATION

A. Notify affected utility companies before starting work and comply with their requirements.

B. Mark location and termination of utilities.

C. Erect, and maintain temporary barriers and security devices as required, including warning signs and lights, and similar measures, for protection of the public and existing improvements indicated to remain.

D. Erect and maintain weatherproof closures for exterior openings as required.

E. Erect and maintain temporary partitions to prevent spread of dust, odors, and noise to permit continued Owner occupancy. Coordinate location of partitions with the owner's representative.

F. Prevent movement of structure; provide temporary bracing and shoring required to ensure safety of existing structure. Provide secure shoring for treatment of existing stair to be restored.

G. Provide appropriate temporary signage including signage for exit or building egress.

H. Do not close or obstruct building egress path.

I. Do not disable or disrupt building fire or life safety systems without 3 days prior written notice to Owner.

J. Protect public grass areas and restore planted areas damaged by construction.

3.2 DEMOLITION

A. Maintain protected egress from and access to adjacent existing buildings at all times.

B. Cap and identify abandoned utilities at termination points when utility is not completely removed. Annotate Record Drawings indicating location and type of service for capped utilities remaining after demolition. (No utilities are located at this structure and no terminations are expected for this work. The paragraph is advisory in case previously terminated or unknown utilities are encountered.)

C. Demolish in orderly and careful manner. Protect existing improvements, supporting structural members and finishes.

D. Carefully remove building components indicated to be reused.
   1. Disassemble components as required to permit removal.
   2. Package small and loose parts to avoid loss.
   3. Mark components including stones, portions of decorative iron and packaged parts to permit reinstallation.
   4. Store components, protected from construction operations, until reinstalled.

E. Remove demolished materials from site except where specifically noted otherwise. Do not burn or bury materials on site.

F. Remove materials as Work progresses. Upon completion of Work, leave areas in clean condition.

G. Remove temporary Work.

H. Restore planted park areas damaged during construction.

3.3 SCHEDULES – Not Used

END OF SECTION

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SECTION 033000 - CAST-IN-PLACE CONCRETE

PART 1 - GENERAL

1.1 SUMMARY

A. This Section specifies cast-in place concrete, including formwork, reinforcement, concrete materials, mixture design, placement procedures, and finishes.

1.2 SUBMITTALS

A. Product Data: For each type of product indicated.

B. Design Mixtures: For each concrete mixture.

C. Shop Drawings: For steel reinforcement and formwork. Material test reports.

1.3 QUALITY ASSURANCE

A. Manufacturer Qualifications: A firm experienced in manufacturing ready-mixed concrete products and that complies with ASTM C 94/C 94M requirements for production facilities and equipment.

1. Manufacturer certified according to NRMCA's "Certification of Ready Mixed Concrete Production Facilities."

B. ACI Publications: Comply with the following unless modified by requirements in the Contract Documents:

1. ACI 301, "Specification for Structural Concrete," Sections 1 through 5.
2. ACI 117, "Specifications for Tolerances for Concrete Construction and Materials."

C. Preinstallation Conference: Conduct conference at Project site.

PART 2 - PRODUCTS

2.1 FORM-FACING MATERIALS

A. Smooth-Formed Finished Concrete: Form-facing panels that will provide continuous, true, and smooth concrete surfaces. Furnish in largest practicable sizes to minimize number of joints.

B. Rough-Formed Finished Concrete: Plywood, lumber, metal, or another approved material. Provide lumber dressed on at least two edges and one side for tight fit.

2.2 STEEL REINFORCEMENT

A. Recycled Content of Steel Products: Provide products with an average recycled content of steel products so postconsumer recycled content plus one-half of preconsumer recycled content is not less than 60 percent.

B. Reinforcing Bars: ASTM A 615/A 615M, Grade 60, deformed.

1. Epoxy-Coated Reinforcing Bars: ASTM A 775/A 775M, epoxy coated, with less than 2 percent damaged coating in each 12-inch bar length.

C. Bar Supports: Bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcing bars and welded wire reinforcement in place. Manufacture bar supports from steel wire, plastic, or precast concrete according to CRSI's "Manual of Standard Practice."

2.3 CONCRETE MATERIALS

A. Cementitious Material: Use the following cementitious materials, of the same type, brand, and source, throughout Project:

1. Portland Cement: ASTM C 150, Type II

B. Normal-Weight Aggregates: ASTM C 33, graded, **3/4-inch** nominal maximum coarse-aggregate size.

1. Fine Aggregate: Free of materials with deleterious reactivity to alkali in cement.

C. Water: ASTM C 94/C 94M and potable.

D. Air-Entraining Admixture: ASTM C 260.

E. Chemical Admixtures: Provide admixtures certified by manufacturer to be compatible with other admixtures and that will not contribute water-soluble chloride ions exceeding those permitted in hardened concrete. Do not use calcium chloride or admixtures containing calcium chloride.

1. Water-Reducing Admixture: ASTM C 494/C 494M, Type A.

2. Crystalline Waterproofing Admixture: The admixture must be a Permeability Reducing Admixture for Hydrostatic Conditions (PRAH) as indicated by ACI 212.3R-10 (Chapter 15).

2.4 VAPOR RETARDERS

A. Plastic Vapor Retarder: ASTM E 1745, Class A. Include manufacturer's recommended adhesive or pressure-sensitive tape.

2.5 CURING MATERIALS

A. Evaporation Retarder: Waterborne, monomolecular film forming, manufactured for application to fresh concrete.

B. Moisture-Retaining Cover: ASTM C 171, polyethylene film or white burlap-polyethylene sheet.

C. Water: Potable.

D. Clear, Waterborne, Membrane-Forming Curing and Sealing Compound: ASTM C 1315, Type 1, Class A.

2.6 RELATED MATERIALS

A. Expansion- and Isolation-Joint-Filler Strips: ASTM D 1752, cork or self-expanding cork.

2.7 CONCRETE MIXTURES

A. Prepare design mixtures for each type and strength of concrete, proportioned on the basis of laboratory trial mixture or field test data, or both, according to ACI 301.

B. Proportion normal-weight concrete mixture as follows:

1. Minimum Compressive Strength: 4000 psi at 28 days.
2. Maximum Water-Cementitious Materials Ratio: 0.40.
3. Slump Limit: 4 inches.
4. Air Content: 6 percent, plus or minus 1.5 percent at point of delivery for 3/4-inch nominal maximum aggregate size.
5. Air Content: Do not allow air content of troweled finished floors to exceed 3 percent.

2.8 FABRICATING REINFORCEMENT

A. Fabricate steel reinforcement according to CRSI's "Manual of Standard Practice."

2.9 CONCRETE MIXING

A. Ready-Mixed Concrete: Measure, batch, mix, and deliver concrete according to ASTM C 94/C 94M, and furnish batch ticket information.

1. When air temperature is between 85 and 90 deg F, reduce mixing and delivery time from 1-1/2 hours to 75 minutes; when air temperature is above 90 deg F, reduce mixing and delivery time to 60 minutes.

PART 3 - EXECUTION

3.1 FORMWORK

A. Design, erect, shore, brace, and maintain formwork according to ACI 301 to support vertical, lateral, static, and dynamic loads, and construction loads that might be applied, until structure can support such loads.

B. Construct formwork so concrete members and structures are of size, shape, alignment, elevation, and position indicated, within tolerance limits of ACI 117.

3.2 VAPOR RETARDERS

A. Plastic Vapor Retarders: Place, protect, and repair vapor retarders according to ASTM E 1643 and manufacturer's written instructions.

1. Lap joints 6 inches and seal with manufacturer's recommended tape.

3.3 STEEL REINFORCEMENT

A. General: Comply with CRSI's "Manual of Standard Practice" for placing reinforcement.

1. Do not cut or puncture vapor retarder. Repair damage and reseal vapor retarder before placing concrete.

3.4 JOINTS

A. General: Construct joints true to line with faces perpendicular to surface plane of concrete.

B. Construction Joints: Install so strength and appearance of concrete are not impaired, at locations indicated or as approved by Architect.

3.5 CONCRETE PLACEMENT

A. Before placing concrete, verify that installation of formwork, reinforcement, and embedded items is complete and that required inspections have been performed.

B. Deposit concrete continuously in one layer or in horizontal layers of such thickness that no new concrete will be placed on concrete that has hardened enough to cause seams or planes of weakness. If a section cannot be placed continuously, provide construction joints as indicated. Deposit concrete to avoid segregation.

1. Consolidate placed concrete with mechanical vibrating equipment according to ACI 301.

C. Cold-Weather Placement: Comply with ACI 306.1.

D. Hot-Weather Placement: Comply with ACI 301.

3.6 FINISHING FORMED SURFACES

A. Smooth-Formed Finish: As-cast concrete texture imparted by form-facing material, arranged in an orderly and symmetrical manner with a minimum of seams. Repair and patch tie holes and defects. Remove fins and other projections that exceed specified limits on formed-surface irregularities.

1. Apply to concrete surfaces exposed to public view.

B. Rubbed Finish: Apply the following to smooth-formed finished as-cast concrete where indicated:

1. Smooth-Rubbed Finish: Not later than one day after form removal, moisten concrete surfaces and rub with carborundum brick or another abrasive until producing a uniform color and texture. Do not apply cement grout other than that created by the rubbing process.
2. Grout-Cleaned Finish: Wet concrete surfaces and apply grout of a consistency of thick paint to coat surfaces and fill small holes. Mix one part portland cement to one and one-half parts fine sand with a 1:1 mixture of bonding admixture and water. Add white portland cement in amounts determined by trial patches so color of dry grout will match adjacent surfaces. Scrub grout into voids and remove excess grout. When grout whitens, rub surface with clean burlap and keep surface damp by fog spray for at least 36 hours.
3. Cork-Floated Finish: Wet concrete surfaces and apply a stiff grout. Mix one part portland cement and one part fine sand with a 1:1 mixture of bonding agent and water. Add white portland cement in amounts determined by trial patches so color of dry grout will match adjacent surfaces. Compress grout into voids by grinding surface. In a swirling motion, finish surface with a cork float.

C. Related Unformed Surfaces: At tops of walls, horizontal offsets, and similar unformed surfaces adjacent to formed surfaces, strike off smooth and finish with a texture matching adjacent formed surfaces. Continue final surface treatment of formed surfaces uniformly across adjacent unformed surfaces, unless otherwise indicated.

3.7 FINISHING FLOORS AND SLABS

A. General: Comply with ACI 302.1R recommendations for screeding, restraightening, and finishing operations for concrete surfaces. Do not wet concrete surfaces.

B. Broom Finish: Apply a broom finish to exterior concrete platforms, steps, and ramps, and elsewhere as indicated.

3.8 CONCRETE PROTECTING AND CURING

A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures. Comply with ACI 306.1 for cold-weather protection and ACI 301 for hot-weather protection during curing.

B. Evaporation Retarder: Apply evaporation retarder to unformed concrete surfaces if hot, dry, or windy conditions cause moisture loss approaching 0.2 lb/sq. ft. x h before and during finishing

operations. Apply according to manufacturer's written instructions after placing, screeding, and bull floating or darbying concrete, but before float finishing.

C. Cure concrete according to ACI 308.1, by one or a combination of the following methods:

1. Moisture Curing: Keep surfaces continuously moist for not less than seven days.
2. Moisture-Retaining-Cover Curing: Cover concrete surfaces with moisture-retaining cover for curing concrete, placed in widest practicable width, with sides and ends lapped at least 12 inches, and sealed by waterproof tape or adhesive. Cure for not less than seven days. Immediately repair any holes or tears during curing period using cover `
3. Curing Compound: Apply uniformly in continuous operation by power spray or roller according to manufacturer's written instructions. Recoat areas subjected to heavy rainfall within three hours after initial application. Maintain continuity of coating and repair damage during curing period.

4. Curing and Sealing Compound: Apply uniformly to floors and slabs indicated in a continuous operation by power spray or roller according to manufacturer's written instructions. Recoat areas subjected to heavy rainfall within three hours after initial application. Repeat process 24 hours later and apply a second coat. Maintain continuity of coating and repair damage during curing period.

3.9 CONCRETE SURFACE REPAIRS

A. Defective Concrete: Repair and patch defective areas when approved by Architect. Remove and replace concrete that cannot be repaired and patched to Architect's approval.

3.10 FIELD QUALITY CONTROL

A. Testing and Inspecting: Owner will engage a qualified independent testing and inspecting agency to perform field tests and inspections and prepare test reports.

1. Testing Services: Tests shall be performed according to ACI 301.

END OF SECTION 033000

SECTION 040140
MAINTENANCE OF STONE ASSEMBLIES

PART 1 GENERAL

1.1 REQUIREMENTS

A. Attention is directed to the CONTRACT AND GENERAL CONDITIONS and all Sections within DIVISION 1 - GENERAL REQUIREMENTS, which are hereby made a part of this section of the specifications

1.2 SUMMARY

A. Section includes maintenance of stone assemblies consisting of stone restoration and cleaning as follows:

1. Unused anchor removal.
2. Repairing stone masonry, including resetting whole units.
3. Painting steel uncovered during the work.
4. Repointing joints (includes alternates).
5. Preliminary cleaning, including removing plant growth.
6. Cleaning exposed stone surfaces including removal of graffiti at base of tower.

1.3 UNIT PRICES: not used

1.4 DEFINITIONS

A. Very Low-Pressure Spray: Under 100 psi.

B. Low-Pressure Spray: 100 to 400 psi; 4 to 6 gpm.

C. Medium-Pressure Spray: 400 to 800 psi; 4 to 6 gpm.

D. High-Pressure Spray: 800 to 1200 psi; 4 to 6 gpm.

E. Stone Terminology: ASTM C 119.

F. Face Bedding: Setting of stone with the natural bedding planes (strata) vertical and parallel to the wall plane rather than horizontal or "naturally bedded," which holds bedding planes together by gravity.

1.5 PRECONSTRUCTION TESTING

A. Preconstruction Testing Service: Engage a qualified testing agency to perform preconstruction testing on stone units as follows:

1. Provide test specimens as indicated and representative of proposed materials and construction.

2. Existing Stone: Test each type of existing stone indicated for replacement, according to ASTM C 170 for compressive strength, wet and dry, perpendicular and parallel to rift; ASTM C 99 for modulus of rupture, wet and dry, perpendicular and parallel to rift; and ASTM C 97 for absorption and bulk specific gravity. Carefully remove five existing stones from locations designated by Architect. Take testing samples from these stones.
3. Existing Mortar: Test according to ASTM C 295, modified as agreed by testing service and Architect for Project requirements, to determine proportional composition of original ingredients, sizes and colors of aggregates, and approximate strength. Use X-ray diffraction, infrared spectroscopy, and differential thermal analysis as necessary to supplement microscopical methods.

   Carefully remove existing mortar from within joints at five locations designated by Architect or testing service.
4. Temporary Patch: As directed by Architect, provide temporary materials at locations from which existing samples were taken.
5. Replacement Stone: Test each proposed type of replacement stone, according to ASTM C 170 for compressive strength, ASTM C 99 for modulus of rupture, and ASTM C 97 for absorption and bulk specific gravity.

1.6 ACTION SUBMITTALS

A. Product Data: For each type of product indicated. Include recommendations for application and use. Include test data substantiating that products comply with requirements.

B. Shop Drawings: For the following:

1. Replacement stone units and their jointing, showing relation of existing to new units.
2. Partial replacement stone units (dutchmen).
3. Setting number of each new stone unit and its location on the structure in annotated plans and elevations.
4. Provisions for expansion joints or other sealant joints.
5. Provisions for flashing, lighting fixtures, conduits, and weep holes as required.
6. Replacement and repair anchors, including drilled-in pins. Include details of anchors within individual stone units, with locations of anchors and dimensions of holes and recesses in stone required for anchors, including direction and angle of holes for pins.

C. Samples for Initial Selection: For the following:

1. Pointing Mortar: Submit sets of mortar for pointing in the form of sample mortar strips, 6 inches long by 1/2 inch wide, set in aluminum or plastic channels.

   a. Have each set contain a close color range of at least six Samples of different mixes of colored sands and cements that produce a mortar matching the cleaned stone when cured and dry.
   b. Submit with precise measurements on ingredients, proportions, gradations, and sources of colored sands from which each Sample was made.

2. Patching Compound: Submit sets of patching compound Samples in the form of plugs (patches in drilled holes) in sample units of stone representative of the

range of stone colors on the building.

a. Have each set contain a close color range of at least six Samples of different mixes of patching compound that matches the variations in existing stone when cured and dry

3. Include similar Samples of accessories involving color selection.

D. Samples for Verification: For the following:
1. Each type of sand used for pointing mortar; minimum 1 lb of each in plastic screw-top jars.

a. For blended sands, provide Samples of each component and blend.
b. Identify sources, both supplier and quarry, of each type of sand.

2. Each type, color, and texture of pointing mortar in the form of sample mortar strips, 6 inches long by 1/2 inch wide, set in aluminum or plastic channels.

a. Include with each Sample a list of ingredients with proportions of each. Identify sources, both supplier and quarry, of each type of sand and brand names of cementitious materials and pigments if any.

3. Each type of stone patching compound in form of briquettes, at least 3 inches long by 1-1/2 inches wide. Document each Sample with manufacturer and stock number or other information necessary to order additional material.
4. Each type of adhesive.
5. Accessories: Each type of anchor, accessory, and miscellaneous support.

1.7 INFORMATIONAL SUBMITTALS

A. Qualification Data: For restoration specialists including field supervisors and restoration workers consolidant manufacturer and testing service.

B. Preconstruction Test Reports: For existing stone.

C. Quality-Control Program.

D. Restoration Program.

E. Cleaning Program.

1.8 QUALITY ASSURANCE

A. This is an historic property and an Icon for the City of Somerville. Work is to be performed to meet the Secretary of the Interior's Standards for Rehabilitation of Historic Properties and performed by companies experienced in working on historic properties for no less than five years and their workers shall be experienced in no less than three years performing work of a similar nature as required on this project.

B. Restoration Specialist Qualifications: Engage an experienced, preapproved stone restoration and cleaning firm to perform work of this Section. Firm shall have completed

work similar in material, design, and extent to that indicated for this Project with a record of successful in-service performance on historic projects including work on properties listed on the National Register of Historic Places. Experience installing standard unit masonry or new stone masonry is not sufficient experience for stone restoration work.

1. At Contractor's option, work may be divided between two specialist firms: one for cleaning work and one for repair work.
2. Field Supervision: Restoration specialist firms shall maintain experienced full-time supervisors on Project site during times that stone restoration and cleaning work is in progress. Supervisors shall not be changed during Project except for causes beyond control of restoration specialist firm.
3. Restoration Worker Qualifications: Persons who are experienced and specialize in restoration work of types they will be performing. When stone units are being patched, assign at least one worker among those performing patching work who is trained and certified by manufacturer of patching compound to apply its products.

B. Chemical-Cleaner Manufacturer Qualifications: A firm regularly engaged in producing masonry cleaners that have been used for similar applications with successful results, and with factory-trained representatives who are available for consultation and Project-site inspection and assistance at no additional cost.

C. Consolidant Manufacturer Qualifications: A firm regularly engaged in producing stone consolidants that have been used for similar applications with successful results, and with factory-trained representatives who are available for consultation and Project-site inspection and assistance at no additional cost.

D. Source Limitations: Obtain each type of material for stone restoration (stone, cement, sand, etc.) from one source with resources to provide materials of consistent quality in appearance and physical properties.

E. Quality-Control Program: Prepare a written quality-control program for this Project to systematically demonstrate the ability of personnel to properly follow methods and use materials and tools without damaging masonry. Include provisions for supervising performance and preventing damage due to worker fatigue.

F. Restoration Program: Prepare a written, detailed description of materials, methods, equipment, and sequence of operations to be used for each phase of restoration work including protection of surrounding materials and Project site.

1. Include methods for keeping pointing mortar damp during curing period.
2. If materials and methods other than those indicated are proposed for any phase of restoration work, add to the Quality-Control Program a written description of such materials and methods, including evidence of successful use on comparable projects, and demonstrations to show their effectiveness for this Project and worker's ability to use such materials and methods properly.

G. Cleaning Program: Prepare a written cleaning program that describes cleaning process in detail, including materials, methods, and equipment to be used, protection of surrounding materials, and control of runoff during operations.

1. If materials and methods other than those indicated are proposed for any phase of restoration work, add to the Quality-Control Program a written description of

such materials and methods, including evidence of successful use on comparable projects, and demonstrations to show their effectiveness for this Project and worker's ability to use such materials and methods properly.

H. Cleaning and Repair Appearance Standard: Cleaned and repaired surfaces are to have a uniform appearance as viewed from 50 feet away by Architect. Perform additional paint and stain removal, general cleaning, and spot cleaning of small areas that are noticeably different, so that surface blends smoothly into surrounding areas.

I. Mockups: Prepare mockups of restoration and cleaning to demonstrate aesthetic effects and set quality standards for materials and execution and for fabrication and installation.

1. Stone Repair: Prepare sample areas for each type of stone indicated to have repair work performed. If not otherwise indicated, size each mockup not smaller than 2 adjacent whole units or approximately 48 inches in least dimension. Erect sample areas in existing walls unless otherwise indicated, to demonstrate quality of materials, workmanship, and blending with existing work. Include the following as a minimum:
   a. Partial Stone Replacement: Two partial stone replacements (dutchman repairs).
   b. Stone Plug Repair: Two stone plug repairs for each type of stone indicated to be plugged.
   c. Crack Injection: Apply crack injection in 2 separate areas, each approximately 36 inches long.
   d. Patching: Three small holes at least 1 inch in diameter.

2. Repointing: Rake out joints in 2 separate areas, each approximately 36 inches high by 48 inches wide for each type of repointing required and repoint one of the areas.
3. Cleaning: Clean an area approximately 25 sq. ft. for each type of stone and surface condition.

   a. Test cleaners and methods on samples of adjacent materials for possible adverse reactions. Do not use cleaners and methods known to have deleterious effect.
   b. Allow a waiting period of not less than seven days after completion of sample cleaning to permit a study of sample panels for negative reactions.

4. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Architect specifically approves such deviations in writing.
5. Approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

J. Preinstallation Conference: Conduct conference at Project site.

1. Review methods and procedures related to stone restoration and cleaning including, but not limited to, the following:

   a. Construction Schedule: Verify availability of materials, Restoration Specialist's personnel, equipment, and facilities needed to make progress

and avoid delays.

b. Materials, material application, sequencing, tolerances, and required clearances.

1.9 DELIVERY, STORAGE, AND HANDLING

A. Deliver stone units to Project site strapped together in suitable packs or pallets or in heavy-duty crates.

B. Deliver each piece of granite with code mark or setting number on unexposed face, corresponding to Shop Drawings, using nonstaining paint.

C. Deliver other materials to Project site in manufacturer's original and unopened containers, labeled with manufacturer's name and type of products.

D. Store cementitious materials on elevated platforms, under cover, and in a dry location. Do not use cementitious materials that have become damp.

E. Store hydrated lime in manufacturer's original and unopened containers. Discard lime if containers have been damaged or have been opened for more than two days.

F. Store lime putty covered with water in sealed containers.

G. Store sand where grading and other required characteristics can be maintained and contamination avoided.

1.10 PROJECT CONDITIONS

A. Weather Limitations: Proceed with installation only when existing and forecasted weather conditions permit stone restoration and cleaning work to be performed according to manufacturers' written instructions and specified requirements.

B. Repair stone units and repoint mortar joints only when air temperature is between 40 and 90 deg F and is predicted to remain so for at least 7 days after completion of the Work unless otherwise indicated.

C. Cold-Weather Requirements: Comply with the following procedures for stone repair and mortar-joint pointing unless otherwise indicated:

1. When air temperature is below 40 deg F, heat mortar ingredients, repair materials, and existing stone to produce temperatures between 40 and 120 deg F.
2. When mean daily air temperature is below 40 deg F, provide enclosure and heat to maintain temperatures above 32 deg F within the enclosure for 7 days after repair and pointing.

D. Hot-Weather Requirements: Protect stone repair and mortar-joint pointing when temperature and humidity conditions produce excessive evaporation of water from mortar and patching materials. Provide artificial shade and wind breaks and use cooled materials as required to minimize evaporation. Do not apply mortar to substrates with temperatures of 90 deg F and above unless otherwise indicated.

E. For manufactured repair materials, perform work within the environmental limits set by each manufacturer.

F. Clean stone surfaces only when air temperature is 40 deg F and above and is predicted to remain so for at least 7 days after completion of cleaning.

G. Apply stone consolidation treatment only when surface and air temperatures are between 50 and 90 deg F and rain is not expected within 24 hours.

1.11 COORDINATION

A. Coordinate stone restoration and cleaning with public circulation patterns at Project site. Some work is near public circulation patterns. Public circulation patterns cannot be closed off entirely, and in places can be only temporarily redirected around small areas of work. Plan and execute the Work accordingly.

1.12 SEQUENCING AND SCHEDULING

A. Order replacement materials at earliest possible date to avoid delaying completion of the Work.

B. Order sand and gray Portland cement for pointing mortar immediately after approval of mockups. Take delivery of and store at Project site a sufficient quantity to complete Project.

C. Perform stone restoration work in the following sequence:

1. Remove plant growth.
2. Inspect for open mortar joints and repair before cleaning to prevent the intrusion of water and other cleaning materials into the wall.
3. Remove paint.
4. Clean stone surfaces.
5. Where water repellents are specified in Section 071900 "Water Repellents," are to be used on or near stonework, delay application of these chemicals until after pointing.
6. Rake out mortar from joints surrounding stone to be replaced and from joints adjacent to stone repairs along joints.
7. Repair stonework, including replacing existing stone with new stone.
8. Rake out mortar from joints to be repointed.
9. Point mortar and sealant joints.
10. After repairs and repointing have been completed and cured, perform a final cleaning to remove residues from this work.
11. Inspect for open mortar joints and repair before cleaning to prevent the intrusion of water and other cleaning materials into the wall.
12. Remove paint.
13. Clean stone surfaces.

