IFB # 20-58

SOLICITATION FOR:

Parking Repairs and Waterproofing – Buena Vista Garage

CITY OF SOMERVILLE, MASSACHUSETTS

Joseph A. Curtatone, Mayor

Purchasing Department
Angela M. Allen, Purchasing Director

RELEASE DATE: 2/19/2020
OPTIONAL PRE-BID MEETING: 2/26/2020 **at 3 PM ET**
QUESTIONS DUE: 2/28/2020 **by 12PM EST**
FILED SUB BID DUE DATE AND TIME: 3/4/2020 **by 2PM ET**
GC BID DUE DATE AND TIME: 3/11/2020 **by 2PM ET**

DELIVER TO:
City of Somerville
Purchasing Department
Attn: Angela M. Allen
Purchasing Director
amallen@somervillema.gov
93 Highland Avenue
Somerville, MA 02143

IFB # 20-58
Parking Repairs and Waterproofing – Buena Vista Garage

Key Project Information

Project Address	52 Holland Street, Somerville, MA
Estimated Construction Cost	$1,400,000.00
Anticipated Contract Award	3/18/2020
Date of Substantial Completion	10/31/2020
Date of Final Completion	12/31/2020
Est. Contract Commencement Date	4/1/2020
Est. Contract Completion Date	12/31/2020
Governing Bid Law	**MGL C. 149 (Vertical Construction)**
Wage Requirements	**State Prevailing Wages**
Payment Bond Requirements	**100% of Contract Value**
Performance Bond Requirements	**100% of Contract Value**
Liquidated Damages ($ per Day)	**$500.00**

Managing Department Information

Managing City Department	Infrastructure & Asset Management - Capital Projects
Project Manager	Robert Cassano
Project Manager Email	rcassano@somervillema.gov

Designer Information

Designer Name	Simpson Gumpertz & Heger, Inc.
Designer Address	800 Boylston Street, Suite 2320, Boston, MA 02199
Designer Specialty	**Architecture**
Designer Contact	Sal A. Capobianco
Designer Contact Email	sacapobianco@sgh.com

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	Certificate of Signature Authority
	Reference Form (or equivalent may be attached)
	5% Bid Deposit
	Prevailing Wages Statement of Compliance Form
	DCAMM Certification and Update Statement
	OSHA Form
	Vulnerable Road Users Ordinance
	Responsible Employer Ordinance
	Acknowledgement of Addenda (if applicable)
	Signed W9
	Supplier Diversity Certification (if applicable)
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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DIVISION 22 – PLUMBING

Section 220001 – Plumbing (filed sub-bid)

DIVISION 26 – ELECTRICAL

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DIVISION 31 – EARTHWORK

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• PART 4: DRAWINGS

Due to the file size, the drawings may be downloaded from the City of Somerville's Purchasing webpage, here: https://www.somervillema.gov/departments/finance/purchasing

DRAWINGS

G-001	COVER SHEET
G-002	SCOPE OF WORK
PH-100	PROPOSED PHASING PLAN
C-001	CIVIL GENERAL NOTES (1 OF 2)
C-002	CIVIL GENERAL NOTES (2 OF 2)
C-100	GARAGE ENTRANCE REPAIRS
C-300	CIVIL DETAILS
D-100	EXTERIOR DRAINAGE REPAIRS
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FP-100	LOWER LEVEL NEW FIRE PROTECTION PLAN
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P-100	LOWER LEVEL NEW PLUMBING PLAN
P-101	UPPER LEVEL NEW PLUMBING PLAN
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Part 1: Invitation for Bid Documents

IFB # 20-58
Parking Repairs and Waterproofing – Buena Vista Garage

1.1 General Instructions

Copies of the solicitation may be obtained from the Purchasing Department on and after 2/19/2020 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
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.
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) Form for Filed Sub Bid 3) Signed Cover Letter 4) Somerville Living Wage Form 5) Certificate of Non-Collusion & Tax Compliance 6) Certificate of Signature Authority 7) Reference Form (or equivalent may be attached) 8) 5% Bid Deposit 9) Prevailing Statement of Compliance Form 10) DCAMM Certification and Update Statement 11) OSHA Form 12) Responsible Employer Ordinance 13) Vulnerable Road Users Ordinance 14) Acknowledgement of Addenda (if applicable) 15) Signed W9 16) Supplier Diversity Certification (if applicable)
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.

A complete Bid must also include a cover letter signed by an official authorized to bind the Offeror contractually and contain a statement that the proposal is firm for ninety (90) days. **An unsigned letter, or one signed by an individual not authorized to bind the Offeror, may be disqualified.**
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	2/19/2020
Optional Pre-Bid Site Visit	2/26/2020 at **3PM ET**
Deadline for Submitting Questions to IFB	2/28/2020 by **12PM EST**
Filed Sub Bids Due	3/4/2020 **by 2PM ET**
General Contractor Bids Due	3/11/2020 **by 2PM ET**
Anticipated Contract Award	3/18/2020
Est. Contract Commencement Date	4/1/2020
Est. Contract Completion Date	12/31/2020

Responses must be delivered by 3/4/2020 by 2PM ET for Filed Sub Bids and 3/11/2020 by 2PM ET for GCs to:	City of Somerville Purchasing Department Attn: Angela M. Allen 93 Highland Avenue Somerville, MA 02143

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 # 20-58** Parking Repairs and Waterproofing – Buena Vista Garage
Please send the complete sealed package to the attention of :	Angela M. Allen 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.

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 Pre-Bid Site Visit and Walkthrough

An optional pre-bid walkthrough will be conducted on 2/26/2020 beginning at 3PM. Interested parties are instructed to meet in front of the garage located at 52 Holland Street. The walkthrough will allow interested parties to ask questions regarding the building and overall project.

Interested parties are asked to register their interest in attending the pre-bid site visits by contacting amallen@somervillema.gov

All questions asked and answered at the optional pre-bid walkthrough will be included with the addendum to be issued after the Question/Answer deadline has passed.

1.5 Questions

Questions are due: 2/28/2020 **by 12PM EST**

Questions concerning this solicitation must be delivered in writing to:

Angela M. Allen
Purchasing Director
Somerville City Hall
Purchasing Department
93 Highland Avenue
Somerville, MA 02143
Or emailed to:
amallen@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.

1.6 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 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 Parking Department must be contacted directly for all required permits. The vendor must also provide the City of Somerville 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 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.

The following utility companies must be notified in writing:		
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
The following utility companies must be notified in writing or through Dig-Safe:		
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**	**A T & T Broadband** **981-658-0400**	**Somerville Public Works Dept.** **617-625-6600, x5200**

303 Third Street Somerville, MA 02142	760 Main Street Malden, MA 01887	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.**

DCAMM Certification

General bidders must provide documentation certifying that they are DCAMM certified in General Building Construction. Filed sub bidders must provide documentation certifying that they are DCAMM certified in one or more of the following categories:

- Plumbing
- HVAC
- Electrical

In a separate envelope, include a DCAMM update statement.

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 electronic copies of the as-built drawings. Electronic formats may include CD-ROM or thumb drives and are to be saved in Adobe Acrobat format. "Read only" files are acceptable. The City will not issue the final payment (including any retainage) until the submittal and approval of the maintenance manual and as-built drawings to the satisfaction of the City.

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) <u>As-Built drawings</u> 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.

Police Details

Unless otherwise noted in the specifications, the Contractor will be responsible for <u>requesting</u> all necessary police details. The City will be responsible for payment of police details.

Period of Performance

The period of performance for this contract begins on or about 4/1/2020 and ends on or about 12/31/2020. 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.

SECTION 2.0
RULE FOR AWARD / PROJECT INFORMATION

2.1 Rule For Award

The contract shall be awarded to the responsible and eligible Bidder submitting the lowest total price. For award purposes, the total of the base bid plus the alternate(s) shall determine the award, if the City elects to accept the alternate(s). Otherwise, the base bid will serve as the basis for determining the award. 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:	Infrastructure & Asset Management - Capital Projects
Project Manager:	Robert Cassano
Project Manager Email:	rcassano@somervillema.gov
Designer:	Simpson Gumpertz & Heger, Inc.
Designer Contact:	Sal A. Capobianco
Project Address:	52 Holland Street, Somerville, MA
Brief Project Description:	Repairs and Waterproofing to municipal parking garage. See specifications for details.
Estimated Project Cost:	$1,400,000.00
Project Schedule	
Estimated Award Date:	3/18/2020
Estimated Start Date:	4/1/2020
Date of Substantial Completion:	10/31/2020
Date of Final Completion:	12/31/2020

IFB # 20-58

SECTION 3.0

Parking Repairs and Waterproofing – Buena Vista Garage

REQUIRED 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

	Signed Cover Letter
	Form for General Bid
	Somerville Living Wage Form
	Certificate of Non-Collusion & Tax Compliance
	Certificate of Signature Authority
	Reference Form (or equivalent may be attached)
	5% Bid Deposit
	Prevailing Wages Statement of Compliance Form
	OSHA Form
	DCAMM Certification and Update Statement
	Responsible Employer Ordinance
	Ordinance to Protect Vulnerable Road Users
	Acknowledgement of Addenda (if applicable)
	Signed W9
	Supplier Diversity Certification (if applicable)

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)
	Statement of Management
	Performance Bond – 100% of contract price
	Payment Bond – 100% of contract price

SECTION 3.0

Parking Repairs and Waterproofing – Buena Vista Garage

REQUIRED BID FORMS
FILED SUB-CONTRACTOR

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 Filed Sub Bids

	Signed Cover Letter
	Form for Filed Sub Bidder
	Somerville Living Wage Form
	Certificate of Non-Collusion & Tax Compliance
	Reference Form (or equivalent may be attached)
	5% Bid Deposit
	Prevailing Wages Statement of Compliance Form
	OSHA Form
	Ordinance to Protect Vulnerable Road Users
	Acknowledgement of Addenda (if applicable)
	DCAMM Certification and Update Statement - Sub Contractor (refer to specifications)

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 **7/1/2019** "Living Wage" shall be deemed to be an hourly wage of no less than **$15.00** per hour. From time to time, the Living Wage may be upwardly adjusted and amendments, if any, to the contract or subcontract may require the payment of a higher hourly rate if a higher rate is then in effect.

CERTIFICATIONS

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

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

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

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

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

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

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

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

CERTIFIED BY:

Signature: _____
(Duly Authorized Representative of Vendor)

Title: _____

Name of Vendor:_____

Date: _____

INSTRUCTIONS: PLEASE POST

NOTICE TO ALL EMPLOYEES
REGARDING PAYMENT OF LIVING WAGE

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

The Living Wage as of **7/1/2019** is **$15.00** 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: _____

Print

Certificate of Authority
(Corporations Only)

<u>Instructions</u>: Complete this form and sign and date where indicated below.

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

_____.
(Insert Full Name of Corporation)

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

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

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

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

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

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

4. **ATTEST**:
Signature: _____ ***AFFIX CORPORATE SEAL HERE***
(Clerk or Secretary)
Printed Name: _____

Printed Title:_____

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

Print

Certificate of Authority
(Limited Liability Companies Only)

<u>Instructions</u>: Complete this form and sign and date where indicated below.

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

_____,
(Complete Name of Limited Liability Company)

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

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

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

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

Name	Title

5. **Signature**:_____

Printed Name: _____

Printed Title:_____

Date: _____

REFERENCE FORM

Bidder: _____

BID#/ Title: _____

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:_____

_____

_____

OSHA GENERAL CONTRACTOR CERTIFICATION FORM

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

GENERAL CONTRACTOR'S CERTIFICATION – BID FORM

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

> (1) certify 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 a 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.

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

Signature: _____
(Individual Submitting Bid)
Duly Authorized

Name of Business or Entity:_____

Date: _____

RETURN THIS FORM WITH YOUR BID

OSHA FILED SUB-BIDDER CERTIFICATION FORM

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

FILED SUB-BIDDER CERTIFICATION – BID FORM

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

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

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

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

Name of Business or Entity:_____

Bid Number and Title: _____

Date: _____

RETURN THIS FORM WITH YOUR BID

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

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

Sec. 2-355. Responsible Employer Ordinance.

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

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

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

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

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

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

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

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

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

Receipt Acknowledged _____day of _____,_____.

_____
Name of Vendor

By: _____
Name

Its: _____
Title

_____
Signature

CITY OF SOMERVILLE
Responsible Employer Ordinance

WEEKLY COMPLIANCE FORM

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

STATEMENT OF COMPLIANCE

Date _____

Period _____

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

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

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

_____ by this general contractor or
(Building or Project)

subcontractor.

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

TO: City Vendors

FROM: Fleet Division, City of Somerville

SUBJECT: Vehicle Inspections Process under Somerville City Ordinance Chapter 12, Article VIII ("Ordinance to Safeguard Vulnerable Road Users")

Prospective bidders must familiarize themselves with the City of Somerville's Ordinance to Protect Vulnerable Road Users. The full text of this local law can be found here.

1. **Request for Inspection:** Inspections are conducted on Thursdays from 4pm-7pm at the Somerville Department of Public Works, located at 1 Franey Road. Each inspection takes approximately 20 minutes.
   a. Any vendor covered by this Ordinance shall complete an inspection request form and email it to fleetinspections@somervillema.gov.
   b. Please submit request form no later than 3pm on the Tuesday before the requested inspection date.
2. **Fee:** The fee for the initial inspection is $100. The fee for a renewal inspection (every two years) is $50.
   a. Payment of the fee is due upon scheduling of the inspection. The fee can be paid via check or credit card. Checks should be made out to the City of Somerville and include the vendor's phone number.
3. **Approval:** Vehicles inspected and approved by the Fleet Division will have an inspection approval sticker affixed to the windshield of the vehicle. A copy of the inspection report and certificate of inspection shall be issued to the vendor.
   a. Inspection stickers are not transferable.
   b. Any major overhaul of safe guard equipment shall be required to be re-inspected.
4. **Rejection:** If a vehicle is rejected for failing to comply with any of the technical specifications outlined in the ordinance, it shall be corrected and henceforth re-inspected within 30 days at no additional fee.
   a. If a second inspection results in a rejection, a fee of $50 will be required for any subsequent inspections.
   b. Any vendor who fails to comply within 60 days of their first inspection may be subject to having their contract cancelled.
5. **Questions:** Please direct questions about vehicle inspections to Fleet Superintendent Ron Bonney at rbonney@somervillema.gov or at (617) 625-6600, ext. 5524.

Acknowledgement

In accordance with Sec. 12-119 "Requirements" in the Ordinance, bidders must sign the following:

Unless certified that the Ordinance is not applicable to this contract or otherwise waived by the City, I acknowledge that my company has installed (or will install prior to commencing work for the contract) side guards, cross-over mirrors or equivalent blind spot countermeasures, convex mirrors or equivalent blind spot countermeasures, side-visible turn signals, and appropriate warning signage, in accordance with SCO Chapter 12, Article VII on all large vehicles it uses or will use within the City of Somerville in connection with any contract.

_____

Authorized Signatory's Name Date

_____

Company Name

I certify that the Ordinance does not apply to this contract for the following:

☐ Vehicles do not meet or exceed Class 3 ☐ Vehicles do not exceed 15 MPH ☐ No vehicles on project

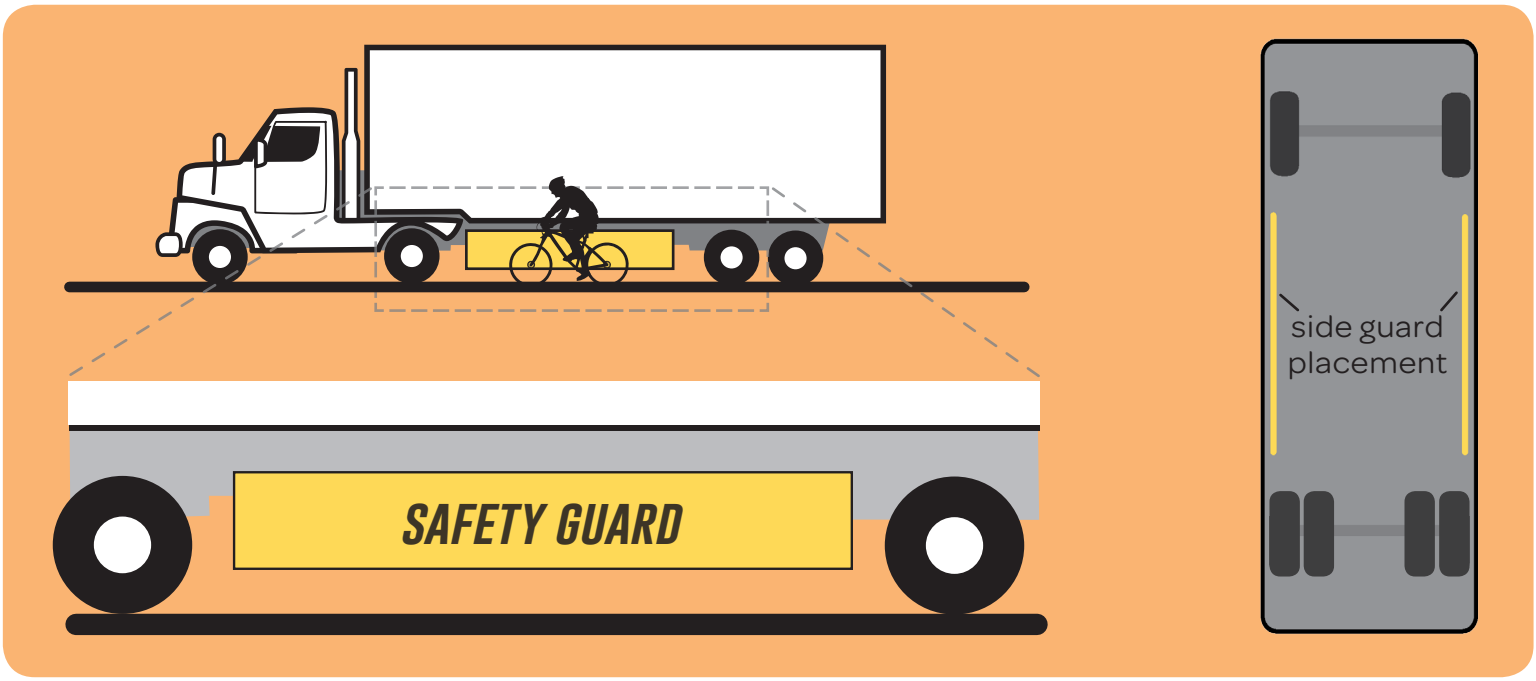
☐ Other:_____

_____

CITY OF SOMERVILLE
TRUCK SIDE GUARD ORDINANCE

Collisions with large vehicles are disproportionately likely to result in cyclist and pedestrian fatalities. The City of Somerville's Ordinance to Safeguard Vulnerable Road Users aims to prevent cyclists and pedestrians from the risk of being struck by a large vehicle because of limited driver visibility and lack of side-visible turn signals, as well as falling under the sides of large vehicles and being caught under the wheels.

The ordinance applies to large motor vehicles that are Class 3 or above with a gross vehicle weight rating (GVWR) exceeding 10,000 pounds, except for an ambulance, fire apparatus, low-speed vehicle with a maximum speed under 15 mph, or an agricultural tractor.



Questions about inspections?

Please contact the Fleet Superintendent, Ron Bonney, at: RBonney@SomervilleMA.gov or (617) 625-6600, ext. 5524.

ORDINANCE REQUIREMENTS

LATERAL PROTECTIVE DEVICES (SIDE GUARDS)

- Vehicles must have device installed between the front & rear wheels to help prevent injuries to vulnerable road users, particularly from falling underneath the vehicle.

SIDE-VISIBLE TURN SIGNALS

- Vehicles must have at least one turn signal lamp on each side of the vehicle that is visible from any point to the left and right side along the full length of the vehicle.

CONVEX MIRRORS

- Vehicles must have mirrors which enable the driver to see anything that is three feet above the road and one foot in front of or alongside of the vehicle.

CROSS-OVER MIRRORS

- Vehicles must have mirrors that enable the driver to see anything at least three feet tall passing one foot in front of the vehicle and the area in front of the bumper where direct vision is not possible.

SAFETY DECALS

- Vehicles must have a minimum of three reflective decals on the rear and sides.
- The decals must be "safety yellow" in color and include language or images that warn of blind spots.

COMMON QUESTIONS

WHAT TYPES OF VEHICLES DOES THIS ORDINANCE APPLY TO? This ordinance applies to Class 3 or above vehicles with a gross vehicle weight rating exceeding 10,000 lbs., except for an ambulance, fire apparatus, low-speed vehicle with max speed under 15 mph, or agricultural tractors.

CAN TOOL BOXES BE USED AS SIDE GUARDS? Yes, as long as the tool box meets all of the required measurements in the ordinance.

IF I RENT TRUCKS FOR A JOB, DO THOSE VEHICLES NEED TO BE INSPECTED AND PERMITTED? Yes.

DO SUBCONTRACTORS' TRUCKS WORKING ON A CITY CONTRACT NEED TO BE INSPECTED & PERMITTED? Yes.

WILL THE CITY DO AN OFF-SITE INSPECTION FOR LARGER FLEETS? Yes, depending on the availability of inspectors and the distance to the site.

