

IFB # 17-57

SOLICITATION FOR: Winter Hill Community School Park



CITY OF SOMERVILLE, MASSACHUSETTS

Joseph A. Curtatone, Mayor

Purchasing Department
Angela M. Allen, Purchasing Director

RELEASE DATE: 3/8/2017

PRE-BID MEETING DATE AND TIME: 3/14/2017 at 11AM EST

QUESTIONS DUE: 3/15/2017 by 4PM EST

DUE DATE AND TIME: 3/22/2017 by 11AM EST

DELIVER TO:

City of Somerville

Purchasing Department

Attn: Michael Richards

Assistant Purchasing Director

mrichards@somervillema.gov

93 Highland Avenue

Somerville, MA 02143

SPECIFICATIONS/SCOPE OF SERVICES

Construction documents for this project have been prepared by Warner Larson, Inc. (WLI) who will act as the agent of the City, overseeing construction to ensure conformity to construction drawings, specifications, and standards. The City's Office of Parks and Open Space is responsible for project management.

The City seeks a full range of construction services to renovate the lower play area at Winter Hill Community Innovation School located at 115 Sycamore Street. The approximately 10,000 square foot project area is located at the intersection of Evergreen Avenue and Thurston Street. Work will include demolition of existing asphalt and concrete paving, selective demolition of fencing, tree and vegetation removal, removal and resetting of existing granite curbing, relocating one street light, modifying existing drainage structures, new LED sports lighting, electrical service and distribution, new concrete paving, new chain link fencing, gates and netting, regrading existing gravel base, new synthetic turf system with shock pad and associated base course, underdrains and concrete edger, new site furnishings, new tree planting and lawn. Trees to remain will be protected and pruned.

It is expected that the vendor will familiarize themselves with the site and shall proceed with extreme caution throughout the period of construction. This is a school zone, streets are narrow, and children, parents, and pedestrians are frequent. Because the school will be in session days and evenings, all vehicles entering or leaving the enclosed construction zones will always be accompanied by a flagman to watch for children and pedestrians. It is intended that site staging and storage be limited to the work zone, however some limited storage could be made available at the second level of playground, if approved by the school principal. Adjacent street parking is very limited and the vendor will need to submit a traffic management plan for review and approval by the City Traffic and Parking Department. The contractor will provide police details as necessary. The City will pay for construction services on a fixed fee basis. Please consult the plans and specifications for the full scope of work, including important permitting requirements.

As described herein, the contractor will be responsible for providing as-built drawings and a maintenance manual at final completion, prior to the payment of the final invoice. The City will not assume maintenance of the Field until final completion, and a walk-through review meeting has been held with staff from the Departments of Park and Open Space, the Department of Public Works, and other relevant staff.

Key dates for this Invitation for Bids:	
IFB Issued	3/8/2017
Optional Pre-Bid Site Visit	3/14/2017 at 11AM EST
Deadline for Submitting Questions to IFB	3/15/2017 by 4PM EST
Bids Due	3/22/2017 by 11AM EST
Anticipated Contract Award	3/29/2017
Est. Contract Commencement Date	5/1/2017
Est. Contract Completion Date	10/31/2017

IFB # 17-57
Winter Hill Community School Park

Key Project Information

Project Address	115 Sycamore St., Somerville, MA 02145
Estimated Construction Cost	\$300,000.00
Anticipated Contract Award	3/29/2017
Date of Substantial Completion	8/1/2017
Date of Final Completion	8/22/2017
Est. Contract Commencement Date	5/1/2017
Est. Contract Completion Date	10/31/2017
Governing Bid Law	MGL 30.39M (Horizontal Construction)
Wage Requirements	The higher of Federal Davis Bacon Wages and State Prevailing Wages
Payment Bond Requirements	100% of Contract Value
Performance Bond Requirements	N/A
Liquidated Damages (\$ per Day)	\$250.00

Managing Department Information

Managing City Department	Office of Strategic Planning and Community Development
Project Manager	Luisa Oliveira
Project Manager Email	loliveira@somervillema.gov

Designer Information

Designer Name	Warner Larson Landscape Architects
Designer Address	130 W Broadway, Boston, MA 02127, MA
Designer Specialty	Landscape Architecture
Designer Contact	David Warner, ASLA
Designer Contact Email	DWarner@warnerlarson.com

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	Certificate of Signature Authority
	Reference Form (or equivalent may be attached)
	5% Bid Deposit
	Prevailing / Davis Bacon Wages, Statement of Compliance Form
	OSHA Form
	Acknowledgement of Addenda (if applicable)
	Signed W9
	Applicable Wage Schedules
3.2 (required post bid)	Certificate of Good Standing (will be required of awarded Vendor; please furnish with bid if available)
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<u>DIVISION 02</u>	EXISTING CONDITIONS/SITE CONSTRUCTION	
	Site Preparation and Demolition	024100
<u>DIVISION 26</u>	ELECTRICAL	
	Electrical	260000
<u>DIVISION 31</u>	EARTHWORK	
	Excavation, Filling and Grading	310000
<u>DIVISION 32</u>	EXTERIOR IMPROVEMENTS	
	Asphalt	321216
	Concrete	321313
	Curbing	321600
	Synthetic Turf	321800
	Site Improvements	323000
	Fencing	323100
	Planting	329000
<u>DIVISION 33</u>	UTILITIES	
	Storm Drainage Utilities	334000

• PART 4: CONSTRUCTION DOCUMENT DRAWING LIST

DRAWINGS

-	Cover Sheet
-	Existing Conditions Plan
L-1	Site Preparation Plan
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L-3	Details
L-4	Details

Part 1: Invitation for Bid Documents

IFB # 17-57
Winter Hill Community School Park

1.1 General Instructions

Copies of the solicitation may be obtained from the Purchasing Department on and after 3/8/2017 per the below-noted City Hall hours of operation.

Hall Hours of Operation:	
Monday – Wednesday	8:30 a.m. and 4:30 p.m.
Thursday	8:30 a.m. to 7:30 p.m.
Friday	8:30 a.m. to 12:30 p.m.

All Responses Must be Sealed and Delivered To:
Purchasing Department City of Somerville 93 Highland Avenue Somerville, MA 02143
<i>It is the sole responsibility of the Offeror to ensure that the bid arrives on time at the designated place. Late bids will not be considered and will be rejected and returned.</i>
Bid Format:
Submit one, original (1) sealed bid package; it must be marked with the solicitation title and number.
BIDS SUBMITTED MUST BE AN ORIGINAL. The completion of the following forms is necessary for consideration of a potential contract award. When submitting bid documents, please retain the order of documents as provided below: 1) Form for General Bid 2) Bid Form for Alternates (if applicable) 3) Unit Price Form 4) Somerville Living Wage Form 5) Quality Requirements Form 6) Certificate of Non-Collusion & Tax Compliance 7) Certificate of Signature Authority 8) Reference Form 9) 5% Bid Deposit 10) Prevailing / Davis Bacon Wages Statement of Compliance Form 11) OSHA Form
If all required documents are not present, the bid may be deemed non-responsive and may result in disqualification of the bid unless the City determines that such failure(s) constitute(s) a minor informality, as defined in Chapter MGL 30B.
The Offeror's authorized official(s) must sign all required bid forms.

1.2 Bid Schedule

Key dates for this Invitation for Bids:	
IFB Issued	3/8/2017
Deadline for Submitting Questions to IFB	3/15/2017 by 4PM EST
Bids Due	3/22/2017 by 11AM EST
Anticipated Contract Award	3/29/2017
Est. Contract Commencement Date	5/1/2017
Est. Contract Completion Date	10/31/2017

Responses must be delivered by 3/22/2017 by 11AM EST to:	City of Somerville Purchasing Department Attn: Michael Richards 93 Highland Avenue Somerville, MA 02143
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1.3 Submission Instructions

Please submit *one sealed bid package* with the following contents and marked in the following manner:

Contents of Sealed Bid Package	Marked As
Envelope 1: Sealed Bid: Shall Include (1) original and one (1) electronic copy. [Electronic copies are to be submitted on CD-ROM or thumb drives and are to be saved in Adobe Acrobat format. ("Read only" files are acceptable.)]	To Be Marked: IFB # 17-57 Winter Hill Community School Park
Please send the complete sealed package to the attention of :	Michael Richards Assistant Purchasing Director Purchasing Department Somerville City Hall 93 Highland Avenue Somerville, MA 02143

Bid Format

Responses shall be prepared on standard 8.5 x 11 inch paper (charts may be landscaped but must be on 8.5 x 11 inch paper) and shall be in a legible font size (12). All pages of each response shall be appropriately numbered (and with consecutive page numbering across tabs). **In an effort to reduce waste, please DO NOT USE 3-RING BINDERS.**

Elaborate format and binding are neither necessary nor desirable.

Qualifications & Experience

The Offeror may include any additional literature and product brochures. The Quality Requirements Form (Section 2), or set of basic business standards, must be submitted with bid.

References

The Offeror shall list at least three relevant references, which the City may contact. The City of Somerville reserves the right to use ourselves as a reference. References shall include the following information:

●The name, address, telephone number, and email address of each client listed above.	
●A description of the work performed under each contract.	●The amount of the contract.
●A description of the nature of the relationship between Offeror and the customer.	
●The dates of performance.	●The volume of the work performed.

1.4 Questions

Questions are due: 3/15/2017 by 4PM EST

Questions concerning this solicitation must be delivered in writing to:

Michael Richards
Assistant Purchasing Director
Somerville City Hall
Purchasing Department
93 Highland Avenue
Somerville, MA 02143

Or emailed to:

mrichards@somervillema.gov

Or faxed to:

617-625-1344

Answers will be sent via an addendum to all Offerors who have registered as bid holders. Bidders are encouraged to contact the Purchasing Department to register as a bid document holder to automatically be alerted as to addenda as they are issued. It is the responsibility of the Offeror to also monitor the bid portal on the City's website for any updates, addenda, etc. regarding that specific solicitation. The web address is:

<http://www.somervillema.gov/departments/finance/purchasing/bids>.

Any bidders that contact City personnel outside of the Purchasing Department regarding this bid may be disqualified.

1.5 General Terms

Estimated Quantities

The City of Somerville has provided estimated quantities, which will be ordered/purchased over the course of the contract period. These estimates are estimates only and not guaranteed.

Bid Signature

A response must be signed as follows: 1) if the Offeror is an individual, by her/him personally; 2) if the Offeror is a partnership, by the name of the partnership, followed by the signature of each general partner; and 3) if the Offeror is a corporation, by the authorized officer, whose signature must be attested to by the clerk/secretary of the corporation (& with corporate seal).

Time for Bid Acceptance and City Contract Requirements

The contract will be awarded within 90 days after the bid opening. The time for award may be extended for up to 45

additional days by mutual agreement between the City of Somerville and the Offeror that is most advantageous and responsible. The Offeror's submission will remain in effect for a period of 90 days from the response deadline or until it is formally withdrawn, a contract is executed, or this solicitation is canceled, whichever occurs first. The Offeror will be required to sign a standard City contract per the City's general terms included herein as Appendix A.

Holidays are as follows:

New Year's Day	Martin Luther King Day	Presidents' Day	Patriots' Day
Memorial Day	Bunker Hill Day	Independence Day	Labor Day
Columbus Day	Veterans' Day	Thanksgiving Day	Thanksgiving Friday
Christmas Eve (half day)	Christmas Day		

Please visit <http://www.somervillema.gov/> for the City's most recent calendar. *Under State Law, all holidays falling on Sunday must be observed on Monday.

If the awarded Offeror for their convenience desires to perform work during other than normal working hours or on other than normal work days, or if the Offeror is required to perform work at such times, the Offeror shall reimburse the City for any additional expense occasioned the City, thereby, such as, but not limited to, overtime pay for City employees, utilities service, etc. UNLESS otherwise specified in these provisions, services will be performed during normal work hours. When required services occur on holidays, work will be performed on either the previous or following work day, unless specified otherwise.

Unforeseen Office Closure

If, at the time of the scheduled bid opening, the Purchasing Department is closed due to uncontrolled events such as fire, snow, ice, wind, or building evacuation, the bid due date will be postponed until 2:00 p.m. on the next normal business day. Bids will be accepted until that date and time. In the event of inclement weather, the Offeror is responsible for listening to the media to determine if the City has been closed due to weather.

Changes & Addenda

If any changes are made to this solicitation, an addendum will be issued. All proposers on record as having picked up the solicitation will be alerted via email as to the posting of all addenda. The City will also post addenda on its website (<http://www.somervillema.gov/departments/finance/purchasing/bids>). No changes may be made to the solicitation documents by the Offerors without written authorization and/or an addendum from the Purchasing Department.

Modification or Withdrawal of Bids, Mistakes, and Minor Informalities

An Offeror 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 Section 1. Each modification must be numbered in sequence and must reference the original solicitation. After the bid opening, an Offeror 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 proposer will be allowed to correct them. If a mistake and the intended bid are clearly evident on the face of the bid document, the mistake will be corrected to reflect the intended correct bid, and the proposer will be notified in writing; the proposer may not withdraw the bid. A proposer 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 solicitation, 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.

Unbalanced Bids

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

Brand Name “or Equal”

Any references to any brand name or proprietary product in the specifications shall require the acceptance of an equal or better brand. The City has the right to make the final determination as to whether an alternate brand is equal to the brand specified.

Electronic Funds Transfer (EFT)

For EFT payment, the following shall be included with invoices to the point of contact:

- Contract/Order number; Contractor’s name & address as stated in the contract;
- The signature (manual or electronic, as appropriate) title, and telephone number of the Offeror’s representative authorized to provide sensitive information;
- Name of financial institution; Financial institution nine (9) digit routing transit number;
- Offeror’s account number; Type of account, i.e., checking or saving.

Project Schedule

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

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

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

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.

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

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

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

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

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

<i>The following utility companies must be notified in writing:</i>		
M.B.T.A. Engineering and Maintenance Division 617-722-5454 Attn: Chief Engineer 500 Arborway Jamaica Plain, MA 02130	M.W.R.A. Sewer Division 617-242-6000 100 First Avenue Charlestown Navy Yard Boston, MA 02129	M.W.R.A. Water Division 617-242-6000 100 First Avenue Charlestown Navy Yard Boston, MA 02129
<i>The following utility companies must be notified in writing or through Dig-Safe:</i>		
Algonquin Gas Transmission Corp. 617-254-4050 Manager of Land and Public Relations 1284 Soldiers Field Road Brighton, MA 02135	Verizon 781-290-5154 460 Totten Pond Road Waltham, MA 02154	Boston Edison 617-541-5730 Right of Way 1165 Massachusetts Avenue Dorchester, MA 02125
Boston Gas Company 617-323-9210 201 Rivermoor Street West Roxbury, MA 02132	EVERSOURCE 617-497-1236, x4195 46 Blackstone Street Somerville, MA 02139	EVERSOURCE Steam 617-225-4568 Attn: Supervisor of Maintenance 265 First Street Somerville, MA 02142
EVERSOURCE Gas 617-369-5591 303 Third Street Somerville, MA 02142	A T & T Broadband 981-658-0400 760 Main Street Malden, MA 01887	Somerville Public Works Dept. 617-625-6600, x5200 One Franey Road Somerville, MA 02145
Somerville Fire Department 617-625-6600, x8100 266 Broadway Somerville, MA 02143	Dig-Safe 1-800-322-4844	

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

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

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% 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.

Prevailing Wage Rate Requirements

The contractor shall pay Mass. Prevailing Wage Rates. The applicable prevailing wage rates are attached as part of this bid package and will be included in the resulting contract. Notwithstanding anything to the contrary, the City may, in its

sole discretion withhold payment unless the City has in its possession payroll records that are complete, accurate, and current as of the date of said application for payment. A signed Compliance Form must be included with the bid package (form included).

a) The Contractor shall:

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

b) The Contractor shall submit to the City within the first week of construction:

- A list of apprenticeship programs with which the Contractor is affiliated;
- The number of apprentices that will be employed by the Contractor on the Project;
- A list of the Contractor's employee fringe benefits;
- A copy of each project schedule, including the anticipated commencement date for each Subcontractor; and
- A list of each Subcontractor's suppliers and material men.

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

Reservation of Rights

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

Maintenance Manual and As-Built Drawing Requirements

Upon Final Completion of all park construction, the contractor shall submit: two complete copies of a park maintenance manual, and two copies of an as-built drawing set, with two compact disc (CD) copies of the as-built drawings. The City will not issue the final check for park retainage until the submittal and approval of the maintenance manual and as-built drawings.

- 1) The Maintenance Manual shall be in the form of a three ring binder, organized and tabbed into appropriate sections, and shall include the following items:
 - A complete maintenance plan with recommended maintenance schedules and procedures for all systems including: HVAC, security (card access/cameras), fire suppression, irrigation, fertilization, and water systems shut-down procedures, etc., and all other applicable systems and procedures;
 - A letter from the contractor stating the period of warranty for all parts, materials, and workmanship, from the date of Final Completion;
 - A letter from the contractor stating the period of warranty for all systems (HVAC, irrigation, fire suppression, etc.);
 - All product information, product directions, and warranties;
 - List of all materials (plants, etc.), sizes of plant containers, etc.;
 - Copies of City permits with signatures of inspectors;
 - Contact information for all subcontractors including email addresses; and,
 - A record of all submittals and dates of approvals.
- 2) As-Built drawings shall be a complete and accurate record that incorporates any and all changes to the construction plan set issued at the time of contract initiation. As-built drawings shall be clearly marked and annotated and shall include but not be limited to: all field changes, change orders, and supplemental drawing provided by the landscape architect.
- 3) The Compact Discs shall include an electronic copy of all as-built drawings.

Police Details

Unless otherwise noted in the specifications, the Contractor will be responsible for requesting and paying for all necessary police details. These costs should be incorporated into the base bid amount.

Period of Performance

The period of performance for this contract begins on or about 5/1/2017 and ends on or about 10/31/2017. If applicable, optional renewal years may be exercised by the sole discretion of the City (see cover page for anticipated contract term).

Place of Performance

All services, delivery, and other required support shall be conducted in Somerville and other locations designated by the Department point of contact. Meetings between the Vendor and City personnel shall be held at the City of Somerville, Massachusetts, unless otherwise specified.

Vendor Conduct

The Vendor's employees shall comply with all City regulations, policies, and procedures. The Vendor shall ensure that their employees present professional work attire at all times. The authorized contracting body of the City may, at his/her sole discretion, direct the Vendor to remove any Vendor employee from City facilities for misconduct or safety reasons. Such rule does not relieve the Vendor of their responsibility to provide sufficient and timely service. The City will provide the Vendor with immediate written notice for the removal of the employee. Vendors must be knowledgeable of the conflict of interest law found on the Commonwealth's website <http://www.mass.gov/ethics/laws-and-regulations-/conflict-of-interest-information/conflict-of-interest-law.html>. Vendors may be required to take the Conflict of Interest exam.

Vendor Personnel

The Vendor shall clearly state the name of the proposed project manager. All proposed staff must demonstrate the ability to carry out the specified requirements.

Confidentiality

The Vendor agrees that it will ensure that its employees and others performing services under this contract will not use or disclose any non-public information unless authorized by the City. That includes confidential reports, information, discussions, procedures, and any other data that are collected, generated or resulting from the performance of this scope of work. All documents, photocopies, computer data, and any other information of any kind collected or received by the Vendor in connection with the contract work shall be provided to the City upon request at the termination of the contract (i.e., the date on which final payment is made on the contract or at such other time as may be requested by the City or as otherwise agreed by City and the Vendor). The Vendor may not discuss the contract work in progress with any outside party, including responding to media and press inquiries, without the prior written permission of the City. In addition, the Vendor may not issue news releases or similar items regarding contract award, any subsequent contract modifications, or any other contract-related matter without the prior written approval of the City. Requests to make such disclosures should be addressed in writing to the Vendor's point of contact.

IFB # 17-57
SECTION 2.0
RULE FOR AWARD /
PROJECT INFORMATION

2.1 Rule For Award

The contract shall be awarded to the responsible and responsive Bidder submitting the lowest total price. The contract will be awarded within ninety (90) days after the bid opening. The time for award may be extended for up to 45 additional days by mutual agreement between the City and the apparent lowest responsive and responsible bidder.

2.2 Background

Project Information	
Managing City Department:	Office of Strategic Planning and Community Development
Project Manager:	Luisa Oliveira
Project Manager Email:	loliveira@somervillema.gov
Designer:	Warner Larson Landscape Architects
Designer Contact:	David Warner, ASLA
Project Address:	115 Sycamore St., Somerville, MA 02145
Brief Project Description:	Work will include demolition of existing asphalt and concrete paving, selective demolition of fencing, tree and vegetation removal, removal and resetting of existing granite curbing, relocating one street light, modifying existing drainage structures, new LED sports lighting, electrical service and distribution, new concrete paving, new chain link fencing, gates and netting, regrading existing gravel base, new synthetic turf system with shock pad and associated base course, underdrains and concrete edger, new site furnishings, new tree planting and lawn. Trees to remain will be protected and pruned.
Estimated Project Cost:	\$300,000.00
Project Schedule	
Estimated Award Date:	3/29/2017
Estimated Start Date:	5/1/2017
Date of Substantial Completion:	8/1/2017
Date of Final Completion:	8/22/2017

IFB # 17-57

SECTION 3.0

Winter Hill Community School Park REQUIRE BID FORMS / BIDDERS' CHECKLIST

Please ensure all documents listed on this checklist are included with your bid. Failure to do so may subject the proposer to disqualification.

Required with Sealed Bids

	Form for General Bid (Section 4.0)
	Unit Price Form (Section 4.0)
	Somerville Living Wage Form
	Quality Requirements Form
	Certificate of Non-Collusion & Tax Compliance
	Certificate of Signature Authority
	Reference Form (or equivalent may be attached)
	5% Bid Deposit
	Prevailing / Davis Bacon Wages Statement of Compliance Form
	OSHA Form
	Acknowledgement of Addenda (if applicable)
	Signed W9
	Applicable Wage Laws

Required with Contract, *Post Award*

	Certificate of Good Standing (will be required of awarded Vendor; please furnish with bid if available)
	Insurance Specifications (will be required of awarded Vendor; furnish sample certificate with bid, if possible)
	Performance Bond (see specification for details)
	Payment Bond (if applicable, see specification for details)

Minimum Quality Requirements

Quality requirements, or basic business requirements, are the minimum set of standards that an entity must meet and certify to be considered responsible and responsive. **Please complete the Quality Requirements form, below, and submit it with your completed bid.** The City of Somerville will disqualify any response that does not meet the minimum quality requirements. A "No Response" to items 1, 2, 3, or 4, or a failure to respond to any of the following minimum standards may result in disqualification of your bid.

QUALITY REQUIREMENTS		YES	NO
1.	Has the contractor been established in this specified field for at least 5 years?		
2.	Has the contractor successfully completed a minimum of three (3) similar Municipal Park projects within the past six (6) years?		
3.	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?		
4.	Does the supervisor who will be assigned to the daily on-site coordination and project management have a minimum of 5 years constructing projects of comparable scope and complexity?		
5.	Optional: Are you a Mass. Supplier Diversity Office MBE/WBE certified minority or woman owned business? Additional minority designations may be submitted by attaching supporting documentation.		

In order to provide verification of affirmative responses to items 1, 2, 3 and 4 under the quality requirements listed in the Quality Requirements Form, Offeror must submit written information that details the general background, experience, and qualifications of the organization and resume of superintendent indicating specific comparable project experience. If subcontractors are required for any of the work, submit the general background, experience and qualifications of their respective companies.



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 7/1/2016 “Living Wage” shall be deemed to be an hourly wage of no less than \$12.31 per hour. From time to time, the Living Wage may be upwardly adjusted and amendments, if any, to the contract or subcontract may require the payment of a higher hourly rate if a higher rate is then in effect.

CERTIFICATIONS

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

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

Form:_____
Contract Number:_____

CITY OF SOMERVILLE

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

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

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

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

CERTIFIED BY:

Signature: _____
(Duly Authorized Representative of Vendor)

Title: _____

Name of Vendor: _____

Date: _____

INSTRUCTIONS: PLEASE POST

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

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

The Living Wage as of 7/1/2016 is **\$12.31** 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.



Non-Collusion Form and Tax Compliance Certification

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

A. NON-COLLUSION FORM

I, the undersigned, hereby certify under penalties of perjury that this bid or proposal has been made and submitted in good faith and without collusion or fraud with any other person.

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

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

Name of Business or Entity: _____

Date: _____

B. TAX COMPLIANCE CERTIFICATION

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

Signature: _____
(Duly Authorized Representative of Vendor)

Name of Business or Entity: _____

Social Security Number or Federal Tax ID#: _____

Date: _____



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

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

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

_____,
(Complete Name of Limited Liability Company)

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

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

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

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

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

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

5. **Signature:**_____

Printed Name: _____

Printed Title:_____

Date: _____



Certificate of Authority (Corporations Only)

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

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

(Insert Full Name of Corporation)

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

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

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

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

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

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

4. **ATTEST:**

Signature: _____
(Clerk or Secretary)

AFFIX CORPORATE SEAL HERE

Printed Name: _____

Printed Title: _____

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

REFERENCE FORM

Bidder: _____

IFB Title: _____

Bidder must provide references for: Three other similar sized Municipalities provided the same services

Reference:_____ Contact:_____

Address:_____ Phone:_____

_____ Email:_____

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

Reference:_____ Contact:_____

Address:_____ Phone:_____

_____ Email:_____

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

Reference:_____ Contact:_____

Address:_____ Phone:_____

_____ Email:_____

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

Request for Taxpayer Identification Number and Certification

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

Print or type
See Specific Instructions on page 2.

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

Part I Taxpayer Identification Number (TIN)

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

Note. If the account is in more than one name, see the instructions for line 1 and the chart on page 4 for guidelines on whose number to enter.

Social security number									
				-				-	
or									
Employer identification number									
				-					

Part II Certification

Under penalties of perjury, I certify that:

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

Certification instructions. You must cross out item 2 above if you have been notified by the IRS that you are currently subject to backup withholding because you have failed to report all interest and dividends on your tax return. For real estate transactions, item 2 does not apply. For mortgage interest paid, acquisition or abandonment of secured property, cancellation of debt, contributions to an individual retirement arrangement (IRA), and generally, payments other than interest and dividends, you are not required to sign the certification, but you must provide your correct TIN. See the instructions on page 3.

Sign Here	Signature of U.S. person ▶	Date ▶
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General Instructions

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

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

Purpose of Form

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

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

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

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

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

By signing the filled-out form, you:

- Certify that the TIN you are giving is correct (or you are waiting for a number to be issued),
- Certify that you are not subject to backup withholding, or
- Claim exemption from backup withholding if you are a U.S. exempt payee. If applicable, you are also certifying that as a U.S. person, your allocable share of any partnership income from a U.S. trade or business is not subject to the withholding tax on foreign partners' share of effectively connected income, and
- Certify that FATCA code(s) entered on this form (if any) indicating that you are exempt from the FATCA reporting, is correct. See *What is FATCA reporting?* on page 2 for further information.

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

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

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

Special rules for partnerships. Partnerships that conduct a trade or business in the United States are generally required to pay a withholding tax under section 1446 on any foreign partners' share of effectively connected taxable income from such business. Further, in certain cases where a Form W-9 has not been received, the rules under section 1446 require a partnership to presume that a partner is a foreign person, and pay the section 1446 withholding tax. Therefore, if you are a U.S. person that is a partner in a partnership conducting a trade or business in the United States, provide Form W-9 to the partnership to establish your U.S. status and avoid section 1446 withholding on your share of partnership income.

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

- In the case of a disregarded entity with a U.S. owner, the U.S. owner of the disregarded entity and not the entity;
- In the case of a grantor trust with a U.S. grantor or other U.S. owner, generally, the U.S. grantor or other U.S. owner of the grantor trust and not the trust; and
- In the case of a U.S. trust (other than a grantor trust), the U.S. trust (other than a grantor trust) and not the beneficiaries of the trust.

Foreign person. If you are a foreign person or the U.S. branch of a foreign bank that has elected to be treated as a U.S. person, do not use Form W-9. Instead, use the appropriate Form W-8 or Form 8233 (see Publication 515, Withholding of Tax on Nonresident Aliens and Foreign Entities).

Nonresident alien who becomes a resident alien. Generally, only a nonresident alien individual may use the terms of a tax treaty to reduce or eliminate U.S. tax on certain types of income. However, most tax treaties contain a provision known as a "saving clause." Exceptions specified in the saving clause may permit an exemption from tax to continue for certain types of income even after the payee has otherwise become a U.S. resident alien for tax purposes.

If you are a U.S. resident alien who is relying on an exception contained in the saving clause of a tax treaty to claim an exemption from U.S. tax on certain types of income, you must attach a statement to Form W-9 that specifies the following five items:

1. The treaty country. Generally, this must be the same treaty under which you claimed exemption from tax as a nonresident alien.
2. The treaty article addressing the income.
3. The article number (or location) in the tax treaty that contains the saving clause and its exceptions.
4. The type and amount of income that qualifies for the exemption from tax.
5. Sufficient facts to justify the exemption from tax under the terms of the treaty article.

Example. Article 20 of the U.S.-China income tax treaty allows an exemption from tax for scholarship income received by a Chinese student temporarily present in the United States. Under U.S. law, this student will become a resident alien for tax purposes if his or her stay in the United States exceeds 5 calendar years. However, paragraph 2 of the first Protocol to the U.S.-China treaty (dated April 30, 1984) allows the provisions of Article 20 to continue to apply even after the Chinese student becomes a resident alien of the United States. A Chinese student who qualifies for this exception (under paragraph 2 of the first protocol) and is relying on this exception to claim an exemption from tax on his or her scholarship or fellowship income would attach to Form W-9 a statement that includes the information described above to support that exemption.

If you are a nonresident alien or a foreign entity, give the requester the appropriate completed Form W-8 or Form 8233.

Backup Withholding

What is backup withholding? Persons making certain payments to you must under certain conditions withhold and pay to the IRS 28% of such payments. This is called "backup withholding." Payments that may be subject to backup withholding include interest, tax-exempt interest, dividends, broker and barter exchange transactions, rents, royalties, nonemployee pay, payments made in settlement of payment card and third party network transactions, and certain payments from fishing boat operators. Real estate transactions are not subject to backup withholding.

You will not be subject to backup withholding on payments you receive if you give the requester your correct TIN, make the proper certifications, and report all your taxable interest and dividends on your tax return.

Payments you receive will be subject to backup withholding if:

1. You do not furnish your TIN to the requester,
2. You do not certify your TIN when required (see the Part II instructions on page 3 for details),

3. The IRS tells the requester that you furnished an incorrect TIN,

4. The IRS tells you that you are subject to backup withholding because you did not report all your interest and dividends on your tax return (for reportable interest and dividends only), or

5. You do not certify to the requester that you are not subject to backup withholding under 4 above (for reportable interest and dividend accounts opened after 1983 only).

Certain payees and payments are exempt from backup withholding. See *Exempt payee code* on page 3 and the separate Instructions for the Requester of Form W-9 for more information.

Also see *Special rules for partnerships* above.

What is FATCA reporting?

The Foreign Account Tax Compliance Act (FATCA) requires a participating foreign financial institution to report all United States account holders that are specified United States persons. Certain payees are exempt from FATCA reporting. See *Exemption from FATCA reporting code* on page 3 and the Instructions for the Requester of Form W-9 for more information.

Updating Your Information

You must provide updated information to any person to whom you claimed to be an exempt payee if you are no longer an exempt payee and anticipate receiving reportable payments in the future from this person. For example, you may need to provide updated information if you are a C corporation that elects to be an S corporation, or if you no longer are tax exempt. In addition, you must furnish a new Form W-9 if the name or TIN changes for the account; for example, if the grantor of a grantor trust dies.

Penalties

Failure to furnish TIN. If you fail to furnish your correct TIN to a requester, you are subject to a penalty of \$50 for each such failure unless your failure is due to reasonable cause and not to willful neglect.

Civil penalty for false information with respect to withholding. If you make a false statement with no reasonable basis that results in no backup withholding, you are subject to a \$500 penalty.

Criminal penalty for falsifying information. Willfully falsifying certifications or affirmations may subject you to criminal penalties including fines and/or imprisonment.

Misuse of TINs. If the requester discloses or uses TINs in violation of federal law, the requester may be subject to civil and criminal penalties.

Specific Instructions

Line 1

You must enter one of the following on this line; **do not** leave this line blank. The name should match the name on your tax return.

If this Form W-9 is for a joint account, list first, and then circle, the name of the person or entity whose number you entered in Part I of Form W-9.

a. **Individual.** Generally, enter the name shown on your tax return. If you have changed your last name without informing the Social Security Administration (SSA) of the name change, enter your first name, the last name as shown on your social security card, and your new last name.

Note. ITIN applicant: Enter your individual name as it was entered on your Form W-7 application, line 1a. This should also be the same as the name you entered on the Form 1040/1040A/1040EZ you filed with your application.

b. **Sole proprietor or single-member LLC.** Enter your individual name as shown on your 1040/1040A/1040EZ on line 1. You may enter your business, trade, or "doing business as" (DBA) name on line 2.

c. **Partnership, LLC that is not a single-member LLC, C Corporation, or S Corporation.** Enter the entity's name as shown on the entity's tax return on line 1 and any business, trade, or DBA name on line 2.

d. **Other entities.** Enter your name as shown on required U.S. federal tax documents on line 1. This name should match the name shown on the charter or other legal document creating the entity. You may enter any business, trade, or DBA name on line 2.

e. **Disregarded entity.** For U.S. federal tax purposes, an entity that is disregarded as an entity separate from its owner is treated as a "disregarded entity." See Regulations section 301.7701-2(c)(2)(iii). Enter the owner's name on line 1. The name of the entity entered on line 1 should never be a disregarded entity. The name on line 1 should be the name shown on the income tax return on which the income should be reported. For example, if a foreign LLC that is treated as a disregarded entity for U.S. federal tax purposes has a single owner that is a U.S. person, the U.S. owner's name is required to be provided on line 1. If the direct owner of the entity is also a disregarded entity, enter the first owner that is not disregarded for federal tax purposes. Enter the disregarded entity's name on line 2, "Business name/disregarded entity name." If the owner of the disregarded entity is a foreign person, the owner must complete an appropriate Form W-8 instead of a Form W-9. This is the case even if the foreign person has a U.S. TIN.

Line 2

If you have a business name, trade name, DBA name, or disregarded entity name, you may enter it on line 2.

Line 3

Check the appropriate box in line 3 for the U.S. federal tax classification of the person whose name is entered on line 1. Check only one box in line 3.

Limited Liability Company (LLC). If the name on line 1 is an LLC treated as a partnership for U.S. federal tax purposes, check the "Limited Liability Company" box and enter "P" in the space provided. If the LLC has filed Form 8832 or 2553 to be taxed as a corporation, check the "Limited Liability Company" box and in the space provided enter "C" for C corporation or "S" for S corporation. If it is a single-member LLC that is a disregarded entity, do not check the "Limited Liability Company" box; instead check the first box in line 3 "Individual/sole proprietor or single-member LLC."

Line 4, Exemptions

If you are exempt from backup withholding and/or FATCA reporting, enter in the appropriate space in line 4 any code(s) that may apply to you.

Exempt payee code.

- Generally, individuals (including sole proprietors) are not exempt from backup withholding.
- Except as provided below, corporations are exempt from backup withholding for certain payments, including interest and dividends.
- Corporations are not exempt from backup withholding for payments made in settlement of payment card or third party network transactions.
- Corporations are not exempt from backup withholding with respect to attorneys' fees or gross proceeds paid to attorneys, and corporations that provide medical or health care services are not exempt with respect to payments reportable on Form 1099-MISC.

The following codes identify payees that are exempt from backup withholding. Enter the appropriate code in the space in line 4.

- 1—An organization exempt from tax under section 501(a), any IRA, or a custodial account under section 403(b)(7) if the account satisfies the requirements of section 401(f)(2)
- 2—The United States or any of its agencies or instrumentalities
- 3—A state, the District of Columbia, a U.S. commonwealth or possession, or any of their political subdivisions or instrumentalities
- 4—A foreign government or any of its political subdivisions, agencies, or instrumentalities
- 5—A corporation
- 6—A dealer in securities or commodities required to register in the United States, the District of Columbia, or a U.S. commonwealth or possession
- 7—A futures commission merchant registered with the Commodity Futures Trading Commission
- 8—A real estate investment trust
- 9—An entity registered at all times during the tax year under the Investment Company Act of 1940
- 10—A common trust fund operated by a bank under section 584(a)
- 11—A financial institution
- 12—A middleman known in the investment community as a nominee or custodian
- 13—A trust exempt from tax under section 664 or described in section 4947

The following chart shows types of payments that may be exempt from backup withholding. The chart applies to the exempt payees listed above, 1 through 13.

IF the payment is for . . .	THEN the payment is exempt for . . .
Interest and dividend payments	All exempt payees except for 7
Broker transactions	Exempt payees 1 through 4 and 6 through 11 and all C corporations. S corporations must not enter an exempt payee code because they are exempt only for sales of noncovered securities acquired prior to 2012.
Barter exchange transactions and patronage dividends	Exempt payees 1 through 4
Payments over \$600 required to be reported and direct sales over \$5,000 ¹	Generally, exempt payees 1 through 5 ²
Payments made in settlement of payment card or third party network transactions	Exempt payees 1 through 4

¹ See Form 1099-MISC, Miscellaneous Income, and its instructions.

² However, the following payments made to a corporation and reportable on Form 1099-MISC are not exempt from backup withholding: medical and health care payments, attorneys' fees, gross proceeds paid to an attorney reportable under section 6045(f), and payments for services paid by a federal executive agency.

Exemption from FATCA reporting code. The following codes identify payees that are exempt from reporting under FATCA. These codes apply to persons submitting this form for accounts maintained outside of the United States by certain foreign financial institutions. Therefore, if you are only submitting this form for an account you hold in the United States, you may leave this field blank. Consult with the person requesting this form if you are uncertain if the financial institution is subject to these requirements. A requester may indicate that a code is not required by providing you with a Form W-9 with "Not Applicable" (or any similar indication) written or printed on the line for a FATCA exemption code.

A—An organization exempt from tax under section 501(a) or any individual retirement plan as defined in section 7701(a)(37)

B—The United States or any of its agencies or instrumentalities

C—A state, the District of Columbia, a U.S. commonwealth or possession, or any of their political subdivisions or instrumentalities

D—A corporation the stock of which is regularly traded on one or more established securities markets, as described in Regulations section 1.1472-1(c)(1)(i)

E—A corporation that is a member of the same expanded affiliated group as a corporation described in Regulations section 1.1472-1(c)(1)(i)

F—A dealer in securities, commodities, or derivative financial instruments (including notional principal contracts, futures, forwards, and options) that is registered as such under the laws of the United States or any state

G—A real estate investment trust

H—A regulated investment company as defined in section 851 or an entity registered at all times during the tax year under the Investment Company Act of 1940

I—A common trust fund as defined in section 584(a)

J—A bank as defined in section 581

K—A broker

L—A trust exempt from tax under section 664 or described in section 4947(a)(1)

M—A tax exempt trust under a section 403(b) plan or section 457(g) plan

Note. You may wish to consult with the financial institution requesting this form to determine whether the FATCA code and/or exempt payee code should be completed.

Line 5

Enter your address (number, street, and apartment or suite number). This is where the requester of this Form W-9 will mail your information returns.

Line 6

Enter your city, state, and ZIP code.

Part I. Taxpayer Identification Number (TIN)

Enter your TIN in the appropriate box. If you are a resident alien and you do not have and are not eligible to get an SSN, your TIN is your IRS individual taxpayer identification number (ITIN). Enter it in the social security number box. If you do not have an ITIN, see *How to get a TIN* below.

If you are a sole proprietor and you have an EIN, you may enter either your SSN or EIN. However, the IRS prefers that you use your SSN.

If you are a single-member LLC that is disregarded as an entity separate from its owner (see *Limited Liability Company (LLC)* on this page), enter the owner's SSN (or EIN, if the owner has one). Do not enter the disregarded entity's EIN. If the LLC is classified as a corporation or partnership, enter the entity's EIN.

Note. See the chart on page 4 for further clarification of name and TIN combinations.

How to get a TIN. If you do not have a TIN, apply for one immediately. To apply for an SSN, get Form SS-5, Application for a Social Security Card, from your local SSA office or get this form online at www.ssa.gov. You may also get this form by calling 1-800-772-1213. Use Form W-7, Application for IRS Individual Taxpayer Identification Number, to apply for an ITIN, or Form SS-4, Application for Employer Identification Number, to apply for an EIN. You can apply for an EIN online by accessing the IRS website at www.irs.gov/businesses and clicking on Employer Identification Number (EIN) under Starting a Business. You can get Forms W-7 and SS-4 from the IRS by visiting IRS.gov or by calling 1-800-TAX-FORM (1-800-829-3676).

If you are asked to complete Form W-9 but do not have a TIN, apply for a TIN and write "Applied For" in the space for the TIN, sign and date the form, and give it to the requester. For interest and dividend payments, and certain payments made with respect to readily tradable instruments, generally you will have 60 days to get a TIN and give it to the requester before you are subject to backup withholding on payments. The 60-day rule does not apply to other types of payments. You will be subject to backup withholding on all such payments until you provide your TIN to the requester.

Note. Entering "Applied For" means that you have already applied for a TIN or that you intend to apply for one soon.

Caution: A disregarded U.S. entity that has a foreign owner must use the appropriate Form W-8.

Part II. Certification

To establish to the withholding agent that you are a U.S. person, or resident alien, sign Form W-9. You may be requested to sign by the withholding agent even if items 1, 4, or 5 below indicate otherwise.

For a joint account, only the person whose TIN is shown in Part I should sign (when required). In the case of a disregarded entity, the person identified on line 1 must sign. Exempt payees, see *Exempt payee code* earlier.

Signature requirements. Complete the certification as indicated in items 1 through 5 below.

1. Interest, dividend, and barter exchange accounts opened before 1984 and broker accounts considered active during 1983. You must give your correct TIN, but you do not have to sign the certification.

2. Interest, dividend, broker, and barter exchange accounts opened after 1983 and broker accounts considered inactive during 1983. You must sign the certification or backup withholding will apply. If you are subject to backup withholding and you are merely providing your correct TIN to the requester, you must cross out item 2 in the certification before signing the form.

3. Real estate transactions. You must sign the certification. You may cross out item 2 of the certification.

4. Other payments. You must give your correct TIN, but you do not have to sign the certification unless you have been notified that you have previously given an incorrect TIN. "Other payments" include payments made in the course of the requester's trade or business for rents, royalties, goods (other than bills for merchandise), medical and health care services (including payments to corporations), payments to a nonemployee for services, payments made in settlement of payment card and third party network transactions, payments to certain fishing boat crew members and fishermen, and gross proceeds paid to attorneys (including payments to corporations).

5. Mortgage interest paid by you, acquisition or abandonment of secured property, cancellation of debt, qualified tuition program payments (under section 529), IRA, Coverdell ESA, Archer MSA or HSA contributions or distributions, and pension distributions. You must give your correct TIN, but you do not have to sign the certification.

What Name and Number To Give the Requester

For this type of account:	Give name and SSN of:
1. Individual	The individual
2. Two or more individuals (joint account)	The actual owner of the account or, if combined funds, the first individual on the account ¹
3. Custodian account of a minor (Uniform Gift to Minors Act)	The minor ²
4. a. The usual revocable savings trust (grantor is also trustee) b. So-called trust account that is not a legal or valid trust under state law	The grantor-trustee ¹ The actual owner ¹
5. Sole proprietorship or disregarded entity owned by an individual	The owner ³
6. Grantor trust filing under Optional Form 1099 Filing Method 1 (see Regulations section 1.671-4(b)(2)(i)(A))	The grantor ⁴
For this type of account:	Give name and EIN of:
7. Disregarded entity not owned by an individual	The owner
8. A valid trust, estate, or pension trust	Legal entity ⁴
9. Corporation or LLC electing corporate status on Form 8832 or Form 2553	The corporation
10. Association, club, religious, charitable, educational, or other tax-exempt organization	The organization
11. Partnership or multi-member LLC	The partnership
12. A broker or registered nominee	The broker or nominee
13. Account with the Department of Agriculture in the name of a public entity (such as a state or local government, school district, or prison) that receives agricultural program payments	The public entity
14. Grantor trust filing under the Form 1041 Filing Method or the Optional Form 1099 Filing Method 2 (see Regulations section 1.671-4(b)(2)(i)(B))	The trust

¹ List first and circle the name of the person whose number you furnish. If only one person on a joint account has an SSN, that person's number must be furnished.

² Circle the minor's name and furnish the minor's SSN.

³ You must show your individual name and you may also enter your business or DBA name on the "Business name/disregarded entity" name line. You may use either your SSN or EIN (if you have one), but the IRS encourages you to use your SSN.

⁴ List first and circle the name of the trust, estate, or pension trust. (Do not furnish the TIN of the personal representative or trustee unless the legal entity itself is not designated in the account title.) Also see *Special rules for partnerships* on page 2.

***Note.** Grantor also must provide a Form W-9 to trustee of trust.

Note. If no name is circled when more than one name is listed, the number will be considered to be that of the first name listed.

Secure Your Tax Records from Identity Theft

Identity theft occurs when someone uses your personal information such as your name, SSN, or other identifying information, without your permission, to commit fraud or other crimes. An identity thief may use your SSN to get a job or may file a tax return using your SSN to receive a refund.

To reduce your risk:

- Protect your SSN,
- Ensure your employer is protecting your SSN, and
- Be careful when choosing a tax preparer.

If your tax records are affected by identity theft and you receive a notice from the IRS, respond right away to the name and phone number printed on the IRS notice or letter.

If your tax records are not currently affected by identity theft but you think you are at risk due to a lost or stolen purse or wallet, questionable credit card activity or credit report, contact the IRS Identity Theft Hotline at 1-800-908-4490 or submit Form 14039.

For more information, see Publication 4535, Identity Theft Prevention and Victim Assistance.

Victims of identity theft who are experiencing economic harm or a system problem, or are seeking help in resolving tax problems that have not been resolved through normal channels, may be eligible for Taxpayer Advocate Service (TAS) assistance. You can reach TAS by calling the TAS toll-free case intake line at 1-877-777-4778 or TTY/TDD 1-800-829-4059.

Protect yourself from suspicious emails or phishing schemes. Phishing is the creation and use of email and websites designed to mimic legitimate business emails and websites. The most common act is sending an email to a user falsely claiming to be an established legitimate enterprise in an attempt to scam the user into surrendering private information that will be used for identity theft.

The IRS does not initiate contacts with taxpayers via emails. Also, the IRS does not request personal detailed information through email or ask taxpayers for the PIN numbers, passwords, or similar secret access information for their credit card, bank, or other financial accounts.

If you receive an unsolicited email claiming to be from the IRS, forward this message to phishing@irs.gov. You may also report misuse of the IRS name, logo, or other IRS property to the Treasury Inspector General for Tax Administration (TIGTA) at 1-800-366-4484. You can forward suspicious emails to the Federal Trade Commission at: spam@uce.gov or contact them at www.ftc.gov/idtheft or 1-877-IDTHEFT (1-877-438-4338).

Visit IRS.gov to learn more about identity theft and how to reduce your risk.

Privacy Act Notice

Section 6109 of the Internal Revenue Code requires you to provide your correct TIN to persons (including federal agencies) who are required to file information returns with the IRS to report interest, dividends, or certain other income paid to you; mortgage interest you paid; the acquisition or abandonment of secured property; the cancellation of debt; or contributions you made to an IRA, Archer MSA, or HSA. The person collecting this form uses the information on the form to file information returns with the IRS, reporting the above information. Routine uses of this information include giving it to the Department of Justice for civil and criminal litigation and to cities, states, the District of Columbia, and U.S. commonwealths and possessions for use in administering their laws. The information also may be disclosed to other countries under a treaty, to federal and state agencies to enforce civil and criminal laws, or to federal law enforcement and intelligence agencies to combat terrorism. You must provide your TIN whether or not you are required to file a tax return. Under section 3406, payers must generally withhold a percentage of taxable interest, dividend, and certain other payments to a payee who does not give a TIN to the payer. Certain penalties may also apply for providing false or fraudulent information.

CERTIFICATE OF GOOD STANDING

TO: Vendor

FROM: Purchasing Department

RE: **CERTIFICATE OF GOOD STANDING**

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

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

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

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

IMPORTANT NOTICE

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

Thank You,

Purchasing Director

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 is available from the Department of Labor Standards (DLS) at www.mass.gov/dols/pw 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.

On a weekly basis, every contractor and subcontractor is required to submit a certified copy of their weekly payroll records to the awarding authority; this includes the payroll forms and the Statement of Compliance form. The certified payroll records must be submitted either by regular mail or by e-mail to the awarding authority. Once collected, the awarding authority is required to preserve those records for three years from the date of completion of the project.

Each such contractor and subcontractor shall furnish weekly **and** within 15 days after completion of its portion of the work, to the awarding authority directly by first-class mail or e-mail, a statement, executed by the contractor, subcontractor or by any authorized officer thereof who supervised the payment of wages, this form, accompanied by their payroll:

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 Number		Work Week Ending:									
Awarding Authority's Name:		Public Works Project Name:				Public Works Project Location:				Min. Wage Rate Sheet Number									
General / Prime Contractor's Name:		Subcontractor's Name:						"Employer" Hourly Fringe Benefit Contributions											
				(B+C+D+E) (A x F)															
Employee Name & Complete Address	Work Classification:	Employee is OSHA 10 certified (?)	Appr. Rate (%)	Hours Worked								Project Hours (A) All Other Hours	Hourly Base Wage (B)	Health & Welfare Insurance (C)	ERISA Pension Plan (D)	Supp. Unemp. (E)	Total Hourly Prev. Wage (F)	Project Gross Wages Total Gross Wages	Check No. (H)
				Su.	Mo.	Tu.	We.	Th.	Fr.	Sa.									

Are all apprentice employees identified above currently registered with the MA DLS's Division of Apprentices Standards? YES ☐ NO ☐

For all apprentices performing work during the reporting period, attach a copy of the apprentice identification card issued by the Massachusetts Department of Labor Standards / Division of Apprentices Standards. No apprentices are identified above ☐

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

Date Received by Awarding Authority
 / /



CHARLES D. BAKER
Governor

KARYN E. POLITO
Lt. Governor

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

Prevailing Wage Rates

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

RONALD L. WALKER, II
Secretary

WILLIAM D MCKINNEY
Director

Awarding Authority: City of Somerville

Contract Number: City/Town: SOMERVILLE

Description of Work: Phase 1 Full Range Construction Services to renovate the lower play area at Winter Hill Community Innovation School located at 115 Sycamore Street. Approximately 10,000 square foot project area.