D. As scaffolding is removed, patch anchor holes used to attach scaffolding. Patch holes in stone to comply with "Stone Patching" Article. Patch holes in mortar joints to comply with "Repointing Stonework" Article.

PART 2 - PRODUCTS

2.1 MORTAR MATERIALS

A. Portland Cement: ASTM C 150, Type I or Type II, white or gray or both where required for color matching of exposed mortar.

1. Provide cement containing not more than 0.60 percent total alkali when tested according to ASTM C 114.

B. Hydrated Lime: ASTM C 207, Type S.

C. Factory-Prepared Lime Putty: ASTM C 1489.

D. Quicklime: ASTM C 5, pulverized lime.

E. Mortar Sand: ASTM C 144 unless otherwise indicated.

1. Color: Provide natural sand or ground marble, granite, or other sound stone of color necessary to produce required mortar color.
2. For pointing mortar, provide sand with rounded edges.
3. Match size, texture, and gradation of existing mortar sand as closely as possible. Blend several sands if necessary to achieve suitable match.

F. Mortar Pigments: Natural and synthetic iron oxides, compounded for mortar mixes. Use only pigments with a record of satisfactory performance in masonry mortars.

G. Water: Potable.

2.2 MANUFACTURED REPAIR MATERIALS

A. Stone Patching Compound: Factory-mixed cementitious product that is custom manufactured for patching stone.

1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:

a. Cathedral Stone Products, Inc.; Jahn Restoration Mortars.
b. Conproco Corporation; Mimic.
c. Edison Coatings, Inc.; Custom System 45.

2. Use formulation that is vapor- and water permeable (equal to or more than the stone), exhibits low shrinkage, has lower modulus of elasticity than the stone units being repaired, and develops high bond strength to all types of stone.
3. Use formulation having working qualities and retardation control to permit forming and sculpturing where necessary.
4. Formulate patching compound in colors, textures, and grain to match stone being patched. Provide sufficient number of colors to enable matching each piece of stone.

B. Cementitious Crack Filler: An ultrafine superplasticized grout that can be injected into cracks, is suitable for application to wet or dry cracks, exhibits low shrinkage, and develops high bond strength to all types of stone.

1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:

a. Cathedral Stone Products, Inc.; Jahn Injection Grout.
b. Conproco Corporation; Terra Cotta Finish.
c. Edison Coatings, Inc.; Pump-X 53-Series.

C. Stone-to-Stone Adhesive: 2-part polyester or epoxy-resin stone adhesive with a 15- to 45-minute cure at 70 deg F or 1-part cementitious stone adhesive, recommended by adhesive manufacturer for type of stone repair indicated, and matching stone color.

1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:

a. Two-Part Polyester or Epoxy-Resin Stone Adhesive:

1) Akemi North America; Akepox.
2) Bonstone Materials Corporation; Fast Set 41.
3) Edison Coatings, Inc.; Flexi-Weld 520T.

b. One-Part Cementitious Stone Adhesive:

1) Cathedral Stone Products, Inc.; Jahn Restoration Adhesive.

D. Stone Consolidation Treatment: Ready-to-use product designed for consolidation of stone that has deteriorated due to weathering and exposure to pollutants. Treatment shall be composed of silicic-ethyl esters, a neutral catalyst, and solvents.

1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:

a. Akemi North America; Stone Strengthener K.
b. Cohalan Company, Inc.; Keim Silex OH.
c. Diedrich Technologies Inc.; D50C.
d. PROSOCO; Conservare OH100 Stone Strengthener with HCT pretreatment.

E. Stone Consolidation and Water-Repellent Treatment: Ready-to-use product designed for consolidation and water-repellent treatment of stone that has deteriorated due to weathering and exposure to pollutants. Treatment shall be composed of silicic-ethyl esters, a neutral catalyst, a silane water repellent, and solvents.

1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:

a. Cohalan Company, Inc.; Keim Silex H.
b. Diedrich Technologies Inc.; D50W.
c. PROSOCO; Conservare H100 Stone Strengthener with HCT pretreatment.

2.3 PAINT REMOVERS

A. Alkaline Paste Paint Remover: Manufacturer's standard alkaline paste formulation for removing paint coatings from masonry.

1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:

a. ABR Products, Inc.; 800 Brush Grade.
b. Diedrich Technologies Inc.; 606 Multi-Layer Paint Remover or 606X Extra Thick Multi-Layer Paint Remover.
c. Hydroclean, Hydrochemical Techniques, Inc.; Hydroclean HT-716 Heavy Duty Paint Remover.
d. Price Research, Ltd.; Price Heavy Duty Paint Stripper.
e. PROSOCO; Enviro Klean Safety Peel 2.

B. Low-Odor, Solvent-Type Paint Remover: Manufacturer's standard low-odor, water-rinsable solvent-type gel formulation, containing no methanol or methylene chloride, for removing paint coatings from masonry.

1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:

a. ABR Products, Inc.; Super Bio Strip Gel.
b. Cathedral Stone Products, Inc.; S-301 S-303 or S-305.
c. Dumond Chemicals, Inc.; Peel Away 6 Peel Away 7 or Peel Away 21.
d. PROSOCO; Enviro Klean Safety Peel 1 or Enviro Klean Safety Peel 3.

2.4 CLEANING MATERIALS

A. Water: Potable.

B. Hot Water: Water heated to a temperature of 140 to 160 deg F.

C. Job-Mixed Detergent Solution: Solution prepared by mixing 2 cups of tetrasodium polyphosphate, 1/2 cup of laundry detergent, and 20 quarts of hot water for every 5 gal. of solution required.

D. Job-Mixed Mold, Mildew, and Algae Remover: Solution prepared by mixing 2 cups of tetrasodium polyphosphate, 5 quarts of 5 percent sodium hypochlorite (bleach), and 15 quarts of hot water for every 5 gal. of solution required.

E. Mild Acidic Cleaner: Manufacturer's standard mildly acidic cleaner containing no muriatic (hydrochloric), hydrofluoric, or sulfuric acid; or ammonium bifluoride or chlorine bleaches.

1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:

a. ABR Products, Inc.; X-190 Limestone & Concrete Cleaner.
b. Diedrich Technologies Inc.; Envirorestore 100.

c. Dominion Restoration Products, Inc.; DR-60 Stone and Masonry Cleaner.
d. PROSOCO; Enviro Klean BioWash.

2.5 ACCESSORY MATERIALS

A. Liquid Strippable Masking Agent: Manufacturer's standard liquid, film-forming, strippable masking material for protecting glass, metal, and polished stone surfaces from damaging effects of acidic and alkaline masonry cleaners.

1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:

a. ABR Products, Inc.; Rubber Mask.
b. Price Research, Ltd.; Price Mask.
c. PROSOCO; Sure Klean Strippable Masking.

B. Stone Anchors and Pins: Type and size indicated or, if not indicated, to match existing anchors in size and type. Fabricate anchors and pins from Type 316 stainless steel.

C. Sealant Materials:

1. Provide manufacturer's standard chemically curing, elastomeric sealant(s) of base polymer and characteristics indicated below that comply with manufacturer's requirements.

a. Single-component, nonsag urethane sealant.

2. Colors: Provide colors of exposed sealants to match colors of tonework adjoining installed sealant unless otherwise indicated.
3. Ground-Mortar Aggregate: Custom crushed and ground pointing mortar sand or existing mortar retrieved from joints. Grind to a particle size that matches the adjacent mortar aggregate and color. Remove all fines passing the 100 sieve.

D. Joint-Sealant Backing:

1. Cylindrical Sealant Backings: ASTM C 1330, Type C (closed-cell material with a surface skin), and of size and density to control sealant depth and otherwise contribute to producing optimum sealant performance.
2. Bond-Breaker Tape: Polyethylene tape or other plastic tape recommended by sealant manufacturer for preventing sealant from adhering to rigid, inflexible joint-filler materials or joint surfaces at back of joint where such adhesion would result in sealant failure. Provide self-adhesive tape where applicable.

E. Setting Buttons: Resilient plastic buttons, nonstaining to stone, sized to suit joint thicknesses and bed depths of stone units without intruding into required depths of pointing materials.

F. Masking Tape: Nonstaining, nonabsorbent material, compatible with pointing mortar, joint primers, sealants, and surfaces adjacent to joints; that will easily come off entirely, including adhesive.

G. Antirust Coating: Fast-curing, lead- and chromate-free, self-curing, universal modified-alkyd primer complying with MPI #79, Alkyd Anticorrosive Metal Primer or SSPC-Paint 20 or SSPC-Paint 29 zinc-rich coating.

1. Use coating requiring no better than SSPC-SP 2, "Hand Tool Cleaning" or SSPC-SP 6/NACE No. 3, "Commercial Blast Cleaning" surface preparation according to manufacturer's literature or certified statement.
2. Use coating with a VOC content of 420 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).

H. Miscellaneous Products: Select materials and methods of use based on the following, subject to approval of a mockup:

1. Previous effectiveness in performing the work involved.
2. Little possibility of damaging exposed surfaces.
3. Consistency of each application.
4. Uniformity of the resulting overall appearance.
5. Do not use products or tools that could do the following:

a. Remove, alter, or in any way harm the present condition or future preservation of existing surfaces, including surrounding surfaces not in contract.
b. Leave a residue on surfaces.

2.6 MORTAR MIXES

A. Preparing Lime Putty: Slake quicklime and prepare lime putty according to appendix to ASTM C 5 and manufacturer's written instructions.

B. Measurement and Mixing: Measure cementitious materials and sand in a dry condition by volume or equivalent weight. Do not measure by shovel; use known measure. Mix materials in a clean, mechanical batch mixer.

1. Mixing Pointing Mortar: Thoroughly mix cementitious materials and sand together before adding any water. Then mix again adding only enough water to produce a damp, unworkable mix that will retain its form when pressed into a ball. Maintain mortar in this dampened condition for 15 to 30 minutes. Add remaining water in small portions until mortar reaches desired consistency. Use mortar within one hour of final mixing; do not retemper or use partially hardened material.

C. Colored Mortar: Produce mortar of color required by using specified ingredients. Do not alter specified proportions without Architect's approval.

1. Mortar Pigments: Where mortar pigments are indicated, do not exceed a pigment-to-cement ratio of 1:10 by weight.

D. Do not use admixtures in mortar unless otherwise indicated.

E. Mortar Proportions: Mix mortar materials in the following proportions:

1. Pointing Mortar for Stone: 1 part white portland cement, 1 part lime, and 6 parts sand. This is the default mix unless contra-indicated by test results for existing mortar.

    a. Add mortar pigments to produce mortar colors required.

2. Rebuilding (Setting) Mortar: Same as pointing mortar except mortar pigments are not required.

2.7 CHEMICAL CLEANING SOLUTIONS

A. Dilute chemical cleaners with water to produce solutions not exceeding concentration recommended by chemical-cleaner manufacturer.

B. Acidic Cleaner Solution for Unpolished Stone: Dilute with water to produce hydrofluoric acid content of 3 percent or less, but not greater than that recommended by chemical-cleaner manufacturer.

    1. Use only on unpolished granite, unpolished dolomite marble, and siliceous sandstone.

C. Acidic Cleaner for Polished Stone: Dilute with water to concentration demonstrated by testing that does not etch or otherwise damage polished surface, but not greater than that recommended by chemical-cleaner manufacturer.

    1. Use only on polished granite and polished dolomite marble.

PART 3 - EXECUTION

3.1 PROTECTION

A. Protect persons, motor vehicles, surrounding surfaces of building being restored, building site, plants, and surrounding buildings from harm resulting from stone restoration work.

    1. Erect temporary protective covers over walkways and at points of pedestrian and vehicular entrance and exit that must remain in service during course of restoration and cleaning work.

B. Comply with chemical-cleaner manufacturer's written instructions for protecting building and other surfaces against damage from exposure to its products. Prevent chemical cleaning solutions from coming into contact with people, motor vehicles, landscaping, buildings, and other surfaces that could be harmed by such contact.

    1. Cover adjacent surfaces with materials that are proven to resist chemical cleaners used unless chemical cleaners being used will not damage adjacent surfaces. Use materials that contain only waterproof, UV-resistant adhesives. Apply masking agents to comply with manufacturer's written instructions. Do not apply liquid masking agent to painted or porous surfaces. When no longer needed, promptly remove masking to prevent adhesive staining.

2. Keep wall wet below area being cleaned to prevent streaking from runoff.
3. Do not clean stone during winds of sufficient force to spread cleaning solutions to unprotected surfaces.
4. Neutralize and collect alkaline and acid wastes for disposal off Owner's property.
5. Dispose of runoff from cleaning operations by legal means and in a manner that prevents soil erosion, undermining of paving and foundations, damage to landscaping, and water penetration into building interiors.

C. Prevent mortar from staining face of surrounding stone and other surfaces.

1. Cover sills, ledges, and projections to protect from mortar droppings.
2. Keep wall area wet below rebuilding and pointing work to discourage mortar from adhering.
3. Immediately remove mortar in contact with exposed stone and other surfaces.
4. Clean mortar splatters from scaffolding at end of each day.

D. Remove gutters and downspouts adjacent to stone and store during stone restoration and cleaning. Reinstall when stone restoration and cleaning are complete.

1. Provide temporary rain drainage during work to direct water away from building.

3.2 UNUSED ANCHOR REMOVAL

A. Remove stone anchors, brackets, wood nailers, and other extraneous items no longer in use unless identified as historically significant or indicated to remain.

1. Remove items carefully to avoid spalling or cracking stone.
2. Where directed, if an item cannot be removed without damaging surrounding stone, do the following:

    a. Cut or grind off item approximately 3/4 inch beneath surface and core drill a recess of same depth in surrounding stone as close around item as practical.
    b. Immediately paint exposed end of item with two coats of antirust coating, following coating manufacturer's written instructions and without exceeding manufacturer's recommended dry film thickness per coat. Keep paint off sides of recess.

3. Plug the hole where each item was removed unless directed to remove and replace the stone unit.

3.3 STONE REMOVAL AND REPLACEMENT

A. At locations indicated, remove stone that has deteriorated or is damaged beyond repair or is to be reused. Carefully demolish or remove entire units from joint to joint, without damaging surrounding stone, in a manner that permits replacement with full-size units.

B. Support and protect remaining stonework that surrounds removal area. Maintain flashing, reinforcement, lintels, and adjoining construction in an undamaged condition.

C. Notify Architect of unforeseen detrimental conditions including voids, cracks, bulges, and loose units in existing stone or unit masonry backup, rotted wood, rusted metal, and other deteriorated items.

D. Remove in an undamaged condition as many whole stone units as possible.

1. Remove mortar, loose particles, and soil from stone by cleaning with hand chisels, brushes, and water.
2. Remove sealants by cutting close to stone with utility knife and cleaning with solvents.
3. Store stone for reuse. Store off ground, on skids, and protected from weather.
4. Deliver cleaned stone not required for reuse to Owner unless otherwise indicated.

E. Clean stone surrounding removal areas by removing mortar, dust, and loose particles in preparation for replacement.

F. Replace removed damaged stone with other removed stone in good quality, where possible, or with new stone matching existing stone, including size. Do not use broken units unless they can be cut to usable size.

G. Do not allow face bedding of stone. Before setting, inspect to verify that each stone has been cut so that, when it is set in final position, natural bedding planes are essentially horizontal except for arches, where bedding planes are essentially radial or vertical, but perpendicular to the wall. Reject and replace stone with vertical bedding planes except as required for arches, lintels, and copings.

H. Install replacement stone into bonding and coursing pattern of existing stone. If cutting is required, use a motor-driven saw designed to cut stone with clean, sharp, unchipped edges. Finish edges to blend with appearance of edges of existing stone.

1. Maintain joint width for replacement stone to match existing joints.
2. Use setting buttons or shims to set stone accurately spaced with uniform joints.

I. Set replacement stone with completely filled bed, head, and collar joints. Butter vertical joints for full width before setting and set units in full bed of mortar unless otherwise indicated. Replace existing anchors with new anchors of size and type indicated.

1. Tool exposed mortar joints in repaired areas to match joints of surrounding existing stonework.
2. Rake out mortar used for laying stone before mortar sets and point new mortar joints in repaired area to comply with requirements for repointing existing stone, and at same time as repointing of surrounding area.
3. When mortar is sufficiently hard to support units, remove shims and other devices interfering with pointing of joints.

3.4 PAINTING STEEL AND WROUGHT IRON UNCOVERED DURING THE WORK

A. Inspect steel and wrought iron exposed during stone removal. Railing and protective screens shall be reset after stone placed in final location. Where Architect determines that it is structural, or for other reasons cannot be totally removed, prepare and paint it as follows:

1. Remove paint, rust, and other contaminants according to SSPC-SP 2, "Hand Tool Cleaning" or SSPC-SP 6/NACE No. 3, "Commercial Blast Cleaning", as applicable to meet paint manufacturer's recommended preparation.
2. Immediately paint exposed steel with two coats of antirust coating, following coating manufacturer's written instructions and without exceeding manufacturer's recommended rate of application (dry film thickness per coat).

B. If on inspection and rust removal, the cross section of a steel member is found to be reduced from rust by more than 1/16 inch, notify Architect before proceeding.

3.5 PARTIAL STONE REPLACEMENT None Anticipated

A. Remove defective portion of existing stone unit (backing stone). Carefully remove defective portion of stone by making vertical and horizontal saw cuts at face of backing stone and demolishing defective material to depth required for fitting partial replacement (dutchman).

1. Make edges of backing stone at cuts smooth and square to each other and to finished surface; essentially rectangular. Make back of removal area flat and parallel to stone face.
2. Do not overcut at corners and intersections. Hand trim to produce clean sharp corners with no rounding and no damage to existing work to remain.
3. If existing stone that is to remain becomes damaged, remove damaged area and enlarge partial replacement as required.

B. Remove mortar from joints that abut area of stone removal to same depth as stone was removed. Remove loose mortar particles and other debris from surfaces to be bonded and surfaces of adjacent stone units that will receive mortar by cleaning with stiff-fiber brush.

C. Cut and trim partial replacement to accurately fit area where material was removed from backing stone. Fabricate to size required to produce joints between partial replacement and backing stone of no more than 1/16 inch in width, and joints between partial replacement and other stones that match existing joints between stones. Cut partial replacement so that, when it is set in final position, natural bedding planes will match the orientation of bedding planes of the backing stone unless otherwise indicated.

D. Pinning: Before applying adhesive, prepare for mechanical anchorage consisting of 1/4-inch- diameter, plain stainless-steel pins set into 1/4-inch- diameter holes drilled at a 45-degree downward angle through face of partial replacement and into backing stone. Center and space pins between 3 and 5 inches apart and at least 2 inches from any edge. Insert pins at least 2 inches into backing stone and 2 inches into partial

replacement with end countersunk at least 3/4 inch from exposed face of partial replacement.

E. Concealed Pinning: Before applying adhesive, prepare for concealed mechanical anchorage consisting of 1/4-inch- diameter, plain stainless-steel pins set into 1/4-inch-diameter holes drilled into backing stone and into, but not through, the partial replacement. Center and space pins between 3 and 5 inches apart and at least 2 inches from any edge. Insert pins at least 2 inches into backing stone and 2 inches into partial replacement, but no closer than 3/4 inch from exposed face of partial replacement.

F. Apply stone-to-stone adhesive to comply with adhesive manufacturer's written instructions. Coat bonding surfaces of backing stone and partial replacement, completely filling all crevices and voids.

G. Apply partial replacement while adhesive is still tacky and hold securely in place until adhesive has cured. Use shims, clamps, wedges, or other devices as necessary to align face of partial replacement with face of backing stone.

H. Clean adhesive residue from exposed surfaces and patch chipped areas and exposed drill holes as specified in "Stone Patching" Article.

3.6 STONE PLUG REPAIR

A. Remove cylindrical piece of damaged stone by core-drilling perpendicular to stone surface.

B. Prepare a replacement plug by core-drilling replacement stone. Use a drill sized to produce a core that will fit into hole drilled in damaged stone with only minimum gap necessary for adhesive. Cut and install plug so that, when it is set in final position, natural bedding planes will match the orientation of bedding planes of the backing stone unless otherwise indicated.

C. Apply stone-to-stone adhesive to comply with adhesive manufacturer's written instructions. Coat bonding surfaces of existing stone and plug, completely filling all crevices and voids.

D. Apply plug while adhesive is still tacky and hold securely in place until adhesive has cured.

E. Clean adhesive residue from exposed surfaces.

3.7 STONE-FRAGMENT REPAIR

A. Carefully remove cracked or fallen stone fragment indicated to be repaired. Reuse only stone fragment that is in sound condition.

B. Remove soil, loose particles, mortar, and other debris or foreign material, from fragment surfaces to be bonded and from parent stone where fragment had broken off, by cleaning with stiff-fiber brush.

C. Pinning: Before applying adhesive, prepare for mechanical anchorage consisting of 1/4-inch- diameter, plain stainless-steel pins set into 1/4-inch- diameter holes drilled at a 45-degree downward angle through face of fragment and into parent stone. Center and space pins between 3 and 5 inches apart and at least 2 inches from any edge. Insert pins at least 2 inches into parent stone and 2 inches into fragment with end countersunk at least 3/4 inch from exposed face of fragment.

D. Concealed Pinning: Before applying adhesive, prepare for concealed mechanical anchorage consisting of 1/4-inch- diameter, plain stainless-steel pins set into 1/4-inch-diameter holes drilled into parent stone and into, but not through, the fragment. Center and space pins between 3 and 5 inches apart and at least 2 inches from any edge. Insert pins at least 2 inches into parent stone and 2 inches into fragment, but no closer than 3/4 inch from exposed face of fragment.

E. Apply stone-to-stone adhesive to comply with adhesive manufacturer's written instructions. Coat bonding surfaces of fragment and parent stone, completely filling all crevices and voids.

F. Fit stone fragment onto parent stone while adhesive is still tacky and hold fragment securely in place until adhesive has cured. Use shims, clamps, wedges, or other devices as necessary to align face of fragment with face of parent stone.

G. Clean adhesive residue from exposed surfaces and patch chipped areas and exposed drill holes as specified in "Stone Patching" Article.

3.8 CRACK INJECTION

A. General: Comply with cementitious crack-filler manufacturer's written instructions.

B. Drill 1/4-inch- diameter injection holes as follows:

1. Transverse Cracks Less Than 3/8 inch Wide: Drill holes through center of crack at 12 to 18 inches o.c.
2. Transverse Cracks More Than 3/8 inch Wide: Drill holes through center of crack at 18 to 36 inches o.c.
3. Delaminations: Drill holes at approximately 18 inches o.c. both vertically and horizontally.
4. Drill holes 2 inches deep. Where possible drill holes in mortar joints.

C. Clean out drill holes and cracks with compressed air and water. Remove dirt and organic matter, loose material, sealants, and failed crack repair materials.

D. Place plastic injection ports in drilled holes and seal face of cracks between injection ports with clay or other nonstaining, removable plugging material. Leave openings at upper ends of cracks for air release.

E. Inject cementitious crack filler through ports sequentially, beginning at one end of area and working to opposite end; where possible, begin at lower end of injection area and work upward. Inject filler until it extrudes from adjacent ports. After port has been injected, plug with clay or other suitable material and begin injecting filler at adjacent port, repeating process until all ports have been injected.

F. Clean cementitious crack filler from face of stone before it sets by scrubbing with water.

G. After cementitious crack filler has set, remove injection ports, plugging material, and excess filler. Patch injection holes and surface of cracks as specified in "Stone Patching" Article.

3.9 STONE PATCHING

A. Patch the following stone units unless another type of replacement or repair is indicated:

1. Units indicated to be patched.
2. Units with holes.
3. Units with chipped edges or corners.
4. Units with small areas of deep deterioration.

B. Remove and replace existing patches unless otherwise indicated or approved by Architect.

C. Remove deteriorated material and remove adjacent material that has begun to deteriorate. Carefully remove additional material so patch will not have feathered edges but will have square or slightly undercut edges on area to be patched and will be at least 1/4 inch thick, but not less than recommended by patching compound manufacturer.

D. Mask adjacent mortar joint or rake out for repointing if patch will extend to edge of stone unit.

E. Mix patching compound in individual batches to match each stone unit being patched. Combine one or more colors of patching compound, as needed, to produce exact match.

F. Brush-coat stone surfaces with slurry coat of patching compound according to manufacturer's written instructions.

G. Place patching compound in layers as recommended by patching compound manufacturer, but not less than 1/4 inch or more than 2 inches thick. Roughen surface of each layer to provide a key for next layer.

1. Trowel, scrape, or carve surface of patch to match texture and surrounding surface plane or contour of the stone. Shape and finish surface before or after curing, as determined by testing, to best match existing stone.
2. Build patch up 1/4 inch above surrounding stone and carve surface to match adjoining stone after patching compound has hardened.

H. Keep each layer damp for 72 hours or until patching compound has set.

I. Remove and replace patches with hairline cracks or that show separation from stone at edges, and those that do not match adjoining stone in color or texture.

3.10 CLEANING STONE, GENERAL

A. Proceed with cleaning in an orderly manner; work from top to bottom of each scaffold width and from one end of each elevation to the other. Ensure that dirty residues and rinse water will not wash over cleaned, dry surfaces.

B. Use only those cleaning methods indicated for each stone material and location.

1. Do not use wire brushes or brushes that are not resistant to chemical cleaner being used. Do not use plastic-bristle brushes if natural-fiber brushes will resist chemical cleaner being used.
2. Use spray equipment that provides controlled application at volume and pressure indicated, measured at spray tip. Adjust pressure and volume to ensure that cleaning methods do not damage stone.

a. Equip units with pressure gages.

3. For chemical-cleaner spray application, use low-pressure tank or chemical pump suitable for chemical cleaner indicated, equipped with cone-shaped spray tip.
4. For water-spray application, use fan-shaped spray tip that disperses water at an angle of 25 to 50 degrees.
5. For high-pressure water-spray application, use fan-shaped spray tip that disperses water at an angle of at least 40 degrees.
6. For heated water-spray application, use equipment capable of maintaining temperature between 140 and 160 deg F at flow rates indicated.
7. For steam application, use steam generator capable of delivering live steam at nozzle.