REGISTER FOR AN INSPECTION

Email inspection forms to: FleetInspections@SomervilleMA.gov

Questions about inspections? Please contact the Fleet Superintendent, Ron Bonney, at: RBonney@SomervilleMA.gov or (617) 625-6600, ext. 5524

Form **W-9**
(Rev. October 2018)
Department of the Treasury
Internal Revenue Service

Request for Taxpayer Identification Number and Certification

▶ Go to *www.irs.gov/FormW9* for instructions and the latest information.

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

Print or type.
See **Specific Instructions** on page 3.

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 of the person whose name is entered on line 1. Check only **one** of the following seven boxes.

☐ Individual/sole proprietor or single-member LLC ☐ C Corporation ☐ S Corporation ☐ Partnership ☐ Trust/estate

☐ Limited liability company. Enter the tax classification (C=C corporation, S=S corporation, P=Partnership) ▶ _____

Note: Check the appropriate box in the line above for the tax classification of the single-member owner. Do not check LLC if the LLC is classified as a single-member LLC that is disregarded from the owner unless the owner of the LLC is another LLC that is **not** disregarded from the owner for U.S. federal tax purposes. Otherwise, a single-member LLC that is disregarded from the owner should check the appropriate box for the tax classification of its owner.

☐ 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) _____

(Applies to accounts maintained outside the U.S.)

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

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 instructions for Part I, later. For other entities, it is your employer identification number (EIN). If you do not have a number, see *How to get a TIN,* later.

Note: If the account is in more than one name, see the instructions for line 1. Also see *What Name and Number To Give the Requester* for guidelines on whose number to enter.

Social security number

☐☐☐ – ☐☐ – ☐☐☐☐

or

Employer identification number

☐☐ – ☐☐☐☐☐☐☐

Part II Certification

Under penalties of perjury, I certify that:

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

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

General Instructions

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

Future developments. For the latest information about developments related to Form W-9 and its instructions, such as legislation enacted after they were published, go to *www.irs.gov/FormW9.*

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, *later.*

SOMERVILLE SUPPLIER DIVERSITY CERTIFICATION FORM

Background

The City of Somerville is an equal opportunity employer and encourages businesses to apply to work with the City that are representative of the City's diverse community. In an effort to increase the opportunities for disadvantaged and small businesses within Somerville and surrounding communities, the City recognizes Massachusetts' Operational Services Division's Supplier Diversity Office certification program.

Application Process

Applicable parties may learn more about the Commonwealth's supplier diversity certification process and apply here https://www.mass.gov/supplier-diversity-office. During the certification process, which takes approximately 30 days, the SDO investigates applicant companies to make sure they meet applicable legal requirements. Under SDO regulations, the applicant firm must prove it is at least 51% owned and dominantly controlled by adult minority, women, Portuguese, or veteran principals who are U.S. citizens or lawful permanent residents. Firms also must be ongoing and independent.

Certifications

Check all those that apply:

- ☐ **Minority Business Enterprises (MBE)**
- ☐ **Women Business Enterprises (WBE)**
- ☐ **Veteran Business Enterprises (VBE)**
- ☐ **Portuguese Business Enterprises (PBE)**
- ☐ **Other _____**

The undersigned certifies that the applicant has received certification from the Massachusetts Supplier Diversity Office for the SDO category/categories listed above and has provided the City of Somerville with a copy of the SDO certification letter.

CERTIFIED BY:

Signature: _____
(Duly Authorized Representative of Vendor)

Title: _____

Name of Vendor:_____

Date: _____

SECRETARY OF THE COMMONWEALTH'S

CERTIFICATE OF GOOD STANDING

CERTIFICATE OF GOOD STANDING as provided by the Secretary of the Commonwealth

The **Awarded Vendor** must comply with our request for a **CURRENT "Certificate of Good Standing" provided by the Secretary of the Commonwealth's Office**

NOTE: A Certificate of Good Standing provided by the Department of Revenue will NOT be accepted. The Certificate *must* be provided by the Secretary of the Commonwealth's Office.

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 The Commonwealth's Office at (617) 727-2850 (Press #1) located at One (1) Ashburton Place, 17 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.

INSURANCE SPECIFICATIONS
INSURANCE REQUIREMENTS FOR AWARDED VENDOR ONLY:

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

A. GENERAL LIABILITY - Comprehensive Form

Bodily Injury Liability.....….....$ One Million

Property Damage Liability.....$ One Million

B. PROFESSIONAL LIABILITY.....$ 1,000,000.00

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

WORKER'S COMPENSATION….....$Statutory

EMPLOYERS' LIABILITY…….....…….$ Statutory

D. AUTOMOBILE LIABILITY INSURANCE AS LISTED BELOW:

BODILY INJURY LIABILITY.....$ STATUTORY

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

Certificate Should Be Made Out To:
City Of Somerville
c/o Purchasing Department
93 Highland Avenue
Somerville, Ma. 02143

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

CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY)

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

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

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

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

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

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

ADD "X" HERETO CERTIFY THAT THE CITY OF SOMERVILLE IS AN ADDITIONAL INSURED

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

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

CERTIFICATE HOLDER

CERTIFICATES SHOULD BE MADE OUT TO:

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

CANCELLATION

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

AUTHORIZED REPRESENTATIVE

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STATEMENT OF MANAGEMENT
For Contracts over $100,000

In accordance with M.G.L. Chapter 30, Section 39R, the undersigned successful bidder states that its system of internal accounting controls and that of its subsidiaries reasonably assure (1) that transactions are executed in accordance with management's general and specific authorization; (2) that transactions are recorded as necessary to permit preparation of financial statements in conformity with generally accepted accounting principles, and to maintain accountability for assets; (3) that access to assets is permitted only in accordance with management's general or specific authorization, and (4) that the recorded accountability for assets is compared with the existing assets at reasonable intervals and appropriate action was taken with respect to any difference.

Executed this _____day of _____ , _____

On behalf of _____
(Name of Successful Bidder)

_____
(Address and telephone of Successful Bidder)

_____
(Name and title of person signing statement)

By:_____
(Signature)

CERTIFIED PUBLIC ACCOUNTANT STATEMENT

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

_____
(Signature)

_____

_____

_____
(Business name, address and telephone number)

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

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

Are all apprentice employees identified above currently registered with the MA DLS's Division of Apprentice 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 Apprentice 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
/ /

Department of Labor Standards
Prevailing Wage Program

Confirmation

Your request for an Official Prevailing Wage Schedule has been successfully received and is being processed by DLS. The schedule will be emailed to the email address provided in your request.
Please note the wage request number **20200213-003** for future inquires.

Request another official Wage Schedule

Return to Prevailing Wage Website

MA Prevailing Wages for this project have been requested and will be furnished with an addendum prior to the filed sub-bid deadline.

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Website

IFB # 20-58

SECTION 4.0
FORM FOR GENERAL BID

The undersigned proposes to furnish all labor and materials required for: Parking Repairs and Waterproofing – Buena Vista Garage**.**

In accordance with the accompanying plans and specifications prepared by Simpson Gumpertz & Heger, Inc. (800 Boylston Street, Suite 2320, Boston, MA 02199) 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 Filed sub-bids will be received at the office of the Purchasing Director, Somerville City Hall, 93 Highland Avenue, Somerville, MA 02143 no later than 3/4/2020 **by 2PM ET**
- The general bids will be received at the office of the Purchasing Director, Somerville City Hall, 93 Highland Avenue, Somerville, MA 02143 no later than 3/11/2020 by 2PM ET
- 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 total proposed contract price is (total bid in figures)**:**	
$_____	
Total in words:	
The subdivision of the proposed contract price is as follows:	
Item 1. The work of the general contractor, being all work other than that covered by Item 2: **$**	
Base Bid (in figures)	
Base Bid (in words)	

Item 2. Sub-bids as follows:

Sub-Trade	Name of Sub-Bidder	Base Bid Amount	Bonds required, indicated by 'yes' or 'no'
Division 04 – Masonry		**$**	
Division 07 – Thermal and Moisture Protection		**$**	
Division 09 – Finishes		**$**	
Division 21 – Fire Suppression		**$**	
Division 22 – Plumbing		**$**	
Division 26 – Electrical		**$**	
	Total of Item 2 Base Bid:	**$**	

The undersigned agrees that each of the above named sub-bidders will be used for the work indicated at the amount stated, unless a substitution is made. The undersigned further agrees to pay the premiums for the performance and payment bonds furnished by sub-bidders as requested herein and that all of the cost of all such premiums is included in the amount set forth in Item l of this bid.

The undersigned agrees that if selected as general contractor, they will promptly confer with the awarding authority on the question of sub-bidders; and that the awarding authority may substitute for any sub-bid listed above a sub-bid filed with the awarding authority by another sub-bidder for the sub-trade against whose standing and ability the undersigned makes no objection; and that the undersigned will use all such finally selected sub-bidders at the amounts named in their respective sub-bids and be in every way as responsible for them and their work as if they had been originally named in this general bid, the total contract price being adjusted to conform thereto.

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 .

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: (3) 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, (4) 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____**	

FORM FOR FILED SUB-BID

CITY OF SOMERVILLE
IFB 20-58
PARKING REPAIRS AND WATERPROOFING – BUENA VISTA PARKING GARAGE
SOMERVILLE, MASSACHUSETTS

FORM FOR FILED SUB-BID - DUE: March 4, 2020 – 2:00 PM ET

A. Pursuant to and in compliance with your Invitation to Bid relating thereto, the undersigned, _____ having visited the site, familiarized himself with the conditions present, and carefully examined the Contract Documents, together with all Addenda issued and received prior to closing time for receipt of Bids as prepared by the Architect,

Simpson, Gumpertz & Heger, Inc.
800 Boylston Street, Suite 2320
Boston, MA 02199

hereby offers and agrees to provide all labor and materials required for construction of

DIVISION _____
Section _____
Buena Vista Garage Repairs
Somerville, MA

to the satisfaction of the Owner and the Architect and in accordance with the accompanying Contract Documents with all addenda, for the Contract Price specified below, subject to additions and deductions according to the terms of the Contract Documents.

B. This Bid includes Addenda numbered _____.

C. The proposed Contract Price is:

Sub-Trade Division / Name of Trade	Name of Sub-Bidder	Base Bid Amount
		$

D. This sub-bid

☐ may be used by any General Bidder except:

_____

_____

☐ may only be used by the following General Bidders:

_____

_____

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

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

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

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

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

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

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

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

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

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

4. Bank Reference _____

J. The undersigned hereby certifies that he is able to furnish labor that can work in harmony with all other elements of labor employed or to be employed on the work; 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 it will comply fully with all laws and regulations applicable to awards made subject to Section 44A of Chapter 149 of the Massachusetts General Laws.

K. The undersigned further certifies under penalties of perjury that this sub-bid is in all respects bona fide, fair and made without collusion or fraud with any other person. As used in this subsection the word "person" shall mean any natural person, joint venture, partnership, corporation or other business or legal entity.

L. 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 Law or any rule or regulation promulgated thereunder.

M. CONSTRUCTION SCHEDULE:

The construction schedule shall be as listed in the Summary of Work.

The work hours shall be as follows: Monday through Friday 7:00am to 5:00pm.

In case the work embraced in this contract shall not have been completed due to failure of the Contractor to complete the work or any part of the work within the time specified, the Owner shall recover actual damages for every day beyond the final completion dates or revised completion dates as extended in accordance with any change orders.

The Contractor shall start the work under this Contract on written notice from and on the date set by the Awarding Authority and continue to completion with all practical dispatch and regularity so that the entire project shall be completed in a timely fashion.

Date:_____ _____

(Name of Sub-Bidder)

Signed:_____

By: _____

(Name and Title of Person Signing Bid and Title)

_____

(Business Address)

_____

(City and State)

END OF DOCUMENT

PART 2: SAMPLE CONSTRUCTION CONTRACT / CITY's GENERAL TERMS AND CONDITIONS (APPENDIX D)

City of Somerville: Owner-Contractor Public Construction Agreement

AGREEMENT NAME: @@@@@@@@@@@@@@@@

This Agreement numbered _____, is made by and between the City of Somerville, a municipal corporation organized and existing under the laws of the Commonwealth of Massachusetts, with an address of 93 Highland Avenue, Somerville, Massachusetts, acting by and through its Purchasing Department ("City", "Owner", "School", or "Awarding Authority") and the Contractor, defined as follows, ("Contractor", "General Contractor", or "Vendor"):

Project Information

Project Name:	@@@@@@@@@@@@@@@@	**Project Address:**	@@@@@@@@@@
Project Description:			
Contractor Name:			
Contractor Address:			
Contractor Contact Name, Email, & Tel./Fax #:			
Contract Sum:		**Liquidated Damages (per calendar day):**	
Purchase Order #:		**Funding Source:**	**Pick a Funding Type**
Wage Requirements:	The Contractor shall pay wages at no less than the wage rates set forth in Appendix C, incorporated as part of this Agreement: namely, **Pick a Wage Type:**		
Contract Period:	@@@@@ through @@@@		
Dates of Substantial and Final Completion:	Date of Substantial Completion:		@@@@@@
	Date of Final Completion:		@@@@@@
This contract is a:	Contract Type: Chapter 149 and Chapter 30 contain interrelated provisions. When a provision applies only to Chapter 149 s. 44A contracts or only to Chapter 30, s. 39M contracts, it is so noted herein. Otherwise, any section of Chapter 30 or Chapter 149 cited in this contract shall be deemed to apply to both types of contracts.)		
Contracting Department:	**Pick Contracting Dept.**	**Project Manager:**	
Design Professional: (The Architects, Landscape Architects, and Engineers, is described herein as the "Design Professional".)	**Firm Name:**		
	Designer Name:		
	Address:		
	Email Address:		
	Tel. #:	**Designer Type:**	
Contractor Certifications:	The Contractor hereby certifies under oath as follows: Contractor is in full compliance with all laws of the Commonwealth of Massachusetts relating to taxes and to contributions and payments in lieu of taxes. The Contractor certifies that it has provided the City with an accurate tax identification number (TIN). In the event that the City is notified by the IRS for an incorrect TIN provided by the Contractor, the Contractor is responsible for penalties. ##-####### That the Contractor is a duly organized and validly existing Corporation / General Partnership / Limited Partnership / Trust / Sole Proprietorship / or other _____ and is qualified to do business and is in good standing in the Commonwealth of Massachusetts This Agreement has been duly executed and delivered on behalf of the Contractor by its: Officer (President, Vice President, Treasurer, Secretary) General Partner, Trustee, other:_____; in full compliance with the authority granted by its organizational documents and its votes or resolutions, which authority has not been amended, modified, or rescinded as of the date hereof.		

SAMPLE CONTRACT

Section 1: CONTRACT DOCUMENTS

The Contract Documents consist of this Agreement; the General Conditions; the Supplemental Conditions (if they apply); 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; Supplemental Conditions; Addenda issued prior to execution of this Contract; Modifications agreed to in writing after the execution of this Contract; and, the Design Professional's written interpretation and clarifications issued on or after the issuance of the Notice to Proceed. Shop Drawing submittals and reports or drawings utilized by the Design Professional in preparing the Contract Documents are not Contract Documents. The following Appendices are hereby incorporated by reference as part of this Agreement.

Appendix Location	Appendix Description	X if Applicable; If No X Not Applicable
Appendix A	Scope of Work – Includes Plans, Technical Specifications, and Addenda Issued During the Bid Process (Incorporated by reference)	X
Appendix B	Contractor's Bid Price; Form for General Bid	X
Appendix C	Certificate of Authority	
	Insurance Requirements and Contractor's Insurance Certificate(s)	
	Procurement Documentation (Advertisement, Central Register, Non-Collusion and Tax Compliance, etc.)	
	Living Wage Notice for Contracts (over $10,000)	
	Certificate of Good Standing (over $50,000)	
	Statement of Management (over $100,000.00)	
	OSHA Certification	
	Vulnerable Road Users Ordinance	
	Responsible Employer Ordinance Certification (over $100,000)	
	Federal Requirements: Form 1040 (if applicable); Section 3, Preference in Hiring (over $100,000; if applicable)	
	Wage Rates and Certification Forms (Davis/Bacon and/or Prevailing) (federally funded over $2,000; state or local funded over $0)	
	Payment Bond (over $25,000)	
	Performance Bond (over $150,000)	
Appendix D	General Conditions	X
	Supplemental Conditions	

SAMPLE CONTRACT

Section 2: THE WORK

The Contractor shall execute all work described in the Contract Documents, except to the extent that such work is specifically indicated in the Contract Documents to be the responsibility of others. In accordance with Chapter 30, section 39I of the General Laws, the contractor shall perform all of work in conformity with the plans and specifications included herein as Appendix A. No willful or substantial deviation from such plans and specifications shall be made unless authorized in writing by the Commissioner of Public Works, which authorization shall be confirmed by written change order within thirty days.

Section 3: PROJECT DATES

(a) Contract Period:

The Contract shall begin on the first date of the Contract Period as stated on the first page of this contract.

(b) Progress Schedule:

The Contractor shall submit a Progress Schedule along with a draw down schedule, which shall be subject to the approval of the City, no later than 10 days after contract execution and shall adhere to the Progress Schedule throughout execution of the Work.

(c) Date of Commencement of Work:

The Date of Commencement of the Work shall be stipulated by a written Notice to Proceed given by the City to the Contractor.

(d) Substantial Completion/Final Completion:

The Contractor shall achieve Substantial Completion of the Work on or before the Date of Substantial Completion as stated on first page of this Agreement, time being of the essence. Substantial Completion means that the Work has been completed and the site or the facility is opened for full and intended public use, except for minor incomplete or unsatisfactory items that do not materially impair the usefulness of the Work. The Design Professional shall decide what constitutes "minor," "incomplete," "unsatisfactory," and "materially" and the Design Professional's decision shall be final. The Date of Final Completion of the Work shall be the Date of Final Completion as stated on first page this Agreement.

(e) Liquidated Damages. The Contractor and the Contractor's surety shall be liable for and shall pay the City the sum, per calendar day, as stated on the first page of the Agreement, as Liquidated Damages, for each calendar day of delay until the work is substantially completed or, in the case of the portion of the work, for each calendar day of delay until the portion of the work is substantially completed.

Section 4. CONTRACT SUM

The contract sum shall be as stated on the first page of this Agreement. The contract sum may be increased or decreased by change order, as quantities which have been estimated in the bid documents become known, or as other additions or deletions to the work are made, or if the work is interrupted or suspended by the City, all as set forth here in.

Section 5. PREVAILING WAGE REQUIREMENTS

(a) The Contractor shall pay wages at no less than the wage rates as stated on the first page of this Agreement and as set forth in Appendix C, incorporated as part of this Agreement.

Notwithstanding anything to the contrary in Articles of the General Conditions included herein, the City may, in its sole discretion withhold payment from the General Contractor with respect to a given application for 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. Payment by the City on one or more occasions in the absence of the General Contractor's compliance with this section shall not constitute a waiver of the City's right to withhold payment for noncompliance on other occasions.

If a labor classification is not listed, the Contractor shall notify the City and request instructions. In addition, the Contractor shall:

(1) pay wages at least once a week; and

(2) The General Contractor shall submit payroll information on a weekly basis in a format approved by City (form attached), numbered in numerical sequence and signed by the Contractor (including forms for weeks when the Contractor is not on the site, in which case there shall be a notation to the effect "no work this payroll period" and a date anticipated for resuming work). The General Contractor shall submit these forms to the Project Manager noted on the cover page of this contract.

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

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

(2) the number of apprentices on the Project employed by the Contractor;

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

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

(5) a list of each Subcontractor's suppliers and materialmen.

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

(d) Notwithstanding anything to the contrary in Articles 5 and 13 of the General Conditions included herein as Appendix C, the City may, in its sole discretion withhold payment from the Contractor with respect to a given application for 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. Payment by the City on one or more occasions in the absence of the Contractor's compliance with this section shall not constitute a waiver of the City's right to withhold payment for noncompliance on other occasions.

Section 6. CONTRACTOR'S CERTIFICATIONS

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

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

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

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

THIS CERTIFICATION IS A MATERIAL REPRESENTATION OF FACT UPON WHICH RELIANCE WAS PLACED WHEN THIS THE AWARD OF THIS CONTRACT WAS MADE. ANY PERSON WHO FAILS TO FILE THE REQUIRED CERTIFICATION SHALL BE SUBJECT TO A CIVIL PENALTY OF NOT LESS THAN $10,000 AND NOT MORE THAN $100,000 FOR EACH FAILURE.

(b) Drug-Free Workplace Act of 1988 (42 U.S.C. 701):

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

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

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

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

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

(e) Tax Compliance: That the Contractor is in full compliance with all federal and state laws relating to income taxes, and has paid all real estate and personal property/excis taxes, water charges, fines and other municipal lien charges due to the City of Somerville, and the Contractor's Federal Tax Identification Number is as noted on the first page of this agreement .

Section 7 NON-APPLICABILITY OF FEDERAL REQUIREMENTS

If the funding source, as noted on the first page of the Agreement, does not note any federal funding (partial or full), it means that this Agreement has not been funded with federal funds and the obligations and requirements under federal law which are set forth in this Agreement do not apply.

SAMPLE CONTRACT

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SAMPLE CONTRACT

IN WITNESS WHEREOF, the City and the Contractor have executed this Contract as a sealed instrument on

this, the Pick Day Pick Month Pick Year

CONTRACTOR

X	Date Signed:
	Print Title:
Contractor Signature (Duly Authorized):	Print Name:

CITY

City Auditor's Encumbrance Statement

I hereby certify that the total contract amount is $_____ and that an unencumbered balance of

$_____is available for the current fiscal year of this contract. I further certify that a sum of

$_____is hereby encumbered against the appropriate account for the purposes of this contract and as funds become available, I will encumber additional sums as are required under this contract.