Job Location: 115 Sycamore Street, Somerville, MA

Information about Prevailing Wage Schedules for Awarding Authorities and Contractors

- This wage schedule applies only to the specific project referenced at the top of this page and uniquely identified by the "Wage Request Number" on all pages of this schedule.
- 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 Department of Labor Standards, Division of Apprentices Standards (DLS/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. **Any apprentice not registered with DLS/DAS regardless of whether or not they are registered with any other federal, state, local, or private agency 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

Issue Date: 03/02/2017

Wage Request Number: 20170302-024

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
Construction						
(2 AXLE) DRIVER - EQUIPMENT TEAMSTERS JOINT COUNCIL NO. 10 ZONE A	12/01/2016	\$33.25	\$10.91	\$10.89	\$0.00	\$55.05
(3 AXLE) DRIVER - EQUIPMENT TEAMSTERS JOINT COUNCIL NO. 10 ZONE A	12/01/2016	\$33.32	\$10.91	\$10.89	\$0.00	\$55.12
(4 & 5 AXLE) DRIVER - EQUIPMENT TEAMSTERS JOINT COUNCIL NO. 10 ZONE A	12/01/2016	\$33.44	\$10.91	\$10.89	\$0.00	\$55.24
ADS/SUBMERSIBLE PILOT PILE DRIVER LOCAL 56 (ZONE 1) For apprentice rates see "Apprentice- PILE DRIVER"	08/01/2015	\$88.29	\$9.80	\$19.23	\$0.00	\$117.32
AIR TRACK OPERATOR LABORERS - ZONE 1	12/01/2016	\$37.10	\$7.60	\$14.15	\$0.00	\$58.85
	06/01/2017	\$38.10	\$7.60	\$14.15	\$0.00	\$59.85
	12/01/2017	\$38.95	\$7.60	\$14.15	\$0.00	\$60.70
	06/01/2018	\$39.90	\$7.60	\$14.15	\$0.00	\$61.65
	12/01/2018	\$40.85	\$7.60	\$14.15	\$0.00	\$62.60
	06/01/2019	\$41.85	\$7.60	\$14.15	\$0.00	\$63.60
	12/01/2019	\$42.85	\$7.60	\$14.15	\$0.00	\$64.60
 For apprentice rates see "Apprentice- LABORER"						
ASBESTOS REMOVER - PIPE / MECH. EQUIPT. HEAT & FROST INSULATORS LOCAL 6 (BOSTON)	12/01/2016	\$33.90	\$11.50	\$7.10	\$0.00	\$52.50
	06/01/2017	\$34.90	\$11.50	\$7.10	\$0.00	\$53.50
	12/01/2017	\$35.90	\$11.50	\$7.10	\$0.00	\$54.50
	06/01/2018	\$36.90	\$11.50	\$7.10	\$0.00	\$55.50
	12/01/2018	\$37.90	\$11.50	\$7.10	\$0.00	\$56.50
	06/01/2019	\$38.90	\$11.50	\$7.10	\$0.00	\$57.50
	12/01/2019	\$39.90	\$11.50	\$7.10	\$0.00	\$58.50
	06/01/2020	\$40.90	\$11.50	\$7.10	\$0.00	\$59.50
	12/01/2020	\$41.90	\$11.50	\$7.10	\$0.00	\$60.50
ASPHALT RAKER LABORERS - ZONE 1	12/01/2016	\$36.60	\$7.60	\$14.15	\$0.00	\$58.35
	06/01/2017	\$37.60	\$7.60	\$14.15	\$0.00	\$59.35
	12/01/2017	\$38.45	\$7.60	\$14.15	\$0.00	\$60.20
	06/01/2018	\$39.40	\$7.60	\$14.15	\$0.00	\$61.15
	12/01/2018	\$40.35	\$7.60	\$14.15	\$0.00	\$62.10
	06/01/2019	\$41.35	\$7.60	\$14.15	\$0.00	\$63.10
	12/01/2019	\$42.35	\$7.60	\$14.15	\$0.00	\$64.10
 For apprentice rates see "Apprentice- LABORER"						
ASPHALT/CONCRETE/CRUSHER PLANT-ON SITE OPERATING ENGINEERS LOCAL 4	12/01/2016	\$45.38	\$10.00	\$15.25	\$0.00	\$70.63
	06/01/2017	\$46.38	\$10.00	\$15.25	\$0.00	\$71.63
	12/01/2017	\$47.38	\$10.00	\$15.25	\$0.00	\$72.63
 For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
BACKHOE/FRONT-END LOADER OPERATING ENGINEERS LOCAL 4	12/01/2016	\$45.38	\$10.00	\$15.25	\$0.00	\$70.63
	06/01/2017	\$46.38	\$10.00	\$15.25	\$0.00	\$71.63
	12/01/2017	\$47.38	\$10.00	\$15.25	\$0.00	\$72.63
 For apprentice rates see "Apprentice- OPERATING ENGINEERS"						

Issue Date: 03/02/2017

Wage Request Number: 20170302-024

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Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
BARCO-TYPE JUMPING TAMPER <i>LABORERS - ZONE 1</i>	12/01/2016	\$36.60	\$7.60	\$14.15	\$0.00	\$58.35
	06/01/2017	\$37.60	\$7.60	\$14.15	\$0.00	\$59.35
	12/01/2017	\$38.45	\$7.60	\$14.15	\$0.00	\$60.20
	06/01/2018	\$39.40	\$7.60	\$14.15	\$0.00	\$61.15
	12/01/2018	\$40.35	\$7.60	\$14.15	\$0.00	\$62.10
	06/01/2019	\$41.35	\$7.60	\$14.15	\$0.00	\$63.10
	12/01/2019	\$42.35	\$7.60	\$14.15	\$0.00	\$64.10

For apprentice rates see "Apprentice- LABORER"

BLOCK PAVER, RAMMER / CURB SETTER <i>LABORERS - ZONE 1</i>	12/01/2016	\$37.10	\$7.60	\$14.15	\$0.00	\$58.85
	06/01/2017	\$38.10	\$7.60	\$14.15	\$0.00	\$59.85
	12/01/2017	\$38.95	\$7.60	\$14.15	\$0.00	\$60.70
	06/01/2018	\$39.90	\$7.60	\$14.15	\$0.00	\$61.65
	12/01/2018	\$40.85	\$7.60	\$14.15	\$0.00	\$62.60
	06/01/2019	\$41.85	\$7.60	\$14.15	\$0.00	\$63.60
	12/01/2019	\$42.85	\$7.60	\$14.15	\$0.00	\$64.60

For apprentice rates see "Apprentice- LABORER"

BOILER MAKER <i>BOILERMAKERS LOCAL 29</i>	01/01/2017	\$42.92	\$6.97	\$16.21	\$0.00	\$66.10
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Apprentice - BOILERMAKER - Local 29

Effective Date - 01/01/2017

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	65	\$27.90	\$6.97	\$10.54	\$0.00	\$45.41
2	65	\$27.90	\$6.97	\$10.54	\$0.00	\$45.41
3	70	\$30.04	\$6.97	\$11.35	\$0.00	\$48.36
4	75	\$32.19	\$6.97	\$12.16	\$0.00	\$51.32
5	80	\$34.34	\$6.97	\$12.97	\$0.00	\$54.28
6	85	\$36.48	\$6.97	\$13.78	\$0.00	\$57.23
7	90	\$38.63	\$6.97	\$14.59	\$0.00	\$60.19
8	95	\$40.77	\$6.97	\$15.40	\$0.00	\$63.14

Notes:

Apprentice to Journeyworker Ratio:1:5

BRICK/STONE/ARTIFICIAL MASONRY (INCL. MASONRY WATERPROOFING) <i>BRICKLAYERS LOCAL 3 (BOSTON)</i>	03/01/2017	\$50.76	\$10.75	\$19.22	\$0.00	\$80.73
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Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
Apprentice - BRICK/PLASTER/CEMENT MASON - Local 3 Boston						
Effective Date - 03/01/2017						
Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$25.38	\$10.75	\$19.22	\$0.00	\$55.35
2	60	\$30.46	\$10.75	\$19.22	\$0.00	\$60.43
3	70	\$35.53	\$10.75	\$19.22	\$0.00	\$65.50
4	80	\$40.61	\$10.75	\$19.22	\$0.00	\$70.58
5	90	\$45.68	\$10.75	\$19.22	\$0.00	\$75.65

Notes:

Apprentice to Journeyworker Ratio:1:5

BULLDOZER/GRADER/SCRAPER <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2016	\$44.94	\$10.00	\$15.25	\$0.00	\$70.19
	06/01/2017	\$45.93	\$10.00	\$15.25	\$0.00	\$71.18
	12/01/2017	\$46.92	\$10.00	\$15.25	\$0.00	\$72.17

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

CAISSON & UNDERPINNING BOTTOM MAN <i>LABORERS - FOUNDATION AND MARINE</i>	12/01/2016	\$37.45	\$7.60	\$14.35	\$0.00	\$59.40
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For apprentice rates see "Apprentice- LABORER"

CAISSON & UNDERPINNING LABORER <i>LABORERS - FOUNDATION AND MARINE</i>	12/01/2016	\$36.30	\$7.60	\$14.35	\$0.00	\$58.25
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For apprentice rates see "Apprentice- LABORER"

CAISSON & UNDERPINNING TOP MAN <i>LABORERS - FOUNDATION AND MARINE</i>	12/01/2016	\$36.30	\$7.60	\$14.35	\$0.00	\$58.25
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For apprentice rates see "Apprentice- LABORER"

CARBIDE CORE DRILL OPERATOR <i>LABORERS - ZONE 1</i>	12/01/2016	\$36.60	\$7.60	\$14.15	\$0.00	\$58.35
	06/01/2017	\$37.60	\$7.60	\$14.15	\$0.00	\$59.35
	12/01/2017	\$38.45	\$7.60	\$14.15	\$0.00	\$60.20
	06/01/2018	\$39.40	\$7.60	\$14.15	\$0.00	\$61.15
	12/01/2018	\$40.35	\$7.60	\$14.15	\$0.00	\$62.10
	06/01/2019	\$41.35	\$7.60	\$14.15	\$0.00	\$63.10
	12/01/2019	\$42.35	\$7.60	\$14.15	\$0.00	\$64.10

For apprentice rates see "Apprentice- LABORER"

CARPENTER <i>CARPENTERS -ZONE 1 (Metro Boston)</i>	03/01/2017	\$45.81	\$9.90	\$17.00	\$0.00	\$72.71
	09/01/2017	\$46.93	\$9.90	\$17.00	\$0.00	\$73.83
	03/01/2018	\$48.04	\$9.90	\$17.00	\$0.00	\$74.94
	09/01/2018	\$49.19	\$9.90	\$17.00	\$0.00	\$76.09
	03/01/2019	\$50.34	\$9.90	\$17.00	\$0.00	\$77.24

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
Apprentice - CARPENTER - Zone 1 Metro Boston						
Effective Date - 03/01/2017						
Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$22.91	\$9.90	\$1.63	\$0.00	\$34.44
2	60	\$27.49	\$9.90	\$1.63	\$0.00	\$39.02
3	70	\$32.07	\$9.90	\$12.11	\$0.00	\$54.08
4	75	\$34.36	\$9.90	\$12.11	\$0.00	\$56.37
5	80	\$36.65	\$9.90	\$13.74	\$0.00	\$60.29
6	80	\$36.65	\$9.90	\$13.74	\$0.00	\$60.29
7	90	\$41.23	\$9.90	\$15.37	\$0.00	\$66.50
8	90	\$41.23	\$9.90	\$15.37	\$0.00	\$66.50
Effective Date - 09/01/2017						
Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$23.47	\$9.90	\$1.63	\$0.00	\$35.00
2	60	\$28.16	\$9.90	\$1.63	\$0.00	\$39.69
3	70	\$32.85	\$9.90	\$12.11	\$0.00	\$54.86
4	75	\$35.20	\$9.90	\$12.11	\$0.00	\$57.21
5	80	\$37.54	\$9.90	\$13.74	\$0.00	\$61.18
6	80	\$37.54	\$9.90	\$13.74	\$0.00	\$61.18
7	90	\$42.24	\$9.90	\$15.37	\$0.00	\$67.51
8	90	\$42.24	\$9.90	\$15.37	\$0.00	\$67.51
Notes:						
Apprentice to Journeyworker Ratio:1:5						
CEMENT MASONRY/PLASTERING						
<i>BRICKLAYERS LOCAL 3 (BOSTON)</i>						
	01/01/2017	\$45.67	\$12.20	\$19.41	\$1.30	\$78.58
	07/01/2017	\$46.30	\$12.20	\$19.41	\$1.30	\$79.21
	01/01/2018	\$46.54	\$12.20	\$19.41	\$1.30	\$79.45
	07/01/2018	\$46.79	\$12.20	\$19.41	\$1.30	\$79.70
	01/01/2019	\$47.03	\$12.20	\$19.41	\$1.30	\$79.94
	07/01/2019	\$47.27	\$12.20	\$19.41	\$1.30	\$80.18
	01/01/2020	\$47.52	\$12.20	\$19.41	\$1.30	\$80.43

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
Apprentice - CEMENT MASONRY/PLASTERING - Eastern Mass (Boston)						
Effective Date - 01/01/2017						
Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$22.84	\$12.20	\$12.41	\$0.00	\$47.45
2	60	\$27.40	\$12.20	\$14.41	\$1.30	\$55.31
3	65	\$29.69	\$12.20	\$15.41	\$1.30	\$58.60
4	70	\$31.97	\$12.20	\$16.41	\$1.30	\$61.88
5	75	\$34.25	\$12.20	\$17.41	\$1.30	\$65.16
6	80	\$36.54	\$12.20	\$18.41	\$1.30	\$68.45
7	90	\$41.10	\$12.20	\$19.41	\$1.30	\$74.01
Effective Date - 07/01/2017						
Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$23.15	\$12.20	\$12.41	\$0.00	\$47.76
2	60	\$27.78	\$12.20	\$14.41	\$1.30	\$55.69
3	65	\$30.10	\$12.20	\$15.41	\$1.30	\$59.01
4	70	\$32.41	\$12.20	\$16.41	\$1.30	\$62.32
5	75	\$34.73	\$12.20	\$17.41	\$1.30	\$65.64
6	80	\$37.04	\$12.20	\$18.41	\$1.30	\$68.95
7	90	\$41.67	\$12.20	\$19.41	\$1.30	\$74.58
Notes:						
Steps 3,4 are 500 hrs. All other steps are 1,000 hrs.						
Apprentice to Journeyworker Ratio:1:3						
CHAIN SAW OPERATOR						
<i>LABORERS - ZONE 1</i>						
	12/01/2016	\$36.60	\$7.60	\$14.15	\$0.00	\$58.35
	06/01/2017	\$37.60	\$7.60	\$14.15	\$0.00	\$59.35
	12/01/2017	\$38.45	\$7.60	\$14.15	\$0.00	\$60.20
	06/01/2018	\$39.40	\$7.60	\$14.15	\$0.00	\$61.15
	12/01/2018	\$40.35	\$7.60	\$14.15	\$0.00	\$62.10
	06/01/2019	\$41.35	\$7.60	\$14.15	\$0.00	\$63.10
	12/01/2019	\$42.35	\$7.60	\$14.15	\$0.00	\$64.10
For apprentice rates see "Apprentice- LABORER"						
CLAM SHELLS/SLURRY BUCKETS/HEADING MACHINES						
<i>OPERATING ENGINEERS LOCAL 4</i>						
	12/01/2016	\$46.38	\$10.00	\$15.25	\$0.00	\$71.63
	06/01/2017	\$47.38	\$10.00	\$15.25	\$0.00	\$72.63
	12/01/2017	\$48.38	\$10.00	\$15.25	\$0.00	\$73.63
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
COMPRESSOR OPERATOR						
<i>OPERATING ENGINEERS LOCAL 4</i>						
	12/01/2016	\$31.17	\$10.00	\$15.25	\$0.00	\$56.42
	06/01/2017	\$31.86	\$10.00	\$15.25	\$0.00	\$57.11
	12/01/2017	\$32.55	\$10.00	\$15.25	\$0.00	\$57.80
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
DELEADER (BRIDGE)						
<i>PAINTERS LOCAL 35 - ZONE 1</i>						
	01/01/2017	\$51.41	\$7.85	\$16.10	\$0.00	\$75.36

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
Apprentice - PAINTER Local 35 - BRIDGES/TANKS						
Effective Date - 01/01/2017						
Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$25.71	\$7.85	\$0.00	\$0.00	\$33.56
2	55	\$28.28	\$7.85	\$3.66	\$0.00	\$39.79
3	60	\$30.85	\$7.85	\$3.99	\$0.00	\$42.69
4	65	\$33.42	\$7.85	\$4.32	\$0.00	\$45.59
5	70	\$35.99	\$7.85	\$14.11	\$0.00	\$57.95
6	75	\$38.56	\$7.85	\$14.44	\$0.00	\$60.85
7	80	\$41.13	\$7.85	\$14.77	\$0.00	\$63.75
8	90	\$46.27	\$7.85	\$15.44	\$0.00	\$69.56
<div>Notes:<div>Steps are 750 hrs.</div></div>						
Apprentice to Journeyworker Ratio:1:1						
DEMO: ADZEMAN <i>LABORERS - ZONE 1</i>	12/01/2016	\$36.50	\$7.60	\$14.15	\$0.00	\$58.25
	06/01/2017	\$37.50	\$7.60	\$14.15	\$0.00	\$59.25
	12/01/2017	\$38.35	\$7.60	\$14.15	\$0.00	\$60.10
	06/01/2018	\$39.30	\$7.60	\$14.15	\$0.00	\$61.05
	12/01/2018	\$40.25	\$7.60	\$14.15	\$0.00	\$62.00
	06/01/2019	\$41.25	\$7.60	\$14.15	\$0.00	\$63.00
	12/01/2019	\$42.25	\$7.60	\$14.15	\$0.00	\$64.00
For apprentice rates see "Apprentice- LABORER"						
DEMO: BACKHOE/LOADER/HAMMER OPERATOR <i>LABORERS - ZONE 1</i>	12/01/2016	\$37.50	\$7.60	\$14.15	\$0.00	\$59.25
	06/01/2017	\$38.50	\$7.60	\$14.15	\$0.00	\$60.25
	12/01/2017	\$39.35	\$7.60	\$14.15	\$0.00	\$61.10
	06/01/2018	\$40.30	\$7.60	\$14.15	\$0.00	\$62.05
	12/01/2018	\$41.25	\$7.60	\$14.15	\$0.00	\$63.00
	06/01/2019	\$42.25	\$7.60	\$14.15	\$0.00	\$64.00
	12/01/2019	\$43.25	\$7.60	\$14.15	\$0.00	\$65.00
For apprentice rates see "Apprentice- LABORER"						
DEMO: BURNERS <i>LABORERS - ZONE 1</i>	12/01/2016	\$37.25	\$7.60	\$14.15	\$0.00	\$59.00
	06/01/2017	\$38.25	\$7.60	\$14.15	\$0.00	\$60.00
	12/01/2017	\$39.10	\$7.60	\$14.15	\$0.00	\$60.85
	06/01/2018	\$40.05	\$7.60	\$14.15	\$0.00	\$61.80
	12/01/2018	\$41.00	\$7.60	\$14.15	\$0.00	\$62.75
	06/01/2019	\$42.00	\$7.60	\$14.15	\$0.00	\$63.75
	12/01/2019	\$43.00	\$7.60	\$14.15	\$0.00	\$64.75
For apprentice rates see "Apprentice- LABORER"						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
DEMO: CONCRETE CUTTER/SAWYER <i>LABORERS - ZONE 1</i>	12/01/2016	\$37.50	\$7.60	\$14.15	\$0.00	\$59.25
	06/01/2017	\$38.50	\$7.60	\$14.15	\$0.00	\$60.25
	12/01/2017	\$39.35	\$7.60	\$14.15	\$0.00	\$61.10
	06/01/2018	\$40.30	\$7.60	\$14.15	\$0.00	\$62.05
	12/01/2018	\$41.25	\$7.60	\$14.15	\$0.00	\$63.00
	06/01/2019	\$42.25	\$7.60	\$14.15	\$0.00	\$64.00
	12/01/2019	\$43.25	\$7.60	\$14.15	\$0.00	\$65.00
For apprentice rates see "Apprentice- LABORER"						
DEMO: JACKHAMMER OPERATOR <i>LABORERS - ZONE 1</i>	12/01/2016	\$37.25	\$7.60	\$14.15	\$0.00	\$59.00
	06/01/2017	\$38.25	\$7.60	\$14.15	\$0.00	\$60.00
	12/01/2017	\$39.10	\$7.60	\$14.15	\$0.00	\$60.85
	06/01/2018	\$40.05	\$7.60	\$14.15	\$0.00	\$61.80
	12/01/2018	\$41.00	\$7.60	\$14.15	\$0.00	\$62.75
	06/01/2019	\$42.00	\$7.60	\$14.15	\$0.00	\$63.75
	12/01/2019	\$43.00	\$7.60	\$14.15	\$0.00	\$64.75
For apprentice rates see "Apprentice- LABORER"						
DEMO: WRECKING LABORER <i>LABORERS - ZONE 1</i>	12/01/2016	\$36.50	\$7.60	\$14.15	\$0.00	\$58.25
	06/01/2017	\$37.50	\$7.60	\$14.15	\$0.00	\$59.25
	12/01/2017	\$38.35	\$7.60	\$14.15	\$0.00	\$60.10
	06/01/2018	\$39.30	\$7.60	\$14.15	\$0.00	\$61.05
	12/01/2018	\$40.25	\$7.60	\$14.15	\$0.00	\$62.00
	06/01/2019	\$41.25	\$7.60	\$14.15	\$0.00	\$63.00
	12/01/2019	\$42.25	\$7.60	\$14.15	\$0.00	\$64.00
For apprentice rates see "Apprentice- LABORER"						
DIRECTIONAL DRILL MACHINE OPERATOR <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2016	\$44.94	\$10.00	\$15.25	\$0.00	\$70.19
	06/01/2017	\$45.93	\$10.00	\$15.25	\$0.00	\$71.18
	12/01/2017	\$46.92	\$10.00	\$15.25	\$0.00	\$72.17
	For apprentice rates see "Apprentice- OPERATING ENGINEERS"					
DIVER <i>PILE DRIVER LOCAL 56 (ZONE 1)</i>	08/01/2015	\$58.86	\$9.80	\$19.23	\$0.00	\$87.89
	For apprentice rates see "Apprentice- PILE DRIVER"					
DIVER TENDER <i>PILE DRIVER LOCAL 56 (ZONE 1)</i>	08/01/2015	\$42.04	\$9.80	\$19.23	\$0.00	\$71.07
	For apprentice rates see "Apprentice- PILE DRIVER"					
DIVER TENDER (EFFLUENT) <i>PILE DRIVER LOCAL 56 (ZONE 1)</i>	08/01/2015	\$63.06	\$9.80	\$19.23	\$0.00	\$92.09
	For apprentice rates see "Apprentice- PILE DRIVER"					
DIVER/SLURRY (EFFLUENT) <i>PILE DRIVER LOCAL 56 (ZONE 1)</i>	08/01/2015	\$88.23	\$9.80	\$19.23	\$0.00	\$117.26
	For apprentice rates see "Apprentice- PILE DRIVER"					
DRAWBRIDGE OPERATOR (Construction) <i>ELECTRICIANS LOCAL 103</i>	03/01/2017	\$48.33	\$13.00	\$17.45	\$0.00	\$78.78
	09/01/2017	\$49.28	\$13.00	\$17.48	\$0.00	\$79.76
	03/01/2018	\$50.48	\$13.00	\$17.51	\$0.00	\$80.99
	09/01/2018	\$51.67	\$13.00	\$17.55	\$0.00	\$82.22
	03/01/2019	\$52.87	\$13.00	\$17.59	\$0.00	\$83.46
For apprentice rates see "Apprentice- ELECTRICIAN"						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
ELECTRICIAN	03/01/2017	\$48.33	\$13.00	\$17.45	\$0.00	\$78.78
<i>ELECTRICIANS LOCAL 103</i>	09/01/2017	\$49.28	\$13.00	\$17.48	\$0.00	\$79.76
	03/01/2018	\$50.48	\$13.00	\$17.51	\$0.00	\$80.99
	09/01/2018	\$51.67	\$13.00	\$17.55	\$0.00	\$82.22
	03/01/2019	\$52.87	\$13.00	\$17.59	\$0.00	\$83.46

Apprentice - *ELECTRICIAN - Local 103*

Effective Date - 03/01/2017

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	\$19.33	\$13.00	\$0.58	\$0.00	\$32.91
2	40	\$19.33	\$13.00	\$0.58	\$0.00	\$32.91
3	45	\$21.75	\$13.00	\$13.37	\$0.00	\$48.12
4	45	\$21.75	\$13.00	\$13.37	\$0.00	\$48.12
5	50	\$24.17	\$13.00	\$13.75	\$0.00	\$50.92
6	55	\$26.58	\$13.00	\$14.11	\$0.00	\$53.69
7	60	\$29.00	\$13.00	\$14.48	\$0.00	\$56.48
8	65	\$31.41	\$13.00	\$14.85	\$0.00	\$59.26
9	70	\$33.83	\$13.00	\$15.22	\$0.00	\$62.05
10	75	\$36.25	\$13.00	\$15.60	\$0.00	\$64.85

Effective Date - 09/01/2017

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	\$19.71	\$13.00	\$0.59	\$0.00	\$33.30
2	40	\$19.71	\$13.00	\$0.59	\$0.00	\$33.30
3	45	\$22.18	\$13.00	\$13.39	\$0.00	\$48.57
4	45	\$22.18	\$13.00	\$13.39	\$0.00	\$48.57
5	50	\$24.64	\$13.00	\$13.76	\$0.00	\$51.40
6	55	\$27.10	\$13.00	\$14.12	\$0.00	\$54.22
7	60	\$29.57	\$13.00	\$14.50	\$0.00	\$57.07
8	65	\$32.03	\$13.00	\$14.87	\$0.00	\$59.90
9	70	\$34.50	\$13.00	\$15.25	\$0.00	\$62.75
10	75	\$36.96	\$13.00	\$15.62	\$0.00	\$65.58

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

Apprentice to Journeyworker Ratio:2:3***

ELEVATOR CONSTRUCTOR	01/01/2017	\$55.86	\$15.28	\$15.71	\$0.00	\$86.85
<i>ELEVATOR CONSTRUCTORS LOCAL 4</i>						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
Apprentice - <i>ELEVATOR CONSTRUCTOR - Local 4</i>	01/01/2017					
Effective Date - 01/01/2017						
Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$27.93	\$15.28	\$0.00	\$0.00	\$43.21
2	55	\$30.72	\$15.28	\$15.71	\$0.00	\$61.71
3	65	\$36.31	\$15.28	\$15.71	\$0.00	\$67.30
4	70	\$39.10	\$15.28	\$15.71	\$0.00	\$70.09
5	80	\$44.69	\$15.28	\$15.71	\$0.00	\$75.68

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

Apprentice to Journeyworker Ratio:1:1

ELEVATOR CONSTRUCTOR HELPER	01/01/2017	\$39.10	\$15.28	\$15.71	\$0.00	\$70.09
<i>ELEVATOR CONSTRUCTORS LOCAL 4</i>						

For apprentice rates see "Apprentice - ELEVATOR CONSTRUCTOR"

FENCE & GUARD RAIL ERECTOR	12/01/2016	\$36.60	\$7.60	\$14.15	\$0.00	\$58.35
<i>LABORERS - ZONE 1</i>	06/01/2017	\$37.60	\$7.60	\$14.15	\$0.00	\$59.35
	12/01/2017	\$38.45	\$7.60	\$14.15	\$0.00	\$60.20
	06/01/2018	\$39.40	\$7.60	\$14.15	\$0.00	\$61.15
	12/01/2018	\$40.35	\$7.60	\$14.15	\$0.00	\$62.10
	06/01/2019	\$41.35	\$7.60	\$14.15	\$0.00	\$63.10
	12/01/2019	\$42.35	\$7.60	\$14.15	\$0.00	\$64.10

For apprentice rates see "Apprentice- LABORER"

FIELD ENG.INST.PERSON-BLDG,SITE,HVY/HWY	11/01/2016	\$41.37	\$10.00	\$15.15	\$0.00	\$66.52
<i>OPERATING ENGINEERS LOCAL 4</i>	05/01/2017	\$42.25	\$10.00	\$15.15	\$0.00	\$67.40
	11/01/2017	\$42.98	\$10.00	\$15.15	\$0.00	\$68.13
	05/01/2018	\$43.69	\$10.00	\$15.15	\$0.00	\$68.84

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

FIELD ENG.PARTY CHIEF-BLDG,SITE,HVY/HWY	11/01/2016	\$42.82	\$10.00	\$15.15	\$0.00	\$67.97
<i>OPERATING ENGINEERS LOCAL 4</i>	05/01/2017	\$43.71	\$10.00	\$15.15	\$0.00	\$68.86
	11/01/2017	\$44.44	\$10.00	\$15.15	\$0.00	\$69.59
	05/01/2018	\$45.16	\$10.00	\$15.15	\$0.00	\$70.31

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

FIELD ENG.ROD PERSON-BLDG,SITE,HVY/HWY	11/01/2016	\$21.98	\$10.00	\$15.15	\$0.00	\$47.13
<i>OPERATING ENGINEERS LOCAL 4</i>	05/01/2017	\$22.51	\$10.00	\$15.15	\$0.00	\$47.66
	11/01/2017	\$22.93	\$10.00	\$15.15	\$0.00	\$48.08
	05/01/2018	\$23.36	\$10.00	\$15.15	\$0.00	\$48.51

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

FIRE ALARM INSTALLER	03/01/2017	\$48.33	\$13.00	\$17.45	\$0.00	\$78.78
<i>ELECTRICIANS LOCAL 103</i>	09/01/2017	\$49.28	\$13.00	\$17.48	\$0.00	\$79.76
	03/01/2018	\$50.48	\$13.00	\$17.51	\$0.00	\$80.99
	09/01/2018	\$51.67	\$13.00	\$17.55	\$0.00	\$82.22
	03/01/2019	\$52.87	\$13.00	\$17.59	\$0.00	\$83.46

For apprentice rates see "Apprentice- ELECTRICIAN"

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
FIRE ALARM REPAIR / MAINTENANCE / COMMISSIONING <i>ELECTRICIANS</i> <i>LOCAL 103</i>	03/01/2017	\$36.25	\$13.00	\$15.60	\$0.00	\$64.85
	09/01/2017	\$36.96	\$13.00	\$15.62	\$0.00	\$65.58
	03/01/2018	\$37.86	\$13.00	\$15.65	\$0.00	\$66.51
	09/01/2018	\$38.75	\$13.00	\$15.67	\$0.00	\$67.42
	03/01/2019	\$39.65	\$13.00	\$15.70	\$0.00	\$68.35
For apprentice rates see "Apprentice- TELECOMMUNICATIONS TECHNICIAN"						
FIREMAN (ASST. ENGINEER) <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2016	\$37.65	\$10.00	\$15.25	\$0.00	\$62.90
	06/01/2017	\$38.49	\$10.00	\$15.25	\$0.00	\$63.74
	12/01/2017	\$39.32	\$10.00	\$15.25	\$0.00	\$64.57
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
FLAGGER & SIGNALER <i>LABORERS - ZONE 1</i>	12/01/2016	\$20.50	\$7.60	\$14.15	\$0.00	\$42.25
For apprentice rates see "Apprentice- LABORER"						
FLOORCOVERER <i>FLOORCOVERERS LOCAL 2168 ZONE 1</i>	03/01/2016	\$42.13	\$9.80	\$17.62	\$0.00	\$69.55

Apprentice - FLOORCOVERER - Local 2168 Zone 1

Effective Date - 03/01/2016

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$21.07	\$9.80	\$1.79	\$0.00	\$32.66
2	55	\$23.17	\$9.80	\$1.79	\$0.00	\$34.76
3	60	\$25.28	\$9.80	\$12.25	\$0.00	\$47.33
4	65	\$27.38	\$9.80	\$12.25	\$0.00	\$49.43
5	70	\$29.49	\$9.80	\$14.04	\$0.00	\$53.33
6	75	\$31.60	\$9.80	\$14.04	\$0.00	\$55.44
7	80	\$33.70	\$9.80	\$15.83	\$0.00	\$59.33
8	85	\$35.81	\$9.80	\$15.83	\$0.00	\$61.44

Notes:
Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

FORK LIFT/CHERRY PICKER <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2016	\$45.38	\$10.00	\$15.25	\$0.00	\$70.63
	06/01/2017	\$46.38	\$10.00	\$15.25	\$0.00	\$71.63
	12/01/2017	\$47.38	\$10.00	\$15.25	\$0.00	\$72.63
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
GENERATOR/LIGHTING PLANT/HEATERS <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2016	\$31.17	\$10.00	\$15.25	\$0.00	\$56.42
	06/01/2017	\$31.86	\$10.00	\$15.25	\$0.00	\$57.11
	12/01/2017	\$32.55	\$10.00	\$15.25	\$0.00	\$57.80
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
GLAZIER (GLASS PLANK/AIR BARRIER/INTERIOR SYSTEMS) <i>GLAZIERS LOCAL 35 (ZONE 1)</i>	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 - 01/01/2017						
Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$23.35	\$7.85	\$0.00	\$0.00	\$31.20
2	55	\$25.69	\$7.85	\$3.66	\$0.00	\$37.20
3	60	\$28.02	\$7.85	\$3.99	\$0.00	\$39.86
4	65	\$30.36	\$7.85	\$4.32	\$0.00	\$42.53
5	70	\$32.69	\$7.85	\$14.11	\$0.00	\$54.65
6	75	\$35.03	\$7.85	\$14.44	\$0.00	\$57.32
7	80	\$37.36	\$7.85	\$14.77	\$0.00	\$59.98
8	90	\$42.03	\$7.85	\$15.44	\$0.00	\$65.32
Notes: Steps are 750 hrs.						
Apprentice to Journeyworker Ratio:1:1						
HOISTING ENGINEER/CRANES/GRADALLS <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2016	\$45.38	\$10.00	\$15.25	\$0.00	\$70.63
	06/01/2017	\$46.38	\$10.00	\$15.25	\$0.00	\$71.63
	12/01/2017	\$47.38	\$10.00	\$15.25	\$0.00	\$72.63

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate	
Apprentice - OPERATING ENGINEERS - Local 4							
Effective Date - 12/01/2016							
Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate	
1	55	\$24.96	\$10.00	\$0.00	\$0.00	\$34.96	
2	60	\$27.23	\$10.00	\$15.25	\$0.00	\$52.48	
3	65	\$29.50	\$10.00	\$15.25	\$0.00	\$54.75	
4	70	\$31.77	\$10.00	\$15.25	\$0.00	\$57.02	
5	75	\$34.04	\$10.00	\$15.25	\$0.00	\$59.29	
6	80	\$36.30	\$10.00	\$15.25	\$0.00	\$61.55	
7	85	\$38.57	\$10.00	\$15.25	\$0.00	\$63.82	
8	90	\$40.84	\$10.00	\$15.25	\$0.00	\$66.09	
Effective Date - 06/01/2017							
Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate	
1	55	\$25.51	\$10.00	\$0.00	\$0.00	\$35.51	
2	60	\$27.83	\$10.00	\$15.25	\$0.00	\$53.08	
3	65	\$30.15	\$10.00	\$15.25	\$0.00	\$55.40	
4	70	\$32.47	\$10.00	\$15.25	\$0.00	\$57.72	
5	75	\$34.79	\$10.00	\$15.25	\$0.00	\$60.04	
6	80	\$37.10	\$10.00	\$15.25	\$0.00	\$62.35	
7	85	\$39.42	\$10.00	\$15.25	\$0.00	\$64.67	
8	90	\$41.74	\$10.00	\$15.25	\$0.00	\$66.99	
Notes:							
Apprentice to Journeyworker Ratio:1:6							
HVAC (DUCTWORK)		02/01/2017	\$43.72	\$11.45	\$23.07	\$2.35	\$80.59
SHEETMETAL WORKERS LOCAL 17 - A		08/01/2017	\$44.82	\$11.45	\$23.07	\$2.35	\$81.69
For apprentice rates see "Apprentice- SHEET METAL WORKER"		02/01/2018	\$45.97	\$11.45	\$23.07	\$2.35	\$82.84
HVAC (ELECTRICAL CONTROLS)		03/01/2017	\$48.33	\$13.00	\$17.45	\$0.00	\$78.78
ELECTRICIANS LOCAL 103		09/01/2017	\$49.28	\$13.00	\$17.48	\$0.00	\$79.76
		03/01/2018	\$50.48	\$13.00	\$17.51	\$0.00	\$80.99
		09/01/2018	\$51.67	\$13.00	\$17.55	\$0.00	\$82.22
		03/01/2019	\$52.87	\$13.00	\$17.59	\$0.00	\$83.46
For apprentice rates see "Apprentice- ELECTRICIAN"							
HVAC (TESTING AND BALANCING - AIR)		02/01/2017	\$43.72	\$11.45	\$23.07	\$2.35	\$80.59
SHEETMETAL WORKERS LOCAL 17 - A		08/01/2017	\$44.82	\$11.45	\$23.07	\$2.35	\$81.69
For apprentice rates see "Apprentice- SHEET METAL WORKER"		02/01/2018	\$45.97	\$11.45	\$23.07	\$2.35	\$82.84
HVAC (TESTING AND BALANCING -WATER)		03/01/2017	\$51.19	\$9.70	\$18.14	\$0.00	\$79.03
PIPEFITTERS LOCAL 537							
For apprentice rates see "Apprentice- PIPEFITTER" or "PLUMBER/PIPEFITTER"							
HVAC MECHANIC		03/01/2017	\$51.19	\$9.70	\$18.14	\$0.00	\$79.03
PIPEFITTERS LOCAL 537							

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
For apprentice rates see "Apprentice- PIPEFITTER" or "PLUMBER/PIPEFITTER"						
HYDRAULIC DRILLS						
LABORERS - ZONE 1						
	12/01/2016	\$37.10	\$7.60	\$14.15	\$0.00	\$58.85
	06/01/2017	\$38.10	\$7.60	\$14.15	\$0.00	\$59.85
	12/01/2017	\$38.95	\$7.60	\$14.15	\$0.00	\$60.70
	06/01/2018	\$39.90	\$7.60	\$14.15	\$0.00	\$61.65
	12/01/2018	\$40.85	\$7.60	\$14.15	\$0.00	\$62.60
	06/01/2019	\$41.85	\$7.60	\$14.15	\$0.00	\$63.60
	12/01/2019	\$42.85	\$7.60	\$14.15	\$0.00	\$64.60
For apprentice rates see "Apprentice- LABORER"						
INSULATOR (PIPES & TANKS)						
HEAT & FROST INSULATORS LOCAL 6 (BOSTON)						
	09/01/2016	\$45.09	\$11.75	\$14.20	\$0.00	\$71.04
	09/01/2017	\$47.09	\$11.75	\$14.20	\$0.00	\$73.04
	09/01/2018	\$49.34	\$11.75	\$14.20	\$0.00	\$75.29
	09/01/2019	\$51.84	\$11.75	\$14.20	\$0.00	\$77.79
Apprentice - ASBESTOS INSULATOR (Pipes & Tanks) - Local 6 Boston						
Effective Date - 09/01/2016						
Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$22.55	\$11.75	\$10.45	\$0.00	\$44.75
2	60	\$27.05	\$11.75	\$11.20	\$0.00	\$50.00
3	70	\$31.56	\$11.75	\$11.95	\$0.00	\$55.26
4	80	\$36.07	\$11.75	\$12.70	\$0.00	\$60.52
Effective Date - 09/01/2017						
Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$23.55	\$11.75	\$10.45	\$0.00	\$45.75
2	60	\$28.25	\$11.75	\$11.20	\$0.00	\$51.20
3	70	\$32.96	\$11.75	\$11.95	\$0.00	\$56.66
4	80	\$37.67	\$11.75	\$12.70	\$0.00	\$62.12
<div>Notes:</div>						
Steps are 1 year						
Apprentice to Journeyworker Ratio:1:4						
IRONWORKER/WELDER						
IRONWORKERS LOCAL 7 (BOSTON AREA)						
	09/16/2016	\$44.05	\$7.80	\$20.85	\$0.00	\$72.70
	03/16/2017	\$44.65	\$7.80	\$20.85	\$0.00	\$73.30

Classification Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - IRONWORKER - Local 7 Boston						
Effective Date - 09/16/2016						
Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$26.43	\$7.80	\$20.85	\$0.00	\$55.08
2	70	\$30.84	\$7.80	\$20.85	\$0.00	\$59.49
3	75	\$33.04	\$7.80	\$20.85	\$0.00	\$61.69
4	80	\$35.24	\$7.80	\$20.85	\$0.00	\$63.89
5	85	\$37.44	\$7.80	\$20.85	\$0.00	\$66.09
6	90	\$39.65	\$7.80	\$20.85	\$0.00	\$68.30

Effective Date - 03/16/2017						
Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$26.79	\$7.80	\$20.85	\$0.00	\$55.44
2	70	\$31.26	\$7.80	\$20.85	\$0.00	\$59.91
3	75	\$33.49	\$7.80	\$20.85	\$0.00	\$62.14
4	80	\$35.72	\$7.80	\$20.85	\$0.00	\$64.37
5	85	\$37.95	\$7.80	\$20.85	\$0.00	\$66.60
6	90	\$40.19	\$7.80	\$20.85	\$0.00	\$68.84

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

Apprentice to Journeyworker Ratio:**

JACKHAMMER & PAVING BREAKER OPERATOR LABORERS - ZONE 1	12/01/2016	\$36.60	\$7.60	\$14.15	\$0.00	\$58.35
	06/01/2017	\$37.60	\$7.60	\$14.15	\$0.00	\$59.35
	12/01/2017	\$38.45	\$7.60	\$14.15	\$0.00	\$60.20
	06/01/2018	\$39.40	\$7.60	\$14.15	\$0.00	\$61.15
	12/01/2018	\$40.35	\$7.60	\$14.15	\$0.00	\$62.10
	06/01/2019	\$41.35	\$7.60	\$14.15	\$0.00	\$63.10
	12/01/2019	\$42.35	\$7.60	\$14.15	\$0.00	\$64.10

For apprentice rates see "Apprentice- LABORER"

LABORER LABORERS - ZONE 1	12/01/2016	\$36.35	\$7.60	\$14.15	\$0.00	\$58.10
	06/01/2017	\$37.35	\$7.60	\$14.15	\$0.00	\$59.10
	12/01/2017	\$38.20	\$7.60	\$14.15	\$0.00	\$59.95
	06/01/2018	\$39.15	\$7.60	\$14.15	\$0.00	\$60.90
	12/01/2018	\$40.10	\$7.60	\$14.15	\$0.00	\$61.85
	06/01/2019	\$41.10	\$7.60	\$14.15	\$0.00	\$62.85
	12/01/2019	\$42.10	\$7.60	\$14.15	\$0.00	\$63.85

Classification Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - LABORER - Zone 1						
Effective Date - 12/01/2016						
Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$21.81	\$7.60	\$14.15	\$0.00	\$43.56
2	70	\$25.45	\$7.60	\$14.15	\$0.00	\$47.20
3	80	\$29.08	\$7.60	\$14.15	\$0.00	\$50.83
4	90	\$32.72	\$7.60	\$14.15	\$0.00	\$54.47

Effective Date - 06/01/2017						
Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$22.41	\$7.60	\$14.15	\$0.00	\$44.16
2	70	\$26.15	\$7.60	\$14.15	\$0.00	\$47.90
3	80	\$29.88	\$7.60	\$14.15	\$0.00	\$51.63
4	90	\$33.62	\$7.60	\$14.15	\$0.00	\$55.37

Notes:

Apprentice to Journeyworker Ratio:1:5

LABORER: CARPENTER TENDER LABORERS - ZONE 1	12/01/2016	\$36.35	\$7.60	\$14.15	\$0.00	\$58.10
	06/01/2017	\$37.35	\$7.60	\$14.15	\$0.00	\$59.10
	12/01/2017	\$38.20	\$7.60	\$14.15	\$0.00	\$59.95
	06/01/2018	\$39.15	\$7.60	\$14.15	\$0.00	\$60.90
	12/01/2018	\$40.10	\$7.60	\$14.15	\$0.00	\$61.85
	06/01/2019	\$41.10	\$7.60	\$14.15	\$0.00	\$62.85
For apprentice rates see "Apprentice- LABORER"	12/01/2019	\$42.10	\$7.60	\$14.15	\$0.00	\$63.85

LABORER: CEMENT FINISHER TENDER LABORERS - ZONE 1	12/01/2016	\$36.35	\$7.60	\$14.15	\$0.00	\$58.10
	06/01/2017	\$37.35	\$7.60	\$14.15	\$0.00	\$59.10
	12/01/2017	\$38.20	\$7.60	\$14.15	\$0.00	\$59.95
	06/01/2018	\$39.15	\$7.60	\$14.15	\$0.00	\$60.90
	12/01/2018	\$40.10	\$7.60	\$14.15	\$0.00	\$61.85
	06/01/2019	\$41.10	\$7.60	\$14.15	\$0.00	\$62.85
	12/01/2019	\$42.10	\$7.60	\$14.15	\$0.00	\$63.85

For apprentice rates see "Apprentice- LABORER"

LABORER: HAZARDOUS WASTE/ASBESTOS REMOVER LABORERS - ZONE 1	12/01/2016	\$36.50	\$7.60	\$14.15	\$0.00	\$58.25
	06/01/2017	\$37.50	\$7.60	\$14.15	\$0.00	\$59.25
	12/01/2017	\$38.35	\$7.60	\$14.15	\$0.00	\$60.10
	06/01/2018	\$39.30	\$7.60	\$14.15	\$0.00	\$61.05
	12/01/2018	\$40.25	\$7.60	\$14.15	\$0.00	\$62.00
	06/01/2019	\$41.25	\$7.60	\$14.15	\$0.00	\$63.00
	12/01/2019	\$42.28	\$7.60	\$14.15	\$0.00	\$64.03

For apprentice rates see "Apprentice- LABORER"

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
LABORER: MASON TENDER <i>LABORERS - ZONE 1</i>	12/01/2016	\$36.60	\$7.60	\$14.15	\$0.00	\$58.35
	06/01/2017	\$37.60	\$7.60	\$14.15	\$0.00	\$59.35
	12/01/2017	\$38.45	\$7.60	\$14.15	\$0.00	\$60.20
	06/01/2018	\$39.40	\$7.60	\$14.15	\$0.00	\$61.15
	12/01/2018	\$40.35	\$7.60	\$14.15	\$0.00	\$62.10
	06/01/2019	\$41.35	\$7.60	\$14.15	\$0.00	\$63.10
	12/01/2019	\$42.35	\$7.60	\$14.15	\$0.00	\$64.10
For apprentice rates see "Apprentice- LABORER"						
LABORER: MULTI-TRADE TENDER <i>LABORERS - ZONE 1</i>	12/01/2016	\$36.35	\$7.60	\$14.15	\$0.00	\$58.10
	06/01/2017	\$37.35	\$7.60	\$14.15	\$0.00	\$59.10
	12/01/2017	\$38.20	\$7.60	\$14.15	\$0.00	\$59.95
	06/01/2018	\$39.15	\$7.60	\$14.15	\$0.00	\$60.90
	12/01/2018	\$40.10	\$7.60	\$14.15	\$0.00	\$61.85
	06/01/2019	\$41.10	\$7.60	\$14.15	\$0.00	\$62.85
	12/01/2019	\$42.10	\$7.60	\$14.15	\$0.00	\$63.85
For apprentice rates see "Apprentice- LABORER"						
LABORER: TREE REMOVER <i>LABORERS - ZONE 1</i>	12/01/2016	\$36.35	\$7.60	\$14.15	\$0.00	\$58.10
	06/01/2017	\$37.35	\$7.60	\$14.15	\$0.00	\$59.10
	12/01/2017	\$38.20	\$7.60	\$14.15	\$0.00	\$59.95
	06/01/2018	\$39.15	\$7.60	\$14.15	\$0.00	\$60.90
	12/01/2018	\$40.10	\$7.60	\$14.15	\$0.00	\$61.85
	06/01/2019	\$41.10	\$7.60	\$14.15	\$0.00	\$62.85
	12/01/2019	\$42.10	\$7.60	\$14.15	\$0.00	\$63.85
This classification applies to all tree work associated with the removal of standing trees, and trimming and removal of branches and limbs when the work is not done for a utility company for the purpose of operation, maintenance or repair of utility company equipment. For apprentice rates see "Apprentice- LABORER"						
LASER BEAM OPERATOR <i>LABORERS - ZONE 1</i>	12/01/2016	\$36.60	\$7.60	\$14.15	\$0.00	\$58.35
	06/01/2017	\$37.60	\$7.60	\$14.15	\$0.00	\$59.35
	12/01/2017	\$38.45	\$7.60	\$14.15	\$0.00	\$60.20
	06/01/2018	\$39.40	\$7.60	\$14.15	\$0.00	\$61.15
	12/01/2018	\$40.35	\$7.60	\$14.15	\$0.00	\$62.10
	06/01/2019	\$41.35	\$7.60	\$14.15	\$0.00	\$63.10
	12/01/2019	\$42.35	\$7.60	\$14.15	\$0.00	\$64.10
For apprentice rates see "Apprentice- LABORER"						
MARBLE & TILE FINISHERS <i>BRICKLAYERS LOCAL 3 - MARBLE & TILE</i>	02/01/2017	\$38.78	\$10.75	\$17.67	\$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 - 02/01/2017						
Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$19.39	\$10.75	\$17.67	\$0.00	\$47.81
2	60	\$23.27	\$10.75	\$17.67	\$0.00	\$51.69
3	70	\$27.15	\$10.75	\$17.67	\$0.00	\$55.57
4	80	\$31.02	\$10.75	\$17.67	\$0.00	\$59.44
5	90	\$34.90	\$10.75	\$17.67	\$0.00	\$63.32
Notes:						
Apprentice to Journeyworker Ratio:1:3						
MARBLE MASONS,TILELAYERS & TERRAZZO MECH <i>BRICKLAYERS LOCAL 3 - MARBLE & TILE</i>	02/01/2017	\$50.80	\$10.75	\$19.22	\$0.00	\$80.77
Apprentice - MARBLE-TILE-TERRAZZO MECHANIC - Local 3 Marble & Tile						
Effective Date - 02/01/2017						
Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$25.40	\$10.75	\$19.22	\$0.00	\$55.37
2	60	\$30.48	\$10.75	\$19.22	\$0.00	\$60.45
3	70	\$35.56	\$10.75	\$19.22	\$0.00	\$65.53
4	80	\$40.64	\$10.75	\$19.22	\$0.00	\$70.61
5	90	\$45.72	\$10.75	\$19.22	\$0.00	\$75.69
Notes:						
Apprentice to Journeyworker Ratio:1:5						
MECH. SWEEPER OPERATOR (ON CONST. SITES) <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2016	\$44.94	\$10.00	\$15.25	\$0.00	\$70.19
	06/01/2017	\$45.93	\$10.00	\$15.25	\$0.00	\$71.18
	12/01/2017	\$46.92	\$10.00	\$15.25	\$0.00	\$72.17
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
MECHANICS MAINTENANCE <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2016	\$44.94	\$10.00	\$15.25	\$0.00	\$70.19
	06/01/2017	\$45.93	\$10.00	\$15.25	\$0.00	\$71.18
	12/01/2017	\$46.92	\$10.00	\$15.25	\$0.00	\$72.17
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
MILLWRIGHT (Zone 1) <i>MILLWRIGHTS LOCAL 1121 - Zone 1</i>	10/01/2016	\$37.97	\$9.90	\$18.25	\$0.00	\$66.12
	04/01/2017	\$38.87	\$9.90	\$18.25	\$0.00	\$67.02
	10/01/2017	\$39.77	\$9.90	\$18.25	\$0.00	\$67.92
	04/01/2018	\$40.67	\$9.90	\$18.25	\$0.00	\$68.82
	10/01/2018	\$41.57	\$9.90	\$18.25	\$0.00	\$69.72
	04/01/2019	\$42.47	\$9.90	\$18.25	\$0.00	\$70.62

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
Apprentice - MILLWRIGHT - Local 1121 Zone 1						
Effective Date - 10/01/2016						
Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	55	\$20.88	\$9.90	\$5.17	\$0.00	\$35.95
2	65	\$24.68	\$9.90	\$14.96	\$0.00	\$49.54
3	75	\$28.48	\$9.90	\$15.91	\$0.00	\$54.29
4	85	\$32.27	\$9.90	\$16.84	\$0.00	\$59.01
Effective Date - 04/01/2017						
Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	55	\$21.38	\$9.90	\$5.17	\$0.00	\$36.45
2	65	\$25.27	\$9.90	\$14.96	\$0.00	\$50.13
3	75	\$29.15	\$9.90	\$15.91	\$0.00	\$54.96
4	85	\$33.04	\$9.90	\$16.84	\$0.00	\$59.78
Notes:						
Steps are 2,000 hours						
Apprentice to Journeyworker Ratio:1:5						
MORTAR MIXER						
<i>LABORERS - ZONE 1</i>						
	12/01/2016	\$36.60	\$7.60	\$14.15	\$0.00	\$58.35
	06/01/2017	\$37.60	\$7.60	\$14.15	\$0.00	\$59.35
	12/01/2017	\$38.45	\$7.60	\$14.15	\$0.00	\$60.20
	06/01/2018	\$39.40	\$7.60	\$14.15	\$0.00	\$61.15
	12/01/2018	\$40.35	\$7.60	\$14.15	\$0.00	\$62.10
	06/01/2019	\$41.35	\$7.60	\$14.15	\$0.00	\$63.10
	12/01/2019	\$42.35	\$7.60	\$14.15	\$0.00	\$64.10
For apprentice rates see "Apprentice- LABORER"						
OILER (OTHER THAN TRUCK CRANES,GRADALLS)						
<i>OPERATING ENGINEERS LOCAL 4</i>						
	12/01/2016	\$22.96	\$10.00	\$15.25	\$0.00	\$48.21
	06/01/2017	\$23.47	\$10.00	\$15.25	\$0.00	\$48.72
	12/01/2017	\$23.99	\$10.00	\$15.25	\$0.00	\$49.24
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
OILER (TRUCK CRANES, GRADALLS)						
<i>OPERATING ENGINEERS LOCAL 4</i>						
	12/01/2016	\$26.94	\$10.00	\$15.25	\$0.00	\$52.19
	06/01/2017	\$27.54	\$10.00	\$15.25	\$0.00	\$52.79
	12/01/2017	\$28.15	\$10.00	\$15.25	\$0.00	\$53.40
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
OTHER POWER DRIVEN EQUIPMENT - CLASS II						
<i>OPERATING ENGINEERS LOCAL 4</i>						
	12/01/2016	\$44.94	\$10.00	\$15.25	\$0.00	\$70.19
	06/01/2017	\$45.93	\$10.00	\$15.25	\$0.00	\$71.18
	12/01/2017	\$46.92	\$10.00	\$15.25	\$0.00	\$72.17
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
PAINTER (BRIDGES/TANKS)						
<i>PAINTERS LOCAL 35 - ZONE 1</i>						
	01/01/2017	\$51.41	\$7.85	\$16.10	\$0.00	\$75.36

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
Apprentice - PAINTER Local 35 - BRIDGES/TANKS						
Effective Date - 01/01/2017						
Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$25.71	\$7.85	\$0.00	\$0.00	\$33.56
2	55	\$28.28	\$7.85	\$3.66	\$0.00	\$39.79
3	60	\$30.85	\$7.85	\$3.99	\$0.00	\$42.69
4	65	\$33.42	\$7.85	\$4.32	\$0.00	\$45.59
5	70	\$35.99	\$7.85	\$14.11	\$0.00	\$57.95
6	75	\$38.56	\$7.85	\$14.44	\$0.00	\$60.85
7	80	\$41.13	\$7.85	\$14.77	\$0.00	\$63.75
8	90	\$46.27	\$7.85	\$15.44	\$0.00	\$69.56
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. <i>PAINTERS LOCAL 35 - ZONE 1</i>						
	01/01/2017	\$48.10	\$7.85	\$16.10	\$0.00	\$72.05
Apprentice - PAINTER Local 35 Zone 1 - Spray/Sandblast - New						
Effective Date - 01/01/2017						
Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$24.05	\$7.85	\$0.00	\$0.00	\$31.90
2	55	\$26.46	\$7.85	\$3.66	\$0.00	\$37.97
3	60	\$28.86	\$7.85	\$3.99	\$0.00	\$40.70
4	65	\$31.27	\$7.85	\$4.32	\$0.00	\$43.44
5	70	\$33.67	\$7.85	\$14.11	\$0.00	\$55.63
6	75	\$36.08	\$7.85	\$14.44	\$0.00	\$58.37
7	80	\$38.48	\$7.85	\$14.77	\$0.00	\$61.10
8	90	\$43.29	\$7.85	\$15.44	\$0.00	\$66.58
Notes:						
Steps are 750 hrs.						
Apprentice to Journeyworker Ratio:1:1						
PAINTER (SPRAY OR SANDBLAST, REPAINT)						
<i>PAINTERS LOCAL 35 - ZONE 1</i>						
	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 - 01/01/2017						
Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$23.08	\$7.85	\$0.00	\$0.00	\$30.93
2	55	\$25.39	\$7.85	\$3.66	\$0.00	\$36.90
3	60	\$27.70	\$7.85	\$3.99	\$0.00	\$39.54
4	65	\$30.00	\$7.85	\$4.32	\$0.00	\$42.17
5	70	\$32.31	\$7.85	\$14.11	\$0.00	\$54.27
6	75	\$34.62	\$7.85	\$14.44	\$0.00	\$56.91
7	80	\$36.93	\$7.85	\$14.77	\$0.00	\$59.55
8	90	\$41.54	\$7.85	\$15.44	\$0.00	\$64.83
Notes: Steps are 750 hrs.						
Apprentice to Journeyworker Ratio:1:1						
PAINTER (TRAFFIC MARKINGS)						
<i>LABORERS - ZONE 1</i>						
		12/01/2016	\$36.35	\$7.60	\$14.15	\$0.00 \$58.10
		06/01/2017	\$37.35	\$7.60	\$14.15	\$0.00 \$59.10
		12/01/2017	\$38.20	\$7.60	\$14.15	\$0.00 \$59.95
		06/01/2018	\$39.15	\$7.60	\$14.15	\$0.00 \$60.90
		12/01/2018	\$40.10	\$7.60	\$14.15	\$0.00 \$61.85
		06/01/2019	\$41.10	\$7.60	\$14.15	\$0.00 \$62.85
		12/01/2019	\$42.10	\$7.60	\$14.15	\$0.00 \$63.85
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. <i>PAINTERS LOCAL 35 - ZONE 1</i>						
		01/01/2017	\$46.70	\$7.85	\$16.10	\$0.00 \$70.65

Apprentice - PAINTER - Local 35 Zone 1 - BRUSH NEW						
Effective Date - 01/01/2017						
Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$23.35	\$7.85	\$0.00	\$0.00	\$31.20
2	55	\$25.69	\$7.85	\$3.66	\$0.00	\$37.20
3	60	\$28.02	\$7.85	\$3.99	\$0.00	\$39.86
4	65	\$30.36	\$7.85	\$4.32	\$0.00	\$42.53
5	70	\$32.69	\$7.85	\$14.11	\$0.00	\$54.65
6	75	\$35.03	\$7.85	\$14.44	\$0.00	\$57.32
7	80	\$37.36	\$7.85	\$14.77	\$0.00	\$59.98
8	90	\$42.03	\$7.85	\$15.44	\$0.00	\$65.32
Notes: Steps are 750 hrs.						
Apprentice to Journeyworker Ratio:1:1						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
PAINTER / TAPER (BRUSH, REPAINT)	01/01/2017	\$44.76	\$7.85	\$16.10	\$0.00	\$68.71
<i>PAINTERS LOCAL 35 - ZONE 1</i>						
Apprentice - PAINTER Local 35 Zone 1 - BRUSH REPAINT						
Effective Date - 01/01/2017						
Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$22.38	\$7.85	\$0.00	\$0.00	\$30.23
2	55	\$24.62	\$7.85	\$3.66	\$0.00	\$36.13
3	60	\$26.86	\$7.85	\$3.99	\$0.00	\$38.70
4	65	\$29.09	\$7.85	\$4.32	\$0.00	\$41.26
5	70	\$31.33	\$7.85	\$14.11	\$0.00	\$53.29
6	75	\$33.57	\$7.85	\$14.44	\$0.00	\$55.86
7	80	\$35.81	\$7.85	\$14.77	\$0.00	\$58.43
8	90	\$40.28	\$7.85	\$15.44	\$0.00	\$63.57
Notes: Steps are 750 hrs.						
Apprentice to Journeyworker Ratio:1:1						
PANEL & PICKUP TRUCKS DRIVER						
<i>TEAMSTERS JOINT COUNCIL NO. 10 ZONE A</i>						
		12/01/2016	\$33.08	\$10.91	\$10.89	\$0.00 \$54.88
PIER AND DOCK CONSTRUCTOR (UNDERPINNING AND DECK)						
08/01/2015 \$42.04 \$9.80 \$19.23 \$0.00 \$71.07						
<i>PILE DRIVER LOCAL 56 (ZONE 1)</i>						
For apprentice rates see "Apprentice- PILE DRIVER"						
PILE DRIVER						
<i>PILE DRIVER LOCAL 56 (ZONE 1)</i>						
		08/01/2015	\$42.04	\$9.80	\$19.23	\$0.00 \$71.07

Apprentice - PILE DRIVER - Local 56 Zone 1						
Effective Date - 08/01/2015						
Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$21.02	\$9.80	\$19.23	\$0.00	\$50.05
2	60	\$25.22	\$9.80	\$19.23	\$0.00	\$54.25
3	70	\$29.43	\$9.80	\$19.23	\$0.00	\$58.46
4	75	\$31.53	\$9.80	\$19.23	\$0.00	\$60.56
5	80	\$33.63	\$9.80	\$19.23	\$0.00	\$62.66
6	80	\$33.63	\$9.80	\$19.23	\$0.00	\$62.66
7	90	\$37.84	\$9.80	\$19.23	\$0.00	\$66.87
8	90	\$37.84	\$9.80	\$19.23	\$0.00	\$66.87
Notes:						
Apprentice to Journeyworker Ratio:1:3						
PIPEFITTER & STEAMFITTER						
<i>PIPEFITTERS LOCAL 537</i>						
		03/01/2017	\$51.19	\$9.70	\$18.14	\$0.00 \$79.03

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
Apprentice - PIPEFITTER - Local 537						
Effective Date - 03/01/2017						
Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	\$20.48	\$9.70	\$7.50	\$0.00	\$37.68
2	45	\$23.04	\$9.70	\$18.14	\$0.00	\$50.88
3	60	\$30.71	\$9.70	\$18.14	\$0.00	\$58.55
4	70	\$35.83	\$9.70	\$18.14	\$0.00	\$63.67
5	80	\$40.95	\$9.70	\$18.14	\$0.00	\$68.79
<div>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)</div>						
Apprentice to Journeyworker Ratio:**						
<hr/>						
PIPELAYER <i>LABORERS - ZONE 1</i>	12/01/2016	\$36.60	\$7.60	\$14.15	\$0.00	\$58.35
	06/01/2017	\$37.60	\$7.60	\$14.15	\$0.00	\$59.35
	12/01/2017	\$38.45	\$7.60	\$14.15	\$0.00	\$60.20
	06/01/2018	\$39.40	\$7.60	\$14.15	\$0.00	\$61.15
	12/01/2018	\$40.35	\$7.60	\$14.15	\$0.00	\$62.10
	06/01/2019	\$41.35	\$7.60	\$14.15	\$0.00	\$63.10
	12/01/2019	\$42.35	\$7.60	\$14.15	\$0.00	\$64.10
For apprentice rates see "Apprentice- LABORER"						
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PLUMBERS & GASFITTERS						
<i>PLUMBERS & GASFITTERS LOCAL 12</i>						
<hr/>						
Apprentice - PLUMBER/GASFITTER - Local 12						
Effective Date - 03/01/2017						
Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	35	\$18.44	\$11.32	\$5.74	\$0.00	\$35.50
2	40	\$21.08	\$11.32	\$6.49	\$0.00	\$38.89
3	55	\$28.98	\$11.32	\$8.73	\$0.00	\$49.03
4	65	\$34.25	\$11.32	\$10.23	\$0.00	\$55.80
5	75	\$39.52	\$11.32	\$11.72	\$0.00	\$62.56
<div>Notes: ** 1:2; 2:6; 3:10; 4:14; 5:19/Steps are 1 yr Step4 with lic\$58.50 Step5 with lic\$65.36</div>						
Apprentice to Journeyworker Ratio:**						
<hr/>						
PNEUMATIC CONTROLS (TEMP.)						
<i>PIPEFITTERS LOCAL 537</i>						
For apprentice rates see "Apprentice- PIPEFITTER" or "PLUMBER/PIPEFITTER"						
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Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
PNEUMATIC DRILL/TOOL OPERATOR <i>LABORERS - ZONE 1</i>	12/01/2016	\$36.60	\$7.60	\$14.15	\$0.00	\$58.35
	06/01/2017	\$37.60	\$7.60	\$14.15	\$0.00	\$59.35
	12/01/2017	\$38.45	\$7.60	\$14.15	\$0.00	\$60.20
	06/01/2018	\$39.40	\$7.60	\$14.15	\$0.00	\$61.15
	12/01/2018	\$40.35	\$7.60	\$14.15	\$0.00	\$62.10
	06/01/2019	\$41.35	\$7.60	\$14.15	\$0.00	\$63.10
	12/01/2019	\$42.35	\$7.60	\$14.15	\$0.00	\$64.10
For apprentice rates see "Apprentice- LABORER"						
POWDERMAN & BLASTER <i>LABORERS - ZONE 1</i>	12/01/2016	\$37.35	\$7.60	\$14.15	\$0.00	\$59.10
	06/01/2017	\$38.35	\$7.60	\$14.15	\$0.00	\$60.10
	12/01/2017	\$39.20	\$7.60	\$14.15	\$0.00	\$60.95
	06/01/2018	\$40.15	\$7.60	\$14.15	\$0.00	\$61.90
	12/01/2018	\$41.10	\$7.60	\$14.15	\$0.00	\$62.85
	06/01/2019	\$42.10	\$7.60	\$14.15	\$0.00	\$63.85
	12/01/2019	\$43.10	\$7.60	\$14.15	\$0.00	\$64.85
For apprentice rates see "Apprentice- LABORER"						
POWER SHOVEL/DERRICK/TRENCHING MACHINE <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2016	\$45.38	\$10.00	\$15.25	\$0.00	\$70.63
	06/01/2017	\$46.38	\$10.00	\$15.25	\$0.00	\$71.63
	12/01/2017	\$47.38	\$10.00	\$15.25	\$0.00	\$72.63
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
PUMP OPERATOR (CONCRETE) <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2016	\$45.38	\$10.00	\$15.25	\$0.00	\$70.63
	06/01/2017	\$46.38	\$10.00	\$15.25	\$0.00	\$71.63
	12/01/2017	\$47.38	\$10.00	\$15.25	\$0.00	\$72.63
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
PUMP OPERATOR (DEWATERING, OTHER) <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2016	\$31.17	\$10.00	\$15.25	\$0.00	\$56.42
	06/01/2017	\$31.86	\$10.00	\$15.25	\$0.00	\$57.11
	12/01/2017	\$32.55	\$10.00	\$15.25	\$0.00	\$57.80
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
READY MIX CONCRETE DRIVERS after 4/30/10 (Drivers Hired After 4/30/2010) <i>TEAMSTERS LOCAL 25a</i>	07/01/2016	\$28.03	\$8.23	\$9.31	\$0.00	\$45.57
	05/01/2017	\$28.18	\$8.23	\$9.72	\$0.00	\$46.13
	07/01/2017	\$28.18	\$8.48	\$9.72	\$0.00	\$46.38
READY-MIX CONCRETE DRIVER <i>TEAMSTERS LOCAL 25a</i>	07/01/2016	\$31.29	\$8.23	\$9.31	\$0.00	\$48.83
	05/01/2017	\$31.44	\$8.23	\$9.72	\$0.00	\$49.39
	07/01/2017	\$31.44	\$8.48	\$9.72	\$0.00	\$49.64
RECLAIMERS <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2016	\$44.94	\$10.00	\$15.25	\$0.00	\$70.19
	06/01/2017	\$45.93	\$10.00	\$15.25	\$0.00	\$71.18
	12/01/2017	\$46.92	\$10.00	\$15.25	\$0.00	\$72.17
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
RESIDENTIAL WOOD FRAME (All Other Work) <i>CARPENTERS -ZONE 1 (Residential Wood)</i>	06/01/2016	\$43.92	\$9.80	\$16.82	\$0.00	\$70.54
RESIDENTIAL WOOD FRAME CARPENTER ** ** The Residential Wood Frame Carpenter classification applies only to the construction of new, wood frame residences that do not exceed four stories including the basement. <i>CARPENTERS -ZONE 1 (Residential Wood)</i>	10/01/2016	\$30.37	\$7.07	\$7.18	\$0.00	\$44.62
	04/01/2017	\$31.06	\$7.07	\$7.18	\$0.00	\$45.31
	10/01/2017	\$31.75	\$7.07	\$7.18	\$0.00	\$46.00
	04/01/2018	\$32.22	\$7.07	\$7.18	\$0.00	\$46.47
	10/01/2018	\$32.69	\$7.07	\$7.18	\$0.00	\$46.94
	04/01/2019	\$33.17	\$7.07	\$7.18	\$0.00	\$47.42
	10/01/2019	\$33.65	\$7.07	\$7.18	\$0.00	\$47.90