C. Perform each cleaning method indicated in a manner that results in uniform coverage of all surfaces, including corners, moldings, and interstices, and that produces an even effect without streaking or damaging stone surfaces.

D. Water Application Methods:

1. Water-Soak Application: Soak stone surfaces by applying water continuously and uniformly to limited area for time indicated. Apply water at low pressures and low volumes in multiple fine sprays using perforated hoses or multiple spray nozzles. Erect a protective enclosure constructed of polyethylene sheeting to cover area being sprayed.
2. Water-Spray Applications: Unless otherwise indicated, hold spray nozzle at least 6 inches from surface of stone and apply water in horizontal back and forth sweeping motion, overlapping previous strokes to produce uniform coverage.

E. Steam Cleaning: Apply steam to stone surfaces at the very low pressures indicated for each type of stonework. Hold nozzle at least 6 inches from surface of stone and apply steam in horizontal back and forth sweeping motion, overlapping previous strokes to produce uniform coverage.

F. Chemical-Cleaner Application Methods: Apply chemical cleaners to stone surfaces to comply with chemical-cleaner manufacturer's written instructions; use brush or spray application. Do not spray apply at pressures exceeding 50 psi. Do not allow chemicals

to remain on surface for periods longer than those indicated or recommended by manufacturer.

G. Rinse off chemical residue and soil by working upward from bottom to top of each treated area at each stage or scaffold setting. Periodically during each rinse, test pH of rinse water running off of cleaned area to determine that chemical cleaner is completely removed.

1. Apply neutralizing agent and repeat rinse if necessary to produce tested pH of between 6.7 and 7.5.

H. After cleaning is complete, remove protection no longer required. Remove tape and adhesive marks.

3.11 PRELIMINARY CLEANING

A. Removing Plant Growth: Completely remove visible plant, moss, and shrub growth from stone surfaces. Carefully remove plants, creepers, and vegetation by cutting at roots and allowing to dry as long as possible before removal. Remove loose soil or debris from open joints to whatever depth they occur.

B. Preliminary Cleaning: Before beginning general cleaning, remove extraneous substances that are resistant to cleaning methods being used. Extraneous substances include paint, calking, asphalt, and tar.

1. Carefully remove heavy accumulations of material from surface of stone with sharp chisel. Do not scratch or chip stone surface.
2. Remove paint and calking with alkaline paint remover.

    a. Comply with requirements in "Paint Removal" Article.
    b. Repeat application up to two times if needed.

3. Remove asphalt and tar with solvent-type paint remover.

    a. Comply with requirements in "Paint Removal" Article.
    b. Apply paint remover only to asphalt and tar by brush without prewetting.
    c. Allow paint remover to remain on surface for 10 to 30 minutes.
    d. Repeat application if needed.

3.12 PAINT REMOVAL

A. Paint Removal with Alkaline Paste Paint Remover:

1. Remove loose and peeling paint using medium-pressure spray, scrapers, stiff brushes, or a combination of these. Let surface dry thoroughly.
2. Apply paint remover to dry, painted stone with brushes.
3. Allow paint remover to remain on surface for period recommended by manufacturer.
4. Rinse with cold water applied by medium-pressure spray to remove chemicals and paint residue.

5. Repeat process if necessary to remove all paint.
6. Apply acidic cleaner or manufacturer's recommended afterwash to stone, while surface is still wet, using low-pressure spray equipment or soft-fiber brush. Let cleaner or afterwash remain on surface as a neutralizing agent for period recommended by chemical-cleaner or afterwash manufacturer.
7. Rinse with cold water applied by medium-pressure spray to remove chemicals and soil.

B. Paint Removal with Solvent-Type Paint Remover:

1. Remove loose and peeling paint using medium-pressure spray, scrapers, stiff brushes, or a combination of these. Let surface dry thoroughly.
2. Apply thick coating of paint remover to painted stone with natural-fiber cleaning brush, deep-nap roller, or large paint brush.
3. Allow paint remover to remain on surface for period recommended by manufacturer. Agitate periodically with stiff-fiber brush.
4. Rinse with cold water applied by medium-pressure spray to remove chemicals and paint residue.

3.13 CLEANING STONEWORK

A. Cold-Water Soak:

1. Apply cold water by intermittent spraying to keep surface moist.
2. Use perforated hoses or other means that will apply a fine water mist to entire surface being cleaned.
3. Apply water in cycles with at least 30 minutes between cycles.
4. Continue spraying until surface encrustation has softened sufficiently to permit its removal by water wash, as indicated by cleaning tests.
5. Continue spraying for 72 hours.
6. Remove soil and softened surface encrustation from stone with cold water applied by low-pressure spray.

B. Cold-Water Wash: Use cold water applied by medium-pressure spray.

C. Hot-Water Wash: Use hot water applied by medium-pressure spray.

D. Steam Cleaning: Apply steam at very low pressures not exceeding 30 psi. Remove dirt softened by steam with wood scrapers, stiff-nylon or -fiber brushes, or cold-water wash, as indicated by cleaning tests.

E. Detergent Cleaning:

1. Wet stone with cold water applied by low-pressure spray.
2. Scrub stone with detergent solution using medium-soft brushes until soil is thoroughly dislodged and can be removed by rinsing. Use small brushes to remove soil from mortar joints and crevices. Dip brush in solution often to ensure that adequate fresh detergent is used and that stone surface remains wet.
3. Rinse with cold water applied by medium-pressure spray to remove detergent solution and soil.

4. Repeat cleaning procedure above where required to produce cleaning effect established by mockup.

F. Mold, Mildew, and Algae Removal:

1. Wet stone with cold water applied by low-pressure spray.
2. Apply mold, mildew, and algae remover by brush or low-pressure spray.
3. Scrub stone with medium-soft brushes until mold, mildew, and algae are thoroughly dislodged and can be removed by rinsing. Use small brushes for mortar joints and crevices. Dip brush in mold, mildew, and algae remover often to ensure that adequate fresh cleaner is used and that stone surface remains wet.
4. Rinse with cold water applied by medium-pressure spray to remove mold, mildew, and algae remover and soil.
5. Repeat cleaning procedure above where required to produce cleaning effect established by mockup.

G. Mild Acidic Chemical Cleaning:

1. Wet stone with cold water applied by low-pressure spray.
2. Apply cleaner to stone in two applications by brush or low-pressure spray. Let cleaner remain on surface for period indicated below:

    a. As recommended by chemical-cleaner manufacturer.
    b. As established by mockup.
    c. Two to three minutes.

3. Rinse with cold water applied by medium-pressure spray to remove chemicals and soil.
4. Repeat cleaning procedure above where required to produce cleaning effect established by mockup. Do not repeat more than once. If additional cleaning is required, use steam cleaning.

3.14 REPOINTING STONEWORK

A. Rake out and repoint joints to the following extent:

1. All joints in areas indicated.
2. Joints where mortar is missing or where they contain holes.
3. Cracked joints where cracks can be penetrated at least 1/4 inch by a knife blade 0.027 inch thick.
4. Cracked joints where cracks are 1/8 inch or more in width and of any depth.
5. Joints where they sound hollow when tapped by metal object.
6. Joints where they are worn back 1/4 inch or more from surface.
7. Joints where they are deteriorated to point that mortar can be easily removed by hand, without tools.
8. Joints where they have been filled with substances other than mortar.
9. Joints indicated as sealant-filled joints.

B. Do not rake out and repoint joints where not required.

C. Rake out joints as follows, according to procedures demonstrated in approved mockup:

1. Remove mortar from joints to depth of 2 times joint width, but not less than 1/2 inch or not less than that required to expose sound, unweathered mortar.
2. Remove mortar from stone surfaces within raked-out joints to provide reveals with square backs and to expose stone for contact with pointing mortar. Brush, vacuum, or flush joints to remove dirt and loose debris.
3. Do not spall edges of stone units or widen joints. Replace or patch damaged stone units as directed by Architect.

    a. Cut out mortar by hand with chisel and resilient mallet. Do not use power-operated grinders without Architect's written approval based on approved quality-control program.
    b. Cut out center of mortar bed joints using angle grinders with diamond-impregnated metal blades. Remove remaining mortar by hand with chisel and resilient mallet. Strictly adhere to approved quality-control program.

D. Notify Architect of unforeseen detrimental conditions including voids in mortar joints, cracks, loose stone, rotted wood, rusted metal, and other deteriorated items.

E. Pointing with Mortar:

1. Rinse joint surfaces with water to remove dust and mortar particles. Time rinsing application so, at time of pointing, joint surfaces are damp but free of standing water. If rinse water dries, dampen joint surfaces before pointing.
2. Apply pointing mortar first to areas where existing mortar was removed to depths greater than surrounding areas. Apply in layers not greater than 3/8 inch until a uniform depth is formed. Fully compact each layer thoroughly and allow it to become thumbprint hard before applying next layer.
3. After low areas have been filled to same depth as remaining joints, point all joints by placing mortar in layers not greater than 3/8 inch. Fully compact each layer and allow to become thumbprint hard before applying next layer. Where existing stone has worn or rounded edges, slightly recess finished mortar surface below face of stone to avoid widened joint faces. Take care not to spread mortar beyond joint edges onto exposed stone surfaces or to featheredge the mortar.
4. When mortar is thumbprint hard, tool joints to match original appearance of joints as demonstrated in approved mockup. Remove excess mortar from edge of joint by brushing. Cure mortar by maintaining in thoroughly damp condition for at least 72 consecutive hours, including weekends and holidays.

    a. Acceptable curing methods include covering with wet burlap and plastic sheeting, periodic hand misting, and periodic mist spraying using system of pipes, mist heads, and timers.
    b. Adjust curing methods to ensure that pointing mortar is damp throughout its depth without eroding surface mortar.

5. Hairline cracking within the mortar or mortar separation at edge of a joint is unacceptable. Completely remove such mortar and repoint.

F. Pointing with Sealant:

1. After raking out, keep joints dry and free of mortar and debris.

2. Clean and prepare joint surfaces. Prime joint surfaces unless sealant manufacturer recommends against priming. Do not allow primer to spill or migrate onto adjoining surfaces.
3. Fill sealant joints with joint sealant and the following:

    a. Install cylindrical sealant backing beneath the sealant except where space is insufficient. There, install bond-breaker tape.
    b. Install sealant using only proven installation techniques that will ensure that sealant will be deposited in a uniform, continuous ribbon, without gaps or air pockets, and with complete wetting of the joint bond surfaces equally on both sides. Fill joint flush with surrounding stonework and matching the contour of adjoining mortar joints.
    c. Install sealant as recommended by sealant manufacturer but within the following general limitations, measured at the center (thin) section of the bead:

        1) Fill joints to a depth equal to joint width, but not more than 1/2 inch deep or less than 1/4 inch deep.

    d. Immediately after first tooling, apply ground-mortar aggregate to sealant, gently pushing aggregate into the surface of sealant. Retool sealant to form smooth, uniform beads, slightly concave. Remove excess sealant and aggregate from surfaces adjacent to joint.
    e. Do not allow sealant to overflow or spill onto adjoining surfaces, or to migrate into the voids of adjoining surfaces, particularly rough textures. Remove excess and spillage of sealant promptly as the work progresses. Clean adjoining surfaces by the means necessary to eliminate evidence of spillage, without damage to adjoining surfaces or finishes, as demonstrated in an approved mockup.

4. Cure sealant according to manufacturer's specifications.

G. Where repointing work precedes cleaning of existing stone, allow mortar to harden at least 30 days before beginning cleaning work.

3.15 STONE CONSOLIDATION TREATMENT

A. Apply treatment to clean, dry surfaces according to manufacturer's written instructions. Remove areas of blind exfoliation, delamination, and flaking before applying.

B. Apply in cycles to small sections of stonework, not more than 100 sq. ft. in area. Each cycle shall consist of 3 successive saturating applications, applied at 5- to 15-minute intervals depending on drying conditions.

C. Apply by low-pressure spray to point of rejection in each application. Apply from bottom of section to top.

D. Apply 3 cycles, allowing treated surface to dry for 60 to 90 minutes between cycles.

E. Protect treated surfaces from rain for 48 hours after treatment.

F. Allow treated surfaces to dry for at least 21 days before repointing, patching, or applying water repellents or sealants.

3.16 FINAL CLEANING

A. After mortar has fully hardened, thoroughly clean exposed stone surfaces of excess mortar and foreign matter; use wood scrapers, stiff-nylon or -fiber brushes, and clean water, spray applied at low pressure.

1. Do not use metal scrapers or brushes.
2. Do not use acidic or alkaline cleaners.

B. Wash adjacent woodwork and other nonstone surfaces. Use detergent and soft brushes or cloths.

C. Clean mortar and debris from roof; remove debris from gutters and downspouts. Rinse off roof and flush gutters and downspouts.

D. Sweep and rake adjacent pavement and grounds to remove mortar and debris. Where necessary, pressure wash pavement surfaces to remove mortar, dust, dirt, and stains.

3.17 FIELD QUALITY CONTROL

A. Inspectors: Owner will engage qualified independent inspectors to perform inspections and prepare test reports. Allow inspectors use of lift devices and scaffolding, as needed, to perform inspections.

B. Architect's Project Representatives: Architect will assign Project representatives to help carry out Architect's responsibilities at the site, including observing progress and quality of portion of the Work completed. Allow Architect's Project representatives use of lift devices and scaffolding, as needed, to observe progress and quality of portion of the Work completed.

C. Notify inspectors and Architect's Project representatives in advance of times when lift devices and scaffolding will be relocated. Do not relocate lift devices and scaffolding until inspectors and Architect's Project representatives have had reasonable opportunity to make inspections and observations of work areas at lift device or scaffold location.

END OF SECTION 040140

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STRUCTURAL STEEL FRAMING

SECTION 051200

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes structural steel and grout.

1.2 PERFORMANCE REQUIREMENTS

A. Connections: Provide details of simple shear connections required by the Contract Documents to be selected or completed by structural-steel fabricator to withstand LRFD loads indicated and comply with other information and restrictions indicated.

1. Select and complete connections using schematic details indicated and AISC's "Manual of Steel Construction, Load and Resistance Factor Design," Volume 2, Part 9

1.3 SUBMITTALS

A. Product Data: For each type of product indicated.

B. Shop Drawings: Show fabrication of structural-steel components.

C. Welding certificates.

D. Mill test reports.

E. Source quality-control test reports.

1.4 QUALITY ASSURANCE

A. Fabricator Qualifications: A qualified fabricator who participates in the AISC Quality Certification Program and is designated an AISC-Certified Plant, Category Sbd.

B. Welding: Qualify procedures and personnel according to AWS D1.1, "Structural Welding Code--Steel."

C. Comply with applicable provisions of AISC's "Code of Standard Practice for Steel Buildings and Bridges."

PART 2 - PRODUCTS

2.1 STRUCTURAL-STEEL MATERIALS

A. Recycled Content of Steel Products: Provide products with an average recycled content of steel products so postconsumer recycled content plus one-half of preconsumer recycled content is not less than 60 percent.

B. W-Shapes: ASTM A 992/A 992M.

C. Channels, Angles: ASTM A 36/A 36M.

D. Plate and Bar: ASTM A 36/A 36M.

E. Welding Electrodes: Comply with AWS requirements.

2.2 BOLTS, CONNECTORS, AND ANCHORS

A. Unheaded Anchor Rods: ASTM F 1554, Grade 36.

1. Configuration: Straight.
2. Finish: Hot-dip zinc coating, ASTM A 153/A 153M, Class C.

B. Threaded Rods: ASTM A 193/A 193M.

1. Finish: Hot-dip zinc coating, ASTM A 153/A 153M, Class C.

2.3 GROUT

A. Nonmetallic, Shrinkage-Resistant Grout: ASTM C 1107, factory-packaged, nonmetallic aggregate grout, noncorrosive, nonstaining, mixed with water to consistency suitable for application and a 30-minute working time.

2.4 FABRICATION

A. Structural Steel: Fabricate and assemble in shop to greatest extent possible. Fabricate according to AISC's "Code of Standard Practice for Steel Buildings and Bridges" and AISC's" Load and Resistance Factor Design Specification for Structural Steel Buildings."

2.5 SHOP CONNECTIONS

A. Weld Connections: Comply with AWS D1.1 for welding procedure specifications, tolerances, appearance, and quality of welds and for methods used in correcting welding work.

2.6 GALVANIZING

A. Hot-Dip Galvanized Finish: Apply zinc coating by the hot-dip process to structural steel according to ASTM A 123/ A 123M.

1. Fill vent holes and grind smooth after galvanizing.
2. Galvanize shelf angles attached to structural-steel frame and located in exterior walls.

2.7 SOURCE QUALITY CONTROL

A. Owner will engage an independent testing and inspecting agency to perform shop tests and inspections and prepare test reports. Comply with testing and inspection requirements of Part 3, Article "Field Quality Control."

B. Correct deficiencies in Work that test reports and inspections indicate does not comply with the Contract Documents.

C. In addition to visual inspection, shop-welded shear connectors will be tested and inspected according to requirements in AWS D1.1 for stud welding.

PART 3 - EXECUTION

3.1 ERECTION

A. Examination: Verify elevations of concrete- and masonry-bearing surfaces and locations of anchor rods, bearing plates, and other embedments, with steel erector present, for compliance with requirements.

1. Proceed with installation only after unsatisfactory conditions have been corrected.

B. Set structural steel accurately in locations and to elevations indicated and according to AISC's "Code of Standard Practice for Steel Buildings and Bridges" and " Load and Resistance Factor Design Specification for Structural Steel Buildings."

C. Bearing Plates: Clean concrete- and masonry-bearing surfaces of bond-reducing materials, and roughen surfaces prior to setting bearing plates. Clean bottom surface of bearing plates.

1. Set bearing plates for structural members on wedges, shims, or setting nuts as required.
2. Promptly pack grout solidly between bearing surfaces and bearing plates so no voids remain. Neatly finish exposed surfaces; protect grout and allow to cure. Comply with manufacturer's written installation instructions for shrinkage-resistant grouts.

D. Maintain erection tolerances of structural steel within AISC's "Code of Standard Practice for Steel Buildings and Bridges."

3.2 FIELD CONNECTIONS

A. Weld Connections: Comply with AWS D1.1 for welding procedure specifications, tolerances, appearance, and quality of welds and for methods used in correcting welding work.

1. Comply with AISC's "Code of Standard Practice for Steel Buildings and Bridges" and " Load and Resistance Factor Design Specification for Structural Steel Buildings" for bearing, adequacy of temporary connections, alignment, and removal of paint on surfaces adjacent to field welds.

3.3 FIELD QUALITY CONTROL

A. Testing Agency: Owner will engage a qualified independent testing and inspecting agency to inspect field welds.

B. Welded Connections: Field welds will be visually inspected according to AWS D1.1.

1. In addition to visual inspection, field welds will be tested according to AWS D1.1 and the following inspection procedures, at testing agency's option:

a. Liquid Penetrant Inspection: ASTM E 165.
b. Magnetic Particle Inspection: ASTM E 709; performed on root pass and on finished weld. Cracks or zones of incomplete fusion or penetration will not be accepted.
c. Ultrasonic Inspection: ASTM E 164.
d. Radiographic Inspection: ASTM E 94.

C. Correct deficiencies in Work that test reports and inspections indicate does not comply with the Contract Documents.

END OF SECTION 051200

SECTION 05 70 00
DECORATIVE METAL (ORNAMENTAL IRON)
(FILED SUB-BID)

PART 1 - GENERAL

1.1 FILED SUB BID

A. Bidding procedures shall be in accordance with latest edition of Massachusetts General Laws, Chapter 149, Section 44, including provisions for pre-qualification; and Chapter 30, Section 39M. Time and place for submission of sub-bids is given in Advertisement for Bids.

B. Sub-bids for work under this Section shall be for complete work of this Section and shall be filed in a sealed envelope with Awarding Authority, at time and place specified in Advertisement for Bids. The following shall appear on the face of the envelope:

[JOB TITLE]
[NAME OF BIDDER]
[SUB-BID FOR SECTIONS 057000 DECORATIVE METAL and 057300 METAL RAILINGS]

C. Every sub-bid submitted for work under this Section shall be on forms furnished by awarding Owner, as required by Chapter 149 Section 44F of Mass. General Laws, and specified in Advertisement for Bids.

D. Sub-bids filed with the Awarding Authority shall be as accompanied by bid deposits in form of a bid bond, or cash, or a certified check on, or a treasurer's or cashier's check issued by, a responsible bank or trust company, payable to City of Somerville in compliance with Chapter 149 Section 44 B. Amount of bid deposit shall be 5 percent of value of bid.

E. The work to be done under this section is generally shown on:
1. Architectural Drawings: Cover and:
   a. A-1.0 Plans
   b. A-2.0 Tower Elevations
   c. A-3.0 Street Stair & Rail Elevations & Details
   d. A -4.0 Tower Section
2. Specifications: Sections 057000, 057300

F. Sub-Sub Bid Requirements: None required under this section.

1.2 RELATED DOCUMENTS

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

1.3 SUMMARY

A. Section Includes:

1. Restoration of two 2 ornamental monumental steel doors.
2. Restoration and/or replacement of plate hinges for the ornamental hinges, three (3) per door.
3. Restoration and/or replacement of Decorative applied ornamental panels
4. Restoration and/or replacement of custom door pulls.
5. Restoration and/or replacement of hasps (two (2) per door).

B. Related Sections:
1. Section 057300 "Decorative Metal Railings" for decorative metal railings
2. Section 099113 "Exterior Painting"

1.4 ACTION SUBMITTALS

A. Product Data: For each type of product indicated, including finishing materials.

B. Shop Drawings: Show fabrication and installation details for decorative metal.

1. Include plans, elevations, component details, and attachments to other work.
2. Indicate materials and profiles of each decorative metal member, fittings, joinery, finishes, fasteners, anchorages, and accessory items.

C. Patterns, Models, or Plaster Castings: Made from proposed patterns for each design of custom casting required.

D. Samples for Initial Selection: For products involving selection of color, texture, or design including mechanical finishes.

E. Samples for Verification: For each type of exposed finish required.

1. Sections of linear shapes.

2. Samples of welded and brazed joints showing quality of workmanship and color matching of materials.

1.5 INFORMATIONAL SUBMITTALS

A. Qualification Data: For qualified fabricator.

B. Mill Certificates: Signed by manufacturers of stainless-steel certifying that products furnished comply with requirements.

C. Welding certificates.

1.6 QUALITY ASSURANCE

A. This is an historic property and an Icon for the City of Somerville. Work is to be performed to meet the Secretary of the Interior's Standards for Rehabilitation of Historic Properties and performed by companies experienced in working on historic properties for no less than five years and their workers shall be experienced in no less than three years performing work of a similar nature as required on this project.

A. Fabricator Qualifications: A firm experienced in producing decorative metal similar to that indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.

B. Installer Qualifications: Fabricator of products.

C. Organic-Coating Applicator Qualifications: A firm experienced in successfully applying organic coatings, of type indicated, to aluminum extrusions and employing competent control personnel to conduct continuing, effective quality-control program to ensure compliance with requirements.

D. Anodic Finisher Qualifications: A firm experienced in successfully applying anodic finishes of type indicated and employing competent control personnel to conduct continuing, effective quality-control program to ensure compliance with requirements.

E. Powder-Coating Applicator Qualifications: A firm experienced in successfully applying powder coatings of type indicated and employing competent control personnel to conduct continuing, effective quality-control program to ensure compliance with requirements.

F. Welding Qualifications: Qualify procedures and personnel according to the following:

1. AWS D1.1/D1.1M, "Structural Welding Code - Steel."
2. AWS D1.2/D1.2M, "Structural Welding Code - Aluminum."
3. AWS D1.3, "Structural Welding Code - Sheet Steel."
4. AWS D1.6, "Structural Welding Code - Stainless Steel."

G. Mockups: Build mockups to verify selections made under sample submittals and to demonstrate aesthetic effects and set quality standards for fabrication and installation.

1. Build mockups for the following types of decorative metal:

a. Hinge, hasp, pull, decorative panel.

2. Approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

H. Preinstallation Conference: Conduct conference at Project site.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Store decorative metal in a well-ventilated area, away from uncured concrete and masonry, and protected from weather, moisture, soiling, abrasion, extreme temperatures, and humidity.

B. Deliver and store cast-metal products in wooden crates surrounded by sufficient packing material to ensure that products will not be cracked or otherwise damaged.

1.8 PROJECT CONDITIONS

A. Field Measurements: Verify actual locations of walls and other construction contiguous with decorative metal by field measurements before fabrication and indicate measurements on Shop Drawings.

1.9 COORDINATION

A. Coordinate installation of anchorages for decorative metal items. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.

PART 2 - PRODUCTS

2.1 METALS, GENERAL

A. Metal Surfaces, General: Provide materials with smooth, flat surfaces unless otherwise indicated. Provide materials without seam marks, roller marks, rolled trade names, stains, discolorations, or blemishes.

2.2 STEEL AND IRON

A. Tubing: ASTM A 500 (cold formed).

B. Bars: Hot-rolled, carbon steel complying with ASTM A 29/A 29M, Grade 1010.

C. Plates, Shapes, and Bars: ASTM A 36/A 36M.

D. Cast Iron: Either gray iron, ASTM A 48/A 48M, or malleable iron, ASTM A 47/A 47M unless otherwise indicated.

E. Steel Sheet, Cold Rolled: ASTM A 1008/A 1008M, either commercial steel or structural steel, exposed.

2.3 FASTENERS

A. Fastener Materials: Unless otherwise indicated, provide the following:
   1. Uncoated-Steel Items: Plated steel fasteners complying with ASTM B 633, Class Fe/Zn 25 for electrodeposited zinc coating where concealed, Type 304 stainless-steel fasteners where exposed.
   2. Dissimilar Metals: Type 316 stainless-steel fasteners.