X	**X**
Edward Bean, City Auditor	**Joseph A. Curtatone, Mayor**
X	**X**
Angela M. Allen, Purchasing Director	**Approved as to form:** **Francis X. Wright, Jr., City Solicitor**
X	
Pick a Dept. Head	

SAMPLE CONTRACT

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SAMPLE CONTRACT

Appendix A

Plans, Technical Specifications, and Addenda

(Incorporated by Reference)

SAMPLE CONTRACT

Appendix B

CONTRACTOR'S BID PRICE

Form for General Bid

Bid Form For Alternates (if applicable)

Unit Price Form (if applicable)

Schedule of Values (if applicable)

The Contractor shall periodically submit invoices to the City, for which compensation is due under this Contract and requesting payment for goods received or services rendered by the Contractor during the period covered by the invoice. The invoice must agree to the rates/payment schedule as indicated in this contract and must include the applicable Purchase Order number. The invoice shall include the following information: Contractor name, Contractor remit address, invoice date, invoice number, itemized listing of goods, services, labor, and expenses and indicating the total amount due.

SAMPLE CONTRACT

Appendix C
Forms

SAMPLE CONTRACT

Appendix D
General Conditions

SAMPLE CONTRACT

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 subcontractors 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. <u>Furnished by the Contractor.</u> (*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 bond(s) 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 breech of contract and shall operate as immediate termination thereof.

ARTICLE 9
TESTS AND INSPECTIONS

9.1. Access.

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

9.2. Tests and Inspections.

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

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

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

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

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

ARTICLE 10
UNCOVERING AND CORRECTING WORK

10.1. Uncovering Work.

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

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

10.2. Correcting Work.

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

City resulting from such failure or defect.

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

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

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

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

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

10.3. Acceptance of Nonconforming Work.

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

ARTICLE 11
CHANGES IN THE WORK

11.1. In General.

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

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

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

11.2. Change Orders.

11.2.1. (*Reference:* M.G.L. c. 30, §39I;). The **Contractor** shall perform all the Work required by this Contract in

conformity with the Plans and Specifications contained herein. No willful and substantial deviation from said Plans and Specifications shall be made unless authorized in writing by the **City** and the **Design Professional** in charge of the Work who is duly authorized by the **City** to approve such deviations. In order to avoid delays in the prosecution of the Work required by such Contract, such deviation from the Plans or Specifications may be authorized by a written order of the **City** or the **Design Professional** so authorized to approve such deviation. Within thirty (30) days thereafter, such written order shall be confirmed by a certificate of the **City,** 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 that seven (7) days) after the occurrence of the event giving rise to the claim and stating the general nature of the claim. Notice of the extent of the claim with supporting data shall be delivered within thirty (30) days after such occurrence and shall be accompanied by the claimant's written statement that the adjustment claimed is the entire adjustment to which the claimant has reason to believe it is entitled as a result of the occurrence of said event. All claims for adjustment in the Contract Time shall be determined by the **Design Professional** in accordance with Article 16. No claim for an adjustment in the Contract Time will be valid if not submitted in accordance with the requirements of this paragraph.

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

ARTICLE 13
PAYMENTS

13.1. Schedule of Values.

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

13.2. Content and Submission of Applications for Payment.

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

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

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

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

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

13.3. False Applications for Payment.

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

13.4. Review of Applications for Payment.

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

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

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

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

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

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

or materials.

13.5. Decisions to Withhold Certification.

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

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

13.5.2.1. defective Work not remedied;

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

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

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

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

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

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

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

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

13.6. Progress Payments.

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

13.6.2. (*Reference:* M.G.L. c. 30, §39G, 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 that the fact that the claims sought to be consolidated arise under the same general contract) is applicable to the petitions sought to be consolidated and that such consolidation will present unnecessary duplication of evidence. A decree in any such proceeding shall not include interest on the disputed amount deposited in excess of the interest earned for the period of any such deposit. No person except a Subcontractor filing a demand for direct payment for which no funds due the **Contractor** are available for direct payment shall have a right to file a petition in court of equity against the **City** claiming a demand for direct payment is premature, and such Subcontractor must file the petition before the **City** has made a direct payment to the Subcontractor and has made a deposit of the disputed portion as provided in part (iii) of paragraph (e) and in paragraph (f).

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

ARTICLE 14
SUBSTANTIAL COMPLETION

14.1. Substantial Completion.

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

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

14.2. Partial Use or Occupancy of the Premises.

14.2.1. The **City** may occupy or use any completed or partially completed portion of the Work at any stage. Such

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

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

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

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

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

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

14.3. Final Inspection.

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

ARTICLE 15
GUARANTEES AND WARRANTIES

15.1. In General.

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

BID SET

2020 PARKING REPAIRS AND WATERPROOFING

Buena Vista Parking Garage

52 Holland Street
Somerville, MA

5 February 2020

SGH Project 190065

COMMONWEALTH OF MASSACHUSETTS
SAL A. CAPOBIANCO
STRUCTURAL
No. 34343
REGISTERED PROFESSIONAL ENGINEER

2-6-2020

SIMPSON GUMPERTZ & HEGER

Engineering of Structures
and Building Enclosures

PREPARED FOR:

City of Somerville
Department of Public Works
1 Franey Road
Somerville, MA 02145

PREPARED BY:

Simpson Gumpertz & Heger Inc.
800 Boylston Street
Suite 2320
Boston, MA 02199
Tel: 617.963.5400
Fax: 617.963.5401

Design, Investigate,
and Rehabilitate

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2020 Parking Garage Repairs and Waterproofing
Buena Vista Parking Garage
Somerville, MA

SIMPSON GUMPERTZ & HEGER INC.
800 Boylston Street, Suite 2320
Boston, MA 02199

Tel.: 617-963-5400
Fax: 617-963-5401

Contact: Sal A. Capobianco

5 February 2020 SGH Project 190065

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FORM FOR GENERAL BID – 2020 Parking Garage Repairs and Waterproofing

To: City of Somerville
~~Department of Public Works~~
~~1 Franey Road~~
Somerville, MA 02145

City Hall, Purchasing Department
93 Highland Avenue

1. GENERAL

1.1 The undersigned Bidder proposes and agrees, if this Bid is accepted, to enter into an Agreement with the Owner in the form included in the Contract Documents to complete all work as specified or indicated in the Contract Documents for the Contract Price and within the Contract Time indicated in this Bid and in accordance with the Contract Documents.

1.2 The Bidder represents that the Bidder has examined the site and locality where the work is to be performed and has made such independent investigations as the Bidder deems necessary to identify the federal, state, and local laws, ordinances, rules, and regulations, and the conditions affecting cost, progress, or performance of the work.

1.3 The Bidder accepts all of the terms and conditions of the Invitation to Bid and Instructions to Bidders.

1.4 This bid includes addenda numbered _____.

1.5 The Bidder agrees that the Base Bid work will be completed in _____ work weeks. Submit phasing plan, schedule, and Statement of Bidder's Qualifications with the Form for General Bid.

2. BASE BID

2.1 The base bid shall include the lump-sum costs plus estimated work item quantities multiplied by unit prices, as identified below:

A. Project Mobilization shall include General Contractor and Subcontractor mobilization costs. Include permits, temporary offices, etc. Provide itemized breakdown, if requested.

B. Project General Requirements and all miscellaneous costs associated with the completion of the work in accordance with the Construction Documents. This shall include, but not be limited to, barricades, cleanup, dust and fume control, layout, equipment, waste disposal, documentation, and obstruction removal and replacement.

C. Contract Lump-Sum Prices and Unit Prices shall include all costs to provide, procure, fabricate, install, and/or repair the work items, including, but not limited to, labor, materials, equipment, supervision, overhead, and profits. Quantities shown are estimated, and the actual work quantities may be greater or less than these quantities. The Bid Unit Price shall remain firm regardless of variations between the estimated and actual quantities. The quantities appearing in

schedules in the Contract Documents are approximate only and are prepared for the comparison of bids. Payment to the Contractor will be made only for the actual quantities of work performed and accepted in accordance with the Contract unit prices. The Owner reserves the right to delete any item, portion, or phase of the work. The Bid Price for all other work items shall remain unchanged. See the Specifications for other Work required as a part of this Contract but not listed in the schedules.

D. Schedule of work items, quantities, and prices comprising the Base Bid (see Section 5 – Basis of Payment for additional information and requirements for each item):

Description	Specification or Drawing	Quantity	Unit Price	Bid Price
Division 1				
1. Project Mobilization	Divisions 0 and 1	1 ls	–	$ _____
2. Project General Requirements	Divisions 0 and 1	1 ls	–	$ _____
Division 2				
3. Shoring – Double-Tee Beam Repairs	021000 Detail 1/S-400	1 ls	–	$ _____
4. Shoring – Inverted-Tee Beam Repairs	021000 Detail 1/S-400	1 ls	–	$ _____
5. Preloading for Concrete Full-Depth Repair – Type 1	021000 Detail 2/S-400	4 ea	$ _____	$ _____
Division 3				
6. Concrete Repair – Remove and Replace Ramp at the Upper Level	037320 Details 1-4/S-300	1 ls	–	$ _____
7. Concrete Repair – Remove and Replace Curb Cut at the Lower Level	037320 Detail 5/S-301	1 ls	–	$ _____
8. Concrete Repair – Full-Depth Double-Tee Beam Flange at Connection	037320 Detail 6/S-302	80 sq ft	$ _____	$ _____
9. Concrete Repair – Partial-Depth Topside Double-Tee Beam Flange at Connection	037320 Detail 7/S-302	70 sq ft	$ _____	$ _____
10. Concrete Repair –Underside Double-Tee Beam Flange Knockdown at Connection	037320 Detail 8/S-302	50 sq ft	$ _____	$ _____
11. Concrete Repair – Partial-Depth Topside Double-Tee Beam Flange/Slab	037320 Detail 9/S-302	70 sq ft	$ _____	$ _____
12. Concrete Repair – Curbs	037320 Detail 10/S-302	60 sq ft	$ _____	$ _____
13. Concrete Repair – Full-Depth Double-Tee Beam Flange – Type 1	037320 Detail 11/S-301	1,600 sq ft	$ _____	$ _____
14. Concrete Repair – Full-Depth Double-Tee Beam Flange – Type 2	037320 Detail 12/S-302	60 sq ft	$ _____	$ _____

Description	Specification or Drawing	Quantity	Unit Price	Bid Price
15. Concrete Repair – Full-Depth Double-Tee Beam Flange – Type 3	037320 Detail 13/S-302	600 sq ft	$ _____	$ _____
16. Concrete Repair – Partial-Depth Underside Double-Tee Beam Flange/Slab	037320 Detail 14/S-302	60 sq ft	$ _____	$ _____
17. Concrete Repair – Partial-Depth Topside Inverted-Tee Beam	037320 Detail 15/S-303	50 sq ft	$ _____	$ _____
18. Concrete Repair – Partial-Depth Underside Inverted-Tee Beam	037320 Detail 16/S-303	400 sq ft	$ _____	$ _____
19. Concrete Repair – Partial-Depth Vertical Inverted-Tee Beam	037320 Detail 17/S-3032	250 sq ft	$ _____	$ _____
20. Concrete Repair – Crossover Topping at Inverted-Tee Beam	037320	100 sq ft	$ _____	$ _____
21. Concrete Repair – Double-Tee Beam Stem	037320 Detail 18/S-303	10 lf	$ _____	$ _____
22. Concrete Repair – Walls	037320 Detail 19/S-303	50 sq ft	$ _____	$ _____
23. Concrete Repair – Column Repair – Type 1	037320 Detail 20/S-303	30 sq ft	$ _____	$ _____
24. Concrete Repair – Column Repair – Type 2	037320 Detail 21/S-303	30 sq ft	$ _____	$ _____
25. Concrete Repair – Spandrel Beams	037320 Detail 17/S-303	70 sq ft	$ _____	$ _____
26. Concrete Repair – Drain Replacement at Upper Level	037320 Detail 25/S-304	9 ea	$ _____	$ _____
27. Concrete Repair – Trench Drain Replacement at Lower Level	037320 Detail 26/S-304	2 ea	$ _____	$ _____
28. Concrete Repair – Remove and Replace Grout at Metal Fence Posts at Facade	037320	1 ls	–	$ _____
29. Concrete Repair – Supplemental Steel	037320	50 lbs	$ _____	$ _____
30. Chemical Grout – Crack Injection at Foundation Walls	036400 Detail 22/S-303	30 lf	$ _____	$ _____
Division 4				
31. Masonry Repair – Repoint Masonry Joints at the Facade	041200	400 sq ft	$ _____	$ _____
32. Masonry Repair – Remove and Reset Capstone at the Facade	041200	1 ls	–	$ _____
33. Masonry Repair – Remove and Replace Brick Masonry	041200	40 sq ft	$ _____	$ _____
34. Masonry Repair – Remove and Replace Granite Masonry	041200	20 sq ft	$ _____	$ _____
35. Masonry Repair – Remove and Replace CMU	041200	10 sq ft	$ _____	$ _____
Division 5				
36. Structural Steel – Reweld Double-Tee Flange Connection	055000 Detail 23/S-302	200 ea	$ _____	$ _____

Description	Specification or Drawing	Quantity	Unit Price	Bid Price
37. Structural Steel – Install Steel Subframing at Double-Tee Flanges	055000 Detail 24/S-302	260 ea	$ _____	$ _____
Division 6 (Not Used)				
Division 7				
38. Hot-Applied Waterproofing – Remove and Replace the Waterproofing System and Expansion Joint at the Plaza Area	071300 Details 1-3/WP-100, 1-6/WP-200,7-9/WP-201	1 ls	–	$ _____
39. Vehicular-Traffic-Bearing Waterproofing – Install at Crossover at Inverted-Tee Beams	071816 Details 1-5/S-500	1 ls	–	$ _____
40. Penetrating Sealer – Install at Upper Level	071900	1 ls	–	$ _____
41. Joint Sealants – Remove and Replace between Double-Tee Beams at Upper Level	079200 Detail 6/S-500	1 ls	–	$ _____
42. Joint Sealants – Remove and Replace at Vertical Facade Joints	079200 Detail 7/S-500	1 ls	–	$ _____
43. Joint Sealants – Rout and Seal Cracks	079200 Detail 8/S-500	4,500 lf	$ _____	$ _____
44. Joint Sealants – Rout and Seal Cracks at Column Encasements	079200 Detail 8/S-500	20 lf	$ _____	$ _____
45. Expansion Joints – Remove and Replace at Upper-Level Entrance	079500 Detail 9/S-500	35 lf	$ _____	$ _____
46. Expansion Joints – Remove and Replace the Termination Bars	079500	100 lf	$ _____	$ _____
Division 9				
47. Steel Painting – Clean and Paint Metal Fences at Facade	092000	1 ls	–	$ _____
48. Steel Painting – Clean and Paint Metal Drainage Pipe Guards	092000	1 ls	–	$ _____
49. Traffic Markings – Apply Striping, Space Identifiers, and Traffic Markings	099100	1 ls	–	$ _____
50. Traffic Markings – Install Clearance Bar at the Upper-Level Entrance	099100	1 ls	–	$ _____
51. Traffic Markings – Install Clearance Bar and Bracket at the Lower-Level Entrance	099100	1 ls	–	$ _____
52. Traffic Markings – Install One-Way Sign at Upper-Level Entrance	099100	1 ea	$ _____	$ _____
53. Traffic Markings – Install Axle Load Sign at Upper-Level Entrance	099100	1 ea	$ _____	$ _____
54. Traffic Markings – Install Berm Warning Sign at Lower-Level Entrance	099100	2 ea	$ _____	$ _____

Description	Specification or Drawing	Quantity	Unit Price	Bid Price
55. Traffic Markings – Install ADA Accessible Space Sign	099100	4 ea	$ _____	$ _____
56. Traffic Markings – Install Fire Extinguishers at the Upper Level	AS-101	1 ls	–	$ _____
Divisions 10 to 20 (Not Used)				
Division 21				
57. Fire Suppression – Remove and Replace Corroded Sprinkler Pipe	210001	1 ls	–	$ _____
Division 22				
58. Plumbing – Remove and Replace the Existing Drains at the Upper Level	220001 Detail 25/S-304	9 ea	$ _____	$ _____
59. Plumbing – Remove and Replace the Existing Trench Drains at the Lower Level	220001 Detail 26/S-304	2 ea	$ _____	$ _____
60. Plumbing – Remove and Replace Drainage Piping	220001	80 lf	$ _____	$ _____
61. Plumbing – Clean and Flush Plumbing System	220001	1 ls	–	$ _____
62. Plumbing – Snake out Rain Leaders and Storm Drainage System	220001	Allowance	–	$ 7,500
63. Plumbing – Remove and Replace Drain Grates and Sediment Baskets	220001	8 ea	$ _____	$ _____
64. Plumbing – Clean and Flush Oil/Gas Separator	220001	1 ls	–	$ _____
65. Plumbing – Clean and Scope all Drains, Drainage Piping, and Manholes	220001	1 ls	–	$ _____
66. Plumbing – Install Backflow Preventers at the Interior of the Garage	220001 Detail 1/D-100	3 ea	$ _____	$ _____
67. Plumbing – Install Backflow Preventers at the Exterior of the Garage	220001 Detail 1/D-100	2 ea	$ _____	$ _____
Divisions 23 to 25 (Not Used)				
Division 26				
68. Electrical – Remove and Reinstall Conduit and Fixtures	260000	Allowance	–	$ 5,000
69. Electrical – Remove and Replace Corroded Conduit (Base bid includes 300 lf of conduit replacement, with additional 200 lf at unit price)	260000	1 ls	$ _____	$ _____
70. Electrical – Install LED Emergency Exit Lights	260000	1 ls	–	$ _____
71. Electrical – Remove and Replace Lightbulbs at Upper-Level Lampposts	260000	1 ls	–	$ _____
72. Electrical – Replace Batteries in Emergency Lighting	260000	1 ls	–	$ _____

Description	Specification or Drawing	Quantity	Unit Price	Bid Price
Divisions 27 to 33 (Not Used)				
TOTAL				$ _____

2.2 Base Bid Summary

A. The proposed Base Bid Price for 2019 Parking Garage Repairs and Waterproofing, Buena Vista Parking Garage, 52 Holland Street, Somerville, Massachusetts, as described in these Contract Documents, is_____Dollars ($_____).

3. ALTERNATES AND UNIT PRICES

Alternate No. 1: The Base Bid Price adjustment for the work involving the regrading and repaving of the lower-level garage entrance.

Division 32 **Description**	**Specification**	**Quantity**	**Unit Price**	**Bid Price**
1. Regrade and Repave Garage Entrance Area at the Lower Level	025240 033000 312000	1 ls	–	$ _____
2. Install New Vertical Granite Curb	025240	15 lf (Allowance)	$ _____	$ _____
3. Install New Concrete Sidewalk	025240	440 sq ft (Allowance)	$ _____	$ _____

ADD _____ Dollars ($_____).

Alternate No. 2: The Base Bid Price adjustment to remove and replace the sprinkler heads at the Lower Level.

Division 22 **Description**	**Specification**	**Quantity**	**Unit Price**	**Bid Price**
1. Fire Suppression – Remove and Replace the Sprinkler Heads at the Lower Level	210001	1 ls	–	$ _____

ADD _____ Dollars ($_____).

4. LABOR AND EQUIPMENT RATES

4.1 The Bidder's attached schedule of Labor and Equipment Rates is to be used to compute the cost or credit to the Owner resulting from changes in the work other than those covered by Contract Unit Prices as stipulated above. These rates include all general conditions, site supervision, overhead, and profit.

5. BASIS OF PAYMENT

5.1 All the following work will be paid for at the Contract unit prices, unless otherwise noted, multiplied by the actual work quantities. The Unit Prices below shall include the cost of all accessories shown on the Drawings (including, but not limited to, supplemental reinforcement, ties, pins, dowels, couplers, etc.). Actual work quantities shall be based on the following units of measurement:

A. Division 02:

1. Shoring of the structure to perform concrete repairs at the double-tee beams shall be paid for at the Contract lump-sum price.

2. Shoring of the structure to perform concrete repairs at the inverted-tee beam shall be paid for at the Contract lump-sum price.

3. Measure preloading of the structure to perform full-depth double-tee beam flange repairs in items, one location being one item.

B. Division 03:

1. Removal and replacement of the ramp area at the Upper Level shall be paid for at the Contract lump-sum price. The cost shall include all new railing elements and the installation at the ramp.

2. Removal and replacement of the curb cut at the Lower Level entrance shall be paid for at the Contract lump-sum price.

3. Measure full-depth concrete repair at double-tee beam flanges at connections in square feet.

4. Measure partial-depth topside concrete repair at double-tee beam flanges at connections in square feet.

5. Measure underside concrete knockdowns at double-tee beam flanges at connections in square feet.

6. Measure partial-depth topside concrete repair at double-tee beam flanges and slabs in square feet.

7. Measure concrete repair at curbs in square feet.

8. Measure full-depth concrete repair at double-tee beam flanges in square feet. Cost shall include additional concrete to provide topping height at applicable locations.