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
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 - 10/01/2016						
Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$18.22	\$7.07	\$0.00	\$0.00	\$25.29
2	60	\$18.22	\$7.07	\$0.00	\$0.00	\$25.29
3	65	\$19.74	\$7.07	\$7.18	\$0.00	\$33.99
4	70	\$21.26	\$7.07	\$7.18	\$0.00	\$35.51
5	75	\$22.78	\$7.07	\$7.18	\$0.00	\$37.03
6	80	\$24.30	\$7.07	\$7.18	\$0.00	\$38.55
7	85	\$25.81	\$7.07	\$7.18	\$0.00	\$40.06
8	90	\$27.33	\$7.07	\$7.18	\$0.00	\$41.58
Effective Date - 04/01/2017						
Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$18.64	\$7.07	\$0.00	\$0.00	\$25.71
2	60	\$18.64	\$7.07	\$0.00	\$0.00	\$25.71
3	65	\$20.19	\$7.07	\$7.18	\$0.00	\$34.44
4	70	\$21.74	\$7.07	\$7.18	\$0.00	\$35.99
5	75	\$23.30	\$7.07	\$7.18	\$0.00	\$37.55
6	80	\$24.85	\$7.07	\$7.18	\$0.00	\$39.10
7	85	\$26.40	\$7.07	\$7.18	\$0.00	\$40.65
8	90	\$27.95	\$7.07	\$7.18	\$0.00	\$42.20
Notes:						
Apprentice to Journeyworker Ratio:1:5						
RIDE-ON MOTORIZED BUGGY OPERATOR LABORERS - ZONE 1	12/01/2016	\$36.60	\$7.60	\$14.15	\$0.00	\$58.35
	06/01/2017	\$37.60	\$7.60	\$14.15	\$0.00	\$59.35
	12/01/2017	\$38.45	\$7.60	\$14.15	\$0.00	\$60.20
	06/01/2018	\$39.40	\$7.60	\$14.15	\$0.00	\$61.15
	12/01/2018	\$40.35	\$7.60	\$14.15	\$0.00	\$62.10
	06/01/2019	\$41.35	\$7.60	\$14.15	\$0.00	\$63.10
	12/01/2019	\$42.35	\$7.60	\$14.15	\$0.00	\$64.10
For apprentice rates see "Apprentice- LABORER"						
ROLLER/SPREADER/MULCHING MACHINE OPERATING ENGINEERS LOCAL 4	12/01/2016	\$44.94	\$10.00	\$15.25	\$0.00	\$70.19
	06/01/2017	\$45.93	\$10.00	\$15.25	\$0.00	\$71.18
	12/01/2017	\$46.92	\$10.00	\$15.25	\$0.00	\$72.17
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
ROOFER (Inc.Roofers Waterproofing &Roofers Damproofg) ROOFERS LOCAL 33	02/01/2017	\$41.36	\$11.10	\$13.80	\$0.00	\$66.26
	08/01/2017	\$42.46	\$11.10	\$13.80	\$0.00	\$67.36
	02/01/2018	\$43.61	\$11.10	\$13.80	\$0.00	\$68.51
	08/01/2018	\$44.71	\$11.10	\$13.80	\$0.00	\$69.61
	02/01/2019	\$45.86	\$11.10	\$13.80	\$0.00	\$70.76

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
Apprentice - ROOFER - Local 33						
Effective Date - 02/01/2017						
Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$20.68	\$11.10	\$3.44	\$0.00	\$35.22
2	60	\$24.82	\$11.10	\$13.80	\$0.00	\$49.72
3	65	\$26.88	\$11.10	\$13.80	\$0.00	\$51.78
4	75	\$31.02	\$11.10	\$13.80	\$0.00	\$55.92
5	85	\$35.16	\$11.10	\$13.80	\$0.00	\$60.06
Effective Date - 08/01/2017						
Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$21.23	\$11.10	\$3.44	\$0.00	\$35.77
2	60	\$25.48	\$11.10	\$13.80	\$0.00	\$50.38
3	65	\$27.60	\$11.10	\$13.80	\$0.00	\$52.50
4	75	\$31.85	\$11.10	\$13.80	\$0.00	\$56.75
5	85	\$36.09	\$11.10	\$13.80	\$0.00	\$60.99
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. (Hot Pitch Mechanics' receive \$1.00 hr. above ROOFER)						
Apprentice to Journeyworker Ratio:**						
ROOFER SLATE / TILE / PRECAST CONCRETE ROOFERS LOCAL 33	02/01/2017	\$41.61	\$11.10	\$13.80	\$0.00	\$66.51
	08/01/2017	\$42.71	\$11.10	\$13.80	\$0.00	\$67.61
	02/01/2018	\$43.86	\$11.10	\$13.80	\$0.00	\$68.76
	08/01/2018	\$44.96	\$11.10	\$13.80	\$0.00	\$69.86
	02/01/2019	\$46.11	\$11.10	\$13.80	\$0.00	\$71.01
For apprentice rates see "Apprentice- ROOFER"						
SHEETMETAL WORKER SHEETMETAL WORKERS LOCAL 17 - A	02/01/2017	\$43.72	\$11.45	\$23.07	\$2.35	\$80.59
	08/01/2017	\$44.82	\$11.45	\$23.07	\$2.35	\$81.69
	02/01/2018	\$45.97	\$11.45	\$23.07	\$2.35	\$82.84

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
Apprentice - SHEET METAL WORKER - Local 17-A						
Effective Date - 02/01/2017						
Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	\$17.49	\$11.45	\$5.24	\$0.00	\$34.18
2	40	\$17.49	\$11.45	\$5.24	\$0.00	\$34.18
3	45	\$19.67	\$11.45	\$10.31	\$1.24	\$42.67
4	45	\$19.67	\$11.45	\$10.31	\$1.24	\$42.67
5	50	\$21.86	\$11.45	\$11.21	\$1.34	\$45.86
6	50	\$21.86	\$11.45	\$11.46	\$1.34	\$46.11
7	60	\$26.23	\$11.45	\$13.02	\$1.52	\$52.22
8	65	\$28.42	\$11.45	\$13.93	\$1.61	\$55.41
9	75	\$32.79	\$11.45	\$15.74	\$1.80	\$61.78
10	85	\$37.16	\$11.45	\$17.05	\$1.97	\$67.63
Effective Date - 08/01/2017						
Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	\$17.93	\$11.45	\$5.24	\$0.00	\$34.62
2	40	\$17.93	\$11.45	\$5.24	\$0.00	\$34.62
3	45	\$20.17	\$11.45	\$10.31	\$1.26	\$43.19
4	45	\$20.17	\$11.45	\$10.31	\$1.26	\$43.19
5	50	\$22.41	\$11.45	\$11.21	\$1.35	\$46.42
6	50	\$22.41	\$11.45	\$11.46	\$1.36	\$46.68
7	60	\$26.89	\$11.45	\$13.02	\$1.54	\$52.90
8	65	\$29.13	\$11.45	\$13.93	\$1.64	\$56.15
9	75	\$33.62	\$11.45	\$15.74	\$1.82	\$62.63
10	85	\$38.10	\$11.45	\$17.05	\$2.00	\$68.60
Notes: Steps are 6 mos.						
Apprentice to Journeyworker Ratio:1:4						
SIGN ERECTOR <i>PAINTERS LOCAL 35 - ZONE 1</i>	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 <i>TEAMSTERS JOINT COUNCIL NO. 10 ZONE A</i>	12/01/2016	\$33.54	\$10.91	\$10.89	\$0.00	\$55.34
SPECIALIZED EARTH MOVING EQUIP > 35 TONS <i>TEAMSTERS JOINT COUNCIL NO. 10 ZONE A</i>	12/01/2016	\$33.83	\$10.91	\$10.89	\$0.00	\$55.63
SPRINKLER FITTER <i>SPRINKLER FITTERS LOCAL 550 - (Section A) Zone 1</i>	03/01/2017	\$56.08	\$8.77	\$17.20	\$0.00	\$82.05
Apprentice - SPRINKLER FITTER - Local 550 (Section A) Zone 1						
Effective Date - 03/01/2017						
Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	35	\$19.63	\$8.52	\$8.70	\$0.00	\$36.85
2	40	\$22.43	\$8.52	\$8.70	\$0.00	\$39.65
3	45	\$25.24	\$8.52	\$8.70	\$0.00	\$42.46
4	50	\$28.04	\$8.52	\$8.70	\$0.00	\$45.26
5	55	\$30.84	\$8.52	\$8.70	\$0.00	\$48.06
6	60	\$33.65	\$8.52	\$10.20	\$0.00	\$52.37
7	65	\$36.45	\$8.52	\$10.20	\$0.00	\$55.17
8	70	\$39.26	\$8.52	\$10.20	\$0.00	\$57.98
9	75	\$42.06	\$8.52	\$10.20	\$0.00	\$60.78
10	80	\$44.86	\$8.52	\$10.20	\$0.00	\$63.58
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 <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2016	\$44.94	\$10.00	\$15.25	\$0.00	\$70.19
	06/01/2017	\$45.93	\$10.00	\$15.25	\$0.00	\$71.18
	12/01/2017	\$46.92	\$10.00	\$15.25	\$0.00	\$72.17

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
TAMPERS, SELF-PROPELLED OR TRACTOR DRAWN <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2016	\$44.94	\$10.00	\$15.25	\$0.00	\$70.19
	06/01/2017	\$45.93	\$10.00	\$15.25	\$0.00	\$71.18
	12/01/2017	\$46.92	\$10.00	\$15.25	\$0.00	\$72.17
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
TELECOMMUNICATION TECHNICIAN <i>ELECTRICIANS LOCAL 103</i>	03/01/2017	\$36.25	\$13.00	\$15.60	\$0.00	\$64.85
	09/01/2017	\$36.96	\$13.00	\$15.62	\$0.00	\$65.58
	03/01/2018	\$37.86	\$13.00	\$15.65	\$0.00	\$66.51
	09/01/2018	\$38.75	\$13.00	\$15.67	\$0.00	\$67.42
	03/01/2019	\$39.65	\$13.00	\$15.70	\$0.00	\$68.35

Apprentice - TELECOMMUNICATION TECHNICIAN - Local 103

Effective Date - 03/01/2017

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	\$14.50	\$13.00	\$0.44	\$0.00	\$27.94
2	40	\$14.50	\$13.00	\$0.44	\$0.00	\$27.94
3	45	\$16.31	\$13.00	\$12.54	\$0.00	\$41.85
4	45	\$16.31	\$13.00	\$12.54	\$0.00	\$41.85
5	50	\$18.13	\$13.00	\$12.81	\$0.00	\$43.94
6	55	\$19.94	\$13.00	\$13.09	\$0.00	\$46.03
7	60	\$21.75	\$13.00	\$13.37	\$0.00	\$48.12
8	65	\$23.56	\$13.00	\$13.65	\$0.00	\$50.21
9	70	\$25.38	\$13.00	\$13.93	\$0.00	\$52.31
10	75	\$27.19	\$13.00	\$14.21	\$0.00	\$54.40

Effective Date - 09/01/2017

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	\$14.78	\$13.00	\$0.44	\$0.00	\$28.22
2	40	\$14.78	\$13.00	\$0.44	\$0.00	\$28.22
3	45	\$16.63	\$13.00	\$12.55	\$0.00	\$42.18
4	45	\$16.63	\$13.00	\$12.55	\$0.00	\$42.18
5	50	\$18.48	\$13.00	\$12.82	\$0.00	\$44.30
6	55	\$20.33	\$13.00	\$13.10	\$0.00	\$46.43
7	60	\$22.18	\$13.00	\$13.39	\$0.00	\$48.57
8	65	\$24.02	\$13.00	\$13.66	\$0.00	\$50.68
9	70	\$25.87	\$13.00	\$13.95	\$0.00	\$52.82
10	75	\$27.72	\$13.00	\$14.22	\$0.00	\$54.94

Notes:

Apprentice to Journeyworker Ratio:1:1

TERRAZZO FINISHERS <i>BRICKLAYERS LOCAL 3 - MARBLE & TILE</i>	02/01/2017	\$49.70	\$10.75	\$19.22	\$0.00	\$79.67
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Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
Apprentice - TERRAZZO FINISHER - Local 3 Marble & Tile						
Effective Date - 02/01/2017						
Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$24.85	\$10.75	\$19.22	\$0.00	\$54.82
2	60	\$29.82	\$10.75	\$19.22	\$0.00	\$59.79
3	70	\$34.79	\$10.75	\$19.22	\$0.00	\$64.76
4	80	\$39.76	\$10.75	\$19.22	\$0.00	\$69.73
5	90	\$44.73	\$10.75	\$19.22	\$0.00	\$74.70

Notes:

Apprentice to Journeyworker Ratio:1:3

TEST BORING DRILLER <i>LABORERS - FOUNDATION AND MARINE</i>	12/01/2016	\$37.70	\$7.60	\$14.35	\$0.00	\$59.65
For apprentice rates see "Apprentice- LABORER"						
TEST BORING DRILLER HELPER <i>LABORERS - FOUNDATION AND MARINE</i>	12/01/2016	\$36.42	\$7.60	\$14.35	\$0.00	\$58.37
For apprentice rates see "Apprentice- LABORER"						
TEST BORING LABORER <i>LABORERS - FOUNDATION AND MARINE</i>	12/01/2016	\$36.30	\$7.60	\$14.35	\$0.00	\$58.25
For apprentice rates see "Apprentice- LABORER"						
TRACTORS/PORTABLE STEAM GENERATORS <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2016	\$44.94	\$10.00	\$15.25	\$0.00	\$70.19
	06/01/2017	\$45.93	\$10.00	\$15.25	\$0.00	\$71.18
	12/01/2017	\$46.92	\$10.00	\$15.25	\$0.00	\$72.17
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
TRAILERS FOR EARTH MOVING EQUIPMENT <i>TEAMSTERS JOINT COUNCIL NO. 10 ZONE A</i>	12/01/2016	\$34.12	\$10.91	\$10.89	\$0.00	\$55.92
TUNNEL WORK - COMPRESSED AIR <i>LABORERS (COMPRESSED AIR)</i>	12/01/2016	\$48.58	\$7.60	\$14.75	\$0.00	\$70.93
For apprentice rates see "Apprentice- LABORER"						
TUNNEL WORK - COMPRESSED AIR (HAZ. WASTE) <i>LABORERS (COMPRESSED AIR)</i>	12/01/2016	\$50.58	\$7.60	\$14.75	\$0.00	\$72.93
For apprentice rates see "Apprentice- LABORER"						
TUNNEL WORK - FREE AIR <i>LABORERS (FREE AIR TUNNEL)</i>	12/01/2016	\$40.65	\$7.60	\$14.75	\$0.00	\$63.00
For apprentice rates see "Apprentice- LABORER"						
TUNNEL WORK - FREE AIR (HAZ. WASTE) <i>LABORERS (FREE AIR TUNNEL)</i>	12/01/2016	\$42.65	\$7.60	\$14.75	\$0.00	\$65.00
For apprentice rates see "Apprentice- LABORER"						
VAC-HAUL <i>TEAMSTERS JOINT COUNCIL NO. 10 ZONE A</i>	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 <i>LABORERS - ZONE 1</i>	12/01/2016	\$36.60	\$7.60	\$14.15	\$0.00	\$58.35
	06/01/2017	\$37.60	\$7.60	\$14.15	\$0.00	\$59.35
	12/01/2017	\$38.45	\$7.60	\$14.15	\$0.00	\$60.20
	06/01/2018	\$39.40	\$7.60	\$14.15	\$0.00	\$61.15
	12/01/2018	\$40.35	\$7.60	\$14.15	\$0.00	\$62.10
	06/01/2019	\$41.35	\$7.60	\$14.15	\$0.00	\$63.10
	12/01/2019	\$42.35	\$7.60	\$14.15	\$0.00	\$64.10
For apprentice rates see "Apprentice- LABORER"						
WASTE WATER PUMP OPERATOR <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2016	\$45.38	\$10.00	\$15.25	\$0.00	\$70.63
	06/01/2017	\$46.38	\$10.00	\$15.25	\$0.00	\$71.63
	12/01/2017	\$47.38	\$10.00	\$15.25	\$0.00	\$72.63
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
WATER METER INSTALLER <i>PLUMBERS & GASFITTERS LOCAL 12</i>	03/01/2017	\$52.69	\$11.32	\$15.46	\$0.00	\$79.47
For apprentice rates see "Apprentice- PLUMBER/PIPEFITTER" or "PLUMBER/GASFITTER"						
Outside Electrical - East						
CABLE TECHNICIAN (Power Zone) <i>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104</i>	08/28/2016	\$26.61	\$7.50	\$1.80	\$0.00	\$35.91
	09/03/2017	\$27.14	\$7.75	\$1.81	\$0.00	\$36.70
For apprentice rates see "Apprentice- LINEMAN"						
CABLEMAN (Underground Ducts & Cables) <i>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104</i>	08/28/2016	\$37.70	\$7.50	\$8.87	\$0.00	\$54.07
	09/03/2017	\$38.45	\$7.75	\$9.53	\$0.00	\$55.73
For apprentice rates see "Apprentice- LINEMAN"						
DRIVER / GROUNDMAN CDL <i>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104</i>	08/28/2016	\$31.05	\$7.50	\$8.89	\$0.00	\$47.44
	09/03/2017	\$31.66	\$7.75	\$9.44	\$0.00	\$48.85
For apprentice rates see "Apprentice- LINEMAN"						
DRIVER / GROUNDMAN -Inexperienced (<2000 Hrs) <i>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104</i>	08/28/2016	\$24.39	\$7.50	\$1.73	\$0.00	\$33.62
	09/03/2017	\$24.88	\$7.75	\$1.75	\$0.00	\$34.38
For apprentice rates see "Apprentice- LINEMAN"						
EQUIPMENT OPERATOR (Class A CDL) <i>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104</i>	08/28/2016	\$37.70	\$7.50	\$12.95	\$0.00	\$58.15
	09/03/2017	\$38.45	\$7.75	\$13.61	\$0.00	\$59.81
For apprentice rates see "Apprentice- LINEMAN"						
EQUIPMENT OPERATOR (Class B CDL) <i>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104</i>	08/28/2016	\$33.26	\$7.50	\$9.63	\$0.00	\$50.39
	09/03/2017	\$33.92	\$7.75	\$10.21	\$0.00	\$51.88
For apprentice rates see "Apprentice- LINEMAN"						
GROUNDMAN <i>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104</i>	08/28/2016	\$24.39	\$7.50	\$1.73	\$0.00	\$33.62
	09/03/2017	\$24.88	\$7.75	\$1.75	\$0.00	\$34.38
For apprentice rates see "Apprentice- LINEMAN"						
GROUNDMAN -Inexperienced (<2000 Hrs.) <i>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104</i>	08/28/2016	\$19.96	\$7.50	\$1.60	\$0.00	\$29.06
	09/03/2017	\$20.35	\$7.75	\$1.61	\$0.00	\$29.71
For apprentice rates see "Apprentice- LINEMAN"						
JOURNEYMAN LINEMAN <i>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104</i>	08/28/2016	\$44.35	\$7.50	\$15.83	\$0.00	\$67.68
	09/03/2017	\$45.23	\$7.75	\$16.61	\$0.00	\$69.59

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
Apprentice - LINEMAN (Outside Electrical) - East Local 104						
Effective Date - 08/28/2016						
Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$26.61	\$7.50	\$3.30	\$0.00	\$37.41
2	65	\$28.83	\$7.50	\$3.36	\$0.00	\$39.69
3	70	\$31.05	\$7.50	\$3.43	\$0.00	\$41.98
4	75	\$33.26	\$7.50	\$5.00	\$0.00	\$45.76
5	80	\$35.48	\$7.50	\$5.06	\$0.00	\$48.04
6	85	\$37.70	\$7.50	\$5.13	\$0.00	\$50.33
7	90	\$39.92	\$7.50	\$7.20	\$0.00	\$54.62
Effective Date - 09/03/2017						
Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$27.14	\$7.75	\$3.31	\$0.00	\$38.20
2	65	\$29.40	\$7.75	\$3.38	\$0.00	\$40.53
3	70	\$31.66	\$7.75	\$3.45	\$0.00	\$42.86
4	75	\$33.92	\$7.75	\$5.02	\$0.00	\$46.69
5	80	\$36.18	\$7.75	\$5.09	\$0.00	\$49.02
6	85	\$38.45	\$7.75	\$5.15	\$0.00	\$51.35
7	90	\$40.71	\$7.75	\$7.22	\$0.00	\$55.68
Notes:						
Apprentice to Journeyworker Ratio:1:2						
TELEDATA CABLE SPLICER <i>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104</i>	01/01/2016	\$28.98	\$4.25	\$3.12	\$0.00	\$36.35
TELEDATA LINEMAN/EQUIPMENT OPERATOR <i>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104</i>	01/01/2016	\$27.31	\$4.25	\$3.07	\$0.00	\$34.63
TELEDATA WIREMAN/INSTALLER/TECHNICIAN <i>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104</i>	01/01/2016	\$27.31	\$4.25	\$3.07	\$0.00	\$34.63
TREE TRIMMER <i>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104</i>	01/31/2016	\$18.51	\$3.55	\$0.00	\$0.00	\$22.06
This classification applies only to tree work done: (a) for a utility company, R.E.A. cooperative, or railroad or coal mining company, and (b) for the purpose of operating, maintaining, or repairing the utility company's equipment, and (c) by a person who is using hand or mechanical cutting methods and is not on the ground. This classification does not apply to wholesale tree removal.						
TREE TRIMMER GROUNDMAN <i>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104</i>	01/31/2016	\$16.32	\$3.55	\$0.00	\$0.00	\$19.87
This classification applies only to tree work done: (a) for a utility company, R.E.A. cooperative, or railroad or coal mining company, and (b) for the purpose of operating, maintaining, or repairing the utility company's equipment, and (c) by a person who is using hand or mechanical cutting methods and is on the ground. This classification does not apply to wholesale tree removal.						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
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Additional Apprentice Information:

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

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

All steps are six months (1000 hours.)
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 Conditions for Federally Funded Contracts

OVERALL COMPLIANCE

1. Grantee shall comply with all provisions of the Housing and Community Development Act of 1974 and regulations issued pursuant thereto, the Community Development Block Grant (CDBG) Entitlement Program Regulations, 24 CFR 570 et seq. and instructions issued by the Funding source, and with all federal, state and local laws applicable to this contract.
2. Grantee shall comply with U.S. Office of Management and Budget (OMB) Circular A-102. Grantee hereby consents to jurisdiction of the federal court.
3. Grantee shall permit the City, HUD, 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 Grantee relating to this contract.

AFFIRMATIVE ACTION FOR HANDICAPPED WORKERS

4. Grantee shall not discriminate against any employee or applicant for employment because of physical or mental handicap in regard to any position for which the employee or applicant for employment is qualified. The Grantee agrees to take affirmative action to employ, advance in employment and otherwise treat qualified handicapped individuals without discrimination based upon their physical or mental handicap in all employment practices.
5. The Grantee agrees to comply with all rules, regulations and relevant orders issued pursuant to the Rehabilitation Act of 1973. In the event of the Grantee's noncompliance with the requirements of this clause, actions for noncompliance may be taken in accordance with the rules, regulations and orders issued pursuant to the Rehabilitation Act. The Grantee shall notify all those with whom it has contracted that the subgrantee is bound by the terms of the Rehabilitation Act of 1973, and is committed to take affirmative action to employ and advance in employment physically and mentally handicapped individuals.

ENVIRONMENTAL PROTECTION

6. National Environmental Policy Act: The Grantee shall cooperate and assist the City in complying with the HUD Environmental Review Procedures (24 CFR Part 58).
7. Clean Air Act: If this contract is in excess of \$100,000.00, Grantee shall comply with the Clean Air Act of 1970.

HISTORIC PRESERVATION

8. Grantee shall comply with all federal laws and regulations governing historic preservation, the Historic Districts Act of the Commonwealth of Massachusetts (G.L. Ch. 40C) and the City of Somerville Historic District Ordinance.

WORK HOURS AND SAFETY STANDARDS

9. In construction contracts in excess of \$2,000 and other contracts in excess of \$2,500, the Grantee shall comply with Sections 103 and 107 of the Contract Work Hours Safety Standards Act (40 U.S.C. 327-330.)

CONFLICT OF INTEREST

10. Grantee shall comply with all federal and state conflict of interest statutes and regulations.

NONDISCRIMINATION UNDER TITLE VI OF THE CIVIL RIGHTS ACT OF 1964

11. Grantee shall comply with the requirements of Title VI of the Civil Rights Act of 1964 (P.L. 88-352) and HUD regulations thereto. In the sale, lease or other transfer of land acquired, cleared or improved with assistance provided under this contract, the Grantee shall cause or require a covenant running with the land to be inserted in the deed or lease for such transfer, prohibiting discrimination upon the basis of race, color, religion, sex or national origin, in the sale, lease, or rental, or in the use or occupancy of such land or any improvements erected or to be erected thereon, and providing that the Grantee, the City of Somerville and the United States are beneficiaries of and entitled to enforce such covenant. The Grantee, in undertaking its obligation in carrying out the Project assisted hereunder, agrees to take such measures as are necessary to enforce such covenant and shall not itself so discriminate.

COPYRIGHTS AND PATENTS

12. Copyrights: The Grantee agrees that where any activity performed under this contract results in a book or other copyrightable material the Grantee is free to copyright the work, but the City and HUD reserve a royalty-free, non-exclusive and irrevocable license to reproduce, publish, or otherwise use, and to authorize others to use the work for government purposes.

13. Patents: The Grantee agrees that if activities performed under this contract produce any patentable items, patent rights, processes, or inventions, such fact shall be promptly and fully reported to the City and HUD, and absent an agreement to the contrary, HUD shall determine whether protection of such invention or discovery shall be sought and how the rights in the invention or discovery, including the rights under any patent issued thereon shall be allocated and administered in order to protect the public interest.

UNIFORM ADMINISTRATIVE REQUIREMENTS

The following uniform administrative requirements set forth in 24 CFR 570.502 are applicable to grantees which fall within the definition of "subrecipient" set for in 24 CFR 570.500:

14. Subrecipients which are Government Agencies: subrecipients which are governmental Agencies shall comply with the requirements and standards of OMB Circular No. A-87, "Cost Principles for State, Local, and Indian Tribal Governments"; OMB Circular A-128, "Audits of State and Local Governments" (implemented at 24 CFR part 44); and with the following sections of 24 CFR part 85, "Uniform Administrative Requirements for Grants and Cooperative Agreements to State and Local Governments" or the related CDBG provisions, as specified in this paragraph: (1) Section 85.3, "Definitions"; (2) Section 85.6, "Exceptions"; (3) Section 85.12, "Special grant or subgrant conditions for 'high risk' grantees"; (4) Section 85.20, "Standards for financial management systems", except paragraph (a); (5) Section 85.21, "Payment", except as modified by §570.513; (6) Section 85.22, "Allowable Costs"; (7) Section 85.26, "Non-federal audits"; (8) Section 85.32, "Equipment", except in all cases in which the equipment is sold, the proceeds shall be program income; (9) Section 85.3, "Supplies"; (10) Section 85.34, "Copyrights"; (11) Section 85.35, "Subawards to debarred and suspended parties"; (12) Section 85.36, "Procurement", except paragraph (a); (13) Section 85.37 "Subgrants"; (14) Section 85.40, "Monitoring and Reporting Program Performance", except paragraphs (b) through (d) and paragraph (f); (15) Section 85.41, "Financial Reporting", except paragraphs (a), (b), and (e); (16) Section 85.42 "Retention and Access Requirements for Your Records", except that the period shall be four years; Section 85.43, "Enforcement"; (18) Section 85.44 "Termination for Convenience", (19) Section 85.51, "Later Disallowances and Adjustments" and (20) Section 85.52, "Collection of Amounts Due".
15. Subrecipients, except Subrecipients who are Governmental Agencies: subrecipients, except subrecipients who are governmental entities shall comply with the requirement and standards of OMB Circular No. A-122, "Cost Principles for Nonprofit Organizations", or OMB Circular No. A-21, "Cost Principles for Educational Institutions", as applicable, and OMB Circular A-133, "Audits of Institutions of Higher Education and Other Nonprofit Institutions" (as set forth in 24 CFR part 45). Audits shall be conducted annually. Such subrecipients shall also comply with the following provisions of the Uniform Administrative Requirements of OMB Circular A-110 (implemented at 24 CFR part 84,

“Uniform Administrative Requirements for Grants and Agreements with Institutions of Higher Education, Hospitals, and other Nonprofit Organizations”) or the related CDBG provision as specified in this paragraph:

- (1) Subpart A – “General”;
- (2) Subpart B – “Pre-Award Requirements” except for §84.12, “Forms for Applying for Federal Assistance”;
- (3) Subpart C – “Post-Award Requirements”, except for
 - (i) Section 84.22, “Payment Requirements”, Grantee shall follow the standards of §85.20(b)(7) and §85.21 in making payments to subrecipients;
 - (ii) Section 84.23, “Cost Sharing and Matching”;
 - (iii) Section 84.24, “Program Income”. In lieu of §84.24m CDBG subrecipients shall follow §570.504;
 - (iv) Section 84.25, “Revision of Budget and Program Plans”;
 - (v) Section 84.32, “Real Property”. In lieu of §85.32, CDBG Subrecipients shall follow §570.505;
 - (vi) Section 84.24(g), “Equipment”. In lieu of disposition provisions of §84.34(g), the following applies: (A) In all cases in which equipment is sold, the proceeds shall be program income (prorated to reflect the extent to which CDBG funds were used to acquire the equipment); and (B) Equipment not needed by the subrecipient for CDBG activities shall be transferred to the recipient for the CDBG program or shall be retained after compensating the recipient;
 - (vii) Section 84.51 (b), (c), (d), (e), (f), (g), and (h), “Monitoring and Reporting Program Performance”;
 - (viii) Section 84.52, “Financial Reporting”;
 - (ix) Section 84.53(b), “Retention and Access Requirements for Records”. Section 84.53(b) applies with the following exceptions: (A) the retention period reference in §84.53(b) pertaining to individual CDBG activities shall be four years; and (B) the retention period starts from the date of submission of the annual performance and evaluation report, as prescribed in 24 CFR 91.520, in which the specific activity is reported on for the final time rather than from the date of submission of the final expenditure report for the award;
 - (x) Section 84.61, “Termination”. In lieu of the provisions of §84.61, CDBG subrecipients shall comply with §570.503(b)(7)
- (4) Subpart D - “After-the-Award Requirements”, except for §84.71, “Closeout Procedures”.

REAL PROPERTY ACQUIRED WITH CDBG FUNDS

16. In accordance with 24 CFR 570.503, “subrecipients”, as defined in §570.500, shall ensure that real property acquired with CDBG funds (including funds provided to the subrecipient in the form of a loan) in excess of \$25,000 is either
 - (i) Used to meet one of the national objectives in §570.208 (formerly §570.901) until five years after expiration of the agreement or for such longer period of time as determined to be appropriate by the recipient;
or
 - (ii) If not used in accordance with the foregoing paragraph, the subrecipient shall pay to the recipient an amount equal to the current

market value of the property less any portion of the value attributable to expenditures of non-CDBG funds for the acquisition or, or improvement to, the property, which shall be program income to the recipient, provided however that no payment is required after the period of time specified in the foregoing paragraph.

COMPLIANCE WITH SUBPART K – OTHER PROGRAM REQUIREMENTS

All grantees, including “subrecipients” as defined in 24 CFR 570.500. shall comply with applicable program requirements set forth in Subpart K, 24 CFR 570.600, including the following:

- 570.601 Public Law 88-352, which is title VI of the Civil Rights Act; Public Law 90-284, affirmatively furthering Fair Housing; and Executive Order 11063, as amended, dealing with equal opportunity in housing.
- 570.602 Section 109 of Title I of the Housing and Development Act of 1974 (the “Act”) requiring that no person in the United States shall, on the ground of race, color, national origin, religion, sex, age or disability, be denied the benefits of or subject to discrimination under any program or activity receiving federal financial assistance under the Act.
- 570.603 The Labor Standards in Section 110(a) of the Act, including compliance with the Contract Work Hours and Safety Standards Act (40 U.S.C. 327).
- 570.604 Environmental Standards set forth at 24 CFR Part 58, except that subrecipient does not assume the recipient’s environmental responsibilities described at 24 CFR 570.604, nor is the subrecipient responsible for initiating the review process under the provisions of 24 CFR Part 52.
- 570.605 The National Flood Insurance Program, the Flood Disaster Protection Act of 1973 (42 U.S.C. 4106), and regulations at 44 CFR Parts 59 through 79.
- 570.606 Residential Anti-displacement regulations at 24 CFR Part 42, Subpart B; relocation assistance regulations at 49 CFR Part 29; and regulations governing acquisition of real property for an assisted activity at 49 CFR Part 24, Subpart B.
- 570.607 Equal employment opportunities as set forth in Executive Order 11246, as amended by subsequent Executive Orders; equal protection of the laws for faith-based and community organizations as set forth in Executive Order 13279; and contracting opportunities set forth in Section 3 of the Housing and Urban Development Act of 1968 and implementing regulations.
- 570.608 The Lead-Based Paint Poisoning Prevention Act (42 U.S.C. 4821-4846); the Residential Lead-Based Paint Hazard Reduction Act of 1992 (42 U.S.C. 4851-4856), and implementing regulations at 24 CFR Part 35, Subparts A through R, except that only Subparts A, B, J, K, and R apply to the CDBG Program. *In addition, as required by 24 CFR, 35.145, all lead-based paint activities shall also comply with the National Environmental Review Policy Act of 1969 (42 U.S.C. 4321), and the Toxic Substances Control Act, Title IV (15 U.S.C. 2860) and other environmental laws and authorities.*
- 570.609 Use of debarred, suspended, or ineligible contractors or subrecipients, as set forth in 24 CFR Part 5.
- 570.610 Uniform Administrative Requirements and Cost Principles. The City, as “recipient” and all “subrecipients” as both terms are defined in 24CFR 570.500, and other grantees receiving federal funds to which the following policies, guidelines, and requirements are applicable, shall comply with 24 CFR Part 85 and OMB Circulars A-87, A-110 (implemented at 24 CFR Part 84), A-122. A-133 (implemented at 24 CFR Part 45), and A-128 (implemented at 24 CFR Part 44), as applicable, as they related to the acceptance and use of federal funds.

PAYROLL NO.

FOR WEEK ENDING

PROJECT AND LOCATION

PROJECT OR CONTRACT NO.

(1)	(2)	(3)	OT OR ST.	(4) DAY AND DATE							(5)	(6)	(7)	(8) DEDUCTIONS					(9)		
NAME AND INDIVIDUAL IDENTIFYING NUMBER (e.g., LAST FOUR DIGITS OF SOCIAL SECURITY NUMBER) OF WORKER	NO. OF WITHHOLDING EXEMPTIONS	WORK CLASSIFICATION									TOTAL HOURS	RATE OF PAY	GROSS AMOUNT EARNED	FICA	WITH- HOLDING TAX			OTHER	TOTAL DEDUCTIONS	NET WAGES PAID FOR WEEK	
				HOURS WORKED EACH DAY																	
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While completion of Form WH-347 is optional, it is mandatory for covered contractors and subcontractors performing work on Federally financed or assisted construction contracts to respond to the information collection contained in 29 C.F.R. §§ 3.3, 5.5(a). The Copeland Act (40 U.S.C. § 3145) contractors and subcontractors performing work on Federally financed or assisted construction contracts to "furnish weekly a statement with respect to the wages paid each employee during the preceding week." U.S. Department of Labor (DOL) regulations at 29 C.F.R. § 5.5(a)(3)(ii) require contractors to submit weekly a copy of all payrolls to the Federal agency contracting for or financing the construction project, accompanied by a signed "Statement of Compliance" indicating that the payrolls are correct and complete and that each laborer or mechanic has been paid not less than the proper Davis-Bacon prevailing wage rate for the work performed. DOL and federal contracting agencies receiving this information review the information to determine that employees have received legally required wages and fringe benefits.

Public Burden Statement

We estimate that it will take an average of 55 minutes to complete this collection, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. If you have any comments regarding these estimates or any other aspect of this collection, including suggestions for reducing this burden, send them to the Administrator, Wage and Hour Division, U.S. Department of Labor, Room S3502, 200 Constitution Avenue, N.W. Washington, D.C. 20210

(over)

Date _____

I, _____
(Name of Signatory Party) (Title)

do hereby state:

(1) That I pay or supervise the payment of the persons employed by _____ on the _____
(Contractor or Subcontractor)
_____ ; that during the payroll period commencing on the _____
(Building or Work)
_____ day of _____, _____, and ending the _____ day of _____, _____,
all persons employed on said project have been paid the full weekly wages earned, that no rebates have
been or will be made either directly or indirectly to or on behalf of said _____
_____ from the full
(Contractor or Subcontractor)
weekly wages earned by any person and that no deductions have been made either directly or indirectly
from the full wages earned by any person, other than permissible deductions as defined in Regulations, Part
3 (29 C.F.R. Subtitle A), issued by the Secretary of Labor under the Copeland Act, as amended (48 Stat. 948,
63 Stat. 108, 72 Stat. 967; 76 Stat. 357; 40 U.S.C. § 3145), and described below:

(2) That any payrolls otherwise under this contract required to be submitted for the above period are
correct and complete; that the wage rates for laborers or mechanics contained therein are not less than the
applicable wage rates contained in any wage determination incorporated into the contract; that the
classifications set forth therein for each laborer or mechanic conform with the work he performed.

(3) That any apprentices employed in the above period are duly registered in a bona fide
apprenticeship program registered with a State apprenticeship agency recognized by the Bureau of
Apprenticeship and Training, United States Department of Labor, or if no such recognized agency exists in a
State, are registered with the Bureau of Apprenticeship and Training, United States Department of Labor.

(4) That:
(a) WHERE FRINGE BENEFITS ARE PAID TO APPROVED PLANS, FUNDS, OR PROGRAMS

— in addition to the basic hourly wage rates paid to each laborer or mechanic listed in
the above referenced payroll, payments of fringe benefits as listed in the contract
have been or will be made to appropriate programs for the benefit of such
employees, except as noted in section 4(c) below.

(b) WHERE FRINGE BENEFITS ARE PAID IN CASH

- Each laborer or mechanic listed in the above referenced payroll has been paid,
as indicated on the payroll, an amount not less than the sum of the applicable
basic hourly wage rate plus the amount of the required fringe benefits as listed
in the contract, except as noted in section 4(c) below.

(c) EXCEPTIONS

EXCEPTION (CRAFT)	EXPLANATION

REMARKS:

NAME AND TITLE	SIGNATURE

THE WILLFUL FALSIFICATION OF ANY OF THE ABOVE STATEMENTS MAY SUBJECT THE CONTRACTOR OR
SUBCONTRACTOR TO CIVIL OR CRIMINAL PROSECUTION. SEE SECTION 1001 OF TITLE 18 AND SECTION 231 OF TITLE
31 OF THE UNITED STATES CODE.

General Decision Number: MA170013 03/03/2017 MA13

Superseded General Decision Number: MA20160013

State: Massachusetts

Construction Types: Heavy (Heavy and Marine)

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

HEAVY AND MARINE CONTRUCTION PROJECTS

Note: Under Executive Order (EO) 13658, an hourly minimum wage of \$10.20 for calendar year 2017 applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2015. If this contract is covered by the EO, the contractor must pay all workers in any classification listed on this wage determination at least \$10.20 (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract in calendar year 2017. The EO minimum wage rate will be adjusted annually. Additional information on contractor requirements and worker protections under the EO is available at www.dol.gov/whd/govcontracts.

Modification Number	Publication Date
0	01/06/2017
1	01/13/2017
2	02/03/2017
3	03/03/2017

BOIL0029-001 01/01/2016

	Rates	Fringes
BOILERMAKER.....	\$ 41.62	24.42

BRMA0001-011 09/01/2015		

FOXBORO CHAPTER

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

	Rates	Fringes
Bricklayer/Cement Mason.....	\$ 47.76	28.25

BRMA0001-012 09/01/2016		

LOWELL CHAPTER

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

Wilmington)

	Rates	Fringes
BRICKLAYER.....	\$ 48.66	28.90

BRMA0001-013 09/01/2016		

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

	Rates	Fringes
BRICKLAYER.....	\$ 48.66	28.90

BRMA0003-001 08/01/2016		

	Rates	Fringes
Marble & Tile Finisher.....	\$ 38.78	28.08
Marble, Tile & Terrazzo		
Workers.....	\$ 50.80	29.72
TERRAZZO FINISHER.....	\$ 49.70	29.55

BRMA0003-003 08/01/2016		

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

	Rates	Fringes
BRICKLAYER.....	\$ 50.76	29.77

BRMA0003-011 08/01/2016		

LYNN CHAPTER

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

	Rates	Fringes
Bricklayer/Cement Mason.....	\$ 50.76	29.77

BRMA0003-012 08/01/2016		

	Rates	Fringes
BRICKLAYER		
WALTHAM CHAPTER -		
MIDDLESEX (Belmont,		
Burlington, Concord,		
Lexington, Lincoln,		

Stoneham, Sudbury,
Waltham, Watertown,
Wayland, Weston,
Winchester, Woburn).....\$ 50.76 29.77

BRMA0003-014 08/01/2016

QUINCY CHAPTER

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

	Rates	Fringes
Bricklayer/Cement Mason.....	\$ 50.76	29.77

BRMA0003-025 08/01/2016

NEW BEDFORD CHAPTER

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

	Rates	Fringes
Bricklayer/Cement Mason.....	\$ 50.76	29.77

BRMA0003-033 08/01/2016

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

	Rates	Fringes
Bricklayer, Plasterer.....	\$ 50.76	29.77

CARP0026-003 09/01/2016

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

	Rates	Fringes
CARPENTER.....	\$ 37.80	27.40

CARP0033-003 09/01/2016

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

	Rates	Fringes
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CARPENTER.....\$ 44.73 27.85

CARP0056-001 08/01/2015

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

	Rates	Fringes
PILEDRIVERMAN.....	\$ 42.04	29.73

CARP0056-002 08/01/2015

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

	Rates	Fringes
PILEDRIVERMAN.....	\$ 42.04	29.73

CARP0056-003 08/01/2015

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

	Rates	Fringes
PILEDRIVERMAN.....	\$ 42.04	29.73

CARP0056-004 08/01/2015

	Rates	Fringes
DIVER TENDER.....	\$ 42.04	29.73
DIVER.....	\$ 58.86	29.73

CARP0424-001 09/01/2016

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

	Rates	Fringes
CARPENTER.....	\$ 37.80	27.40

CARP0624-002 09/01/2016

DUKES; NANTUCKET

	Rates	Fringes
CARPENTER.....	\$ 44.73	27.85

CARP0624-006 09/01/2016

BARNSTABLE; BRISTOL (Except Attleboro & North Attleboro);
NORFOLK (Avon, Holbrook, Randolph, Stoughton); PLYMOUTH

(Bridgewater, Kingston, Lakeville, Middleboro, Plymouth, S. Hanover, Whitman)

	Rates	Fringes
CARPENTER.....	\$ 37.80	27.40

* CARP1121-001 10/01/2016		

	Rates	Fringes
MILLWRIGHT.....	\$ 37.97	29.25

* ELEC0096-001 12/01/2016		

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

	Rates	Fringes
ELECTRICIAN.....	\$ 39.37	11%+18.26
Teledata System Installer.....	\$ 26.83	21.26

ELEC0099-001 06/01/2016		

BRISTOL (Attleboro, North Attleboro, Seekonk)

	Rates	Fringes
ELECTRICIAN.....	\$ 36.83	58.39%
Teledata System Installer.....	\$ 27.62	13.42%+13.57

ELEC0103-002 09/01/2016		

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

	Rates	Fringes
ELECTRICIAN.....	\$ 47.13	31.12

ELEC0103-004 09/01/2016		

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

	Rates	Fringes
ELECTRICIAN.....	\$ 47.13	31.12

ELEC0103-005 09/01/2016		

ESSEX (Lynn, Lynnfield, Nahant, Saugus, Swampscott); MIDDLESEX (Acton, Arlington, Belmont, Cambridge, Concord, Everett, Framingham, Holliston, Lexington, Lincoln, Malden, Maynard, Medford, Melrose, Natick, Newton, Reading, Sherborn,

Somerville, Stoneham, Sudbury, Wakefield, Waltham, Watertown, Wayland, Weston, Winchester, Woburn); NORFOLK (Bellingham, Braintree, Brookline, Canton, Cohasset, Dedham, Dover, Foxboro, Franklino, Medfield, Medway, Millis, Milton, Needham, Norfolk, Norwood, Quincy, Sharon, Walpole, Wellesley, Westwood, Weymouth, Wrentham); PLYMOUTH (Hingham and Hull);SUFFOLK

	Rates	Fringes
ELECTRICIAN.....	\$ 47.13	31.12

ELEC0104-001 08/28/2016		

	Rates	Fringes
Line Construction:		
Cableman.....	\$ 44.35	24.66+A
Equipment Operator.....	\$ 37.70	21.58+A
Groundman.....	\$ 24.39	9.96+A
Lineman.....	\$ 44.35	24.66+A

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

ELEC0223-002 09/01/2016

BARNSTABLE, BRISTOL (Except Attleboro, North Attleboro, Seekonk); DUKES; NANTUCKET; PLYMOUTH (Except Hingham and Hull Twps); NORFOLK (Avon, Halbrook, Randolph, Sloughton)

	Rates	Fringes
ELECTRICIAN.....	\$ 39.21	27.75%+10.60

ENGI0004-009 12/01/2016		

	Rates	Fringes
Power equipment operators:		
Group 1.....	\$ 45.38	26.15+A
Group 2.....	\$ 44.94	26.15+A
Group 3.....	\$ 31.17	26.15+A
Group 4.....	\$ 37.65	26.15+A
Group 5.....	\$ 22.96	26.15+A
Group 6.....	\$ 26.94	26.15+A

HOURLY PREMIUM FOR BOOM LENGTHS (Including Jib):
Over 150 ft. +2.12
Over 185 ft. +3.72
Over 210 ft. +5.23
Over 250 ft. +7.92
Over 295 ft. +10.97
Over 350 ft. +12.76

FOOTNOTE FOR POWER EQUIPMENT OPERATORS:

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

POWER EQUIPMENT OPERATORS CLASSIFICATIONS [HEAVY CONSTRUCTION]
GROUP 1: Power shovel; crane; truck crane; derrick; pile driver; trenching machine; mechanical hoist pavement breaker; cement concrete paver; dragline; hoisting engine; three drum machine; pumpcrete machine; loaders; shovel dozer; front end loader; mucking machine; shaft hoist; steam engine; backhoe; gradall; cable way; fork lift; cherry picker; boring machine; rotary drill; post hole hammer; post hole digger; asphalt plant on job site; concrete batching and/or mixing plant on job site; crusher plant on job site; paving concrete mixer; timber jack
GROUP 2: Sonic or vibratory hammer; grader; scraper; tandem scraper; bulldozer; tractor; mechanic - maintenance; York rake; mulching machine; paving screed machine; stationary steam boiler; paving concrete finishing machine; grout pump; portable steam boiler; portable steam generator; roller; spreader; asphalt paver; locomotives or machines used in place thereof; tamper (self propelled or tractor-draw); cal tracks; ballast regulator; rail anchor machine; switch tamper; tire truck
GROUP 3: Pumps (1-3 grouped); compressor; welding machines (1-3 grouped); generator; sighting plant; heaters (power driven, 1- 5); syphon-pulsometer; concrete mixer; valves controlling permanent plant air steam, conveyor, wellpoint system (operating)
GROUP 4: Assitant engineer (fireman)
GROUP 5: Oiler (other than truck cranes and gradalls)
GROUP 6: Oiler (on truck cranes and gradalls)

IRON007-001 03/16/2016

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

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

	Rates	Fringes
IRONWORKER		
AREA 1.....	\$ 42.89	29.89
AREA 2.....	\$ 38.48	29.89

IRON007-010 03/16/2016

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

	Rates	Fringes
IRONWORKER.....	\$ 42.89	29.89

IRON0037-002 03/16/2016		

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

	Rates	Fringes
IRONWORKER.....	\$ 34.01	25.22

LAB0022-006 06/01/2016		

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

	Rates	Fringes
Laborers:		
GROUP 1.....	\$ 35.85	22.45
GROUP 2.....	\$ 36.10	22.45
GROUP 3.....	\$ 36.60	22.45
GROUP 4.....	\$ 36.85	22.45
GROUP 5.....	\$ 20.50	22.45
GROUP 6.....	\$ 37.85	22.45

LABORERS CLASSIFICATIONS

GROUP 1: Laborers; carpenter tenders; cement finisher tenders

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

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

GROUP 4: Blaster; powderman

GROUP 5: Flagger

GROUP 6: Asbestos Abatement; Toxic and Hazardous Waste Laborers

LAB0022-012 06/01/2016

Counties of BARNSTABLE; BRISTOL; DUKES; ESSEX; NANTUCKET; PLYMOUTH; MIDDLESEX (With the exception of Arlington, Belmont,

3/8/2017

<https://www.wdol.gov/wdol/scaffiles/davisbacon/MA13.dvb?v=3>

Burlington, Cambridge, Everett, Malden, Melrose, Reading, Somerville, Stoneham, Wakefield, Winchester, Winthrop and Woburn); NORFOLK (With the exception of Brookline, Dedham, and Milton)

	Rates	Fringes
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Laborers:

GROUP 1.....	\$ 31.65	21.30
GROUP 2.....	\$ 31.90	21.30
GROUP 3.....	\$ 32.40	21.30
GROUP 4.....	\$ 32.65	21.30
GROUP 5.....	\$ 20.50	21.30
GROUP 6.....	\$ 33.65	21.30

LABORERS CLASSIFICATIONS

GROUP 1: Laborers; carpenter tenders; cement finisher tenders

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

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

GROUP 4: Blaster; powderman

GROUP 5: Flagger

GROUP 6: Asbestos Abatement; Toxic and Hazardous Waste Laborers

LAB0022-013 06/01/2016

	Rates	Fringes
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Laborers:

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

GROUP 1.....	\$ 39.40	21.80+a
GROUP 2.....	\$ 39.40	21.80+a

(OPEN AIR CASSONS,
UNDERPINNING AND TEST
BORING INDUSTRIES):

TEST BORING & WELL DRILLING

Driller.....	\$ 37.20	22.15+A
Laborer.....	\$ 35.80	22.15+A

(OPEN AIR CASSONS,
UNDERPINNING AND TEST
BORING INDUSTRIES):

OPEN AIR CASSON,
UNDERPINNING WORK & BORING
CREW

Bottom man.....	\$ 36.95	22.15+A
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<https://www.wdol.gov/wdol/scaffiles/davisbacon/MA13.dvb?v=3>

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3/8/2017

<https://www.wdol.gov/wdol/scaffiles/davisbacon/MA13.dvb?v=3>

Laborers; Top man.....	\$ 35.30	22.15+A
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(TUNNELS, CAISSON &
CYLINDER WORK IN
COMPRESSED AIR)

GROUP 1.....	\$ 36.85	21.80+a
GROUP 2.....	\$ 47.33	21.80+a
GROUP 3.....	\$ 47.33	21.80+a
GROUP 4.....	\$ 47.33	21.80+a
GROUP 5.....	\$ 47.33	21.80+a
GROUP 6.....	\$ 49.33	21.80+a

CLEANING CONCRETE AND
CAULKING TUNNEL (Both New
& Existing)

GROUP 1.....	\$ 39.40	21.80+a
GROUP 2.....	\$ 39.40	21.80+a

ROCK SHAFT, CONCRETE
LINING OF SAME AND TUNNEL
IN FREE AIR

GROUP 1.....	\$ 36.85	21.80+a
GROUP 2.....	\$ 39.40	21.80+a
GROUP 3.....	\$ 39.40	21.80+a
GROUP 4.....	\$ 39.40	21.80+a
GROUP 5.....	\$ 41.40	21.80+a

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

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

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

GROUP 3: Motorman, miner

GROUP 4: Blaster

GROUP 5: Mucking machine operator

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

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

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

GROUP 2: Brakeman; trackman

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

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

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

<https://www.wdol.gov/wdol/scaffiles/davisbacon/MA13.dvb?v=3>

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3/8/2017

<https://www.wdol.gov/wdol/scaffiles/davisbacon/MA13.dvb?v=3>

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

GROUP 1: Change house attendants

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

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

GROUP 4: Miner; cage tender; bellman

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

FOOTNOTE FOR LABORERS:

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

LAB01421-001 07/01/2016

WRECKING LABORERS:

	Rates	Fringes
Laborers: (Wrecking)		
Group 1.....	\$ 36.00	22.45
Group 2.....	\$ 36.75	22.45
Group 3.....	\$ 37.00	22.45
Group 4.....	\$ 32.00	22.45
Group 5.....	\$ 35.10	22.45
Group 6.....	\$ 36.00	22.45

Group 1: Adzeman, Wrecking Laborer.

Group 2: Burners, Jackhammers.

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

Group 4: Yardman (Salvage Yard Only).

Group 5: Yardman, Burners, Sawyers.

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

PAIN0035-001 01/01/2015

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

	Rates	Fringes
Painters:		
NEW CONSTRUCTION:		
Bridge.....	\$ 46.76	25.95
Brush, Taper.....	\$ 36.26	25.95
Spray, Sandblast.....	\$ 37.66	25.95

<https://www.wdol.gov/wdol/scaffiles/davisbacon/MA13.dvb?v=3>

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3/8/2017

<https://www.wdol.gov/wdol/scaffiles/davisbacon/MA13.dvb?v=3>

REPAINT:

Bridge.....	\$ 46.76	25.95
Brush, Taper.....	\$ 34.32	25.95
Spray, Sandblast.....	\$ 35.72	25.95

PAIN0035-015 01/01/2015

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

	Rates	Fringes
Painters:		
NEW CONSTRUCTION:		
Brush, Taper.....	\$ 42.05	25.95
Spray, Sandblast.....	\$ 43.45	25.95
REPAINT:		
Bridge.....	\$ 46.76	25.95
Brush, Taper.....	\$ 40.11	25.95
Spray, Sandblast.....	\$ 41.51	25.95

PLAS0534-001 01/01/2016

ESSEX; MIDDLESEX; NORFOLK AND SUFFOLK COUNTY

	Rates	Fringes
CEMENT MASON/CONCRETE FINISHER...	\$ 38.65	33.11

PLUM0004-001 09/01/2016

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

	Rates	Fringes
Plumbers and Pipefitters.....	\$ 42.76	24.91

PLUM0012-001 09/01/2016

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

	Rates	Fringes
PLUMBER.....	\$ 51.18	24.56

PLUM0012-003 09/01/2016

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

	Rates	Fringes
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<https://www.wdol.gov/wdol/scaffiles/davisbacon/MA13.dvb?v=3>

12/17

Plumber, Pipefitter,
Steamfitter.....\$ 51.18 24.56

PLUM0012-006 09/01/2016

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

	Rates	Fringes
PLUMBER.....	\$ 55.26	24.56

PLUM0051-005 09/01/2016

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

	Rates	Fringes
Plumbers and Pipefitters.....	\$ 38.38	28.20

PLUM0537-001 09/01/2016

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

	Rates	Fringes
PIPEFITTER.....	\$ 50.19	29.76

TEAM0379-001 08/01/2016

	Rates	Fringes
Truck drivers:		
Group 1.....	\$ 31.98	21.96+A+B
Group 2.....	\$ 32.15	21.96+A+B
Group 3.....	\$ 32.22	21.96+A+B

Group 4.....	\$ 32.34	21.96+A+B
Group 5.....	\$ 32.44	21.96+A+B
Group 6.....	\$ 32.73	21.96+A+B
Group 7.....	\$ 33.02	21.96+A+B

POWER TRUCKS \$.25 DIFFERENTIAL BY AXLE
TUNNEL WORK (UNDERGROUND ONLY) \$.40 DIFFERENTIAL BY AXLE
HAZARDOUS MATERIALS (IN HOT ZONE ONLY) \$2.00 PREMIUM

TRUCK DRIVERS CLASSIFICATIONS

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

Group 2: Two axle equipment; & forklift operator

Group 3: Three axle equipment and tireman

Group 4: Four and Five Axle equipment

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

Group 6: Specialized earth moving equipment over 35 tons

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

FOOTNOTES:

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

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

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

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Note: Executive Order (EO) 13706, Establishing Paid Sick Leave
for Federal Contractors applies to all contracts subject to the
Davis-Bacon Act for which the contract is awarded (and any
solicitation was issued) on or after January 1, 2017. If this
contract is covered by the EO, the contractor must provide
employees with 1 hour of paid sick leave for every 30 hours
they work, up to 56 hours of paid sick leave each year.
Employees must be permitted to use paid sick leave for their
own illness, injury or other health-related needs, including
preventive care; to assist a family member (or person who is
like family to the employee) who is ill, injured, or has other
health-related needs, including preventive care; or for reasons
resulting from, or to assist a family member (or person who is
like family to the employee) who is a victim of, domestic
violence, sexual assault, or stalking. Additional information
on contractor requirements and worker protections under the EO

is available at www.dol.gov/whd/govcontracts.