B. Fasteners for Anchoring to Other Construction: Unless otherwise indicated, select fasteners of type, grade, and class required to produce connections suitable for anchoring indicated items to other types of construction indicated.

C. Provide concealed fasteners for interconnecting components and for attaching decorative metal items to other work unless otherwise indicated.

   1. Provide tamper-resistant flat-head machine screws for exposed fasteners unless otherwise indicated.

D. Anchors, General: Anchors capable of sustaining, without failure, a load equal to six times the load imposed when installed in unit masonry and four times the load imposed when installed in concrete, as determined by testing according to ASTM E 488, conducted by a qualified independent testing agency.

E. Post-Installed Anchors: chemical type.

2.4 MISCELLANEOUS MATERIALS

A. Welding Rods and Bare Electrodes: Select according to AWS specifications for metal alloy welded.

B. Brazing Rods: For copper alloys, provide type and alloy as recommended by producer of metal to be brazed and as required for color match, strength, and compatibility in fabricated items.

C. Low-Emitting Paints and Coatings: Paints and coatings applied to interior decorative metal items shall comply with the testing and product requirements of the California Department of Health Services' "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers."

D. Shop Primers: Provide primers that comply with Section 099113 "Exterior Painting".

E. Intermediate Coats and Topcoats for Steel: Provide products that comply with Section 099113 "Exterior Painting".

F. Bituminous Paint: Cold-applied asphalt emulsion complying with ASTM D 1187.

2.5 FABRICATION, GENERAL

A. Assemble items in the shop to greatest extent possible to minimize field splicing and assembly. Disassemble units only as necessary for shipping and handling limitations. Clearly mark units for reassembly and coordinated installation. Use connections that maintain structural value of joined pieces.

B. Form decorative metal to required shapes and sizes, true to line and level with true curves and accurate angles and surfaces. Finish exposed surfaces to smooth, sharp, well-defined lines and arris.

C. Form bent-metal corners to smallest radius possible without causing grain separation or otherwise impairing the Work.

D. Form simple and compound curves in bars, pipe, tubing, and extruded shapes by bending members in jigs to produce uniform curvature for each configuration required; maintain cross section of member throughout entire bend without buckling, twisting, cracking, or otherwise deforming exposed surfaces.

E. Cut, drill, and punch metals cleanly and accurately. Remove burrs and ease edges to a radius of approximately 1/32 inch unless otherwise indicated. Remove sharp or rough areas on exposed surfaces.

F. Mill joints to a tight, hairline fit. Cope or miter corner joints. Fabricate connections that will be exposed to weather in a manner to exclude water.

G. Provide weep holes where water may accumulate. Locate weep holes in inconspicuous locations.

H. Provide necessary rebates, lugs, and brackets to assemble units and to attach to other work. Cut, reinforce, drill, and tap as needed to receive finish hardware, screws, and similar items unless otherwise indicated.

I. Comply with AWS for recommended practices in shop welding and brazing. Weld and braze behind finished surfaces without distorting or discoloring exposed side. Clean exposed welded and brazed joints of flux, and dress exposed and contact surfaces.

    1. Where welding and brazing cannot be concealed behind finished surfaces, finish joints to comply with NOMMA's "Voluntary Joint Finish Standards" for Type 1 Welds: no evidence of a welded joint.

2.6 DECORATIVE-METAL-CLAD DOORS AND FRAMES

A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

    1. Dawson Metal Co., Inc.
    2. InKan Limited.
    3. Krieger Specialty Products Company.

2.7 CUSTOM DOOR PULLS

A. Fabricate custom door pulls from steel bar stock of profile indicated, fabricated to shapes indicated. Form curves by bending to produce uniform curvature of radii indicated; maintain profile of member throughout entire bend without buckling, twisting, or otherwise deforming exposed surfaces. Where radii of bends are too small to avoid buckling, grind bars after bending to restore original profile. Drill and tap door pulls to receive through bolts for attachment to doors.

B. Fabricate backing plates for custom door pulls from steel to match existing door material. Cut to shape indicated and bevel edges at a 45-degree angle for one-half thickness of metal. Drill and countersink holes where indicated for screws and bolts. Decorative bolt heads to match existing.

2.8 METAL REVEALS

2.9 FINISHES, GENERAL

A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.

B. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.

C. Color Anodic Finish: AAMA 611, or thicker.

1. Color: Gloss Black

2.10 STEEL AND IRON FINISHES

A. Galvanizing: Hot-dip galvanize products made from rolled, pressed, and forged steel shapes, castings, plates, bars, and strips indicated to be galvanized to comply with ASTM A 123/A 123M.

1. Hot-dip galvanized steel and iron hardware indicated to be galvanized to comply with ASTM A 153/A 153M.
2. Do not quench or apply post-galvanizing treatments that might interfere with paint adhesion.
3. Fill vent and drain holes that will be exposed in finished Work, unless indicated to remain as weep holes, by plugging with zinc solder and filing off smooth.

B. Preparing Galvanized Items for Shop Priming: After galvanizing, thoroughly clean decorative metal of grease, dirt, oil, flux, and other foreign matter, and treat with etching cleaner.

C. Preparing Nongalvanized Items for Shop Priming: Prepare uncoated ferrous-metal surfaces to comply with Exteriors (SSPC Zone 1B): SSPC-SP 6/NACE No. 3, "Commercial Blast Cleaning."

D. Primer Application: Apply shop primer to prepared surfaces of items unless otherwise indicated. Comply with requirements in SSPC-PA 1, "Paint Application Specification No. 1: Shop, Field, and Maintenance Painting of Steel," for shop painting. Primer need not be applied to surfaces to be embedded in concrete or masonry.

1. Shop prime uncoated ferrous-metal surfaces with zinc-rich primer.
2. Do not apply primer to galvanized surfaces.

E. Shop-Painted Finish: Comply with Section 099113 "Exterior Painting."

1. Color: Gloss Black.

F. High-Performance Coating: Apply epoxy intermediate and polyurethane topcoats to prime-coated surfaces. Comply with coating manufacturer's written instructions and with requirements in SSPC-PA 1, "Paint Application Specification No. 1: Shop, Field, and Maintenance Painting of Steel," for shop painting. Apply at spreading rates recommended by coating manufacturer.

1. Color: Gloss Black

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of decorative metal.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION, GENERAL

A. Provide anchorage devices and fasteners where needed to secure decorative metal to in-place construction.

B. Perform cutting, drilling, and fitting required to install decorative metal. Set products accurately in location, alignment, and elevation, measured from established lines and levels. Provide temporary bracing or anchors in formwork for items to be built into concrete, masonry, or similar construction.

C. Fit exposed connections accurately together to form tight, hairline joints or, where indicated, uniform reveals and spaces for sealants and joint fillers. Where cutting, welding, and grinding are required for proper shop fitting and jointing of decorative metal, restore finishes to eliminate evidence of such corrective work.

D. Do not cut or abrade finishes that cannot be completely restored in the field. Return items with such finishes to the shop for required alterations, followed by complete refinishing, or provide new units as required.

E. Install concealed gaskets, joint fillers, insulation, and flashings as work progresses.

F. Restore protective coverings that have been damaged during shipment or installation. Remove protective coverings only when there is no possibility of damage from other work yet to be performed at same location.

1. Retain protective coverings intact; remove coverings simultaneously from similarly finished items to preclude nonuniform oxidation and discoloration.

G. Field Welding: Comply with applicable AWS specification for procedures of manual shielded metal arc welding and requirements for welding and for finishing welded connections in "Fabrication, General" Article. Weld connections that are not to be left as exposed joints but cannot be shop welded because of shipping size limitations.

H. Field Brazing: Comply with requirements for brazing and for finishing brazed connections in "Fabrication, General" Article. Braze connections that are not to be left as exposed joints but cannot be shop brazed because of shipping size limitations.

I. Corrosion Protection: Coat concealed surfaces of aluminum that will be in contact with grout, concrete, masonry, wood, or dissimilar metals, with a heavy coat of bituminous paint.

3.3 RE-INSTALLING RESTORED DOORS

A. Fasten security bar frames to concrete and masonry walls with cast-in-place or post-installed anchors. Peen exposed threads of anchors to prevent removal of security bars.

B. General: Install solid metal work plumb, rigid, properly aligned, and securely fastened in place. Comply with Drawings.

1. Set frames accurately in position; plumbed, aligned, and braced securely until permanent anchors are set.
    a. Where frames are fabricated in sections because of shipping or handling limitations, field splice at approved locations by welding face joint continuously; grind, fill, dress, and make splice smooth, flush, and invisible on exposed faces.
    b. Install frames with removable stops located on secure side of opening.
    c. Remove temporary braces necessary for installation only after frames have been properly set and secured.
    d. Check plumb, square, and twist of frames as walls are constructed. Shim as necessary to comply with installation tolerances.
    e. Field apply bituminous coating to backs of frames that will be filled with grout containing antifreezing agents.

2. Floor Anchors: Provide floor anchors for each jamb that extends to floor, and secure with postinstalled expansion anchors.

a. Floor anchors may be set with power-actuated fasteners instead of postinstalled expansion anchors if so indicated and approved on Shop Drawings.

3. In-Place Masonry Construction: Secure frames in place with postinstalled expansion anchors. Countersink anchors, and fill and make smooth, flush, and invisible on exposed faces.

4. Installation Tolerances: Adjust hollow-metal door frames for squareness, alignment, twist, and plumb to the following tolerances:

a. Squareness: Plus or minus 1/16 inch, measured at door rabbet on a line 90 degrees from jamb perpendicular to frame head.
b. Alignment: Plus or minus 1/16 inch, measured at jambs on a horizontal line parallel to plane of wall.
c. Twist: Plus or minus 1/16 inch, measured at opposite face corners of jambs on parallel lines, and perpendicular to plane of wall.
d. Plumbness: Plus or minus 1/16 inch, measured at jambs at floor.

C. Solid Plate Metal Doors: Fit plate metal doors accurately in frames, within clearances specified below. Shim as necessary.

1. Non-Fire-Rated Steel Doors:

a. Between Door and Frame Jambs and Head: 1/8 inch plus or minus 1/32 inch.
b. At Bottom of Door: 3/4 inch plus or minus 1/32 inch.
c. Between Door Face and Stop: 1/16 inch to 1/8 inch plus or minus 1/32 inch.

3.4 ADJUSTING

A. Final Adjustments: Check and readjust operating hardware items immediately before final inspection. Leave work in complete and proper operating condition. Remove and replace defective work, including hollow-metal work that is warped, bowed, or otherwise unacceptable.

B. Remove grout and other bonding material from metal work immediately after installation.

C. Factory-Finish Touchup: Clean abraded areas and repair with same material used for factory finish according to manufacturer's written instructions.

D. Touchup Painting: Cleaning and touchup painting of abraded areas of paint are specified in painting Sections.

3.5 CLEANING AND PROTECTION

A. Unless otherwise indicated, clean metals by washing thoroughly with clean water and soap, rinsing with clean water, and drying with soft cloths.

B. Revise first paragraph below to specify specific cleaning technique to suit type of finish specified.

C. Retain first paragraph below if touchup painting is included in this Section.

D. Touchup Painting: Immediately after erection, clean field welds, bolted connections, and abraded areas of shop paint, and paint exposed areas with same material as used for shop painting to comply with SSPC-PA 1 for touching up shop-painted surfaces.

1. Apply by brush or spray to provide a minimum 2.0-mil dry film thickness.

E. Touchup Painting: Cleaning and touchup painting of field welds, bolted connections, and abraded areas of shop paint are specified in Section 099113 "Exterior Painting".

F. Protect finishes of decorative metal from damage during construction period with temporary protective coverings approved by decorative metal fabricator. Remove protective covering at time of Substantial Completion.

G. Restore finishes damaged during installation and construction period so no evidence remains of correction work. Return items that cannot be refinished in the field to the shop; make required alterations and refinish entire unit, or provide new units.

END OF SECTION 057000

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SECTION 05 73 00
METAL RAILINGS

(FILED SUB-BID)

PART 1 GENERAL

1.1 FILED SUB BID

A. Bidding procedures shall be in accordance with latest edition of Massachusetts General Laws, Chapter 149, Section 44, including provisions for pre-qualification; and Chapter 30, Section 39M. Time and place for submission of sub-bids is given in Advertisement for Bids.

B. Sub-bids for work under this Section shall be for complete work of this Section and shall be filed in a sealed envelope with Awarding Authority, at time and place specified in Advertisement for Bids. The following shall appear on the face of the envelope:

[JOB TITLE]
[NAME OF BIDDER]
[SUB-BID FOR SECTIONS 057000 DECORATIVE METAL and 057300 METAL RAILINGS]

C. Every sub-bid submitted for work under this Section shall be on forms furnished by awarding Owner, as required by Chapter 149 Section 44F of Mass. General Laws, and specified in Advertisement for Bids.

D. Sub-bids filed with the Awarding Authority shall be as accompanied by bid deposits in form of a bid bond, or cash, or a certified check on, or a treasurer's or cashier's check issued by, a responsible bank or trust company, payable to City of Somerville in compliance with Chapter 149 Section 44 B. Amount of bid deposit shall be 5 percent of value of bid.

E. The work to be done under this section is generally shown on:

1. Architectural Drawings: Cover and:
   A-1.0 Plans
   A-2.0 Tower Elevations
   A-3.0 Street Stair & Rail Elevations & Details
   A -4.0 Tower Section
2. Specifications: Sections 057000, 057300

F. Sub-Sub Bid Requirements: None required under this section.

1.2 RELATED DOCUMENTS

A. Division 1, General Conditions, Supplementary General Conditions, the Drawings, and all other parts of the Contract Documents are hereby made a part of this Section.

1.3 SUMMARY

A. Section includes restoring steel railings, balusters, fittings and handrails:

1. Restoration and reinstallation of ornamental steel and wrought iron stair railing from street to tower.
2. Restoration of circular wrought iron stair, tower levels 2 to 4.
3. Repair and refinishing of steel plate stair and rail, tower levels 1 to 2.

B. Related Sections:
1. Section 033000 – Cast in Place Concrete
2. Section 099113 – Exterior Painting

1.4 REFERENCES

A. ASTM International:
1. ASTM A500/A500M - Standard Specification for Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes.

B. National Ornamental & Miscellaneous Metals Association:
1. NOMMA Guideline 1 - Joint Finishes.

1.5 DESIGN REQUIREMENTS

A. Design restoration sections of: handrail, guardrail, and attachments to resist forces as required by Massachusetts State Building Code 780 CMR code. Apply loads non-simultaneously to produce maximum stresses.
1. Guard Top Rail and Handrail Concentrated Load: 200 pounds applied at any point in any direction.
2. Guard Top Rail Uniform Load: 50 plf applied in any direction.
3. Intermediate Rails, Panels, and Baluster Concentrated Load: 50 pounds applied to 1 sf area.

1.6 SUBMITTALS

A. Section 013300 - Submittal Procedures: Submittal requirements.

B. Shop Drawings: Indicate profiles, sizes, connection attachments, anchorage, size and type of fasteners, and accessories.

C. Samples: Submit two, six inch long samples of handrail. Submit two samples, of elbow, tees and miscellaneous fittings

1.7 QUALITY ASSURANCE

A. This is an historic property and an Icon for the City of Somerville. Work is to be performed to meet the Secretary of the Interior's Standards for Rehabilitation of Historic Properties and performed by companies experienced in working on historic properties for no less than five years and their workers shall be experienced in no less than three years performing work of a similar nature as required on this project.

B. Finish joints in accordance with NOMMA Guideline 1.

C. Maintain one copy of each document on site.

1.8 FIELD MEASUREMENTS

A. Verify field measurements prior to fabrication.

PART 2 PRODUCTS

2.1 HANDRAILS AND RAILINGS

A. Furnish materials in accordance with State Municipality of Highways Public Work's standards.

2.2 STEEL RAILING SYSTEM COMPONENTS

A. Structural Sections: ASTM A500/A500M, Grade B. ASTM A501.

B. Rails and Posts: Built up flat stock, steel pipe structural sections welded joints.

C. Fittings: Elbows, T-shapes, wall brackets, escutcheons; machined steel.

D. Mounting: brackets and flanges, with steel inserts for chemical anchor attachment to existing concrete slab and granite block masonry units.

E. Exposed Fasteners: Flush countersunk screws or bolts; consistent with design of railing.

F. Shop Primer: SSPC Paint 15, Type 1, red oxide

G. Touch-Up Primer: Match shop primer.

H. Shop Prefinishing: Enameled Epoxy coated

2.3 FABRICATION

A. Fit and shop assemble components in largest practical sizes for delivery to site.

B. Fabricate components with joints tightly fitted and secured. Furnish spigots and sleeves to accommodate site assembly and installation.

C. Exposed Mechanical Fastenings: Flush countersunk screws or bolts; unobtrusively located; consistent with design of component, except where specifically noted otherwise.

D. Supply components required for anchorage of fabrications. Fabricate anchors and related components of same material and finish as fabrication, except where specifically noted otherwise.

E. Exterior Components: Continuously seal joined pieces by continuous welds.

F. Grind exposed joints flush and smooth with adjacent finish surface. Make exposed joints butt tight, flush, and hairline. Ease exposed edges to small uniform radius.

G. Exposed Welded Joints: NOMMA Guideline 1 Joint Finish.1.

H. Accurately form components to each other.

I. Accommodate for expansion and contraction of members and building movement without damage to connections or members.

PART 3 EXECUTION

3.1 EXAMINATION

A. Section 01310 – Project Management and Coordination and project conditions.

B. Verify field conditions are acceptable and are ready to receive work.

C. Verify concealed blocking and reinforcement is installed and correctly located to receive wall mounted handrails.

3.2 PREPARATION

A. Clean and strip primed steel items to bare metal where site welding is required.

B. Supply items required to be attached to existing concrete slab with setting templates, to appropriate sections.

3.3 INSTALLATION

A. Install components plumb and level, accurately fitted, free from distortion or defects.

B. Anchor railings to structure with chemical anchors and plates.

C. Conceal bolts and screws whenever possible. Where not concealed, use flush countersunk fastenings.

3.4 ERECTION TOLERANCES

A. Maximum Variation From Plumb: 1/4 inch.
B. Maximum Offset From Alignment: 1/4 inch.
C. Maximum Out-of-Position: 1/4 inch.

END OF SECTION

SECTION 099113
EXTERIOR PAINTING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 Description:

A. Section Includes: All labor, materials, tools and other equipment, services and supervision required to complete all exterior repainting work as indicated on and to the full extent of the drawings and specifications. **Work under this section is to be performed by the Ornamental Iron filed sub-contractor**. Refer to the following specification sections:

1. Section 057000 Decorative Metal
2. Section 057300 Metal Railings

B. Work under this Contract shall also include, but not necessarily be limited to:

1. Moisture testing of substrates.
2. Surface preparation of substrates as required for acceptance of paint, including cleaning, small crack repair, patching, caulking, and making good surfaces and areas to the limits defined under *MPI* Repainting Manual Preparation requirements.
3. Specific pre-treatments noted herein or specified in the *MPI* Repainting Manual.
4. Sealing / priming surfaces for repainting in accordance with *MPI* Repainting Manual requirements.
5. Repainting of New & Reconditioned Surfaces.
6. Touching up painted surfaces after placement in the field.

C. Refer to drawings and schedules for type, location and extent of exterior repainting required, and include all touch-ups necessary to complete work shown, scheduled or specified.

D. This Section along with the drawings forms part of the Contract documents and is to be read, interpreted and coordinated with all other parts.

E. Division 0, Section 00700 - General Conditions and Section 000800 - Supplementary Conditions and Division 1, General Requirements form an integral part of this Section of Work. The Painting contractor shall refer to these and all other related parts.

1.2 Related Sections:

A. Section 04140 – Maintenance of Stone Assemblies

B. Section 057000 – Decorative Metal
C. Section 057300 – Metal Railings

1.3 Quality Assurance:

A. This Contractor shall have a minimum of five (5) years proven satisfactory experience and shall show proof before commencement of work that he will maintain a qualified crew of painters throughout the duration of the work. When requested, Contractor shall provide a list of the last three comparable exterior repainting jobs including, name, location, specifying authority / project manager, start / completion dates and value of the work.

B. Only qualified journeypersons, as defined by local jurisdiction, shall be engaged in exterior repainting work. Apprentices may be employed provided they work under the direct supervision of a qualified journeyperson in accordance with trade regulations.

C. All materials, preparation and workmanship shall conform to the standards contained in the latest edition of the Master Painters Institute (*MPI*) Maintenance and Repainting Manual (herein referred to as the *MPI* Repainting Manual) as issued by the local *MPI* Accredited Quality Assurance Association having jurisdiction.

D. All exterior repainting work shall be inspected by a Paint Inspection Agency (inspector) acceptable to the specifying authority and the local *MPI* Accredited Quality Assurance Association. The painting contractor shall notify the Paint Inspection Agency a minimum of one week prior to commencement of work and provide a copy of the project painting specification, plans and elevation drawings (including pertinent details) as well as a Finish Schedule.

E. All surfaces requiring repainting shall be inspected by the Painting Subcontractor who shall notify the Consultant, Paint Inspection Agency, and General Contractor in writing of any defects or problems, prior to commencing repainting or after preparation work.

F. Where "special" coatings or decorating systems (i.e. textured coatings or non-*MPI* listed products or systems) are to be used in repainting, the paint manufacturer shall provide as part of this work, certification of all surfaces and conditions for specific paint or coating system application as well as on site supervision, inspection and approval of their paint or coating system application as required at no additional cost to the Owner.

1.4 Regulatory Requirements:

A. Conform to work place safety regulations for storage, mixing, application and disposal of all paint related materials to requirements of those authorities having jurisdiction.

B. Conform to safety precautions in accordance with the latest requirements to Industrial Health and Safety Regulations, latest edition, of authorities having jurisdiction.

C. Notify the Paint Inspection Agency on award of contract and make application for assignment of an Inspector using appropriate forms supplied by the Agency as well as provide a copy of the project repainting specification, drawings, color schedule and list of proposed materials for review purposes prior to commencement of work.

D. Fully cooperate at all times with the requirements of the Paint Inspection Agency in the performance of their duties, including providing access and assistance as required to complete inspection work.

E. To reduce the amount of contaminants entering waterways, sanitary / storm drain systems or into the ground the following procedures shall be strictly adhered to:

1. Retain cleaning water for water-based materials to allow sediments to be filtered out. In no case shall equipment be cleaned using free draining water.
2. Retain cleaners, thinners, solvents and excess paint and place in designated containers and ensure proper disposal.
3. Return solvent and oil soaked rags used during painting operations for contaminant recovery, proper disposal, or appropriate cleaning and laundering.
4. Dispose of contaminants in an approved legal manner in accordance with hazardous waste regulations.
5. Empty paint cans are to be dry prior to disposal or recycling (where available).
6. Close and seal tightly partly used cans of materials including sealant and adhesive containers and store protected in well ventilated fire-safe area at moderate temperature.

F. Where paint recycling is available, collect waste paint by type and provide for delivery to recycling or collection facility.

1.5 Mock-Ups:

A. When requested by the Consultant or Paint Inspection Agency, prepare and repaint a designated exterior surface area or item to requirements specified herein, with specified paint or coating showing selected colors, gloss / sheen, texture and workmanship to *MPI* Repainting Manual standards for review and approval. When approved, exterior surface area and/or item shall become acceptable standard of finish quality and workmanship for similar on-site repainting work.

1.6 Submittals:

A. All submittals shall be in accordance with the requirements of Section 01300 - Submittals.

B. Submit written proof of ability to supply a 100% two (2) year Maintenance Bond, if Paint Association warranty option is not used with Bid Submission.

C. Submit list of all painting materials to the Consultant and the Paint Inspection Agency for review prior to ordering materials.

D. Submit two sets of Material Safety Data Sheets (MSDS) prior to commencement of work for review and for posting at job site as required.

E. Submit certification reports for ecologo paint products used.

F. Submit invoice list of all paint materials ordered for project work to Paint Inspection Agency indicating manufacturer, types and quantities for verification and compliance with specification and design requirements if requested.

G. Submit work schedule for various stages of work for the Consultant's review and Owner's approval if requested.

H. At project completion provide an itemized list complete with manufacturer, paint type and color coding for all colors used for Owner's later use in maintenance.

I. At project completion provide properly packaged maintenance materials as noted herein and obtain a signed receipt.

1.7 Product Delivery, Storage and Handling:

A. Deliver all painting materials in sealed, original labeled containers bearing manufacturer's name, brand name, type of paint or coating and color designation, standard compliance, materials content as well as mixing and/or reducing and application requirements.

B. Store all paint materials in original labeled containers in a secure (lockable), dry, heated and well ventilated single designated area meeting the minimum requirements of both paint manufacturer and authorities having jurisdiction and at a minimum ambient temperature of 45 deg F (7 deg C). Only material used on this project is to be stored on site.

C. Where toxic and/or volatile / explosive / flammable materials are being used, provide adequate fireproof storage lockers and take all necessary precautions and post adequate warnings (e.g. no smoking) as required.

D. Take all necessary precautionary and safety measures to prevent fire hazards and spontaneous combustion and to protect the environment from hazard spills. Materials that constitute a fire hazard (paints, solvents, drop clothes, etc.) shall be stored in suitable closed and rated containers and removed from the site on a daily basis.

E. Comply with requirements of authorities having jurisdiction, in regard to the use, handling, storage and disposal of hazardous materials.

1.8 Project / Site Requirements:

A. UNLESS specifically pre-approved by the specifying body, Paint Inspection Agency and the applied product manufacturer, perform no exterior repainting work when the ambient air and substrate temperatures are below 50 deg F (10 deg C).

B. Perform no exterior repainting work unless environmental conditions are within

MPI and paint manufacturer's requirements or until adequate weather protection is provided. Where required, suitable weatherproof covering and sufficient heating facilities shall be in place to maintain minimum ambient air and substrate temperatures for 24 hours before, during and after paint application.

C. Perform no exterior repainting work when the relative humidity is above 85% or when the dew point is less than 5 deg F (3 deg C) variance between the air / surface temperature.