9. Measure partial-depth underside concrete repair at double-tee beam flanges and slabs in square feet.

10. Measure partial-depth topside concrete repair at inverted-tee beams in square feet. Cost will include installation of steel pins as required by the Engineer.

11. Measure partial-depth topside concrete repair at crossover toppings at inverted-tee beams in square feet. Cost will include installation of steel pins as required by the Engineer.

12. Measure partial-depth underside concrete repair at inverted-tee beams in square feet.

13. Measure partial-depth vertical concrete repair at inverted-tee beams in square feet.

14. Measure concrete repair at double-tee beam stems in linear feet.

15. Measure partial-depth concrete repair at walls in square feet. Repairs will be measured at the face of the wall.

16. Measure partial-depth concrete repair at columns in square feet. Repairs will be measured at the face of the column.

17. Measure partial-depth concrete repair at spandrel beams in square feet. Repairs will be measured at the face of the spandrel beam.

18. Measure concrete repair at drain replacement locations at the Upper Level in items, one drain being one item.

19. Measure concrete repair at trench drain replacement locations at the Lower Level entrance in items, one drain being one item.

20. Removal of the existing grout and installation of non-shrink grout at the metal fence posts at the facade shall be paid for at the Contract lump-sum price.

21. Measure installation of supplemental steel in lbs.

22. Measure chemical grout injection at foundation walls in linear feet.

C. Division 04:

1. Measure repointing of masonry joints in square feet. Repairs will be measured at the face of the column/wall.

2. Removal and resetting of the capstone at the facade shall be paid for at the Contract lump-sum price.

3. Measure removal and replacement of brick masonry in square feet. Repairs will be measured at the face of the column/wall.

4. Measure removal and replacement of granite masonry in square feet. Repairs will be measured at the face of the column/wall.

5. Measure removal and replacement of CMU in square feet. Repairs will be measured at the face of the wall.

D. Division 05:

1. Measure rewelding of double-tee flange connections in items, one connection being one item.

2. Measure installation of steel subframing at double-tee flanges in items, one frame being one item. Cost shall include associated connection and frame elements.

E. Division 07:

1. Removal and replacement of waterproofing system at the plaza area over the double-tee beams shall be paid for at the Contract lump-sum price. Cost shall include all work associated with preparing substrate surface, install a new hot-applied fluid waterproofing system, installing a new topping slab, installing a providing new sealant joints where existing joints were removed, and installing a new expansion joint.

2. Installation of vehicular-traffic-bearing waterproofing at the crossover topping at the inverted-tee beams shall be paid for at the Contract lump-sum price. Cost shall include all work associated with preparing substrate surface, providing new sealant joints where existing joints were removed, and routing and sealing cracks.

3. Installation of penetrating sealer on the topside of the Upper Level shall be paid for at the Contract lump-sum price.

4. Removal and replacement of joint sealant at double-tee beam joints shall be paid for at the Contract lump-sum price. Cost shall include backer rod for sealant replacement.

5. Removal and replacement of joint sealant at vertical joints at the facade shall be paid for at the Contract lump-sum price. Cost shall include backer rod for sealant replacement.

6. Measure routing and sealing of cracks in linear feet.

7. Measure routing and sealing of vertical cracks at column encasements in linear feet.

8. Measure removal and replacement of expansion joints in linear feet. Cost shall include associated concrete repairs.

9. Measure removal and replacement of termination bars at the existing expansion joints in linear feet. Cost shall include associated connection of new termination bars.

F. Division 09:

1. Cleaning and painting of the metal fence at the facade shall be paid for at the Contract lump-sum price. Cost shall include surface preparation for the installation of the new paint coating.

2. Cleaning and painting of the metal drainage pipe guards at the Lower Level shall be paid for at the Contract lump-sum price. Cost shall include surface preparation for the installation of the new paint coating.

3. Installation of striping, space identifiers, and all traffic markings shall be paid for at the Contract lump-sum price.

4. Installation of the clearance bars at the Upper Level entrance shall be paid for at the Contract lump-sum price. Cost shall include the connection to the existing frame.

5. Installation of the clearance bar and bracket at the Lower Level entrance shall be paid for at the Contract lump-sum price. Cost shall include all new bracket steel elements and the connection to the exterior facade.

6. Measure installation of all signs in items, one sign being one item. Cost shall include all sign and mounting elements and connection to substrate.

7. Installation of fire extinguishers at the Upper Level shall be paid for at the Contract lump-sum price.

G. Division 21:

1. Removal and replacement of corroded sprinkler pipe shall be paid for at the Contract lump-sum price.

H. Division 22:

1. Measure removal and replacement of existing drains at the Upper Level in items, one drain being one item. Cost shall include drain, accessories, and connection to existing plumbing system.

2. Removal and replacement of the trench drain at the Lower Level shall be paid for at the Contract lump-sum price. Cost shall include drain, accessories, and connection to existing plumbing system.

3. Measure removal and replacement of drainage piping in linear feet. Cost shall include connection to existing plumbing system, hangers, and accessories.

4. Cleaning and flushing of the existing plumbing system shall be paid for at the Contract lump-sum price.

5. Snaking of storm drain leaders at the Upper Level shall be paid for at the Contract lump-sum price.

6. Measure removal and replacement of drain grates and sediment baskets in items, one drain grate and sediment basket being one item.

7. Cleaning and flushing of the oil/gas separator shall be paid for at the Contract lump-sum price.

8. Cleaning and scoping of all drains, drainage piping, and manholes shall be paid for at the Contract lump-sum price.

9. Measure installation of backflow preventers in items, one backflow preventer being one item.

I. Division 26:

1. Removal, storage, and reinstallation of electrical conduits and fixtures for repairs will be paid for as a function of percent complete.

2. Removal and replacement of corroded conduit shall be paid for at the Contract lump-sum price. The Contract lump-sum price shall include 300 lf of conduit replacement. An additional 200 lf will be provided on a unit price basis.

3. Installation of new emergency exit lights shall be paid for at the Contract lump-sum price.

4. Replacement of lightbulbs in the lampposts at the Upper Level shall be paid for at the Contract lump-sum price.

5. Removal and replacement of the batteries in the existing emergency lighting shall be paid for at the Contract lump-sum price.

J. Division 33:

1. Measure installation of backflow preventers in items, one backflow preventer being one item.

K. Alternates:

1. Alternate No. 1: Removal and replacement of all fire sprinkler heads at the Lower Level shall be paid for at the Contract lump-sum price.

2. Alternate No. 2: Regrading and repaving of the Lower Level garage entrance shall be paid for at the Contract lump-sum price.

   a. Measure installation of new vertical granite curb in linear feet.

Date _____

_____
(Name of General Bidder)

SEAL

By _____
(Title)

_____
(Business Address)

_____
(City and State)

SECTION 011100

SUMMARY OF WORK

PART 1 – GENERAL

1.01 GENERAL REQUIREMENTS

A. Drawings, Contract Requirements, and the General Requirements (Division 01) of the Contract for Construction are hereby made a part of this Section.

1.02 SCHEDULE

A. The Contractor shall coordinate with the Owner and update the schedule as necessary.

1.03 DESCRIPTION OF WORK

A. The work contemplated by the Contract Documents includes the work of all trades required and all labor, equipment, materials, and supervision necessary and incidental to the work indicated. The following descriptions of the work represent a brief summary of the Project. For additional and more-complete information, refer to the Drawings and Technical Specifications.

B. Project Mobilization:

1. This work shall include General Contractor and subcontractor mobilization costs. Include permits, temporary offices, bonding costs, etc.

C. Project General Requirements:

1. This work shall include all miscellaneous work associated with the completion of the work in accordance with the Contract Documents. This shall also include, but not be limited to, protection of works, barricades, cleanup, dust and fume control, layout, equipment, waste disposal, documentation, and obstruction removal and replacement.

2. The Contractor shall coordinate construction phasing with the Owner.

3. The Massachusetts Prevailing Labor Wage rates, as included in the Contract Documents, will be used in the construction of this Project.

D. Shoring:

1. The Contractor is responsible for determining the need for, designing, and providing shoring to safely support the existing structural elements during concrete demolition and concrete repairs. The configuration of the shoring shall accommodate the installation of formwork for the various concrete repairs.

2. The Contractor is responsible for temporarily supporting and protecting all mechanical equipment, such as ventilation duct work, fire suppression system,

and plumbing, currently supported at the underside of the elevated deck at the work areas.

3. The Contractor is responsible for identifying all locations where construction loads will exceed the capacity of the existing structure and designing and providing shoring to support safely the existing structure during construction.

E. Chemical Grouting:

1. Inject chemical grout into cracks and joints at locations identified on the Drawings and at other locations identified by the Engineer. Locations to receive chemical grouting include, but are not limited to, leaking cracks, cracks showing signs of past leakage, and construction joints in concrete walls. Remove all surface sealant and injection ports, and patch injection port holes when injection is complete.

F. Concrete Repair:

1. Repair areas of delaminated and/or spalled concrete at the topside and underside of the double-tee beam flanges.

2. Repair areas of delaminated and/or spalled concrete at the double-tee beam stems.

3. Repair areas of delaminated and/or spalled concrete at the topside and underside of the inverted-tee beams.

4. Repair areas of delaminated and/or spalled concrete at the walls, columns, and spandrel beams.

5. Repair delaminated and/or spalled concrete at the curbs.

6. Repair areas of delaminated and/or spalled concrete at the topside of the slabs-on-grade.

7. Remove and replace the ADA-accessible pedestrian ramp at the sidewalk entrance at the Upper Level as shown on the Drawings.

8. Remove and replace the curb cut at the Lower Level entrance as shown on the Drawings

9. Repair concrete at existing floor drain replacement areas at locations shown on the Drawings.

10. Install nonshrink grout at the metal fence posts at the parapet walls at the facade.

G. Masonry Repair:

1. Repoint deteriorated mortar joints at exterior and interior wall faces at the perimeter wall.

2. Remove and reset the capstone at the perimeter wall.

3. Remove and replace deteriorated brick masonry at the perimeter wall.

4. Remove and replace deteriorated granite masonry at the perimeter wall.

5. Remove and replace broken CMU at the perimeter wall.

H. Metal Fabrications:

1. Reweld broken double-tee beam flange connections.

2. Install steel subframing at the double-tee beam flanges at locations shown on the Drawings and as identified by the Engineer.

I. Hot-Applied Waterproofing:

1. Remove the existing asphalt paving, concrete topping slab, drainage board, and existing rubberized asphalt waterproofing system where indicated on the Drawings. At some locations, brick pavers on sand setting bed are installed in lieu of asphalt paving. Prepare the existing concrete deck to receive new waterproofing.

2. Provide a new hot fluid-applied rubberized asphalt waterproofing and flashing system where indicated on the Drawings. Waterproofing system must be installed in accordance with all manufacturer's instructions and guidelines.

3. Provide membrane base flashing at all penetrations, walls, curbs, and other features where indicated on the Drawings.

4. Provide protection board and drainage layer with filter fabric over the new waterproofing membrane.

5. Provide new concrete topping slab sloped to drain, with perimeter edges matching elevation of existing surfaces to remain.

6. Perform water testing of the new waterproofing membrane installation.

7. Provide all necessary permits and fees for this Work, including special permits for kettles and/or melters for the hot-applied rubberized-asphalt waterproofing.

8. Provide police detail as required at no additional cost to the Owner.

J. Vehicular-Traffic-Bearing Waterproofing:

1. Remove existing coating, prepare surfaces, and install vehicular-traffic-bearing waterproofing at the crossover areas at the elevated deck as shown on the Drawings.

K. Penetrating Sealer:

1. Prepare surfaces and install a penetrating sealer at the topside of the Upper Level.

L. Joint Sealants:

1. Remove and replace existing sealant at all double-tee beam joints, at the ends of double-tee beams, and other locations at the Upper Level.

2. Remove and replace existing sealant at vertical joints at the facade as shown on the Drawings.

3. Rout and seal cracks on the topside of the Upper Level deck at locations identified on the Drawings and as identified by the Engineer.

4. Rout and seal vertical cracks at column encasements within the adjacent garage at the Lower Level.

5. Provide sealant joints at concrete paving-to-drain joints as shown on the Drawings.

6. Provide sealant at north elevation plaza and curb, including along metal cover plate edges.

M. Expansion Joints:

1. Remove and replace the expansion joints at the locations shown on the Drawings. Joints to be replaced include both exposed and concealed expansion joints at the Plaza and Elevated Parking Deck.

2. Perform associated miscellaneous sealant replacement at the expansion joints.

3. Remove and replace the termination bars at locations identified by the Engineer.

N. Steel Painting:

1. Clean and paint the metal fence at deteriorated locations at the facade.

2. Clean and paint the metal drainage pipe guards at the Lower Level.

O. Traffic Markings:

1. Apply all striping, space identifiers, traffic markings, and curb markings at all parking levels as shown on the Drawings.

2. Install clearance bars at the entrance at the Upper Level.

3. Install clearance signage at the entrance to the Lower Level.

4. Install one-way sign at the entrance to the Upper Level.

5. Install axle load limit sign at the entrance to the Upper Level.

6. Install berm warning signs at the entrance to the Lower Level.

7. Install ADA-accessible parking space signs at all accessible spaces.

8. Install fire extinguishers at the Upper Level.

P. Fire Suppression:

1. Remove and replace corroded sprinkler piping at locations identified by the Engineer.

Q. Plumbing:

1. Remove and replace existing drains at locations shown on the Drawings.

2. Remove and replace existing trench drains at the Lower Level entrance.

3. Remove existing plaza drain and install new bi-level drain; connect with existing plumbing to remain.

4. Remove and replace drainage piping as directed by the Engineer.

5. Clean and flush the plumbing system.

6. Snake out storm drainage leaders at the Upper Level.

7. Replace broken drain grates and sediment baskets at existing drains at the Lower Level.

8. Clean and flush oil/sand separator at the Lower Level.

9. Clean and scope all parking garage drainage lines, drains, and manholes.

10. Install backflow preventers at the garage drainage outlets as shown on the Drawings.

R. Electrical:

1. Remove, store, and reinstall electrical fixtures and conduit as required to accomplish the concrete repairs.

2. Remove and replace corroded conduit between junction boxes.

3. Install new LED emergency exit lighting.

4. Remove and replace lightbulbs at Upper Level lampposts.

5. Replace batteries in emergency lighting.

S. Alternates:

1. Alternate No. 1: Regrade and repave the garage entrance at the Lower Level.

   a. Remove, regrade, and reset the vertical granite curb as shown on the Drawings. Provide new vertical granite curb to match existing as necessary to perform the work and as approved by the Owner.

   b. Remove the brick sidewalks as shown on the Drawings. Regrade and provide new concrete sidewalks.

   c. Remove, regrade, and replace the concrete slab at the garage entrance at the Lower Level as shown on the Drawings.

   d. Remove, regrade, and repave Lower Level garage entrance.

   e. Prepare gravel base for hot-mix-asphalt (HMA) patching.

2. Alternate No. 2: Remove and replace the fire sprinkler heads as shown on the Drawings.

1.04 EXAMINATION OF SITE AND DOCUMENTS

A. A pre-bid conference will be held at the jobsite on the date and at the time indicated in the Invitation to Bid.

B. Bidders may visit the site on a nonholiday weekday acceptable to the Owner, between the hours of 9:00 a.m. and 3:00 p.m., to visually inspect the location of the work and existing conditions that may affect new work.

C. The bidders are expected to examine and to be thoroughly familiar with all Contract Documents and with the conditions under which the work is to be carried out. The Owner will not be responsible for errors, omissions, and/or charges for extra work arising from the Contractors' or Subcontractors' failure to familiarize themselves with the Contract Documents and conditions.

1.05 CONTRACTOR/SUBCONTRACTOR QUALIFICATION

A. Filed Sub-Bidders must be certified by the Commonwealth of Massachusetts Division of Capital Asset Management and Maintenance (DCAMM) in the category of the sub-bid work for which they bid. Filed Sub-Bidders must submit a valid Sub-Bidder Certificate of Eligibility and Update Statement with its bid.

B. General Bidder must be certified by DCAMM for the Project's category of work and for no less than the bid price plus all add alternates, if applicable. General Bidders must submit a valid Certificate of Eligibility and Update Statement with its bid.

C. Sub-Bidders' and General Bidders' Update Statements are a public record as defined in M.G.L Chapter 4, Section 7 and will not be open to public inspection.

D. Filed Sub-Bids and General Bids shall be submitted on the forms provided in the Contract Documents.

PART 2 – PRODUCTS

Not used.

PART 3 – EXECUTION

3.01 WORK SEQUENCE

A. Coordinate occupying parking spaces, access to occupied spaces, and all required phases with the Owner.

3.02 WORK HOURS

A. The Contractor can gain access to the premises during the hours specified below. In addition, the Contractor and its personnel will limit themselves to the working premises during working hours. If work needs to be scheduled during times other than those listed below, the Contractor shall inform the Owner one week prior to work.

1. Normal construction activities in accordance with City of Somerville Ordinances:

a. To be coordinated with the Owner.

b. Monday to Friday: 7:00 a.m. to 7:00 p.m.

c. Saturday: 9:00 a.m. to 5:00 p.m.

3.03 CONTRACTOR USE OF PREMISES

A. Use of the Site: Limit use of the premises to work in areas indicated within the Construction Documents. Confine operations to areas within contract limits indicated. Do not disturb portions of the site beyond the areas in which the Work is indicated.

1. Owner and Tenant Occupancy: Allow for Owner and Tenant occupancy and use by the public (if applicable).

2. Driveways and Entrances: Keep driveways and entrances serving the premises clear and available to the Owner, the Owner's employees, and emergency vehicles at all times. Do not use these areas for parking or storage of materials. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on site.

3. Pedestrian and vehicular access lanes from the main access road to the parking garage must be provided and remain open during construction. All pedestrian access lanes provided must be handicapped accessible.

B. Schedule and perform work to afford a minimum of interruption to normal and continuous operation of utility systems. The Contractor shall submit to the Owner and the Engineer for approval a proposed schedule for performing work, including construction of new utilities, rerouting of existing utilities, and final connection of new

work to existing work. Schedule shall indicate shutdown time required for each operation.

C. The Contractor shall be aware of the sensitivity of the community to noise, dust, debris, and site maintenance and take appropriate precautions to avoid conflict.

3.04 REFERENCE STANDARDS

A. For products specified by association or trade standards, comply with requirements for the standard, except where more rigid requirements are specified or are required by code. Refer to Section 014200 – References.

B. Where reference is made in the Contractual Documents to publications and standards issued by associations and societies, the intent shall be understood to specify the current edition of such publications and standards (including tentative revision) in effect on the date of the contract advertisement notwithstanding any reference to a particular date.

3.05 PRECONSTRUCTION CONFERENCE

A. A preconstruction conference to review the work will be conducted by the Owner and the Engineer.

B. Representatives of the following shall be required to attend this conference:

1. Owner.

2. Owner's Representative.

3. Engineer.

4. Contractor.

5. All Subcontractors.

C. The Contractor shall have a responsible representative at the preconstruction conference to be called by the Owner following the award of the Contract, as well as representatives of field or office forces and major subcontractors. All such representatives shall have authority to act for their respective firms. The preconstruction conference is to be held within five days of Notice to Proceed, or as otherwise determined by the Owner.

3.06 PROJECT MEETINGS

A. Project meetings shall be held on a weekly basis and as required subject to the discretion of the Owner and the Engineer.

B. As a prerequisite for monthly payments, ordering schedules, shop drawing submitted schedules, and coordination meeting schedules shall be prepared and maintained by the Contractor and shall be revised and updated on a monthly basis, and a copy shall be submitted to the Owner and the Engineer.

C. In order to expedite construction progress on this Project, the Contractor shall order all materials immediately after the approval of Shop Drawings and shall obtain a fixed date of delivery to the Project site for all materials ordered that shall not impede or otherwise interfere with construction progress. The Contractor shall present a list and written proof of all materials and equipment ordered (through purchase orders). This list shall be presented at the meetings and shall be continuously updated.

D. Scheduling shall be discussed with all concerned parties, and methods shall be presented by the Contractor that shall reflect construction completion not being deferred or foreshortened. Identify critical long-lead items and other special scheduling requirements. The project schedule is to include time for submission of shop drawing submittals, time for review, and allowance for resubmittal and review.

E. Project meetings shall be chaired by the Engineer.

F. Minutes of the Project meetings shall be prepared by the Engineer and shall be distributed to all present. The Engineer's meeting minutes shall be the only official meeting record.

3.07 PERMITS, INSPECTION, AND TESTING REQUIRED BY GOVERNING AUTHORITIES

A. If the Contract Documents, laws, ordinances, rules, regulations, or orders of any public authority having any jurisdiction require any portion of the Work to be inspected, tested, or approved, the Contractor shall give the Engineer, the Owner, and such Authority timely notice (five business days minimum) of its readiness so that the Engineer may observe such inspecting, testing, or approval.

B. Prior to the start of construction, the Contractor shall complete application to the applicable Building Code enforcement authority for a Building Permit. Such Permit shall be displayed in a conspicuous location at the Project site.

C. Unless otherwise specified under the Sections of the Specifications, the Contractor shall pay such proper and legal fees to public officers and others as may be necessary for all permits, inspections, and the due and faithful performance of the work and that may arise incidental to the fulfilling of this Contract. As such, all fees, charges, and assessments in connection with the above shall be paid by the Contractor.