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

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

Union Rate Identifiers

A four letter classification abbreviation identifier enclosed in dotted lines beginning with characters other than "SU" or "UAVG" denotes that the union classification and rate were prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2014. PLUM is an abbreviation identifier of the union which prevailed in the survey for this classification, which in this example would be Plumbers. 0198 indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. 07/01/2014 is the effective date of the most current negotiated rate, which in this example is July 1, 2014.

Union prevailing wage rates are updated to reflect all rate changes in the collective bargaining agreement (CBA) governing this classification and rate.

Survey Rate Identifiers

Classifications listed under the "SU" identifier indicate that no one rate prevailed for this classification in the survey and the published rate is derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As this weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SULA2012-007 5/13/2014. SU indicates the rates are survey rates based on a weighted average calculation of rates and are not majority rates. LA indicates the State of Louisiana. 2012 is the year of survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. 5/13/2014 indicates the survey completion date for the classifications and rates under that identifier.

Survey wage rates are not updated and remain in effect until a new survey is conducted.

Union Average Rate Identifiers

Classification(s) listed under the UAVG identifier indicate that no single majority rate prevailed for those classifications; however, 100% of the data reported for the

classifications was union data. EXAMPLE: UAVG-OH-0010 08/29/2014. UAVG indicates that the rate is a weighted union average rate. OH indicates the state. The next number, 0010 in the example, is an internal number used in producing the wage determination. 08/29/2014 indicates the survey completion date for the classifications and rates under that identifier.

A UAVG rate will be updated once a year, usually in January of each year, to reflect a weighted average of the current negotiated/CBA rate of the union locals from which the rate is based.

WAGE DETERMINATION APPEALS PROCESS

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

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

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

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

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

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

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

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

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

Administrative Review Board

3/8/2017

<https://www.wdol.gov/wdol/scafiles/davisbacon/MA13.dvb?v=3>

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

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

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END OF GENERAL DECISION

SECTION 4.0

FORM FOR GENERAL BID

The undersigned proposes to furnish all labor and materials required for: Winter Hill Community School Park

In accordance with the accompanying plans and specifications prepared by Warner Larson Landscape Architects (130 W Broadway, Boston, MA 02127, MA) and specified below, subject to additions and deductions according to the terms of the specifications.

The bidder certifies the following bulleted statements and offers to supply and deliver the materials and services specified below in full accordance with the Contract Documents supplied by the City of Somerville

- The bids will be received at the office of the Purchasing Director, Somerville City Hall, 93 Highland Avenue, Somerville, MA 02143 no later than **3/22/2017 by 11AM EST**
- If the **awarded** vendor is a Corporation a "Certificate of Good Standing" (produced by the Mass. Sec. of State) must be furnished with the resulting contract (see Section 3.0.)
- **Awarded Vendor** must comply with Living Wage requirements (see Section 3.0; only for services)
- **Awarded Vendor** must comply with insurance requirements as stated in Section 3.0.
- The Purchasing Director reserves the right to accept or reject any or all bids and/or to waive any informalities if in her/his sole judgment it is deemed to be in the best interest of the City of Somerville.
- The following prices shall include delivery, the cost of fuel, the cost of labor, and all other charges.
- This form to be enclosed in sealed bid package.

The proposed contract price is (total bid in figures):

\$

Total in words:

(If applicable) The contract price does not include the items listed on the attached "Bid Form for Alternates;" the bidder understands that the project construction cost estimate provided by the City is inclusive of all the work described in this form.

The undersigned agrees that, if he is selected as general contractor, he will within five days, Saturdays, Sundays and legal holidays excluded, after presentation thereof by the awarding authority, execute a contract in accordance with the terms of this bid and furnish a performance bond and also a labor and materials or payment bond (as indicated in the "Key Project Information" section on the 2nd page of this bid), each of a surety company qualified to do business under the laws of the commonwealth and satisfactory to the awarding authority and each in the sum of the contract price, the premiums for which are to be paid by the general contractor and are included in the contract price; provided, however, that if there is more than one surety company, the surety companies shall be jointly and severally liable.

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

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

provisions of any other chapter of the General Laws or any rule or regulation promulgated thereunder.

The Undersigned Bidder certifies under the penalties of perjury that:

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

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

in which case the reasons for rejection were as follows:

The Undersigned Bidder has submitted all requested referenced information on the Reference Form.

The Undersigned Bidder understands that the contractor and subcontractors will be required to pay prevailing wages to laborers and mechanics, and that if the Undersigned's bid is significantly below the average bid, the Awarding Authority may require the Bidder to substantiate that the bid is based on payment of wages at prevailing rates.

The Undersigned Bidder certifies that it can achieve substantial and final completion by the dates notes in Section 2.2, herein, unless otherwise noted in the Notice to Proceed as delivered to the awarded vendor.

Should certain additional work be required, or should the quantities of certain classes of work be increased or decreased from those required by the Contract Documents, by authorization of the City, unit prices listed on the attached "Unit Price Form" shall at the option of the City be the basis of payment to the Contractor or credit to the City, for such increase or decrease in the work. The unit prices shall represent the exact net amount per unit to be paid the Contractor (in the case of addition or increase) or to be refunded the City (in the case of decrease). Contractually noted adjustments will be allowed for overhead, profit, insurance or other direct or indirect expenses of the Contractor or Subcontractors.

The unit prices shall include cost of fuel, all labor, materials, equipment, overhead, profit, insurance, etc. to cover the finished work of the several kinds called for. Changes shall be processed in accordance with the provisions of the General Conditions governing changes in the work.

Executed this _____ day of _____, 20_____.

Name of Company/Individual:

Address, City, State, Zip:

Tel #

Email:

Name and Title of Person Signing

Signature of Authorized Individual

Please acknowledge receipt of any and all Addenda (if applicable) by signing below and including this form in your bid package. Failure to do so may subject the proposer to disqualification.

ACKNOWLEDGEMENT OF ADDENDA:

Addendum #1 _____ #2 _____ #3 _____ #4 _____ #5 _____ #6 _____ #7 _____ #8 _____ #9 _____ #10 _____

PART 2: SAMPLE CONSTRUCTION CONTRACT / CITY's GENERAL TERMS AND CONDITIONS

APPENDIX D
General Conditions

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

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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: Owner-Contractor Public Construction Agreement, 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, these general conditions, 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.

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.

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. The Contractor shall and will, in good workmanlike manner, do and perform all work and furnish all supplies and materials, machinery, equipment, facilities and means, except as herein otherwise expressly specified, necessary or proper to perform and complete all the work required by this contract, within the time herein specified, in accordance with the provisions of this contract and said specifications and in accordance with the plans and drawings, and in accordance with the directions of the Design Professional or CONTRACTING DEPARTMENT (AS STATED ON THE FIRST PAGE OF THE AGREEMENT) as given from time to time during the progress of the work. He shall furnish, erect, maintain and remove such construction plant and such temporary works as may be required. The Contractor shall observe, comply with and be subject to all terms, conditions, requirements and limitations of the contract and specifications, and shall do, carry on and complete the entire work to the satisfaction of the Design Professional and CONTRACTING DEPARTMENT (AS STATED ON THE FIRST PAGE OF THE AGREEMENT).

5.7.1.1. The Contractor shall furnish, install and/or maintain ample sanitary facilities for the workmen. As the needs arise, a sufficient number of enclosed temporary toilets shall be conveniently placed as required by the sanitary codes of the State and Local Government. Drinking water shall be provided from an approved source, so piped or transported as to keep it safe and fresh and served from single service containers or satisfactory types of sanitary drinking stands or fountains. All such facilities and services shall be furnished in strict accordance with existing and governing health regulations. Nothing in this Section shall be construed as forbidding the use of facilities available in existing buildings on the job site if they meet the above requirements and the use of them will not interfere with the progress 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 therefor 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.

5.8.2.1 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.

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 therefor, 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.

5.8.9. The City's Contracting Department, its authorized representative and agents and the HUD Representative for the Secretary shall, at all times have access to and be permitted to observe and review all work materials, equipment, payrolls, personnel records, employment conditions, material invoices, and other relevant data and records pertaining to this Contract, provided, however, that all instructions and approval with respect to the work will be given to the Contractor only by **CONTRACTING DEPARTMENT (AS STATED ON THE FIRST PAGE OF THE AGREEMENT)** through its authorized representatives or agents. 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.

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. Unless otherwise agreed by the Awarding Authority in writing, the Contractor shall, prior to commencement of the work, (i) meet with the City of Somerville Inspectional Services Department to determine what permits are needed for the work; (ii) obtain all such permits; and (iii) provide copies of such permits to the Awarding Authority. Permits shall include, without limitation, demolition, foundation, digsafe, and building permits; permits for removal, sealing up, or installation of utilities, including gas, electrical, water and sewer; and permits for obstructing public streets and sidewalks.

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 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. The Contractor shall be responsible for all damages to persons or property that occur as a result of the Contractor's fault or negligence in connection with the prosecution of the work and shall be responsible for the proper care and protection of all materials delivered and work performed until completion and final acceptance by CONTRACTING DEPARTMENT (AS STATED ON THE FIRST PAGE OF THE AGREEMENT).

The Contractor shall provide sufficient competent watchmen, both day and night, including Saturdays, Sundays and holidays, as necessary, from the time the work is commenced until final completion and acceptance. Sufficient lighting shall be provided to aid in the prevention of injury to passersby or vandalism to the property or other illegal activities.

The Contractor shall avoid damage as a result of its operations to existing sidewalks, streets, curbs, pavements, utilities (except those which are to be replaced or removed), adjoining property, etc. and the Contractor shall at its own expense completely repair any damage thereto caused by its operations.

The Contractor shall shore up, brace, underpin, secure, and protect as may be necessary, all foundations and other parts of existing structure adjacent to, adjoining, and in the vicinity of the site, which may be in any way affected by the excavations or other operations connected with the construction of the improvements embraced in this Contract. The Contractor shall be responsible for the giving of any and all required notices to any adjoining or adjacent property owner or other party before the commencement of work. The Contractor shall indemnify and save harmless the City of Somerville and CONTRACTING DEPARTMENT (AS STATED ON THE FIRST PAGE OF THE AGREEMENT) from any liability for damages on account of settlement or the loss of lateral support of adjoining property resulting from the Contractor's failure to comply with this section.

5.22.1.1. 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.)

5.22.1.2. 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.

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.

5.22.3.1. Should the Contractor in the execution of his work uncover or discover utility service lines not indicated on the relevant drawings, or that do not show signs of singular service to any existing structures being demolished, the Contractor shall cease work in that area immediately and promptly notify the Public Works Department. Within forty-eight hours, the Public Works Department will inspect the site and issue written instructions to the Contractor. The Contractor shall proceed

with only after such written instructions have been received and shall proceed in full compliance with such instructions. The above mentioned situation or similar circumstances and/or modification if any, shall not relieve the Contractor from his responsibilities in this Contract and also it is without prejudice to any and all rights of CONTRACTING DEPARTMENT (AS STATED ON THE FIRST PAGE OF THE AGREEMENT) covering this said contract and surety or bonds.

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. In the event of temporary suspension of work, during inclement weather, the Contractor will carefully protect and will cause his subcontractors to carefully protect all work and materials against damage or injury from the weather. If, in the opinion of the Design Professional or CONTRACTING DEPARTMENT (AS STATED ON THE FIRST PAGE OF THE AGREEMENT), any work or materials shall have been damaged or injured by reason of failure on the part of the Contractor or any of his Subcontractors so to protect the work, such work or materials shall be removed and replaced at the expense of the Contractor. These Specifications are not to be construed as requiring enclosures or heat for operations that are not economically feasible to protect in the judgment of CONTRACTING DEPARTMENT (AS STATED ON THE FIRST PAGE OF THE AGREEMENT). Included in the preceding category, without limitation, are such items as site work, excavation, pile driving, steel erection, erection of certain "exterior" wall panels, roofing, and similar operation:

(1) "WEATHER PROTECTION" shall mean the temporary protection of that work adversely affected by moisture, wind and cold, by covering, enclosing and/or heating.

This protection shall provide adequate working areas during the months of November through March as determined by the Design Professional and consistent with the approved construction schedule to permit the continuous progress of all work necessary to maintain an orderly and efficient sequence of construction operations. The General Contractor shall furnish and install all "Weather Protection" material and be responsible for all costs, including heating required to maintain a minimum temperature of 40 degrees F, at the working surface. This provision does not supersede any specific requirements for methods of construction, curing of materials or the applicable General Conditions set forth in the Contract Articles with added regard to performance obligations of the Contractor.

(2) Within 30 calendar days after his award of contract, the General Contractor shall submit in writing to CONTRACTING DEPARTMENT (AS STATED ON THE FIRST PAGE OF THE AGREEMENT) for approval, three copies of his proposed methods for "Weather Protection".

(3) Installation of weather protection and heating devices shall comply with all safety regulations including provisions for

adequate ventilation and fire protection devices. Heating devices which may cause damage to finish surfaces shall not be used.

(4) The General Contractor shall furnish and install one accurate Fahrenheit thermometer at each work area as designated by the Designer. However, one additional accurate Fahrenheit thermometer shall be provided for every 2,000 square feet of floor space where the work areas exceed 2,000 square feet.

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, suits, causes of action, demands, liabilities, damages, losses, and expenses, including, but not limited, to attorneys' fees, 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 therefrom, 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.

The **Contractor** shall use the Subcontractors named in the **Contractor's** Bid. The Contractor shall not award any work to any Subcontractor without prior written approval of the CONTRACTING DEPARTMENT (AS STATED ON THE FIRST PAGE OF THE AGREEMENT). The Contractor shall not award any work to any subcontractor without prior written approval of CONTRACTING DEPARTMENT (AS STATED ON THE FIRST PAGE OF THE AGREEMENT), which approval will not be given until the Contractor submits a written approval statement concerning the proposed award to the subcontractor, which statement shall contain such information as CONTRACTING DEPARTMENT (AS STATED ON THE FIRST PAGE OF THE AGREEMENT) may require. All subcontracts subject to Mass. General laws, Chapter 149, Sections 44A-J, shall comply with the filed sub-bid requirements of that statute. The Contractor shall be as fully responsible for the acts and omissions of his subcontractors, and of persons either directly or indirectly employed by them, as he is for the acts and omissions of persons directly employed by him. The Contractor shall cause appropriate provisions to be inserted in all subcontracts relative to the work to bind subcontractors to the Contractor by the Terms of the General Conditions and other contract documents insofar as applicable to the work of subcontractors and to give the Contractor the same power as regards terminating any subcontract that CONTRACTING DEPARTMENT (AS STATED ON THE FIRST PAGE OF THE AGREEMENT) may exercise over the Contractor under any provision of the contract documents. Nothing contained in this contract shall create any contractual relation between any subcontractor and CONTRACTING DEPARTMENT (AS STATED ON THE FIRST PAGE OF THE AGREEMENT).

6.2 Substitution of Subcontractors.

6.2.1 The **Contractor** shall not substitute another Subcontractor therefor 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** 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 stated in the Specification included in Appendix C of this Agreement. The **Contractor** may purchase and maintain excess liability insurance in the in the umbrella form in order to satisfy the limits of liability required for the insurance to be purchased and maintained in accordance with the required requirements set forth above (in addition to the umbrella limits required). Evidence of such excess liability shall be delivered to the **City** in the form of a certificate and the certificate indicating the policy numbers and limits of liability of all underlying insurance.

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

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

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

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

ARTICLE 9
TESTS AND INSPECTIONS

9.1. Access.

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

9.2. Tests and Inspections.

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

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

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

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

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

ARTICLE 10 UNCOVERING AND CORRECTING WORK

10.1. Uncovering Work.

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

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

10.2. Correcting Work.

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

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

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

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

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

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

10.3. Acceptance of Nonconforming Work.

10.3.1 If, instead of requiring correction or removal and replacement of defective or nonconforming Work, the **City** prefers to accept Work which is not in accordance with the requirements of the Contract Documents, the **City** may do so instead of requiring its removal and correction, in which case the **Contractor** shall pay all claims, costs, losses, and damages attributable to the **City's** evaluation of and determination to accept such defective or 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**, using AIA Document G701 (or its equivalent), 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 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 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**. 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.

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. Wherever the estimated quantities of work to be done and materials to be furnished under this

contract are shown in any of the documents including the proposal, they are given for use in comparing bids and the right is especially reserved herein otherwise specifically limited, to increase or diminish them as may be deemed reasonably necessary or desirable by CONTRACTING DEPARTMENT (AS STATED ON THE FIRST PAGE OF THE AGREEMENT) to complete the work contemplated by the contract, nor shall any such increases or diminution shall in no way violate this contract, nor shall any such increase or diminution give cause for claims or liability for damages.

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. At least ten (10) working days after the Notice to Proceed or twenty (20) working days before the first application for payment, 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 than seven (7) days) after the occurrence of the event giving rise to the claim and stating the general nature of the claim. Notice of the extent of the claim with supporting data shall be delivered within thirty (30) days after such occurrence and shall be accompanied by the claimant's written statement that the adjustment claimed is the entire adjustment to which the claimant has reason to believe it is entitled as a result of the occurrence of said event. All claims for adjustment in the Contract Time shall be determined by the **Design Professional** in accordance with Article 16. No claim for an adjustment in the Contract Time will be valid if not submitted in accordance with the requirements of this paragraph.

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

ARTICLE 13 PAYMENTS

13.1. Schedule of Values.

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

13.2. Content and Submission of Applications for Payment.

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

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

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

13.2.4. Unless otherwise provided in the Contract Documents, payments shall be made on account of materials and

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

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

13.3. False Applications for Payment.

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

13.4. Review of Applications for Payment.

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

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

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

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

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

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

13.5. Decisions to Withhold Certification.

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

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

13.5.2.1. defective Work not remedied;

- 13.5.2.2. third party claims filed or reasonable evidence indicating probable filing of such claims;
- 13.5.2.3. failure of the **Contractor** to make payments properly to Subcontractors or for labor, materials or equipment;
- 13.5.2.4. reasonable evidence that the Work cannot be completed for the unpaid balance of the Contract Sum;
- 13.5.2.5. damage to the **City** or another contractor;
- 13.5.2.6. reasonable evidence that the Work will not be completed within the Contract Time, and that retainage currently held by the **City** would not be adequate to cover actual or liquidated damage for the anticipated delay;
- 13.5.2.7. persistent failure to carry out the Work in accordance with the Contract Documents; or
- 13.5.2.8. failure of mechanical trade or electrical trade subcontractors to comply with mandatory requirements for maintaining record drawings. The **Contractor** shall check record drawings each month. Written confirmation that the record drawings are current will be required by the **Design Professional** before approval of the **Contractor's** monthly payment requisition.

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

13.6. Progress Payments.

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

13.6.2. (*Reference: M.G.L. c. 30, §39G, 39K;*). In the case of Contracts for the construction, reconstruction, alteration, remodeling, repair or demolition of any public building when the amount is more than two thousand dollars, the following paragraph applies: Within fifteen days (30 days in the case of the commonwealth, including local housing authorities) after receipt from the contractor, at the place designated by the awarding authority if such a place is so designated, of a periodic estimate requesting payment of the amount due for the preceding month, the awarding authority will make a periodic payment to the contractor for the work performed during the preceding month and for the materials not incorporated in the work but delivered and suitably stored at the site (or at some location agreed upon in writing) to which the contractor has title or to which a subcontractor has title and has authorized the contractor to transfer title to the awarding authority, upon certification by the contractor that he is the lawful owner and that the materials are free from all encumbrances, but less (1) a retention based on its estimate of the fair value of its claims against the contractor and less (2) a retention for direct payments to subcontractors based on demands for same in accordance with the provisions of section thirty-nine F, and less (3) a retention not exceeding five per cent of the approved amount of the periodic payment. After the receipt of a periodic estimate requesting final payment and within sixty-five days after (a) the contractor fully completes the work or substantially completes the work so that the value of the work remaining to be done is, in the estimate of the awarding authority, less than one per cent of the original contract price, or (b) the contractor substantially completes the work and the awarding authority takes possession for occupancy, whichever occurs first, the awarding authority shall pay the contractor the entire balance due on the contract less (1) a retention based on its estimate of the fair value of its claims against the contractor and of the cost of completing the incomplete and unsatisfactory items of work and less (2) a retention for direct payments to subcontractors based on demands for same in accordance with the provisions of section thirty-nine F, or based on the record of payments by the contractor to the subcontractors under this contract if such record of payment indicates that the contractor has not paid subcontractors as provided in section thirty-nine F. If the awarding authority fails to make payment as herein provided, there shall be added to each such payment daily interest at the rate of three percentage points above the rediscount rate than charged by the Federal Reserve Bank of Boston commencing on the first day after said payment is due and continuing until the payment is delivered or mailed to the contractor; provided, that no interest shall be due, in any event, on the amount due on a periodic estimate for final payment until fifteen days (twenty-four days in the case of the commonwealth) after receipt of such a periodic estimate from the contractor, at the place designated by the awarding authority if such a place is so designated. The contractor agrees to pay to each subcontractor a portion of any such interest paid in accordance with the amount due each subcontractor.

For all other construction contracts, progress payments are governed by chapter 30, §39G, and as follows: 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.

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, §39F of the General Laws.

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.

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.

13.7.4. 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.

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) Every contract awarded pursuant to sections forty-four A to L, inclusive, of chapter one hundred and forty-nine shall contain the following subparagraphs (a) through (i) and every contract awarded pursuant to section thirty-nine M of chapter thirty shall contain the following subparagraphs (a) through (h) and in each case those subparagraphs shall be binding between the general contractor and each subcontractor.

(a) Forthwith after the **Contractor** receives payment on account of a periodic estimate, the **Contractor** shall pay to each Subcontractor the amount paid for the labor performed and the materials furnished by that Subcontractor, less any amount specified in any court proceedings barring such payment and also less any amount claimed due from the Subcontractor by the **Contractor**.

(b) Not later than the sixty-fifth day after each Subcontractor substantially completes its Work in accordance with the Plans and Specifications, the entire balance due under the subcontract, less amounts retained by the **City** as the estimated cost of completing the incomplete and unsatisfactory items of Work, shall be due the Subcontractor; and the **City** shall pay that amount to the **Contractor**. The **Contractor** shall forthwith pay to the Subcontractor the full amount received from the **City** less any amount specified in any court proceeding barring such payment and also less any amount claimed due from the Subcontractor by the **Contractor**.

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

(d) If, within seventy (70) days after the Subcontractor has substantially completed the subcontract Work, the Subcontractor has not received from the **Contractor** the balance due under the subcontract including any amount due for extra labor and materials furnished to the **Contractor**, less any amount retained by the **City** as the estimated cost of completing the incomplete and unsatisfactory items of Work, the Subcontractor may demand direct payment of that

balance from the **City**. The demand shall be by a sworn statement delivered to or sent by certified mail to the **City**, and a copy shall be delivered to or sent by certified mail to the **Contractor** at the same time. The demand shall contain a detailed breakdown of the balance due under the subcontract and also a statement of the status of completion of the subcontract Work. [The demand letter shall indicate the certified mail number assigned by the postal service or the date of delivery to the **Contractor**.] Any demand made after substantial completion of the subcontract Work shall be valid even if delivered or mailed prior to the seventieth day after the Subcontractor has substantially completed the subcontract Work. Within ten (10) days after the Subcontractor has delivered or so mailed the demand to the **City** and delivered or so mailed a copy to the **Contractor**, the **Contractor** may reply to the demand. The reply shall be by a sworn statement delivered to or sent by certified mail to the **City**, and a copy shall be delivered to or sent by certified mail to the Subcontractor at the same time. The reply shall contain a detailed breakdown of the balance due under the subcontract, including any amount due for extra labor and materials furnished to the **Contractor** and of the amount due for each claim made by the **Contractor** against the Subcontractor.

(e) Within fifteen (15) days after receipt of the demand by the **City**, but in no event prior to the seventieth day after substantial completion of the subcontract Work, the **City** shall make direct payment to the Subcontractor of the balance due under the subcontract, including any amount due for extra labor and materials furnished to the **Contractor**, less any amount (i) retained by the **City** as the estimated cost of completing the incomplete or unsatisfactory items of Work, (ii) specified in any court proceedings barring such payment, or (iii) disputed by the **Contractor** in the sworn reply; provided that the **City** shall not deduct from a direct payment any amount as provided in part (iii) if the reply is not sworn to or for which the sworn reply does not contain the detailed breakdown required by the previous paragraph. The **City** shall make further direct payments to the Subcontractor forthwith after the removal of the basis for deductions from direct payments made as provided in parts (i) and (ii) of this paragraph.

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

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

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

(i) If the Subcontractor does not receive payment as provided in paragraph (a) or if the **Contractor** does not submit a periodic estimate for the value of the labor or materials performed or furnished by the Subcontractor and the Subcontractor does not receive payment for same when due less the deductions provided for in paragraph (a), the Subcontractor may demand direct payment by following the procedure in paragraph (d) and the **Contractor** may file a sworn reply as provided in that same paragraph. A demand made after the first day of the month following that for which the Subcontractor performed or furnished the labor and materials for which the Subcontractor seeks payment shall be valid even if delivered or mailed prior to the time payment was due on a periodic estimate from the **Contractor**. Thereafter the **City** shall proceed as provided in paragraphs (e), (f), (g), and (h). "Subcontractor" as used in this paragraph (1)(i) shall mean a person approved by the **City** in writing as a person performing labor or both performing labor and furnishing materials pursuant to a contract with the **Contractor**.

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

(3) A **Contractor** or a Subcontractor shall enforce a claim to any portion of the amount of a demand for direct payment deposited as provided in herein by a petition in equity in the superior court against the other and the bank shall not be a necessary party. A Subcontractor shall enforce a claim for direct payment or a right to require a deposit as provided in paragraph (f) by a petition in equity in the superior court against the **City** and the **Contractor** shall not be a

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

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

ARTICLE 14

SUBSTANTIAL COMPLETION

14.1. Substantial Completion.

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

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

14.2. Partial Use or Occupancy of the Premises.

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

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

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

14.2.4. (*Reference:* M.G.L. c. 30, §39G;). Within sixty-five (65) days after the effective date of a declaration of

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

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

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

14.3. Final Inspection.

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

ARTICLE 15 GUARANTEES AND WARRANTIES

15.1. In General.

15.1.1. All guarantees and warranties specifically called for by the Specifications shall expressly run to the benefit of the **City**. Neither the final certificate of payment nor any provision in the Contract Documents, nor partial or entire occupancy of the premises by the City shall constitute any acceptance of work not done in accordance with the Contract Documents or relieve the Contractor of liability in respect to any express warranties or responsibility for faulty materials or workmanship. The Contractor shall remedy any defects in the work and pay for any damage to other work resulting therefrom, which shall appear within a period of one year from the date of final acceptance of the work unless a longer period is specified. CONTRACTING DEPARTMENT (AS STATED ON THE FIRST PAGE OF THE AGREEMENT) will give notice of observed defects with reasonable promptness.

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, 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. 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. 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.

18.1.1.1 Notwithstanding the above, if the City is required to suspend the work as a result of a request from the Office of the Attorney General in connection with a bid protest or an injunction, the Contractor shall not have a claim for damages, but the City shall extend the date of substantial completion for a period of time commensurate with the period of the suspension, and the liquidated damages clause shall not take effect until the extended date of substantial completion. If any of the following occurrences causes a delay in the work, the Contractor shall immediately notify CONTRACTING DEPARTMENT (AS STATED ON THE FIRST PAGE OF THE AGREEMENT) in writing. If, upon investigation, the City finds that the delay is excusable, the City shall extend the date of substantial completion for a period of time commensurate with the period of the excusable delay, and the liquidated damages clause shall not take effect until the extended date of substantial completion: (1) any acts of the Government, including controls or restrictions upon or requisitioning of materials, equipment, tools, or labor by reason of war, National Defense, or any other national emergency; (2) delays which are caused by the City and which are not occasioned by the Contractor’s failure to supply CONTRACTING DEPARTMENT (AS STATED ON THE FIRST PAGE OF THE AGREEMENT) or its design professional with progress schedules, documents, samples, and the like, in a timely manner; (3) causes not reasonably foreseeable by the parties to this Contract, which are beyond the reasonable

control of the Contractor, such as blizzards, floods, hurricanes, tornadoes, and strikes; (4) any delay of any subcontractor resulting from paragraphs (1), (2), or (3).

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 makes a written admission of the Contractor's inability to pay debts, or if the Contractor becomes a 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) a winding up or dissolution of a partnership or corporation, (v) or any other proceeding under which a court of competent jurisdiction assumes custody or control over the Contractor, 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 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, 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 in breach of any provision of the Contract 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, 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**, temporarily withhold cash payments pending correction of the deficiency, hold the Contractor and its sureties liable in damages, require the Contractor's sureties to complete the Contract, 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, without liability for loss or damage, following which use, the Contractor shall be liable for their removal from the site; and, seven (7) days after such notice, may terminate the employment of the **Contractor**, accept assignment of any or all subcontracts pursuant to Paragraph 6.6.1.1, and finish the Work by whatever method the **City** may deem expedient (including but not limited to 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.

. 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.

18.3.1.1. 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.

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.

18.3.3. (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 (subject to the City providing notice that it accepts assignment of any or all subcontracts pursuant to Paragraph 6.6.1.1); (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.

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:

Mayor
City of Somerville
93 Highland Avenue
Somerville, MA 02143

City Solicitor
Law Department
93 Highland Avenue
Somerville, MA 02143

Director of Contracting Department (as stated on first page of this Agreement)
City Hall
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 and the United States of America.

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.

21.6 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.

21.7 Conflict of Interest Laws. The City and the Contractor shall comply with all applicable conflict of interest statutes and regulations.

21.8 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), 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.

21.9. 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 materialmen, 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.

END

PART 3: TECHNICAL SPECIFICATIONS

TECHNICAL SPECIFICATIONS

<u>DIVISION 02</u>	EXISTING CONDITIONS/SITE CONSTRUCTION	
	Site Preparation and Demolition	024100
<u>DIVISION 26</u>	ELECTRICAL	
	Electrical	260000
<u>DIVISION 31</u>	EARTHWORK	
	Excavation, Filling and Grading	310000
<u>DIVISION 32</u>	EXTERIOR IMPROVEMENTS	
	Asphalt	321216
	Concrete	321313
	Curbing	321600
	Synthetic Turf	321800
	Site Improvements	323000
	Fencing	323100
	Planting	329000
<u>DIVISION 33</u>	UTILITIES	
	Storm Drainage Utilities	334000

02 41 00 – SITE PREPARATION AND DEMOLITION

PART 1 - GENERAL

1.01 General Requirements

- A. The conditions and general requirements of the Contract, including Division 00 and Division 01, apply to the work under this Section.
- B. The Contractor shall, prior to any removal of rubbish or debris from the site, furnish written evidence satisfactory to the Owner's Representative that he has an approved dumping location for debris and/or spoil from his removals and excavation activities.
- C. Cleaning of materials for the purpose of salvage on the site shall not be permitted.
- D. The Contractor shall secure all necessary permits from the City of Somerville before starting this project.

1.02 Work Included

- A. Provide all labor, equipment, implements and materials required to furnish, install, construct and perform all Site Preparation work complete, as shown on the Drawings and as specified herein.
- B. Work includes, but is not limited to the following:
 - 1. Temporary construction fencing to secure work and staging area;
 - 2. Removal of asphalt paving, subbase materials (where shown on Drawings), plant material, curbing, fencing and site amenities as identified on the drawings;
 - 3. Sawcutting existing pavement;
 - 4. Materials to be removed and disposed legally off-site;
 - 5. Protection of existing trees and vegetation, paving, utility poles, fences, walls, utilities, and building not indicated to be removed on the Drawings;
 - 6. Salvaging and removal of basketball hoops;
 - 7. Tree pruning;
 - 8. Sedimentation controls;
 - 9. Refer to Section 32 16 00 Curbing for removal and resetting existing curb.

1.03 References

- A. Examine all other Sections of the Specifications and all Drawings for the relationship of the work under this Section and the work of the other trades. Cooperate with all trades and all departments of City of Somerville and coordinate all work under this Section.

B. The following related items are included under the Sections listed below

1. Section 31 00 00 – Excavation, Filling and Grading
2. Section 26 00 00 - Electrical
3. Section 32 12 16 – Asphalt Paving
4. Section 32 13 13 – Concrete
5. Section 32 16 00 – Curbing – remove and reset existing curb
6. Section 32 18 00 –Synthetic Turf
7. Section 32 30 00 – Site Improvements
8. Section 32 31 00 – Fences, Gates and Netting
9. Section 32 90 00 – Planting
10. Section 33 40 00 – Storm Drainage Utilities

1.04 Laws, Ordinances, Permits and Fees

The Contractor shall:

- A. Give necessary notices, obtain all permits and pay all governmental fees and other costs in connection with this work, file all necessary plans, prepare documents and obtain all necessary approvals.
- B. Obtain all required certificates of inspection for this work and deliver it to the Landscape Architect before request for acceptance and final payment for the work.
- C. Include in the work, without extra cost to the Owner, any labor, materials, services, apparatus, drawings (in addition to contract drawings and documents) in order to comply with all applicable laws, ordinances, rules and regulations, whether or not shown on the drawing and/or specified. The disturbed areas shall be secured with chain link construction fence and fence shall be maintained at all times while site is under construction as per General Conditions Section 00 70 00 of the Specifications.
- D. Provide all safety controls during construction including temporary walkways, fencing, barricades, etc. at no additional cost to the Owner.
- F. Completely remove from the project area all demolished materials, except as designated for stockpiling for re-use, and dispose of all materials off the site. Disposal of the materials shall be done in such a manner that there shall be no accumulation of any demolished material which may, in the opinion of the Owner's Representative, the Fire Department or any other public agency having jurisdiction, constitute a hazard.

1.05 Definitions

The following related items are included herein and shall mean:

- A. S.S.H.B. - Standard Specifications for Highways and Bridges, the Commonwealth of Massachusetts, Department of Transportation, latest edition.
- B. A.S.T.M. - American Society for Testing and Materials.
- C. A.A.S.H.T.O. - American Association of State Highway and Transportation Officials.

1.06 Site Conditions

- A. The Contractor shall visit and accept the site as he finds it and shall inform himself of the character and the type of structures to be removed. The Owner assumes no responsibility for the condition of the site. Damage to the site (whether by reason of fire, theft, or other happenings) shall be at the risk of the Contractor from and after the date of Contract execution and no such damage or loss shall relieve the Contractor from any obligation under the Contract.
- B. Contractor shall not work on or with soils when they are overly dry, wet, or frozen.

1.07 Protection

- A. All rules and regulations governing the respective utilities shall be observed in executing all work under this Section. All work shall be executed in such a manner as to prevent any damage to existing streets, curbs, paving, service utility lines and structures, drainage lines and structures, and adjoining property. Monuments and benchmarks shall be carefully maintained and, if disturbed or destroyed, replaced as directed.
- B. The Contractor shall assume full responsibility for damage caused by his Subcontractor's equipment and personnel to the existing grounds as well as adjoining private property. The Contractor shall obtain approval for subsurface construction from all necessary parties and the City of Somerville before proceeding within the Contract limits.
- C. The work of this Section shall be performed in such a manner as to cause no interference with access by the Subcontractors or other Contractors to all portions of the site as is necessary for the normal conduct of their work.
- D. The Contractor shall take adequate precautions to protect all walks, roads, streets, curbs, pavements, trees and planting, on or off the premises, and shall repair and replace or otherwise make good at no expense to the owner, as directed by the Owner's Representative, any damage so caused.

1.08 Special Protection for Maintaining Streets and Public Ways

- A. Do not close or obstruct streets without a permit. Do not place or store material in streets, alleyways or sidewalks.
- B. Conduct operations with minimum interference to street.
- C. Furnish, erect and maintain fences, planking, bracing, shoring, sheathing, lights, barricades, warning signs, and guards as necessary for the protection of streets, sidewalks, and adjoining property.

- D. Completely remove all protection when the work is completed or when directed in writing to do so by the Owner.

1.09 Utilities

- A. Discontinuance or Interruption
Before starting demolition, the Contractor shall be solely responsible for making all necessary arrangements and for performing any necessary work involved in connection with the discontinuance or interruption of all public and private utilities or services under the jurisdiction of the utility companies or corporations, and the Owner. These include gas, electricity, steam, refrigeration, low tension system, telephone, internet access, television, police signal, fire alarm, water, sanitary sewer, storm drainage, and without limiting the generality of the foregoing, including any system or systems which will be affected by the work to be performed under this Contract. The Contractor shall contact DIG-SAFE at 1-888-344-7233 and follow normal procedures prior to commencing any excavation work at the site.
- B. Protection
Preserve in operating condition all active utilities traversing the project site, which are to remain. Should any damage occur to a utility which is to remain as a result, in the judgment of the Owner's Representative, of this operation, the Contractor shall at his own expense, repair all damage to any such utility to the satisfaction of the Owner.

PART 2 - MATERIALS

2.01 Temporary Construction Fence

- A. Temporary Construction Fence shall be six-foot high galvanized steel fence panels on stable, movable footings and include hardware to secure panels together.

2.02 Erosion and Sedimentation Control

- A. Materials for erosion and sedimentation control shall be as described herein.
 - 1. Catch basin filters shall be SiltSack by ACF Environmental 1-800-448-3636 or approved equal. Provide regular flow (40 gal./min./ft.²) or high flow (200 gal./min./ft.²) as required to provide positive drainage of all contributing areas.
 - 2. Filter fabric: Refer to Section 310000 – Excavation, Filling and Grading
 - 3. Straw wattles shall be composed of 100% agricultural straw and wrapped in tubular UV stabilized synthetic net. Netting shall be .35 oz/LF and made from HDPE photodegradeable net with .5 inch openings. Ends shall be secured with wire closures and installed in accordance to manufacturer's recommendations

PART 3 - EXECUTION

3.01 Temporary Construction Fence

- A. The Contractor shall be responsible for providing and maintaining six-foot high temporary movable galvanized steel fencing around the construction and staging areas to ensure the safety of all persons authorized or unauthorized. Construction staging areas on site shall be coordinated with the Owner. Contractor shall coordinate with the Owner to maintain safe pedestrian and emergency access to the school at all times.

3.02 Erosion and Siltation Control

- A. Intent: The Contractor is responsible for providing all temporary erosion and siltation control measures required to control erosion of soils within the areas of earthwork operations. The Contractor shall carry a contingency as part of his base bid contract price to provide temporary erosion controls to be installed during construction as required to contain water borne sediments within the project work area and prevent siltation of open or subsurface drainages systems.
- B. Straw wattles shall be installed as required to prevent sediments from contaminating drainage systems and finished improvements.
- C. Catch basin filters shall be installed at all catch basins within the project work area and immediately adjacent downstream from the work area.
 - 1. Install catch basin filters in accordance with the manufacturer's recommendations prior to any catch basin described above becoming exposed to any siltation.
 - 2. Remove and replace catch basin filters as required to permit sufficient water flow to provide positive drainage of all contributing areas
 - 4. Filter fabric: Refer to Section 310000 – Excavation, Filling and Grading

3.03 Site Engineering and Layout

- A. Prior to the start of sawcutting pavement and excavation operations, lay out sawcut lines and stake out site elements, limits of cut and fill and work limit lines for the Landscape Architect's review.
- B. Saw cut existing paving at all locations where pavement to be removed meets existing pavement to remain. Sawcuts shall be made with sharp tools and blades to provide a clean vertical cut line in the precise layout indicated on the drawings. Use carbide or other type blade intended for that purpose

3.04 Removals

- A. Remove and legally dispose of all paving indicated on the Drawings to be removed and all other paving required to be removed in order to construct the Project.
- B. All holes and trenches resulting from removals shall be backfilled as appropriate with gravel borrow and compacted as specified in Section 31 00 00 – Excavation, Filling and Grading.

3.05 Dust Control

- A. Wet down thoroughly all work during excavation to prevent spread of dust. Make all arrangements and pay for all water and necessary connections therefor.

3.06 Above and Below Grade Improvements

- A. Remove and legally dispose of all existing above and below grade improvements as indicated on the Drawings and as necessary to permit construction of the Project, including pipes, tanks, concrete slabs, castings, curbing and any and all other improvements inside or outside the contract limits. Remove walls and other obstructions to a depth of at least 2 feet below finished grades and as required to construct the subsurface improvements of this project.

3.07 Protection and Pruning Existing Plant Material to Remain

- A. Within the limit of work lines protect all plant materials to remain as indicated on the Drawings. No such plant materials shall be used as guys or other fastenings. Equipment access and storage of materials is prohibited at all landscape areas.
- B. Trees within and adjacent to the limit of work shall be pruned in accordance with ANSI A300 (Part 3) Tree, Shrub, and Other Woody Plant Maintenance - Standard Practices, latest edition, to clean, raise and reduce branches as directed by the Landscape Architect and as required to provide adequate clearance at proposed lighting and fence improvements.
- C. If it becomes necessary to cut roots of plants to be saved, such roots shall be neatly cut after consulting the Landscape Architect.

3.08 Clean-Up

- A. Keep pavements and areas adjacent to and leading from the site, clean and free of mud, dirt and debris.
- B. Remove from the project site all materials and debris resulting from the work of excavation. Storage of such materials on the project site will not be permitted. The project site shall be safe, clean and holes filled and compacted with clean fill upon completion of the excavation and site clearance work.

END OF SECTION

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SECTION 26 00 00

ELECTRICAL

PART 1 - GENERAL

1.1 GENERAL PROVISIONS

- A. The GENERAL REQUIREMENTS, DIVISION 01, and BIDDING AND CONTRACT REQUIREMENTS, DIVISION 00, are hereby made a part of this Specification Section.
- B. Examine all Drawings and all Sections of the Specifications and requirements and provisions affecting the work of this Section.

1.2 SCOPE OF WORK

- A. This project includes the construction of new athletic field.
- B. The work under this Section shall include the furnishing of all materials, labor, equipment and supplies and the performance of all operations to provide complete working systems, in general, to include the following items:
 - 1. Identification
 - 2. Raceways and Conduit
 - 3. Wire and Cable (600V)
 - 4. Wiring Devices and Plates
 - 5. Outlet Boxes
 - 6. Junction Boxes, Pull Boxes and Wireways
 - 7. Safety Disconnect Switches
 - 8. Panelboards
 - 9. Fuses
 - 10. Lamps and Light Fixtures
 - 11. Lighting Control System
 - 12. Cable Tray
 - 13. Underground Ductbank / Precast Handholes
 - 14. Sleeving
 - 15. Supervision and Approval
 - 16. Electrical Connections to Equipment provided under other Sections or by Owner.
 - 17. Short Circuit Protection and Coordination Study
 - 18. Testing
 - 19. Operating and maintenance instructions and manuals
 - 20. Shop drawings
 - 21. Record (as-built) drawings

1.3 RELATED WORK

- A. Principal classes of Work related to the Work of this Section are listed in the Specification Table of Contents, and are specified to be performed under the indicated Sections of the Specifications. Refer to the indicated Sections for description of the extent and nature of the indicated Work, and for coordination with related trades. This listing may not include all related Work items. It is the responsibility of the Contractor to coordinate and schedule the Work of this Section with that of all other trades.
- B. The following work is not included in this section and will be provided under other sections:
 - 1. Temporary light, power, water, heat, gas and sanitary facilities for use during construction and testing. Refer to Division 01, General Conditions.
 - 2. Telephone system, wire, cable, equipment and instruments.
 - 3. Automatic Temperature Control and Direct Digital Communication wiring except as noted on Drawings.
 - 4. Excavation and backfill.
 - 5. Concrete work including concrete housekeeping pads and blocks for vibrating and rotating equipment, and ductbank envelopes.
 - 6. Flashing of roof and wall penetrations.
 - 7. Painting, except as specified herein.
 - 8. Sports lighting system pole bases.

1.4 PRODUCTS FURNISHED, BUT NOT INSTALLED UNDER THIS SECTION

- A. Furnish the following items for installation under other sections and provide wiring and connections as required:
 - 1. Anchor bolts for poured-in-place light standard bases (furnish templates for placement) for installation under Division 03.
 - 2. Pre-cast handholes for installation under Division 02.

1.5 DEFINITIONS

- A. As used in this Section, the following items are understood to have the following meaning:
 - 1. **"Contractor or Subcontractor"**, unless otherwise qualified, shall mean the installer of the work specified under this Section.
 - 2. **"Furnish"** shall mean purchase and deliver to the project site, complete with every necessary appurtenance.
 - 3. **"Install"** shall mean unload at the delivery point at the site and perform all work necessary to establish secure mounting and proper operation at the proper location in the project.
 - 4. **"Provide"** shall mean "Furnish" and "Install".
 - 5. **"Work"** shall mean all labor, materials, equipment, apparatus, controls, accessories and all other items required for a proper and complete installation.
 - 6. **"Concealed"** shall mean hidden from sight in chases, furred-in spaces, shafts, hung ceilings, embedded in construction or in a crawl space. Areas to be concealed as part of tenant alterations to the building shall also be considered in this definition.
 - 7. **"Exposed"** shall mean not installed underground or concealed as defined above.

8. **"Furnished by Others"** shall mean materials or equipment purchased under other sections of the general contract and installed by this section of the specifications by this trade Contractor.
9. **"Owners Representative"** shall be the party responsible to make decisions regarding all contractual obligations in reference to the Scope of Work for the Owner.
10. **"Date of Substantial Completion"** shall indicate the date where the work has been formally accepted as evidenced by completed final punch list or where the work has reached the stage that the Owner obtains beneficial use and commences utilization of the installed systems for business or occupancy purposes. The GENERAL REQUIREMENTS, DIVISION 01, shall supersede this definition where specifically defined.

1.6 CODES, REFERENCES AND PERMITS

- A. Materials, installation of systems and equipment provided under this section shall be done in strict accordance with the Department of Public Safety, Department of Environmental Protection, State Building Code and any other Codes and Regulations having jurisdiction including but not limited to:
 1. All Applicable NFPA Standards
 2. National Electrical Code (NEC)
 3. Occupational Safety and Health Administration (OSHA)
 4. State and Local Building Codes
 5. Underwriters' Laboratories, Inc. (UL)
- B. Unless otherwise specified or indicated, materials, workmanship and equipment performance shall conform with the latest governing edition of the following standards, codes, specifications, requirements, and regulations, except when more rigid requirements are specified or are required by applicable codes but not limited to:
 1. American National Standards Institute (ANSI)
 2. American Society of Mechanical Engineers (ASME)
 3. American Society of Testing and Materials (ASTM)
 4. Certified Ballast Manufacturers (CME)
 5. Illuminating Engineering Society (IES)
 6. Institute of Electrical and Electronics Engineers (IEEE)
 7. Insulated Cable Engineers Association (ICEA)
 8. National Electrical Contractors Association (NECA)
 9. National Electric Manufacturers Association (NEMA)
 10. Thermal Insulation Manufacturers Association (TIMA)
- C. Codes, laws and standards provide a basis for the minimum installation criteria acceptable. The drawings and specifications illustrate the scope required for this project, which may exceed minimum codes, laws and standards.
- D. Give all notices, file all plans, obtain all permits and licenses, and obtain all necessary approvals from authorities having jurisdiction. Deliver all certificates of inspection to the authorities having jurisdiction. No work shall be covered before examination and approval by the Owner's Representative, inspectors, and authorities having jurisdiction. Replace imperfect or condemned work to conform to requirements, satisfactory to Owner's Representative, and without extra cost to the Owner. If work is covered before inspection and approval, this Contractor shall pay costs of uncovering and reinstalling the covering, whether it meets contract requirements or not.

1.7 GENERAL REQUIREMENTS

A. Nameplates

1. Each major component of equipment shall have the manufacturer's name, address, type or style, model or serial number, and catalog number on a plate secured to the equipment.

B. Equipment Guards

1. Belts, pulleys, chains, gears, couplings, projecting setscrews, keys, and other rotating parts so located that any person may come in close proximity thereto shall be completely enclosed or guarded. High-temperature equipment and piping so located as to endanger personnel or create a fire hazard shall be guarded or covered with insulation of type specified for service.

1.8 MATERIAL AND EQUIPMENT STANDARDS

- A. Where equipment or materials are specified with the name of a manufacturer, such specification shall be deemed to be used for the purpose of establishing a standard for that particular item. No equipment or material shall be used unless previously approved by the Owner's Representative.
- B. Substitutions may be offered for review provided the material, equipment or process offered for consideration is equal in every respect to that indicated or specified. The request for each substitution must be accompanied by complete specifications together with drawings or samples to properly appraise the materials, equipment or process. The Contractor shall highlight and list all applicable specification requirements which the substituted material deviates from.
- C. If a substitution of materials or equipment in whole or in part is made, this Contractor shall bear the cost of any changes necessitated by any other trade as a result of said substitution.
- D. All materials, equipment and accessories provided under this section shall be new and unused products of recognized manufacturers as approved.

1.9 SUBMITTALS

- A. Conform to the requirements of Division 01, General Conditions, for schedule and form of all submittals unless specifically noted otherwise in this section. Coordinate this submittal with submittals for all other finishes. Shop drawings and design layouts shall be prepared by licensed installing Contractor s and shall note the name(s), license number(s) and license expiration date(s) of the Contractor (s) installing electrical systems.
- B. Definitions:
 1. Shop Drawings are information prepared by the Contractor to illustrate portions of the work in more detail than indicated in the Contract Documents.

2. Acceptable Manufacturers: The mechanical design for each product is based on the single manufacturer listed in the schedule or shown on the drawings. In Part 2 of the specifications, certain Alternate Manufacturers are listed as being acceptable. In addition, the MATERIAL AND EQUIPMENT STANDARDS paragraph potentially allows for substitutions as being acceptable. These are acceptable only if, as a minimum, they:
 - a. Meet all performance criteria listed in the schedules and outlined in the specifications. For example, to be acceptable, an emergency generator must deliver equal kW / kVA at equal or greater efficiency using equal or less fuel as the emergency generator listed in the schedules.
 - b. Fit within the available space it was designed for, including space for maintenance and component removal, with no modification to either the space or the product. Clearances to walls, ceilings, and other equipment will be at least equal to those shown on the design drawings. The fact that a manufacturer's name appears as acceptable shall not be taken to mean the Engineer has determined that the manufacturer's products will fit within the available space – this determination is solely the responsibility of the Contractor.
 - c. For rooftop mounted equipment and equipment mounted in areas where structural matters are a concern, the products must have a weight no greater than the product listed in the schedules or specifications.
 - d. Products must adhere to all architectural considerations including, but not limited to; being of the same color as the product scheduled or specified, fitting within the architectural enclosures and details, and for lighting – being the same size and of the same physical appearance as scheduled or specified products.

C. Submittal Procedures, Format and Requirements

1. Review submittal packages for compliance with Contract Documents and then submit to Owner's Representative for review. Submit enough sets of shop drawings such that, after review, two sets will be kept by the reviewer, with only the remaining sets returned with reviewer's marks and comments.
2. Each Shop Drawing shall indicate in title block, and each Product Data package shall indicate on cover sheet, the following information:
 - a. Title
 - b. Equipment number
 - c. Name and location of project
 - d. Names of Owner, Engineer and Seller
 - e. Names of manufacturers, suppliers, vendors, etc.
 - f. Date of submittal
 - g. Whether original submittal or resubmitted
3. Shop Drawings showing manufacturer's product data shall contain detailed dimensional drawings (minimum 1/4" – 1' scale) including plans and sections (where physical clearance could be an issue). Provide larger scale details as necessary.
4. Submit accurate and complete description of materials of construction, manufacturer's published performance characteristics, sizes, weights, capacity ratings (performance data, alone, is not acceptable), electrical requirements, starting characteristics, wiring diagrams, and acoustical performance for complete assemblies. Drawings shall clearly indicate location (terminal block or wire number), voltage and function for all field terminations, and other information necessary to demonstrate compliance with all requirements of Contract Documents.

5. Provide Shop Drawings showing details of piping connections to all equipment. If connection details are not submitted and connections are found to be installed incorrectly, this Contractor shall reinstall them within the original contract price.
6. Provide complete data for all auxiliary services and utilities required by submitted equipment. This shall include fuel, cooling and exhaust requirements and points of connections.
7. Provide a complete description of all controls and instrumentation required including electrical power connection drawing for all components and interconnection wiring to starters, detailed information on starters, control diagrams, termination diagrams, and all control interfaces with a central control system.
8. Provide installation and erection information including; lifting requirements, and any special rigging or installation requirements for all equipment.
9. The Owner's Representative shall approve all materials before commitment for materials is made.

D. Specifications and Schedule Compliance Statement

1. The manufacturer shall submit a point by point statement of compliance with each specification criteria listed in each paragraph for those submittals listed in Paragraph E: Product Data that are noted with an asterisk (*).
2. The statement of compliance shall consist of a list of all paragraphs (line by line) identified in Part 2 and applicable Part 3 of the specification for which the submitted product in the opinion of the manufacturer complies, deviates, or does not meet.
3. Where the proposed submittal complies fully, the word "comply" shall be placed opposite the paragraph number.
4. Where the proposed submittal does not comply, or accomplishes the stated function in a manner different from that described, a full description of the deviation shall be provided.
5. Verify each field of the associated schedule where associated technical data is presented on the drawings. Where the submitted material does not "comply" provide the value the submitted equipment will achieve based upon the specified conditions.
6. Where a full description of a deviation is not provided, it shall be assumed that the proposed system does not comply with the paragraph in question and the product will be rejected.
7. Submissions which do not include a point by point statement of compliance as specified shall be disapproved.

E. Product Data: Submit complete manufacturer's product description and technical information including:

1. Raceways and Conduit
2. Wire and Cable (600V)
3. Safety Disconnect Switches
4. Panelboards
5. Lamps and Light Fixtures
6. Handholes

F. Submit shop drawings and product data grouped to include complete submittals of related systems, products and accessories in a single submittal.

1. Do not submit multiple product information in a single bound manual.
2. Three-ring binders shall not be accepted.

G. Deviations:

1. Concerning deviations other than substitutions, proposed deviations from Contract Documents shall be requested individually in writing whether deviations result from field conditions, standard shop practice, or other cause. Submit letter with transmittal of Shop Drawings which flags the deviation to the attention of the Owner's Representative.
2. Without letters flagging the deviation to the Owner's Representative, it is possible that the Engineer may not notice such deviation or may not realize its ramifications. Therefore, if such letters are not submitted to the Owner's Representative, the Seller shall hold the Engineers, his consultants and the Owner harmless for any and all adverse consequences resulting from the deviations being implemented. This shall apply regardless of whether the Engineer has reviewed or approved shop drawings containing the deviation, and will be strictly enforced.
3. Approval of proposed deviations, if any, will be made at discretion of Engineer.

H. Schedule: Incorporate shop drawing review period into construction schedule so that Work is not delayed. This Contractor shall assume full responsibility for delays caused by not incorporating the following shop drawing review time requirements into his project schedule. Allow at least 10 working days, exclusive of transmittal time, for review each time shop drawing is submitted or resubmitted.

I. Responsibility

1. Intent of Submittal review is to check for capacity, rating, and certain construction features. The Contractor shall ensure that work meets requirements of Contract Documents regarding information that pertains to fabrication processes or means, methods, techniques, sequences and procedures of construction; and for coordination of work of this and other Sections. Work shall comply with approved submittals to extent that they agree with Contract Documents. Submittal review shall not diminish responsibility under this Contract for dimensional coordination, quantities, installation, wiring, supports and access for service, nor the shop drawing errors or deviations from requirements of Contract Documents. The Engineer's noting of some errors while overlooking others will not excuse the Contractor from proceeding in error. Contract Documents requirements are not limited, waived nor superseded in any way by review.
2. Inform Contractor, manufacturers, suppliers, etc. of scope and limited nature of review process and enforce compliance with contract documents.

J. In the event that the Contractor fails to provide Shop Drawings for any of the products specified herein:

1. The Contractor shall furnish and install all materials and equipment herein specified in complete accordance with these Specifications.
2. If the Contractor furnishes and installs material and/or equipment that is not in complete accordance with these Specifications, he shall be responsible for the removal of this material and/or equipment. He shall also be responsible for the replacement of this material and/or equipment with material and/or equipment that is in complete accordance with these Specifications, at the direction of the Owner's Representative.
3. Removal and replacement of materials and/or equipment that is not in complete compliance with these Specifications shall be done at no extra cost to the Owner.
4. Removal and replacement of materials and/or equipment that is not in complete compliance with these Specifications shall not be allowed as a basis for a claim of delay of completion of the Work.

- K. Mark dimensions and values in units to match those specified.
- L. Submit Material Safety Data Sheets (MSD) on each applicable product with submittal.

1.10 OPERATION AND MAINTENANCE DATA

- A. Commence preparation of the Operating and Maintenance (O&M) manuals immediately upon receipt of "Approved" or "Approved as Noted" shop drawings and submit each section within one month. The final submission shall be no later than two months prior to the projected date of Substantial Completion of the Project.
- B. Each O&M document shall include the manufacturer's web address for equipment specific O&M information for Internet access by the Owner.
- C. The manual shall consist of three (3) sets of manuals and include three (3) sets of CDs, which shall contain the scanned content of the entire manual. The manual shall highlight the actual equipment used and not be a master catalog of all similar products of the manufacturer. The manual shall be submitted for review prior to creation of the CDs.
- D. The Manual shall contain the following:
 - 1. Operations Manual
 - a. Systems description including all relevant information needed for day-to-day operations and management including start-up and shut-down instructions.
 - b. Wiring diagrams, schematics, logic diagrams and sequence of operations that accurately depict the controls system.
 - c. Depiction of each interface screen where programmable logic and visual displays are provided. Descriptors shall be provided to define displayed data, alarms, etc.
 - d. A single sheet (for ease of removal) of all access codes and passwords necessary to access all levels of control and programming.
 - e. Trouble shooting guide defining common alarms/problems with possible cause and effect.
 - 2. Maintenance Manual
 - a. Define all maintenance activities required to ensure system operation within manufacturers specified parameters. Provide table of all required activities plotted vs. interval with adequate fill-in-space for "activity completion date" and "comments". Where multiple instrument readings are required, provide data sheet formatted to accommodate activity.
 - b. Define recommended spare parts inventory with part numbers and source defined for ordering by the Owner. Identify lead time on all parts, source location and cost.
 - c. Provide copy of all warranty information with associated date of substantial completion (commencement of warranty) and end date of coverage. Define all components/subsystems specifically included and excluded.
 - 3. Provide O&M manuals for each of the following:
 - a. Lighting Control System

1.11 RECORD DRAWINGS

- A. Refer to DIVISION 01, General Conditions, for record drawings and procedures to be provided under this section, unless specifically noted otherwise in this section.
- B. Record Drawings (red-line drawings) will be updated by this Contractor daily for review with the monthly requisition. The record drawing shall be an accurate depiction of the systems as completed, including dimensions (vertical/horizontal) of concealed components off fixed building elements.
- C. The Electrical Foreman shall maintain complete and separate set of prints of Contract Drawings at job site at all times and shall record work completed and all changes from original Contract Drawings clearly and accurately including work installed as a modification or addition to the original design.
- D. At completion of work the Electrical Contractor shall prepare a complete set of record drawings on AutoCAD showing all systems as actually installed. The Landscape/Civil background AutoCAD files will be made available for the Contractor's copying, at his expense, to serve as backgrounds for the drawings. The Electrical Contractor shall transfer changes from field drawings onto AutoCAD drawings and submit copy of files and three sets of prints to Owner's Representative for comments as to compliance with this section. CADD layering as established by the design team shall be maintained with any and all changes done by the Contractor.
- E. The Engineer are not granting to the Contractor any ownership or property interest in the CADD Drawings by the delivery of the CADD Disks to the Contractor. The Contractor's rights to use the CADD disks and the CADD Drawings are limited to use for the sole purpose of assisting in the Contractor's performance of its contractual obligations under its contract with respect to the Project. The Architect and Engineer are granting no further rights. Any reuse or other use by the Contractor will be at the Contractor's sole risk and without liability to the Architect and Engineer. The Contractor hereby waives and releases any losses, claims, damages, liabilities of any nature whatsoever, and costs (including attorney fees) arising out of, resulting from, or otherwise related to the use of the CADD Disks and CADD Drawings by the Contractor. The Contractor, to the maximum extent permitted by law, hereby agrees to indemnify, defend and hold the Architect and Engineer harmless from all loses, claims, damages, liabilities, and costs (including attorney fees) arising out of, resulting from, or otherwise related to the use of the CADD Disks and CADD Drawings by the Contractor.
- F. Record Drawings, shall show "as-built" condition of details, sections, riser diagrams, control changes and corrections to schedules. Schedules shall show actual manufacturer and model numbers of final equipment installation.
- G. The Electrical Contractor shall submit the record set for approval by the engineer a minimum of four weeks prior to seeking the permanent certificate of occupancy.