D. Perform no exterior repainting work when the maximum moisture content of the substrate exceeds:

1.15% for wood.

E. Conduct all moisture tests using a properly calibrated electronic Moisture Meter.

F. Test concrete and masonry surfaces for alkalinity as required.

G. Apply paint only to dry, clean, and adequately prepared surfaces in areas where dust is no longer generated by construction activities such that airborne particles will not affect the quality of finished surfaces.

1.9 Scheduling:

A. Schedule repainting operations to prevent disruption of and by other trades when applicable.

B. Schedule repainting operations to prevent disruption of Owner's operations or building occupants. Obtain written authorization from Consultant / Owner for changes in work schedule.

C. Phased work shall be in accordance with the requirements of Section 01 10 00 - Summary of Work

1.10 Guarantee:

A. Furnish a two (2) year Painting Association Guarantee or a 100% two (2) year Maintenance Bond both in accordance with *MPI* Repainting Manual requirements. The Maintenance Bond shall be obtained from an approved bonding company and shall warrant that all repainting work has been performed in accordance with *MPI* Repainting Manual requirements.

B All exterior repainting work shall be in accordance with *MPI* Repainting Manual requirements and shall be inspected by the Painting Association whether using the Painting Association Guarantee or the Maintenance Bond option. The cost for such Painting Association inspections as well as either the Painting Association Guarantee or Maintenance Bond shall be included in the Base Bid Price.

C Painting Subcontractors choosing the Maintenance Bond option shall provide written proof of their ability to supply same at time of bidding.

1.11 Maintenance Materials:

A. At project completion provide [a minimum of (1 gallon) of each type and color of paint from same production run (batch mix) used in unopened cans, properly labeled and identified for Owner's later use in maintenance. Store where directed.

PART 2 - PRODUCTS

2.1 Materials:

A. All materials (primers, paints, coatings, varnishes, stains, lacquers, fillers, thinners, solvents, etc.) shall be products listed in the latest edition of the *MPI* Approved Product List and shall be from a single manufacturer for each system used.

B. Other paint materials such as linseed oil, shellac, turpentine, etc. shall be the highest quality product of an approved manufacturer listed in the *MPI* Approved Product List and shall be compatible with other coating materials as required.

C. All materials and paints shall be lead and mercury free.

D. All paint materials shall have good flowing and brushing properties and shall dry or cure free of blemishes, sags, air entrapment, etc. Refer to 3.5, Field Quality Control / Standard of Acceptance requirements.

2.2 Equipment:

A. Painting Equipment: to best trade standards for type of product and application.

B. Spray-Painting Equipment: of ample capacity, suited to the type and consistency of paint or coating being applied and kept clean and in good working order at all times.

2.3 Mixing and Tinting:

A. Unless otherwise specified or pre-approved, all paints shall be ready-mixed and pre-tinted. Re-mix all paint in containers prior to and during application to ensure break-up of lumps, complete dispersion of settled pigment, and color and gloss uniformity.

B. Paste, powder or catalyzed paint mixes shall be mixed in strict accordance with manufacturer's written instructions.

C. Where thinner is used, addition shall not exceed paint manufacturer's recommendations.

D. If required, thin paint for spraying in strict accordance with paint manufacturer's instructions. If directions are not on container, obtain instructions in writing from manufacturer and provide copy of instructions to Consultant.

2.4 Finish and Colors:

A. Unless otherwise specified herein, all exterior repainting work shall be done in accordance with *MPI* Premium Grade requirements.

B. Colors shall match existing.

C. Color selection will be based on two (2) base colors. No more than two (2) colors will be selected for exterior painting work on this project. Note that this does not include pre-finished items unless specifically scheduled.

D. Exterior doors shall be repainted same color as door frames. . Unless otherwise noted all doors, frames and trim shall be repainted using a G6 (gloss) finish.

2.5 Gloss / Sheen:

A. Paint gloss shall be defined as the sheen rating of applied paint, in accordance with the following *MPI* gloss / sheen standard values:

Gloss	Description	Units @ 60 degrees	Units @ 85 degrees
G1	Matte or Flat finish	0 to 5	10 maximum
G2	Velvet finish	10 maximum	10 to 35
G3	Eggshell finish	10 to 25	10 to 35
G4	Satin finish	20 to 35	35 minimum
G5	Semi-Gloss finish	35 to 70	
G6	Gloss finish	70 to 85	
G7	High-Gloss finish	> 85	

B. Gloss level ratings of all painted surfaces shall be as specified herein and as noted on Finish Schedule.

PART 3 - EXECUTION

3.1 Condition of Surfaces:

A. Prior to commencement of repainting work, thoroughly examine (and test as required) all exterior conditions and surfaces scheduled to be repainted and report in writing to the Architect and General Contractor where applicable any conditions or surfaces that will adversely affect work of this section.

B. The degree of surface deterioration (DSD) shall be assessed using the assessment criteria indicated in the *MPI* Maintenance Repainting Manual. In general the *MPI* DSD ratings and descriptions are as follows:

Condition	Description
DSD-0	Sound Surface (may include visual (aesthetic) defects that do not affect film's protective properties).

DSD-1	Slightly Deteriorated Surface (may show fading; gloss reduction, slight surface contamination, minor pin holes scratches, etc.) / Minor cosmetic defects (runs, sags, etc.).
DSD-2	Moderately Deteriorated Surface (small areas of peeling, flaking, slight cracking, staining, etc.).
DSD-3	Severely Deteriorated Surface (heavy peeling, flaking, cracking, checking, scratches, scuffs, abrasion, small holes and gouges).
DSD-4	Substrate Damage (repair or replacement of surface required

C. Other than the repair of DSD-1 to DSD-3 defects included under this scope of work, structural and DSD-4 substrate defects discovered prior to and after surface preparation or after first coat of paint shall be made good and sanded by others ready for painting, unless otherwise agreed to by the Owner and painter to be included in this Work.

D. No repainting work shall commence until all such DSD-4 adverse conditions and defects have been corrected and surfaces and conditions are acceptable to the Painting Subcontractor. The Painting Subcontractor shall not be responsible for the condition of the substrate or for correcting defects and deficiencies in the substrate, which may adversely affect the painting work except for minimal work normally performed by the Painting Subcontractor and as, indicated herein. It shall always, however, be the responsibility of the Painting Subcontractor to see that surfaces are properly prepared before any paint or coating is applied. It shall also be the Painting Subcontractor's responsibility to paint the surface as specified providing that the owner accepts responsibility for uncorrected DSD-4 substrate conditions.

3.2 Preparation of Surfaces:

A. Prepare all exterior surfaces for repainting in accordance with MPI Repainting Manual requirements. Refer to the MPI Repainting Manual in regard to specific requirements for the following:

1. environmental conditions.
2. rust stain removal.
3. mildew removal.
4. structural steel and miscellaneous metals.

.j

B. Where required, pressure wash exterior surfaces prior to repainting in accordance with MPI standards for type of surfaces and recommended pressures to ensure complete removal of all loose paint, stains, dirt, and other foreign matter. This work shall be carried out only by qualified tradesman experienced in pressure water cleaning. The use of water hose cleaning will not be considered satisfactory, unless specifically specified. Allow sufficient drying time and test all surfaces using an electronic moisture meter before commencing work.

C. Sand, clean, dry, etch, neutralize and/or test all surfaces under adequate illumination, ventilation and temperature requirements.

D. Remove and securely store all miscellaneous hardware and surface fittings/

fastenings (e.g. electrical lights, mechanical louvers, door and window hardware (e.g. hinges, knobs, locks, trim, frame stops) and, removable hazard / instruction labels. from wall and soffit surfaces, doors and frames, prior to repainting and replace upon completion. Carefully clean and replace all such items upon completion of repainting work in each area. Do not use solvent or reactive cleaning agents on items that will mar or remove finishes (e.g. lacquer finishes). Doors shall be removed before repainting to paint bottom and top edges and then re-hung.

E. Protect all exterior surfaces and areas, including landscaping, walks, drives, all adjacent building surfaces (including glass, aluminum surfaces, etc.) and equipment and any labels and signage from repainting operations and damage by drop cloths, shields, masking, templates, or other suitable protective means and make good any damage caused by failure to provide such protection.

3.3 Application:

A. Do not commence repainting unless substrates and all environmental conditions are acceptable for the application of products.

B. Apply primer, paint or stain in accordance with *MPI* Painting Manual Premium Grade finish requirements.

C. Apply primer, paint or stain in a workmanlike manner using skilled and trade qualified applicators as noted under Quality Assurance.

D. Apply primer, paint or stain within an appropriate time frame after cleaning and preparation to prevent weathering or water staining of substrate or before environmental conditions encourage flash-rusting, rusting, contamination or when the manufacturer's paint specifications require earlier applications.

E. Primer, paint or stain coats specified are intended to cover surfaces satisfactorily when applied at proper consistency and in accordance with manufacturer's recommendations.

F. Tint each coat of paint progressively lighter to enable confirmation of number of coats.

G. Unless otherwise approved by the painting inspection agency, apply a <u>minimum</u> of four coats of paint where deep or bright colors are used to achieve satisfactory results.

H. Sand and dust between each coat to provide an anchor for next coat and to remove defects (runs, sags, etc.) visible from a distance up to 1000 mm (39").

I. Do not apply finishes on exterior surfaces that are not sufficiently dry. Unless manufacturer's directions state otherwise, each coat shall be sufficiently dry and hard before a following coat is applied.

J. To avoid air entrapment in applied coats, apply materials in strict accordance with

manufacturer's spread rates and application requirements.

3.4 Exterior Finish / Coating Systems: Repaint exterior surfaces in accordance with the following *MPI* Repainting Manual requirements:

A. Concrete Vertical Surfaces: (including horizontal soffits)

1. REX 3.1H Water repellent paintable finish.

B. Structural Steel and Metal Fabrications:

1. REX 5.1A Quick dry enamel gloss finish.
2. REX 5.1B REX 5.1D Alkyd gloss finish.

3.5 Field Quality Control / Standard of Acceptance:

A. All surfaces, preparation and paint applications shall be inspected.

B. Repainted exterior surfaces shall be considered to lack uniformity and soundness if any of the following defects are apparent to the Painting Inspection Agency inspector:

1. brush / roller marks, streaks, laps, runs, sags, drips, heavy stippling, hiding or shadowing by inefficient application methods, skipped or missed areas, and foreign materials in paint coatings.
2. evidence of poor coverage at rivet heads, plate edges, lap joints, crevices, pockets, corners and re-entrant angles.
3. damage due to touching before paint is sufficiently dry or any other contributory cause.
4. damage due to application on moist surfaces or caused by inadequate protection from the weather.
5. damage and/or contamination of paint due to wind blown contaminants (dust, sand blast materials, salt spray, etc.).

C. Repainted exterior surfaces shall be considered unacceptable if any of the following are evident under natural lighting conditions:

1. visible defects are evident on vertical surfaces when viewed at 90 degrees to the surface from a distance of 1000 mm (39").
2. visible defects are evident on horizontal surfaces when viewed at 45 degrees to the surface from a distance of 1000 mm (39").
3. visible defects are evident on soffit and other overhead surfaces when viewed at 45 degrees to the surface
4. when the final coat on any surface exhibits a lack of uniformity of sheen across full surface area.

D. Repainted surfaces rejected by the inspector shall be made good at the expense of the Contractor. Small affected areas may be touched up; large affected areas or areas without sufficient dry film thickness of paint shall be repainted. Runs, sags of damaged paint shall be removed by scraper or by sanding prior to application of

paint.

3.6 Protection:

A. Protect all newly repainted exterior surfaces from rain and snow, condensation, contamination, dust, salt spray and freezing temperatures until paint coatings are completely dry. Curing periods shall exceed the manufacturer's recommended minimum time requirements.

B. Erect barriers or screens and post signs to warn, limit or direct traffic away or around work area as required.

3.7 Clean-up:

A. Remove all paint where spilled, splashed, splattered or sprayed as work progresses using means and materials that are not detrimental to affected surfaces.

B. Keep work area free from an unnecessary accumulation of tools, equipment, surplus materials and debris.

C. Remove combustible rubbish materials and empty paint cans each day and safely dispose of same in accordance with requirements of authorities having jurisdiction.

D. Clean equipment and dispose of wash water / solvents as well as all other cleaning and protective materials (e.g. rags, drop cloths, masking papers, etc.), paints, thinners, paint removers/strippers in accordance with the safety requirements of authorities having jurisdiction.

END OF SECTION

SECTION 310503
HELICAL TIEBACK ANCHORS

1. GENERAL

1.1 Purpose of Specification

The purpose of this specification is to detail the furnishing of all designs, materials, tools, equipment, labor and supervision, and installation techniques necessary to install HELICAL TIEBACK ANCHORS as detailed on the drawings, including connection details. This shall include provisions for load testing that may be part of the scope of work

1.2 Scope of Work

This work consists of furnishing all necessary engineering and design services, supervision, labor, tools, materials, and equipment to perform all work necessary to install the HELICAL TIEBACK ANCHORS, at Prospect Hill Tower, Somerville, MA for (General Contractor) per the specifications described herein, and as shown on the drawings. The Contractor shall install a helical anchor that will develop the load capacities as detailed on the drawings. This may also include provisions for load testing to verify tieback capacity and deflection, if part of the scope of work. The responsibilities and duties of the respective parties for this project are summarized in Table-1.

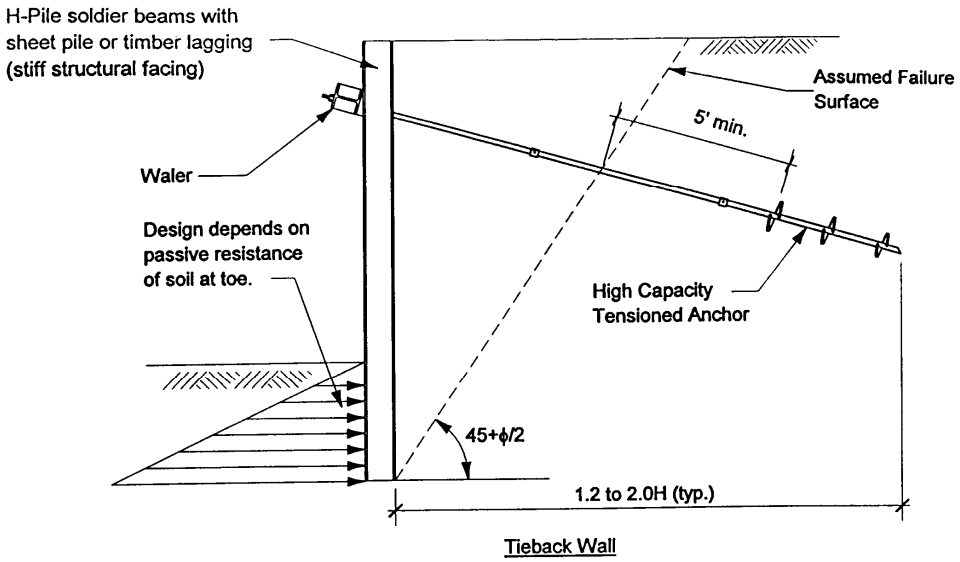

Figure-1 Typical Cross Section

Table-1. Tasks and Responsibilities to be Allocated for Helical Tieback Anchor Work

TASK		RESPONSIBLE PARTY*
1	Site Investigation, Geotechnical Investigation, Site Survey, and potential work restrictions	Contractor
2	Type of specification, requirement for a pre-contract testing program, and procurement method	Contractor
3	Obtaining easements	n/a
4	Overall scope of work, design of the anchored structure – including design loads (vertical, horizontal, etc.), anchor locations, and anchor spacing and orientation	A/E
5	Definition and qualification of safety factors	City
6	Calculation/estimation of allowable structural and/or anchor movement in service (acceptance criteria)	A/E
7	Definition of service life (temporary – months or permanent - years) and required degree of corrosion protection based on site conditions	Permanent
8	Type and number of tests (pre-contract, pre-production and production)	Production
9	Minimum total anchor length, depth to bearing stratum	Contractor
10	Helical Tieback Anchor components and details	Contractor
11	Details of corrosion protection, if required	Contractor
12	Details of anchor connection to structure (e.g., for static and seismic conditions)	Contractor
13	Preparation of Drawings and test reports	Contractor
14	Evaluation of test results	A/E
15	Construction methods, schedule, sequencing, and coordination of work	Contractor
16	Requirements of field production control, including logging of installation torque vs. installed depth	Contractor
17	Supervision of work	Contractor
18	Long-term monitoring	City

1.3 Qualifications of the Helical Tieback Anchor Contractor

The helical anchor Contractor shall be experienced in performing design and construction of helical tieback anchors and shall furnish all materials, labor, and supervision to perform the work. The Contractor shall be trained by the Helical Pile manufacturer in the proper methods of design and installation of screw anchor tiebacks. The Contractor shall provide names of on-site personnel materially involved with the work. At a minimum, these personnel shall include foreman, machine operator, and project engineer/manager.

The helical tieback anchor Contractor shall not sublet the whole or any part of the contract without the express written permission of the Owner.

1.4 Related Project Specifications

1.5 Definitions

A partial list follows. *The Owner may wish to add other specific, project-related items.*

Bearing Stratum: Soil layer(s) of sufficient strength capable of resisting the applied axial load transferred by the helical tieback.

Contractor: The person/firm responsible for performing the helical tieback anchor work.

Coupling: Central steel shaft connection means formed as integral part of the plain extension shaft material. For Type SS anchors, couplings are external cast sleeves, or hot upset forged sockets.

Coupling Bolt(s): High strength, structural steel fasteners used to connect helical anchor segments together. For Type SS segments, the coupling bolt transfers axial load only.

Design Load (DL): Maximum anticipated service load applied to the helical anchor. A.k.a. Working Load (WL).

Free Length: Length of plain extension acting as a tendon, which is free to elongate elastically. A.k.a. un-bonded length or stressing length. Helix plates shall not be located in free length section of tieback. Minimum free length shall be specified on a project specific basis.

Helical Extension: Helical tieback anchor component installed immediately following the lead or starter section, if required. This component consists of one or more helix plates welded to a central steel shaft of finite length. Function is to increase bearing area.

Helical Tieback Anchor: Bearing type anchor used to transfer tensile loads to soil. Helical tieback anchors consist of a central steel shaft, helix bearing plates, coatings, corrosion protection, and a wall connection.

Helix Plate: Generally round steel plate formed into a ramped spiral. The helical shape provides the means to install the helical tieback anchor, plus the plate transfers load to soil in end-bearing. Helix plates are available in various diameters and thicknesses.

Lead Section: The first helical tieback anchor component installed into the soil, consisting of single or multiple helix plates welded to a central steel shaft. A.k.a Starter Section.

Performance Test: Similar to a Proof Test except a cyclic loading method is used to analyze total, elastic, and net movement of the helical anchor. Often used for pre-contract or pre-production load tests, in addition to a specified percentage of production anchors.

Plain Extension: Central steel shaft of finite length without helix plates. It is installed following the installation of the lead or starter section or helical extension (if used). The units are connected with couplings and bolts. Plain extensions are used to extend the helix plates beyond the specified minimum free length and into competent load bearing stratum.

Proof Test: Incremental loading of a helical anchor, holding for a period of time, and recording the total movement at each load increment.

Safety Factor: The ratio of the ultimate capacity to the working or design load used for the design of any structural element.

Square Shaft (SS): Solid steel, round-cornered-Square central Shaft elements ranging in size from 1-1/4" to 2-1/4". A.k.a. Type SQ.

Thread Bar Adapter: Section of central steel shaft used to connect the helical anchor to the wall face via a high tensile strength pre-stressing thread bar.

Torque Strength Rating: The maximum torque energy that can be applied to the helical tieback anchor during installation in soil, a.k.a. allowable, or safe torque.

1.6 Allowable Tolerances

The tolerances quoted in this section are suggested maximums. The actual values established for a particular project will depend on the structural application.

1.6.1 Centerline of helical tieback anchor shall not be more than 6 inches from indicated plan location.

1.6.2 The angular tolerance between installed tieback anchor angle and design angle shall be ±3° as shown on the drawings.

1.7 Quality Assurance

1.7.1 Contractors authorized by the Helical Pile Manufacturer shall install helical tieback anchors. These Contractors shall have satisfied the requirements relative to the technical aspects of the product and installation procedures as therein specified.

1.7.2 The Contractor shall employ an adequate number of skilled workers who are experienced in the necessary crafts and who are familiar with the specified requirements and methods needed for proper performance of the work of this specification.

1.7.3 All helical tieback anchors shall be installed in the presence of a designated representative of the Owner unless said representative informs the Contractor otherwise. The designated representative shall have the right of access to any and all field installation records and test reports.

1.7.4 Screw anchor components as specified therein shall be manufactured by a facility whose quality systems comply with ISO (International Organization of Standards) 9001 requirements. Certificates of Registration denoting ISO Standards Number shall be presented upon request to the Owner or their representative.

1.7.5 Helical Pile Manufacturer shall provide a standard one-year warranty on materials and workmanship of the product. Any additional warranty provided by the Contractor shall be issued as an addendum to this specification.

1.7.6 Design of helical tieback anchors shall be performed by an entity as required in accordance with existing local code requirements or established local practices. This

design work may be performed by a licensed professional engineer, an authorized Helical Pile Manufacturer, or designer depending upon local requirements or practices.

1.8 Design Criteria

1.8.1 Helical tieback anchors shall be designed to meet the specified loads and acceptance criteria as shown on the drawings. The calculations and drawings required from the Contractor or Engineer shall be submitted to the Owner for review and acceptance in accordance to Section 3.1 "Construction Submittals".

1.8.1.1 The allowable working load on the helical tieback anchor shall not exceed the following values:

$P_{allowt} = S_{ut} / FS$

Where: P_{allowt} = allowable working load in tension (kip)
S_{ut} = Min. ultimate tensile strength of central steel shaft segment (at coupling joint) (kip)
FS = factor of safety suitable for application, i.e. temporary or permanent structures

For permanent applications, it is recommended to use a factor of safety of two (2). For temporary applications, factor of safety typically ranges between 1.25 and 1.5.

It is recommended to use the minimum ultimate tensile strengths as published by Helical Pile Manufacturer *(shown in Table-A of the Appendix). The ultimate tensile strength may be reduced by the ultimate capacity per helix plate(s) – depending on the number of helix plates specified and type of shaft product used. The ultimate tensile strength may also be reduced by the torque limited ultimate capacity – depending on the type of shaft product used.*

1.8.1.2 The ultimate structural capacity shall be determined as:

$P_{ultt} = S_{ut}$

Where: P_{ultt} = Ultimate structural capacity in tension (kip)
S_{ut} = Minimum ultimate tensile strength of central steel shaft (kip)

It is recommended to use the minimum ultimate tensile strengths as published by CHANCE Civil Construction (shown in Table-A of the Appendix). The ultimate tensile strength may be reduced by the ultimate capacity per helix plate(s) – depending on the number of helix plates specified and type of shaft family used. The ultimate tensile strength may also be reduced by the torque limited ultimate capacity – depending on the type of shaft family used.

The minimum yield strength of the central steel shaft is as follows: Type SS5: 70 ksi; Type SS125, SS1375, SS150, SS175, SS200, SS225: 90 ksi.

1.8.2 Individual helical tieback anchors shall be designed so that the maximum test load will not exceed 90 percent of the minimum ultimate tension capacity of the central steel shaft material. The Contractor shall select the type of thread bar to be used. The thread bar shall be sized so the design load does not exceed 60 percent of the guaranteed ultimate tensile strength of the thread bar. In addition, the thread bar shall be sized so the maximum test load does not exceed 80 percent of the guaranteed ultimate tensile strength of the thread bar.

1.8.3 Helical tieback anchor capacity in soil shall be established by the Contractor and approved by the A/E.

The overall length and installed torque of a helical tieback anchor shall be specified such that the required in-soil capacity is developed by end-bearing on the helix plate(s) in an appropriate stratum (strata).

It is recommended that the theoretical end-bearing capacity of the helix plates be determined using HeliCAP® Engineering Software or equal commercially available software. The required soil parameters (c, ϕ, γ, or N-values) for use with HeliCAP® or equal shall be provided in the geotechnical reports. The Owner shall determine the allowable response to axial loads.

Helical anchors are not suited for solid, competent rock, but the helix plates can penetrate into dense bearing soils. Appropriate and repeatable installation techniques and helical anchor termination criteria must be identified and verified in the field.

1.8.4 Corrosion Protection

Corrosion protection is a function of structure type, service life, and the overall aggressiveness of the project soils. The need for corrosion protection of helical tieback anchors must be carefully determined and specified as necessary.

Corrosion resistant coatings (i.e. epoxy, plastic sheath) on the lead/starter section are impractical due to abrasive action wearing off the coating as the soil flows over the helix plates and around the central steel shaft. Hot dip galvanization is the only practical means to provide a corrosion resistant coating capable of withstanding the rigors of installation. Extension sections are typically hot-dip galvanized, but other coatings can be specified.

The following requirements are typical.

Structure Type: Permanent.

Service Life: *service life of 50 years should be used unless otherwise specified.*

Corrosion protection requirements for the various helical tieback anchor elements shall be provided meeting the requirements of Table-B in the Appendix for:

Soil: established by Contractor and approved by A/E.

TABLE-2

CORROSION PROTECTION	
SOIL	AGGRESSIVE
CENTRAL STEEL SHAFT (Lead Section)	1. Galvanization OR 2. Minimum 1/8" corrosion loss on outside
CENTRAL STEEL SHAFT (Extension Section)	1. Galvanization OR 2. Epoxy coating OR 3. Minimum 1/8" corrosion loss on outside
ANCHORAGE	1. Trumpet – corrosion inhibitor or grout filled AND 2. Cover, if exposed

NOTES:
Numbered items are options.
For guidance on aggressiveness classification, see Table-B of the Appendix.
1. Trumpet typically extends 3'-0 to 5'-0 beyond the anchorage.