D. The Contractor shall furnish and install all information required by the Building Official and shall secure the general building permit for the work promptly on award of the Contract. The Contractor shall conform to all conditions and requirements of the permit and code enforcement authority. The Contractor shall provide names and license numbers of its responsible representatives to complete the application for permit, and shall receive the permit and promptly distribute copies to Owner and the Engineer.

E. The Contractor and specialized subcontractors as applicable shall identify all permits (other than general building permit) required from Authorities Having Jurisdiction over the Project for the construction and occupancy of the work. The Contractor shall prepare the necessary applications and submit required plans and documents to obtain such permits in a timely manner, and shall furnish the required information to

the Building Official and obtain the required permits as early as practicable after award of the Contract.

1. The Contractor shall display all permit cards as required by the Authorities and shall deliver legible photocopies of all permits to the Owner and the Engineer promptly upon their receipt.

2. The Contractor shall arrange for all inspections, testing, and approvals required for all permits and shall notify the Engineer and the Owner of such inspections at least three business days in advance (longer if so required in the various Sections of the specifications) so that they may arrange to observe.

3. The Contractor shall comply with all conditions and shall provide all notices required by all permits.

4. The Contractor shall perform and/or arrange for and pay all testing and inspections required by the governing codes and Authorities, other than those provided by the Owner, and shall notify the Engineer and the Owner of such inspections at least three business days in advance of all such testing or inspection so that they may arrange to observe.

5. Where inspecting authorities require corrective work for conformance with applicable codes and Authorities, the Contractor shall promptly comply with such requirements, except in cases where such requirements clearly exceed the requirements of the Contract Documents, in which case the Contractor shall proceed in accordance with the procedures for modifications or changes in the work established in the Contract Documents, as amended.

END OF SECTION

SECTION 012000

MEASUREMENT AND PAYMENT

PART 1 – GENERAL

1.01 GENERAL REQUIREMENTS

A. Drawings, Contract Requirements, and the General Requirements (Division 1) of the Contract for Construction are hereby made a part of this Section.

1.02 PROJECT PRICING

A. The Bidder shall complete the general bid forms and/or sub-bid forms, including all requested information.

B. Project pricing is a combination of lump-sum work items and unit-price work items for each phase.

C. Bids shall be based on specified materials, not on alternate materials proposed by the Bidder.

1.03 UNIT PRICES

A. Bidders shall submit unit prices for each unit-price item identified on the general bid forms and/or sub-bid forms. The amount of each unit price shall be stipulated in the space provided in the general bid forms and/or sub-bid forms.

B. Unit prices shall include all costs to provide and install the Work, including, but not limited to, labor, materials, equipment, supervision, overhead, profit, etc.

1.04 LUMP-SUM PRICES

A. Bidders shall submit lump-sum prices for each lump-sum item listed on the general bid forms and/or sub-bid forms. The amount of each lump-sum price shall be stipulated in the space provided in the general bid forms and/or sub-bid forms.

B. Lump-sum prices shall include all costs to provide and install the Work, including, but not limited to, labor, materials, equipment, supervision, overhead, profit, etc.

1.05 ALTERNATE WORK PRICES

A. Bidders shall submit adjustments to the Base Bid for each alternate work item identified on the general bid forms and/or sub-bid forms. The amount of each alternate work price shall be stipulated in the space provided in the general bid forms and/or sub-bid forms.

B. Alternate Work Prices shall include all costs to provide and install the Work, including, but not limited to, labor, materials, equipment, supervision, overhead, profit, etc.

1.06 PROPOSED ALTERNATE MATERIALS

A. Alternate materials may be proposed by the Bidder under the following conditions:

1. The Base Bid is based on the specified materials.

2. Alternate materials are identified, with any change to the bid price as noted in the Base Bid.

1.07 PROPOSED ALTERNATE PHASING

A. Bidders may propose alternate phasing plans.

B. Bidders may propose an alternate number of phases.

C. Proposed alternates shall include plans showing proposed changes and the changes to the Base Bid pricing.

D. The Owner will determine whether the proposed alternate phasing will be accepted.

1.08 UNIT-PRICE QUANTITY MEASUREMENT

A. The Owner reserves the right to reject the Contractor's measurement of Work in place that involves use of established unit prices and to have this Work measured by an independent surveyor acceptable to the Contractor at the Owner's expense.

B. The Contractor shall maintain drawing copies that locate all unit-price repairs performed. Work being invoiced must be properly identified. These drawings shall be incorporated into the "As Built" drawing set required by Section 017000 of the Specifications.

C. Quantity measurements shall be performed as described in the Technical Specifications or shown on Drawings.

1.09 CHANGES INVOLVING UNIT PRICES

A. Should certain additional work be required, should certain contract work be deleted, or should the quantities of certain items of work be increased or decreased from those shown by the Contract Documents, the unit prices contained in the Form for General Bid shall be the basis of payment to the Contractor or credit to the Owner, for such increase or decrease in the work.

B. The unit prices shall represent the exact net amount per unit to be paid to the Contractor (in the case of additions or increases) or to be refunded to the Owner (in the case of decreases). No additional adjustment will be allowed for overhead, profit, insurance, or other direct or indirect expenses of the Contractor or Subcontractors.

1.10 SCHEDULE OF VALUES

A. The Contractor shall prepare a Schedule of Values for the Work as required by Para. 9.2 of the General Conditions of the Contract for Construction.

B. Submit the Schedule of Values to the Engineer at the earliest feasible date, but in no case later than seven days before the date scheduled for submittal of the Applications for Payment.

C. Update and resubmit the Schedule of Values when change orders result in a change in the Contract Sum.

D. Use the general bid forms and/or sub-bid forms as a guide to establish the format for quantity and value of work items on the Schedule of Values.

1.11 WAGE RATES AND EQUIPMENT CHARGES

A. The Owner may order changes in the Work other than changes in quantities associated with unit-price work items. Provide in the bid proposal a schedule of wage rates and equipment charges to be used to compute the cost to the Owner resulting from such changes in the Work.

1.12 APPLICATION FOR PAYMENT

A. The form of Application for Payment shall be notarized AIA Document G702 – Application and Certification for Payment – supported by AIA Document G703 – Continuation Sheet.

B. The date for each progress payment is the last day of each month. The period of construction work covered by each Application for Payment is the period ending the last day of the month prior to the date for each progress payment and starting the day following the end of the preceding period.

C. Complete all entries on the form, including notarization and execution by a person authorized to sign legal documents on behalf of the Contractor. Incomplete applications will be returned without action.

1. Entries shall match data on the Schedule of Values and Contractor's Construction Schedule. Use updated schedules if revisions have been made.

2. Include amount of change orders issued prior to the last day of construction period covered by the application.

D. Submit one electronic copy of each Application for Payment to the Engineer. The Application for Payment shall be complete, including waivers of lien and similar attachments, when required.

E. Administrative actions and submittals that must precede or coincide with submittal of the first Application for Payment include the following:

1. List of subcontractors.

2. List of principal suppliers and fabricators.

3. Schedule of Values.

4. Contractor's Construction Schedule.

5. Schedule of principal products.

6. Submittal Schedule.

7. List of Contractor's staff assignments.

8. List of Contractor's principal consultants.

9. Copies of permits.

10. Copies of authorizations and licenses from governing authorities for performance of the Work.

11. Initial progress report.

12. Certificates of insurance and insurance policies.

13. Performance and payment bonds.

14. Data needed to acquire Owner's insurance.

F. Administrative actions and submittals that must precede or coincide with submittal of the final payment Application for Payment include the following:

1. Completion of Project closeout requirements.

2. Completion of items specified for completion after Substantial Completion.

3. Assurance that unsettled claims will be settled.

4. Assurance that Work not complete and accepted will be completed without undue delay.

5. Transmittal of required Project construction records to the Owner.

6. Proof that taxes, fees, and similar obligations have been paid.

7. Removal of temporary facilities and services.

8. Removal of surplus materials, rubbish, and similar elements.

9. Warranties.

1.13 WAIVERS OF MECHANICS LIENS

A. With each Application for Payment, submit waivers of mechanics' liens from the contractor, subcontractors, sub-subcontractors, and suppliers for the construction period covered by the previous application.

B. Submit partial waivers on each item for all previous applications for payment, prior to deduction for retainage, on each item.

C. When an application shows completion of an item, submit final or full waivers.

D. The Owner reserves the right to designate which entities involved in the Work must submit waivers.

E. Submit waivers of lien on forms and executed in a manner acceptable to the Owner.

1.14 DEFINITIONS AND BID ADJUSTMENTS

A. Description of Abbreviations:

1. lf = Lineal Feet.

2. ea = Each.

3. sq ft = Square Feet.

4. ls = Lump Sum.

5. lbs = Pounds.

6. cu ft = Cubic Feet.

7. cu yd = Cubic Yards.

8. na = Not Applicable.

B. The quantities appearing in schedules in the Contract Documents are approximate only and are prepared for comparison of bids. Payment to the Contractor will be made only for the actual quantities of Work performed and accepted in accordance with the Contract unit prices. The Owner reserves the right to delete any item, portion, or phase of the Work. Bid price for all other work items to remain unchanged.

1. The quantities appearing in the schedules in the Contract Documents have been measured or estimated by the Engineer. The Contractor may rely upon these quantities in preparation of the Base Bid.

2. The items provided in schedules in the Contract Documents do not represent all the General Requirement Work required by this Contract.

3. See the Drawings and Specifications for other Work required as part of this Contract but not listed in schedules.

PART 2 – PRODUCTS

Not used.

PART 3 – EXECUTION

Not used.

END OF SECTION

SECTION 013000

SUBMITTALS

PART 1 – GENERAL

1.01 GENERAL REQUIREMENTS

A. Drawings, Contract Requirements, and the General Requirements (Division 01) of the Contract for Construction are hereby made a part of this Section.

1.02 TESTING

A. Fulfill and submit ACI, ASTM, ANSI, commercial, and other standards' schedule of tests and progress reports in strict accordance with the Specifications as set forth therein.

1.03 SCHEDULE

A. Within ten days after execution of the Contract, submit estimated progress schedules for each phase and subphase of the work.

B. Scheduling shall include provisions for materials' cure time, adverse weather, and materials procurement.

C. Submit drawings showing work areas and traffic flow for each phase of construction.

D. Submit to the Engineer a preliminary and final schedule of Shop Drawing submissions.

E. After the schedule's initial acceptance, at each Progress Meeting, present such revisions to the construction schedule as may be required by current or projected status of the Project.

1.04 ADMINISTRATIVE ACTIONS AND ADMINISTRATIVE SUBMITTALS

A. The following submittals must precede mobilization:

1. List of subcontractors.
2. List of principal suppliers and fabricators.
3. Schedule of Values.
4. Contractor's Construction Schedule.
5. Schedule of principal products.
6. Submittal schedule.
7. List of Contractor's staff assignments.

8. List of Contractor's principal consultants.

9. Copies of permits.

10. Copies of authorizations and licenses from governing authorities for performance of the Work.

11. Initial progress report.

12. Certificates of insurance and insurance policies.

13. Performance and payment bonds.

14. Data needed to acquire Owner's insurance.

1.05 MATERIALS AND PROCEDURES

A. The Contractor shall submit to the Engineer copies of the manufacturer's Specification and Product Data Sheets, Safety Data Sheets (SDSs), and recommended installation procedures, temperature limitations, and mix designs for materials as required by the Technical Sections of the Specifications.

B. Submit copies of the manufacturer's printed data, all stamped with the Contractor's approval and stating its intended use, to the Engineer for review. After review of the manufacturer's printed data, the Engineer will stamp the submittal, noting, if necessary, any further action required, and return the copy to the Contractor.

C. All other requirements of this Section also apply to the manufacturer's printed data.

1.06 SHOP DRAWINGS

A. Review and approve Shop Drawings before submitting to the Engineer. Submit checked Shop Drawings stamped with the approval of the Contractor to the Engineer for review per the accepted schedule of Shop Drawing submissions. The Engineer shall review, stamp, and return Shop Drawings to the Contractor within ten working days from the date of receipt of Shop Drawings at the Engineer's office.

B. The Contractor shall submit Shop Drawings as required by the Technical Sections of the Specifications.

C. Shop Drawings shall demonstrate that the Contractor understands the intent of the design as detailed and specified in the Contract Documents and shall show materials (kinds, quality, shapes, and sizes), details (fabrication, construction, assembly, and installation), and all required dimensions and measurements.

D. From Suppliers, submit Shop Drawings, all stamped with the Contractor's approval, and stating its intended use, to the Engineer for review. After review of the Shop Drawings, the Engineer will stamp the Shop Drawings, noting, if necessary, any further action required, and return the copies to the Contractor. All Shop Drawings shall have final review and approval by the Engineer before materials are ordered or fabrication

is begun. Provide the Engineer with a set of the final Shop Drawings, reproduced from the corrected original. Use only unmarked final approved Shop Drawings in the field.

1.07 SAMPLES

A. Receive, check, approve, and stamp all samples required by the Contract Documents before submitting to the Engineer for review. Provide three of each sample.

B. Allow ample time before samples are required for the Work.

C. Label each sample giving a complete description of the material, the intended use, and the name of the party submitting the sample.

1.08 SUBMISSION REQUIREMENTS

A. All submittals shall be submitted in an orderly sequence and sufficiently in advance of construction requirements to allow ample time for checking, resubmitting, and rechecking. Submit one electronic copy of the Shop Drawings, of Project Data, and of each Specification Section. Accompany submittals with transmittal letter, in duplicate.

B. Submittals shall include the following:

1. Date and revision dates.

2. Project title and number.

3. The names of the following:

a. Engineer.

b. Contractor.

c. Subcontractor.

d. Supplier.

e. Manufacturer.

f. Separate detailer, when pertinent.

4. Identification of product or material.

5. Relation to adjacent structure or materials.

6. Field dimension clearly defined as such.

7. Specification Section number.

8. Applicable standards such as ASTM number or Federal Specification.

9. A blank space, 3 in. x 4 in., for the Engineer's stamp at the lower right-hand corner of Drawings when possible.

10. Identification of deviations from the Contract Documents.

11. Contractor's stamp initialed or signed certifying to review of submittal, verification of field measurements, and compliance with the Contract Documents.

12. Include unique numbering of each submittal and submittal item, and sequential numbering of resubmittals. Sequentially number each page and indicate the submittal number and submittal item number on each page.

1.09 RESUBMISSION REQUIREMENTS

A. Revise initial submittal as required and resubmit as specified for the initial submittal. Clearly indicate, by clouding and use of revision-level number in a triangular symbol, all changes that have been made, including those requested by the Engineer.

1.10 DISTRIBUTION OF SUBMITTALS AFTER REVIEW

A. Distribute copies of Shop Drawings and Project Data that carry Engineer's stamp to the following:

1. Contractor's file.

2. Jobsite file.

3. Owner's representative.

4. Record documents file.

5. Subcontractors.

6. Supplier.

7. Fabricator.

1.11 DISTRIBUTION OF SAMPLES

A. Distribute approved samples as required for performance of the Work. Two samples will be returned to the Contractor. Maintain a complete and organized file with one of each sample in the Contractor's site office. Distribute the second sample to the Subcontractor or Supplier based on the Contractor's needs. Provide additional samples where, in the Contractor's opinion, more than two are needed by the Contractor.

1.12 ENGINEER'S RESPONSIBILITIES

A. Review submittals and transmit to the Contractor within ten working days after receipt of submittal. Review for design concept of Project and information given on the Contract Documents.

B. Return submittals to the Contractor for distribution.

C. The Engineer's Stamp will govern the action on all submittals. The stamp will have the following actions with the appropriate category checked:

Approved: No corrections; approved as submitted. The Contractor shall obtain and distribute adequate prints for construction, including one print of each for the Owner's Project representatives, and then return the transparencies to the subcontractor or supplier from whom he originally received them.

Approved as Corrected: Minor corrections made to the submittal; however, fabrication may begin in conformance to the corrections. No resubmission is required.

Revise and Resubmit: Major corrections have been made, and the submittal is to be corrected and resubmitted for approval. No work shall be released for fabrication or construction.

Not Approved: Submittal is not in conformance to the Contract Documents. When returning drawing, the Engineer will state reasons for rejection. The Contractor shall first obtain a record print and then forward the transparency to the source for correction of original drawings, and resubmission of a new transparency.

Resubmit for Record Copy: Minor corrections are made to the submittal; however, fabrication may begin in conformance to the corrections. Corrected record copy must be submitted.

Reviewed: Review is only for conformance to the design concept of the Project.

PART 2 – PRODUCTS

Not used.

PART 3 – EXECUTION

Not used.

END OF SECTION

SECTION 014100

TESTING AGENCY

PART 1 – GENERAL

1.01 GENERAL REQUIREMENTS

A. Drawings, Contract Requirements, and the General Requirements (Division 01) of the Contract for Construction are hereby made a part of this Section.

1.02 GENERAL

A. The Owner will employ and pay for the services of an independent Testing Agency to perform certain quality assurance inspections and testing.

B. The Contractor shall cooperate with the Testing Agency to facilitate the execution of its required services.

C. Employment of the Testing Agency shall in no way relieve the Contractor's obligations to supervise and perform the Work of the Contract.

D. All costs of initial testing will be paid by the Owner, provided that the items tested are in accordance with the Contract Documents. The Contractor shall pay the cost for all tests indicating that tested items are not in accordance with the Contract Documents and for all additional tests required to ensure that the items tested are in accordance with the Contract Documents.

E. The Contractor shall schedule all inspections and tests to be performed by the Testing Agency.

F. All testing by the Testing Agency shall be performed in a timely manner to prevent installation of nonconforming materials or to allow for their removal before additional work and placement of materials renders their removal impossible or unnecessarily expensive to the Contractor.

1.03 QUALIFICATION OF TESTING AGENCY

A. Meet "Recommended Requirements for Independent Laboratory Qualification," published by American Council of Independent Laboratories.

B. Meet basic requirements of ASTM E329 – Standard Recommended Practice for Inspection and Testing Agencies for Concrete, Steel, and Bituminous Materials as Used in Construction.

C. Authorized to operate in the state in which the Project is located.

1.04 TESTING AGENCY DUTIES

A. Cooperate with the Engineer and Contractor, and provide qualified personnel.

B. Perform specified inspections, sampling, and testing of materials and methods of construction:

1. Comply with specified standards.

2. Ascertain compliance of materials with requirements of Contract Documents.

C. Promptly notify the Engineer and Contractor of observed irregularities or deficiencies of Work or products.

D. Promptly submit written report of each test and inspection, two copies each to the Engineer, Contractor, and Owner, and one copy to Record Documents File. Each report shall include the following:

1. Date issued.

2. Project title and number.

3. Testing Agency name, address, and telephone number.

4. Name and signature of Testing Agency inspector.

5. Date and time of sampling or inspection.

6. Record of temperature and weather conditions.

7. Date of test.

8. Identification of product and Specification Section.

9. Location of sample or test in the Project.

10. Type of inspection or test.

11. Results of tests and compliance with Contract Documents.

12. Interpretation of test results, when requested by the Engineer.

E. The Testing Agency shall not:

1. Release, revoke, alter, or enlarge on requirements of Contract Documents.

2. Approve or accept any portion of the Work.

3. Perform any duties of the Contractor.

1.05 CONTRACTOR'S RESPONSIBILITIES

A. Cooperate with Testing Agency personnel; provide access to Work.

B. Secure and deliver to the Testing Agency adequate quantities of representational samples of materials proposed to be used and that require testing.

C. Provide to the Testing Agency, for their information, the preliminary design mix proposed to be used for concrete and other materials mixes that require control by the Testing Agency.

D. Furnish incidental labor and facilities:

1. To provide access to Work to be tested.

2. To obtain and handle samples at the Project site or at the source of the product to be tested.

3. To facilitate inspections and tests.

4. For storage and curing of test samples.

E. Notify Testing Agency sufficiently and a minimum of 48 hrs in advance of operations to allow for Testing Agency assignment of personnel and scheduling of tests.

1.06 SPECIFIC TESTS, INSPECTIONS, AND METHODS THAT THE OWNER MAY REQUIRE

A. Concrete Testing:

1. Air Content Testing:

a. Sample freshly mixed concrete per ASTM C172 and conduct one air content test per ASTM C231 or ASTM C173 for each truck of ready-mix air-entrained concrete delivered to the Project.

b. If concrete fails to meet the requirements of this Specification, the Engineer may require testing of hardened concrete for air content per ASTM C457.

c. Should the tested hardened concrete meet these Specifications, the Owner will pay for coring, testing, and patching. Should the tested hardened concrete not meet these Specifications, the Concrete Contractor will pay for the coring, testing, and patching of the hardened concrete.

d. The Contractor shall patch holes resulting from concrete coring. Use patching materials that meet the requirements of this Specification.

2. Concrete Compressive Strength:

a. Take a minimum of six cylinders for each mix design of concrete placed in any one day. An additional six cylinders shall be produced for each additional five truckloads of concrete.

b. Sample plastic concrete for testing in accordance with ASTM C172 and mold cylinders per ASTM C31.

c. Cure test specimens for twenty-eight-day strength verification per ACI 301, Chapter 16.

d. Compression Tests:

(1) Test two cylinders at seven days.

(2) Test two cylinders at twenty-eight days.

(3) Hold two cylinders in reserve for use as the Engineer directs.

e. After fifty-six days, unless notified by the Engineer to the contrary, reserve cylinders may be discarded without being tested for specimens meeting twenty-eight-day strength requirements.