1.12 WARRANTIES

- A. Submit manufacturer's standard replacement warranties for material and equipment furnished under this Section. Such warranties shall be in addition to and not in lieu of all liabilities which the manufacturer and the Electrical Contractor may have by law or by provisions of the Contract Documents.

- B. All materials, equipment and work furnished under this Section shall be guaranteed against all defects in materials and workmanship for a minimum period of one-year (1) commencing with the Date of Substantial Completion. Where individual equipment sections specify longer warranties, provide the longer warranty. Any failure due to defective material, equipment or workmanship which may develop, shall be corrected at no expense to the Owner including all damage to areas, materials and other systems resulting from such failures.
- C. Guarantee that all elements of each system meet the specified performance requirements as set forth herein or as indicated on the Drawings.
- D. Upon receipt of notice from the Owner of the failure of any part of the systems during the warranty period, the affected parts shall be replaced. Any equipment requiring excessive service shall be considered defective and shall be replaced.

1.13 COORDINATION

- A. Refer to Division 01, General Conditions, for coordination requirements applicable to this section, unless specifically noted otherwise in this section.
- B. Materials and apparatus shall be installed as fast as conditions of the building will permit and must be installed promptly when and as required.
- C. Confer with all other trades relative to location of all apparatus and equipment to be installed and select locations so as not to conflict with work of other Sections. Any conflicts shall be referred immediately to the Owner's Representative for decision to prevent delay in installation of work. All work and materials placed in violation of this clause shall be readjusted to the Owner's Representative's satisfaction at no expense to the Owner.
- D. Where work of this section will be installed in close proximity to work of other sections or where there is evidence that the work of this section may interfere with work of other sections, assist in working out space conditions to make satisfactory adjustment. Prepare and submit for approval 3/8" scale or larger working drawings and sections, clearly showing how the work is to be installed in relation to the work of other sections. If the work of this section is installed before coordinating with other trades or so as to cause interference with work of other trades, make changes necessary to protect conditions without extra charge.
- E. Keep fully informed as to the shape, size and position of all openings required for all apparatus, conduit, cable, sleeves, etc., and give information in advance to allow construction of required openings. Furnish all sleeves, pockets, supports and incidentals, and coordinate with the General Contractor for the proper setting of same.
- F. All distribution systems which require pitch or slope shall have the right of way over those which do not. Confer with other trades as to the location of pipes and install work to avoid interferences.
- G. Make reasonable modifications in the work as required by structural interferences, or by interference with work of other trades, or for proper execution of the work without extra charge.

1.14 INTERPRETATION OF DRAWINGS AND SPECIFICATIONS

- A. It is the intention of the Specifications and Drawings to call for complete, finished work, tested and ready for continuous operation. Any apparatus, appliance, material or work not shown on the Drawings, but mentioned in the Specifications or vice-versa, or any incidental accessories necessary to make the work complete in all respects and ready for operation, even if not particularly specified, shall be provided by this Contractor without additional expense to the Owner.
- B. The Drawings are generally diagrammatic. The locations of all items that are not definitely fixed by dimensions are approximate only. The exact locations must be determined at the project and shall have the approval of the Owner's Representative before being installed. This Contractor shall follow Drawings, including his shop drawings, in laying out work and shall check the Drawings of other trades to verify spaces in which work will be installed. Maintain maximum headroom and space conditions. Where space conditions appear inadequate, notify the Owner's Representative before proceeding with the installation. This Contractor shall, without extra charge, make reasonable modifications in the layout as needed to prevent conflict with work of other trades or for proper execution of the work.
- C. Any requests for information (RFI) for resolving an apparent conflict or unclarity, or a request for additional detail, shall include a sketch or equivalent description of Contractor's proposed solution.
- D. Size of conduits and methods of running them are shown, but it is not intended to show every offset and fitting, nor every structural difficulty that may be encountered. To carry out the true intent and purpose of the Drawings, all necessary parts to make complete approved working systems ready for use, shall be furnished without extra charge. All work shall be installed in an approved workmanlike manner.

1.15 INSPECTION OF SITE CONDITIONS

- A. Prior to submission of bid, visit the site and review the related construction documents to determine the conditions under which the Work has to be performed and send a report, in writing, to the Owner's Representative, noting any conditions which might adversely affect the Work of this Section of the Specifications.

1.16 SURVEY AND MEASUREMENTS

- A. Base all required measurements, horizontal and vertical, from referenced points established WITH the Owner's Representative. The Electrical Contractor shall be responsible for correctly laying out the Work required under this Section of the Specifications.
- B. In the event of discrepancy between actual measurements and those indicated, notify the Owner's Representative in writing and do not proceed with the related work until instructions have been issued.

1.17 DELIVERY, STORAGE AND HANDLING

- A. No materials shall be delivered or stored on site until corresponding Shop Drawings have been approved.
- B. All manufactured materials shall be delivered to the site in original packages or containers bearing the manufacturer's labels and product identification.
- C. Protect materials against dampness. Store off floors, under cover and adequately protected from damage.
- D. Inspect all equipment and materials, upon receipt at the job site, for damage and conformance to approved shop drawings.

1.18 PROTECTION OF WORK AND PROPERTY

- A. This Contractor shall be responsible for the care and protection of all work included under this Section until the completion and final acceptance of this Contract.
- B. Protect all equipment and materials from damage from all causes including, but not limited to, fire, vandalism and theft. All materials and equipment damaged or stolen shall be repaired or replaced with equal material or equipment at no additional cost to the Owner.
- C. Protect all equipment, outlets and openings with temporary plugs, caps and covers. Protect work and materials of other trades from damage that might be caused by work or workmen under this Section and make good damage thus caused.
- D. Damaged materials are to be removed from the site; no site storage of damaged materials will be allowed.

1.19 SUPERVISION

- A. Supply the service of a competent Supervisor with a minimum of 5 years experience in Electrical construction supervision who shall be in charge of the Electrical work at the site.

1.20 SAFETY PRECAUTIONS

- A. Life safety and accident prevention shall be a primary consideration. Comply with all of the safety requirements of the Owner and OSHA throughout the entire construction period of the project.
- B. Furnish, place and maintain proper guards and any other necessary construction required to secure safety of life and/or property.

1.21 SCHEDULE

- A. Construct work in sequence under provisions of Division 01 and as coordinated with the Owner's Representative.

1.22 HOISTING, SCAFFOLDING AND PLANKING

- A. The work to be done under this Section of the Specifications shall include the furnishing, set-up and maintenance of all derricks, hoisting machinery, cranes, helicopters, scaffolds, staging and planking as required for the work.

1.23 CUTTING AND PATCHING

- A. Include all coring, cutting, patching, and fireproofing necessary for the execution of the work of this Section. Structural elements shall not be cut without written approval of the Owner.
- B. All work shall be fully coordinated with all phases of construction, in order to minimize the requirements for cutting and patching.
- C. Form all openings for the installation of the work of this Section of the specifications, or cut the same in existing work and see that all sleeves or forms are in the work and properly set in ample time to prevent delays. Be responsible that all such openings and sleeves are located accurately and are of the proper size and shape and consult with the Owner's Representative and all other trades concerned in reference to this work. Confine the cutting to the smallest extent possible consistent with the work to be done. In no case shall piers or structural members be cut without the approval of the Owner's Representative.
- D. Fit around, close up, repair, patch, and point around the work specified herein to match the existing adjacent surfaces and to the satisfaction of the Owner's Representative.
- E. Fill and patch all openings or holes left in the existing structures by the removal of existing equipment which is part of this Section of the Specifications.
- F. All of this work shall be carefully done by workmen qualified to do such work and with the proper and smallest tools applicable.
- G. Any cost caused by defective or ill-timed work required by this Section of the specifications shall be borne by this Contractor.
- H. When, in order to accommodate the work required under this Section of the specifications, finished materials of other trades must be cut or fitted, furnish the necessary drawings and information to the trades whose materials must be cut or fitted.

1.24 SLEEVES, INSERTS AND ANCHOR BOLTS

- A. Coordinate with other trades the location of and maintaining in proper positions, sleeves, inserts and anchor bolts to be supplied and/or set in place under this section of the specifications. In the event of incorrectly located preset sleeves, inserts and anchor bolts, etc., all required cutting and patching of finished work shall be done under this section of the specifications.

1.25 SUPPLEMENTARY STEEL, CHANNELS AND SUPPORTS

- A. Provide all supplementary steel, factory fabricated channels and supports required for the proper installation, mounting and support of all Electrical equipment, piping, etc., required by the Specifications.
- B. Supplementary steel and factory fabricated channels shall be firmly connected to building construction in a manner approved by the Owner's Representative as shown on the drawings or herein specified.
- C. The type and size of the supporting channels and supplementary steel shall be determined by the Contractor and shall be of sufficient strength and size to allow only a minimum deflection in conformance with the manufacturer's requirements for loading.
- D. All supplementary steel and factory fabricated channels shall be installed in a neat and workmanlike manner parallel to the walls, floors and ceiling construction. All turns shall be made with 90 degree and 45 degree fittings, as required to suit the construction and installation conditions.
- E. All supplementary steel including factory fabricated channels, supports and fittings shall be galvanized steel, aluminum or stainless steel where exposed or subject to rust producing atmosphere. Factory fabricated channels shall be manufactured by Unistrut, H-strut, Powerstrut or approved equal.

1.26 ACCESSIBILITY

- A. All work provided under this Section of the Specification shall be installed so that parts requiring periodic inspection, maintenance and repair are accessible. Work of this trade shall not infringe upon clearances required by equipment of other trades, especially code required clearances to electrical gear. Minor deviations from the drawings may be made to accomplish this, but changes of substantial magnitude shall not be made prior to written approval from the Owner's Representative.

PART 2 - PRODUCTS

2.0 NOT USED

2.1 IDENTIFICATION

- A. Nameplates
 - 1. Nameplates shall be laminated black Bakelite with minimum 1/4" high white recessed letters.
 - 2. Nameplates shall be securely attached to the equipment. Utilize mechanical fasteners such as galvanized steel or brass screws for exterior applications. High strength adhesives or cements may be used for interior applications.

2.2 RACEWAYS AND CONDUIT

A. Rigid Galvanized Steel (RGS) Conduit

1. RGS shall be zinc-coated steel that conforms to ANSI C80.1, UL Specification No. 6 and Federal Specification WW-C-581e by Allied Tube and Conduit, Republic Steel, Wheatland Tube or approved equal.
2. RGS fittings shall be threaded. Split couplings or non-threaded fittings shall not be used.
3. Nipples and Close Nipples shall be RGS, length as noted or as required to conform to field conditions.

B. Polyvinyl Chloride (PVC) Non-metallic Conduit

1. PVC conduit and fittings shall be Schedule 40 or Schedule 80, 90°C. UL Listed equal to Carlon Plus 40 or Plus 80. PVC shall meet NEMA Specification TC-2, TC-3 and UL-651.
2. PVC, fittings and solvent cement shall be by single approved manufacturer.
3. PVC shall be sunlight resistant and listed for exposed or outdoor usage.

C. Miscellaneous Conduit Fittings

1. Elbows shall be standard radius unless noted otherwise. Where Large Radius elbows are specified, provide 48" radius unless noted otherwise.
2. Bushings shall be threaded pressed steel hot dipped galvanized with conduit end stop and integrally molded noncombustible phenolic insulated surface rated for 150°C.
3. Bonding bushings shall be threaded pressed steel hot dipped galvanized with conduit end stop and integrally molded noncombustible phenolic insulated surface rated for 150°C with a lay-in tin plated copper grounding lug.
4. Exposed conduit expansion fittings shall be hot-dipped galvanized malleable iron with external bonding jumper equal to O.Z./Gedney Type EX for RGS or Type TX for EMT (4" maximum expansion).
5. Provide water-tight gland sealing assemblies with pressure bushings equal to OZ/Gedney Type WSK for new cast-in-place installations or Type CSCM for retrofit (core drilling of existing walls) as required for below grade wall and floor penetrations.

- D. Wireways shall be minimum 16-gauge steel with all straight runs having hinged spring-latched covers. Finish shall be painted over a corrosion resistant phosphate pretreatment to protect against corrosion. Interior parts shall be smooth and free of sharp edges and burrs. Provide wireway as identified on the drawings for NEMA 1, 3R or 12 service. Wireways shall be equal to Square D and UL Listed.

2.3 WIRE AND CABLE (600V)

- A. Provide single-conductor, annealed copper wire and cable with insulation rated for 600 V, of sizes specified and scheduled on Drawings, by General Electric, Southwire, Okonite or approved equal, for secondary service, feeders, branch and system wiring. Wire sizes shown and specified are American Wire Gauge for copper conductors.
- B. The use of aluminum conductors is not allowed.
- C. Wire #10 and larger shall be stranded; #12 and smaller shall be solid. Wire and cable shall have THWN-THHN or XHHW insulation for branch circuit and feeder conductors.

D. Conductor Color-coding

1. Service entrance, branch circuit and feeder conductors shall be color-coded. Conductors #12 and #10 shall be colored with a factory applied solid or striped compound coating (black, red, blue, brown, orange or yellow). Neutrals and equipment grounds shall have solid compound or solid color coating (white, gray and green), except that neutrals with colored stripe shall be used where required by code. Phase conductors #8 and larger with stripes, bands or hash marks shall have background color other than white, green and gray.
2. Alternative field-applied color coding methods may be used for wire #8 or larger, with color code as specified in other sections of this specification. Coloring shall be applied by the use of flame-retardant vinyl tape, equal to 3M Scotch 35.

E. Splices and Terminations

1. Ampacity and temperature rating of splices and connectors shall be equal to or greater than those of associated wires and cables.
2. Make splices in branch circuit or feeder wiring from #12 to #10 with UL-listed, solderless screw on connectors rated 600 V.
3. Make splices in branch circuit or feeder wiring above #10 with UL-listed 90°C, 600V, compression butt splice barrel equal to Burndy YS-L HYLINK.
4. Conductor terminations shall be standard bolt-on lugs with hex screws listed for attachment of copper wire and cable to panelboards, switchboards, disconnect switches and other electrical equipment.
5. Make terminations for stranded conductors on screw terminals with UL Listed 105°C, 600V PVC insulated barrel compression locking fork tongue terminal equal to Burndy TP-LF VINYLUG.
6. Make bus terminations for conductors #6 and larger with UL-listed 90°C, 600V, compression standard barrel length lugs equal to Burndy YA-L for conductor sizes to #4/0. Connectors for cable 250 KCMil and larger shall be with UL-listed 90°C, 600V, compression long barrel length two hole lugs equal to Burndy YA-2N. Lugs shall be high conductivity seamless copper electro-tin plated for corrosion protection.

F. Wire management shall be provided by self-extinguishing self-locking nylon ties with -65 to 350°F. range for bundling conductors.

G. Cable pulling compounds shall be UL Listed and be suitable for use with the specified cable insulation system. The compound shall reduce the coefficient of friction, while not adding any long term issues to the installation such as premature aging of the insulation system, added flammability or drying in such a manner as to stick the cable in place in the raceway.

2.4 WIRING DEVICES AND PLATES

A. Provide wiring devices by single manufacturer. Catalog designations of Cooper are specified, unless noted otherwise, to establish standards of quality for materials and performance. Colors of devices as specified below are White for standard applications. Refer to the drawings for color requirements that vary from White. Equal products by Leviton, Pass & Seymour or Hubbell will be accepted. Provide published manufacturers cross-reference sheet highlighted with the device specified and that being submitted with all device product data for approval.

B. Toggle Switches shall be heavy duty, UL listed, specification grade as follows:

1. Single-pole shall be No. 2221W
2. Double-pole shall be No. 2222W
3. Three-way shall be No. 2223W
4. Four-way shall be No. 2224W
5. Single-pole locking shall be No. 2221L
6. Double-pole locking shall be No. 2222L
7. Three-way locking shall be No. 2223L
8. Four-way locking shall be No. 2224L
9. Single-pole pilot shall be No. 2221PL
10. Double-pole pilot shall be No. 2222PL

C. Miscellaneous Switches:

1. Decorator switches with rocker frames shall be provided only where specifically noted on the drawings. Devices shall be Commercial Specification Grade rated 20-ampere 277 volt for use on alternating current only.
 - a. Single-pole shall be No. DECB120W
 - b. Three-way shall be No. DECB320W
 - c. Four-way shall be No. DECB420W
2. Dimmer switches shall be slide type equal to Lutron Nova with single gang capacity up to 2000 watts. The dimmer shall be selected and sized based upon the attached load and the mounting configuration. All incandescent dimmers shall incorporate an integral torodial choke to eliminate lamp filament buzz and minimize RFI and EMF.
 - a. Incandescent 600 watt shall be N-600
 - b. Incandescent 1000 watt shall be N-1000
 - c. Incandescent 1500 watt shall be N-1500
 - d. Incandescent 2000 watt shall be N-2000
 - e. Low voltage and fluorescent Nova dimmers shall be selected based upon the fixture type (electronic or magnetic). Submittal shall include lamp fixture data to ensure compatibility.
3. Occupancy Sensors
 - a. For dual-switching applications, wall mounted passive infrared occupancy sensors shall be equal to Leviton ODSOD-ID-W suitable for use in areas up to 900 SF with adjustable time delays from 30 seconds to 30 minutes, dual circuit relay ambient light override, self adjusting delayed off time, walk-through and manual on features.
 - b. Provide occupancy sensors equal to Leviton ODS10-ID-W for single switching applications.
 - c. Multi-technology ceiling mounted occupancy sensors with 1000 SF coverage shall be equal to Leviton OSC10-MOW. Provide with corresponding Leviton OSP Series Power Packs.
 - d. Occupancy sensors shall be as manufactured by Leviton, Sensorswitch, Hubbell, or approved equal.
4. Provide filled out utility rebate forms with all occupancy sensor submissions for separate application by the Owner.
5. Wall mounted time switches shall be solid state with integral LCD backlit display. Unit shall be white, have user selectable time interval and audio/visual warning at the end of the timing period. Switch shall be equal to Tork SSA100.

D. Receptacles:

1. Receptacles shall be nylon faced with rigid, glass reinforced nylon bodies. Wiring terminals shall be spring loaded terminal screws for back or side wiring. Receptacles shall be rated 20-ampere 125 volt. The yoke shall have a grounding terminal with a green hex head screw.
2. Duplex receptacles shall be UL Federal Specification WC-596 Specification Grade Extra Hard Duty 125V, 20A, 2 pole, 3 wire as follows:
 - a. General Use shall be No. 5362W (White)
 - b. GFCI Exterior shall be GF20BK (Black) UL listed Weather Resistant

E. Wiring Device Plates:

1. Provide high-impact smooth nylon device plates by the manufacturer of the wiring device for all flush mounted switches and receptacles installed in dry locations and where not subjected to physical abuse. Fastening screws shall be color matched to the plate, plate color and to the device. Ganged plates shall be of one piece construction to accommodate the required number of installed devices. Oversized plates to cover wall finish blemishes adjacent to the device box shall not be used.
2. Provide heavy-duty cast aluminum horizontally mounted weatherproof covers for GFCI receptacles where weatherproof devices are specified equal to Hubbell No. WP26MH. Cover shall be attached to FS box with 4 screws and spring back to the closed position upon removal of the cord set. Fasteners chrome-plated brass.
3. Receptacle device plates for other than 20 amp, 120 V, 2-wire, circuits shall be identified by engravings or laser etching on the plate indicating voltage characteristics, panelboard and circuit number of outlet.

2.5 OUTLET BOXES

- A. Outlet boxes for interior surface mounted locations where RGS is specified where exposed to moisture and where indicated as weatherproof on Drawings shall be cast malleable iron with an aluminum polymer enamel coating equal to Appleton Type FD. Conduit entries shall be threaded cast hubs. Device covers shall be coated malleable iron with moisture sealing gasket and stainless steel fasteners.
- B. Outlet boxes for exterior surface mounting shall be cast aluminum alloy with an aluminum polymer enamel coating equal to Appleton Type FD. Conduit entries shall be threaded cast hubs. Device covers shall be cast aluminum alloy with moisture sealing gasket and stainless steel fasteners.
- C. All boxes shall have at least one tapped and threaded grounding hole for connection of a 10-32 grounding screw.
- D. Box depth shall accommodate code required volume for the specified installation. Through wall boxes shall not be used.

2.6 JUNCTION AND PULL BOXES

- A. Provide galvanized steel junction and pull boxes where indicated and as necessary to facilitate installation. Steel shall be minimum 16 gauge. Junction and pull boxes shall be of code required dimensions. Cover shall be of the same type and thickness material as the box construction.
- B. Junction and pull boxes intended for dry interior locations shall be NEMA 1 enclosures with accessible, removable screw-on covers. Covers shall be secured with corrosion-resistant screws with keyhole slots to accommodate easy removal.
- C. Junction and pull boxes intended for wet or exterior locations shall be NEMA 3R enclosures with hinged gasketed covers. Interior and exterior shall be finished with a gray enamel powder coat over the galvanized metal. Hinge shall be galvanized steel with stainless steel pin. Covers shall be secured with corrosion-resistant zinc plated lockable pull catches.
- D. Custom fabricated medium to large junction and pull boxes shall have internal structural steel bracing welded to form a rigid assembly adequate to maintain alignment and shape in shipment and installation.

2.7 SAFETY DISCONNECT SWITCHES

- A. Switches shall be three-pole heavy-duty type rated for 600V in NEMA 1 (interior dry applications) and NEMA 3R (exterior applications) enclosures unless noted otherwise on the drawings. All switches shall be horsepower rated and suitable for service entrance use. Provide with solid neutral where four wire circuits are indicated and with 200% solid neutral where neutrals are sized for 200% full load ampacity.
 - 1. Operating mechanisms shall be quick-make/quick-break. Current-carrying parts shall be high-conductivity copper. Contacts shall be silver-tungsten or plated. Provide positive pressure fuse clips and switch operating mechanism suitable for continuous use at rated capacity without auxiliary springs in current path. Switches shall withstand available fault current or let-through current before operating, without damage or rating change.
 - 2. Terminations shall be suitable for copper or aluminum conductors 60°/75° C rated. Clear shielding shall prevent accidental contact with energized line terminals.
 - 3. The cover shall be mechanically interlocked to prevent access unless the disconnect is in the OFF position. A defeater shall be provided to bypass this interlock. With the door open, an interlock shall be provided to prevent inadvertent closing of the disconnect. Padlocking facilities shall be provided to positively lock the disconnect in the OFF position with from one to three padlocks with the door open or closed.
 - 4. The enclosure shall be given a phosphatizing pretreatment. The paint finish shall be manufacturer's standard color and shall pass 600 hours of corrosion resistance testing per ASTM B 117.
- B. Fused switches shall have short circuit ratings no less than 100,000 amperes RMS, with capabilities to 200,000 amperes when used with Class J, L or R fuses at 480V from 400A to 1200A.

2.8 PANELBOARDS

A. General

1. Provide dead-front lighting and power panelboards where shown on drawings and as scheduled.
2. Panelboards shall meet or exceed requirements of NEMA Standard Publication PB-1, and UL-50 and 67. Panelboards shall be UL-listed.
3. Where panelboards are used as service entrance equipment, they shall comply with all NEC and UL requirements for service. The panelboard shall include a UL service entrance label, incoming line isolation barriers and a removable neutral bond to ground for solidly grounded wye systems.
4. Enclosures shall be at least 20 inches wide made of galvanized steel. Gutter space shall be in accordance with NEC requirements for the specified combination of devices and accessories. Fronts shall be reinforced steel with concealed hinges and concealed trim adjusting screws. Trim clamps are unacceptable. Where two section panels are required, bolt boxes together to form one unit. Trim shall be two-piece construction with doors of equal size over each section. Trims shall be cleaned, primed and painted gray ANSI 61.
5. For panelboards up to 400 amps, provide cabinets with flush hinges and combination catch and lock to cover circuit breaker handles. Provide a directory card with a clear plastic cover mounted inside the door. Power and lighting panels shall have heavy-duty, continuous, section vertical-hinged to box section for access to wiring gutters in addition to trim door. All locks shall be keyed alike. Panelboards greater than 400 amps shall be provided with a four-piece front to cover wiring gutter and wiring access areas.
6. Nameplates shall be in accordance with other sections of this specification.
7. The manufacturer shall warrant equipment to be free from defects in materials and workmanship for 1 year from date of installation or 18 months from date of purchase, whichever occurs first.
8. Panels shall be equal to Eaton- Pow-R-Line 2a for 400 A and below unless more than (1) 125 amp or larger branch breaker and/or space is specified. Eaton Pow-R-Line 4 or 5P (or equal) panelboards shall be provided for all applications greater than 400 amps and to accommodate multiple branch breakers greater than 125 amps. Approved equal panelboards by GE, Siemens or Square D will be considered.
9. Where specifically indicated on the drawings for Selective Coordination, provide fused panelboards equal to Eaton Pow-R-Line 2aF. All fuses in the system where selective coordination is required shall be manufactured by the same manufacturer.

B. Bussing

1. Main bus bars of panels shall be copper, rated to carry at least full rating of the panel as identified on the schedules.
2. Split solid neutral bus, with rated capacity equal to the phase bus, shall be plated and located in main compartment for all incoming neutral cables to be same length. Neutral bus shall be 200% rated where double sized neutrals are indicated and/or where the panel is supplied via a K-rated transformer.
3. Provide separate equipment ground bus for each panelboard. Where an isolated ground is specified, provide an additional isolated ground bus, which shall be insulated from the panel enclosure and equipment ground.

4. Panelboards shall have a short circuit current rating equal to or greater than circuit breaker AIC ratings schedule on the Drawings. Where series ratings are allowed, as per the schedule on the Drawings, a label shall be affixed to the panel stating the conditions of the UL Series rating including:
 - a. Size and type of upstream device
 - b. Branch devices that are acceptable
 - c. UL Series short-circuit rating
5. All lugs shall be UL listed tin-plated aluminum suitable for copper or aluminum cable for sizes indicated on the drawings. Provide oversized lugs to accommodate designed cable sizes or increase gutter space to allow use of solid stud compression lugs where necessary. All terminations shall be suitable for 75 degree C cable.
6. Provide bus connections for future overcurrent devices with suitable insulation and bracing to maintain proper short circuit rating and voltage clearances. All required hardware shall be installed and be in place for ready insertion of future breaker without the need to relocate adjacent units. Future spaces shall accommodate frame sizes up to 50% of the main bus ampacity.

C. Overcurrent Devices

1. Molded case circuit breakers shall be bolt-on devices. Multi-pole breakers shall have internal common trip crossbars for simultaneous tripping of each pole.
2. Trip units shall be:
 - a. Thermal magnetic below 400A frame unless solid state sensing specifically indicated on the drawings.
 - b. Solid state trip units shall be provided on all molded case breakers at 400A frame and above. Trip units shall be equal to Eaton Digitrip 310.
3. All breakers shall have handle trip indication and a trip indicator in the window of the circuit breaker housing.
4. Internal accessories shall be UL Listed for field installation without removing the circuit breaker cover. Internal accessories shall be common to all frame sizes. Shunt trips, auxiliary contacts, and other accessories shall be factory installed.

D. Submittals

1. The manufacturer shall provide copies of the following documents for review and evaluation in accordance with general requirements of Division 01 and Division 26:
 - a. Product Data on specified product
 - b. Shop Drawings on specified product
 - c. Certified trip curves for each specified product
 - d. Nameplate list
 - e. Short circuit and coordination study shall be submitted with the equipment shop drawings to ensure rating conformity to study conclusions. Submittals made without the study shall be rejected.

2.9 UNDERGROUND DUCT AND HANDHOLES

A. Underground Duct

1. Raceways shall comply with section 2.02 and 3.02 of this Specification unless specifically modified in this section of the Specification.

2. Spacers shall accommodate a minimum of two (2) inch conduit separation and three (3) inches from the top, bottom and side edges of the duct bank. Spacers shall accommodate the specified conduit sizes and interlock horizontally. Spacers shall be equal to Carlon or Underground Devices Incorporated.
3. PVC bell ends shall be utilized for all conduit transitions into manholes, handholes and building foundations where sealing fittings are not otherwise specified.
4. Bends in excess of 30 degrees over a 10 foot length shall be factory fabricated galvanized rigid steel conduit. Where required for pole risers and to turn up at pads, factory fabricated long radius 90° galvanized rigid steel sweeps shall be used.

B. Handholes

1. Handholes and associated covers shall be constructed of polymer concrete consisting of aggregate matrix bound together with a polymer resin. Internal reinforcement may be provided by means of steel and/or fiberglass.
2. Material shall have the following properties:
 - a. Compressive strength: 9000 psi
 - b. Flexural strength: 6000 psi
 - c. Tensile strength: 800 psi
3. The installed enclosure shall be rated for a minimum test load of 8000 pounds distributed over a 10" x 10" area, and intended for non-deliberate vehicular traffic only unless specifically noted otherwise on the drawings.
4. The boxes and covers shall be gray. Covers shall be provided with stainless steel bolts at each corner. The logo shall specifically identify the service inside, "Electrical", "Communications", "Lighting", etc. The logo shall be permanently recessed in the cover. Non-metallic covers shall be provided with electronic markers encased in the polymer concrete for ease in locating buried handholes.
5. Precast handholes shall be equal to Quazite composolite. Equal construction in precast or cast in place concrete will be accepted

PART 3 - EXECUTION

3.1 IDENTIFICATION

A. Nameplates

1. Provide nameplates on all equipment listed in other sections of this specification including but not limited to switchboards, substations, panelboards, transformers, junction and pull boxes, disconnect switches, motor starters and motor control centers, contactors, time clocks, remote control stations, fire alarm panels, smoke detector remote test/alarm stations and fire alarm annunciators.
2. Nameplates shall designate equipment tag number as defined on the drawings, system voltage where applicable, circuit number, device controlled and system function. Refer to typical nameplate detail on the drawings for additional requirements.
3. Submit a complete list of proposed nameplates prior to order to ensure conformance to design criteria. Submittal shall include nomenclature, size and layout of each tag.
4. Samples of stickers together with color schedules shall be submitted during the submittal phase of this project.

B. Equipment Identification

1. Equipment identification designations shall be taken from equipment schedules and coordinated with the Owner's facility group to assure designations match up with Owner's maintenance management system identification database.

3.2 RACEWAYS AND CONDUIT

A. General

1. Run raceways and conduits in as direct lines as possible with minimum number of bends of longest possible radius.
2. Raceway and conduit runs shall be mechanically and electrically continuous from supply to outlet. Conduit shall enter and be secured to metallic enclosures with lock nut and bushing inside. Provide additional exterior lock nut for RGS connections. Bushings shall be the bonding type for conduit connections to metallic enclosures with concentric or eccentric knockouts. Lock nuts and bushings will not be required where conduits are screwed into threaded hubs.
3. Size raceways and conduits as required by NEC unless oversized raceways and conduits are shown on the Drawings. Raceways and conduits shall be $\frac{3}{4}$ " minimum.
4. Install conduit systems complete before installation of conductors. Blow through and swab after plaster is finished and dry, and before conductors are installed.
5. Field bending, cutting and threading shall be executed with the proper tools, resulting in bends and shortened conduits and raceways that are equivalent to factory fabricated and purchased components.

B. Rigid Galvanized Steel (RGS) Conduit

1. RGS may be used for all raceway applications outlined for EMT and PVC. RGS shall be used in locations where subject to accidental damage or abuse and for all above grade exterior applications unless other wiring methods are specified on the drawings. All circuit conductors in excess of 600 V shall be installed in RGS.
2. RGS shall not be used in corrosive environments.
3. All RGS fittings shall be threaded. Utilize Erickson couplings where joining two threaded conduits that cannot be rotated.

C. Polyvinyl Chloride (PVC) Non-metallic Conduit

1. PVC may be used for installation in concrete or direct burial applications where not subject to damage. PVC may be used in corrosive environments where specifically allowed on the drawings.
2. PVC shall not be used for penetrations from concrete slabs. Transition to RGS shall be made a minimum of 2" below the slab finished surface, prior to penetration.
3. All connections shall utilize solvent and glue in accordance with the recommendations of the conduit manufacturer.

- D. Wireways shall be provided where specifically shown on the drawings or where the group mounting of controllers, disconnects, enclosures, etc warrant the use for elimination of multiple short conduit runs. Wireways shall be provided complete with all required appurtenances necessary to have a totally enclosed system rated for the environment. Wireways shall not be installed in any location where subject to accidental damage or abuse.

3.3 WIRE AND CABLE (600V)

- A. Homerun designations on the drawings are diagrammatic only. Install branch circuits and feeders from the power source to the attachment point as required for a complete system. Provide slack wire for connections to equipment installed by others. Refer to schedules and risers where specific conductor and associated raceway sizes are not indicated on the floor plans.
- B. Connect branch circuit homerun with two or three circuits and common neutral only where specifically shown on the drawings. Circuits with common neutrals shall not be connected to the same phase to ensure cancellation of the return current in the neutral conductor.
- C. Install wires and cable in raceways as specified. All conductor sizing is based upon no greater than three current carrying conductors in a conduit. Installation of up to six circuits (no greater than twelve current carrying conductors) in a single conduit will be allowed if the conductor sizing is increased to the required ampacity to accommodate de-rating factors required by the NEC and NFPA 70.
- D. The minimum wire size shall be #12 unless #14 specifically allowed on the drawings for wiring of controls. Branch circuits longer than 75' for 120 V from panel to last outlet shall be increased a minimum of one size above that shown on the drawings to minimize voltage drop to less than 3%.
- E. Conductors shall be identified at all accessible locations in the following manner:
1. Color code secondary service, feeders and branch circuit conductors as follows:

<u>208/120 Volts</u>	<u>Phase</u>
Black	A
Red	B
Blue	C
White	Neutral
Green	Ground
 2. Provide nonferrous wire markers, embossed or printed to correspond with the Drawings. Labels shall be permanently marked so that the source of the branch circuit or feeder may be readily identified. Hand written labels are not acceptable. Embossed tag equal to 3M Scotch Code STL-TAG or SCS-TM shall be applied with two miniature cable ties or slipped through both end holes. Heat bonded tag equal to 3M Scotch Code SCS-HB shall be permanently affixed with a heat gun.
- F. Splices and Terminations
1. No more than twelve splices of current carrying conductors or six circuits, whichever is greater, shall be allowed in a single enclosure or junction box.
 2. Splices and terminations shall be sized to the specified conductor. The insulation shall be cut back with the appropriate tools such that the conductors are not nicked or damaged.
 3. The compression tool shall be appropriate for the installation of the provided lug or butt splice to ensure pressure necessary for a proper connection is applied.
 4. Terminations shall not be stacked or bent unless specifically listed for the application.

G. Cable Pulling

1. Pull cables that share conduit at same time into completely installed raceway. Conductors shall not be pulled in raceways with existing wiring.
2. Submit cable pulling calculations for engineers' approval prior to all mechanically assisted pulls. Attach pull ropes to conductors with basket-weave grips on pulling eyes. Provide means to measure tension during entire pull. Utilize pulling compounds to lessen friction in accordance with the manufacturer's recommendations.
3. Mechanically assisted pulls shall utilize equipment specifically designed for the purpose such as ropes, electric wench, pulleys, etc. The use of a motorized vehicle to assist in a cable pull is prohibited.

3.4 WIRING DEVICES AND PLATES

- A. Branch circuitry shall be attached to all devices using the attachment screw or utilizing back wiring chambers that utilize screws for compressing the connection on the wire. Quick stab features that do not require a positive screw on attachment for the conductor are not acceptable.

3.5 OUTLET BOXES

- A. Outlet boxes shall be securely fastened with a minimum of two self-tapping screws. Boxes three gang and greater shall be securely fastened on both sides of the box.
- B. Fasteners for mounting boxes in damp or wet locations shall be stainless steel.
- C. Pressed steel boxes shall not be used for exposed surface mounted locations below 8'0" AFF.

3.6 JUNCTION AND PULL BOXES

- A. Junction box covers shall be accessible. Do not install junction boxes above suspended ceilings except where ceiling is removable or where an access panel is provided.
- B. Pull boxes connected to concealed conduits shall be mounted with covers flush with finished wall or ceiling.
- C. Pull boxes exposed to rain or in damp/wet locations shall be weatherproof NEMA 3R unless noted otherwise on the drawings.
- D. Each junction and pull box shall have a suitable laminated plastic nameplate with white cut letters identifying power source, voltage and driven load of the associated branch circuits or feeders.
- E. Submit box sizing calculations to confirm all box dimensions are in accordance with code requirements with product data prior to installation.

3.7 SAFETY DISCONNECT SWITCHES

- A. Provide safety disconnects as required and indicated on the drawings. Each motor shall be provided with a local disconnecting means in accordance with code requirements.
- B. Manual motor starters may be used for 120, 208, 240, or 277V, single-phase motors up to 1 HP. Switches shall disconnect all ungrounded conductors. Overload heating elements shall be properly sized and coordinated for the associated motor in accordance with code and manufactures recommendations.
- C. Disconnect switches for all applications with available fault current in excess of 10,000 amperes RMS symmetrical shall be fusible. Fuses shall be Class J, L or R and rejection clips shall be installed in the fuse holders to prohibit the installation of non-current limiting fuses.
- D. Each disconnect switch shall have a suitable laminated plastic nameplate with white cut letters identifying power source, voltage and driven load.

3.8 PANELBOARDS

- A. Storage
 - 1. Contractor shall store, protect, and handle products in accordance with recommended practices listed in manufacturer's Installation and Maintenance Manuals. Contractor shall store in a clean, dry space. Cover with heavy canvas or plastic to keep out dirt, water, construction debris, and traffic. Heat enclosures to prevent condensation.
 - 2. Low voltage panelboards shall be located in well-ventilated areas, free from excess humidity, dust and dirt and away from hazardous materials. Ambient temperature of area will be between -30 °C and +25 °C. Indoor locations shall be protected to prevent moisture from entering enclosure.
- B. Installation
 - 1. Provide 1/2" spacers for panelboards mounted at exterior walls below grade to establish 1/2" air space behind panel.
 - 2. Inspect installed panelboard(s) for anchoring, alignment, grounding and physical damage. Clean interiors to remove construction debris, dirt and shipping materials.
 - 3. Check tightness of all electrical connections with calibrated torque wrench. Minimum acceptable values are specified in manufacturer's instructions.
 - 4. Adjust all circuit breakers and doors for free mechanical operation as described in manufacturer's instructions.
 - 5. Adjust circuit breaker trip and time delay settings to values determined by the short circuit and coordination study.
 - 6. Directories shall be typed to indicate loads served by each circuit and mounted in a holder behind a clear protective covering.
- C. Circuit breakers used as a motor disconnecting means, and not in sight of the motor and the driven machinery location, shall be capable of being locked in the open position.
- D. Circuit breakers supplying fire alarm equipment and any others loads noted on the schedules shall be capable of being locked in the ON position. The locking means shall not inhibit the ability of the circuit breaker from performing its protective function.

3.9 UNDERGROUND DUCT AND HANDHOLES

A. Underground Duct

1. Where nonmetallic underground conduit transitions from concrete encasement and continues exposed to pull box, cabinet, or other electric apparatus, portion through floor or wall and where exposed shall be rigid galvanized steel. Provide adapter below floor or outside wall to transition from PVC and metal conduit.
2. Where underground conduit enters building through membrane-waterproofed wall or floor, provide malleable iron seal with gland assembly and adjustable pressure bushings secured to masonry construction with one or more integral flanges. Membrane waterproofing shall be secured to device in watertight manner.
3. Where underground conduit without concrete envelope enters building through non-waterproofed wall or floor, provide Schedule 40 galvanized pipe sleeve. Fill space between conduit and sleeve with suitable plastic expandable compound on each side of wall or floor.
4. Run conduits straight between manholes and upturned elbows. Unavoidable bends in nonmetallic conduits shall be made with assembling couplings at slight angle if resulting radius is at least 100 feet. For radii less than 100 feet, use 5° angle couplings or factory-made PVC coated galvanized rigid steel bend sections.
5. Space separators to prevent sagging of conduits and breaking of couplings and watertight seals, to maintain deformation of conduit at separators to 0.10" or less. Separators spacing shall not exceed 4' centers. Spacing between exterior surfaces of conduits shall be least 2" between telephone conduits, 2" between conduits containing cables operating at 600 V or less, 6" between telephone conduit and power conduit and 2" between conduits that contain cables operating at more than 600 V. Secure with cords where necessary. Do not use tie wires, reinforcing rods or metallic materials.
6. Stagger conduit couplings, so that couplings on adjacent conduits do not lie in same transverse plane.
7. Conduits shall terminate in end bells where lines enter manholes. Space end bells 9" center to center at manhole wall face for 4" conduits; space proportionately for other sizes. Flaring of duct bank to accommodate transition to end bell spacing shall start 10 feet from face of the manhole wall. Make new conduit entrances into existing manholes and building walls consistent with grading requirements and existing entrances; waterproof as required by Owner's Representative. .
8. After concrete envelopes have set, nonmetallic conduits shall be cleared with mandrel of same size as conduit.
9. Seal active and spare conduit and duct that enters building with non-metallic blank seals until conductors pulled.
10. Excavation
 - a. Excavation, shoring, bracing, backfiring and grading will be provided under Division 02. Trenches shall be evenly graded so that conduit slopes uniformly at least 3" per 100 feet, without horizontal or vertical waves. Unless specified otherwise, conduit shall slope uniformly from one manhole to next or from high point between manholes. Avoid low points between manholes, or upturned elbows.
 - b. Trenches shall not be back filled until concrete envelopes have set sufficiently

11. Concrete

- a. Conduit envelopes shall be 2500 psi under Division 03, CONCRETE and shall extend at least three inches beyond exterior surface of each conduit in bank. Coordinate work of this section with that of Division 03.
- b. Envelopes may be poured directly against sides of trenches, if trench wall is clean, even and free of loose material. Remove loose dirt and extraneous material. Concrete shall be spaded during pouring to eliminate voids under and between conduits and honeycombing of exterior surfaces. Power-driven tampers or agitators shall not be used.
- c. Envelope between manholes shall be poured in single operation. Where more than one pour is necessary, provide 3/4" reinforcing rod dowels extending 18" into concrete on each side of joint.
- d. Envelopes that cross conduits, pipelines, roads and driveways shall be reinforced. Provide reinforcement where envelopes connect to manhole and building walls. Reinforcement shall be 3/4" rods in single layer (2) inches above bottom and below top of envelope. Outside rods shall be two (2) inches from outside edges of envelope and intermediate rod shall be placed in center of each space between conduits. Reinforcement rods shall be tied with pairs of "C" shaped 3/4" rods on 18" centers.

B. Handholes

1. Do not construct or set manholes until final conduit grading has been determined, including field changes required by underground interferences. Set frames and covers to final grade.
2. Commercial precast assemblies shall be set on six (6) inches of level, 90 percent compacted granular fill, 3/4 inch to one (1) inch size, extending twelve (12) inches beyond the manhole on each side. Granular fill shall be compacted by a minimum of four passes with a plate type vibrator.
3. Cast-iron frames and covers not buried in masonry shall be cleaned of mortar, rust, grease, dirt and other contaminants, and given a coat of bituminous paint. Steel frames not buried in masonry and steel covers shall be cleaned of mortar, dirt and grease by an approved blasting process. Surfaces that cannot be cleaned satisfactorily by blasting shall be cleaned to bare metal by wire brushing or other mechanical means. Surfaces contaminated with rust, dirt, oil, grease, or other contaminants shall be washed with solvents until thoroughly cleaned. Immediately after cleaning, surfaces shall be coated with a pretreatment coating or be given a crystalline phosphate coating. As soon as practicable after the pretreatment coating has dried, treated surfaces shall be primed with a coat of primer and one coat of synthetic exterior gloss enamel.

3.10 BASIC ACCEPTANCE TESTS

A. General Scope

1. This section covers the required field tests and inspections to assess the suitability for initial energization of electrical power distribution equipment and systems. Failed components shall be replaced and retested for no additional cost to the project.
2. The purpose of this specification is to assure that all tested electrical equipment and systems are operational and within applicable standards and manufacturer's tolerances and that the equipment and systems are installed in accordance with design specifications.

3. All testing shall be performed by the Contractor responsible for the installation of the systems or by an independent testing organization under contract with the Contractor.
4. All equipment utilized for testing shall have a valid calibration sticker. All test reports shall indicate the equipment utilized and its associated calibration due date.
5. Coordinate all required shutdowns with the Owner. Any and all testing required after the Owner has taken occupancy (temporary or permanent) shall be assumed to be conducted during premium time.
6. A written record of all tests and a final report summarizing the findings shall be submitted for approval prior to energizing any electrical power distribution equipment and systems. All equipment shall be left in clean operational condition.

B. Inspection and Test Procedures

The following tests shall be conducted using the noted section of the latest edition of NETA ATS Acceptance Testing Specifications for Electrical Power Distribution Equipment Systems as a reference:

1. Panelboard Assemblies – Visually inspect the equipment inside and out, check attachment to wall or floor, verify bus joint tightness, exercise all active components and perform continuity testing and megger phase to phase, neutral and ground. Minimum resistance shall be 100 megohms when 480V equipment tested at 1000VDC or 25 megohms when 208V equipment tested at 500VDC. Tabulate readings for each test. NETA ATS-7.1
2. Low Voltage Cables - All feeders illustrated on the one line diagram shall be inspected and tested in accordance with the referenced standard. Visually inspect cables for physical damage, color code and proper termination. Check continuity for proper labeling and megger for insulation resistance. Megger test voltage shall be 1000VDC for 1 minute with no values less than 50 megohms. Tabulate readings for each feeder. NETA ATS-7.3
3. Low Voltage, Molded and Insulated Case Circuit Breakers with frame size greater than 225 amperes and/or with adjustable trip units shall be tested and adjustable settings dialed to match the coordination study criteria. Perform an insulation resistance test at 1000VDC (thermal magnetic) or 500VDC (solid state) for 1 minute from pole to pole and pole to ground, resistance values shall not be less than 100 megohms. Perform resistance test across open and closed breaker contacts of each phase. Test trip settings tolerance with primary current injection. Tabulate readings for each breaker. NETA ATS-7.6
4. Disconnect the main bonding jumper at the service and at each separately derived system and verify single connection between the grounded and grounding conductor. Reconnect all disconnected bonding connections. Test the grounding electrode system for resistance to earth to verify a maximum of 25 ohms. NETA ATS-7.13

END OF SECTION

APPENDIX A – SPORTS LIGHTING

LIGHTING SPECIFICATION
PREPARED FOR

Winter Hill Community School Multipurpose

Multipurpose Field Lighting Project
Somerville, MA
March 1st, 2017

Project # 182781

SUBMITTED BY:

Musco Sports Lighting, LLC

2107 Stewart Road
PO Box 260
Muscatine, Iowa 52761
Local Phone: 563/263-2281
Toll Free: 800/756-1205
Fax: 800/374-6402



SECTION 26 56 68 – EXTERIOR ATHLETIC LIGHTING

Lighting System with LED Light Source

PART 1 – GENERAL

1.1 SUMMARY

- A. Work covered by this section of the specifications shall conform to the contract documents, engineering plans as well as state and local codes.
- B. The purpose of these specifications is to define the lighting system performance and design standards for Winter Hill Community School Multipurpose using an LED Lighting source. The manufacturer / contractor shall supply lighting equipment to meet or exceed the standards set forth in these specifications.
- C. The sports lighting will be for the following venues:
 - 1. Multipurpose Field
- E. The primary goals of this sports lighting project are:
 - 1. **Guaranteed Light Levels:** Selection of appropriate light levels impact the safety of the players and the enjoyment of spectators. Therefore light levels are guaranteed to not drop below specified target values for a period of 25 years.
 - 2. **Environmental Light Control:** It is the primary goal of this project to minimize spill light to adjoining properties and glare to the players, spectators and neighbors. The LED design should provide better control than a good HID design.
 - 3. **Life-cycle Cost:** In order to reduce the operating budget, the preferred lighting system shall be energy efficient and cost effective to operate. All maintenance costs shall be eliminated for the duration of the warranty.
 - 4. **Control and Monitoring:** To allow for optimized use of labor resources and avoid unneeded operation of the facility, customer requires a remote on/off control system for the lighting system. Fields should be proactively monitored to detect luminaire outages over a 25-year life cycle. All communication and monitoring costs for 25-year period shall be included in the bid.

1.2 LIGHTING PERFORMANCE

- A. **Illumination Levels and Design Factors:** Playing surfaces shall be lit to an average target illumination level and uniformity as specified in the chart below. Lighting calculations shall be developed and field measurements taken on the grid spacing with the minimum number of grid points specified below. Appropriate light loss factors shall be applied and submitted for the basis of design. Average illumination level shall be measured in accordance with the IESNA LM-5-04 (IESNA Guide for Photometric Measurements of Area and Sports Lighting Installations). Illumination levels shall not to drop below desired target values in accordance to IES RP-6-15, Page 2, Maintained Average Illuminance and shall be guaranteed for the full warranty period.

Area of Lighting	Average Target Illumination Levels	Maximum to Minimum Uniformity Ratio	Grid Points	Grid Spacing
Multipurpose Field	30	2.0:1.0	48	10' X 10'

- B. **Hours of usage:** Designs shall be based on the following hours of usage

Area of Lighting	Annual Usage Hours	25 year Usage Hours
Multipurpose Field	200	2000

- C. Color: The lighting system shall have a minimum color temperature of 5700K and a CRI of 75.
- D. Mounting Heights: To ensure proper aiming angles for reduced glare and to provide better playability, minimum mounting heights shall be as described below. Higher mounting heights may be required based on photometric report and ability to ensure the top of the field angle is a minimum of 10 degrees below horizontal.

# of Poles	Pole Designation	Pole Height
4	S1 – S4	30'

1.3 **ENVIRONMENTAL LIGHT CONTROL**

- A. Light Control Luminaires: All luminaires shall utilize spill light and glare control devices including, but not limited to, internal shields, louvers and external shields. No symmetrical beam patterns are accepted.
- B. Spill Light and Glare Control: To minimize impact on adjacent properties, spill light and candela values must not exceed the following.

	Average	Maximum
100' Property Line Maximum Vertical Footcandles	0 fc	0 fc
100' Property Line Horizontal Footcandles	0 fc	0 fc
100' Property Line Max Candela	.1889 Cd	2.18 Cd

- C. Glare Control: Maximum candela viewed from any one fixture shall not exceed 2 candela at a distance of 100 from the playing field. Environmental glare impact scans must be submitted showing the maximum candela from the field edge on a map of the surrounding area until 500 candela or less is achieved.
- D. Spill Scans: Spill scans must be submitted indicating the amount of horizontal and vertical footcandles along the specified lines. Light levels shall be taken at 30-foot intervals along the boundary line. Readings shall be taken with the meter orientation at both horizontal and aimed towards the most intense bank of lights. Illumination level shall be measured in accordance with the IESNA LM-5-04 after 1 hour warm up.
- E. The first page of a photometric report for all luminaire types proposed showing horizontal and vertical axial candle power shall be provided to demonstrate the capability of achieving the specified performance. Reports shall be certified by a qualified independent testing laboratory with a minimum of five years experience or by a manufacturer's laboratory with a current accreditation under the National Voluntary Laboratory Accreditation Program for Energy Efficient Lighting Products. A summary of the horizontal and vertical aiming angles for each luminaire shall be included with the photometric report.

1.4 **LIFE-CYCLE COSTS**

- A. Manufacturer shall submit a 25-year life cycle cost calculation as outlined in the required submittal information.
- B. Preventative and Spot Maintenance: Manufacturer shall provide all preventative and spot maintenance, including parts and labor for 25 years from the date of equipment shipment. Individual outages shall be repaired when the usage of any field is materially impacted. Owner agrees to check fuses in the event of a luminaire outage.

PART 2 – PRODUCT

2.1 **SPORTS LIGHTING SYSTEM CONSTRUCTION**

- A. Manufacturing Requirements: All components shall be designed and manufactured as a system. All luminaires, wire harnesses, drivers and other enclosures shall be factory assembled, aimed, wired and tested.

- B. Durability: All exposed components shall be constructed of corrosion resistant material and/or coated to help prevent corrosion. All exposed carbon steel shall be hot dip galvanized per ASTM A123. All exposed aluminum shall be powder coated with high performance polyester or anodized. All exterior reflective inserts shall be anodized, coated, and protected from direct environmental exposure to prevent reflective degradation or corrosion. All exposed hardware and fasteners shall be stainless steel of 18-8 grade or better, passivated and coated with aluminum-based thermosetting epoxy resin for protection against corrosion and stress corrosion cracking. Structural fasteners may be carbon steel and galvanized meeting ASTM A153 and ISO/EN 1461 (for hot dipped galvanizing), or ASTM B695 (for mechanical galvanizing). All wiring shall be enclosed within the cross-arms, pole, or electrical components enclosure.
- C. System Description: Lighting system shall consist of the following:
1. Galvanized steel poles and cross-arm assembly.
 2. Non-approved pole technology:
 - a. Square static cast concrete poles will not be accepted.
 - b. Direct bury steel poles which utilize the extended portion of the steel shaft for their foundation will not be accepted due to potential for internal and external corrosive reaction to the soils and long term performance concerns.
 3. Lighting systems shall use concrete foundations. See Section 2.3 for details.
 - a. For a foundation using a pre-stressed concrete base embedded in concrete backfill the concrete shall be air-entrained and have a minimum compressive design strength at 28 days of 3,000 PSI. 3,000 PSI concrete specified for early pole erection, actual required minimum allowable concrete strength is 1,000 PSI. All piers and concrete backfill must bear on and against firm undisturbed soil.
 - b. For anchor bolt foundations or foundations using a pre-stressed concrete base in a suspended pier or re-inforced pier design pole erection may occur after 7 days. Or after a concrete sample from the same batch achieves a certain strength.
 4. Manufacturer will supply all drivers and supporting electrical equipment
 - a. Remote drivers and supporting electrical equipment shall be mounted approximately 10 feet above grade in aluminum enclosures. The enclosures shall be touch-safe and include drivers and fusing with indicator lights on fuses to notify when a fuse is to be replaced for each luminaire. Disconnect per circuit for each pole structure will be located in the enclosure.
 - b. Alternate: Integral drivers mounted at the top of the pole will require a pole mounted enclosure approximately 10 feet above grade. The enclosure shall include a disconnect per circuit and surge protection.
 5. Manufacturer shall provide surge protection at the pole equal to or greater than 40 kA for each line to ground (Common Mode) as recommended by IEEE C62.41.2_2002.
 6. Wire harness complete with an abrasion protection sleeve, strain relief and plug-in connections for fast, trouble-free installation.
 7. All luminaires, visors, and cross-arm assemblies shall withstand 150 mph winds and maintain luminaire aiming alignment.
 8. Control cabinet to provide remote on-off control and monitoring of the lighting system. See Section 2.4 for further details.
 9. Manufacturer shall provide lightning grounding as defined by NFPA 780 and be UL Listed per UL 96 and UL 96A.
 - a. Integrated grounding via concrete encased electrode grounding system.
 - b. If grounding is not integrated into the structure, the manufacturer shall supply grounding electrodes, copper down conductors, and exothermic weld kits. Electrodes and conductors shall be sized as required by NFPA 780. The grounding electrode shall be minimum size of 5/8 inch diameter and 8 feet long, with a minimum of 10 feet embedment. Grounding electrode shall be connected to the structure by a grounding electrode conductor with a

minimum size of 2 AWG for poles with 75 feet mounting height or less, and 2/0 AWG for poles with more than 75 feet mounting height.

- D. Safety: All system components shall be UL listed for the appropriate application.

2.2 ELECTRICAL

- A. Electric Power Requirements for the Sports Lighting Equipment:
1. Electric power: 480 Volt, 3 Phase
 2. Maximum total voltage drop: Voltage drop to the disconnect switch located on the poles shall not exceed three (3) percent of the rated voltage.
- B. Energy Consumption: The kW consumption for the field lighting system shall be 3.2 kW.

2.3 STRUCTURAL PARAMETERS

- A. Wind Loads: Wind loads shall be based on the 2009 International Building Code. Wind loads to be calculated using ASCE 7-05, a design wind speed of 105, exposure category C and wind importance factor of II.
- B. Pole Structural Design: The stress analysis and safety factor of the poles shall conform to 2009 AASHTO Standard Specification for Structural Supports for Highway Signs, Luminaires, and Traffic Signals (LTS-5).
- C. Foundation Design: The foundation design shall be based on soils that meet or exceed those of a Class 5 material as defined by 2009 IBC Table 1806.2.
- D. Foundation Drawings: Project specific foundation drawings stamped by a registered engineer in the state where the project is located are required. The foundation drawings must list the moment, shear (horizontal) force, and axial (vertical) force at ground level for each pole. These drawings must be submitted at time of bid to allow for accurate pricing.

2.4 CONTROL

- A. Instant On/Off Capabilities: System shall provide for instant on/off of luminaires.
- B. Lighting contactor cabinet(s) constructed of NEMA Type 4 aluminum, designed for easy installation with contactors, labeled to match field diagrams and electrical design. Manual off-on-auto selector switches shall be provided.
- C. Remote Lighting Control System: System shall allow owner and users with a security code to schedule on/off system operation via a web site, phone, fax or email up to ten years in advance. Manufacturer shall provide and maintain a two-way TCP/IP communication link. Trained staff shall be available 24/7 to provide scheduling support and assist with reporting needs.

The owner may assign various security levels to schedulers by function and/or fields. This function must be flexible to allow a range of privileges such as full scheduling capabilities for all fields to only having permission to execute "early off" commands by phone. Scheduling tool shall be capable of setting curfew limits.