The most critical area to protect from corrosion is in the vicinity of the anchorage and the portion of the thread bar immediately behind the wall. The vulnerability of this area is demonstrated by the fact that most ground anchor failures occur within a short distance of the anchorage device. Care is required in order to ensure that the thread bar and central steel shaft is protected in this area. Grout-filled trumpets require a short term seal until the grout sets and are typically filled with grout after the helical anchor has been stressed. Grease-filled trumpets require a long-term watertight seal that can be difficult to maintain.

1.9. Ground Conditions

Soil borings are not available. Contractor may install a helical anchor at various locations on the project site. Using the well-known installed torque vs. capacity attribute of helical anchors, a presumptive soil profile can be generated.

2 REFERENCED CODES AND STANDARDS

Standards listed by reference, including revisions by issuing authority, form a part of this specification section to the extent indicated. Standards listed are identified by issuing authority, authority abbreviation, designation number, title, or other designation established by issuing authority. Standards subsequently referenced herein are referred to by issuing authority abbreviation and standard designation. In case of conflict, the particular requirements of this specification shall prevail. The latest publication as of the issue of this specification shall govern, unless indicated otherwise.

2.1 American Society for Testing and Materials (ASTM):
2.1.1 ASTM A29/A29M Steel Bars, Carbon and Alloy, Hot-Wrought and Cold Finished.

2.1.2 ASTM A36/A36M Structural Steel.
2.1.3 ASTM A53 Pipe, Steel, Black and Hot-Dipped, Zinc-Coated Welded and Seamless.
2.1.4 ASTM A153 Zinc Coating (Hot Dip) on Iron and Steel Hardware.
2.1.5 ASTM A252 Welded and Seamless Steel Pipe Piles.
2.1.6 ASTM A775 Electrostatic Epoxy Coating
2.1.7 ASTM A193/A193M Alloy-Steel and Stainless Steel Bolting Materials for High Temperature Service.
2.1.8 ASTM A320/A320M Alloy-Steel Bolting Materials for Low Temperature Service.
2.1.9 ASTM A325 Standard Specification for Structural Bolts, Steel, Heat Treated, 120/105 ksi Minimum Tensile Strength.
2.1.10 ASTM A500 Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes.
2.1.11 ASTM A536 Standard Specifications for Ductile Iron Castings
2.1.12 ASTM A572 HSLA Columbium-Vanadium Steels of Structural Quality.
2.1.13 ASTM A615 Standard Specification for Deformed and Plain Steel Bars for Concrete Reinforcement
2.1.14 ASTM A656 Hot-Rolled Structural Steel, High-Strength Low-Alloy Plate with Improved Formability.
2.1.15 ASTM A958 Standard Specification for Steel Castings, Carbon, and Alloy, with Tensile Requirements, Chemical Requirements Similar to Wrought Grades.
2.1.16 ASTM A1018 Steel, Sheet and Strip, Heavy Thickness Coils, Hot Rolled, Carbon, Structural, High-Strength Low-Alloy, Columbium or Vanadium, and High-Strength Low-Alloy with Improved Formability.
2.1.17 ASTM D1784 Specification for Rigid Poly Vinyl Chloride (PVC) Compounds and Chlorinated Poly Vinyl Chloride (CPVC) Compounds.
2.1.18 ASTM D1785 Specification for Poly Vinyl Chloride) (PVC) Plastic Pipe, Schedules 40, 80, and 120.
2.1.19 ASTM D3034 Specification for Type PSM Poly Vinyl Chloride) (PVC) Sewer Pipe and Fittings.
2.1.20 ASTM D3689 Method of Testing Individual Piles Under Static Axial Tensile Load.

2.2 American Welding Society (AWS):
2.2.1 AWS D1.1 Structural Welding Code – Steel.
2.2.2 AWS D1.2 Structural Welding Code – Reinforcing Steel.

2.3 American Society of Civil Engineers (ASCE):
2.3.1 ASCE 20-96 Standard Guidelines for the Design and Installation of Pile Foundations.

2.4 Association of Drilled Shaft Contractors (ADSC) The International Association of Foundation Drilling:
2.4.1 GEC No. 4 - Ground Anchors and Anchored Systems
2.4.2 ADSC Mechanical Anchor Product Data

2.5 Post Tensioning Institute (PTI):
2.5.1 *Recommendations for Prestressed Rock and Soil Anchors*, Third Edition, Copyright 1996 By the Post-Tensioning Institute.

2.6 Society of Automotive Engineers (SAE):
2.6.1 SAE J429 Mechanical and Material Requirements for Externally Threaded Fasteners.

3 SUBMITTALS

3.1 Construction Submittals

3.1.1 The Contractor or Contractor's Engineer shall prepare and submit to the Owner, for review and approval, working drawings and design calculations for the helical tieback anchor intended for use at least 14 calendar days prior to planned start of construction (but note also Paragraph 3.1.8). All submittals shall be signed and sealed by a Registered Professional Engineer currently licensed in the Commonwealth of Massachusetts.

3.1.2 The Contractor shall submit a detailed description of the construction procedures proposed for use to the Owner for review. This shall include a list of major equipment to be used.

3.1.3 The Working Drawings shall include the following:

3.1.3.a Helical anchor number, location and pattern by assigned identification number
3.1.3.b Helical anchor design load
3.1.3.c Type and size of central steel shaft

Type SS125 1-1/4" RCS, Type SS1375 1-3/8" RCS, Type SS5/SS150 – 1-1/2" RCS, Type SS175 – 1-3/4" RCS, Type SS200 – 2" RCS, Type SS225 – 2-1/4" RCS.

3.1.3.d Helix configuration (number and diameter of helix plates)
3.1.3.e Minimum effective installation torque
3.1.3.f Minimum overall length
3.1.3.g Inclination of helical anchor
3.1.3.h Type and size of thread bar

If the number of helix plates per helical tieback anchor required for the project is not shown on the Working Drawings, the Contractor shall have the option of performing subsurface tests using methods subject to the review and acceptance of the Owner. The data collected along with other information pertinent to the project site shall be used to determine the required helix configuration.

3.1.4 The Contractor shall submit shop drawings for all helical tieback anchor components and anchorage details to the Owner for review and approval. This includes helical tieback anchor lead/starter and extension section identification (manufacturer's catalog numbers).

3.1.5 If required, the Contractor shall submit certified mill test reports for the central steel shaft, as the material is delivered, to the Owner for record purposes. The ultimate strength, yield strength, % elongation, and chemistry composition shall be provided.

3.1.6 The Contractor shall submit plans for production testing for the helical tieback anchors to the Owner for review and acceptance prior to beginning load tests. The purpose of the test is to determine the load versus displacement response of the helical tieback anchor and provide an estimation of ultimate capacity.

3.1.7 The Contractor shall submit to the Owner copies of calibration reports for each torque indicator or torque motor, and all load test equipment to be used on the project. The calibration tests shall have been performed within forty five (45) working days of the date submitted. Helical tieback anchor installation and testing shall not proceed until the Owner has received the calibration reports. These calibration reports shall include, but are not limited to, the following information:

3.1.7.a Name of project and Contractor
3.1.7.b Name of testing agency
3.1.7.c Identification (serial number) of device calibrated
3.1.7.d Description of calibrated testing equipment
3.1.7.e Date of calibration
3.1.7.f Calibration data

3.1.8 Work shall not begin until all the submittals have been received and approved by the Owner. The Contractor shall allow the Owner a reasonable time to review, comment, and return the submittal package after a complete set has been received. All costs associated with incomplete or unacceptable submittals shall be the responsibility of the Contractor.

3.2 Installation Records

The Contractor shall provide the Owner copies of helical tieback anchor installation records within 24 hours after each installation is completed. Records shall be prepared in accordance with the specified division of responsibilities as noted in Table-1. Formal copies shall be submitted on a weekly basis. These installation records shall include, but are not limited to, the following information.

3.2.1 Name of project and Contractor
3.2.2 Name of Contractor's supervisor during installation
3.2.3 Date and time of installation
3.2.4 Name and model of installation equipment
3.2.5 Type of torque indicator used
3.2.6 Location of helical anchor by assigned identification number
3.2.7 Elevation of anchorage
3.2.8 Actual helical tieback anchor type and configuration – including lead/starter section (number and size of helix plates), number and type of extension sections (manufacturer's SKU numbers)
3.2.9 Helical tieback anchor installation duration and observations
3.2.10 Total length of installed helical anchor
3.2.11 Inclination of helical anchor
3.2.12 Installation torque at one-foot intervals for the final 10 feet
3.2.13 Comments pertaining to interruptions, obstructions, or other relevant information
3.2.14 Rated load capacities

3.3 Test Reports

The Contractor shall provide the Owner copies of field test reports within 24 hours after completion of the load tests. Records shall be prepared in accordance with the specified division of responsibilities as noted in Table-1. Formal copies shall be submitted within a

reasonable amount of time following test completion. These test reports shall include, but are not limited to, the following information (note Section 6 – Helical Anchor Load Tests).

3.3.1 Name of project and Contractor
3.3.2 Name of Contractor's supervisor during installation
3.3.3 Name of third party test agency, if required
3.3.4 Date, time, and duration of test
3.3.5 Location of helical anchor by assigned identification number
3.3.6 Type of test (performance, proof)
3.3.7 Description of calibrated testing equipment and test set-up
3.3.8 Actual helical tieback anchor type and configuration – including lead/starter section, number and type of extension sections (manufacturer's SKU numbers)
3.3.9 Steps and duration of each load increment
3.3.10 Cumulative anchor-head movement at each load step
3.3.11 Comments pertaining to test procedure, equipment adjustments, or other relevant information
3.3.12 Signed by third party test agency rep., registered professional engineer, or as required by local jurisdiction

3.4 Closeout Submittals

3.4.1 Warranty: Warranty documents specified herein
3.4.1.a Project Warranty: Refer to Conditions of the Contract for project warranty provisions

Warranty Period: five years commencing on date of Substantial Completion

3.4.1.b Manufacturer's Warranty: Submit, for Owner's Acceptance, manufacturer's standard warranty document executed by authorized company official. Manufacturer's warranty is in addition to, and not a limitation of, other rights the Owner may have under Contract Document.

4 PRODUCTS AND MATERIALS

4.1 Central Steel Shaft:

The central steel shaft, consisting of lead sections, helical extensions, and plain extensions, shall be Type SS as manufactured by CHANCE Civil Construction (Centralia and Independence, MO) or approved equal.

4.1.1 *SS5 1-1/2" Material*: Shall be hot rolled Round-Cornered-Square (RCS) solid steel bars meeting dimensional and workmanship requirements of ASTM A29. The bar shall be modified medium carbon steel grade (similar to AISI 1044) with improved strength due to fine grain size.

4.1.1.a Torsional strength rating = 5,500 ft-lb
4.1.1.b Minimum yield strength = 70 ksi

4.1.2 *SS125 1-1/4";SS1375 1-3/8";SS150 1-1/2";SS175 1-3/4";SS200 2";SS225 2-1/4" Material*: Shall be hot rolled Round-Cornered-Square (RCS) solid steel bars meeting

the dimensional and workmanship requirements of ASTM A29. The bar shall be High Strength Low Alloy (HSLA), low to medium carbon steel grade with improved strength due to fine grain size.

4.1.2.a Torsional strength rating: SS125 = 4,000 ft-lb; SS1375 = 5,500 ft-lb; SS150 = 7,000 ft-lb; SS175 = 11,000 ft-lb; SS200 = 16,000 ft-lb; SS225 = 23,000 ft-lb

4.1.2.b Minimum yield strength = 90 ksi

4.2 Helix Bearing Plate:

Shall be hot rolled carbon steel sheet, strip, or plate formed on matching metal dies to true helical shape and uniform pitch. Bearing plate material shall conform to the following ASTM specifications.

4.2.1 *SS5 Material*: Per ASTM A572, or A1018, or A656 with minimum yield strength of 50 ksi. Plate thickness is 3/8".

4.2.2 *SS125 and SS1375 Material*: Per ASTM A572 with minimum yield strength of 50 ksi. Plate thickness is 3/8" or ½".

4.2.3 *SS150 and SS175 Material*: Per ASTM A656 or A1018 with minimum yield strength of 80 ksi. Plate thickness is 3/8".

4.2.4 *SS200 and SS225 Material*: Per ASTM A656 or A1018 with minimum yield strength of 80 ksi. Plate thickness is ½".

4.3 Bolts:

The size and type of bolts used to connect the central steel shaft sections together shall conform to the following ASTM specifications.

4.3.1 *SS125 1-1/4" Material*: 5/8" diameter bolt (2 per coupling) per SAE J429 Grade 8.

4.3.2 *SS1375 1-3/8" Material*: ¾" diameter bolt (2 per coupling) per SAE J429 Grade 8.

4.3.3 *SS5 and SS150 1-1/2" Material*: ¾" diameter bolt per ASTM A325 or A320 Grade L7.

4.3.4 *SS175 1-3/4" Material*: 7/8" diameter bolt per ASTM A193 Grade B7.

4.3.5 *SS200 2" Material*: 1-1/8" diameter bolt per ASTM A193 Grade B7.

4.3.6 *SS225 2-1/4" Material*: 1-1/4" diameter bolt per ASTM A193 Grade B7.

4.4 Couplings:

For type SS5, SS150, SS175, SS200, and SS225 material, the coupling shall be formed as an integral part of the plain and helical extension material as hot upset forged sockets. For Type SS125 and SS1375 material, the coupling shall be a cast steel sleeve with two holes for connecting shaft sections together.

4.5 Thread bar:

Helical tieback anchor thread bar shall be either a threaded stud adapter, or a combination of pre-stressing steel tendon and ductile iron or forged steel adapter, both of which are attached to the previously installed central steel shaft via an integrally forged socket or cast steel socket and coupling bolt. Tendon shall be a continuous thread steel bar of specified diameter and length depending on the application and load, per ASTM A615 (Dywidag bar or Williams All-Thread Rebar).

4.6 Anchorage:

Stressing anchorages shall be a steel bearing plate with a threaded anchor nut. Anchorage devices shall be capable of developing 95 percent of the guaranteed ultimate tensile strength of the thread bar.

4.6.1 Anchor nuts, bevel washers, and other threadable hardware shall be designed to comply with the load carrying requirements of the anchorage.
4.6.2 The bearing plate shall be fabricated from steel conforming to ASTM A36, A588, A709 or A572 specifications, or suitable equivalent.
4.6.3 The trumpet shall be fabricated from a steel pipe or tube conforming to the requirements of ASTM A-53 and A252 for pipe and ASTM A500 for tubing, or from a PVC pipe conforming to the requirements of ASTM D1785.
4.6.4 Anchorage covers shall be fabricated from steel or plastic with a minimum thickness of 0.10". If grease filled, the joint between the cover and the bearing plate shall be watertight.

4.7 Corrosion Protection

4.7.1 Epoxy Coating: If used, the thickness of coating applied electrostatically to the central steel shaft shall be 7-12 mils. Epoxy coating shall be in accordance with ASTM A775. Bend test requirements are not required. Coupling bolts and nuts are not required to be epoxy coated.

4.7.2 Galvanization: If used, all Hubbell Power Systems, Inc./A. B. Chance Type SS material shall be hot-dipped galvanized in accordance with ASTM A153 or A123 after fabrication.

5 EXECUTION

5.1 Site Conditions
5.1.1 Prior to commencing helical anchor installation, the Contractor shall inspect the work of all other trades and verify that all said work is completed to the point where helical tieback anchors may commence without restriction.

5.1.2 The Contractor shall verify that all helical tieback anchors may be installed in accordance with all pertinent codes and regulations regarding such items as underground obstructions, right-of-way limitations, utilities, etc.

5.1.3 In the event of a discrepancy, the Contractor shall notify the Owner. The Contractor shall not proceed with helical tieback anchor installation in areas of discrepancies until said discrepancies have been resolved. All costs associated with unresolved discrepancies shall be the responsibility of the Owner.

5.2 Installation Equipment

5.2.1 Shall be rotary type, hydraulic power driven torque motor with clockwise and counter-clockwise rotation capabilities. The torque motor shall be capable of continuous adjustment to revolutions per minute (RPM's) during installation.

Percussion drilling equipment shall not be permitted. The torque motor shall have torque capacity 15% greater than the torsional strength rating of the central steel shaft to be installed.

Helical tieback anchors should be installed with high torque, low RPM torque motors, which allow the helical screw plates to advance with minimal soil disturbance.

5.2.2 Equipment shall be capable of applying adequate down pressure (crowd) and torque simultaneously to suit project soil conditions and load requirements. The equipment shall be capable of continuous position adjustment to maintain proper helical anchor alignment.

5.3 Installation Tooling

5.3.1 Shall consist of a Kelly Bar Adapter (KBA) and Type SS drive tool as manufactured by CHANCE Civil Construction or approved equal and used in accordance with the manufacturers written installation instructions.

Installation tooling should be maintained in good working order and safe to operate at all times. Flange bolts and nuts should be regularly inspected for proper tightening torque. Bolts, connecting pins, and retainers should be periodically inspected for wear and/or damage and replaced with identical items provided by the manufacturer. Heed all warning labels. Worn or damaged tooling should be replaced.

5.3.2 A torque indicator shall be used during helical tieback anchor installation. The torque indicator can be an integral part of the installation equipment or externally mounted in-line with the installation tooling.

5.3.2.a Shall be capable of providing continuous measurement of applied torque throughout the installation.

5.3.2.b Shall be capable of torque measurements in increments of at least 500 ft-lb

5.3.2.c Shall be calibrated prior to pre-production testing or start of work. Torque indicators which are an integral part of the installation equipment shall be calibrated on-site. Torque indicators which are mounted in-line with the installation tooling shall be calibrated either on-site or at an appropriately equipped test facility. Indicators that measure torque as a function of hydraulic pressure shall be calibrated at normal operating temperatures.

5.3.2.d Shall be re-calibrated, if in the opinion of the Owner and/or Contractor reasonable doubt exists as to the accuracy of the torque measurements.

5.4 Installation Procedures

5.4.1 *Central Steel Shaft:*

5.4.1.a The helical tieback anchor installation technique shall be such that it is consistent with the geotechnical, logistical, environmental, and load carrying conditions of the project.

5.4.1.b The lead section shall be positioned at the location as shown on the working drawings. The lead section may be started perpendicular to the wall face to assist initial advancement into the soil. After initial penetration, the required

inclination angle shall be established. The helical tieback anchor sections shall be engaged and advanced into the soil in a smooth, continuous manner at a rate of rotation of 5 to 20 RPM's. Extension sections shall be provided to obtain the required minimum overall length and installation torque as shown on the working drawings. Connect sections together using coupling bolt and nut torqued to 40 ft-lb.

5.4.1.c Sufficient down pressure shall be applied to uniformly advance the helical tieback anchor sections approximately 3 inches per revolution. The rate of rotation and magnitude of down pressure shall be adjusted for different soil conditions and depths.

5.4.2 *Thread Bar:*

5.4.2.a After the termination criteria as detailed in Section 5.5 has been met, the central steel shaft is connected to the anchorage via the threaded stud adapter or via the combination of pre-stressing steel tendon and adapter.

5.5 Termination Criteria

5.5.1 The torque as measured during the installation shall not exceed the torsional strength rating of the central steel shaft.

5.5.2 The minimum installation torque and minimum free-length criteria as shown on the working drawings shall be satisfied prior to terminating the helical tieback anchor installation. In the event any helical anchor fails these production quality control criteria, the following pre-qualified remedies are authorized:

5.5.3 If the torsional strength rating of the central steel shaft and/or installation equipment has been reached prior to achieving the minimum free-length required, the Contractor shall have the following options:

5.5.3.a Terminate the installation at the depth obtained subject to the review and acceptance of the Owner, or:

5.5.3.b Remove the existing helical tieback anchor and install a new one with fewer and/or smaller diameter helix plates. The new helix configuration shall be subject to review and acceptance of the Owner. If re-installing in the same location, the top-most helix of the new helical tieback anchor shall be terminated at least (3) three feet beyond the terminating depth of the original anchor without exceeding any applicable maximum embedment length requirements, or:

5.5.3.c Replace the existing helical tieback anchor with one having a shaft with a higher torque strength rating. The new shaft size/type shall be subject to review and acceptance of the Owner. If re-installing in the same location, the top-most helix of the new helical tieback anchor shall be terminated at least (3) three feet beyond the terminating depth of the original anchor without exceeding any applicable maximum embedment length requirements.

It is generally not recommended to re-use helical tieback anchor shaft material after it has been permanently twisted during a previous installation.

5.5.4 If the minimum installation torque as shown on the working drawings is not achieved at the minimum overall length, the Contractor shall have the following options:

5.5.4.a Install the helical tieback anchor deeper using additional extension sections until the minimum installation torque criterion is met, provided that, if a maximum length constraint is applicable, continued installation does not exceed said maximum length constraint, or:

5.5.4.b Remove the existing helical tieback anchor and install a new one with additional and/or larger diameter helix plates. The new helix configuration shall be subject to review and acceptance of the Owner. If re-installing in the same location, the top-most helix of the new helical tieback anchor shall be terminated at least (3) three feet beyond the terminating depth of the original anchor provided that, if a maximum length constraint is applicable, continued installation does not exceed said maximum length constraint, or:

5.5.4.c De-rate the load capacity of the helical tieback anchor and install additional helical anchors as necessary. The de-rated capacity and additional anchor location shall be subject to the review and acceptance of the Owner.

5.5.5 If the minimum installation torque as shown on the working drawings is not achieved before reaching a specified maximum embedment length, the Contractor shall have the following options:

5.5.5.a If allowed by the Owner's representative, remove the existing helical tieback anchor and reinstall at a position at least three times the diameter of the largest helix away from the initial location. Original embedment length and installation torque criteria must be met. Repositioning may require the installation of additional helical tieback anchors with design loads adjusted for spacing changes, or:

5.5.5.b Demonstrate acceptable helical tieback anchor performance through proof testing, or:

5.5.5.c De-rate the load capacity of the helical tieback anchor and install additional helical anchors as necessary. The de-rated capacity and additional anchor location shall be subject to the review and acceptance of the Owner.

5.5.6 If the helical tieback anchor is refused or deflected by a subsurface obstruction, the installation shall be terminated and the anchor removed. The obstruction shall be removed, if feasible, and the helical tieback anchor re-installed. If obstruction can't be removed, the helical tieback anchor shall be installed at an adjacent location, subject to review and acceptance of the Owner.

5.5.7 If the torsional strength rating of the central steel shaft and/or installation equipment has been reached prior to proper positioning of the last plain extension section relative to the anchorage, the Contractor may remove the last plain extension and replace it with a shorter length extension. If it is not feasible to remove the last plain extension, the Contractor may cut said extension to the correct length and field drill a hole in cut-off shaft. The Contractor shall not reverse (back-out) the helical anchor to facilitate extension removal.

5.5.8 The average torque for the last three feet of penetration shall be used as the basis of comparison with the minimum installation torque as shown on the working drawings. The average torque shall be defined as the average of the last three readings recorded at one-foot intervals.

The average torque can be empirically related to the helical tieback anchor's ultimate capacity in end-bearing. This well-known attribute of helical anchors can be used as a production control method to indicate the tieback's end-bearing capacity.

6 HELICAL TIEBACK ANCHOR LOAD TESTS

The Contractor shall submit for review and acceptance the proposed helical tieback anchor load testing procedure. Production and pre-production test procedures shall be in conformance with the helical anchor test procedures as detailed below, and shall provide the minimum following information:

- Type and accuracy of load equipment
- Type and accuracy of load measuring equipment
- Type and accuracy of anchor-head deflection equipment
- Calibration report for complete load equipment, including hydraulic jack, pump, pressure gauge, hoses, and fittings.

6.1 Pre-Production Tests (not required)

6.2 Load Test Equipment

6.2.1 The hydraulic jack shall be positioned at the beginning of the test such that the unloading and repositioning of the jack during the test shall not be required. The jacking system shall be capable of applying a tension load not less than eighty percent (80%) of the guaranteed ultimate tension capacity of the thread bar. The pressure gauge shall be graduated in 100 psi increments or less. The stroke of the jack shall not be less than the theoretical elastic elongation of the total helical anchor length at the maximum test load.

6.2.2 The load test equipment shall be capable of increasing or decreasing the applied load incrementally. The incremental control shall allow for small adjustments, which may be necessary to maintain the applied load for a sustained, hold period.

6.2.3 The reaction system (or retaining structure itself) shall be designed so as to minimize its movement under load and to prevent bending of the thread bar. If the reaction system is the retaining structure, then said structure and connections shall be checked to determine if they have sufficient strength and capacity to distribute the test loads to the ground. Test loads are normally higher than the design loads on the structure. The direction of the applied load shall be collinear with the helical anchor at all times.

6.2.4 A dial gauge shall be used to measure anchor movement. The dial gauge shall have an accuracy of at least +/-0.001-in. and a minimum travel sufficient to measure all anchor movements without requiring resetting the gauge. The dial gauge shall be

positioned so its stem is coaxial with the axis of the anchor. The stem may rest on a smooth plate located at the end of the anchor. Said plate shall be positioned perpendicular to the axis of the anchor. The dial gauge shall be supported by a reference apparatus to provide an independent fixed reference point. Said reference apparatus shall be independent of the reaction system and shall not be affected by any movement of the reaction system.

6.2.5 The load test equipment shall be re-calibrated, if in the opinion of the Owner and/or Contractor reasonable doubt exists as to the accuracy of the load or deflection measurements.

6.3 Testing Program

6.3.1 The anchor testing program shall consist of two parts, namely, performance tests and proof tests. The testing procedures are as described in Sections 6.3.4 and 6.3.5 respectively.

6.3.2 The Owner shall select the helical tieback anchors to be performance tested within each wall area or tier. One anchor per wall area or tier shall be tested in accordance with the performance test procedures. These anchors should be located in the area of soil borings if possible. These anchors are to be installed, tested, and approved by the Owner prior to the installation of production anchors within that area or tier. All anchors, which are performance tested, shall be used as production anchors and incorporated into the retention structure. Upon completion and approval of the performance tests, the installation of production anchors may proceed.