3. Slump Test:

a. Conduct one slump test per truckload of ready-mixed concrete delivered to the Project.

(1) When water-reducing admixtures or high-range water-reducing admixtures are added at the jobsite, test concrete slump prior to the addition of admixtures.

(2) When water-reducing admixtures or high-range water-reducing admixtures are added at the plant, slump test at the site shall be as required by the Contract Documents.

4. Concrete Temperature:

a. Take concrete temperature for each truckload of concrete.

5. Unit Weight:

a. Conduct unit weight test per ASTM C138 each time air content is measured.

6. Direct Tension Bond Strength:

a. Conduct test per ASTM C1583 with a minimum of three test locations per Platform slab.

7. Evaluation and Acceptance of Concrete (ACI 301, Chapter 17):

a. Concrete compression tests will be evaluated by the Engineer in accordance with ACI 301, Chapter 17. If the test results for any type of concrete fail to meet the specified strength requirements, core tests may be required as directed by the Engineer.

b. Core tests, when required, shall be per ACI 301, Article 17.3.

c. Should the tested hardened concrete meet these Specifications, the Owner will pay for the coring and testing of the hardened concrete. Should the tested hardened concrete not meet these Specifications, the Contractor will pay for the coring and testing of the hardened concrete.

8. Concrete Moisture:

a. Conduct concrete moisture testing in accordance with ASTM D4263 for each concrete placement.

B. Concrete Repair Testing:

1. Sound all new concrete repairs with a hammer to check for debonding after repair material has cured at least seven days.

C. Sealant Testing:

1. Perform adhesion tests at the rate of one test per 1,000 lf of joint. Procedure is as follows:

a. Make a knife cut from one side of the joint to the other.

b. Make two cuts approximately 2 in. long at the sides of the joint, meeting the first cut at the top of the 2 in. cuts.

c. Grasp the 2 in. piece of sealant and try to pull the uncut sealant out of the joint.

d. If adhesion is proper, the sealant will tear cohesively and will be very difficult to remove cleanly from the surface.

2. Installed sealant represented by unsatisfactory results shall be replaced at no cost to the Owner.

3. If tests results are unsatisfactory, more-frequent testing will be required until satisfactory results are consistently obtained.

D. Vehicular-Traffic-Bearing Waterproofing Testing:

1. Measure wet-mil thickness of coating.

2. Perform tests of bond of the waterproofing to the substrate, one test per 5,000 sq ft but not less than three per parking garage level.

3. Measure dry-film thickness of coating, one test per 5,000 sq ft but not less than three per parking garage level.

PART 2 – PRODUCTS

Not used.

PART 3 – EXECUTION

Not used.

END OF SECTION

SECTION 014200

REFERENCES

PART 1 – GENERAL

1.01 GENERAL REQUIREMENTS

A. Drawings, Contract Requirements, and the General Requirements (Division 01) of the Contract for Construction are hereby made a part of this Section.

1.02 DEFINITIONS

A. General: Basic Contract definitions are included in the Conditions of the Contract.

B. “Approved”: When used to convey Engineer’s action on Contractor’s submittals, applications, and requests, “approved” is limited to Engineer’s duties and responsibilities as stated in the Conditions of the Contract.

C. “Directed”: A command or instruction by Engineer. Other terms including “requested,” “authorized,” “selected,” “required,” and “permitted” have the same meaning as “directed.”

D. “Indicated”: Requirements expressed by graphic representations or in written form on Drawings, in Specifications, and in other Contract Documents. Other terms including “shown,” “noted,” “scheduled,” and “specified” have the same meaning as “indicated.”

E. “Regulations”: Laws, ordinances, statutes, and lawful orders issued by Authorities Having Jurisdiction, and rules, conventions, and agreements within the construction industry that control performance of the Work.

F. “Furnish”: Supply and deliver to Project site, ready for unloading, unpacking, assembly, installation, and similar operations.

G. “Install”: Unload, temporarily store, unpack, assemble, erect, place, anchor, apply, work to dimension, finish, cure, protect, clean, and similar operations at Project site.

H. “Provide”: Furnish and install, complete and ready for the intended use.

I. “Project Site”: Space available for performing construction activities. The extent of Project site is shown on Drawings and may or may not be identical with the description of the land on which Project is to be built.

1.03 INDUSTRY STANDARDS

A. Applicability of Standards: Unless the Contract Documents include more-stringent requirements, applicable construction industry standards have the same force and effect as if bound or copied directly into the Contract Documents to the extent referenced. Such standards are made a part of the Contract Documents by reference.

B. Publication Dates: Comply with standards in effect as of date of the Contract Documents unless otherwise indicated.

C. Copies of Standards: Each entity engaged in construction on the Project should be familiar with industry standards applicable to its construction activity. Copies of applicable standards are not bound with the Contract Documents.

1. Where copies of standards are needed to perform a required construction activity, obtain copies directly from publication source.

1.04 ABBREVIATIONS AND ACRONYMS

A. Industry Organizations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. This information is subject to change and is believed to be accurate as of the date of the Contract Documents.

1. ACI – American Concrete Institute.

2. AIA – American Institute of Architects (The).

3. AISC – American Institute of Steel Construction.

4. AISI – American Iron and Steel Institute.

5. ANSI – American National Standards Institute.

6. ASCE – American Society of Civil Engineers.

7. ASCE/SEI – American Society of Civil Engineers/Structural Engineering Institute. (See ASCE.)

8. AWS – American Welding Society.

9. BIA – Brick Industry Association (The).

10. CRSI – Concrete Reinforcing Steel Institute.

11. CSI – Construction Specifications Institute (The).

12. ICC – International Code Council.

13. ICRI – International Concrete Repair Institute, Inc.

14. NCMA – National Concrete Masonry Association.

15. PCI – Precast/Prestressed Concrete Institute.

B. Code Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. This information is believed to be accurate as of the date of the Contract Documents.

1. ICC – International Code Council.

2. ICC-ES – ICC Evaluation Service, LLC.

C. Federal Government Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. Information is subject to change and is up to date as of the date of the Contract Documents.

1. OSHA – Occupational Safety & Health Administration.

PART 2 – PRODUCTS

Not used.

PART 3 – EXECUTION

Not used.

END OF SECTION

SECTION 015000

CONSTRUCTION FACILITIES AND TEMPORARY CONTROLS

PART 1 – GENERAL

1.01 GENERAL REQUIREMENTS

A. Drawings, Contract Requirements, and the General Requirements (Division 01) of the Contract for Construction are hereby made a part of this Section.

1.02 TEMPORARY ELECTRICITY

A. Electrical power service is available at no charge to the Contractor. The Contractor may obtain temporary power for construction from this source, or he may use his own generator. Temporary power service shall comply with OSHA Standards. The Contractor shall maintain these temporary services in good order throughout the Project until repair Work is complete. All extension cords shall be provided by the Contractor or subcontractor requiring the power.

1.03 TEMPORARY LIGHTING

A. The Contractor shall provide all additional temporary lighting for the Project.

1. Provide adequate illumination for Work being performed.

2. Provide adequate illumination for safe movement of authorized persons through the Project.

3. Provide adequate illumination for public safety and special warning lighting for hazardous conditions.

4. Provide adequate illumination required to protect the Project site from unauthorized entry.

1.04 TEMPORARY WATER

A. Water is available from a source to be identified by the Owner.

B. The Contractor shall provide and maintain necessary temporary connections to the source of temporary supply.

1.05 TEMPORARY SANITARY FACILITIES

A. The Contractor shall provide, pay for, and maintain sufficient and approved chemical toilets with weatherproof enclosures, all satisfactory to the local Board of Health and the Owner. Keep clean and sanitary at all times. The location shall be approved by the Owner.

B. Provide potable drinking water for construction personnel at all times.

1.06 TEMPORARY FIRE PROTECTION

A. The Contractor shall provide adequate fire protection and fire prevention for the Project and in no case less than that required by applicable town, county, state, and federal laws.

B. The existing fire protection sprinkler system is to remain operational for the duration of the Contract.

C. Protect the existing fire protection sprinkler system from damage. Provide secure shoring where existing hangers are damaged or undermined.

D. Damage to the sprinkler system caused by the Contractor's failure to provide adequate shoring or protection will be repaired promptly by the Contractor at no cost to the Owner.

1.07 TEMPORARY CONTROLS MAINTENANCE

A. Maintain strict supervision of use of temporary services. Enforce conformance to applicable standards. Enforce safe practices. Prevent abuse of services and systems. Prevent damage to finishes. Prevent wasteful use of water. Maintain, service, and clean facilities. Protect systems from freezing.

1.08 FIRST AID

A. The Contractor shall provide a first-aid kit with adequate provisions for the materials being used on site. The Contractor shall maintain an envelope to hang above the first-aid kit that will contain all of the Material Safety Data Sheets for materials being used on this Project.

1.09 USE OF SITE

A. Meet with the Owner and on-site management to fully discuss the implications of the Work on the facility operations, including material handling, equipment staging, and concrete placement.

B. The Contractor shall use only authorized access to the parking garage and shall neither block nor interfere with traffic or parking facilities, except as authorized in writing by the Owner.

C. The Contractor shall perform all work without interfering with the scheduled normal operation of the parking garage and of retail spaces (occupied spaces), except as provided in the Contract, and shall coordinate the work properly with the parking garage and occupied spaces' function, including preservation of security. The Contractor shall not interfere or disrupt activities without the expressed approval of, and coordination with, the Owner.

D. The Contractor shall not block any entrances or exits from the parking garage and occupied spaces; maintain emergency egress for the occupants. The Contractor shall convey debris to the ground in approved containers and dispose of debris offsite in a legal manner. The Contractor shall not leave equipment unattended on the ground at

any time. The Contractor shall provide suitable barricades and warning signs near work areas as necessary to protect the public.

E. The parking garage and occupied spaces will be open during construction. Protect the parking garage and occupied spaces, its occupants, users, vehicles, and passersby from all hazards associated with the work. Provide clear, printed, weatherproof professional signage at frequent and key intervals around the site and other locations to direct occupants as necessary. Erect all protection and signage prior to the start of construction. Overhead protection, pedestrian walkways, and barricades must comply with the State Building Code and OSHA standards.

F. All work begun in a work area or phase must be completed prior to mobilization to perform work in the next work area or phase.

G. The Contractor shall provide a two-week notice to on-site management in advance of changing the work area.

1.10 BARRICADES

A. See Section 015300 – Barriers, Enclosure, and Access.

1.11 STAGING

A. All staging, exterior and interior, that is required to be over 8 ft in height shall be furnished and erected by the Contractor and maintained in a safe condition.

1. Erection and dismantling of staging shall be performed only by trained, certified, and experienced staging personnel qualified to perform such work.

2. Copies of such certifications, clearly indicating qualifications, shall be provided to the Engineer prior to commencement of such erecting and dismantling work.

B. Any staging that is up to 8 ft in height shall be furnished and erected by the applicable subcontractor.

1.12 SECURITY

A. The Contractor shall be responsible for the security of his work area, equipment, tools, materials, and temporary facilities.

B. A login sheet is to be maintained at the temporary office; it will include information such as the subcontractor's name, pieces of equipment brought on site, number of men, time in, and time out.

1.13 DUST AND FUME CONTROL

A. The Contractor shall take all necessary precautions to keep dust confined in the present work area. Full-height protective enclosures will be required at the Owner's discretion; see Section 015300 – Barriers, Enclosure, and Access.

B. The Contractor shall be responsible for any damage to vehicles due to the construction.

C. Water shall be used during concrete removal, saw cutting, etc., to reduce dust exposure.

1.14 WATER POLLUTION CONTROL

A. Undertake all precautions necessary to prevent discharge of unacceptable pollutants used in and resulting from the Work into the City of Somerville storm water system.

1.15 DEBRIS CONTROL

A. The Contractor shall remove all debris from areas affected by the work on a daily basis or more often as required to maintain a neat, clean site and dispose of same at authorized dumpsites.

1.16 CONSTRUCTION LOAD

A. Loads on the structure at any time during construction shall not be permitted to exceed design loads of the structure.

1.17 NOISE CONTROL

A. All demolition and construction work that creates excessive noise (air hammer operations, hydrodemolition, scarifying, etc.) shall be reviewed with the Owner as to the types of equipment that the Contractor proposes to use and shall obtain the Owner's approval for such use. Noise limits shall conform to the requirements of the City of Somerville.

1.18 TEMPORARY ENCLOSURES FOR STORAGE

A. The Contractor is to provide temporary enclosures for storage and tools. The temporary enclosures are to be located where designated by the Owner. The area is to be kept clean and must not interfere with safe pedestrian- and vehicle-traffic flow.

B. Upon completion of the Project, remove temporary enclosures from the site, assuming all costs in connection with their removal.

C. The Contractor is to provide sufficient enclosures to prevent access by unauthorized personnel, including adequate lighting, locking mechanisms, etc.

1.19 PARKING

A. Only during contract working hours and to the extent available, existing parking facilities located at the construction area will be available for use by the Contractor and their Subcontractors. Such parking areas shall be designated by the Owner. The Owner shall not be responsible for cars, trucks, etc., or their contents, and the Contractor and his Subcontractors and material suppliers will use the designated area with this understanding.

1.20 VEHICLE AND EQUIPMENT PROTECTION

A. All construction activities shall be performed in such a manner so as not to dust, stain, or damage any building elements, equipment, vehicles, etc., within the general vicinity

of the construction work area. Any damage to these items shall be cleaned and repaired at the expense of the Contractor.

1.21 EXISTING DRAWINGS AND CONSTRUCTION DOCUMENTS

A. The Owner shall provide the Contractor with one set of architectural and structural drawings representing the original design, if available.

B. The Owner shall provide the Contractor with electronic files of the Construction Drawings and Specifications. The Contractor is responsible for printing the Construction Drawings and Specifications.

1.22 DEBRIS DUMPSTER

A. The Contractor shall locate dumpsters at locations designated by the Owner.

B. The dumpster shall be a closed container and shall be closed at the end of each day. The dumpster is to be placed in a manner that will not inhibit the driveway access or routine vehicular traffic.

1.23 BULK STORAGE

A. Bulk storage is to be located in an area designated by the Owner. Dry storage in the facility is acceptable as long as weight restrictions are met, and such storage areas are approved by the Owner.

1.24 CONDITION OF USE

A. Keep temporary services and facilities clean and neat in appearance. Operate in a safe and efficient manner. Take necessary fire-prevention measures. Do not overload facilities or permit them to interfere with progress. Do not allow hazardous, dangerous, unsanitary conditions, or public nuisances to develop or persist on the site.

1.25 PROTECTION OF WORKS

A. The Contractor shall obtain the advice and recommendations of his installers for procedures to protect their work. Installers are responsible for protecting their work and that of other trades while working at the jobsite or in an area thereof. When the installer is no longer working in the area or at the jobsite, the Contractor shall provide protective measures and materials to ensure that each element will be without damage or deterioration (other than normal weathering for exterior exposed materials) throughout the remainder of the construction period up to the Date of Substantial Completion. Remove protective coverings and materials at the appropriate time, but no later than final cleaning operations.

B. Provide protective coverings at walls, projections, jambs, sills, and soffits of openings. Protect finished floors and stairs from traffic, movement of heavy objects, and storage.

C. Remove, store, and replace existing parking garage signage.

D. Protection of works to remain in place until the Date of Substantial Completion; date of removal of protection is subject to the approval of the Owner and Engineer.

1.26 JOBSITE RECORDS

A. The Contractor shall keep the following items in the jobsite office at all times:

1. The most recent revision of the Drawings and Specifications, including all changes made by addenda, sketches, bulletins, and change orders.

2. Architectural and structural drawings representing the original design.

3. Applicable American Concrete Institute (ACI) Standards.

4. Health and Safety Data Sheets (SDS Sheets).

5. Copy of approved dust and fume control plan.

6. The most recent issue of approved submittals. Obsolete or unapproved submittals and Health and Safety Data Sheets shall not be kept at the jobsite.

7. All material evaluation reports.

PART 2 – PRODUCTS

Not used.

PART 3 – EXECUTION

Not used.

END OF SECTION

SECTION 015300

BARRIERS, ENCLOSURES, AND ACCESS

PART 1 – GENERAL

1.01 GENERAL REQUIREMENTS

A. Drawings, Contract Requirements, and the General Requirements (Division 01) of the Contract for Construction are hereby made a part of this Section.

1.02 BARRICADES

A. Provide and maintain suitable barriers as required to prevent public entry and to protect the Work and existing facilities from construction operations; remove when no longer needed or at completion of each phase of Work. Barriers shall conform to city and state laws, ordinances, and permit requirements.

B. The Contractor shall provide and maintain all necessary temporary barricades for safe conduct of his work or as required by federal, state, or local laws or ordinances and in accordance with OSHA requirements and other requirements of this Specification.

1.03 TEMPORARY ENCLOSURES

A. Temporary enclosures shall be sufficient to prevent entrance/exit or infiltration of rain, water, wind, or other elements, and will prevent undue heat loss from within an enclosed area.

B. Provide adequate ventilation and protection to provide construction personnel with a safe working environment.

C. Prior to initiating work, the Contractor shall enclose the perimeter of the work areas. The purpose of the enclosure is to contain dust, water, and debris within the work space; to prevent damage to building elements and injury to patrons within the garage; and to enclose the work area.

D. Enclosures shall not be placed at locations that cut off access to emergency exits, stairways, or elevators without prior approval of the Owner and Engineer. The enclosure erected by the Contractor shall prevent unauthorized persons from entering the work area. Enclosures shall not be placed at locations that cut off aisles without approval of the Owner.

E. Protection of works is to remain in place until the completion of each phase and Date of Substantial Completion. The date of removal of protection is subject to the approval of the Owner and Engineer.

1.04 ACCESS

A. The worksite will remain in service and occupied at all times through the Project. Individual areas of the work area will be available for the work by the Contractor.

Where entrance or egress passes through or over the work area, provide safe access and protection meeting all city, state, and federal requirements.

1.05 CONSTRUCTION AND MAINTENANCE

A. The Contractor shall be responsible for design, construction, and maintenance of all barricades, barriers, enclosures, and temporary entrances/exits.

PART 2 – PRODUCTS

2.01 MATERIALS

A. Materials may be new or used, and shall be suitable for intended purpose.

PART 3 – EXECUTION

3.01 GENERAL PROCEDURES

A. Install barriers and enclosures of neat and reasonable uniform appearance, and structurally adequate for the required purposes.

B. Maintain barriers and enclosures during entire construction period. Relocate barriers as required by progress of construction.

C. Completely remove barriers and enclosures when construction has progressed to the point where they are no longer needed.

D. Clean and repair damage caused by installation of barriers and enclosures.

END OF SECTION

SECTION 015600

TRAFFIC CONTROL AND CONSTRUCTION SIGNAGE

PART 1 – GENERAL

1.01 GENERAL REQUIREMENTS

A. Drawings, Contract Requirements, and the General Requirements (Division 01) of the Contract for Construction are hereby made a part of this Section.

1.02 SUBMITTALS

A. Submit a pedestrian traffic flow plan for each phase of construction.

B. Submit a shop drawing of representative sample signage to be used for traffic control. Show all sizes, coloring, construction, etc.

1.03 TRAFFIC CONTROL

A. The Owner will be responsible for maintaining traffic control and coordinating with the Contractor regarding the following items:

1. Provide and maintain all aisles; entrances; exits, including through work areas; and safeguards required or necessary to the progress of the Work, and effectively control such traffic in a manner so as to provide minimum hazard to the Work and all persons.

2. Maintain constant access for police, fire, and ambulance service.

3. Provide for and maintain proper control of traffic and safety of all concerned, including all necessary barricades, suitable and sufficient lights, reflectors and danger signals, warning and closure signs, and directional signs.

4. Indicate by day and by night all restricted and dangerous conditions existing on or adjacent to the structure. Illuminate at night all barricades and danger signals, warning signs, and obstructions. Keep all lights burning from sunset until sunrise.

5. Pedestrian traffic flow inside and outside of the structure shall be maintained to provide easy entry and exit from the structure.

1.04 SIGNAGE

A. Provide and maintain traffic signs throughout the duration of the Project to assist in traffic direction.

B. Provide signs necessary to inform facility users of closings and traffic flow modifications, both inside and outside the structure. Sign wording, appearance, and placement shall be approved by the Owner.

C. Work will not be permitted to proceed until required signage is approved and in place.

PART 2 – PRODUCTS

2.01 MATERIALS

A. Frames may be new or used, wood or metal, in sound condition and structurally adequate.

B. Signs shall be a minimum of 1/2 in. exterior-grade plywood.

C. Lettering shall be a minimum height of 4 in. and stenciled.

D. Paint shall be exterior quality, and the color of the lettering shall be black on a highway orange background.

PART 3 – EXECUTION

3.01 GENERAL PROCEDURES

A. Install at a height of optimum visibility, on frames or attached to structural surfaces.

B. Relocate signs and supports as required by progress of the Work.

C. Maintain signs and supports in a neat, clean condition; repair damages to supports or signs.

D. Remove signs, framing, and supports at completion of Project.

END OF SECTION

SECTION 016000

PRODUCT REQUIREMENTS

PART 1 – GENERAL

1.01 GENERAL REQUIREMENTS

A. Drawings, Contract Requirements, and the General Requirements (Division 01) of the Contract for Construction are hereby made a part of this Section.