Controller shall accept and store 7-day schedules, be protected against memory loss during power outages, and shall reboot once power is regained and execute any commands that would have occurred during outage.

- D. Remote Monitoring System: System shall monitor lighting performance and notify manufacturer if individual luminaire outage is detected so that appropriate maintenance can be scheduled. The controller shall determine switch position (manual or auto) and contactor status (open or closed).
- E. Management Tools: Manufacturer shall provide a web-based database and dashboard tool of actual field usage and provide reports by facility and user group. Dashboard shall also show current status of luminaire outages, control operation and service. Mobile application will be provided suitable for IOS, Android and Blackberry devices.

Hours of Usage: Manufacturer shall provide a means of tracking actual hours of usage for the field lighting system that is readily accessible to the owner.

1. Cumulative hours: shall be tracked to show the total hours used by the facility
 2. Report hours saved by using early off and push buttons by users.
- F. Communication Costs: Manufacturer shall include communication costs for operating the controls and monitoring system for a period of 25 years.

PART 3 – EXECUTION

3.1 SOIL QUALITY CONTROL

- A. It shall be the Contractor's responsibility to notify the Owner if soil conditions exist other than those on which the foundation design is based, or if the soil cannot be readily excavated. Contractor may issue a change order request / estimate for the Owner's approval / payment for additional costs associated with:
1. Providing engineered foundation embedment design by a registered engineer in the State of Massachusetts for soils other than specified soil conditions;
 2. Additional materials required to achieve alternate foundation;
 3. Excavation and removal of materials other than normal soils, such as rock, caliche, etc.

3.2 DELIVERY TIMING

- A. Delivery Timing Equipment On-Site: The equipment must be on-site 6 to 8 weeks from receipt of approved submittals and receipt of complete order information.

3.3 FIELD QUALITY CONTROL

- A. Illumination Measurements: Upon substantial completion of the project and in the presence of the Contractor, Project Engineer, Owner's Representative, and Manufacturer's Representative, illumination measurements shall be taken and verified. The illumination measurements shall be conducted in accordance with IESNA LM-5-04.
- B. Field Light Level Accountability
1. Light levels are guaranteed not to fall below the target maintained light levels for the entire warranty period of 25 Years.
 2. Manufacturer/Contractor shall provide to the owner as part of the bid package a new light meter that will be utilized both for initial light level testing and annual testing of the system. Initial light test certification at project completion shall be conducted by a third party State of Massachusetts Electrical Engineer (P.E.) using the owner's light meter or a light meter of the same model. Light meter specification shall be Gossen Mavlux 5032B or 5032C and shall be new and calibrated at time of delivery.
 3. The contractor/manufacturer shall be responsible for an additional inspection one year from the date of commissioning of the lighting system and will utilize the owner's light meter in the presence of the owner.
 4. The contractor/manufacturer will be held responsible for any and all changes needed to bring these fields back to compliance for light levels and uniformities. Contractor/Manufacturer will be held responsible for any damage to the fields during these repairs.
- C. Correcting Non-Conformance: If, in the opinion of the Owner or his appointed Representative, the actual performance levels including footcandles and uniformity ratios are not in conformance with the requirements of the performance specifications and submitted information, the Manufacturer shall be required to make adjustments to meet specifications and satisfy Owner.

3.4 WARRANTY AND GUARANTEE

- A. 25-Year Warranty: Each manufacturer shall supply a signed warranty covering the entire system for 25 years from the date of shipment. Warranty shall guarantee specified light levels. Manufacturer shall maintain specifically-funded financial reserves to assure fulfillment of the warranty for the full term. Warranty does not cover weather conditions events such as lightning or hail damage, improper

installation, vandalism or abuse, unauthorized repairs or alterations, or product made by other manufacturers.

- B. Maintenance: Manufacturer shall monitor the performance of the lighting system, including on/off status, hours of usage and luminaire outage for 25 years from the date of equipment shipment. Parts and labor shall be covered such that individual luminaire outages will be repaired when the usage of any field is materially impacted. Owner agrees to check fuses in the event of a luminaire outage.

PART 4 – DESIGN APPROVAL

4.0 SUBMITTAL REQUIREMENTS (Non-Musco)

- A. Design Approval: The owner / engineer will review submittals per section 4.0.B from all the manufacturers to ensure compliance to the specification.
- B. Approved Product: Musco's Light-Structure System™ with TLC for LED™ is the approved product. All substitutions must provide a complete submittal package for approval as outlined in Submittal Information at the end of this section. Special manufacturing to meet the standards of this specification may be required.
- C. All manufacturers not pre-approved shall submit the information at the end of this section
- D. Bidders are required to bid only products that meet this specification.

REQUIRED SUBMITTAL INFORMATION FOR ALL MANUFACTURERS (NOT PRE-APPROVED)

*All items listed below are mandatory, shall comply with the specification and be submitted according to submittal requirements. Complete the Yes/No column to indicate compliance (Y) or noncompliance (N) for each item. **Submit checklist below with submittal.***

Yes/ No	Tab	Item	Description
	A	Letter/ Checklist	Listing of all information being submitted must be included on the table of contents. List the name of the manufacturer's local representative and his/her phone number. Signed submittal checklist to be included.
	B	Equipment Layout	Drawing(s) showing field layouts with pole locations
	C	On Field Lighting Design	Lighting design drawing(s) showing: <ul style="list-style-type: none"> a. Field Name, date, file number, prepared by b. Outline of field(s) being lighted, as well as pole locations referenced to the center of the field (x & y), Illuminance levels at grid spacing specified c. Pole height, number of fixtures per pole, horizontal and vertical aiming angles, as well as luminaire information including wattage, lumens and optics d. Height of light test meter above field surface. e. Summary table showing the number and spacing of grid points; average, minimum and maximum illuminance levels in foot candles (fc); uniformity including maximum to minimum ratio, coefficient of variance (CV), coefficient of utilization (CU) uniformity gradient; number of luminaires, total kilowatts, average tilt factor; light loss factor.
	D	Off Field Lighting Design	Lighting design drawing showing initial spill light levels along the boundary line (defined on bid drawings) in footcandles. Light levels shall be taken at 30-foot intervals along the boundary line. Readings shall be taken with the meter orientation at both horizontal and aimed towards the most intense bank of lights.
	E	Environmental Light Control Design	Environmental glare impact scans must be submitted showing the maximum candela from the field edge on a map of the surrounding area until 500 candela or less is achieved.
	F	Photometric Report	Provide first page of photometric report for all luminaire types being proposed showing candela tabulations as defined by IESNA Publication LM-35-02. Photometric data shall be certified by laboratory with current National Voluntary Laboratory Accreditation Program or an independent testing facility with over 5 years experience.
	G	Performance Guarantee	Provide performance guarantee including a written commitment to undertake all corrections required to meet the performance requirements noted in these specifications at no expense to the owner. Light levels must be guaranteed to not fall below target levels for warranty period.
	H	Structural Calculations	Pole structural calculations and foundation design showing foundation shape, depth backfill requirements, rebar and anchor bolts (if required). Pole base reaction forces shall be shown on the foundation drawing along with soil bearing pressures. Design must be stamped by a structural engineer in the state of Massachusetts.
	I	Control & Monitoring System	Manufacturer of the control and monitoring system shall provide written definition and schematics for automated control system to include monitoring. They will also provide ten (10) references of customers currently using proposed system in the state of Massachusetts.
	J	Electrical Distribution Plans	Manufacturer bidding an alternate product must include a revised electrical distribution plan including changes to service entrance, panels and wire sizing, signed by a licensed Electrical Engineer in the state of Massachusetts.
	K	Warranty	Provide written warranty information including all terms and conditions. Provide ten (10) references of customers currently under specified warranty in the state of Massachusetts.
	L	Project References	Manufacturer to provide a list of ten 10 projects where the technology and specific fixture proposed for this project has been installed in the state of Massachusetts. Reference list will include project name, project city, installation date, and if requested, contact name and contact phone number.
	M	Product Information	Complete bill of material and current brochures/cut sheets for all product being provided.

	N	Delivery	Manufacturer shall supply an expected delivery timeframe from receipt of approved submittals and complete order information.
	O	Non-Compliance	Manufacturer shall list all items that do not comply with the specifications. If in full compliance, tab may be omitted.
	P	Life-cycle Cost Calculation	Document life-cycle cost calculations as defined in the specification. Identify energy costs for operating the luminaires. Maintenance cost for the system must be included in the warranty. All costs should be based on 25 Years. (complete table below)

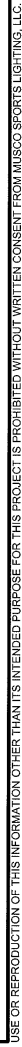
25-Year Life Cycle Operating Cost			
a.	Luminaire energy consumption _____ luminaires x _____ kW demand per luminaire x <u>.16</u> kWh rate x <u>200</u> annual usage hours x 25 years		<Enter, F11>
b.	Demand charges, if applicable	+	<Enter, F11>
c.	Cost for maintenance, not covered, for 25 years Assume 7 repairs at \$500 each if not included with the bid	+	<Enter, F11>
	TOTAL 25 -Year Life-cycle Operating Cost	=	<Enter, F11>

The information supplied herein shall be used for the purpose of complying with the specifications for Winter Hill. By signing below I agree that all requirements of the specifications have been met and that the manufacturer will be responsible for any future costs incurred to bring their equipment into compliance for all items not meeting specifications and not listed in the Non-Compliance section.

Manufacturer: _____ **Signature:** _____

Contact Name: _____ **Date:** ____/____/____

Contractor: _____ **Signature:** _____



Winter Hill Community School Multipurpose

Somerville,MA

Lighting System

Pole / Fixture Summary						
Pole ID	Pole Height	Mtg Height	Fixture Qty	Luminaire Type	Load	Group
S1-S4	30'	30'	2	TLC-LED-400	0.80 kW	A
4			8		3.20 kW	

Group Summary			
Group	Description	Load	Fixture Qty
A	Multipurpose	3.2 kW	8

Fixture Type Summary							
Type	Source	Wattage	Lumens	L90	L80	L70	Quantity
TLC-LED-400	LED 5700K - 75 CRI	400W	38,600	61,000	>72,000	>72,000	8

Light Level Summary

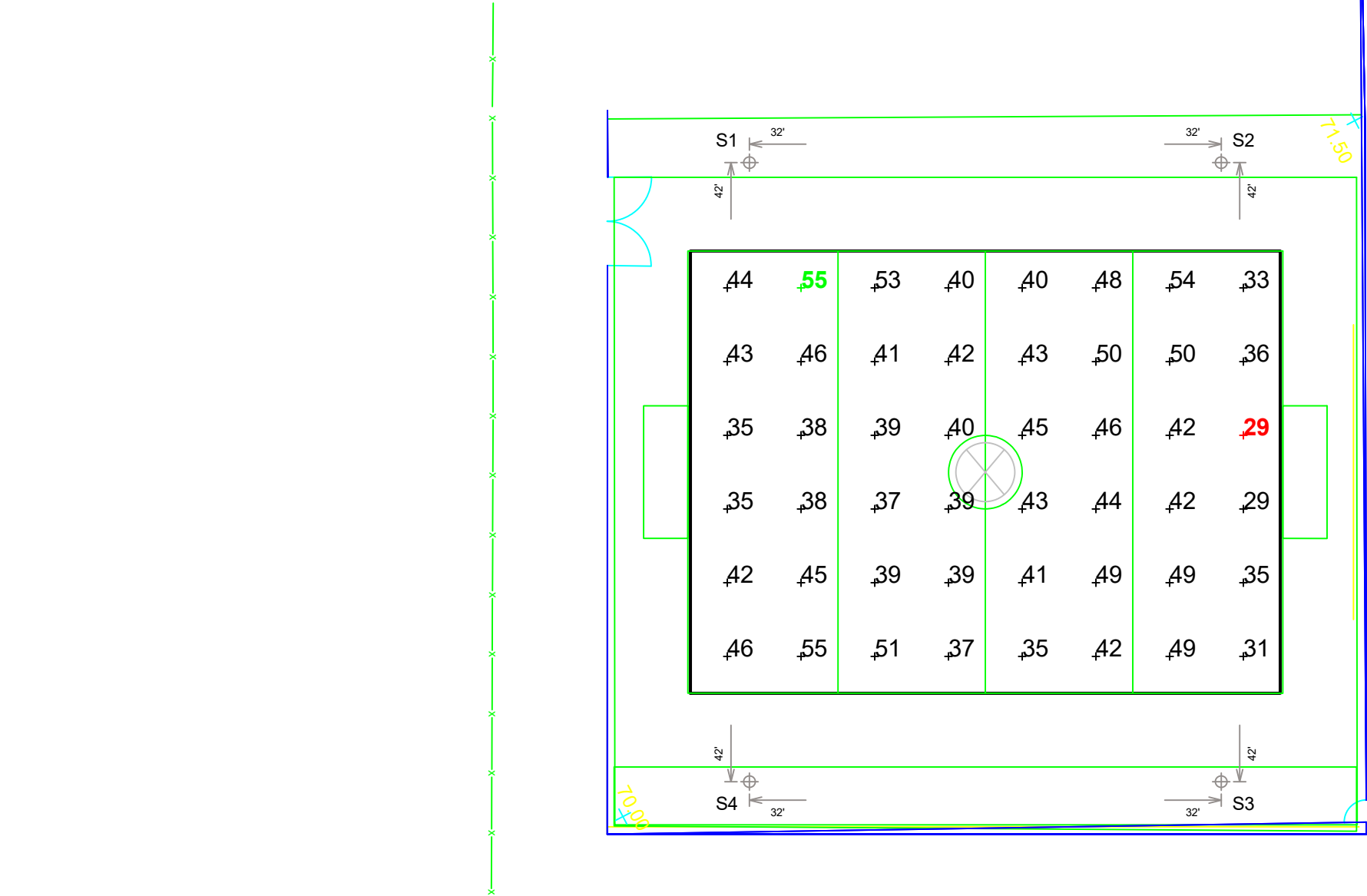
Calculation Grid Summary							
Grid Name	Calculation Metric	Illumination				Groups	Fixture Qty
		Ave	Min	Max	Max/Min		
MultiPurpose Spill	Horizontal Illuminance	0	0	0	0.00	A	8
MultiPurpose Spill	Max Candela Metric	0.19	0	2.18	0.00	A	8
MultiPurpose Spill	Max Vertical Illuminance Metric	0	0	0	0.00	A	8
MultiPurpose	Horizontal Illuminance	42.2	29	55	1.92	A	8
Zero Grid	Horizontal	1.09	0	19	0.00	A	8

From Hometown to Professional



We Make It Happen®

EQUIPMENT LIST FOR AREAS SHOWN								
Pole				Luminaires				
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LUMINAIRE TYPE	QTY / POLE	THIS GRID	OTHER GRIDS
4	S1-S4	30'	-	30'	TLC-LED-400	2	2	0
4	TOTALS					8	8	0



Winter Hill Community School Multipurpose
Somerville,MA

GRID SUMMARY	
Name:	MultiPurpose
Size:	80' x 60'
Spacing:	10.0' x 10.0'
Height:	3.0' above grade

ILLUMINATION SUMMARY			
MAINTAINED HORIZONTAL FOOTCANDLES			
	Entire Grid		
Guaranteed Average:	30		
Scan Average:	42.15		
Maximum:	55		
Minimum:	29		
Avg / Min:	1.46		
Guaranteed Max / Min:	2		
Max / Min:	1.92		
UG (adjacent pts):	1.62		
No. of Points:	48		
LUMINAIRE INFORMATION			
Color / CRI:	5700K - 75 CRI		
Luminaire Output:	38,600 lumens		
No. of Luminaires:	8		
Total Load:	3.2 kW		
Lumen Maintenance			
Luminaire Type	L90 hrs	L80 hrs	L70 hrs
TLC-LED-400	61,000	>72,000	>72,000
Reported per TM-21-11. See luminaire datasheet for details.			

Guaranteed Performance: The ILLUMINATION described above is guaranteed per your Musco Warranty document and includes a 0.95 dirt depreciation factor.

Field Measurements: Individual field measurements may vary from computer-calculated predictions and should be taken in accordance with IESNA RP-6-15.

Electrical System Requirements: Refer to Amperage Draw Chart and/or the "Musco Control System Summary" for electrical sizing.

Installation Requirements: Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.

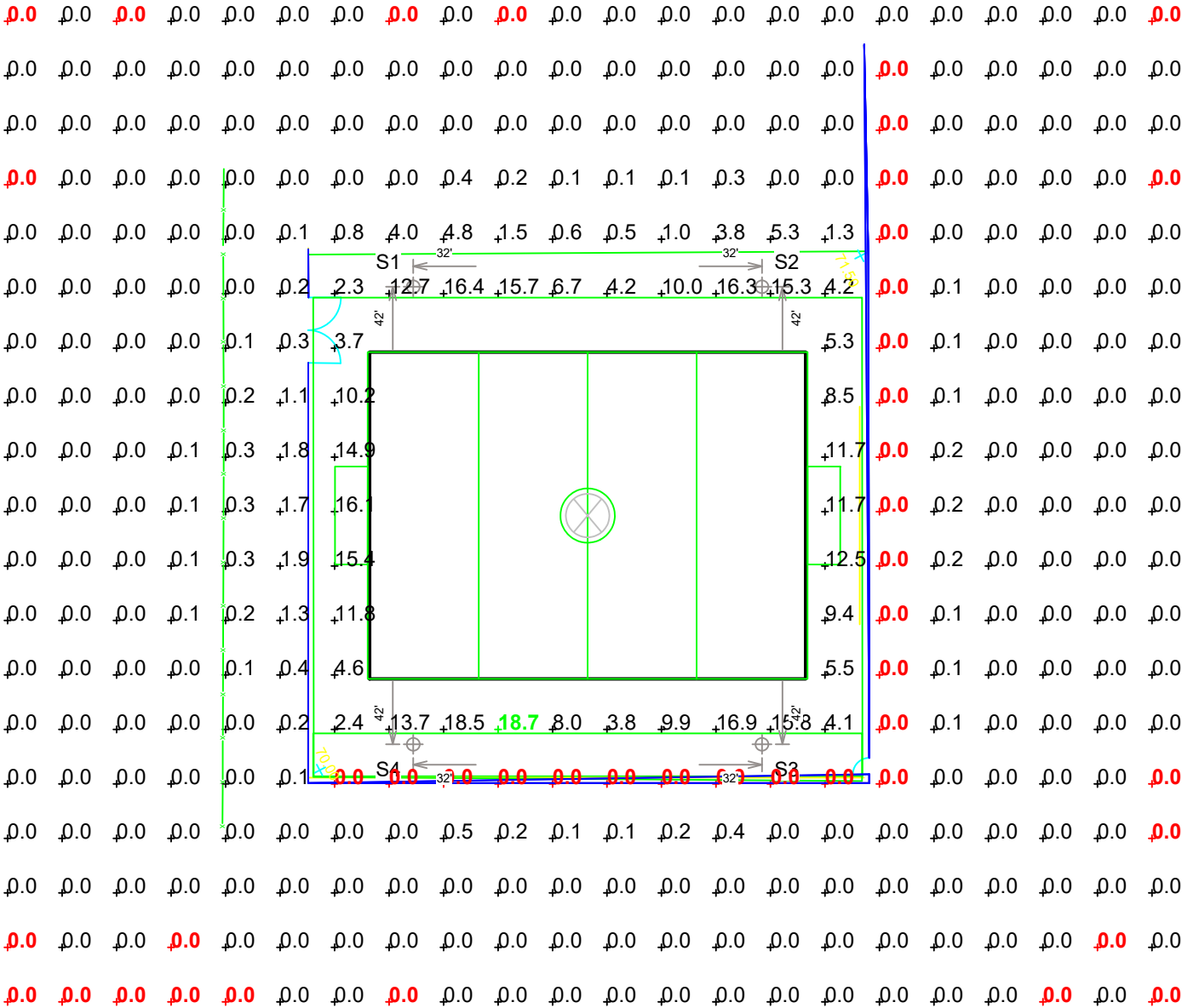


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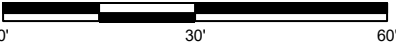
ILLUMINATION SUMMARY

Pole location(s) ⦿ dimensions are relative to 0,0 reference point(s) ⊗

EQUIPMENT LIST FOR AREAS SHOWN								
Pole				Luminaires				
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LUMINAIRE TYPE	QTY / POLE	THIS GRID	OTHER GRIDS
4	S1-S4	30'	-	30'	TLC-LED-400	2	2	0
4	TOTALS					8	8	0



SCALE IN FEET 1 : 30



GRID SUMMARY			
Name:	Zero Grid		
Size:	80' x 60'		
Spacing:	10.0' x 10.0'		
Height:	3.0' above grade		
ILLUMINATION SUMMARY			
MAINTAINED HORIZONTAL FOOTCANDLES			
	Entire Grid		
Scan Average:	1.09		
Maximum:	19		
Minimum:	0		
Avg / Min:	-		
Max / Min:	-		
UG (adjacent pts):	1183.84		
No. of Points:	362		
LUMINAIRE INFORMATION			
Color / CRI:	5700K - 75 CRI		
Luminaire Output:	38,600 lumens		
No. of Luminaires:	8		
Total Load:	3.2 kW		
Lumen Maintenance			
Luminaire Type	L90 hrs	L80 hrs	L70 hrs
TLC-LED-400	61,000	>72,000	>72,000
Reported per TM-21-11. See luminaire datasheet for details.			

Guaranteed Performance: The ILLUMINATION described above is guaranteed per your Musco Warranty document and includes a 0.95 dirt depreciation factor.

Field Measurements: Individual field measurements may vary from computer-calculated predictions and should be taken in accordance with IESNA RP-6-15.

Electrical System Requirements: Refer to Amperage Draw Chart and/or the "Musco Control System Summary" for electrical sizing.

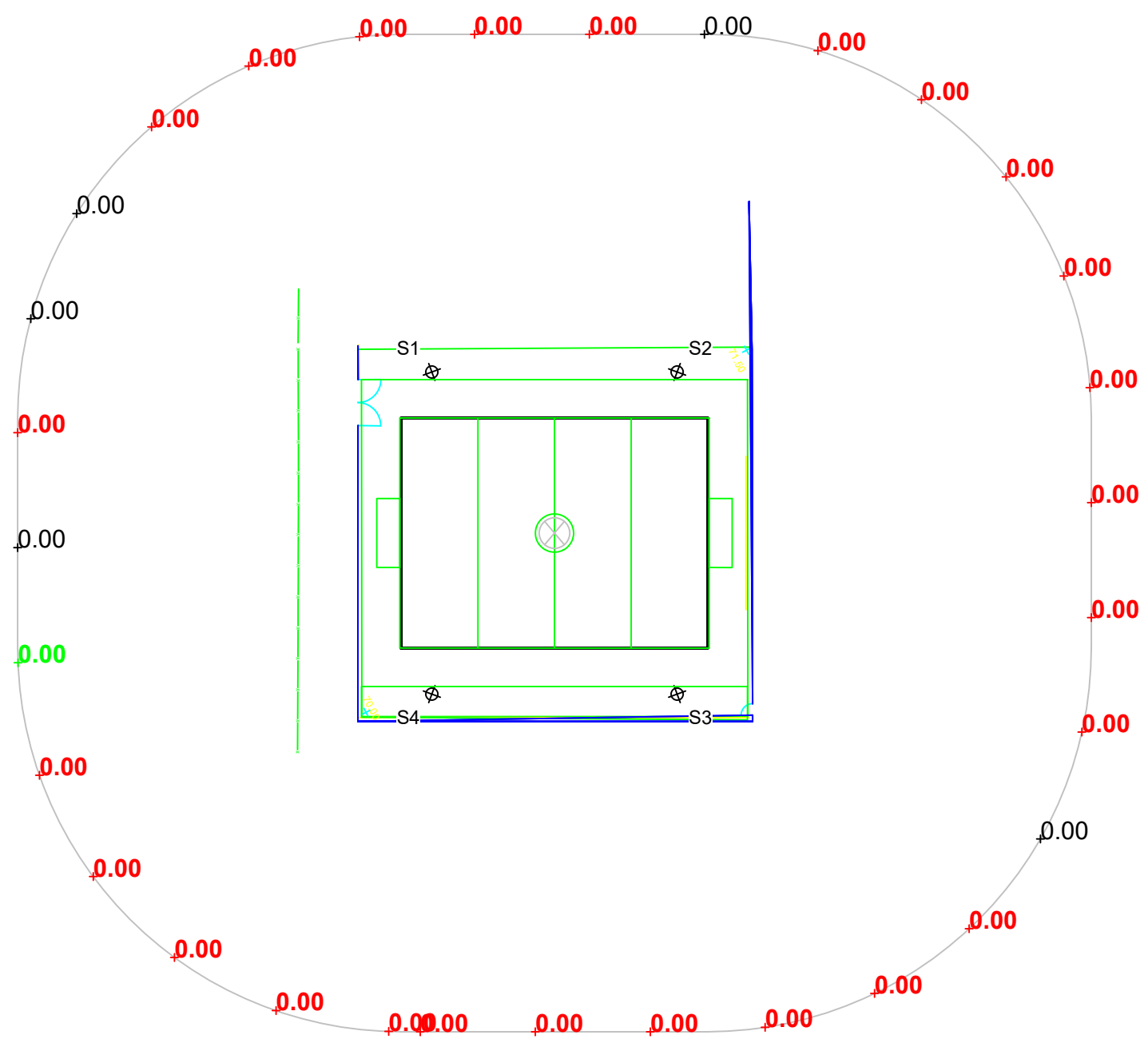
Installation Requirements: Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.



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EQUIPMENT LIST FOR AREAS SHOWN								
Pole				Luminaires				
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LUMINAIRE TYPE	QTY / POLE	THIS GRID	OTHER GRIDS
4	S1-S4	30'	-	30'	TLC-LED-400	2	2	0
4	TOTALS					8	8	0



Winter Hill Community School Multipurpose
Somerville,MA

GRID SUMMARY	
Name:	MultiPurpose Spill
Spacing:	30.0'
Height:	3.0' above grade

ILLUMINATION SUMMARY			
MAINTAINED HORIZONTAL FOOTCANDLES			
	Entire Grid		
Scan Average:	0.0000		
Maximum:	0.00		
Minimum:	0.00		
No. of Points:	31		
LUMINAIRE INFORMATION			
Color / CRI:	5700K - 75 CRI		
Luminaire Output:	38,600 lumens		
No. of Luminaires:	8		
Total Load:	3.2 kW		
Lumen Maintenance			
Luminaire Type	L90 hrs	L80 hrs	L70 hrs
TLC-LED-400	61,000	>72,000	>72,000
Reported per TM-21-11. See luminaire datasheet for details.			

Guaranteed Performance: The ILLUMINATION described above is guaranteed per your Musco Warranty document and includes a 0.95 dirt depreciation factor.

Field Measurements: Individual field measurements may vary from computer-calculated predictions and should be taken in accordance with IESNA RP-6-15.

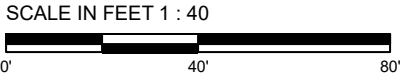
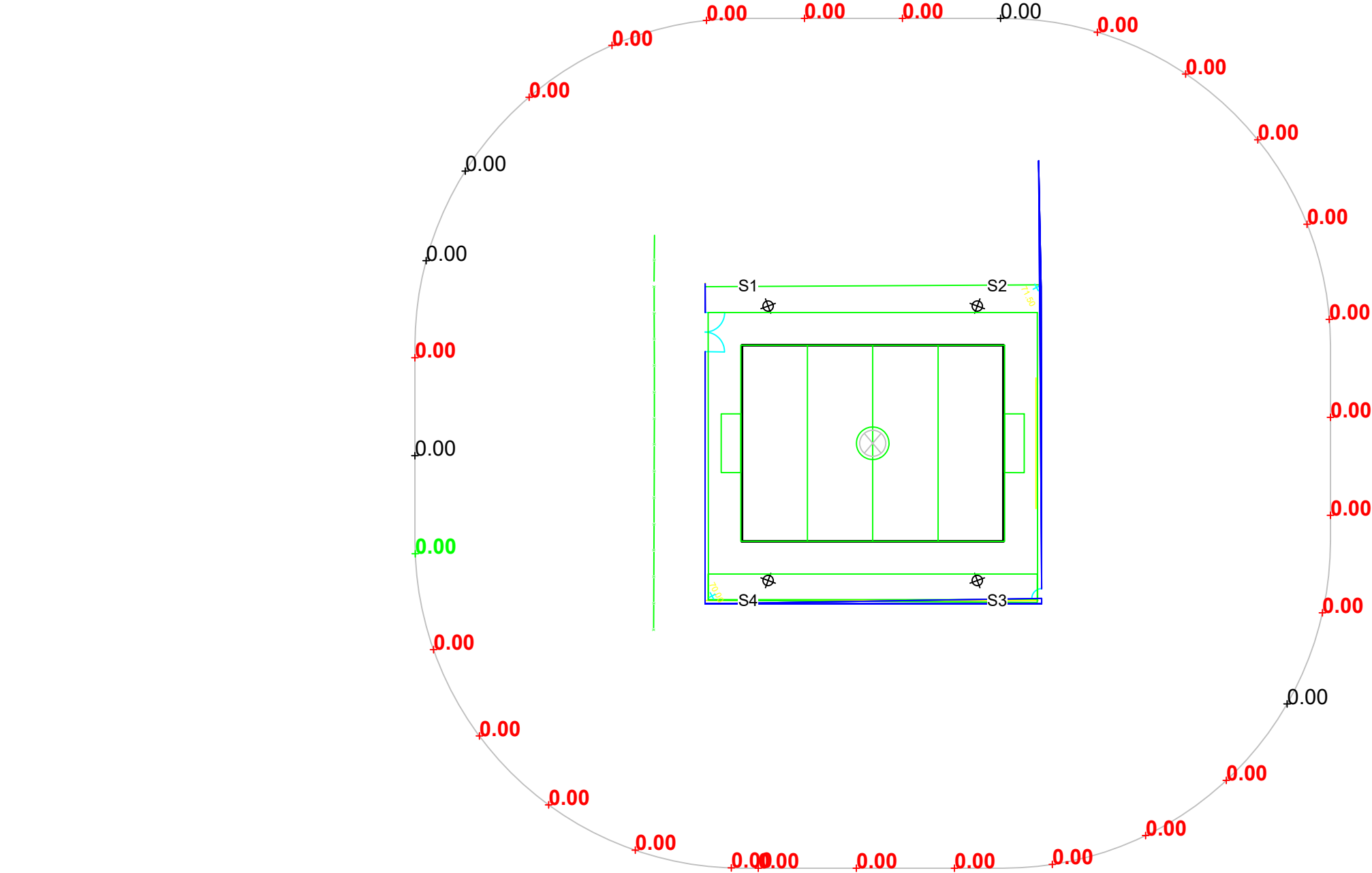
Electrical System Requirements: Refer to Amperage Draw Chart and/or the "Musco Control System Summary" for electrical sizing.

Installation Requirements: Results assume \pm 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.



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EQUIPMENT LIST FOR AREAS SHOWN								
Pole				Luminaires				
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LUMINAIRE TYPE	QTY / POLE	THIS GRID	OTHER GRIDS
4	S1-S4	30'	-	30'	TLC-LED-400	2	2	0
4	TOTALS					8	8	0



GRID SUMMARY	
Name:	MultiPurpose Spill
Spacing:	30.0'
Height:	3.0' above grade

ILLUMINATION SUMMARY			
MAINTAINED MAX VERTICAL FOOTCANDLES			
Scan Average: Maximum: Minimum: No. of Points:		Entire Grid	
		0.0000	
		0.00	
		0.00	
		31	
LUMINAIRE INFORMATION			
Color / CRI:		5700K - 75 CRI	
Luminaire Output:		38,600 lumens	
No. of Luminaires:		8	
Total Load:		3.2 kW	
Lumen Maintenance			
Luminaire Type	L90 hrs	L80 hrs	L70 hrs
TLC-LED-400	61,000	>72,000	>72,000
Reported per TM-21-11. See luminaire datasheet for details.			

Guaranteed Performance: The ILLUMINATION described above is guaranteed per your Musco Warranty document and includes a 0.95 dirt depreciation factor.

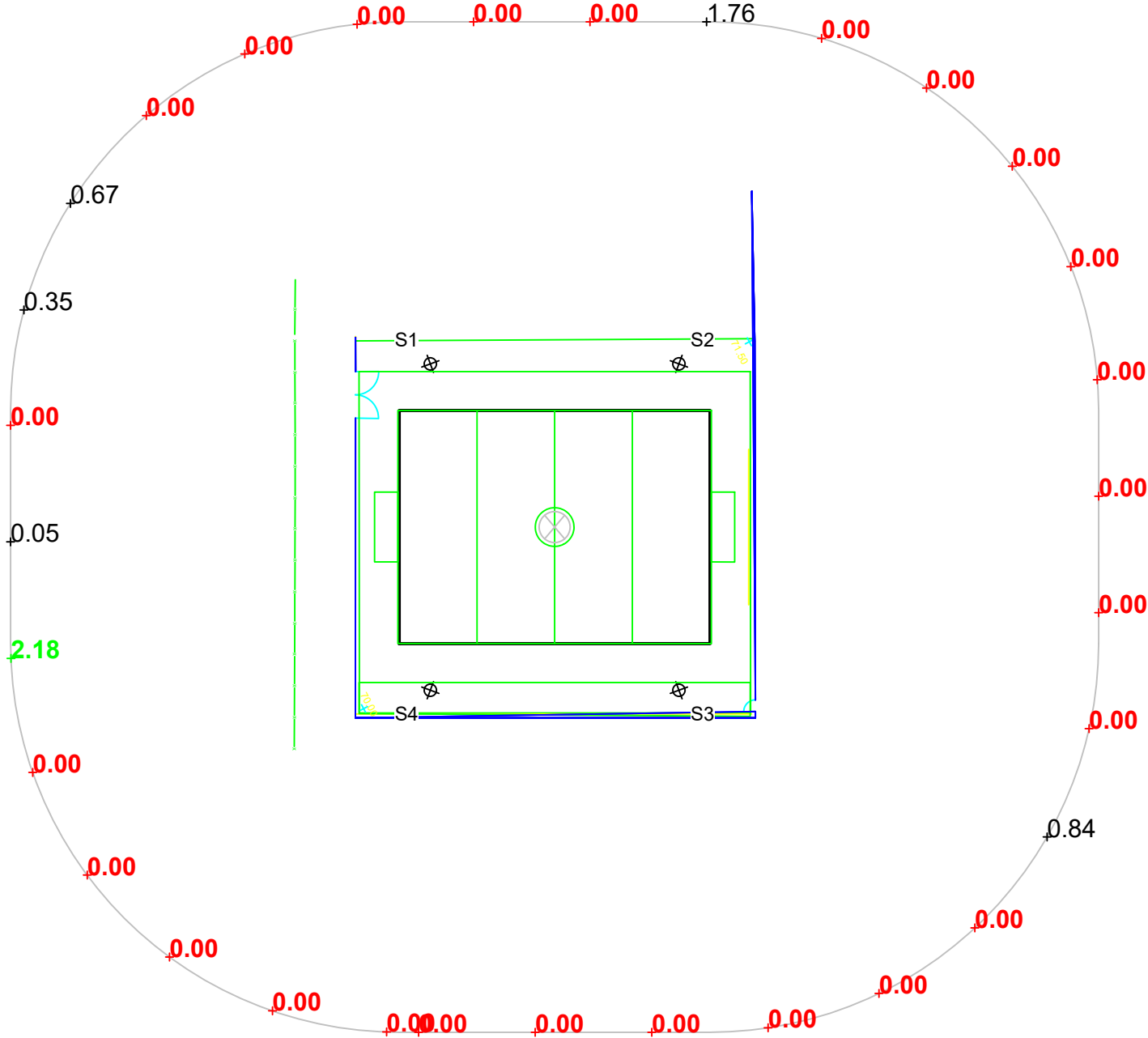
Field Measurements: Individual field measurements may vary from computer-calculated predictions and should be taken in accordance with IESNA RP-6-15.

Electrical System Requirements: Refer to Amperage Draw Chart and/or the "Musco Control System Summary" for electrical sizing.

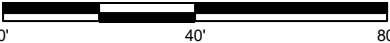
Installation Requirements: Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.



EQUIPMENT LIST FOR AREAS SHOWN								
Pole				Luminaires				
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LUMINAIRE TYPE	QTY / POLE	THIS GRID	OTHER GRIDS
4	S1-S4	30'	-	30'	TLC-LED-400	2	2	0
4	TOTALS					8	8	0



SCALE IN FEET 1 : 40



GRID SUMMARY	
Name:	MultiPurpose Spill
Spacing:	30.0'
Height:	3.0' above grade

ILLUMINATION SUMMARY			
MAINTAINED CANDELA (PER FIXTURE)			
	Entire Grid		
Scan Average:	0.1889		
Maximum:	2.18		
Minimum:	0.00		
No. of Points:	31		
LUMINAIRE INFORMATION			
Color / CRI:	5700K - 75 CRI		
Luminaire Output:	38,600 lumens		
No. of Luminaires:	8		
Total Load:	3.2 kW		
Lumen Maintenance			
Luminaire Type	L90 hrs	L80 hrs	L70 hrs
TLC-LED-400	61,000	>72,000	>72,000
Reported per TM-21-11. See luminaire datasheet for details.			

Guaranteed Performance: The ILLUMINATION described above is guaranteed per your Musco Warranty document and includes a 0.95 dirt depreciation factor.

Field Measurements: Individual field measurements may vary from computer-calculated predictions and should be taken in accordance with IESNA RP-6-15.

Electrical System Requirements: Refer to Amperage Draw Chart and/or the "Musco Control System Summary" for electrical sizing.

Installation Requirements: Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.



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EQUIPMENT LAYOUT

INCLUDES:

· MultiPurpose

Electrical System Requirements: Refer to Amperage Draw Chart and/or the "Musco Control System Summary" for electrical sizing.

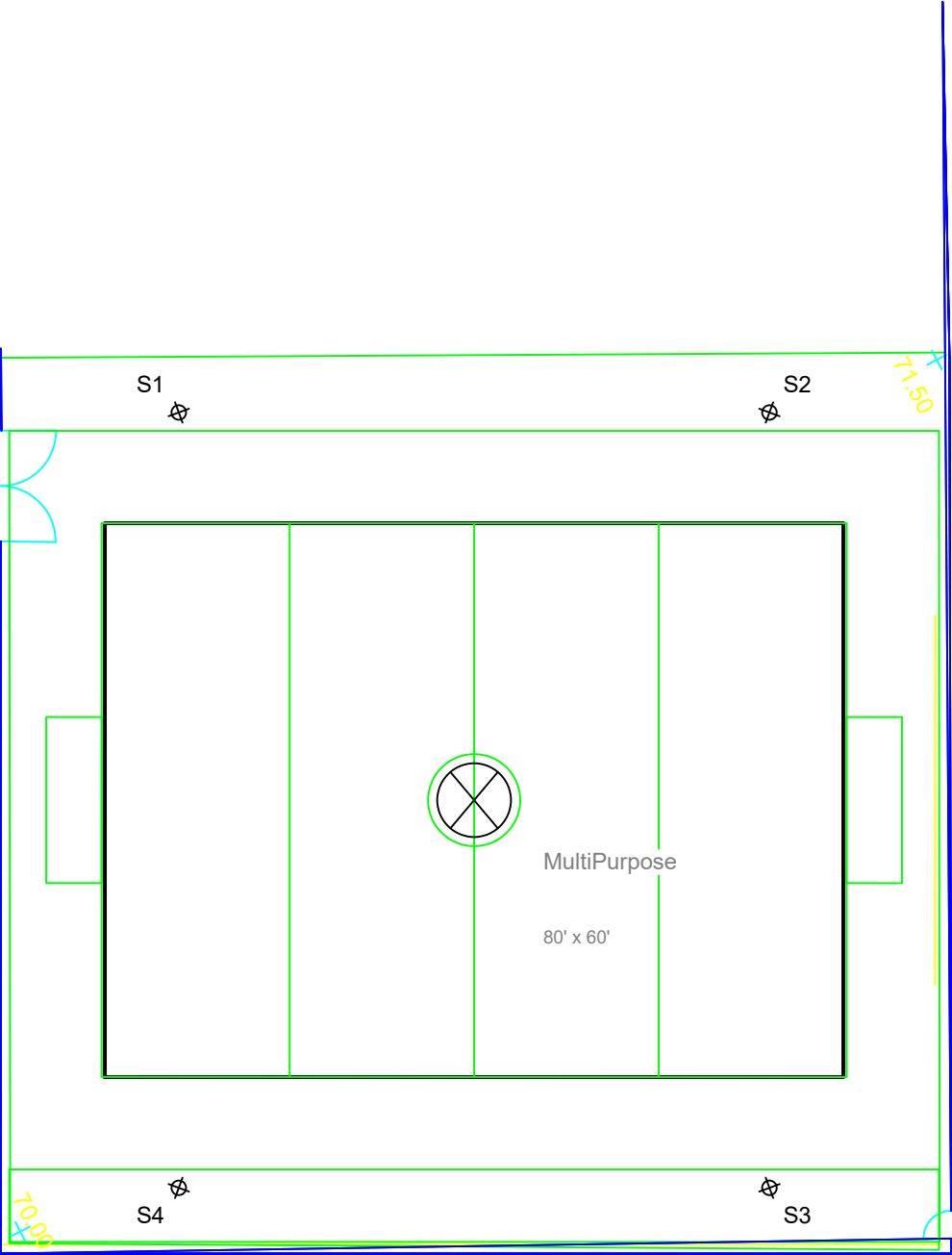
Installation Requirements: Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.

EQUIPMENT LIST FOR AREAS SHOWN

Pole				Luminaires		
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LUMINAIRE TYPE	QTY / POLE
4	S1-S4	30'	-	30'	TLC-LED-400	2
4	TOTALS					8

SINGLE LUMINAIRE AMPERAGE DRAW CHART

Ballast Specifications (.90 min power factor)	Line Amperage Per Luminaire (max draw)						
Single Phase Voltage	208 (60)	220 (60)	240 (60)	277 (60)	347 (60)	380 (60)	480 (60)
TLC-LED-400	2.5	2.3	2.1	1.9	1.5	1.4	1.1



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GLARE IMPACT

Summary

Map indicates the maximum candela an observer would see when facing the brightest light source from any direction.

A well-designed lighting system controls light to provide maximum useful on-field illumination with minimal destructive off-site glare.

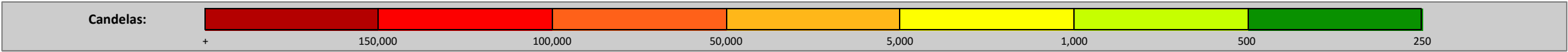
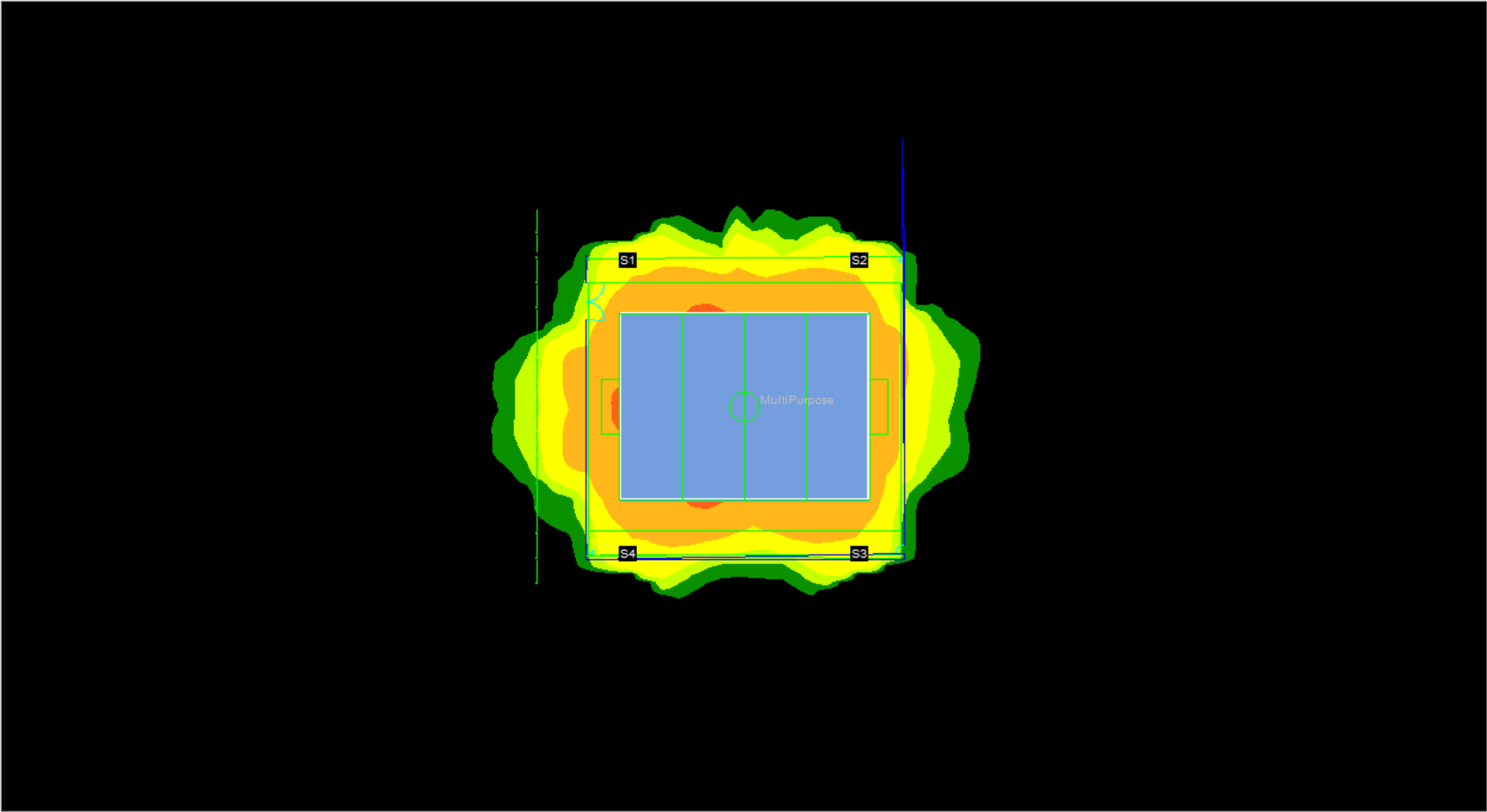
GLARE

Candela Levels

High Glare: 150,000 or more candela
Should only occur on or very near the lit area where the light source is in direct view. Care must be taken to minimize high glare zones.

Significant Glare: 25,000 to 75,000 candela
Equivalent to high beam headlights of a car.

Minimal to No Glare: 500 or less candela
Equivalent to 100W incandescent light bulb.



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31 00 00 – EXCAVATION, FILLING AND GRADING

PART 1 - GENERAL

1.01 General Requirements

- A. The conditions of the Contract, including Division 00 and Division 01, apply to the work under this Section.
- B. The Contractor shall prior to any removal of surplus fill, excavated material, or debris from the site, furnish written evidence satisfactory to the owner or owner's representative that he has an approved dumping location for debris and/or spoil from his/her excavation activities.

1.02 Work Included

- A. Provide all labor, equipment, implements and materials required to furnish, install, construct and perform Earthwork as shown on the Drawings and as specified herein.
 - 1. Excavating, filling, trenching and backfilling of all descriptions required for the construction of pavements, safety surfaces, equipment, site improvements, utilities, filling voids left by hardscape and plant removals, and all specialties. Provide all additional fill materials as required and specified herein.
 - 2. Pumping and/or bailing necessary to maintain excavated spaces free from water from any source whatsoever.
 - 3. Dust control.
 - 4. Provide graded materials, as specified, for fills, base courses and backfills as required.
 - 5. Rough grading.
 - 6. Perform all compaction of fill materials as hereinafter specified.
 - 7. Obtain all required permits, licenses and approvals of appropriate municipal and utility authorities prior to commencing work, pay all costs incurred therefrom.
 - 8. If subgrade is deemed unsuitable for placement of subbase material, backfill w/ processed gravel. Work under this Section shall include the excavation of 20 cubic yards of unsuitable material beyond the line and grades as shown on drawings, and as determined by the Landscape Architect. Such removals shall be measured by a Civil Engineer or Land Surveyor employed by the Contractor and verified by the Landscape Architect. No unsuitable material removals shall be credited to the Contractor without prior measurements and verifications.

- B. Examine all other Sections of the Specifications and all Drawings for the relationship of the work under this Section and the work of other trades. Cooperate with all trades and all departments of the City of Somerville and coordinate all work under this Section therewith.
- C. The following related items are included under the Sections listed below.
 - 1. Section 02 41 00 – Site Preparation and Demolition
 - 2. Section 32 12 16 – Asphalt Paving
 - 3. Section 32 13 13 – Concrete
 - 4. Section 32 16 00 - Curbing
 - 5. Section 32 18 00 –Synthetic Turf
 - 6. Section 32 30 00 – Site Improvements
 - 7. Section 32 31 00 – Fences, Gates and Netting
 - 8. Section 32 90 00 – Planting
 - 9. Section 33 49 23 - Drainage

1.03 Submittals

- A. Submit certified gradation test data for borrow materials a minimum of one week prior to delivery to the site.
- B. Provide 50-pound samples of each material to a qualified laboratory for moisture density testing a minimum of one week prior to delivery to site.
- C. Compaction test of subbase materials after installation and compaction and before surface material is installed.

1.04 Laws, Ordinances, Permits and Fees

The Contractor shall:

- A. Give necessary notices, obtain all permits and pay all governmental taxes, fees and other costs in connection with this work, file all necessary plans, prepare documents and obtain all necessary approvals.
- B. Obtain all required certificates of inspection for this work and deliver same to the Landscape Architect before request for acceptance and final payment for the work.
- C. Include in the work, without extra cost to the Owner, any labor, materials, services, apparatus, drawings (in addition to contract drawings and documents) in order to comply with all applicable laws, ordinances, rules and regulations of the City of Somerville and the Commonwealth of Massachusetts, whether or not shown on the Drawings and/or specified.

- D. The Contractor shall provide a temporary sidewalk whenever a sidewalk is closed because of the construction. This temporary sidewalk must be at the same level as the existing closed sidewalk and it must be visually partitioned off from the street and work area. The Contractor shall so conduct his operations as to interfere as little as possible with roads, driveways, alleys, sidewalks, or other nearby facility.

1.05 Definitions

- A. The following related items are included herein and shall mean:
1. S.S.H.B. - Standard Specifications for Highways and Bridges, the Commonwealth of Massachusetts, Department of Transportation, latest edition
 2. A.S.T.M. - American Society for Testing and Materials
 3. A.A.S.H.T.O. - American Association of State Highway and Transportation Officials
- B. "Excavation" consists of removal of material encountered to subgrade elevations indicated and disposal of materials removed.
- C. "Finished grades" as used herein shall mean the required final grade elevations indicated on the Drawings. Spot elevations shall govern over proposed contours. Where not otherwise indicated, project site areas shall be given uniform slopes between points for which finished grades are indicated or between such points and existing established grades.
- D. "Base Course" as used herein is the placed and compacted material immediately below the finish grade material to the thickness indicated on the Drawings.
- E. "Subgrade" as used herein means the naturally occurring or placed and compacted material below the base course.
- F. "Trench Excavation" is defined as an excavation of any length where the width is less than twice the depth and where the distance between the pay lines does not exceed ten feet.
- G. "Open Excavation" is defined as all other excavation.
- H. "Unauthorized excavation" is defined as excavation beyond approved measurement lines.
- I. "Unsuitable materials" are soils containing organic matter, materials subject to attack from termites, materials subject to decomposition, soils too wet to be stabilized, frozen materials and existing materials that do not satisfy the product specification herein. Weak or soft material resulting from any of the Contractor's operations shall not be considered "unsuitable material".

- J. "Excess material" is any excavated material that is not needed for the construction of project elements. The removal of excess material from the site shall be included in the Base Bid Contract.
- K. Rock excavation shall be defined as solid, continuous rock or concrete mass, unable to be removed without mechanical measures and larger than 1 cubic yard in size. All other rock shall be unclassified excavation included in the contract bid price.

1.06 Bench Marks and Engineering

- A. Lines and grade work in accordance with Drawings and Specifications shall be laid out by a registered Civil Engineer or registered Surveyor employed by the Contractor. The Contractor shall establish permanent bench marks, to which access can easily be had during the progress of the work. The Contractor shall maintain all established bounds and bench marks and replace, as directed, any which may be disturbed or destroyed. The selection of the registered Civil Engineer or Surveyor shall be approved by the Landscape Architect.
- B. The Contractor shall submit written confirmation of dimensions and elevations on the ground and report any discrepancies immediately to the Landscape Architect. Such confirmation shall bear the Engineer's registration stamp. Any discrepancies not reported prior to construction shall not be the basis of claims for extra compensation.
- C. The General Contractor shall not commence any excavation or construction work, until the Landscape Architect's verification has been received and approved by the Official.

1.07 Subsurface Information

- A. Refer to Appendix A to this Section 31 00 00 – Excavation, Filling and Grading for the Geotechnical Report. This report identifies subsurface conditions observed at the time and locations indicated in the report. This subsurface information was obtained by the Geotechnical Engineer retained by the Owner for use in designing the project. The Owner, the Landscape Architect and the Geotechnical Engineer shall not be responsible for the interpretations or conclusions made by the Contractor based on this information. This Geotechnical Report is provided so that the Contractor can familiarize himself with the expected subsurface conditions when preparing his bid. If the Contractor encounters subsurface conditions considered to be different than those presented in the Contract Documents, the Contractor shall notify the Architect in accordance with the General Conditions.
- B. The Owner assumes no responsibility for the Contractor's failure to make his own site investigation and makes no warranty regarding the character of the soil or subsurface conditions which may be encountered during the performance of the work.

1.08 Finished Grades

- A. The words "finished grades" as used herein mean the required final grade elevations indicated on the Drawings. Where not otherwise indicated, site areas shall be given uniform slopes between points, for which finished grades are shown, or between such points and existing grade except that vertical curves or roundings shall be provided at abrupt changes in slope.

1.09 Grades and Elevations

- A. The Drawings indicate, in general, the alignment and finished grade elevations. The Landscape Architect, however, may make such adjustments in grades and alignment as are found necessary in order to avoid interference and to adapt the grading to other special conditions encountered.

1.10 Work in the Public Ways

- A. Notify the appropriate municipal officials at least seven calendar days in advance of commencing any work in the public ways to obtain all required permission to perform this work. Perform all work in the public ways in a manner required by the municipal authorities.
- B. Should there be any conflict between requirements specified in the Contract Documents and those of the City of Somerville, the municipal requirements shall govern.
- C. Do not close or obstruct any streets or sidewalks unless and until they have been discontinued by the appropriate municipal authority or unless and until he shall have first secured all necessary or other permits therefor. No materials whatsoever shall be placed or stored in the streets. Conduct all operations to interfere as little as possible with the use ordinarily made of roads, driveways, sidewalks, or other facilities near enough to the work to be affected thereby.

1.11 Disposition of Existing Utilities

- A. Active utilities existing on the site shall be carefully protected from damage and relocated or removed as required by the work. When an active utility line is exposed during construction, its location and elevation shall be plotted on the Record Drawings and both the Landscape Architect and the Utility Owner notified in writing.
- B. Inactive or abandoned utilities encountered during construction operations shall be removed, plugged or capped in accordance with procedures of relative utility company or agency. The location of such utilities shall be noted on the Record Drawings and reported in writing to the Landscape Architect.
- C. Active utility lines damaged in the course of construction operations shall be repaired or replaced as determined by the Landscape Architect without additional cost to the Owner.
- D. Notify the Owner at least three (3) days in advance of the proposed time for shutting down or interrupting utilities or services which may affect operation of adjoining properties. Unless otherwise authorized by the Owner, schedule such interruptions on weekends, holidays, or before or after Owner's normal working day. In no case shall any services or utilities be interrupted prior to notification and authorization by the Owner.

1.12 Protection

- A. All rules and regulations governing the respective utilities shall be observed in executing all work under this Section. All work shall be executed in such a manner as

to prevent any damage to existing streets, curbs, paving, service utility lines, structures and adjoining property. Monuments and bench marks shall be carefully maintained and, if disturbed or destroyed, replaced as directed.

- B. The Contractor shall perform the installation, maintenance and removal of all sheet piling, shoring and bracing required for the protection of all items of this Contract affected by the work of this Section.
- C. The Contractor shall furnish all facilities and materials necessary to prevent the earth at the bottom of excavation from becoming frozen or unsuitable to receive footing or other load bearing units.
- D. The work of this Section shall be performed in such a manner as to cause no interference with access by the Subcontractors or other Contractors to all portions of the site as is necessary for the normal conduct of their work.
- E. Protect all areas to remain undeveloped outside the Contract limit lines. Should these areas be damaged, the Contractor shall restore them to the satisfaction of the Landscape Architect and Owner at no additional cost to the owner. This includes the repairing and replacement of all damaged conditions such as plant materials and similar items.

1.13 Samples and Testing:

- A. All fill material and its placement shall be subject to quality control testing. Contractor will submit the name of a qualified laboratory to perform test on materials, for Approval by Landscape Architect. The Contractor will pay for all costs of testing. Test results and laboratory recommendations shall be available to the Landscape Architect. Submit one test for each material source proposed for use.
- B. Provide samples of each fill material from the proposed source of supply. Allow sufficient time for testing and evaluation of results before material is needed. Submit samples from alternate source if required. The Landscape Architect will be sole and final judge of suitability of all material.
- C. The laboratory will determine maximum dry density and optimum water content in accordance with ASTM D1557, Method D and the in-place density in accordance with ASTM D1556.
- D. Sampling and testing material delivered to the site shall be performed to ensure material conforms to approved submittals. Materials in question may not be used, pending test results. Compaction tests shall be performed on placed fill materials. Materials that do not conform to the specified physical or performance requirements shall be removed and replaced with acceptable materials at the Contractor's expense.
- F. Cooperate with laboratory in obtaining field samples of in-place materials after compaction. Furnish incidental field labor in connection with these tests.
- G. Gravel Borrow shall be laboratory tested for permeability prior to approval in accordance with ASTM D 2434 Permeability of Granular Soils (Constant Head).

- H Top stone and gravel borrow base under the synthetic turf field shall be field tested for permeability prior to installation of the shock pad in accordance with ASTM D 3855, Method for Infiltration Rate of Soils Using Double-Ring Infiltrometer

PART 2 – PRODUCTS

2.02 Fill Materials

A. Ordinary Fill

1. All material to be placed where the Specifications or Drawings call for Ordinary Fill shall be well-graded, natural, inorganic mineral soil approved by the Landscape Architect and shall have the physical characteristics of soils designated as group A-1, A-2-4, or A-3 under AASHTO-M145.
2. Ordinary Fill shall be free of organic or other weak or compressible materials, of highly plastic clays, of all materials subject to decay, decomposition or dissolution, of cinders or other materials which will corrode piping or other metal, of frozen materials, and of stones larger than 6 inches.
3. Ordinary Fill shall be of such nature and character that it can be spread and compacted to the specified density in a reasonable length of time.
4. Soil for use as Ordinary Fill shall contain no more than 35 percent by weight passing the No. 200 sieve.
5. It shall have a maximum dry density of one hundred pounds per cubic foot.