6.3.3 Proof tests shall be performed on all production helical tieback anchors which are not performance tested. Proof tests results are subject to the approval of the Owner.

6.3.4 Performance Test Procedures

6.3.4.a Two (2) percent of the helical tieback anchors or a minimum of two (2) anchors, whichever is greater, shall be performance tested in accordance with the following procedures.

6.3.4.b The helical anchors which are performance tested may be completely unloaded prior to adjusting to the lock-off load, if so warranted by the construction sequence. Final loading to the lock-off load does not require further movement readings.

6.3.4.c Helical tieback anchors shall be performance tested by incrementally loading and unloading the anchor in accordance with the following schedule. The load shall be raised from one increment to another immediately after recording the anchor movement. The anchor movement shall be measured and recorded to the nearest 0.001 inches with respect to an independent fixed reference point at the alignment load and at each increment load. The load shall be monitored with a pressure gauge. At load increments other than the maximum test load, the load shall be held just long enough to obtain and record the movement reading.

PERFORMANCE TEST SCHEDULE
CYCLICAL LOAD INCREMENTS (%DL/100)

AL 0.25DL*	AL 0.25DL 0.50DL*	AL 0.25DL 0.50DL 0.75DL*	AL 0.25DL 0.50DL 0.75DL 1.00DL*	AL 0.25DL 0.50DL 0.75DL 1.00DL 1.25DL* Reduce to lock-off load#

* - See Section 6.3.4.e

\# - Except as noted in Section 6.3.4.b

AL = Alignment Load (10%-15% DL); DL = Design (Working) Load

A test load higher than 1.25 DL may be specified by the Owner under special conditions. Such special conditions may arise if fixed reference points cannot be practically established, against which to directly measure anchor head movement, for example.

6.3.4.d The 1.25DL load increment shall be held for ten (10) minutes. The ten minute observation period shall commence as soon as the 1.25DL load is applied to the anchor. Movements shall be recorded at 0.5, 1, 2, 3, 4, 5, 6, and 10 minutes. If the anchor movement between the one (1) minute and ten (10) minute readings exceeds 0.05 inches, then the 1.25 DL test load shall be maintained for an additional 20 minutes. Movements shall be recorded at 15, 20, 25, and 30 minutes. If the acceptance criteria given in Section 6.4.1 are not satisfied, then the anchor test shall be continued for an additional 30 minutes. Movements shall be recorded at 45 and 60 minutes. If the acceptance criteria are not satisfied after this extended observation period, then the contractor shall exercise one of the options as referenced in Section 6.4.2.

6.3.4.e The Contractor shall plot the helical anchor movement versus load for each load increment marked with an asterisk (*) in the performance test schedule and plot the residual movement at each alignment load versus the highest previously applied load.

6.3.4.f Throughout the 1.25DL observation period, the load shall be held constant by adjusting the hydraulic pressure. Care must be taken so as not to exceed the 1.25DL test load.

6.3.5 Proof Test Procedures

6.3.5.a All anchors which are not performance tested shall be proof tested.

6.3.5.b Anchors which are proof tested may be completely unloaded prior to adjusting to the lock-off load, if so warranted by the construction sequence. Final loading to the lock-off load does not require further movement readings.

6.3.5.c The proof test shall be performed by incrementally loading the helical anchor in accordance with the following schedule. The load shall be raised from one increment to another after an observation period. The anchor movement shall be measured and recorded to the nearest 0.001 inches with respect to an independent fixed reference point at the alignment load and at each increment load. The load shall be monitored with a pressure gauge. At load increments other than the maximum test load, the load shall be held for a period not to exceed two (2) minutes. The two minute observation period shall begin when the pump begins to load the anchor to the next

load increment. Movement readings shall be taken at the end of the two minute observation period.

PROOF TEST SCHEDULE	
LOAD TEST SCHEDULE (%DL/100)	OBSERVATION PERIOD (MIN.)
AL	0.0
0.25DL	2.0
0.50DL	2.0
0.75DL	2.0
1.00DL	2.0
1.25DL*	5.0
Reduce to lock-off load#	

* - see Section 6.3.5.e
# - except as noted in Section 6.3.5.b
AL = Alignment Load (10%-15% DL)
DL = Design (Working) Load

6.3.5.d The 1.25DL test load shall be maintained for five (5) minutes. This five minute observation period shall commence as soon as the 1.25DL is applied to the anchor. Movement readings shall be recorded at 0.5, 1, 2, 3, 4, and 5 minutes. If the movement between the 0.5 and 5 minute reading exceeds 0.05 inches, then the 1.25DL test load shall be maintained for an additional five (5) minutes. Movement readings shall be recorded at 6 and 10 minutes. If the acceptance criteria given in Section 6.4.1 is not satisfied, then the anchor test shall be continued for an additional twenty (20) minutes. Movement readings shall be recorded at 15, 20, 25, and 30 minutes. If the acceptance criteria are not satisfied after this extended observation period, then the contractor shall exercise one of the options as referenced in Section 6.4.2.

6.3.5.e The Contractor shall plot the helical anchor movement vs. load for each load increment in the proof test.

6.3.5.f Throughout the 1.25DL observation period, the load shall be held constant by adjusting the hydraulic pressure. Care must be taken so as not to exceed the 1.25DL test load.

6.4 Acceptance Criteria

6.4.1 The net movement for the performance and proof tests shall not exceed 0.10 inches during the final log cycle of time (examples, 3-min. to 30-min. for performance tests; 1-min. to 10-min. for proof tests).

6.4.2 If the above criteria are exceeded, then the test shall be continued for an extended period of time as defined in Section 6.3.4.d for the performance test and in Section 6.3.5.d for the proof test. If the final log cycle of time movement at the end of the extended observation period exceeds 0.10 then the contractor shall have the following options:

6.4.2.a Extend the observation period for an additional 60 minutes for the performance test with movement readings taken at 80, 90, 100, and 120

minutes. Extend the observation period for an additional 30 minutes if the proof test is involved with movement readings taken at 45 and 60 minutes. The net movement shall not exceed 0.10 inches during the final log cycle of time.

6.4.2.b Install the helical anchor deeper so as to increase its average installation torque, provided that the maximum torque capacity of the anchor and the maximum length constraint, is not exceeded. This anchor shall be proof tested.

6.4.2.c Remove the helical anchor and reinstall an anchor with larger diameter and/or additional helices. If this anchor is reinstalled at the same location, then the last helix of this reinstalled anchor shall penetrate at least five (5'-0) feet beyond the length of the original anchor, provided the maximum length constraint is not exceeded. This anchor shall be proof tested.

6.4.2.d Reduce the design load of the helical anchor. This anchor shall be performance tested at the reduced design load. This option will require one or two additional anchors be installed adjacent to this reduced design load anchor. The number of additional anchors to be installed is a function of the reduced design load. Adjacent anchor(s) shall be installed at least three diameters, based on the largest helix, away from the reduced design load anchor. Design loads on adjacent anchor(s) shall be adjusted accordingly based on the revised horizontal spacing.

END OF SPECIFICATION 310503

APPENDIX

TABLE-A

CHANCE Civil Construction

MECHANICAL STRENGTH RATINGS – Type SS HELICAL ANCHORS

RATING TYPE	CENTRAL STEEL SHAFT PRODUCT FAMILY						
	SS125 1-1/4" RCS	SS1375 1-3/8" RCS	SS5 1-1/2" RCS	SS150 1-1/2" RCS	SS175 1-3/4" RCS	SS200 2" RCS	SS225 2-1/4" RCS
Torque Strength Rating (ft-lb)	4,000	5,500	5,500	7,000	11,000	16,000	23,000
Ultimate Strength Per Helix (kip) (Tension/Compression)	*30	*35	*40	*40	*50	60	60
Tension Capacity Limit[1] (kip)	40	55	55	70	#110	#160	#230
Ultimate Tension Strength[2] (kip)	60	75	70	70	100	150	200

* For 14" Dia. 3/8" Thick Helix Plates, Reduce the Ultimate Capacity by 20%

1 - Based on torque rating – Tension Capacity Limit = Torque Rating x Kt; "Default" Kt for Type SS = 10

2 – Based on mechanical strength of coupling

- Limited by mechanical strength of coupling bolt

Actual installed capacities are dependent on site specific soil conditions.

APPENDIX

TABLE-B

GUIDANCE OF GROUND AGGRESSIVENESS CLASSIFICATION

Soil tests may be performed to measure the aggressiveness of the soil environment, especially if field observations indicate corrosion of existing structures. The most common and simplest tests are for electrical resistivity, pH, chloride, and sulfates. The designation for these tests and the critical values defining whether an aggressive soil environment exists, are as shown below. Per FHWA-RD-89-198, the ground is considered aggressive if any one of these indicators shows critical values.

Property	Test Designation	Critical Values
Resistivity	ASTM G 57 AASHTO T-288	below 2,000 ohm-cm
pH	ASTM G 51 AASHTO T-289	below 5
Sulfate	ASTM D 516M ASTM D 4327	above 200 ppm
Chloride	ASTM D 512 ASTM D 4327 AASHTO T-291	above 100 ppm
Organic Content	AASHTO T-267	1% max

END OF SECTION

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CITY OF SOMERVILLE

JOSEPH A. CURTATONE, MAYOR

SOMERVILLE CAPITAL PROJECTS AND PLANNING

ROBERT T. KING, PE LEED AP, DIRECTOR EDWARD NUZZO, PROJECT MANAGER

PROSPECT HILL TOWER STABILIZATION

PROSPECT HILL PARK, 68 MUNROE STREET, SOMERVILLE, MASSACHUSETTS 02143

TBA PROJECT #: 1210.1

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JUNE 17, 2015

ARCHITECTURAL ABBREVIATIONS

ADD	ADDITION, ADDENDUM	EQ	EQUAL	O.S.C.I.	OWNER SUPPLIED CONTRACTOR INSTALLED
ALT	ALTERNATE	EX/EXIST	EXISTING		
ALUM	ALUMINUM	FIN	FINISH	P	PAINT
APPROX	APPROXIMATE	FL	FLOOR	PTD	PAINTED
&	AND	FLASH	FLASHING	PLYWD	PLYWOOD
@	AT	GA	GAUGE	QR	QUARTER ROUND
BLDG	BUILDING	GALV	GALVANIZED	QUAN	QUANTITY
BLKG	BLOCKING	GC	GENERAL CONTRACTOR	REF	REFERENCE
BRK	BRICK	GL	GLASS, GLAZING	REINF	REINFORCED
CB	CATCH BASIN	GWB	GYPSUM WALL BOARD	REQD	REQUIRED
CL	CENTER LINE	H	HIGH, HEIGHT	REV	REVISED
CLKG	CAULKING	HORIZ	HORIZONTAL	RO	ROUGH OPENING
CLR	CLEAR	IN	INCHES	S	SOUTH
CO	CENTRAL OFFICE	INSUL	INSULATION	SECT	SECTION
CONC	CONCRETE	LF	LINEAR FOOT	SF	SQUARE FOOT
CONST	CONSTRUCTION	MAX	MAXIMUM	SHT	SHEET
CONT	CONTINUOUS	MECH	MECHANICAL	SIM	SIMILAR
CONTR	CONTRACTOR	MIN	MINIMAL	SPEC	SPECIFICATION
D	DEEP, DEPTH	MISC	MISCELLANEOUS	SQ	SQUARE
DBL	DOUBLE	MO	MASONRY OPENING	SQIN	SQUARE INCH
DEMO	DEMOLITION	MO	MAIN OFFICE	SS	STAINLESS STEEL
DET	DETAIL	MTL	METAL	STD	STANDARD
DIA	DIAMETER	MUL	MULLION	STL	STEEL
DIM	DIMENSION	N	NORTH	THK	THICK
DIV	DIVISION	NO	NUMBER	TYP	TYPICAL
DS	DOWN SPOUT	NOM	NOMINAL	VERT	VERTICAL
DWG	DRAWING	NTS	NOT TO SCALE	W	WIDE, WEST
E	EAST	OC	ON CENTER	W/	WITH
EA	EACH	OPER	OPERABLE	WD	WOOD
EL	ELEVATION	OPNG	OPENING	WT	WEIGHT

MATERIAL INDICATIONS

- PLYWOOD
- STEEL
- BRICK
- CONCRETE BLOCK
- RIGID INSULATION
- FIBERGLASS INSULATION
- CONCRETE
- FINISHED WOOD
- CONTINUOUS WOOD
- WOOD BLOCKING

GRAPHIC SYMBOLS

- BREAK LINE
- ELEVATION MARKER
- SECTION MARKER (C-C/A3.0)
- DETAIL MARKER (X / A-X)
- REVISION NUMBER (X)
- INTERIOR ELEVATION (X / A-X / X)
- NOTE (X)
- DOOR NUMBER (X)
- LIGHT FIXTURE
- ROOM NAME/ NUMBER (NAME # / # occ) OCCUPANCY @ 1:20 SF
- SPRINKLER
  NEW - NEW HEAD
  REL - RELOCATE

GENERAL INFO

BUILDING CODE SUMMARY

All work shall comply completely with the Massachusetts State Building, 780 CMR, Eighth Edition, as ammended & 521 CMR MAAB.

IEBC Section 312 - Utility and Miscellaneous Group U
IEBC Section 602.3 - Type III
IEBC Section 403 - Level 1 Alteration

EXISTING CONDITIONS

These drawings have been compiled from the best available information and are not intended to limit the scope of work. All investigation was done by visual or best available documents provided by the City of Somerville. Any conditions to the contrary or not explicitly stated herein shall be considered latent and architect must be notified prior to any work not as outlined in these documents. It will be assumed that the contractor has inspected the site prior to construction and verified the information herein supplied.

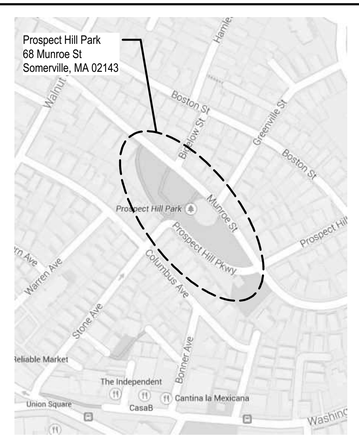
All directions stated throughout documents are by **Project North**.

GENERAL NOTES

The General Contractor shall be responsible for all construction means, methods, co-ordination of other trades and techniques to produce a sound quality building. All dimensions, elevations and conditions must be verified by the General Contractor or responsible trade.

* Apply for, obtain and pay for all required permits. Submit copies of permits to City of Somerville within 3 days of receipt and prior to commencing work.
* Request schedule and attend all inspections required by the authorities having jurisdiction.

LOCUS MAP

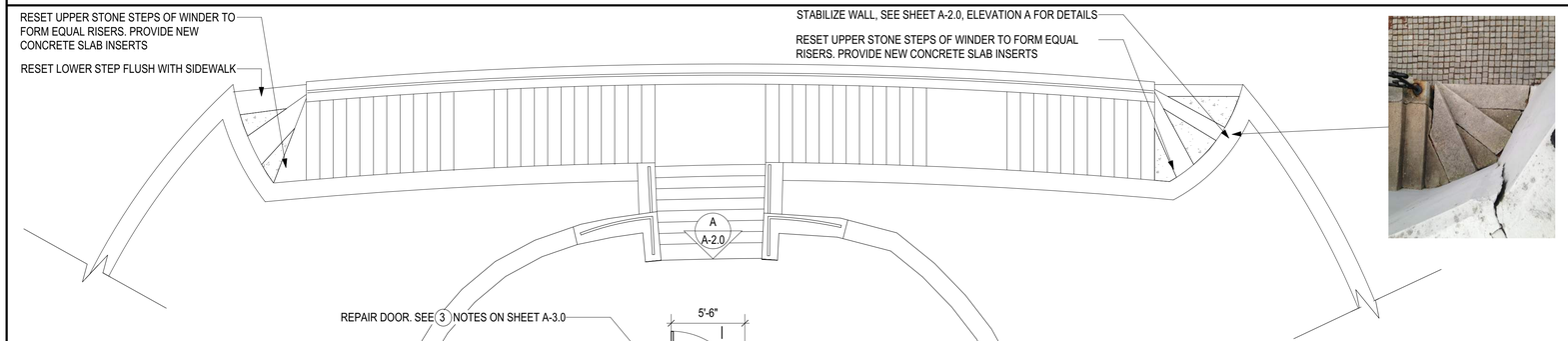


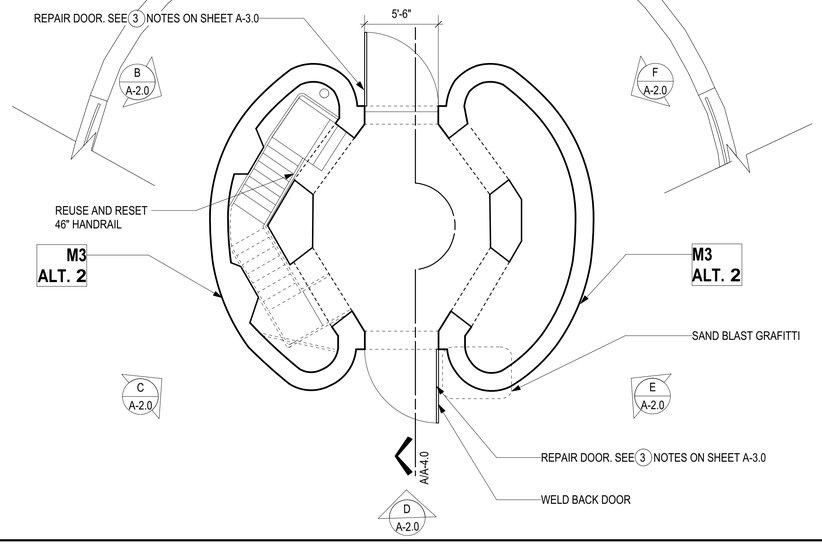
DRAWING LIST

	COVER SHEET
ARCHITECTURAL DRAWINGS	
A-1.0	PLANS
A-2.0	TOWER ELEVATIONS
A-3.0	STREET STAIR & RAIL ELEVATIONS & DETAILS
A-4.0	TOWER SECTION & DETAILS
STRUCTURAL DRAWINGS	
S-1.0	LEVEL 4 PLANS AND SECTIONS
S-2.0	STRUCTURAL PLANS & SECTIONS

SET #

SCOPE OF WORK NOTES KEY: SEE SHEET A-2





CALLED NORTH

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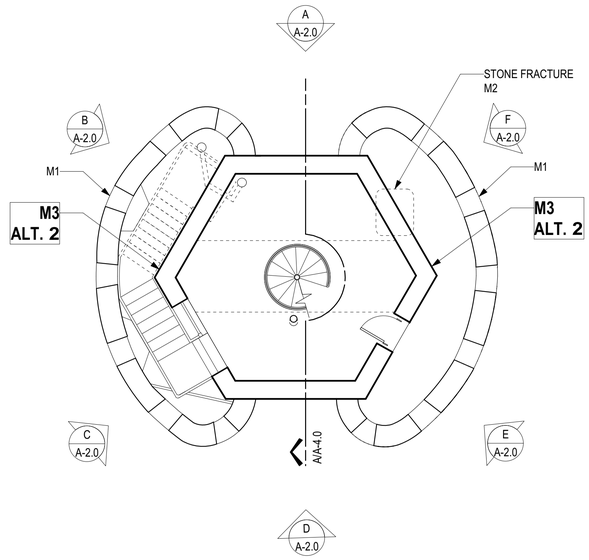

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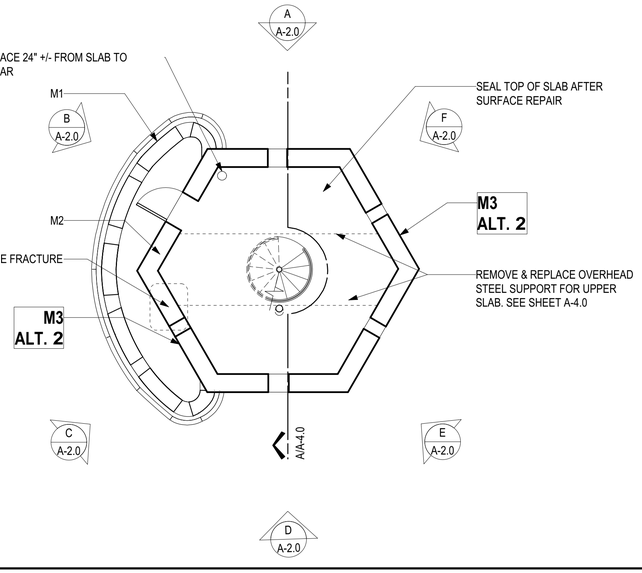

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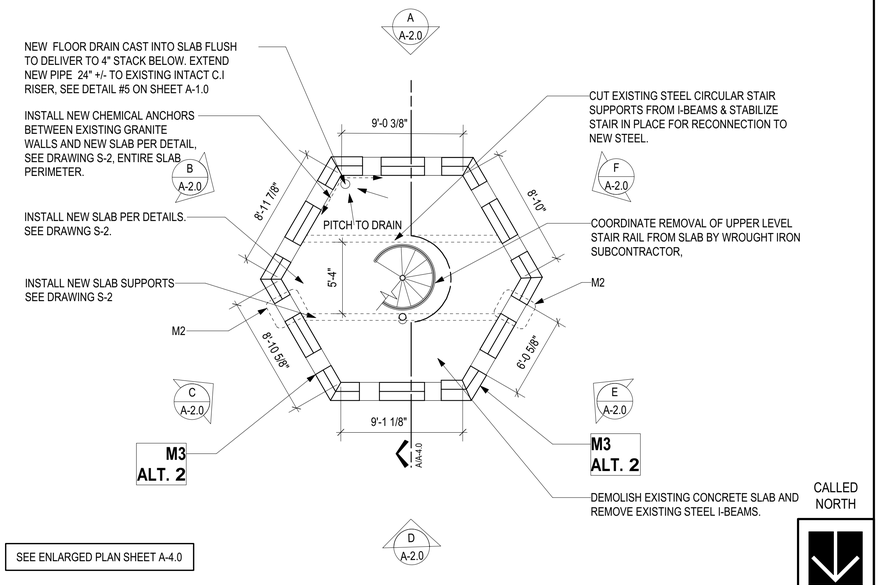
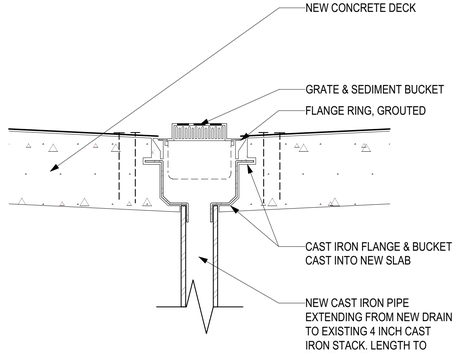
3 LEVEL THREE SCALE 3/16"=1'-0" 0 2 4 8



SEE ENLARGED PLAN SHEET A-4.0

CALLED NORTH

4 LEVEL FOUR SCALE 3/16"=1'-0" 0 2 4 8



5 DRAIN STACK DETAIL SCALE 1 1/2"=1'-0"

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DATE OF ISSUE
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SCALE
AS NOTED ON ORIGINAL

PLANS & DRAIN STACK DETAIL

TBA PROJECT # 1210.1

A-1.0

Date: 6/16/15
File name: 1210.1 Prospect Hill Tower Stabilization 100% CDS A-0, A-1, A-4 6-12-15.wwx

SCOPE OF WORK NOTES KEY:

M1: RESET AND REBED STONES. ALL STONES TO BE REINSTALLED IN ORIGINAL LOCATION. WROUGHT IRON GRILLES TO BE REMOVED AND RESET WITH MORTAR IN STONE, IN ORIGINAL LOCATIONS.

M2: EPOXY INJECTION TO CRACK.

M3: REPOINT ALL EXTERIOR STONE SURFACES, ALL FACES OF TOWER WHERE STONES ARE NOT RESET. MORTAR TO MATCH EXISTING IN JOINT DIMENSION AND SURFACE FINISH (ALT. 2)

M4: REMOVE ALL GRAFFITI FROM EXISTING GRANITE STONE WALLS BETWEEN LEVEL 1 & LEVEL 2, SEE SPEC SECTION 040140.

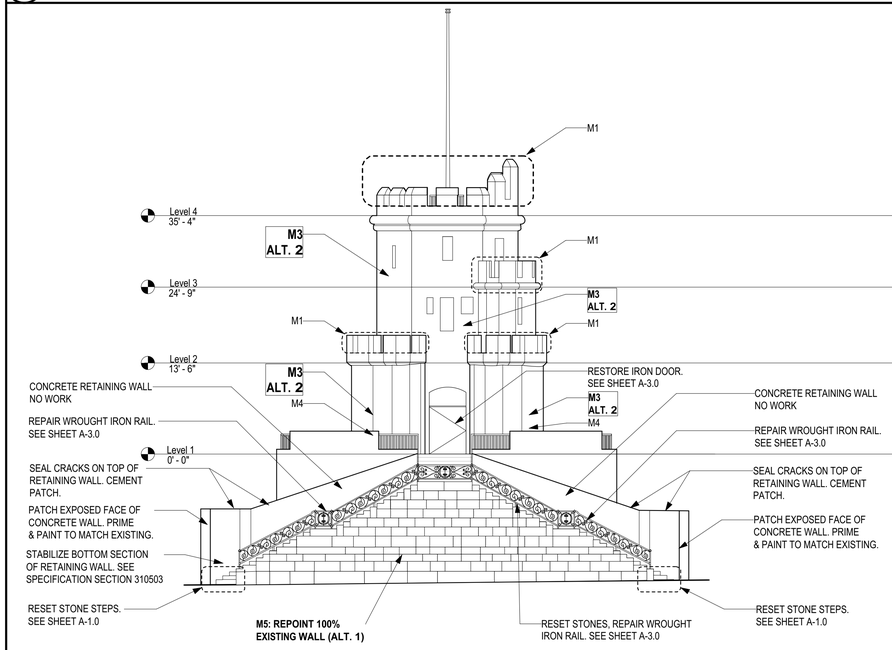
M5: REPOINT 100% EXISTING WALL (ALT. 1)

WI1: CUT EXISTING STEEL PIPE RAIL AT OR ABOVE EXISTING FLANGES. RAIL TO BE CUT AND REMOVED BY WROUGHT IRON RESTORATION SUBCONTRACTOR. CLEAN, GRIND TO CLEAN METAL, WELD, PRIME & PAINT TWO COATS. POST EXTENDERS OF SAME DIA TO BE INSET INTO GRANITE AFTER REBEDDING.