1.02 SUMMARY

A. Section includes administrative and procedural requirements for selection of products for use in Project; product delivery, storage, and handling; manufacturers' standard warranties on products; special warranties; and comparable products.

B. Related Requirements:

1. Section 014200 – References.

2. Section 016300 – Substitutions.

1.03 DEFINITIONS

A. Products: Items obtained for incorporating into the Work, whether purchased for Project or taken from previously purchased stock. The term “product” includes the terms “material,” “equipment,” “system,” and terms of similar intent.

1. Named Products: Items identified by manufacturer's product name, including make or model number or other designation shown or listed in manufacturer's published product literature that is current as of date of the Contract Documents.

2. New Products: Items that have not previously been incorporated into another project or facility. Products salvaged or recycled from other projects are not considered new products.

3. Comparable Product: Product that is demonstrated and approved through submittal process to have the indicated qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics that equal or exceed those of specified product.

B. Basis-of-Design Product Specification: A specification in which a specific manufacturer's product is named and accompanied by the words “basis-of-design product,” including make or model number or other designation, to establish the significant qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics for purposes of evaluating comparable products of additional manufacturers named in the Specification.

1.04 ACTION SUBMITTALS

A. Comparable Product Requests: Submit request for consideration of each comparable product. Identify product or fabrication or installation method to be replaced. Include Specification Section number and title and drawing numbers and titles.

1. Include data to indicate compliance with the requirements specified in Para. 2.02.

2. Engineer's Action: If necessary, the Engineer will request additional information or documentation for evaluation within one week of receipt of a comparable product request. The Engineer will notify the Contractor of approval or rejection of proposed comparable product request within fifteen days of receipt of request, or seven days of receipt of additional information or documentation, whichever is later.

a. Form of Approval: As specified in Section 013000 – Submittals.

b. Use product specified if the Engineer does not issue a decision on use of a comparable product request within time allocated.

3. Basis-of-Design Product Specification Submittal: Comply with requirements in Section 013000 – Submittals. Show compliance with requirements.

1.05 QUALITY ASSURANCE

A. Compatibility of Options: If the Contractor is given option of selecting between two or more products for use on Project, select product compatible with products previously selected, even if previously selected products were also options.

1. Each contractor is responsible for providing products and construction methods compatible with products and construction methods of other contractors.

2. If a dispute arises between contractors over concurrently selectable but incompatible products, the Engineer will determine which products shall be used.

1.06 PRODUCT DELIVERY, STORAGE, AND HANDLING

A. Deliver, store, and handle products using means and methods that will prevent damage, deterioration, and loss, including theft and vandalism. Comply with manufacturer's written instructions.

B. Delivery and Handling:

1. Schedule delivery to minimize long-term storage at the Project site and to prevent overcrowding of construction spaces.

2. Coordinate delivery with installation time to ensure minimum holding time for items that are flammable, hazardous, easily damaged, or sensitive to deterioration, theft, and other losses.

3. Deliver products to the Project site in an undamaged condition in manufacturer's original sealed container or other packaging system, complete with labels with product descriptions, including date of manufacture, lot number, and shelf life, and instructions for handling, storing, unpacking, protecting, and installing.

4. Inspect products on delivery to determine compliance with the Contract Documents and to determine that products are undamaged and properly protected.

5. All materials are to be new. Handle all materials to prevent damage. Place materials on pallets. Use waterproof and fireproof canvas tarpaulins (not plastic) to cover all stored materials top to bottom.

6. Do not dilute primers, roofing cements, adhesives, coatings, or sealants. Keep containers closed, except when removing materials from them. Stir all liquid components before each use to disperse solids as recommended by the manufacturer. Apply liquids in a smooth, even coating without globs. Use pump cans to dispense cleaning fluids. Do not dip rags into solvent.

C. Storage:

1. Store products to allow for inspection and measurement of quantity or counting of units.

2. Store materials in a manner that will not endanger Project structure. Limit loads on the deck to a maximum of 40 psf or as determined by the Shoring Engineer.

3. Store products that are subject to damage by the elements, under cover in a weathertight enclosure above ground, with ventilation adequate to prevent condensation.

4. Protect foam plastic from exposure to sunlight, except to extent necessary for period of installation and concealment.

5. Protect all materials in original, unopened, labeled containers and packaging and in compliance with manufacturer’s directions.

6. Comply with product manufacturer's written instructions for temperature, humidity, ventilation, and weather protection requirements for storage.

7. Protect stored products from damage and liquids from freezing.

8. Provide a secure location and enclosure at Project site for storage of materials and equipment by Owner's construction forces. Coordinate location with the Owner.

9. Protect all materials from exposure to moisture, direct sunlight, heat, sparks, flames, and any damage during storage. Volatile solvents can produce explosive and poisonous gases; provide adequate ventilation and protection in storage areas. Follow all manufacturers' safety recommendations. Do not store red-label items on site overnight.

10. Promptly remove from the site all materials rejected by the Engineer or exposed to any moisture anywhere, at any time, during transportation, storage, handling, or installation.

11. Do not stockpile materials or equipment to overload any building or site component.

12. Mark materials with the date of manufacture and shelf life. Do not use products beyond the expiration of their shelf life. Store flammable materials in a cool, dry, protected area away from sparks and open flames.

1.07 PRODUCT WARRANTIES

A. Warranties specified in other Sections shall be in addition to, and run concurrent with, other warranties required by the Contract Documents. Manufacturer's disclaimers and limitations on product warranties do not relieve Contractor of obligations under requirements of the Contract Documents.

1. Manufacturer's Warranty: Written warranty furnished by individual manufacturer for a particular product and specifically endorsed by manufacturer to Owner.

2. Special Warranty: Written warranty required by the Contract Documents to provide specific rights for Owner.

B. Special Warranties: Prepare a written document that contains appropriate terms and identification, ready for execution.

1. Manufacturer's Standard Form: Modified to include Project-specific information and properly executed.

2. Specified Form: When specified forms are included with the Specifications, prepare a written document using indicated form properly executed.

3. Refer to other Sections for specific content requirements and particular requirements for submitting special warranties.

C. Submittal Time: Comply with requirements in Section 017000 – Project Closeout and Warranties.

PART 2 – PRODUCTS

2.01 PRODUCT SELECTION PROCEDURES

A. General Product Requirements: Provide products that comply with the Contract Documents; that are undamaged; and, unless otherwise indicated, that are new at time of installation.

1. Provide products complete with accessories, trim, finish, fasteners, and other items needed for a complete installation and indicated use and effect.

2. Standard Products: If available, and unless custom products or nonstandard options are specified, provide standard products of types that have been produced and used successfully in similar situations on other projects.

3. The Owner reserves the right to limit selection to products with warranties not in conflict with requirements of the Contract Documents.

4. Where products are accompanied by the term “as selected,” the Engineer will make selection.

5. Descriptive, performance, and reference standard requirements in the Specifications establish salient characteristics of products.

6. Or Equal: For products specified by name and accompanied by the term “or equal,” or “or approved equal,” or “or approved,” comply with requirements in Para. 2.02 to obtain approval for use of an unnamed product.

B. Product Selection Procedures:

1. Product: Where Specifications name a single manufacturer and product, provide the named product that complies with requirements. Comparable products or substitutions for the Contractor's convenience will not be considered.

2. Manufacturer/Source: Where Specifications name a single manufacturer or source, provide a product by the named manufacturer or source that complies with requirements. Comparable products or substitutions for Contractor's convenience will not be considered.

3. Products:

a. Restricted List: Where Specifications include a list of names of both manufacturers and products, provide one of the products listed that complies with requirements. Comparable products or substitutions for Contractor's convenience will not be considered.

b. Nonrestricted List: Where Specifications include a list of names of both available manufacturers and products, provide one of the products listed, or an unnamed product, that complies with requirements.

Comply with requirements in Para. 2.02 for consideration of an unnamed product.

4. Manufacturers:

a. Restricted List: Where Specifications include a list of manufacturers' names, provide a product by one of the manufacturers listed that complies with requirements. Comparable products or substitutions for Contractor's convenience will not be considered.

b. Nonrestricted List: Where Specifications include a list of available manufacturers, provide a product by one of the manufacturers listed, or a product by an unnamed manufacturer, that complies with requirements. Comply with requirements in Para. 2.02 for consideration of an unnamed manufacturer's product.

5. Basis-of-Design Product: Where Specifications name a product, or refer to a product indicated on Drawings, and include a list of manufacturers, provide the specified or indicated product or a comparable product by one of the other named manufacturers. Drawings and Specifications indicate sizes, profiles, dimensions, and other characteristics that are based on the product named. Comply with requirements in Para. 2.02 for consideration of an unnamed product by one of the other named manufacturers.

C. Visual Matching Specification: Where Specifications require “match the Engineer’s sample,” provide a product that complies with requirements and matches the Engineer's sample. The Engineer's decision will be final on whether a proposed product matches.

1. If no product available within specified category matches and complies with other specified requirements, comply with requirements in Section 016300 – Substitution Procedures for proposal of product.

D. Visual Selection Specification: Where Specifications include the phrase “as selected by Owner from manufacturer's full range” or similar phrase, select a product that complies with requirements. The Owner will select color, gloss, pattern, density, or texture from manufacturer's product line that includes both standard and premium items.

2.02 COMPARABLE PRODUCTS

A. Conditions for Consideration: The Engineer will consider the Contractor's request for comparable product when the following conditions are satisfied. If the following conditions are not satisfied, the Engineer may return requests without action, except to record noncompliance with these requirements:

1. Evidence that the proposed product does not require revisions to the Contract Documents, that it is consistent with the Contract Documents, that it will produce the indicated results, and that it is compatible with other portions of the Work.

2. Detailed comparison of significant qualities of proposed product with those named in the Specifications. Significant qualities include attributes such as performance, weight, size, durability, visual effect, and specific features and requirements indicated.

3. Evidence that proposed product provides specified warranty.

4. List of similar installations for completed projects with project names and addresses and names and addresses of Architects and Owners, if requested.

5. Samples, if requested.

PART 3 – EXECUTION

Not used.

END OF SECTION

SECTION 016300

SUBSTITUTIONS

PART 1 – GENERAL

1.01 GENERAL REQUIREMENTS

A. Drawings, Contract Requirements, and the General Requirements (Division 01) of the Contract for Construction are hereby made a part of this Section.

1.02 PROCEDURES

A. Whenever the proposal of substitute material, equipment, or process is permitted by the Specifications, the proposed substitute material, equipment, or process shall be submitted in accordance with the General Conditions and subject to the requirements contained herein.

B. After the start of construction, the proposal of substitute material, equipment, or process will be considered only for one of the following reasons:

1. The manufacture or production of the specified material, equipment, or process has been discontinued.

2. The specified material, equipment, or process is not available in sufficient quantity or quantities to complete the Work. Failure of the Contractor to award subcontracts in sufficient time or failure of the Contractor and/or the subcontractor involved to place orders for material, equipment, or process so as to ensure delivery or execution without delaying the Work shall not establish cause for approval of substitutions.

3. Delays beyond the control of the Contractor such as, but not limited to, strikes, lockouts, storms, fires, or earthquakes that preclude the procurement and delivery of material or equipment for the Project as included in the Contractor's proposal.

4. Advancement of the delivery date, provided that this advances the overall progress of the Work.

5. Improvement in quality or function of the material, equipment, or process.

C. If, after the start of construction, the Contractor proposes a substitute to the Project, the Contractor must submit a separate request for each product, supported with complete data with drawings and samples as appropriate, including the following:

1. Comparison of the qualities of the proposed substitution with that specified.

2. Changes required in other elements of the work because of substitution.

3. Effect on the construction schedule.

4. Cost data comparing the proposed substitution with the product specified.

5. Any required license fees or royalties.

6. Availability of maintenance service and source of replacement materials.

D. After the start of the construction, any proposed substitute material, equipment, or process shall be subject to the following conditions:

1. Submittal of the proposed substitute material, equipment, or process per the General Conditions.

2. Submittal of the request for a substitution early enough to allow ample lead time for the Engineer's review, preparation of the submittals, fabrication, and delivery without delaying the Work.

3. Approval of substitutions by the Engineer and the Owner.

E. The Engineer shall be the judge of the acceptability of the proposed substitute.

F. A request for substitution constitutes a representation that the Contractor has investigated the proposed product and determined that it is equal to or superior in all respects to that specified.

PART 2 – PRODUCTS

Not used.

PART 3 – EXECUTION

Not used.

END OF SECTION

SECTION 017000

PROJECT CLOSEOUT AND WARRANTIES

PART 1 – GENERAL

1.01 GENERAL REQUIREMENTS

A. Drawings, Contract Requirements, and the General Requirements (Division 01) of the Contract for Construction are hereby made a part of this Section.

1.02 FINAL CLEANING AND CLOSEOUT

A. Each Contractor or Subcontractor, in addition to the responsibilities set forth in the General Conditions, shall at all times keep the premises free from accumulation of waste materials or rubbish caused by his employees or Work.

B. At the completion of the Project, the Contractor shall restore or replace all property damaged by his Work and remove all spots, paint, soil, concrete, writing, droppings, or other foreign material from all Work. Remove all temporary protection from all the Work. Final cleaning shall include, as a minimum, the following:

1. Employ experienced workmen or professional cleaners for final cleaning.

2. Remove grease, dust, dirt, stains, labels, fingerprints, and other foreign materials from sight-exposed interior and exterior finished surfaces.

3. Clean all finish hardware.

4. Comply with manufacturer’s printed cleaning instructions.

5. Clean all plumbing fixtures.

6. Clean all lighting fixtures.

7. Repair, patch, and touch up marred surfaces to specified finish to match adjacent surfaces.

8. Broom-clean paved surfaces; rake-clean other surfaces of grounds.

C. A punch list consisting of a copy of the plans showing locations of unacceptable items and an attached explanation of the nature of the unacceptable work shall be delivered to the Contractor by the Engineer after substantial completion of the Project.

D. The Contractor shall submit as-built drawings after substantial completion of the Project. The as-built drawings shall include, but not be limited to, an electronic copy of the Drawings incorporating all changes and bulletins (enclosed in clouds), location and size of concrete patches and cracks, all shop drawings incorporating all changes (enclosed in clouds), and all approved submittals. Any dimensions beyond the

tolerances of those established by nationally recognized standards for the specific CSI division or section applicable shall be included on the as-built drawings.

E. Closeout submittals include, but are not limited to, the following:

1. Project record documents.

2. Operation and maintenance data.

3. Keys and keying schedule.

4. Spare parts.

5. Maintenance manuals.

6. Extra stock.

7. Certificate of Inspection.

8. Warranties.

F. Evidence of Payments and Release of Liens:

1. Contractor's Affidavit of Payment of Debts and Claims.

2. Contractor's Affidavit of Release of Liens: AIA G706A, with:

a. Consent of Surety to Final Payment: AIA G707.

b. The Contractor's release of waivers of lien for subcontractors, suppliers, and others with lien rights against property of Owner, together with list of those parties.

1.03 PROJECT RECORD DOCUMENTS

A. Maintain at the Project site one copy of the following:

1. Contract drawings.

2. Project manual, including addenda.

3. Approved shop drawings.

4. Change orders and field change authorization.

5. Other modifications to Contract.

6. Field test records.

B. Store documents in temporary field office apart from documents used for construction. Provide files and racks for storage of documents.

C. Maintain documents in clean, dry, legible condition; do not use record documents for construction purposes.

D. Make documents available at all times for inspection by the Engineer and the Owner.

E. Legibly mark the record set of Contract Drawings using a red pencil for all graphic work and red ink for all written work to record actual construction:

1. Location and extent of all repairs.

2. Field changes of dimension and detail.

3. Changes not made by change order and field change authorization.

4. Details not on original Contract Drawings.

F. Legibly mark the Specifications and Addenda to record the following:

1. Manufacturer, trade name, catalog number, and supplier of each product and item of equipment actually installed.

2. Changes made by change order, field change authorization, and notice of clarification.

3. Other matters not originally specified.

G. Legibly mark shop drawings to record changes made after approval.

H. At completion of the Project, deliver record documents to the Engineer.

1.04 CONTRACTOR WARRANTIES AND BONDS

A. The act of the Contractor in executing the Agreement or this Work shall be considered as his acceptance of the following guarantee covering the Project:

1. Any materials, workmanship, or equipment furnished as a part of this Project that prove defective or fail to operate properly within 2 yrs, or as otherwise specified in the Contract Documents, of the date of acceptance of the Work required under this (or substantial completion of the) Project (damage by wear and tear, violence, or casualty not the fault of the Contractor excepted) shall be repaired and replaced by the Contractor promptly upon notification from the Owner and without cost to the Owner.

2. This Guarantee provision shall apply regardless of whether such defective workmanship, materials, or equipment are listed in the final punch list. Date of acceptance or substantial completion will be established by the Owner and the Engineer upon finding all items of this Project substantially complete as to quality of workmanship and materials. Also see Division 7 for additional guarantees and warranties.

3. The Contractor shall provide a warranty commencing on the date of Project acceptance. Completion of various Project phases shall not initiate

commencement of warranty in these specific areas. A single Project warranty date at Project acceptance will constitute commencement of the warranty. Note that some areas of the Project may be open to pedestrian and vehicular traffic and subject to wear (i.e., coatings, sealants) prior to commencement of the warranty.

PART 2 – PRODUCTS

Not used.

PART 3 – EXECUTION

Not used.

END OF SECTION

SECTION 017419

CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL

PART 1 – GENERAL

1.01 RELATED DOCUMENTS

A. Drawings, Contract Requirements, and the General Requirements (Division 01) of the Contract for Construction are hereby made a part of this Section.

1.02 SUMMARY

A. Section includes administrative and procedural requirements for the following:

1. Disposing of nonhazardous demolition and construction waste.

B. Related Requirements:

1. Section 015000 – Construction Facilities and Temporary Controls.

1.03 DEFINITIONS

A. Construction Waste: Building and site improvement materials and other solid waste resulting from construction, remodeling, renovation, or repair operations. Construction waste includes packaging.

B. Demolition Waste: Building and site improvement materials resulting from demolition or selective demolition operations.

C. Disposal: Removal offsite of demolition and construction waste and subsequent sale, recycling, reuse, or deposit in landfill or incinerator acceptable to Authorities Having Jurisdiction.

1.04 PERFORMANCE REQUIREMENTS

A. General: Achieve End-of-Project rates for salvage/recycling of the highest extent possible for nonhazardous solid waste generated by the Work. Practice efficient waste management in the use of materials in the course of the Work. Use all reasonable means to divert construction and demolition waste from landfills and incinerators. Facilitate recycling and salvage of materials.

PART 2 – PRODUCTS

Not Used.

PART 3 – EXECUTION

3.01 DISPOSAL OF WASTE

A. General: Except for items or materials to be salvaged, recycled, or otherwise reused, remove waste materials from the Project site and legally dispose of them in a landfill or incinerator acceptable to Authorities Having Jurisdiction.

1. Except as otherwise specified, do not allow waste materials that are to be disposed of to accumulate on site.

2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.

B. Disposal: Remove waste materials from Owner's property, and legally dispose of them.

END OF SECTION

SECTION 021000

SHORING

PART 1 – GENERAL

1.01 GENERAL REQUIREMENTS

A. Drawings, Contract Requirements, and the General Requirements (Division 01) of the Contract for Construction are hereby made a part of this Section.

1.02 SCOPE OF WORK

A. Work includes, but is not limited to, providing all labor, materials, equipment, and supervision necessary to design, provide, install, and dismantle shoring to safely support the existing structure during the Work, including, but not limited to, that shoring described below.

1. The Contractor is responsible for determining the need for, designing, and providing shoring to safely support the existing structural elements during concrete demolition and concrete repairs. The configuration of the shoring shall accommodate the installation of formwork for the various concrete repairs.

2. The Contractor is responsible for temporarily supporting and protecting all mechanical equipment, such as ventilation duct work, fire suppression system, and plumbing, currently supported at the underside of the elevated decks at the work areas.

3. The Contractor is responsible for identifying all locations where construction loads will exceed the permissible loads described in the Specifications and drawings and designing and providing shoring to support safely the existing structure during construction.

B. The shoring shown on the Drawings shall be considered the minimum requirements for shoring, and the Contractor is responsible for determining the need for additional shoring. Shoring shall be restrained against lateral movement to prevent posts and beams from tipping or shifting under vibrations due to demolition activities.

1.03 RELATED WORK

A. Work related to this Section includes, but is not limited to, the following:

1. Section 037320 – Concrete Repair.

1.04 REFERENCES

A. Meet or exceed all relevant recommendations and requirements listed in the following documents unless more-stringent requirements are specified herein:

1. 9th Ed. Massachusetts State Building Code with Current Amendments.

B. The following references are incorporated into these Specifications. These written Specifications take precedence over incorporated references. The references included in the Specifications refer to the most recent revision of the publication. The Contractor shall have the following references at the Project site at all times and shall be familiar with the reference contents:

1. SEI/ASCE 37 – Design Loads on Structures during Construction.

2. Scaffolding, Shoring and Forming Institute, Inc., Codes of Safe Practices and Safety Rules.

1.05 ACTION SUBMITTALS

A. The submittals described herein are for review only and are not for approval. Review by the Engineer does not relieve the Contractor of its responsibility for designing and implementing a safe shoring system.