B. Gravel Borrow

1. All paving shall be installed over compacted graded gravel; all footings and all voids left from equipment removal shall be filled with compacted graded gravel.
2. All gravel fill shall meet the specifications of M1.03.1 "Processed Gravel for Subbase" in S.S.H.B. Submit sample and test results for approval.

Sieve Size	Percent Finer by Weight
2-inch	100
1/2-inch	50-85
No. 4	40-75
No. 50	8-28
No. 200	0-8

3. Refer to Top Drainage Stone description in this Section for permeability requirements.

C. Crushed Stone (Drainage Stone):

1. Drainage stone, or crushed stone, shall be 3/4" and (except where other size indicated on the Drawings) clean, angular stone of a hardness suitable for use in structural applications. 3/4" stone shall comply with M2.01.4 and 1/2" shall comply with M2.01.5 in S.S.H.B.

D. Top Drainage Stone at Synthetic Turf

1. The top base layer placed on top of the gravel base and directly beneath the synthetic turf and shock pad shall consist of clean, hard, crushed aggregate that is angular and durable derived from a stone quarry free of all deleterious materials. Gradation of sample provided for testing and approval shall be within the following range:

U.S. Sieve No.	Percent Finer by Weight
1/2"	100
3/8"	85-100
1/4"	75-100
No. 4	60-90
No. 8	35-75
No. 16	10-55
No. 30	0-40
No.50/60	0-15
No.100	0-8
No.200	0-2

2. Permeability of the combined top layer and underlying gravel base shall exceed 20 in/hr (2.0×10^{-2} cm/sec)
Porosity > 25%

(When stone is saturated and compacted to 95% Proctor)

3. Laboratory test: ASTM D 2434 Permeability of Granular Soils (Constant Head)
Field test: ASTM D 3855, Method for Infiltration Rate of Soils Using Double-Ring Infiltrometer
4. Depending on the type of rock present in the crushed stone mix, other mechanical characteristics might be necessary for approval
5. Soft aggregate materials such as sedimentary rock sources are not acceptable. Questionable materials shall be evaluated using a sulfate soundness test (ASTM C-88) and LA Abrasion Test (ASTM C-131) and shall be within the following criteria:

Test Method	Criteria
Sulfate Soundness (ASTM C-88)	Not to exceed 10% loss
LA Abrasion (ASTM C-131)	Not to exceed 20% loss

E. Filter Fabric

Filter Fabric used, as a drainage medium shall consist of a non-woven fabric made from polypropylene or polyethylene filaments or yarns. The fabric shall be inert to organic chemicals commonly encountered in the soil. The fabric shall conform to the following recommended property tests:

Property	Unit	Test Method	Minimum Value
Weight	oz/sy	ASTM D-3776-84	4.5
Grab Strength	lbs	ASTM D-4632-86	120
Grab Elongation	percent	ASTM D-4632-86	55
Trapezoid Tear Strength	lbs	ASTM D-4533-85	50
Mullen Burst Strength	psi	ASTM D-3786-80	210
Puncture Strength	lbs	ASTM D-4833-88	70
Apparent Opening Size (AOS)	U.S. std. Size Sieve	ASTM D-4751-87	70

PART 3 - EXECUTION

3.01 Grades and Elevations

- A. Establish the lines and grades in conformity with the Drawings. Establish and maintain suitable stakes or batters at points where spot elevations are given on the Drawings and at any other points to be graded as directed by the Landscape Architect. Maintain sufficient reference points at all times during construction to properly perform the Contract installation.

3.02 Excavation

- A. Prior to any excavation, contact DIG-SAFE at 1-888-344-7233 to identify subsurface utilities within the work area.
- B. General
 - 1. Excavate all material to the elevations, dimensions and form as shown on the Drawings and as specified for the construction of site improvements and other structures necessary for the completion of the utilities and site work. All unsuitable materials within the indicated and specified limits shall be excavated and removed at no additional cost to the contract as specified in 1.02 (B-8) of this section. Any quantities involving an extra or other adjustment of the Contract Price shall be subject to measurement verification and approval by the Landscape Architect prior to the excavation and removal of such materials. Unsuitable materials shall include the following:
 - a. Utility structures, building foundations and other man-made structures.
 - b. Peat, organic silt and other organic materials subject to decomposition, consolidation or decay.
 - c. Miscellaneous fill including cinders, ash, glass, wood, and metal.
 - 2. In general, the Contractor shall be permitted to use machine excavation except for the final six (6) inches under footings, foundations, utility lines and structure, which shall be hand work.
 - 3. If any part of the excavation is carried through error beyond the depth and dimensions indicated on the Drawings or specified herein, or if the foundation soils are disturbed by dewatering or other construction operation, the Contractor shall, at his own expense, refill with structural fill compacted to ninety-five (95) percent of the maximum dry density at optimum moisture content.
 - 4. When excavation has reached the prescribed depth, the Landscape Architect shall be notified and will make an inspection of the condition and approve the placing of fill material.
 - 5. The Contractor shall obtain from the proper authorities locations of all utilities within the scope of this work so that there will be no damage done to such utilities. Neither the Owner nor the Landscape Architect will be responsible for any such damage, and the Contractor shall restore any structure or utility so

damaged without additional compensation. Attention is called to that fact that there are electric lines, and other utilities in certain locations within and adjacent to the sites. Written notifications to the appropriate utility agencies shall be made at least ten (10) days prior to the commencement of any work.

6. Wherever culverts, sewers, drains, manholes, catch basins, catch basin connections, water mains, valve chambers, utility tunnels, gas pipes, electric and telephone conduits, house service connections of any other underground constructions are encountered in excavating for utilities or any other site work, they shall be protected and firmly supported by the Contractor, at his own expense, until the trench is backfilled and the existing structures are made secure. Injury to any such structures caused by or resulting from the Contractor's operations shall be repaired at the Contractor's expense. The authority having charge of any particular underground structure shall be notified promptly of damage to its structure.
7. Excess material - Suitable excavation material which is allowable for fill and backfill shall be separately stockpiled as directed by the Landscape Architect. All surplus fill other than that required to complete the intent of the Contract shall become the property of the Contractor and shall be legally disposed of off the property. All excavated materials which, in the opinion of the Landscape Architect are not suitable for fill and backfill shall be removed and legally disposed of off the property.
8. Any unsanitary conditions encountered, such as broken sewer mains or uncovered garbage, shall be corrected or removed entirely as directed by the Landscape Architect.

C. Excavation for Site Improvements.

1. Excavate to the lines and grades shown on the Drawings and as specified to obtain the subgrades for the site improvements.
2. Trenching for all water and drain lines shall comply with the standards in S.S.H.B., specifically Section 150.64.
3. Existing service and utilities encountered shall be immediately repaired, protected and maintained in use until relocation of same has been completed or to be cut and capped where directed or be prepared for connection when so required.

3.03 Subgrade Preparation and Protection

A. General Requirements

1. All subgrade areas shall be made ready for fill by removal of all organic material, unsuitable soils and deleterious materials to firm natural ground as directed by the Landscape Architect.
2. Scarify, spot-fill, or otherwise treat the surface of areas to receive fill as necessary to remove holes, depressions, ruts, hummocks, or other uneven features.

B. Proof Rolling Subgrades

1. Prior to placement of fill, or bottom filter fabric where shown on drawings, proof roll natural ground by making a minimum of two passes with approved compaction equipment. Proof rolling may be waived by the Landscape Architect where excessively wet or saturated subgrade conditions are encountered.

3.04 Protection

- A. Protect open excavations with fencing, warning lights and other suitable safeguards. No open excavation shall be left without proper barriers and other devices necessary for public safety.
- B. Comply with local safety regulations or, in the absence thereof, with the provisions of the Manual of Accident Prevention in Construction of the Associated General Contractors of America, Inc. and O.S.H.A.
- C. Frost Protection - Make no excavation to the full depth indicated when freezing temperature may be expected unless the footing or slabs can be poured immediately after the excavation has been completed. Protect the bottoms as excavated from frost, if placing of concrete is delayed, with straw, tarpaulins or temporary heat until footings or slabs poured and backfill is placed.
- D. Any ditching required to keep the site free from water during construction is the responsibility of the Contractor.

3.05 Fill and Compaction

A. Compaction Equipment and Density Requirements

1. Compaction equipment, unless otherwise specified, shall consist of heavy vibratory rollers, such as a Raygo 400 or other compaction equipment approved by the Landscape Architect. Equipment shall make a minimum of four (4) passes to achieve compaction as specified; to provide an evenly dense and compacted thickness throughout. All ruts shall be filled, the surface even and compacted to the density called for. The Landscape Architect retains the right to disapprove the use of any equipment that does not meet the above Specifications or perform the work as intended. Any modifications of equipment or method must be approved by the Landscape Architect.
2. Fill material under pavements and structures shall be compacted to ninety-five (95) percent of maximum density(s) determined by A.S.T.M. Test Designation D-1557, Method D or A.S.T.M. D-1556. For fill to 30" depth within seeded and planted areas compact portion of fill for planting to at least 80 percent but not more than 90 percent of the material's maximum dry Proctor density
 - a. Fill material under synthetic turf shall be compacted to. 92% min - 95% max of maximum density(s) determined by A.S.T.M. Test Designation D-1557, Method D or A.S.T.M. D-1556

3. Refer to 1.13 in this Section for testing requirements.

B. Placing Fills and Compacting

1. Notify the Landscape Architect when excavation is ready for inspection. Filling and backfilling shall not be started until conditions have been approved by the Landscape Architect.
2. Fill material shall be placed in horizontal layers not exceeding six (6) inches. Each layer shall be compacted to the percentage of maximum dry density specified for the particular type of fill and at a water content equal to optimum dry density and optimum water content shall be as specified herein.
3. Where water content of the fill must be adjusted to meet this Specification, the fill shall be thoroughly disked to insure uniform distribution of any water added.
4. Areas to be filled or backfilled shall be free of construction debris, refuse, compressible or decayable materials and standing water. Do not place fill when materials or layers below it are frozen.
5. In confined areas adjacent to footings and foundation walls and in utility trenches, the fill shall be compacted with hand-operated vibration tampers. The maximum lift thickness shall be four (4) inches. The degree of compaction attained shall be equivalent to that attained in the adjacent open areas where heavy rolling equipment is used. Any areas which subsequently settle shall be refilled to true subgrade and properly compacted.

3.06 Grading

- A. Do all grading required for the work including shaping, trimming, rolling and finishing of the surface of the subgrades for all surfaces. All ruts shall be eliminated. Grading for subgrades for paved areas and synthetic turf shall be finished at the required depth below and parallel to the proposed surface within 1/4" in 10'-0" tolerance.
- B. If, during the progress of rough grading work, any water pipe, sewer, conduit, drain, or other construction is damaged as a result of operations under this Contract, the Contractor shall repair all such damage at no additional cost to the Owner and restore work to its original condition.
- C. Do all other cutting, filling and rough grading to the lines and grades indicated on the Drawings. Grade evenly to the finished grades shown on the Drawings. No stone larger than 2" in largest dimension shall be placed in upper 6" of fill.
- D. Complete grading operations after site improvements are constructed, and all materials, rubbish and debris removed from the site. Leave subgrade for planting clean at required grades. Provide sufficient grade staking to witness correct lines and grades, as determined by the Landscape Architect.
- F. Where streets or sidewalks within or outside the limit of Contract lines have been excavated in fulfilling the work required under this Contract, the Contractor shall furnish and install all material necessary to bring finish surfaces level with the existing adjacent surfaces. All work shall be installed to match the existing conditions in

accordance with the governing authority. Notify the proper authorities prior to restoring surfaces outside the limit of Contract line.

- G. Fine grading of the gravel borrow base and top stone for the synthetic turf field shall be performed with laser-guided grading equipment required to achieve the tolerances specified herein.
- H. Tolerances

<u>Area</u>	<u>Max Grading Tolerance +/-</u>
1. Subgrade in landscaped areas prior to placement of loam	1/2"
2. Gravel base under pavement	1/4" in 10'
2. Top Stone under synthetic turf	3/16" in 10'

END OF SECTION



Briggs Engineering & Testing
A DIVISION OF PK ASSOCIATES, INC.

Warner Larson Landscape Architects
c/o Mr. David Warner
130 West Broadway
Boston, MA 02127

January 18, 2017
Briggs Project 29366

**RE: Proposed Athletic Court Investigations
at Winter Hill Community Innovative School (WHCIS)
Thurston Street, Somerville, MA**

Briggs visited the subject site at the request of the above client on May 20 and June 7, 2016 to assess soil conditions below the proposed pad foundation. Briggs viewed the open excavations and investigated soils below footing grade as detailed in this letter.

Project Description

Renovation of an existing asphalt paved area is proposed at the subject location. The area presently houses a basketball court and a smaller court, possibly a handball court. The proposed court appears to be soccer or lacrosse area and will be a synthetic field turf field. Reportedly the proposed field will bear on the existing gravelly fill covered with a few inches of finish aggregate fill.

Project Location and Topography

The proposed field re-construction is located at the southwest corner of Evergreen Avenue and Thurston Street on the northeast corner of the WHCIS property. The property and Evergreen Avenue slope down moderately to the east toward Thurston Street. The site has two steep slopes that create terraced play areas to the east of the school buildings. An asphalt-covered slope is located about 10 feet west of the existing basketball and handball court areas. The existing paved courts are accessed via Thurston Street via an asphalt paved driveway extending to the southeast corner of the paved court area. Refer to the attached Figure 1 for existing and proposed site features.

Test Pits and Subsurface Conditions

Briggs hand excavated four test pits identified at TP-1 through TP-4 near the four corners of the existing asphalt courts area as shown on attached Figure 1. The pits were dug on January 10 and 11, 2017 to depths of 22 to 26 inches below ground surface (BGS).

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The pits revealed a base course clean gravelly sand fill over gravelly silty sands to bottom of excavations. Soil conditions are tabulated as follows:

<u>TP-1</u>	<u>TP-2</u>	<u>TP-3</u>	<u>TP-4</u>
	Asphalt Pavement		
7"	3"	4"	3.5"
Gravelly Sand Fill – f/c, some gravel, trace silt, grey, dense to very dense			
12 "		16"	
Gravelly Silty Sand Fill f/c, some gravel, little silt grey, very dense	22"	21" Glacial Till- f/c Sand, some gravel, some silt, olive grey, very dense 22" BOE	
24" BOE	26" BOE		24" BOE

Notes:

f/c means fine to coarse.

some means 20 to 35%.

little means 10 to 20%.

trace means less than 10%.

density is based on hand tool excavation effort and penetrometer tests.

BOE means Bottom Of Excavation depth.

No groundwater seepage was noted in any of the test pits.

Laboratory Tests

Briggs submitted three soil samples for gradation (sieve) tests. The results of gravel, sand and silt content are tabulated as follows:

<u>Sample Location</u>	<u>Gravel</u>	<u>Sand</u>	<u>Silt</u>
TP-1 at 7 to 12 inches BGS	25%	67%	8.4%
TP-2 at 22 to 26 inches BGS	28%	41%	31%
TP-3 at 22 to 26 inches BGS	29%	50%	20.9%

Notes:

Gravel is material larger than (retained on) #4 sieve.

Silt is non-plastic material passing #200 sieve.

Sand is remainder of soil that is not gravel or silt.

Soil Permeability Estimates

The proposed synthetic turf field will allow vertical drainage of precipitation. Water will rapidly flow through the highly pervious synthetic surface, underlying finish aggregate stone fill and underlying gravel from the existing pavement base. Gravely silty sands were encountered at depths of 12 to 22 inches BGS and contain 21 and 31% silt. Based on extrapolation from the sieve reports, these soils have an estimated permeability of 1.7×10^{-4} and 1.6×10^{-5} cm/sec, respectively. These estimated permeability rates are equivalent to 0.2 inches per hour (iph) for the gravely silty sands at TP-3 and 0.02 iph for the glacial till at TP-2.

Thus the gravely silty sand at TP-3 at 12 to 20" BGS is about ten times more permeable than the glacial till at TP-2 at 22 to 26" BGS. The glacial till is believed to extend under the gravely silty sands but was not encountered via the shallow test pitting performed per contract.

Conclusions and Recommendations

Base course gravely sands are rapidly draining materials with less than 10% fines. This fill is about 5 inches thick at TP-1 and is 12 to 19 inches thick at the other pits. This material will provide a stable and firm subgrade for the proposed field turf.

The gravely silty sands in TP-1 is a moderately well drained material with about 12% fines based on textural examination by Briggs. This fill may be associated with the backfill or a manhole located about 6 feet south of TP-1. Briggs recommends that the grey gravely silty sands be segregated from the clean gravely sands and stockpiled for additional sieve testing. Reuse of this material can be considered after it is determined if the fill is needed and after the sieve test is conducted.

The underlying, undisturbed, inorganic glacial till is a dense deposit suitable for structural support of the field but this material is poorly draining with an estimated permeability of 1.6×10^{-5} cm/sec (0.02 iph). The above estimated permeability results were estimated using the Hazen Williams method after extrapolating the effective soil diameter D_{10} based on the sieve report. Results might be within about 10% of the actual permeability for each sample. Should the permeability estimate be a critical design parameter, the permeability values should be verified by performing falling head permeability tests and/or in-situ double ring infiltrometer tests.

Limitations and Exclusions

All the professional opinions presented in this report are based solely on the scope of work conducted and sources referred to in our report. The data presented by Briggs in this report were collected and analyzed using generally accepted industry methods and practices at the time the report was generated. This report represents the conditions, locations, and materials that were observed at the time the field-work was conducted. No inferences regarding other conditions, locations, or materials, at a later or earlier time may be made based on the contents of the report. No other warranty, express or implied is made.

This report was prepared for the sole use of our client. The use of this report by anyone other than our client or Briggs is strictly prohibited without the express prior written consent of Briggs. Portions of the report may not be used independently of the entire report.

The above recommendations and conclusions are based on our evaluation of the obtained data presented in the text. We would welcome the opportunity to monitor the pertinent phases of the foundation construction; thus, if differences are found between the field conditions described herein and those encountered during construction, we can modify our recommendations in a timely and professional manner.

Thank you for engaging our services to undertake this project. If you have any questions, please do not hesitate to contact us at your convenience.

Very truly yours,

Briggs Engineering & Testing



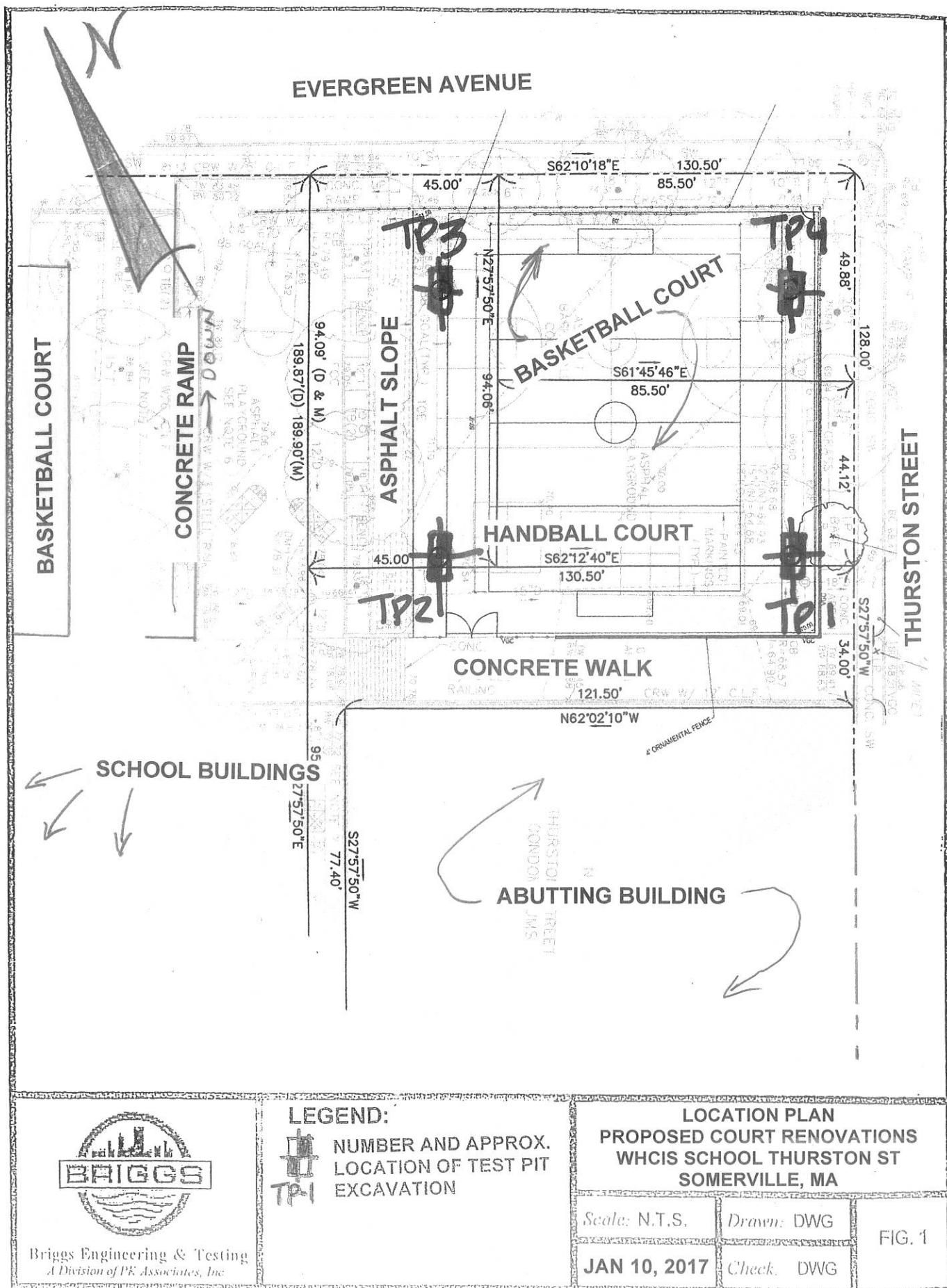
David W. Geisser
Project Engineer

DWG:dg

Enclosures:

Figure 1 –Location Plan

Figure 2 – Test Pit Logs TP-1 through TP-5





Briggs Engineering & Testing

A Division of PK Associates, Inc.

City of Somerville
93 Highland Ave
Somerville, MA 02143
Attn: Luisa Oliveira

Report Date: 1/18/17

Project: WHCIS/Somerville
Briggs #: 29366

Tested: 1/16/17
Received: 1/11/17

1	Sample No.	Description	Source of Material
	M-28063	Gravelly Sand	TP 1, Basketball Court 7"-12"

2. Sieve Analysis {ASTM C 136, and ASTM C 117}

Sieve Size		Results	Specifications
Standard	Alternate	{% Passing by Wt.}	
100 mm	4"	100	
75 mm	3"	100	
63 mm	2-1/2"	100	
50 mm	2"	100	
37.5 mm	1-1/2"	98	
25 mm	1"	96	
19 mm	3/4"	95	
12.5 mm	1/2"	89	
9.5 mm	3/8"	85	
4.75 mm	#4	75	
2.36 mm	#8	70	
1.18 mm	#16	62	
0.600 mm	#30	46	
0.300 mm	#50	27	
0.150 mm	#100	14	
0.075 mm	#200	8.4	

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City of Somerville
93 Highland Ave
Somerville, MA 02143
Attn: Luisa Oliveira

Report Date: 1/18/17

Project: WHCIS/Somerville

Briggs #: 29366

Tested: 1/16/17

Received: 1/11/17

1	Sample No.	Description	Source of Material
	M-28064	Gravelly Sand	TP 2, 22"-26"

2. Sieve Analysis {ASTM C 136, and ASTM C 117}

Sieve Size		Results	Specifications
Standard	Alternate	{% Passing by Wt.}	
100 mm	4"	100	
75 mm	3"	100	
63 mm	2-1/2"	100	
50 mm	2"	100	
37.5 mm	1-1/2"	100	
25 mm	1"	95	
19 mm	3/4"	92	
12.5 mm	1/2"	90	
9.5 mm	3/8"	86	
4.75 mm	#4	72	
2.36 mm	#8	67	
1.18 mm	#16	63	
0.600 mm	#30	57	
0.300 mm	#50	49	
0.150 mm	#100	39	
0.075 mm	#200	31.0	

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City of Somerville
93 Highland Ave
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Attn: Luisa Oliveira

Report Date: 1/18/17

Project: WHCIS/Somerville
Briggs #: 29366

Tested: 1/16/17
Received: 1/11/17

1	Sample No.	Description	Source of Material
	M-28065	Gravelly Sand	TP 3, Basketball Court 12"-20"

2. Sieve Analysis {ASTM C 136, and ASTM C 117}

Sieve Size		Results	Specifications
Standard	Alternate	{% Passing by Wt.}	
100 mm	4"	100	
75 mm	3"	100	
63 mm	2-1/2"	100	
50 mm	2"	100	
37.5 mm	1-1/2"	100	
25 mm	1"	97	
19 mm	3/4"	96	
12.5 mm	1/2"	94	
9.5 mm	3/8"	87	
4.75 mm	#4	71	
2.36 mm	#8	66	
1.18 mm	#16	59	
0.600 mm	#30	51	
0.300 mm	#50	40	
0.150 mm	#100	29	
0.075 mm	#200	20.9	

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SECTION 32 12 16 - ASPHALT PAVING

PART 1 - GENERAL

1.01 General Requirements

- A. The conditions of the Contract, including Division 00 and Division 01, apply to the work under this Section.

1.02 Work Included

- A. Provide all labor, equipment, implements and materials required to furnish, install, construct and perform all paving operations complete as shown on drawings and specified herein.
- B. Work includes, but is not limited to the following:
 - 1. Asphalt paving;

1.03 References

- A. Examine all other sections of the Specifications and all Drawings for the relationship of the work under this Section and the work of other trades. Cooperate with all trades and all departments of the City of Somerville and coordinate all work under this Section.
- B. The following related items are included under the Sections list below
 - 1. Section 02 41 00 – Site Preparation and Demolition
 - 2. Section 31 00 00 – Excavation, Filling and Grading
 - 3. Section 32 13 13 – Concrete
 - 4. Section 32 16 00 - Curbing
 - 5. Section 32 31 00 – Fences, Gates and Netting
 - 6. Section 32 90 00 – Planting
 - 7. Section 33 49 23 - Drainage

1.04 Definitions

- A. The following related items are included herein and shall mean:
 - 1. S.S.H.B. - Standard Specifications for Highways and Bridges, the Commonwealth of Massachusetts, Department of Transportation, latest edition.
 - 2. A.S.T.M. - American Society for Testing and Materials.

3. A.A.S.H.T.O. - American Association of State Highway and Transportation Officials.

1.05 Job Conditions

- A. Start of work under this Section shall constitute acceptance of the foundation conditions to which this work is to be applied. Any defects in work resulting from such conditions shall be corrected under this Section, at no extra cost to the Owner.
- B. Maintain gravel base course in satisfactory condition and properly drained until surface improvement is placed.

1.06 Submittals

- A. Submit an asphalt mix analysis.

PART 2 - PRODUCTS

2.01 Bituminous Concrete Pavement

- A. Provide Class I asphalt aggregate mixture in compliance with Section 460, Paragraph 460.40, SSHB and as follows:
1. Binder Course and Top Course: Provide Binder Course and Top Course conforming with the Job-Mix Formula given in Section M, paragraph M3.11.03, SSHB.
 2. The aggregate for the binder course shall conform to the following gradation requirements:

<u>SIEVE SIZE</u>	<u>PERCENT PASSING</u>
1"	100
3/4"	80 – 100
1/2"	55 - 75
#4	28 – 50
#8	20 - 38
#30	8 – 22
#50	5 - 15
#200	0 - 5
Bitumen % of mix	4.5 - 5.5

3. The aggregate for the top course shall conform to the following gradation requirements:

<u>SIEVE SIZE</u>	<u>PERCENT PASSING</u>
5/8"	100
1/2"	95 – 100

3/8"	80 - 100
#4	50 - 76
#8	37 - 54
#30	17 - 29
#50	10 - 21
#200	2 - 7
Bitumen % of mix	5.5 – 7.0

A.C. 20 of 30

Voids content less than 9%.

B. Tack Coat: Bituminous tack coat, where required, shall be emulsified asphalt, grade RS-1.

PART 3 - EXECUTION

3.01 Asphalt Paving

- A. Grades: All grades in pavement areas shall be established and maintained to a tolerance of 1/4" in 10'-0".
- B. Installation to comply with all standard and specifications set forth in SSHB.

3.02 Resurfacing Existing Bituminous Concrete Pavement

- A. In areas on site where new pavement abuts existing pavement and/or where existing pavement requires patching due to removal of existing pavement for installation of work under this Contract, patching of existing pavement shall be as follows:
 - 1. Sawcut the existing edge of pavement in a straight line at a 90-degree angle to the vertical in such a manner that all existing loose or cracked areas of pavement are removed.
 - 2. Edges of existing pavement shall be painted with a thin coat of bituminous tack coat (RS-1) immediately before placing new pavement.
 - 3. Asphalt paving shall be installed as specified herein. Smooth transition surfaces shall be provided where new pavement abuts existing paved surfaces.
 - 4. Seal and sand joints where new asphalt paving meets existing asphalt to remain.

3.03 Grade Stakes

- A. Install and maintain grade stakes, as directed. All subgrades must be approved before base course construction.
- B. The words "finish grades" as used herein mean the required final surface grade elevations.

3.04 Clean up and protection

END OF SECTION

32 13 13 –CONCRETE

PART 1 - GENERAL

1.01 General Requirements

- A. The conditions of the Contract, including Division 00 and Division 01, apply to the work under this Section.
- B. The Contractor shall prior to any removal of surplus fill, excavated material, or debris from the site, furnish written evidence satisfactory to the owner or owner's representative that he has an approved dumping location for debris and/or spoil from his/her excavation activities.

1.02 Work Included

- A. Provide all labor, equipment, implements and materials required to furnish, install, construct and perform Earthwork as shown on the Drawings and as specified herein.
- B. To be included:
 - 1. Footings for site improvements, light poles, fence and net posts
 - 2. Vehicular concrete
 - 3. Concrete pad
 - 4. Cast-in-place concrete curb for synthetic turf edger and mow strip
- C. Examine all other Sections of the Specifications and all Drawings for the relationship of the work under this Section and the work of other trades. Cooperate with all trades and all departments of the City of Somerville and coordinate all work under this Section therewith.
- D. The following related items are included under the Sections listed below.
 - 1. Section 02 41 00 – Site Preparation and Demolition
 - 2. Section 31 00 00 - Excavation, Filling and Grading
 - 3. Section 32 12 16 – Asphalt Paving
 - 4. Section 32 16 00 - Curbing
 - 5. Section 32 18 00 –Synthetic Turf
 - 6. Section 32 30 00 – Site Improvements
 - 7. Section 32 31 00 – Fences, Gates and Netting
 - 8. Section 32 90 00 – Planting
 - 9. Section 33 40 00 - Storm Drainage Utilities

1.03 Submittals

- A. Manufacturers' product information
- B. Concrete mix designs for footings and paving

1.04 Laws, Ordinances, Permits and Fees

The Contractor shall:

- A. Give necessary notices, obtain all permits and pay all governmental taxes, fees and other costs in connection with this work, file all necessary plans, prepare documents and obtain all necessary approvals.
- B. Obtain all required certificates of inspection for this work and deliver same to the Landscape Architect before request for acceptance and final payment for the work.
- C. Include in the work, without extra cost to the Owner, any labor, materials, services, apparatus, drawings (in addition to contract drawings and documents) in order to comply with all applicable laws, ordinances, rules and regulations of the City of Somerville and the Commonwealth of Massachusetts, whether or not shown on the Drawings and/or specified.

1.05 Definitions

- A. The following related items are included herein and shall mean:
 - 1. S.S.H.B. - Standard Specifications for Highways and Bridges, the Commonwealth of Massachusetts, Department of Transportation, latest edition
 - 2. A.S.T.M. - American Society for Testing and Materials
 - 3. A.A.S.H.T.O. - American Association of State Highway and Transportation Officials

1.06 Subsurface Information

- A. The Owner assumes no responsibility for the Contractor's failure to make his own site investigation and makes no representation regarding the character of the soil or subsurface conditions which may be encountered during the performance of the work.
- B. Refer to Section 31 00 00 Excavation, Filling and Grading for Geotechnical Information.

1.07 Finished Grades

- A. The words "finished grades" as used herein mean the required final grade elevations indicated on the Drawings. Where not otherwise indicated, site areas shall be given uniform slopes between points, for which finished grades are shown, or between such points and existing grade except that vertical curves or roundings shall be provided at abrupt changes in slope.

- B. The Drawings indicate, in general, the alignment and finished grade elevations. The Landscape Architect, however, may make such adjustments in grades and alignment as are found necessary in order to avoid interference and to adapt the grading to other special conditions encountered.

1.08 Work in the Public Ways

- A. Notify the appropriate municipal officials at least seven calendar days in advance of commencing any work in the public ways to obtain all required permission to perform this work. Perform all work in the public ways in a manner required by the municipal authorities.
- B. Should there be any conflict between requirements specified in the Contract Documents and those of the City of Somerville, the municipal requirements shall govern.
- C. Do not close or obstruct any streets or sidewalks unless and until they have been discontinued by the appropriate municipal authority or unless and until he shall have first secured all necessary or other permits therefor. No materials whatsoever shall be placed or stored in the streets. Conduct all operations to interfere as little as possible with the use ordinarily made of roads, driveways, sidewalks, or other facilities near enough to the work to be affected thereby.

PART 2 - PRODUCTS

1.01 Cast-in-Place Concrete (footings, vehicular concrete, concrete pad, curbing and edging)

- A. Cast-in-place concrete shall be Class D, air-entrained concrete conforming to the requirements and applicable provisions of Section 701 of the S.S.H.B. Minimum 28-day compressive strength shall be 4,000 psi. Concrete shall be air-entrained 5% minimum with a one (1") to three (3") inch maximum slump.
- B. Cast-in-place concrete for paving, curbing and edging shall be fiber-reinforced concrete.
- C. Form Materials
 - 1. Forms of Exposed Finished Concrete: Unless otherwise indicated, construct form work for exposed concrete surfaces with plywood, metal, metal-framed plywood faced or other acceptable panel-type materials, to provide continuous, straight, smooth, exposed surfaces. Furnish in largest practical sizes to minimize number of joints and to conform to the joint system shown on Drawings. Provide form material with sufficient thickness to withstand pressure of newly placed concrete without bow or deflection.
 - 2. Use plywood complying with U.S. Product Standard PS-1 "B-B (Concrete Form) Plywood," Class I, Exterior Grade or better, mill-oiled and edge-sealed, with each piece bearing legible inspection trademark.
 - 3. Form for Unexposed Finish Concrete: Form concrete surfaces which will be unexposed in finish structure with plywood, lumber, metal or other acceptable material. Provide lumber dressed on at least 2 edges and one side for tight fit.

4. Form Coatings: Provide commercial formulation form-coating compounds that will not bond with, stain or adversely affect concrete surfaces, and will not impair subsequent treatments of concrete surfaces.

D. Reinforcing Materials

1. Reinforcing Bars: ASTM A615, Grade 60.
2. Welded Wire Fabric (WWF): ASTM A185, welded steel wire fabric.
3. Supports for Reinforcement: Provide supports for reinforcement including bolsters, spacers and other devices for spacing, supporting and fastening reinforcing bars and welded wire fabric in place. Use wire bar type supports complying with CRSI recommendations, unless otherwise acceptable.
4. Fiber reinforcement: ASTM C1116, polypropulene monofilament fibers 3/4" long, chemically inert and completely alkali resistant. Fiber reinforcement shall be FORTA® ECONO-MONO® as produced by FORTA Corporation, 100 FORTA Drive, Grove City, PA 16127,. (800) 245-0306 www.forta-ferro.com

E. Cement

1. Cement shall be Portland Cement Type 1, free from water-soluble salts or alkalis, which will cause efflorescence on exposed surfaces. Portland Cement shall comply with Standard Specifications of the ASTM-C150 Type I or II.
2. Cement shall be stored in a weather-tight structure and in such a manner as to prevent deterioration or intrusion of foreign matter. It shall be easily accessible for proper inspection and identification of each shipment. Cement that has hardened or partially set shall not be used.

F. Aggregate

1. Fine aggregate for all concrete shall consist of washed inert natural sand conforming to ASTM-C330.

G. Water

1. Water for concrete shall be clean, potable, and free from deleterious substances.
2. When subjected to the mortar strength test described in ASTM-C87 the strength at 28 days of mortar specimens made with the water under examination and normal Portland Cement shall be at least 100% of the strength of similar specimens made with distilled water.

H. Related Materials

1. Grout: Non-shrink, non-metallic grout conforming with ASTM C1107 Type B
2. Chemical Hardener (chHD-Fn): Colorless aqueous solution containing a blend of magnesium fluosilicate and zinc fluosilicate combined with a wetting agent, containing not less than 2 lbs. of fluosilicates per gal.

3. Moisture-Retaining Cover: One of the following, complying with ASTM C171.
 - a. Waterproof paper
 - b. Polyethylene film.
4. Admixtures
 - a. Admixtures causing accelerated setting of the cement in concrete shall not be used.
 - b. In general, all concrete shall not contain additives, but an admixture may be employed therein (to improve workability, durability, etc.) subject to prior test and/or approved by the Engineer in writing.
 - c. Water-reducing and air-entraining agents shall be used in concrete, as required by the engineer, in strict accordance with the manufacturer's printed instructions. Agents shall be stored safe from adverse temperature in accordance with manufacturer's printed instructions. Total air entrained in freshly mixed concrete shall be 5.0% plus or minus 1.0% of volume of concrete with required strengths maintained.
 - d. Water-reducing agent: "Sonotard WR" by Sonneborn Building Products, "WRDA" by W.H. Grace Company, "Pozzolith 100" by Master Builders Company, or equal. Water reducing agent must be by same manufacturer as air-entraining agent.
 - e. Air-entraining Agent: "Darex" by W.R. Grace Company, "Aerolith" by Sonneborn Building Products, "MB-VR" by Master Builders Company, "Sealtight Air Entraining Agent" by W.R. Meadows, or equal.
 - f. No other admixtures may be used without Engineer's approval.
- I. Curing Compounds
 1. All curing compounds shall conform to requirements of ASTM Designation C-309, Type I, clear and C-156. No materials containing wax or saponifiable materials will be permitted.
 2. Curing compound in areas that will be exposed to view in the finished work, or to receive a painted finish, and areas to receive a concrete topping or ceramic tile mortar beds, seamless composition flooring, synthetic athletic surfacing, or other similar finishes, shall contain a fugitive dye, and shall be of a type that will become brittle and easily removable after about 3 weeks to allow dust-proofing treatment specified here in after.
 3. Curing compound shall be Master Builders "Master Seal", Symons "Cure and Seal", Sonneborn "Kure-N-Seal", "CS-309" by W.R. Meadows or equal, conforming to ASTM 309, Type 1 and 2.
- J. Proportioning and Design of Mixes
 1. Prepare design mixes for each type and strength of concrete by either laboratory trial batch or field experience methods as specified in ACI 301. If

trial batch method used, use an independent testing facility acceptable to Landscape Architect for preparing and reporting proposed mix designs. The testing facility shall not be the same as used for field quality control testing unless otherwise acceptable to Landscape Architect.

2. Submit written reports to Landscape Architect of each proposed mix for each class of concrete at least 15 days prior to start of work. Do not begin concrete production until mixes have been reviewed by the Landscape Architect.
3. Adjustments to Concrete Mixes: Mix design adjustments may be requested by Contractor when characteristics of materials, job conditions, weather, test results, or other circumstances warrant; at no additional cost to Owner and as accepted by Landscape Architect. Laboratory test data for revised mix design and strength results must be submitted to and accepted by Landscape Architect before using in work.

K. Concrete Mix

1. All concrete mix shall be a minimum strength of 4,000 PSI in 28 days.
2. Job-Site Mixing: Mix materials for concrete in appropriate drum type batch machine mixer. For mixers of one cu. yd., or smaller capacity, continue mixing at least 1-1/2 minutes, but not more than 5 minutes after ingredients are in mixer, before any part of batch is released. For mixers of capacity larger than one cu. yd., increase minimum 1-1/2 minutes of mixing time by 15 seconds for each additional cu. yd. or fraction thereof.
3. Provide batch ticket for each batch discharged and use in work indicating project identification name and number, date, mix type, mix time, quantity, and amount of water introduced.
4. Ready-Mix Concrete: Comply with requirements of ASTM C94, and as herein specified.
5. Addition of water to the batch will not be permitted.
6. During hot weather, or under conditions contributing to rapid setting of concrete, a shorter mixing time than specified in ASTM C94 may be required.
7. When air temperature is between 85 Deg. F (30 deg. C) and 90 Deg. F (32 deg. C), reduce mixing and delivery time from 1-1/2 hours to 75 minutes, and when air temperature is above 90 Deg. F. (32 deg. C), reduce mixing and delivery time to 60 minutes.
8. Incorporate fiber reinforcement into concrete mix in accordance with the manufacturer's recommendations.

L. Expansion Joints

1. Provide expansion joints, unless otherwise indicated on the Contract Documents, at 30 feet on-center, maximum.
2. Expansion joint filler:

- a. Expansion joint filler shall be closed cell polymer foam meeting requirements of ASTM D1752, Sections 3.1 to 3.4, based on compression requirement of 10 psi minimum and 25 psi maximum. Recovery rate following 50-percent compression shall exceed 99-percent recovery, per ASTM D545. Foam shall be Ceramar foam filler manufactured by W.R. Meadows Co. or an approved equal.
- b. Expansion joint filler shall have a removable cap cover for the joint filler with integral permanent plastic bond breaker such as Snap-Cap from Seal Tight manufactured by W.R. Meadows, Inc., or approved equal. Cover width shall be sized to match width of joint filler.
- c. Expansion Dowels: refer to Reinforcing Materials in this Section.

M. Joint Sealant

1. Joint sealant and primer shall be polyurethane-based, one component, elastomeric sealants, complying with Fed. Spec. TT-S-00230C, Class A Type 1. Color shall be as selected by the Architect. Sealants shall be self-leveling pour grade type.
 - a. Vulkem 45, as manufactured by Mameko International, 4475 East 175th Street, Cleveland Ohio 44182, (800) 321-6412.
 - b. Urexpam NR-210, as manufactured by Pecora Corporation, 165 Wambold Road, Harleysville, PA 10348, (215) 723-6051
 - c. PSI 952, as manufactured by Polymeric Systems Inc., Phoenixville, PA, (800) 228-5548.
2. Provide only materials which are known to be fully compatible with the actual installation condition, as shown by the manufacturer's published data or certification. Use manufacturer's recommended joint primer.

PART 3 - EXECUTION

3.01 Cast-in-Place Concrete

A. Preparation of Subgrade

1. Areas to be paved shall be compacted and brought to subgrade elevation and all work specified, performed and paid under Excavation, Filling and Grading specification Section. Prepared subgrade will be inspected by the Owner's Representative. Contractor shall arrange to have the Owner's Representative visit the site to inspect and approve subgrade.

B. Aggregate Base Course

1. Base course shall be specified, provided, installed and paid for under Excavation, Filling and Grading specification Section.

C. Formwork

1. Forms shall conform to the lines, dimensions and shapes of concrete shown providing for openings, recesses, keys, slots, beam pockets and projections as required.
2. Make forms clean and free of foreign material before placing concrete.
3. Design of Formwork
 - a. Comply with ACI 301, Chapter 4, Paragraph 4.2.
 - b. Form rods and tie wires of exterior surfaces shall slope down from the inside to outside of forms.
 - c. Provide forms so that no discernible imperfection is in evidence in finished concrete surfaces due to deformation, bulging, jointing, or leakage of forms.

B Mixing Concrete

1. Ready Mix Concrete
 - a. Comply with ASTM C94.
 - b. Add mixing water only at the site.
 - c. Discharge the concrete completely at the site within 1-1/2 hours after the introduction of the cement to the aggregates. In hot weather reduce this time limit so that no stiffening of the concrete shall occur until after it has been placed.
 - d. Begin the mixing operation within thirty minutes after the cement has been intermingled with the aggregates.
2. Batch Mixing at Site
 - a. Comply with ACI 301, Chapter 7, Paragraph 7.2.
 - b. Excessive mixing requiring the addition of water to preserve the required consistency will not be permitted. Mix concrete to a consistency, which can be readily placed without segregation.
 - c. Where admixtures are specified, equip mixers with a device for measuring and dispensing the admixture.

C. Reinforcement Material

1. Steel reinforcing shall be thoroughly cleaned of all foreign material which may reduce the bond between the concrete and reinforcing.
2. Welded wire mesh shall be placed midway within the depth, and parallel to the finished concrete pavement surface. Do not pour concrete over top of

reinforcement unless it is supported underneath. Where mesh reinforcement is spliced, it shall be lapped at least 12 inches.

3. Reinforcing steel anchors shall be securely wired in the exact position called for, and shall be maintained in that position until concrete is placed.
4. Unless otherwise indicated on the Contract Documents, reinforcing shall extend within 2 inches of formwork and expansion joints.

D. Expansion Joints

1. Expansion joints shall be as located on the Contract Documents. Expansion joint shall be formed in the concrete to required width with preformed joint filler in place. Joint filler shall extend the full depth of the slab.
 - a. For concrete pavements, depth of joint filler shall be as required to form a 3/4 -inch deep sealant recess below finished concrete surface.
2. Provide expansion joints as indicated on the Contract Documents. Unless otherwise indicated on the Contract Documents, expansion joints shall be located at 30 feet on-center, maximum.
 - a. Expansion joints shall be placed where pavement meets flush foundations and footings, concrete vertical curb or other vertical structures, including light bases, hydrants, walls, buildings, piers and walls, and at other conditions as shown on the Contract Documents.
 - b. Contractor shall request the presence of the Owner's Representative to review the layout of expansion joints prior to pouring the concrete.
 - c. Follow the manufacturer's application recommendations for joint filler and sealer.
 - d. Joint alignment shall be straight and true.
3. Where the expansion dowel system is used in the expansion joints, steel plates and pocket former sleeves shall be set parallel with the top and bottom surfaces of the concrete slab and installed according to the manufacturer's installation instructions.

E. Placing Concrete

1. Preparation before placing: Conform to ACI 310, Chapter 8, Paragraph 8.1.
2. Conveying
 - a. Comply with ACI 301, Chapter 8, Paragraph 8.2.
 - b. Provide a spout or downpipe and elephant trunk or other appropriate method to prevent concrete from falling freely through a height greater than 3 feet.

3. Depositing: Comply with ACI 301, Chapter 8, Paragraph 8.3. Vibrate concrete to prevent air voids in vertical face of concrete exposed above finish grade.

F. Curing

1. Apply approved curing compound in accordance with the manufacturer's recommendations. Comply with ACI 301, Chapter 12. Moist cure (continuous free water for first five (5) days after casting. Protect against temperatures under 40 deg. F. in first five days.

G. Form Removal

1. Do not remove forms until the concrete has thoroughly hardened and has attained sufficient strength to support its own weight and construction live loads to be placed thereon, without damage to the structure. In general, do not disturb forms for framing until the concrete has attained at least 40% of design strength for side forms and 80% of design strength for bottom forms. Remove no forms for 24 hours after placing concrete. Protect concrete walks from pedestrian traffic for a period of 3 days after placing. Damp cure as per standards above. Be responsible for proper form removal and replace any work damage due to inadequate maintenance or improper or premature form removal.
2. Remove forms by methods which will not spall the concrete or cause any injury whatsoever. Hammering or prying against concrete will not be permitted.

H. Finishing

1. General Requirements for Flatwork: Strike off top surfaces of finished fill and monolithic slabs true and level within a tolerance of 1/8 in. in 10 ft. and measured with a 10 ft. straightedge placed in any direction at any location. Set edge forms and intermediate screed strips accurately and sufficiently rigid to support screeds and so that proper surface elevations and concrete thickness are achieved allowing for dead load deflection and camber of formwork. Take measurements and control tolerances by the use of transit instrument. Upon completion of leveling, remove screed and fill spaces with concrete. Concrete shall have a medium broom finish of parallel marks. Brooming shall be at right angles to the axis of walk or as shown on the Drawings.

I. Field Quality Control

1. Sampling and testing for quality control during placement of concrete may include the following, as directed by the Landscape Architect.
2. Sampling Fresh Concrete: ASTM C172, except modified for slump to comply with ASTM C94.
3. Slump: ASTM C143, one test for each concrete load at point of discharge; and one test for each set of compressive strength test specimens.

4. Air Content: ASTM C173, volumetric method for lightweight or normal weight concrete; one for each set of compressive strength test specimens.
 5. Concrete Temperature: Test hourly when air temperature is 40 deg. F (4 deg. C) and below, and when 80 deg. F (27 deg. C) and above; and each time a set of compression test specimens made.
 6. Compression Test Specimen: ASTM C31; one set of 6 standard cylinders for each compressive strength test, unless otherwise directed. Mold and store cylinders for laboratory cured test specimens except when field-cure test specimens are required.
 7. Compressive Strength Tests: ASTM C39; one set for each 100 cu. yds. or fraction thereof, of each concrete class placed in any one day or for each 5,000 sq. ft. of surface area placed; 1 specimen tested at 7 days, 2 specimens tested at 28 days, and one specimen retained in reserve for later testing if required.
 8. When strength of field-cured cylinders is less than 85% of companion laboratory-cured cylinders, evaluate current operations and provide corrective procedures for protecting and curing the in-place concrete.
 9. Strength level of concrete will be considered satisfactory if average of sets of three consecutive strength test results equal or exceed specified compressive strength, and no individual strength test result falls below specified compressive by more than 500 psi.
 10. Test results will be reported in writing to Landscape Architect and Contractor on same day that tests are made. Reports of compressive strength tests shall contain the project identification name and number, date of concrete placement, name of concrete testing service, concrete type and class, location of concrete batch in structure, design compressive strength at 28 days, concrete mix proportions and materials; compressive breaking strength and type of break for both 7-day tests and 28-day test.
 11. Additional Tests: The testing service will make additional tests of in-place concrete when test results indicate specified concrete strengths and other characteristics have not been attained in the structure, as directed by Landscape Architect. Testing service may conduct tests to determine adequacy of concrete by cored cylinders complying with ASTM C42, or by other methods as directed. Contractor shall pay for such tests conducted, and any other additional testing as may be required, when unacceptable concrete is verified.
- J. Protection of Concrete: Under no circumstances shall the Contractor pour and leave the fresh concrete open to vandalism, while it is setting up. Damaged concrete shall be subject to rejection by the City and removal, disposal and replacement at the Contractor's expense.
- K. The following acceptance standards shall be applied to this Contract. Any portion of the concrete paving that does not meet these required acceptance standards shall be removed and replaced. Saw cut pavement at nearest adjacent joint, remove concrete pavement and discard off site in a legal manner and replace with new concrete pavement meeting the requirements of this Section.

1. Pavement surfaces shall be free of all cracking.
2. Pavement surfaces shall not pond water.
3. Pavement surfaces shall be free of visible high and low spots.
4. Steel reinforcing shall not penetrate the surfaces or sides of the concrete slab.
5. Sawcut joints and all expansion joints shall be flush, straight, true, uniform in width and free from twists, bends, kinks and misalignments.
6. Edges and the associated edging patterns shall be consistent, true, crisp and complete.
7. Pavement shall show no graffiti. Pavement shall show no rubbed surfaces indicative of attempts to erase graffiti.
8. Expansion joints and score joints shall be placed as required by the Contract Documents.
9. Concrete surfaces shall be free of all stains, including those created during the course of the construction by the Contractor, caused by natural events or caused by vandalism.
10. Pours different in color.

END OF SECTION

SECTION 32 16 00 - CURBING

PART 1 - GENERAL

1.01 Related Documents

This section is only a portion of the Contract Documents. All of the Contract Documents, including Conditions of the Contract and Division 1 General Requirements, apply to this section.

1.02 Description of Work

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

1. Remove and reset existing granite curb

1.03 Related Work

- A. Carefully examine all of the Contract Documents for requirements that affect the work of this Section. Other specification sections that directly relate to the work of this Section include, but are not limited to, the following:

1. Section 02 41 00 – Site Preparation and Demolition
2. Section 31 00 00 – Excavation, Filling and Grading
3. Section 32 12 16 – Asphalt Paving
4. Section 32 13 13 – Concrete
5. Section 33 49 23 - Drainage

1.04 Intent

- A. The intent of the work of this Section is to comply with Commonwealth of Massachusetts, Department of Transportation, "Standard Specifications for Highways and Bridges," (hereinafter referred to as SSHB) Section 500, "Curb and Edging".
- B. Department of Public Works: All work within any public way and all work affecting any public way, including without limitation, roadways, sidewalks, curbs, and other work shall be done in strict compliance with the requirements of the authority having jurisdiction including local and State Standard Specifications, except when Standard Specifications are in conflict with these specifications, the most restrictive and inclusive requirements shall govern.

1.07 Coordination

- A. The work of this Section shall be coordinated with that of other trades affecting or affected by the work of this Section, including paving work to be done by others, as necessary to assure the steady progress of the Work.

PART 2 - PRODUCTS

2.01 Granite Curb –existing curb to be removed, protected and reset in accordance with the Drawings.

2.02 Mortar

- A. Cement mortar shall conform to Section M4.02.15 of the Massachusetts Department of Transportation SSHB.

2.03 Concrete for curb setting shall be 4,000 PSI as specified in Section 32 13 13 – Concrete.

PART 3 - EXECUTION

3.01 Installation

- A. Curb shall be set with the top and face of curbs in alignment with adjacent existing curb to remain and as indicated on the Drawings.
- B. Trench Preparation: Curb shall be set in a trench excavated to a width of 20 inches. The bottom of the trench shall be 6 inches deeper than the depth of the curbstone. The subgrade shall then be filled to proper levels with a minimum of 6 inches of compacted gravel borrow at the lines and grade shown on the plan to provide continuous support to the bottom of curb. Gravel borrow shall be thoroughly rammed or tamped until firm and unyielding.
- E. Granite Curb Installation: Set curbs true to line and grade with vertical exposed curb faces plumb and with curb top surface parallel to adjacent surfaces. The maximum space between joints shall not be more than 1/4 inch. Place concrete continuously along the front and back of the curb as indicated on the Detail. The curbing contractor shall confirm true vertical and horizontal alignment immediately after setting concrete and adjust curb sections as necessary to provide a true line.
- F. Pointing Joints in Granite Curb: The joints between curbstones (both front and back) shall be carefully filled with cement mortar and neatly pointed on the top and front exposed portions. After pointing, the curbstones or edging shall be satisfactorily cleaned of all excess mortar on the exposed surfaces of the curb.
- G. Tolerances: The following installed tolerances pertain to curbing installation only.
 - 1. Allowable Variation from True Plumb: 1/8-inch over exposed face.
 - 2. Allowable Variation from True Line: =1/4-inch in 20-feet.

3.02 Repair, Cleaning and Protection

- A. Repair minor damage to eliminate all evidence of repair. Clean exposed surfaces using non-abrasive materials and recommended methods. Remove and replace damaged or unsuitable work that cannot be successfully cleaned or repaired.
- B. Provide temporary protection to ensure work is without damage or deterioration at time of final acceptance. Remove protections and re-clean as necessary immediately before final acceptance.
- C. After completion of the work in this Section, the Contractor shall remove all debris, materials, rubbish, etc. from the site and legally dispose of them. New or existing improvements that have been damaged in the work under this Contract shall be repaired to the satisfaction of the Landscape Architect.

END OF SECTION

SECTION 32 18 00 - SYNTHETIC TURF

PART 1 - GENERAL

1.01 General Requirements

- A. The conditions of the Contract, including Division 00 and Division 01, apply to the work under this Section.

1.02 Work Included

- A. Provide all labor, equipment, implements and materials required to furnish, install, construct and perform all paving operations complete as shown on drawings and specified herein.
- B. Work includes, but is not limited to the following:
 - 1. Synthetic Turf system including shock pad, sand infill, testing and certification of system.

1.03 Referenced Work

- A. Examine all other sections of the Specifications and all Drawings for the relationship of the work under this Section and the work of other trades. Cooperate with all trades and all departments of the City of Somerville and coordinate all work under this Section.
- B. The following related items are included under the Sections list below
 - 1. Section 02 41 00 – Site Preparation and Demolition
 - 2. Section 31 00 00 – Excavation, Filling and Grading
 - 3. Section 32 12 16 – Asphalt Paving
 - 4. Section 32 13 13 - Concrete
 - 5. Section 32 31 00 – Fences, Gates and Netting
 - 6. Section 32 40 00 – Storm Drainage Utilities

1.04 Definitions/References

- A. The following related items are included herein and shall mean:
 - 1. S.S.H.B. - Standard Specifications for Highways and Bridges, the Commonwealth of Massachusetts, Department of Transportation, latest edition.
 - 2. A.S.T.M. - American Society for Testing and Materials.
 - 3. A.A.S.H.T.O. - American Association of State Highway and Transportation Officials.

4. EN – European Committee for Standardization
 - B. American Society of Testing and Materials (ASTM)
 1. D 4491 Water Permeability of Geotextiles by Permittivity
 2. D 1577 Linear Density of Textile Fibers (Denier)
 3. D 1682 Breaking Load and Elongation of Textile Fabrics
 4. D 2256 Breaking Load (Strength) and Elongation of Yarn by the Single-Strand Method
 5. D 5848 Mass per Unit Area of Pile Yarn Floor Coverings
 6. D 5034 Breaking Strength and Elongation of Textile Fabrics (Grab Test)
 7. D696-03 Cellular plastics -- Determination of the coefficient of linear thermal expansion
 8. E1792-96E Standard Specification for Wipe Sampling Materials for Lead in Surface Dust
 9. F355A Shock Absorbing Properties of Playing Surface Systems and Materials (GMAX and HIC)
 10. F2765 Total Lead Content in Synthetic Turf Fibers
 11. 3575-08 Standard Specification for Flexible Materials-Tensile Strength and Tensile Elongation
 - C. European Committee for Standardization
 1. EN12616 Water Infiltration Rate
- 1.05 Job Conditions
- A. Start of work under this Section shall constitute acceptance of the foundation conditions to which this work is to be applied. Any defects in work resulting from such conditions shall be corrected under this Section, at no extra cost to the Owner.
 - B. Maintain sub-base in satisfactory condition and properly drained until surface improvement is placed.
- 1.06 Submittals
- A. Synthetic Turf
 1. Submit specifications of all components of the synthetic turf system including but not limited to the assembled turf carpet, turf fiber, primary and secondary backing, seaming tape, adhesive for turf seams, adhesive and mechanical fasteners for edge connection and sand infill. Submit manufacturer's installation instructions for all

products in the synthetic turf system and the assembled system's performance characteristics meeting requirements specified herein and industry standards.