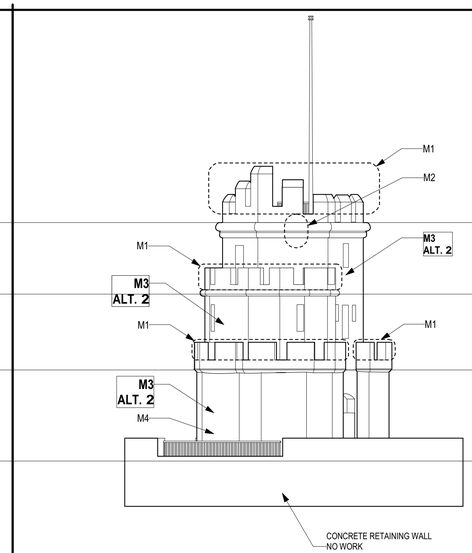
M: MASONRY PRIME.

WI: WROUGHT IRON RESTORATION SUBCONTRACTOR

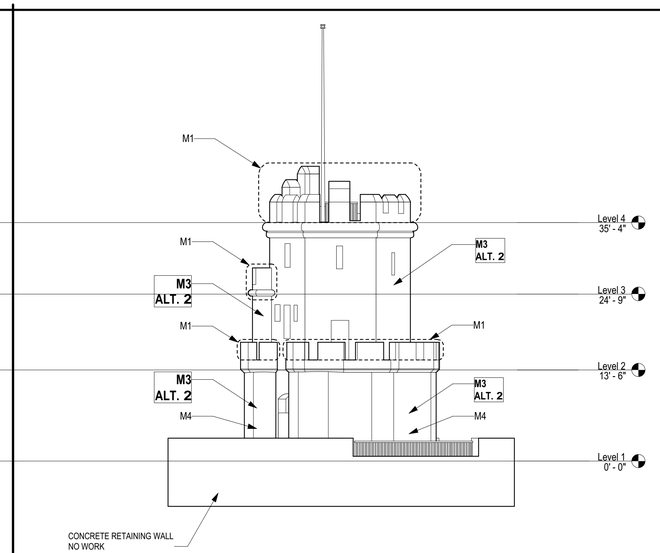
SCOPE OF WORK NOTES KEY



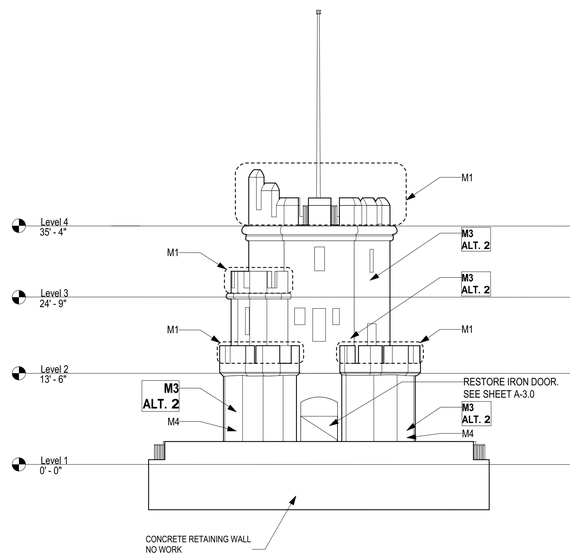
A SOUTH ELEVATION



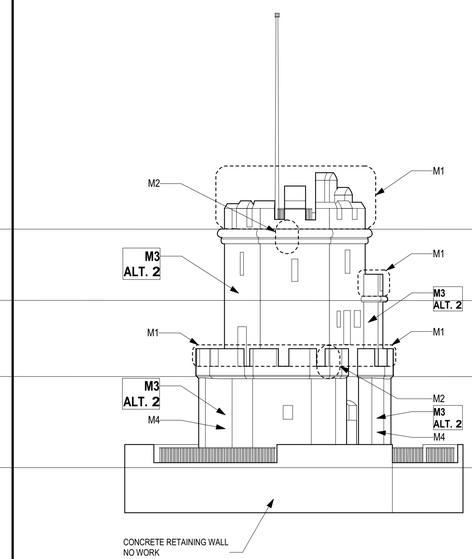
B SOUTH EAST ELEVATION



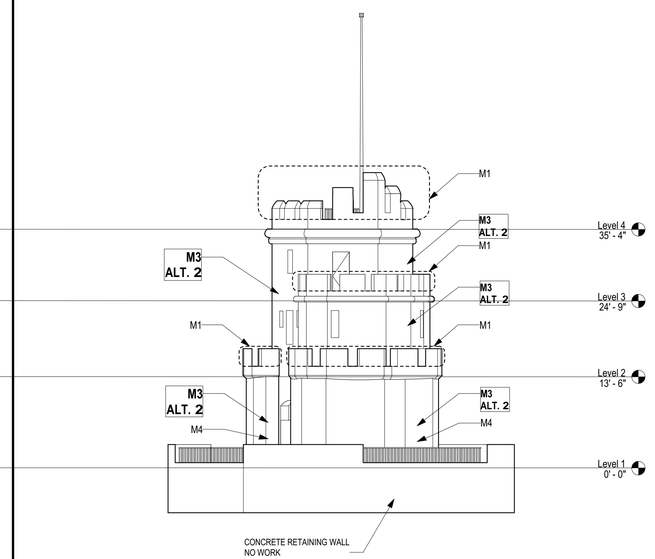
C NORTH EAST ELEVATION



D NORTH ELEVATION



E NORTH WEST ELEVATION



F SOUTH WEST ELEVATION

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DATE OF ISSUE
JUNE 17, 2015

SCALE
3/32" = 1'-0" ON ORIGINAL
0 1 2 4 8

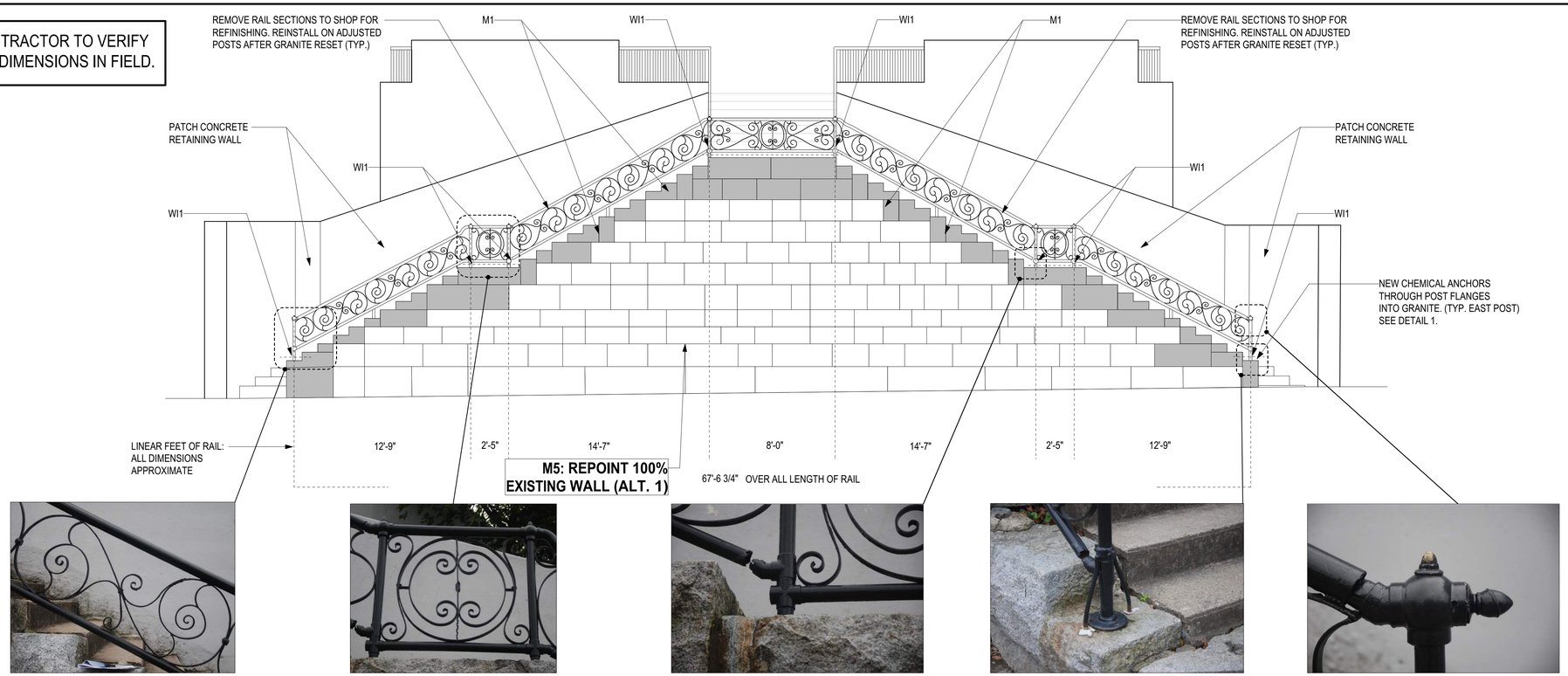
TOWER
ELEVATIONS

TBA PROJECT # 1210.1

A-2.0

Date: 6/16/15
File name: 1210.1 Prospect Hill Tower Stabilization 100% CDS Elevations A-2 & A-3 6-12-15.vwx

CONTRACTOR TO VERIFY ALL DIMENSIONS IN FIELD.



SCOPE OF WORK NOTES KEY:

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M2: EPOXY INJECTION TO CRACK.

M3: REPOINT ALL EXTERIOR STONE SURFACES, ALL FACES OF TOWER WHERE STONES ARE NOT RESET. MORTAR TO MATCH EXISTING IN JOINT DIMENSION AND SURFACE FINISH (ALT. 2)

M4: REMOVE ALL GRAFFITI FROM EXISTING GRANITE STONE WALLS BETWEEN LEVEL 1 & LEVEL 2, SEE SPEC SECTION 040140.

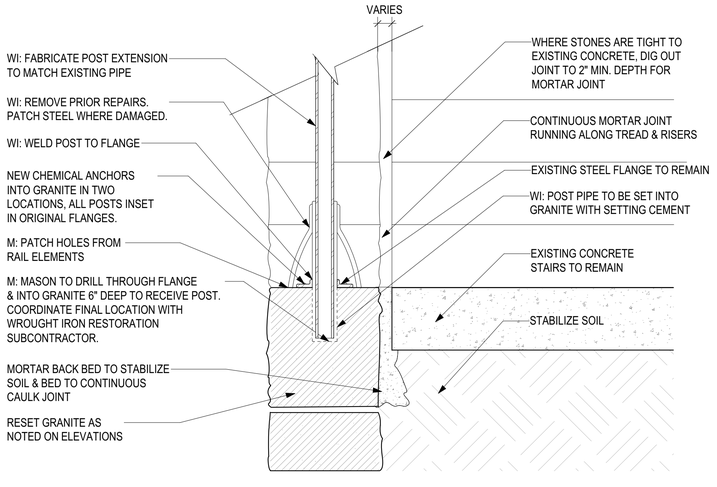
M5: REPOINT 100% EXISTING WALL (ALT. 1)

WI1: CUT EXISTING STEEL PIPE RAIL AT OR ABOVE EXISTING FLANGES. RAIL TO BE CUT AND REMOVED BY WROUGHT IRON RESTORATION SUBCONTRACTOR. CLEAN, GRIND TO CLEAN METAL, WELD, PRIME & PAINT TWO COATS. POST EXTENDERS OF SAME DIA TO BE INSET INTO GRANITE AFTER REBEDDING.

M: MASONRY PRIME.

WI: WROUGHT IRON RESTORATION SUBCONTRACTOR

A FRONT STAIRWAY ELEVATION SCALE 1/4"=1'-0"



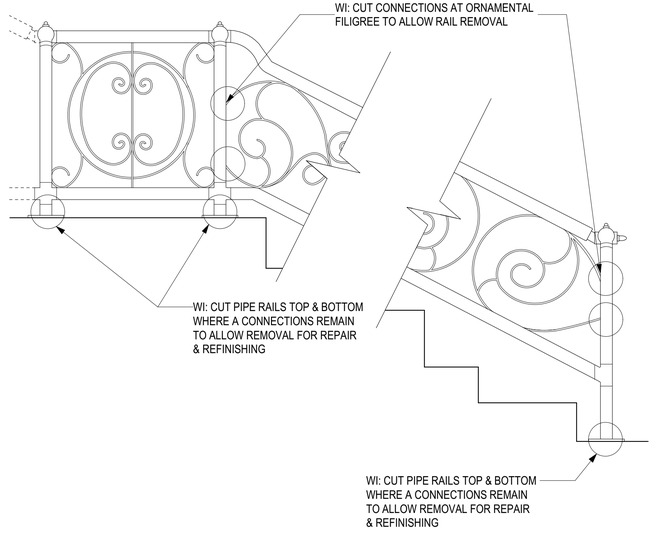
NOTE:

M: POSITION RAILING POSTS PLUMB AND ALIGN WITH ALL OTHER RAILING POSTS (TYP.)

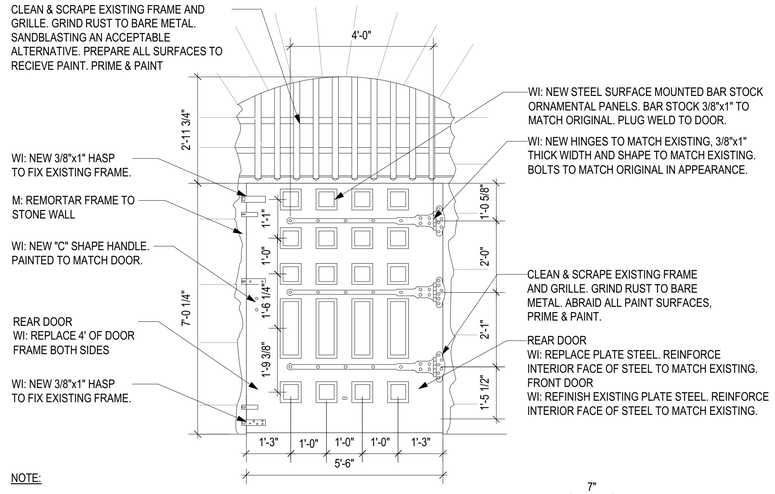
M: FILL A CONTINUOUS MORTAR JOINT BETWEEN ALL GRANITE & CONCRETE STAIRS. VERTICAL & HORIZONTAL JOINTS TO BE CONTINUOUS.

M: WHERE STONES ARE TIGHT TO EXISTING CONCRETE, DIG OUT JOINT TO 2" MIN. DEPTH FOR CONTINUOUS MORTAR JOINT.

1 MASONRY DETAIL SCALE 1 1/2"=1'-0"



2 FRONT STAIRWAY RAILING SCALE 1"=1'-0"

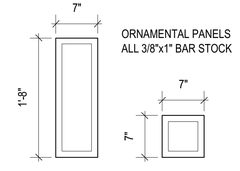


NOTE:

WI: REMOVE ALL REMAINING ORNAMENTAL PLATES, HINGES, AND OBSOLETE HARDWARE DEVICES BOTH FRONT AND BACK DOORS. INSTALL NEW HANDLE AND HASPS FOR LOCKS, TOP AND BOTTOM. REPAIR AND RE HANG EXISTING 3/8" STEEL PLATE DOOR. PRIME & PAINT.

WI FRONT DOOR: REPAIR FRAME TO ELIMINATE ALL CORROSION & SPALLING. REMORTAR INTO PLACE.

WI REAR DOOR: CUT AWAY AND REPLACE LOWER 4 FEET OF DOOR FRAME, BOTH SIDES. SCRIBE NEW FRAME TO STONE, FRAME TO MATCH EXISTING STEEL. REPLACE PLATE STEEL OF DOOR TO MATCH EXISTING IN SIZE, THICKNESS, AND SURFACE.



3 FRONT ENTRY WAY SCALE 1/2"=1'-0"

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PROSPECT HILL TOWER STABILIZATION

MONROE STREET
SOMERVILLE, MA

CLEINT: CITY OF SOMERVILLE
JOSEPH CURTATONE, MAYOR

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REVISIONS

DATE OF ISSUE
JUNE 17, 2015

SCALE
AS NOTED ON ORIGINAL

STREET STAIR & RAIL ELEVATIONS & DETAILS

TBA PROJECT # 1210.1

A-3.0

Date: 6/16/15
File name: 1210.1 Prospect Hill Tower Stabilization 100% CDS Elevations A2-3 & A-3.6-12-15.vwx

NOTES:

W1: REPAIR FRONT DOOR FRAME AND REMORTAR INTO PLACE

W1: CUT & REPLACE LOWER DOOR ON BOTH SIDES. REMORTAR INTO PLACE. REPLACE BACK OF EXISTING DOOR PLATE.

SCOPE OF WORK NOTES KEY:

M1: RESET AND REBED DISPLACED STONES. ALL STONES TO BE REINSTALLED IN ORIGINAL LOCATION. WROUGHT IRON GRILLES TO BE REMOVED AND RESET WITH MORTAR IN STONE, IN ORIGINAL LOCATIONS.

M2: EPOXY INJECTION TO CRACK.

M3: REPOINT ALL EXTERIOR STONE SURFACES, ALL FACES OF TOWER WHERE STONES ARE NOT RESET. MORTAR TO MATCH EXISTING IN JOINT DIMENSION AND SURFACE FINISH (ALT. 2)

M4: REMOVE ALL GRAFFITI FROM EXISTING GRANITE STONE WALLS BETWEEN LEVEL 1 & LEVEL 2, SEE SPEC SECTION 040140.

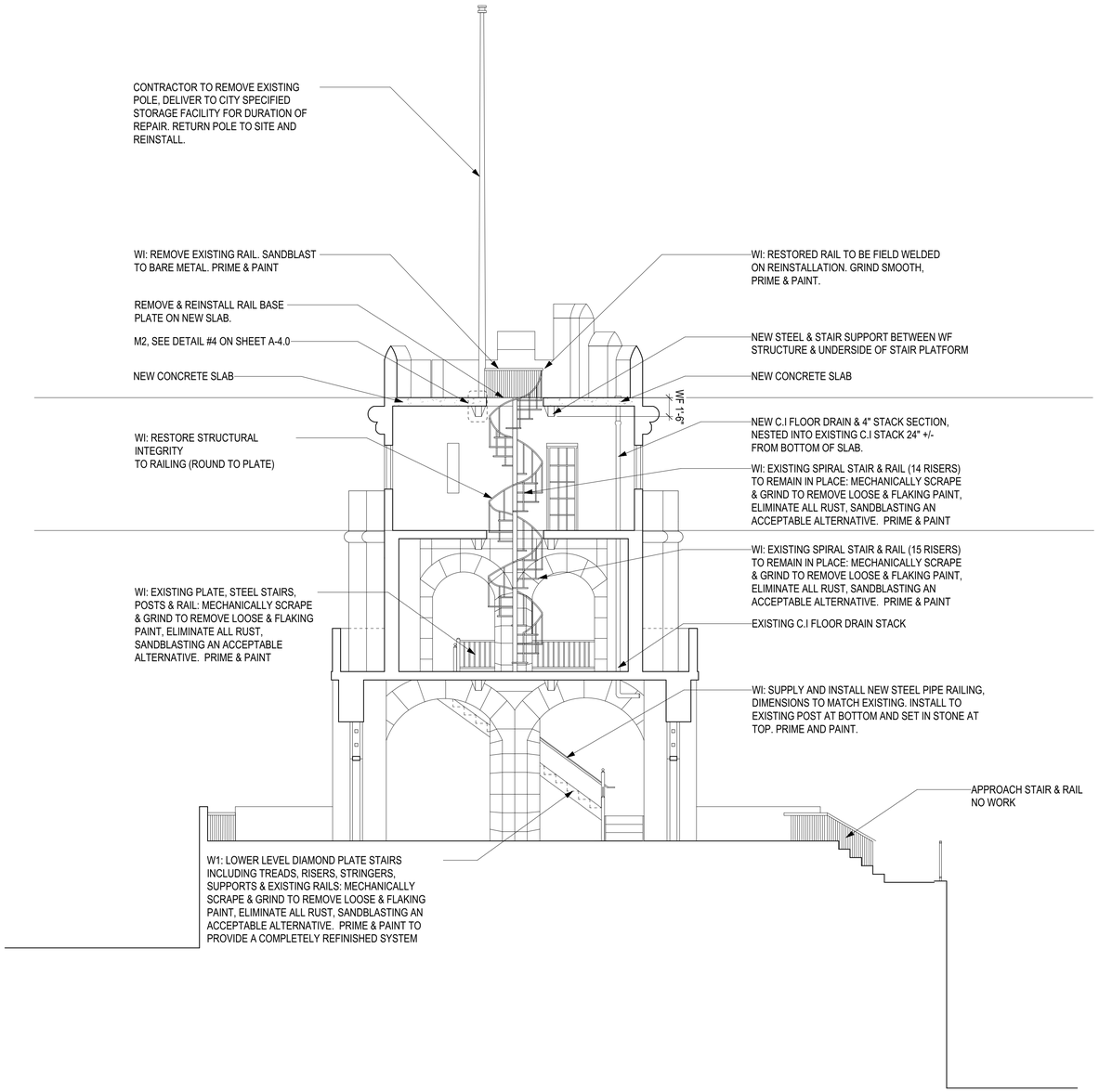
M5: REPOINT 100% EXISTING WALL (ALT. 1)

WI1: CUT EXISTING STEEL PIPE RAIL AT OR ABOVE EXISTING FLANGES. RAIL TO BE CUT AND REMOVED BY WROUGHT IRON RESTORATION SUBCONTRACTOR. CLEAN, GRIND TO CLEAN METAL, WELD, PRIME & PAINT TWO COATS. POST EXTENDERS OF SAME DIA TO BE INSET INTO GRANITE AFTER REBEDDING.

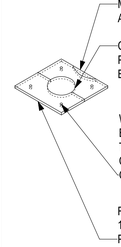
M: MASONRY PRIME

WI: WROUGHT IRON RESTORATION SUBCONTRACTOR

SCOPE OF WORK NOTES KEY

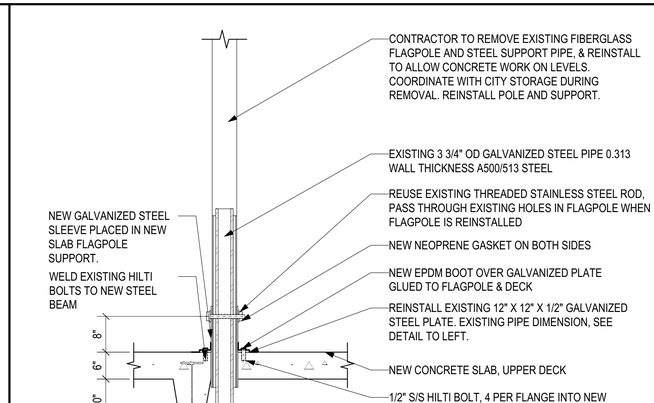


A ILLUSTRATIVE SECTION OF TOWER

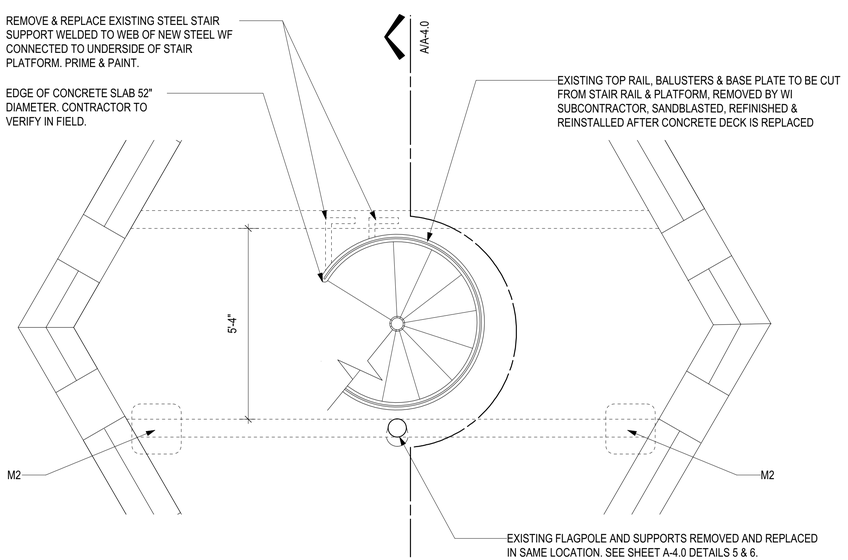


NOTES:
1. CONTRACTOR TO VERIFY ALL DIMENSIONS.
2. GRIND WHERE GALVANIZED FOR WELD.
3. EXPOSED STEEL & FILLET WITH ZRC.
4. EPOXY ANCHORS IN TO CONCRETE
5. UPPER DECK PLATE TO BE WELDED TO NEW SLEEVE PIPE.
6. CITY TO REMOVE FLAGPOLE TO ACCOMODATE WORK.
7. CONTRACTOR TO REMOVE ALL FLAGPOLE ATTACHMENT DEVICES AND REINSTALL IN NEW WORK.

5 FLAGPOLE AXON DETAIL



6 FLAGPOLE SECTION DETAIL



4 LEVEL FOUR ENLARGED PLAN

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NOT TO SCALE ON ORIGINAL

TOWER SECTION

TBA PROJECT # 1210.1

A-4.0

Date: 6/16/15
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