2. Submit certifications and other data as required to show compliance with the Contract Documents and conformance with material environmental and safety standards and regulations.
 3. Provide testing as specified herein of individual components and the assembled system with results verifying performance that meets all requirements of this specification and referenced standards.
 4. Shop drawings to include seaming plan showing roll layout and layout of all field markings.
 5. Warranty terms indicating coverage and terms See Part 1.07 this Section.
- B. Shock Pad product information, sample and performance testing demonstrating compliance with requirements specified herein.

1.07 Warranty Terms

- A. The synthetic turf provider shall provide an eight (8) year warranty.
1. Stating that all work executed under this Section will be free from defects in material and workmanship without limitations for a period of eight (8) years from the date of Substantial Completion, and that any defects will be remedied on written notice at no additional cost to the Owner.
 2. Coverage of all materials and labor shall provide for all costs up to and including the full value of complete re-installation of the synthetic turf system and all preparation and disposal costs for the full 8-year warranty period.
 3. Warranty shall not be pro-rated.
 4. The manufacturer shall warrant that materials and their performance shall meet or exceed the product specifications for the 8-year warranty period.
- B. Shock pad – refer to 2.02 in this Section.

1.08 Quality Assurance

- A. The installation contractor for the synthetic turf and shock pad shall be certified by the manufacturers to install the approved turf and pad systems.

PART 2 - PRODUCTS

2.01. Synthetic Turf System

- A. To establish the standard of quality, design and performance required for this project, the Drawings and Specifications are based on VersaPlay as supplied by A-Turf. PO Box 157, Williamsville, NY 14231, represented by Rick Krysztof (716) 208-3600.
1. Additional acceptable pre-qualified synthetic turf systems are:

- a. Rootzone HD 3D3 Blend as supplied by AstroTurf 809 Kenner Street, Dalton, GA 30721, represented locally by Bob Lord (774) 513-0020.
 - b. Ultrablade as supplied by SprinTurf 900 Circle 75 Parkway, Atlanta, GA 30339, represented locally by Allen Hubbard (413) 575-7993.
- B. The minimum requirements that the Synthetic Turf System must meet shall be as follows. Where ranges are specified, that component of the turf system must be within the specified minimum to maximum range.
1. Woven dual layer primary backing. Triple layer primary backing layered as woven, non-woven, woven is an acceptable alternative. Primary backing weight 8 oz/sy.
 2. Urethane secondary backing 20 oz/sy
 3. Polyethylene turf fiber parallel-long slit and monofilament blend. Low glare finish. Dual colors as blended fibers.
 - a. Finished height 1.25" to 1.5"
 - b. Total 55 oz/sy face weight
 - c. Stitch Gauge 1/4" to 3/8"
 - d. 2 color: Lime Green and Field Green.
 4. Thatch fiber shall be nylon – green. Included in face weight listed above.
 5. Total weight including backing 83 oz/sy
 6. Permeability >30 inches per hour
 7. Tuft bind strength 10 lbs.
 8. Grab tear strength > 200 lbs.
 9. Lead: less than 50 ppm in each component
 10. Glued seams: Seaming tape and adhesive shall meet the approved synthetic turf manufacturer's requirements and minimum performance characteristics specified herein.
 - a. Adhesives for bonding tufted synthetic turf shall be two-component fast-set urethane adhesive obtained from a single manufacturer and be equivalent to Ultrabond Turf PU 2K as manufactured by Mapei Corporation, Deerfield Beach, FL (800) 992-6273, or one-part moisture-cured polyurethane obtained from a single manufacturer and be equivalent to 34-G as manufactured by Synthetic Surfaces, Inc., Scotch Plains, NJ (908) 233-6803, or approved equal.
 - b. Tape for securing seams in the tufted synthetic turf and inlaid lines shall be high quality tape made with a minimum roll width of 12 inches.

- 11. Field markings shall be tufted into the turf rolls to the maximum extent possible, minimizing the inlays required. The remaining field markings shall be permanently installed in the field as glued inlays. Painted field markings are not acceptable.
 - C. Infill –Sand infill shall be sub round to sub angular with 80% round, dust-free, dry silica sand. One hundred percent of sand particle sizes shall be larger than 0.40 millimeters and smaller than 1.7 millimeters. Uniformity Coefficient 1.5. Sand shall be 10-20 Synfill Sportsfield Sand as supplied by Target Technologies International, or approved equal. (888) 887-7373. www.TTIIOnline.com
 - D. Concrete turf anchor shall be in accordance with Section 32 13 13 - Concrete
 - E. Recycled plastic nailer board for attachment of synthetic turf to existing concrete wall shall be 4"x4" at 8' lengths for the full length of the field edge. Hardware for attaching the nailer board to the wall shall be galvanized steel masonry anchors, 24" O.C.
 - F. Field markings: None
- 2.02 Shock Pad: To establish the standard of quality, design and performance required for this project, the Drawings and Specifications are based on shock pad model #SP20 as supplied by Brock International, Boulder CO 80301, locally represented by Eric Hughes (781) 883-9663. Equals must meet or exceed the material and performance characteristics of this project specified herein.
- A. Underlayment shall be a minimum 20 mm thick expanded polypropylene designed for athletic fields.
 - B. Gmax shall be guaranteed not to exceed 135 throughout warranty period.
 - C. HIC not to exceed 900 from 1.4m drop for full turf system.
 - D. System must meet minimum critical fall height of 1.4m at installation per IRB Reg 22 with specified turf system.
 - E. Product shall drain at greater than 400 inches per hour.
 - F. Warranty shall be 16 years or more and cover the cost to replace or repair the turf in affected area in the event of product failure.
 - G. Product shall be 100% closed loop recycled. Recycling for energy not acceptable.
 - H. When tested with the Deltec field tester, vertical deformation must remain between 7-11mm.
 - I. Supplier must provide documentation that product meets human health screening levels and total threshold limit concentration using EPA Method 3052 and Title 22 (CAM 17) metals using EPA Method 6020/7471A and for hexavalent chromium using EPA Method 7196A.
 - J. Manufacturer must prove absence of heavy metals in production material, and a controlled chain of custody for all materials used.

- K. All material used in the artificial system must meet environmental and human health standards established in this specification. Documentation of chain of custody for materials may be required.
- L. Product must be of a homogeneous material composition. Variable material content will not be accepted
- M. Product must be made in the USA.

PART 3 - EXECUTION

3.01 Subbase, Edger and Drainage

- A. Install concrete turf anchor in accordance with Section 32 13 13 Concrete, the drawings and per the manufacturer's recommendations. Install the subdrains as indicated on the Drawings. Install gravel base where indicated on the drawings and in accordance with Section 31 00 00 Excavation, Filling and Grading

3.02 Synthetic Turf System

- A. Ground preparation. Top Stone shall be furnished, installed compacted and laser graded in accordance with Section 31 00 00 - Excavation, Filling and Grading.
- B. Install Shock Pad placed directly on compacted top stone and in accordance with the manufacturer's recommendations, taking care to protect surface planarity of the stone.
- C. Place turf in accordance with the approved shop drawings. Seams shall be glued meeting the following requirements:
 - 1. Seaming tape shall extend a minimum of 6 inches in all directions from any material joint.
 - 2. The adhesive shall extend at its full application rate a minimum of 4 inches in all directions from any material joint.
 - 3. The adhesive shall be applied at the adhesive manufacturers recommended application rate at 99% efficiency.
 - 4. All seams shall have a minimum tear grab strength of 150 pounds and 5% elongation based on ASTM D5034-05: Standard Test Method for Breaking Strength and Elongation of Textile Fabrics (Grab Test-Modified for Seam Strength).
 - 5. Install seams in a workmanlike manner and prevent synthetic turf fibers from being exposed to adhesive or trapped within the seams.
- D. Infill: Apply layers of synthetic grass infill evenly with a spreader and broom the turf fibers with stiff bristle broom to stand fibers up and allow infill to settle into the bottom. Broom in approved sand for a total of 5 pounds per square foot, plus or minus tolerance of 1/2 pound per square foot. Presence of wrinkles in the synthetic turf and evidence of inadequate ballast will require additional sand of up to 6 pounds per square foot.

- E. Anchoring/Edging: Edges of turf will be secured to curb edger with mechanical fasteners and adhesive in accordance with the manufacturer's recommendations. Attach recycled plastic nailer board to existing concrete wall with galvanized steel masonry anchors 24" on center with the top surface of nailer board flush with the recessed notch in adjacent concrete edger and parallel to the plane of the graded top stone. Top of shock pad shall be flush with top of edger. Provide 1/2" gap between ends of boards to allow for expansion.
- F. After completion of the installation, the synthetic turf manufacturer/installer shall retain a third party (independent) certified testing laboratory approved by the Owner to perform shock absorption testing in accordance with ASTM F 1936 and ASTM F 355 (G-Max). Testing shall be performed at the field's center, and 20 feet inside each corner. G-Max shall not be greater than 120 at any one point of the field.

3.03 Clean Up and Protection

- A. Remove all excess materials from the site and clean up any spills as they occur. Check the full length of all seams to ensure that all turf fibers are not caught in the glued seams
- B. Protect Work of this Section to ensure that the finished work will be without damage or deterioration at time of Substantial Completion.

END OF SECTION

32 30 00 SITE IMPROVEMENTS

PART 1 - GENERAL

1.01 General Requirements

- A. The conditions of the Contract, including Division 00 and Division 01, apply to the work under this Section.
- B. All references to products by manufacturer, trade name or performance Specifications bearing the connotation "or approved equal" shall be as determined by the Landscape Architect and the City.

1.02 Work Includes

- A. Provide all labor, equipment, implements and materials required to furnish, install, construct and perform all site improvements complete as shown on the Drawings and specified herein.
- B. To be included, but not limited to the following:
 - 1. Grading and Compaction of Base Course
 - 2. Concrete Footings for all Site Improvement Items
 - 3. Trash and Recycling Receptacles
 - 4. Collapsible Bollard
 - 5. Rules and Regulations Signs

1.03 References

- A. Examine all other Sections of the Specifications and all Drawings for the relationship of the work under this Section and the work of other trades. Cooperate with all trades and all departments of the City of Somerville and coordinate all work under this Section therewith.
- B. The following related items are included under the Sections listed below:
 - 1. Section 02 41 00 – Site Preparation and Demolition
 - 2. Section 31 00 00 – Excavation, Filling and Grading
 - 4. Section 32 13 13 - Concrete

1.04 Submittals

- A. Shop Drawings and Samples
 - 1. Provide complete material, finish and color information to fully evaluate conformance with the specified requirements for products in this Section.

Where products are assemblies or fabrications, provide manufacturer's specifications for all components and hardware.

1.05 Product Delivery, Storage and Handling

- A. Deliver materials in manufacturer's original unopened and undamaged packages with labels legible and intact.
- B. Store materials in unopened packages in a manner to prevent damage from the environment and construction operations.
- C. Handle in accordance with manufacturer's instructions.

1.06 Definitions

- A. The following items are included herein and shall mean:
 - 1. S.S.H.B. - Standard Specifications for Highway and Bridges, the Commonwealth of Massachusetts, Department of Transportation, latest edition.
 - 2. A.S.T.M. - American Society for Testing and Materials. The following standard specifications are applicable to the associated items as listed.
 - 3. MAAB: Massachusetts Architectural Access Board.
 - 4. ADA: Americans with Disabilities Act and its current regulations.
 - 5. CPSC: Consumer Product Safety Commission.

PART 2 - PRODUCTS AND EXECUTION (Combined)

2.01 Grading and Compaction of Sub-Base

- A. Do all necessary grading in addition to that specified under Section 31 20 05 – Excavation, Filling and Grading to bring subgrade or foundation after final compaction to required grades and sections to obtain a foundation of uniform bearing surface. In absence of specific requirements, compact foundation by such means as will provide firm base and insurance against settlement of superimposed work.
- B. Sub-base preparation, including material, shall be of properly approved quality as specified under Section 31 00 00 – Excavation, Filling and Grading. Start of work under this Section shall constitute acceptance of the foundation conditions to which this work is to be applied. Any defects in work resulting from such conditions shall be corrected under this Section Site Improvements, at no additional cost to the Owner.

2.02 Concrete Footings for Site Improvement Items

- A. Construct concrete footings where shown on the Drawings.
- B. Concrete footings shall comply with Section 32 13 13 Concrete.

- C. Place concrete on moist subgrade or against prepared footings in continuous operation between transverse joints or individual sections. Vibrate all concrete. Do not place concrete in freezing temperatures or on frozen base.

2.03 Trash and Recycling Receptacles

- A. Furnish and install one (1) trash and one (1) recycling receptacles where located on the Drawings, and as described herein. Provide shop drawing submittal for approval.
 - 1. Receptacles shall be manufactured by Custom Fabrication, Inc., A. P.O. Box 431, Harpursville, NY 13787; phone (607) 693-3223, fax (607) 693-3226, or an approved comparable product.
 - 2. Model: CFTR-003 – Black Trash Receptacle and Blue Recycling Receptacle with Hinged Lockable Side Door, welded down Bonnet Style lid, and 32-gallon Rubbermaid liner.
 - 3. Slatted facing surrounds and other repeating parallel members shall include support framing.
 - 4. Mounting: Provide stainless steel vandal proof Anchor Bolts (2) minimum.
 - 5. Lid: Welded Down Bonnet Style Steel Lid permanently secured.
 - 6. Size:
 - a. Receptacle Height: 36"
 - b. Overall Width: 23 1/4"
 - c. Capacity: not less than 32 gallon
 - 7. Service Access: Side access with inner container.
 - 8. Exterior Finish: Polyester (exterior grade) powder coat from manufacturer. Final coating shall be a minimum of 4 mils thick on all surfaces.

2.04 Collapsible Bollard

- A. The standard of quality, design and function required for the collapsible bollard shall be model DHB Double Post by TrafficGuard Direct, Geneva IL or approved equal.
 - 1. The bollard shall consist of steel tube (ASTM A500) steel plate (ASTM A36) and 1\8-8 stainless steel pins. All surfaces shall be primed with rust and corrosion resistant primer with 5000 hour salt spray performance and coated with TGIC polyester outdoor finish, color: black.
 - 2. Install bollard in reinforced concrete footing in accordance with the Drawings.
 - 3. Submit shop drawing installation drawing and product data from manufacturer for approval.

2.05 Rules and Regulations Signs

- A. Furnish and install two (2) highest quality aluminum signs with UV resistant printed vinyl graphics on white background. Sign graphics shall be per City of Somerville Parks and Open Space standards. Provide signs with the following characteristics.
1. Mounting: Tamperproof stainless steel bolted fasteners and braces for attachment to chain link fabric.
 2. Sign panels shall be 24" tall by 36" wide 16 gauge aluminum panels.
 3. Letterform meeting referenced standards. Where no standard exists, letterform shall be as selected by the Landscape Architect.
 4. Provide shop drawing submittal and 6" square sample for review and approval prior to fabrication.
 5. Each sign shall include English, Spanish, Portuguese and Hatian Kreyol as follows:
 - a. English:

Winter Hill Field - Rules & Regulations

DURING SCHOOL HOURS, ONLY WINTER HILL SCHOOL STUDENTS ALLOWED.

DURING PERMITTED TIMES, ONLY PERMIT HOLDERS ALLOWED.

NO VEHICLES OF ANY KIND ON THE FIELD.

- NO dogs or pets of any kind
- NO food or beverages, including gum, seeds, sports drinks, etc.
- NO smoking or tobacco products of any kind
- NO glass bottles or containers of any type
- NO folding chairs or any other type of outdoor furniture
- NO bicycles
- NO playing golf
- NO pulling grass fibers or infill

During times of extreme heat, do not play on the field. Always keep players hydrated. Water fountain is located at school.

- b. Spanish:

Winter Hill Field - Reglas y Regulaciones

DURANTE LAS HORAS DE ESCUELA, SOLAMENTE LOS ESTUDIANTES DE LA ESCUELA WINTER HILL SON PERMITIDOS.

DURANTE LOS TIEMPOS PERMITIDOS, SÓLO PERSONAS AUTORIZADAS SON ADMITIDOS.

NO VEHÍCULOS DE NINGUNA CLASE EN LA CANCHA .

- NO perros ni mascotas de ningún tipo
- NO alimentos o bebidas, incluyendo chicle, semillas, bebidas deportivas, etc.
- NO fumar o productos de tabaco de cualquier tipo

- NO botellas de vidrio o contenedores de ningún tipo
- NO sillas plegables o cualquier otro tipo de mobiliario de exterior
- NO Bicicletas
- NO jugar al golf
- NO tire de las fibras de césped o rellene

Durante los días de calor extremo, no juegue en el campo. Mantenga siempre a los jugadores hidratados. Fuente de agua se encuentra en la escuela.

c. Portuguese:

Winter Hill Field - Regras & Regulamentos

DURANTE O HORÁRIO ESCOLAR, SOMENTE OS ALUNOS DA WINTER HILL SCHOOL SÃO AUTORIZADOS A UTILIZAR O CAMPO.

DURANTE OS HORÁRIOS RESERVADOS, SOMENTE PESSOAS AUTORIZADAS PODEM UTILIZAR O CAMPO.

NENHUM TIPO DE VEÍCULO SERÁ PERMITIDO NO CAMPO

- PROIBIDA a entrada de cães e animais de nenhuma espécie no campo
- PROIBIDO o consumo de alimentos e bebidas, incluindo chicletes, sementes, energéticos, etc
- PROIBIDO fumar e fazer uso de qualquer tipo de tabaco
- PROIBIDO o porte de garrafas de vidro ou recipientes de qualquer tipo.
- PROIBIDO o porte de cadeiras dobráveis ou qualquer tipo de mobília sobre o campo
- PROIBIDO o porte de bicicletas no campo
- PROIBIDO o uso do campo para a prática de golfe
- PROIBIDO puxar as fibras da grama ou fazer qualquer tipo de enxerto

Durante os períodos de extremo calor, não jogue no campo. Mantenha os jogadores hidratados. O bebedouro está localizado na escola.

d. Hatian Kreyol:

Règ ak Reglèman nan teren nan Winter Hill

PANDAN LEKÒL LA AP FONKYONE, SÈLMAN ELÈV NAN LEKÒL WINTER HILL LA GEN PÈMISYON.

PANDAN MOMAN PÈMISYON AN, SÈLMAN MOUN KI GEN PÈMI GEN DWA.

OKENN VEYIKIL NENPÒT TIP NAN TEREN AN.

- Okenn chyen òswa animal domestik nan nenpòt kalite
- Pa dwe gen manje òswa bwason , menm chiklèt, gren, ak bwason spòtif, etc.
- Pa fimen ni sigarèt òswa pwodwi tabak de tout sòt
- Okenn boutèy òswa kontenè de tout sòt.
- Okenn chèz plyant e nenpòt tip de mèb pou deyò.
- Okenn bisiklèt.
- Okenn jwèt golf.
- Pa dwe rale fib zèb òswa remplisaj.

Lè li fè cho anpil, pa jwe nan teren an. Toujou kenbe jwè yo idrate. Genyen yon fontèn dlo nan lekòl la.

2.06 Cleaning, Repair and Protection

- A. Repair minor damage to eliminate all evidence of repair with comparable materials. Remove and replace work that cannot be satisfactorily repaired.
- B. Provide temporary protection to ensure that the work will be without dirt, stains, damage or deterioration at time of final acceptance. Clean up stains and spills as they occur. Remove protections and clean as necessary immediately before final acceptance.
- C. Upon completion of the work and before acceptance, the Contractor shall remove and dispose of in an approved manner all surplus materials, rubbish, etc. which the Contractor may have accumulated during the course of the work and shall leave the site in a clean and orderly condition. The Contractor shall not abandon any material at or near the site regardless of whether or not it has any value.

END OF SECTION

32 31 00 – FENCES, GATES AND NETTING

PART 1 - GENERAL

1.01 General Requirements

- A. The conditions of the Contract, including Division 00 and Division 01, apply to the work under this Section.
- B. All references to products by manufacturer, trade name or performance Specifications bearing the connotation "or approved equal" shall be as determined by the Landscape Architect and the City.

1.02 Work Included

- A. Provide all labor, equipment, implements and materials required to furnish, install, construct and perform all site improvements complete as shown on the Drawings and specified herein.
- B. To be included, but not limited to the following:
 - 1. Painting and Sleeving Existing Fence Posts
 - 2. Black Vinyl Coated Chain Link Fences and Gates
 - 3. Sports Netting Integrated with New Chain Link Fence and Gate
 - 4. Construction Fence to Remain On Site as Owner's Property

1.03 References

- A. Examine all other Sections of the Specifications and all Drawings for the relationship of the work under this Section and the work of other trades. Cooperate with all trades and all departments of the City of Somerville and coordinate all work under this Section therewith.
- B. The following related items are included under the Sections listed below:
 - 1. Section 02 41 00 – Site Preparation and Demolition
 - 2. Section 26 00 00 - Electrical
 - 3. Section 31 00 00 – Excavation, Filling and Grading
 - 4. Section 32 13 13 – Concrete

1.04 Submittals

- A. Shop Drawings and Samples
 - 1. Provide complete Shop Drawings and/or samples and catalog cuts for all items called for on the Drawings and as specified and in accordance with

applicable requirements under Division 1. Refer to individual items specified herein for additional submittal requirements.

1.05 Product Delivery, Storage and Handling

- A. Deliver materials in manufacturer's original unopened and undamaged packages with labels legible and intact.
- B. Store materials in unopened packages in a manner to prevent damage from the environment and construction operations.
- C. Handle in accordance with manufacturer's instructions.

1.06 Definitions

- A. The following items are included herein and shall mean:
 - 1. S.S.H.B. - Standard Specifications for Highway and Bridges, the Commonwealth of Massachusetts, Department of Transportation, latest edition.
 - 2. A.S.T.M. - American Society for Testing and Materials. The following standard specifications are applicable to the associated items as listed.
 - a. A36...Steel
 - b. A153...Zinc Coating (hot-dip) on hardware
 - c. A307...Carbon Steel bolts 66000 psi tensile
 - d. F2049...Fences/Barriers for Public Use Outdoor Play Areas
 - 1. AAB: Architectural Access Board.
 - 2. ADA: Americans with Disabilities Act and its current regulations.
 - 3. AWS: American Welding Society.
 - 4. CPSC: Consumer Product Safety Commission.
 - 5. SSPS: Steel Structures Painting Council.

PART 2 - PRODUCTS

2.01 Paint

- A. Primer shall be Rust-Oleum #7785, Zinc Sele or equal.
- B. Finish paint shall be Rust-Oleum #7779402 Professional High Performance Protective Enamel in gloss black.

2.02 Black Vinyl Coated Chain Link Fence and Gates

- A. Submittals:

1. Product information: Provide manufacturer's product data for all fence components demonstrating conformance with materials, sizes and finishes specified herein and indicated on the Drawings.
 2. Shop Drawings: Supply shop drawings at an approved scale for location, installation and erection of all components of the chain link fence and gates.
- B. Scope: This specification describes materials and installation requirements for chain link fencing and gates including chain link fabric, framework, fittings and hardware. All chain link fencing and gates shall be black vinyl coated. Fence heights are as indicated on the drawings.
- C. PVC Coating: Fence fabric and framework shall be thermally-fused vinyl coating over galvanized steel. "A Bonded or extruded and glued" fabric will not be accepted.
- D. Color: All fence material including fabric, framework, fittings and hardware shall be black.
- E. Fabric: Shall be a 2" diamond mesh thermally fused in accordance with ASTM F668-2b. Unless otherwise indicated on the Details, all chain link fence fabric shall be 6-gauge wire = 0.192" core wire with a minimum breaking strength of 2170 pounds. Limited use of 9-gauge fabric specifically indicated on the Drawings shall be 9-gauge wire = 0.148" core wire and a minimum breaking strength of 1,290 pounds. The weight of the zinc coating on the steel wire shall be 0.3 oz. per square foot minimum. Chain link fabric shall be color matched with framework materials. Fabric shall be knuckled at both selvages.
- F. Framework: Shall consist of terminal posts, line posts, top rail, bottom rail, intermediate horizontal rails, braces and gate frames.
- G. Posts and rails shall be steel pipe, Type 1: ASTM F 1083, standard weight, schedule 40, minimum yield strength of 25,000 psi, sizes as indicated below. Before color is applied, all materials shall be given a minimum 1.8 ounce per s.f. coating of zinc. PVC-coated finish shall be applied in accordance with ASTM F 1234, apply supplemental color coating of 10-15 mils (0.254-0.356 mm) of thermally fused PVC.

Provide continuous mid rails for fences 8' and greater in height.

Post or Rail	Outside Diameter	Pounds/Foot
Gate Post(1)	6.625"	18.97
End Corner & Pull Post	4.0"	9.10
Line Post	2.875"	5.79
Top and Bottom Rail	1.660"	2.27
Mid Rails	1.660"	2.27

(1) One gate post to match net end post as indicated on the Drawings. All other gate posts shall be 4.0" O.D.

- H. Top rail couplings 6-inch minimum in length shall be spaced at maximum 20-foot centers and 9 gauge minimum fabric tie wires shall be spaced as indicated on the Detail.
- I. Gate: Gate opening shall be as indicated on the drawings. Gate height shall conform to the height of the fence unless otherwise indicated. Single gate frames, 6 feet wide or less shall be made of galvanized 1.66-inch O.D. schedule 40 vinyl coated pipe. Single gate frames over 6 feet wide shall be 1.90" O.D. Gate frames shall be fabricated with welded corners and braces. Suitable black vinyl coating shall be manually and neatly applied to the welds after fabrication. Frame shall be filled with chain link fabric of the same gauge and size as the fence. Gatepost hinges shall be heavy duty commercial grade sized for gate panel and allow a 180-degree swing. Braces and trusses shall be furnished as specified. Gates shall include a heavy duty galvanized and vinyl coated positive latching device that will accommodate a long-loop padlock and secure the gates in a closed position. Double gate shall include a drop rod that can be locked in the closed position.
- J. Accessories:
 - 1. Chain link fence accessories: ASTM F 626, Provide items required to complete fence system. Galvanized, each ferrous metal item in accordance with ASTM A 153 and black finish to match framing.
 - 2. Post Caps: Formed steel, weathertight closure cap. Provide one cap for each post. Caps shall be affixed to the post so as to prevent removal.
 - 3. Stretcher Bars: One piece lengths equal to 2-inches less than full height of fabric with a minimum cross section of 3/16 inch x 3/4-inch . Provide stretcher bars where chain link fabric meets terminal posts.
- K. General: Certain components not adaptable to the coating process specified herein may be color coated by other means. All fittings shall be pressed steel or malleable iron. Tie wires shall be minimum 9 gauge PVC coated aluminum. Line and terminal posts to be of sufficient length to be set to the full depth of concrete footing indicated on the Drawings. Maximum spacing of line posts shall be 10-feet.

2.03 Sports Netting

- A. To establish the standard of quality, design and performance required for this project, the Drawings and Specifications are based on TFBSS-SG Stormguard® Breakaway Ball Safety Netting System and Accessories as supplied by Sportsfield Specialties 41155 NY-10, Delhi, NY 13753, represented by Matt Moyse (607) 437-6622.
www.sportsfieldspecialties.com
 - 1. Alternative suppliers AAE, 1000 Enterprise Dr., Royersford, PA 19468 (800) 523-5471 and Gill Athletics (800) 637-3090. To be approved as an equal, an alternative product must meet the basis of design and conform to the Drawings and Specifications.
 - 2. Submit manufacturer's product information and installation instructions for all components and hardware including complete material, finish and color information to fully evaluate conformance with the specified requirements.

- B. Provide sports netting posts, sleeves, netting, hardware and accessories in accordance with the Details indicated on the Drawings. Provide pulley system for easy removal and reinstallation.
1. Posts shall be straight, black vinyl coated, galvanized steel schedule 40, length indicated on the Detail. End posts shall be 6.625" O.D. Line posts shall be 4" O.D. Vinyl coating shall be thermally fused and comply with requirements specified under Item 2.02 in this Section.
 2. Ground sleeves shall be 60" steel tube with welded base plates, conforming to the specified post sizes.
 3. Netting with sewn in perimeter 1/4" diameter braided rope binding shall conform to the dimensions on the Detail. Mesh shall be #36 black nylon mesh, 1-3/4" square.
 4. "Stormguard®" break away system (or equal) shall be included to ensure net breakaway during sustained high winds.
 5. Accessories shall include but not be limited to:
 - a. Stainless Steel assembly hardware
 - b. Secure Snap Clips for net attachment
 - c. Stainless Steel Net Guide Rings with Black Powder Coated Finish
 - d. Black Vinyl Coated Cable Rope

2.04 Construction Fence to Remain on Site as Owner's Property

- A. Construction Fence shall be six-foot high galvanized steel fence panels on stable, movable footings and include hardware to secure panels together. The construction fence specified herein and indicated on the Layout Plan is in addition to the Temporary Construction Fence specified in Section 02 41 00 Site Preparation and Demolition. The Construction Fence to remain on site following completion of construction is required to prevent unauthorized access to synthetic turf field, and shall become the property of the Owner upon close out of this Contract.

PART 3 - EXECUTION

3.01 Prime and Paint Existing Fence Posts

- A. Remove all hardware from existing posts to be painted and thoroughly clean post surfaces removing any loose material and rust.
- B. Apply one coat of approved primer to entire post surface.

- C. Apply two coats of approved finish paint to entire post surface in accordance with paint manufacturer's recommendations. Allow time to cure between coats and protect finish until fully cured.

3.02 Black Vinyl Coated Chain Link Fence

A. Fence Erection

1. Install fences as indicated on the Plan and in accordance with the Details. Fence installation includes four general categories of fence construction as indicated on the Drawings.
 - a. Existing galvanized steel fence posts to be primed and painted prior to installation of new rails, fabric, accessories and hardware as specified herein.
 - b. Existing fence posts to be sleeved with new posts to provide the height indicated on the drawings prior to installation of new rails, fabric, accessories and hardware as specified herein.
 - c. Complete new fence and gates.
 - d. New fence and gate integrated with the Sports Netting specified herein.
2. Fabric: Leave approximately 1" between finish grade and bottom selvage. Pull fabric taut and tie to posts and rails. Install fabric on field side of fence and anchor to framework so that fabric remains in tension after pulling force is released.
3. Stretcher Bars: Thread through fabric and secure to posts with approved fasteners spaced not over 12" O.C.
4. Wire Ties: Wire ties shall be installed 12" O.C. and securely fastened.
5. Fasteners: Install bolts for tension bands with nuts on side of fence opposite fabric and trim bolts if they extend more than 1/4" beyond the nut after tightening. Trimmed bolts shall be touched up with rust-inhibiting gloss black spray paint.

B. Gate Installation

1. Install gates in accordance with the Details

3.03 Sports Netting

- A. Install sports netting system where indicated on the Plan and in accordance with the Detail and approved manufacturer's installation instructions.
- B. Sports netting shall be integrated in the same line with the chain link fence and gate which will be attached to the net posts and intermediate fence posts.

3.04 Construction Fence to Remain

- A. Install construction fencing to remain where indicated on the Layout Plan and secure panels together and to permanent fencing at both ends.

3.05 Clean Up and Protection

- A. Remove all excess materials from the site and clean up any spills as they occur. Blow or sweep all metal saw dust and metal shavings from finished surfaces to prevent rust staining.
- B. Protect Work of this Section to ensure that the finished work will be without damage or deterioration at time of Substantial Completion.

END OF SECTION

SECTION 32 90 00 – PLANTING

PART 1 - GENERAL

1.01 General Requirements

- A. The conditions of the Contract, including Division 00 and Division 01, apply to the work under this Section.
- B. All reference to products by manufacturer, trade name or performance Specification bearing the connotation "or approved equal" shall be as determined by the Landscape Architect and the City.

1.02 Work Included

- A. The work of this Section consists of all planting work and related items as indicated on the Drawings and/or as specified herein and includes, but is not limited to the following:
 - 1. Topsoil (loam borrow)
 - 3. Soil Additives
 - 4. Fine Grading & Loaming
 - 5. Planting
 - 6. Bark Mulch
 - 7. Lawn
 - 8. Maintenance

1.03 References

- A. Examine all other Sections of the Specifications and all Drawings for the relationship of the work under this Section and the work of other trades. Cooperate with all other trades and all departments of the City of Somerville and coordinate all work under this Section therewith.
- B. The following related items are included under the Sections listed below:
 - 1. Section 02 41 00 – Site Preparation and Demolition
 - 2. Section 26 00 00 - Electrical
 - 3. Section 31 00 00 – Excavation, Filling and Grading
 - 4. Section 32 13 13 – Concrete

1.04 Submittals

- A. Prior to ordering the below listed materials, submit representative samples to Landscape Architect for selection and approval, in accordance with requirements

of General Condition and special provisions as follows. Do not order material until Landscape Architect's approval has been obtained. Delivered materials shall closely match the approved samples.

1. Topsoil: The Contractor shall provide a one (1) cubic foot representative sample from each proposed source for testing and approval as directed by the Landscape Architect. The Contractor shall deliver samples to testing laboratory prior to any loaming and shall have the testing report sent directly to the Landscape Architect, and pay all costs.
 - a. Mechanical and chemical (pH soluble salts) analysis shall be by public extension service agency or a certified private testing laboratory in accordance with the current standards of the Association of Official Agricultural Chemists and approved by Landscape Architect.
 - b. Report shall be submitted at least one (1) month before any loaming is to be done. Soil tests shall be for Nitrate Nitrogen, Ammonium Nitrogen, Phosphorus, Potassium, Calcium, Aluminum, Soluble Salts and show acidity of the soil.
 - c. Tests shall document lead level.
 - d. Tests shall give recommendations for fertilizers and additives.
2. Fertilizer and lime product information and recommended application rates

1.05 Product Delivery and Handling

A. Preparation of Plants

1. All precautions customary in good trade practice shall be taken in preparing plants for moving, and workmanship that fails to meet the highest standards will be rejected. Plants shall be dug immediately before moving. All plants shall be dug to retain as many fibrous roots as possible. Balled and burlapped plants shall have a solid ball of earth. Loose, broken or manufactured balls will be rejected. Balled and burlapped plants shall be securely tied with stout rope to sturdy platforms equal in size to diameter of the upper half of the ball of earth.

B. Delivery

1. Plants shall be packed, transported and handled with utmost care to insure adequate protection against injury. Each shipment shall be certified by to be free from disease and infestation. Any inspection certificates required by law to this effect shall accompany each shipment invoice or order of stock and on arrival, the certificate shall be submitted to the Landscape Architect. All plants shall be adequately protected from drying out and immediately after inspection shall be held in moist soil. Balled and burlapped plants shall be set on the ground and the balls covered with soil. Until planted, all material shall be properly maintained to the satisfaction of the Landscape Architect.

C. Inspection

1. Inspection may be made before digging if the Landscape Architect directs, but no Plant Material shall be planted by the Contractor until inspected by the Landscape Architect at the site. All rejected material shall be immediately removed from the site and replaced with acceptable material at no additional cost. Final inspection shall be made upon completion of the contract.

1.06 Definitions

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

1. AOAC: Association of Official Agricultural Chemists
2. ANLA: American Nursery and Landscape Association

1.07 Guarantee for Plantings

- A. Plants shall be guaranteed for a period of one (1) year after inspection and acceptance and shall be alive and in satisfactory growth at the end of the guarantee period.
- B. Each plant shall show at least 75% healthy growth and shall have the natural character of the plant of its species in accordance with American Nurserymen's Association Standards. Any plant that is unsatisfactory shall be removed from the site and replaced during the normal planting season.
- C. All replacements shall be plants of the same kind and size specified in the Plant List. The cost shall be borne by the Contractor.

1.08 Examination of Conditions

- A. All areas to be planted shall be inspected by the Contractor before starting work and any defects shall be reported to the Landscape Architect prior to beginning this work. The commencement of work by the Contractor shall indicate his acceptance of the areas to be planted and he shall assume full responsibility.

PART 2 - PRODUCTS

2.01 Topsoil (Loam Borrow)

- A. Loam shall be a "fine sandy loam" or a "sandy loam" determined by mechanical analysis and based on the USDA classification system. It shall be of uniform composition, without admixture of subsoil. It shall be free of stones greater than one inch, lumps, plants and their roots, debris and other extraneous matter over one inch in diameter or excess of smaller pieces of the same materials. It shall not contain toxic substances harmful to plant growth. It shall be obtained from naturally well drained areas which have never been stripped before and have a history of satisfactory vegetative growth. Loam shall contain not less than 6% nor more than 10% organic matter as determined by the loss on ignition of oven-

dried samples. Test samples shall be oven-dried to a constant weight at a temperature of 230 F, plus or minus 9.

- B. Loam shall have an acidity range of pH 6.0 to pH 6.5.
- C. The amount of either sulfur or limestone required to adjust the planting loam to the proper pH range (above) shall be determined by the Landscape Architect on the basis of soil tests as specified herein.

2.02 Soil Additives

- A. Commercial fertilizer, peat or other additives shall be used to counteract soil deficiencies as recommended by the soil analysis and as directed by the Landscape Architect.
 - 1. Commercial fertilizer shall be a product complying with the State and United States Fertilizer Laws. Deliver to the site in the original unopened containers, which shall bear the manufacturer's Certificate of Compliance covering analysis, which shall be furnished to the Landscape Architect. At least 50% by weight of the Nitrogen content shall be derived from organic materials. Nitrogen shall be slow-release. Fertilizer shall contain the percentages of weight of ingredients as follows, or as recommended by the soil analysis when that is significantly different:

	<u>Nitrogen</u>	<u>Phosphorus</u>	<u>Potash</u>
For all planting and lawn	10%	10%	10%

- B. Ground dolomite limestone shall be an approved agricultural limestone containing not less than 85% of total calcium or magnesium carbonates. Limestone shall be ground to such fineness that 50% will pass through a 100 mesh sieve and 90% will pass through a 20 mesh sieve.
- C. Peat moss shall be composed of the partly decomposed stems and leaves of any or several species of sphagnum moss. It shall be free from wood, decomposed colloidal residue and other foreign matter. It shall have an acidity range of 3.5 pH to 5.5 pH as determined in accordance with the methods of testing of A.O.A.C., latest edition. Its water absorbing ability shall be a minimum of 1,100% by weight on an oven-dry basis.

2.03 Plant Materials

- A. The Contractor shall furnish and plant all plants shown on the Drawings, as specified, and in quantities as indicated in the drawings. No substitutions will be permitted. All plants shall be nursery grown.
- B. Plants shall be in accordance with the USA Standard for Nursery Stock of the American Nursery and Landscape Association, latest edition.
- C. All plants shall be typical of their species or variety and shall have a normal habit of growth and be legibly tagged with the proper name. Only plant stock grown within the hardiness Zones 3 through 6, as established by the United States Department of Agriculture, will be accepted. The Contractor's suppliers must

certify in writing that the stock has actually been grown under Zone 6 or hardier conditions. Plants not so certified will not be accepted.

- D. Plants delivered by truck and plants requiring storage on site shall be properly wrapped and covered to prevent wind-drying and desiccation of branches, leaves or buds; plant balls shall be firmly bound, unbroken, reasonably moist to indicate watering prior to delivery and during storage and shall be free from fresh scars and damage in handling. The Contractor shall reject such plants at time of delivery by the nursery/supplier unless such plants were selected by the Landscape Architect as indicated by tags and seals. No plant material from cold storage will be accepted.

2.04 Bark Mulch

- A. Mulch shall be pine bark aged a minimum of six (6) months. The mulch shall be dark brown in color, free of chunks and pieces of wood thicker than one-quarter inch (1/4"). Mulch must be free of stringy material over three inches (3") in length and shall not contain, in the judgment of the Landscape Architect, an excess of fine particles. Mulch shall be 98% organic matter with the pH range of 3.5 to 4.5. Moisture content of packaged material shall not exceed 35%. Submit sample for the Landscape Architect's approval.

2.05 Water

- A. The Contractor shall be responsible to furnish water to the site at no extra cost. All work injured or damaged due to the lack of water, or the use of too much water, shall be the Contractor's responsibility to correct. Water shall be free from impurities injurious to vegetation.

2.06 Slow Release Watering Bags

- A. Furnish and install 20 Gallon slow release watering bags at all trees at the time of planting.

2.07 Tree Anchoring Materials

- A. Stakes: For supporting trees shall be of sound wood uniform in size, reasonably free of knots, and capable of standing in the ground at least two years. Stakes shall be 2"x 2," not less than eight feet in length and stained dark brown.
- B. Arbor Ties: Utilize Arbortie by Deeproot, or approved equal, when staking and guying plant material.

2.08 Seed

- A. Seed Material: Provide fresh, clean, new-crop seed complying with tolerance for purity and germination establish by Official Seed Analysis of North America. Seed shall be composed of the following varieties that shall be mixed in the proportions stated and shall test to minimum percentages of purity and germination. Deliver seed in fully labeled, standard, sealed containers. Seed that has become wet, moldy, or otherwise damaged, will not be accepted.

<u>Common Name</u>	<u>Proportion By Weight</u>	<u>Percent Purity</u>	<u>Percent Germination</u>
Cochise IV Fescue	80%	95%	90%
Fiesta 4 Perennial Ryegrass	10%	95%	90%
Impact Kentucky Bluegrass	10%	85%	90%

1. All varieties shall be within the top 50 percent and 25 percent respectively, of varieties tested in National Turfgrass Evaluation Program, or currently recommended as low maintenance varieties by University of Massachusetts or the University of Rhode Island.
2. Seeding rate for the seed mix shall be 6 pounds per 1,000 square feet.

2.09 Wood Fiber Mulch

- A. Wood Fiber Mulch: shall be derived from natural, clean, whole woodchips. Fiber shall not be produced from recycled material such as sawdust, paper, or cardboard fiber. It shall be dyed green to contrast with the soil on which it is to be applied. Fiber shall have a water holding capacity of not less than 31.5 ounces of water per 3.5 ounces of fiber. The rate of application for wood fiber mulch shall be in accordance with manufacturer's guidelines.

2.10 Pesticides

- A. Provide pesticides as needed for to control fungus, insects and plant disease. All chemicals and insecticides shall be approved by the Massachusetts Department of Food and Agriculture for the intended uses and application rates.
- B. Provide post emergent crab grass control throughout the maintenance period to ensure a germinated and mown lawn free of crab grass.

PART 3 - EXECUTION

3.01 Topsoil (Loam Borrow)

- A. Loosen subgrade to a friable, well-drained state, and spread topsoil throughout planting areas at the depth indicated on the Drawings.
- B. Incorporate soil amendments to the full-depth of topsoil in accordance with the independent testing laboratory's recommendations.
- C. Fine grade planting and lawn areas to the grades indicated on the drawings.
- D. All existing lawn areas disturbed by this project shall be loamed and seeded.

3.02 Planting

A. Season for Planting

1. Spring: Between April 1 – June 15. Fall: September 1 – November 15. Contractor shall request approval in writing from the Landscape Architect to install plant material outside of above stated dates.

- B. Location for all plants and outlines for planting areas shall be staked on the ground by the Contractor for approval by the Landscape Architect before any planting holes or plant beds are dug. In the event that rock or underground construction work or obstructions are encountered in any planting hole or bed excavation work to be done under this Contract, alternate locations may be selected by the Landscape Architect.

- C. The Contractor shall take special care to insure that the plant material is not planted too deeply by removing burlap and soil mounded around the base of the plant, at the top of the rootball, to expose the trunk flare. A measurement shall be taken from the trunk flare to the bottom of the root ball. This measurement shall be the depth of the planting hole.

- D. The plants shall be set at the center of the holes with trunk flare level to, or 1" – 2" above, finish grade. Once plant is set in planting pit, the Contractor shall remove the top 12" minimum, of wire basket and all visible rope and burlap.

- E. Hole shall be backfilled in layers of loam not more than nine inches and each layer watered sufficiently to settle before the next layer is put into place. Do not place any subsoil, sod or waste materials in planting hole.

- E. Each tree and shrub shall be pruned in accordance with National Arborist Association Standards to preserve the natural character of the plant. Remove all tags, labels and dead or broken branches

- G. All plants shall be flooded with water twice within the first 24 hours of the time of planting and all plants during the maintenance period shall be watered at least twice each week. At each watering the soil around each plant shall be thoroughly saturated. If sufficient moisture is retained in the soil, the required watering may be reduced.

- H. Staking of newly planted trees shall be performed directly after they are planted. Trees of 3-inch caliper or under, require staking only as needed to hold the tree plumb. All trees of 3-inch caliper and over shall be staked. Support ties shall allow tree to move and sway, but be able to return the trunk to a plumb and true position. Contractor shall adjust staking as frequently as needed during the maintenance period.

- I. Mulch material shall be placed in a 3 foot saucer around each tree to a depth of three inches (3") after settlement, not later than one (1) week after planting. No mulch shall be applied prior to the first watering of plant materials. Mulch shall be pulled back three inches (3") from trees.

- J. Absolutely no debris may be left on the site. Excavated material shall be removed as directed by the Landscape Architect. Repair any damage to site or

structures to restore them to their original condition as directed by the Landscape Architect, at no cost to the Owner.

3.03 Bark Mulch

- A. Contractor shall install approved bark mulch material to the limits and depths shown on the Drawings and specified herein.
 - 1. Apply 1" layer of leaf compost topdressing prior to installation of bark mulch.

3.04 Seeding

- A. Contractor shall obtain Landscape Architect's approval of fine grading before doing any seeding work.
- B. Seeding shall be done immediately after fine grading provided the seedbed has remained in a friable condition and has not become muddy or hard. If it has become hard, it shall be tilled to a friable condition and fine graded again.
- C. The season for seeding shall be from April 1 to June 15 and from August 15 to October 15. The actual planting of seed shall be done, however, only during periods within this season which are normal for such work as determined by weather conditions and by accepted practice in this locality. To prevent loss of soil via water and wind erosion and to prevent the flow of sediment, fertilizer, and pesticides onto roadways, sidewalks, and into catch basins, seed loam areas within 5 Days of spreading the topsoil.
- D. Sow seed using a spreader or hydroseeder. Do not seed when wind velocity exceeds 5 miles per hour. Distribute seed evenly over entire area by sowing equal quantity of seed specified or scheduled. Apply seed at one half the rate in two directions at right angles to each other. Roll the seeded areas lightly and water with a fine spray.
 - 1. After the grass has germinated, all areas and parts of areas that fail to show a uniform stand of grass, for any reason whatsoever, shall be reseeded and such areas and parts of areas shall be reseeded repeatedly until all areas are covered with a uniform germination.
 - 2. Install straw mulch at areas seeded by spreader and cellulose fiber mulch at areas seeded by hydroseeder. Install mulch immediately after fine grading topsoil and seeding.
- E. Hydroseed with wood cellulose fiber mulch at a rate of 46 pounds per 1,000 square feet or 2000 pounds per acre. For the hydroseeding process, a mobile tank with a capacity of at least 500 gallons shall be filled with water and the mixture noted above in the specified proportions. The resulting slurry shall be thoroughly mixed by means of positive agitation in the tank. Apply the slurry by a centrifugal pump using the hose application techniques from the mobile tank. Only hose application shall be permitted. At no time shall the mobile tank or tank truck be allowed onto the prepared hydroseed beds. The hose shall be equipped with a nozzle of a proper design to ensure even distribution of the hydroseeding

slurry over the area to be hydroseeded and shall be operated by a person skilled with this type of seeding operation.

3.05 Maintenance of New Plants

- A. Maintenance shall begin immediately after each area is planted and shall continue for a minimum of ninety (90) days or until the final acceptance of planting.
- B. Maintenance shall consist of keeping the plants in a healthy growing condition and shall include watering, weeding, cultivating, remulching, tightening and repairing of guys, removal of dead material, resetting plants to proper grades or upright position and maintaining the planting saucer.
 - 1. All plants during the maintenance period shall be watered at least twice each week. At each watering the soil around each tree shall be thoroughly saturated. If sufficient moisture is retained in the soil, as determined by the Landscape Architect, the required watering may be reduced.
 - 2. Individual tree pits shall be kept free of weeds, and mulch shall be replaced as required to maintain a three inch (3") layer of mulch. Beds and individual pits shall be neat in appearance and maintained to the lines originally laid out.
 - 3. Plants that die during the maintenance period shall be replaced as directed by the Landscape Architect.
 - 4. Spraying for both insect pests and diseases shall be included during the maintenance period as required and as directed by the Landscape Architect. Pesticide application must be performed only by a licensed pesticide applicator and only after notification and approval from the City of Somerville.
 - 5. A second application of fertilizer, as specified herein, shall be applied approximately 6 weeks after the plant material has been installed as directed by the Landscape Architect. Fertilizer shall be applied at the rate of 10 pounds per 1,000 square feet.
 - 6. Tree watering bags shall be installed immediately following planting and refilled daily during days that are above 75 degrees Fahrenheit.
- B. Protection: Planting areas and plants shall be protected against trespassing and damage of any kind. This shall include the provision and installation of approved temporary fencing if necessary. If any plants become damaged or injured by vandalism or neglect prior to provisional acceptance, the Contractor shall treat or replace them at his own expense.

3.06 Lawn Maintenance

- A. The Contractor shall maintain all seeded lawn areas immediately after any area is seeded until an acceptable uniform germination has been achieved and the lawn has reached 3 to 4 inches in height. The Contractor is responsible for the initial establishment of new seedings and to request the Landscape Architect's

approval at least 2 weeks prior to the first mowing. A level of maintenance not meeting the requirements for proper turfgrass establishment may require the maintenance period to be extended as determined by the Landscape Architect

- B. Maintenance shall consist of watering, weeding, mowing, repair of ruts and erosion, repair of protective devices and reseeding.
- C. Watering: The Contractor shall include in his base bid costs for daily and, if necessary, continuous watering of all grass areas during a normal eight hour working day to maintain the seed bed in a continuous moist condition satisfactory for good germination and turfgrass development. Control weeds as necessary to maintain grass at 98% weed free.
- D. Maintenance shall include all temporary protection fences, barriers and signs and all other work, tools and equipment incidental to proper maintenance.
- E. The Contractor shall be responsible for all maintenance of lawns necessary to establish a uniform germination of the specified grasses. Scattered bare spots, none of which are larger than 72 square inches, will be allowed up to a maximum of 2% of any lawn area.
- F. The Contractor shall be responsible for providing mowing and maintenance of areas made inaccessible to owner during construction, including areas outside of the Limit of Work line.

3.07 Cleaning and Protection

- A. During operations, keep pavements clean and work area in an orderly condition. Protect lawns from damage by other contractors and trades and trespassers. After completion of the work, the Contractor shall remove all debris, materials, rubbish, excess dirt, etc. from the site and dispose of them in a legal manner. The premises shall be left clean and presentable to the satisfaction of the Architect.

END OF SECTION

SECTION 33 40 00 - STORM DRAINAGE UTILITIES

PART 1 - GENERAL

1.01 General Requirements

- A. All of the Contract Documents, including General and Supplementary Conditions and Division 1 General Requirements, apply to the work of this section.

1.02 Work Included

- A. The work under this Section shall include the furnishing of all material, labor, equipment and supplies and the performance of all operations to provide a complete working system as required by the Drawings and details and as specified herein, in general, to include the following items:
 - 1. Modifications to existing storm drainage system
 - 2. Cleanouts
 - 3. High Density Polyethylene pipe and fittings (HDPE)

1.03 Referenced Work

- A. Examine all other sections of the Specifications and all Drawings for the relationship of the work under this Section and the work of other trades. Cooperate with all trades and all departments of the City of Somerville and coordinate all work under this Section.
- B. The following related items are included under the Sections list below
 - 1. Section 02 41 00 – Site Preparation and Demolition
 - 2. Section 26 00 00 - Electrical
 - 3. Section 31 00 00 – Excavation, Filling and Grading
 - 4. Section 32 12 16 – Asphalt Paving
 - 5. Section 32 13 13 – Concrete
 - 6. Section 32 18 00 – Synthetic Turf
 - 7. Section 32 31 00 – Fences, Gates and Netting

1.04 Submittals

- A. Refer to Division 1, for submitted provisions and procedures.
 - 1. Product Data: Submit manufacturer's technical product data and installation instructions for storm drain system materials and products. Descriptive literature showing pipe dimensions, pipe and joint materials and dimensions, and other details for each class or type of pipe or product to be furnished for this contract. All

pipe furnished under the contract shall be manufactured in accordance with these Specifications.

2. As-Built Drawing: Prior to the acceptance of the storm drainage system, the Contractor shall submit, for review and approval, As-Built Drawings that indicate the true measurement and location, horizontal and vertical, of all new construction.

1.05 Interpretation of Drawings

- A. It is hereby understood that the Contractor has carefully examined the site and all conditions affecting work under this Section. No claim for additional costs will be allowed because of a lack of knowledge of existing conditions as indicated in the Contract Documents, or obvious from observation of the site.
- B. Plans, surveys, measurements and dimensions under which the work is to be performed are believed to be correct, but the Contractor shall have examined them for himself during the bidding period and formed his own conclusions as to the full requirements of the work involved.
- C. All work shall be performed to the true intent and purpose of the drawings and all necessary parts to make complete, approved working systems ready for use, shall be furnished without extra charge.

1.05 Obtaining Information

- A. Obtain from the manufacturer the proper method of installation and connection of the equipment that is to be furnished and installed. Obtain all information that is necessary to facilitate the work and complete the project.

PART 2 - PRODUCTS

2.01 PVC Pipe, Fittings and Covers for Cleanouts

- A. The pipe at cleanouts shall be smooth wall Type PS 46 PVC pipe conforming to ASTM F 758.
 1. Fittings shall conform to Annex 1 of ASTM F 758 and to ASTM D 3034.
 2. Joints shall either be gasket type conforming to ASTM D 3212 or solvent cement type conforming with ASTM F 758 and D 2564.
- B. Cleanout covers
 1. Cleanout caps and covers shall be cast iron similar to Zurn Industries Model Z-1402.

2.02 Corrugated Polyethylene Pipe

- A. General: Provide pipes of the following materials of class indicated. Provide pipe fittings and accessories of same materials and class as pipes with joining method, as indicated. The piping shall be manufactured by an established manufacturer of good reputation in the industry and in a permanent plant adapted to meet all the design requirements of the pipe.

1. Corrugated perforated polyethylene pipe shall have an interior surface that is smooth and even, free from roughness, projections, indentations, offsets, or irregularities of any kind. Pipe shall conform to AASHTO M-294, AASHTO M252, or AASHTO MP6, Type S depending on the diameter of the pipe required.
2. Pipe and fittings shall be high-density polyethylene meeting the requirements of ASTM D3350.
3. Pipe shall be installed with a minimum 12-inch cover for AASHTO H-20 loading.

B. Joints on Corrugated Polyethylene Pipe.

1. Corrugated polyethylene pipe and fittings shall be jointed with coupling devices made by the same manufacturer as the piping and of the same material specified for the piping.
2. Coupling bands or external snap couplings shall cover a minimum of one full corrugation in each section of pipe to be joined. Couplings shall have neoprene gaskets to minimize soil infiltration.
3. Pipe entrances at structures shall be made with a mortar made with Type II cement. Mortar mixture shall follow instructions provided by cement manufacturer.
4. Watertight joints shall be provided when indicated on the Contract Drawings.

2.04 Filter Fabric shall be as specified under Section 31 00 00 Excavation, Filling and Backfill.

PART 3 - EXECUTION

3.01 General Requirements

- A. Obtain detailed information from the manufacturers of apparatus as to the proper method of installing and connecting same.
- B. Carefully store materials and equipment that are not immediately installed after delivery. Close open ends of work with temporary covers or plug during construction to prevent entry of obstructing material.
- C. Any defective pipe, fitting or drain apparatus that is discovered after it has been installed or has been installed improperly, shall be removed and replaced with non-defective parts to the satisfaction of the Landscape Architect at the Contractor's expense.
- D. Trenches shall be kept free of water and as dry as possible during the installation of the bedding material, pipe and jointing for as long a period as required. Pipe shall not be laid in water or when trench conditions are unsuitable for the work.
- E. No backfilling shall take place, unless otherwise ordered by the Landscape Architect, until the inspection has been completed.
- F. Excavation, backfill and pipe bedding material shall be in accordance with Section 31 00 00 Excavation, Filling and Backfill.

3.02 Installation of Cleanouts

- A. Furnish and install cleanouts in accordance with the manufacturer's installation detail in the quantities and locations indicated on the Plan.

3.03 Installation of Corrugated Polyethylene Pipe and Pipe Fittings

- A. General: Install piping in accordance with governing authorities having jurisdiction, except where more stringent requirements are indicated.
 - B. Pipe Storage: Pipe sections shall not be stored on areas over the newly placed pipe or other pipelines which might be damaged by the superimposed load, and storage sections shall be restricted to approved areas.
 - C. Handling Pipe: The Contractor will be required to furnish suitable devices to permit satisfactory support of all parts of the pipe unit when it is lifted.
 - D. Placing Pipe: Except where a concrete cradle or envelope is required, the pipe shall be placed in a crushed stone cradle. In trenches, no blocking or supporting of the piping by concrete, stones, bricks, wooden wedges, or method other than bedding the pipe on crushed stone will be permitted. Each length of pipe shall be shoved home against the pipe previously laid and held securely in position. Joints shall not be "pulled" or "cramped".
 - E. Jointing Pipe: After the pipe are aligned in the trench and are ready to be jointed, all joint surfaces shall be cleaned.
 - F. Alignment and Placement: All pipe shall be placed with extreme care as to grade and alignment. Each pipe shall be so placed as to form a close joint with the next adjoining pipe and bring the inverts continuously to the required grade.
 - 1. Stakeout of drain work and setting of line and grade is the responsibility of the Contractor.
 - G. Cleaning: Care shall be taken to prevent earth, water, and other materials from entering the pipeline. As soon as possible after the pipe and manholes are completed, the Contractor shall clean out the pipeline and manholes being careful to prevent soil, water, and debris from entering any existing Drain.
 - 1. Place plugs in end of uncompleted conduit at end of day or whenever work stops.
 - 2. Flush lines between manholes to remove collected debris.
 - H. Review of Completed Corrugated Polyethylene Pipe System: If the visual observation of the completed drain or any part thereof shows any pipe, manhole, or joint to be of defective work or material the defect shall be replaced or repaired as directed. The visual observation shall be conducted by the Owner's representative and any defects shall be as identified by such. The Contractor shall coordinate and provide site access for the Owner.
- ### 3.04 Modification to Existing Storm Drainage System
- A. Existing drainage structures shall be cored to receive new underdrain system where indicated on the Plan and as specified herein.

- B. Catch basin and drain manhole frames and grates/covers shall be raised with brick and mortar to the proposed grades indicated on the Grading Plan.

3.05 Drainage System Cleaning and Acceptance

- A. The new drainage system shall be cleaned by flushing all pipes with clean water and removal of debris from catch basins and drywells, prior to final review and acceptance by the Owner.

END OF SECTION

PART 4: CONSTRUCTION DOCUMENT DRAWING LIST

**(SEE SEPARATE DOCUMENTS AT
www.somervillema.gov/bidpostings - “Drawings – IFB 17-57 Winter
Hill School Park Bid Set”)**

DRAWINGS

- Cover Sheet
- Existing Conditions Plan
- L-1 Site Preparation Plan
- L-2 Layout, Materials, Grading and Planting Plan
- L-3 Details
- L-4 Details