1. Submit Shop Drawings to the Engineer for review. The Shop Drawings shall bear the seal of a Professional Structural Engineer licensed to practice in the Commonwealth of Massachusetts who is responsible for the design of the shoring system. The Shop Drawings shall include, without limitation, the shoring system layout and details. The Shop Drawings shall be based on actual field measurements of the existing structural elements.

2. Submit manufacturer's Product Data with application and installation instructions, including load-capacity ratings.

1.06 INFORMATIONAL SUBMITTALS

A. Submit procedures indicating the methods, such as wedging or jacking, that will be used to ensure that the shores are supporting the intended loads.

B. Submit copies of all safety and precautionary-measure regulations applicable to the installation and utilization of all shoring.

1.07 QUALITY CONTROL AND QUALITY ASSURANCE

A. The Contractor shall conduct a quality control program that includes, but is not limited to, the following:

1. Inspection of all existing conditions to ensure familiarity with the Contract requirements.

2. Establishment of procedures for executing the Work.

3. Inspection of all Work in progress to ensure that the Work is being done in accordance with established procedures; manufacturer's instructions; specific Engineer instructions, if given; or recommended practices as given in the references of Para. 1.04.

4. Inspection of all Work completed, including visual examination of all shoring in place and correction of all defective or deficient shoring.

5. Inspection of all completed Work throughout construction to ensure that shoring does not shift or fall due to demolition and/or other repair activities.

B. Qualifications:

1. The Contractor and its site superintendent shall have at least 5 yrs of experience supervising the installation of temporary structural shoring.

C. Preinstallation Conference:

1. Attend a preinstallation conference to be held with a representative of the Owner, Engineer, Contractor's field superintendent, foreman, and other trades involved to discuss the conduct of the Work of this Section.

1.08 GENERAL PROCEDURES

A. The Contractor shall become familiar with the intended usage of the shores and shoring systems and with the existing conditions as they affect transportation of materials, layout work, traffic control, and other conditions that may affect the installation of the shores.

B. Do not start Work until the Engineer has reviewed the submitted Shop Drawings and calculations.

C. Protect the parking garage and its contents from all risks associated with the Work in this Section. Schedule and execute all work without exposing adjacent building areas or construction phases outside the current work zone to water, dust, debris, or materials used by this Contractor. Protect adjacent areas from damage and stains with appropriate barriers and masking. Repair all damage as a result of the Work of this Section to its condition at the start of Work or, if such cannot be determined, to its original condition. Clean all stains by approved means.

1.09 COORDINATION

A. Coordinate the arrangement and details of the shores with the work of other trades affected by or dependent upon shoring.

1.10 BASIS OF PAYMENT

A. Refer to Form for General Bid.

PART 2 – PRODUCTS

2.01 MATERIALS

A. Shores and shore assembly components supplied by the Contractor, including cribbing, base frames, base plates, cap plates, head screw jacks, U-heads, cross-bracing, structural steel members, and frame spacers, shall be manufactured or custom-fabricated products.

B. All shore assembly components shall be free of structural damage and in good working order. In particular, the screw jacks shall be free of rust and grime and shall be lubricated so as to have smooth operation during height adjustment of the head.

C. Shore assembly components shall be examined by the Contractor immediately after delivery. Components not meeting the criteria of Para. 2.01.B shall be removed from the Project site. The Contractor shall replace the rejected shore components without any additional costs to the Owner.

PART 3 – EXECUTION

3.01 DESIGN AND CONSTRUCTION

A. Temporary shoring shall be designed by the Contractor's engineer and constructed by the Contractor adopting the following criteria:

1. At locations specifically identified on the Drawings, temporary shoring shall support the working loads shown on the Drawings with a minimum factor of safety (ultimate capacity divided by working load) of 2.5.

2. Temporary shoring shall support the dead weight of the existing structure and the construction loads with a minimum factor of safety (ultimate capacity divided by working load) of 2.5 on shoring so as not to overload the existing floors and construction on which it bears. Compatibility of deformations shall be considered in the shoring design.

3. Shoring posts shall be restrained against lateral movement by mechanical anchors into the underside of the slab or beam and/or blocking in order to prevent posts from tipping or shifting under vibrations from demolition activities. Where mechanical anchors are used, the Contractor shall locate all reinforcement prior to installing anchors and avoid cutting into reinforcement. Lateral restraint shall also meet the minimum requirements of the shoring system manufacturer.

B. The arrangement of the shoring shall be in conformance with the approved Shop Drawings or as specifically identifies on the Drawings.

C. All shores shall be checked, and shall be adjusted where required, prior, during, and after each demolition and concreting operation.

D. All shores shall be maintained with a tight fit and/or preloaded, where necessary.

E. "Temporary" shoring shall remain in place for a minimum of seven days after concrete placement, irrespective of concrete strength. Thereafter, the shoring may be removed after concrete attains 75% of specified twenty-eight-day compressive strength. The Contractor shall determine compressive strength of concrete prior to shore removal.

F. Temporary utility shoring shall remain in place until all permanent utility supports are installed.

3.02 GENERAL SAFETY REQUIREMENTS

A. The erection and operation of shores shall conform to all safety and precautionary measures as recommended by the Scaffolding, Shoring and Forming Institute, Inc., and in accordance with all state, local, and federal codes, ordinances, and regulations.

END OF SECTION

SECTION 025240

VERTICAL GRANITE CURBS AND CONCRETE SIDEWALKS

PART 1 – GENERAL

1.01 GENERAL REQUIREMENTS

A. Drawings, Contract Requirements, and the General Requirements (Division 1) of the Contract for Construction are hereby made a part of this Section.

1.02 SCOPE OF WORK

A. Work includes, but is not limited to, providing all labor, materials, equipment, and supervision to accomplish the following vertical granite curb and concrete sidewalk work in accordance with the Drawings and Specifications:

1. Remove, regrade, and reset the vertical granite curb as shown on the Drawings. Provide new vertical granite curb to match existing as necessary to perform the work and as approved by the Owner.

2. Remove and dispose of the brick sidewalks as shown on the Drawings. Regrade and provide new concrete sidewalks.

1.03 RELATED SECTIONS

A. Work related to this Section includes, but is not limited to, the following:

1. Section 033000 – Cast-in-Place Concrete.

2. Section 312000 – Earthwork.

1.04 QUALITY ASSURANCE

A. Tolerances for Concrete Sidewalks: Construct concrete surfaces within 1/4 in. of the indicated elevation and deviating not more than 1/8 in. from a 10 ft straightedge placed anywhere on the surface. Additionally, under no circumstances are concrete surfaces to exceed the limitations in the applicable accessibility regulations.

B. Tolerances for Vertical Granite Curbing: Install vertical granite curbing within 1/4 in. of the indicated elevation and deviating not more than 1/8 in. per segment.

C. Provide strict compliance with requirements for air entrainment and curing.

1.05 BASIS OF PAYMENT

A. See Form for General Bid.

PART 2 – PRODUCTS

2.01 MATERIALS

A. Concrete: Section 033000 – Cast-In-Place Concrete.

B. Preformed Joint Filler: AASHTO M153.

C. Hot-Poured Joint Sealer: AASHTO M173.

D. Gravel Base: Section 312000 – Earthwork – MHD M1.03.1.

PART 3 – EXECUTION

3.01 PREPARATION AND EXECUTION

A. Remove (VGC) and brick sidewalk as indicated on the Drawings.

B. Prepare the subgrade and gravel base as specified in Section 312000 – Earthwork – true to the indicated grade and cross section.

C. Place and compact a foundation of gravel base to the indicated thickness upon the prepared subgrade where applicable.

D. Reset salvaged VGC and install new vertical granite curb as indicated on the Drawings and as specified herein.

E. Test completed gravel foundation with a template supported on the side forms, prior to concreting.

END OF SECTION

SECTION 033000

CAST-IN-PLACE CONCRETE

PART 1 – GENERAL

1.01 GENERAL REQUIREMENTS

A. Drawings, Contract Requirements, and the General Requirements (Division 1) of the Contract for Construction are hereby made a part of this Section.

1.02 SCOPE OF WORK

A. Work includes, but is not limited to, providing all labor, materials, equipment, and supervision to accomplish the following cast-in-place concrete work in accordance with the Drawings and Specifications:

1. Remove, regrade, and replace the concrete slab at the garage entrance at the Lower Level as shown on the Drawings.

2. Provide new concrete topping slab sloped to drain, with perimeter edges matching elevation of existing surfaces to remain.

1.03 RELATED SECTIONS

A. Work related to this Section includes, but is not limited to, the following:

1. Section 071300 – Hot-Applied Waterproofing.

2. Section 312000 – Earthwork.

1.04 REFERENCES

A. Follow the requirements and recommendations contained in the latest editions of the following codes, specifications, and standards, including references contained in each document, except where more-stringent requirements are shown or specified.

1. American Association of State Highway and Transportation Officials (AASHTO):

   a. AASHTO T260 – Methods of Sampling and Testing for Total Chloride Ion in Concrete and Concrete Raw Materials.

2. American Concrete Institute (ACI):

   a. ACI 117 – Standard Tolerances for Concrete Construction and Materials.

   b. ACI 211.1 – Recommended Practice for Selecting Proportions for Normal Weight Concrete.

c. ACI 214 – Recommendation for Evaluation of Compression Test Results of Field Concrete.

d. ACI 301 – Standard Specification for Structural Concrete.

e. ACI 304 – Recommended Practice for Measuring, Mixing and Placing Concrete.

f. ACI 305 – Recommended Practice for Hot Weather Concreting.

g. ACI 306 – Recommended Practice for Cold Weather Concreting.

h. ACI 306.1 – Standard Specification for Cold Weather Concreting.

i. ACI 308 – Recommended Practice for Curing Concrete.

j. ACI 309 – Recommended Practice for Consolidation of Concrete.

k. ACI 311 – Recommended Practice for Concrete Inspection.

l. ACI 315 – Manual of Standard Practice for Detailing Reinforced Concrete Structures.

m. ACI 318 – Building Code Requirements for Reinforced Concrete.

n. ACI 613 – Recommended Practice for Selecting Proportions for Concrete.

3. ASTM International (ASTM):

a. ASTM C31 – Standard Method of Making and Curing Concrete Test Specimens in the Field.

b. ASTM C33 – Standard Specification for Concrete Aggregates.

c. ASTM C39 – Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens.

d. ASTM C94 – Standard Specification for Ready-Mixed Concrete.

e. ASTM C143 – Standard Method of Test for Slump of Portland Cement Concrete.

f. ASTM C150 – Standard Specification for Portland Cement.

g. ASTM C173 – Standard Method of Test for Air Content of Freshly Mixed Concrete by the Volumetric Method.

h. ASTM C192 – Method of Making and Curing Concrete Compression and Flexure Test Specimens in the Laboratory.

i. ASTM C231 – Method of Test for Air Content of Freshly Mixed Concrete by the Pressure Method.

j. ASTM C260 – Standard Specification for Air-Entraining Admixtures for Concrete.

k. ASTM C309 – Standard Specification for Liquid Membrane – Forming Compounds for Curing Concrete.

l. ASTM C494 – Standard Specifications for Chemical Admixtures of Concrete.

m. ASTM C595 – Standard Specification for Blended Hydraulic Cement.

n. ASTM E329 – Standard Recommended Practice for Inspection and Testing Agencies for Concrete, Steel and Bituminous Materials as Used in Construction.

4. National Ready Mixed Concrete Association (NRMCA):

a. NRMCA Check List for Certification of Ready Mixed Concrete Production Facilities.

1.05 SUBMITTALS

A. General:

1. All submissions shall be in accordance with the submission schedule, which shall be developed and agreed between the Engineer and Contractor at the commencement of the Project.

2. Submittals shall be made in compliance with the Section 013000 – Submittals.

3. Review of submittals is of a general nature only, and the responsibility for conformance with intent of drawings shall remain with the Contractor. Review does not imply or state that the fabricator has correctly interpreted the construction documents.

B. Submit the following action submittals for review and approval:

1. Concrete Mix Design for Each Type of Concrete: The Contractor shall warrant by the submission of the design mixes that such mixes are totally representative of the concrete that is intended to be supplied and meets the requirements of the Contract Documents. Submit new design mixes for review and approval when any change in materials is required or needed. Include the following information for each concrete mix design:

a. Method used to determine the proposed mix design (per ACI 301, Article 3.9).

b. Compressive Strength at Seven and Twenty-Eight Days: Submit strength test records, mix design materials, conditions, and proportions

for concrete used for record of tests, standard deviation calculation, and determination of required average compressive strength.

c. Gradation of Fine and Coarse Aggregates: Testing data confirming that proposed coarse aggregate meets ASTM C33 class designation. Include ASTM test results for aggregates subject to freeze-thaw environment.

d. Proportions of all ingredients including all admixtures to be added either at the time of batching or at the jobsite.

e. Water/cement ratio.

f. Slump tested in accordance with ASTM C143.

g. Air content of freshly mixed concrete by the pressure method, ASTM C231, or the volumetric method, ASTM C173.

h. Unit weight of concrete ASTM C138.

i. Mill test reports of fly ash chemical and physical analysis and certification of compliance with ASTM C618, Class C or F, if used.

j. Manufacturer's Spec Data Sheets of each concrete admixture, including brand name, manufacturer, and dosage rate range.

2. Construction Joint Layout: Indicate proposed construction joints required to construct the structure. Location of construction joints is subject to approval of the Engineer.

3. Product Data for proprietary materials and items, including reinforcement and forming accessories, admixtures, patching compounds, curing compounds, and others if requested by the Engineer.

4. Proposed methods for curing cast-in-place concrete.

5. Schedule of time showing areas of work.

C. Submit the following informational submittals for record:

1. Health and Safety Data Sheets for each concrete admixture.

2. Proposed Schedule of Concrete Placement: The Contractor shall keep a permanent log of the dates and times of concrete placement and where on the Project the concrete was cast. This log shall be made available to the Engineer for inspection, upon request.

3. Qualifications of Concrete Foreman showing 5 yrs of experience with this type of concrete installation.

4. Tickets for each batch of concrete delivered to the Project site containing the following information:

a. The compressive strength of the concrete being delivered.

b. The volume of concrete in the delivery truck.

c. The time the concrete was batched (i.e., the time that water was discharged into the delivery truck to mix with the cement and aggregates).

d. List of admixtures.

e. Slump of concrete as placed.

f. Volume of water added to the delivery truck after initial batching.

g. Location where the concrete is being placed.

1.06 QUALITY ASSURANCE

A. Superintendent's Qualifications: Concrete work shall be done under the supervision of an experienced concrete foreman having at least 5 yrs of foreman experience with cast-in-place concrete, similar to that used on this Project.

B. The Contractor shall perform all work in strict accordance with all applicable laws and regulations of the building code and with all other authorities having jurisdiction. All such requirements shall take precedence over the requirements of the Specifications, except in cases where the requirements of the Specifications are more exacting or stringent.

C. Concrete Mix Design: The Contractor shall employ an independent testing laboratory, acceptable to the Owner, to perform material evaluation tests and to design concrete mixes or, when acceptable to the Engineer, provide copies of recently made material tests and mix designs from the concrete provider.

1. If, at any time during construction, the concrete resulting from the approved mix design deviates from Specification requirements, the Contractor shall have the supplier modify the design, subject to approval, until the specified concrete is obtained.

D. Testing of materials and inspections of installed work shall be completed throughout the duration of the Project, as directed by the Engineer. The Contractor shall provide free and safe access to material stockpiles and facilities for inspectors.

1. Retesting of rejected materials or reinspection of deficient work, shall be done at the Contractor's expense.

E. The Contractor is responsible for correction of concrete work that does not conform to the specified requirements, including strength, mix proportions, air void system, tolerances, and finishes. Correct deficient concrete as directed by the Engineer.

F. All finishing crewmembers shall be ACI Certified Concrete Flatwork Technicians and Finishers. The supervisor shall be an ACI Certified Flatwork Technician and shall have

input to the crew's placement and finishing procedures regarding the application of ACI Standards for quality flatwork. The ACI Standards that shall be observed are contained in the ACI – Concrete Craftsman Series.

G. The Engineer will reject cast-in-place concrete that exhibits the following defects:

1. Bulging: Concrete surfaces that bulge due to insufficiently secured formwork, undersized ties, or flat bar clamps.

2. Wavy Concrete: Concrete surfaces that exhibit waves along plywood joints due to moisture migration into unsealed cuts of plywood sheets causing swellings.

3. Spalling: Concrete spalling due to shale, alkali reactivity, rusting steel too close to the surface, carbonation, improper removal of formwork, expansion of cast-in steel during the welding process, or other reasons.

4. Cracking and Crazing: Concrete cracking and crazing due to lack of control joints or high water/cement ratio above 0.50.

5. Air Holes: Air holes resulting from improper vibration and excessive heights of individual layers of pours between vibrations. Air holes due to spreading of concrete with vibrators rather than moving buckets or hoses.

6. Honeycombing: Concrete honeycombing, including loss of fines from leaking formwork or other causes.

7. Discoloration: Concrete discoloration caused by any reason, including inconsistent concrete mix, different sources of cement and aggregates, temperature variation between individual pour and curing phases, improper and inconsistent use of vibrators, variation of time span of concrete in formwork, form oils, and migration of plasticizer into concrete from exposed sealant beads on formwork and around cast-in items such as electrical outlet boxes.

8. Visible Pour Joints: Visible pour joints in concrete resulting from leaking formwork due to lack of gaskets and insufficient overlap with old concrete preventing proper tightening of formwork. Placement of concrete layers in excessive heights and spreading concrete with vibrator.

9. Debris in Concrete: Concrete that includes debris, whether caused by insufficient cleaning of formwork or lack of cleanout and access doors at base of formwork.

H. The Contractor shall schedule a concrete preconstruction meeting at least thirty days prior to placement of any concrete. Attendance at the meeting shall include the Contractor Field Testing Laboratory, and the Engineer of Record (EOR). The agenda of the meeting shall be prepared by the Contractor and shall include, but not be limited to, the following:

1. Review of concrete mix designs.

2. Field testing and quality control.

3. Concrete placing sequence and schedule.

4. Formwork, shoring, reshoring, and stripping.

5. Placing, jointing, and finishing procedures.

6. Curing and protection procedures.

I. Obtain each type or class of cementitious material of the same brand from the same manufacturer's plant, obtain aggregate from one source, and obtain admixtures through one source from a single manufacturer.

J. The Owner shall employ an independent Testing Agency(s) to perform a Program of Tests and Inspections.

1.07 SPECIFIC TESTS, INSPECTIONS, AND METHODS THAT THE OWNER MAY REQUIRE

A. Concrete Testing:

1. Air Content Testing:

a. Sample freshly mixed concrete per ASTM C172, and conduct one air content test per ASTM C231 or ASTM C173 for each truck of ready-mix air-entrained concrete delivered to the Project.

b. If concrete fails to meet the requirements of this Specification, the Engineer may require testing of hardened concrete for air content per ASTM C457.

c. Should the tested hardened concrete meet these Specifications, the Owner will pay for coring, testing, and patching. Should the tested hardened concrete not meet these Specifications, the Concrete Contractor will pay for the coring, testing, and patching of the hardened concrete.

d. The Contractor shall patch holes resulting from concrete coring. Use patching materials that meet the requirements of this Specification.

2. Concrete Compressive Strength:

a. Take a minimum of six cylinders for each mix design of concrete placed in any one day. An additional six cylinders shall be produced for each additional five truckloads of concrete.

b. Sample plastic concrete for testing in accordance with ASTM C172 and mold cylinders per ASTM C31.

c. Cure test specimens for twenty-eight-day strength verification per ACI 301, Chapter 16.

d. Compression Tests:

(1) Test two cylinders at seven days.

(2) Test two cylinders at twenty-eight days.

(3) Hold two cylinders in reserve for use as the Engineer directs.

e. After fifty-six days, unless notified by the Engineer to the contrary, reserve cylinders may be discarded without being tested for specimens meeting twenty-eight-day strength requirements.

3. Slump Test:

a. Conduct one slump test per truckload of ready-mixed concrete delivered to the Project.

(1) When water-reducing admixtures or high-range water-reducing admixtures are added at the jobsite, test concrete slump prior to the addition of admixtures.

(2) When water-reducing admixtures or high-range water-reducing admixtures are added at the plant, slump test at the site shall be as required by the Contract Documents.

4. Concrete Temperature:

a. Take concrete temperature for each truckload of concrete.

5. Unit Weight:

a. Conduct unit weight test per ASTM C138 each time air content is measured.

6. Evaluation and Acceptance of Concrete (ACI 301, Chapter 17):

a. Concrete compression tests will be evaluated by the Engineer in accordance with ACI 301, Chapter 17. If the test results for any type of concrete fail to meet the specified strength requirements, core tests may be required as directed by the Engineer.

b. Core tests, when required, shall be per ACI 301, Article 17.3.

c. Should the tested hardened concrete meet these Specifications, the Owner will pay for the coring and testing of the hardened concrete. Should the tested hardened concrete not meet these Specifications, the Contractor will pay for the coring and testing of the hardened concrete.

1.08 GENERAL PROCEDURES

A. Work only in areas permitted by Owner-approved schedule.

B. Remove all tools, buckets, and materials from work areas and store neatly at a central location daily at the end of work.

C. Do not stockpile materials, debris, or equipment on the elevated parking decks.

D. Deliver materials clearly marked with legible and intact labels with manufacturer's name and brand name, and identifying contents of containers.

E. Store materials in areas where temperatures conform to manufacturer's recommendations and instructions.

F. Protect the building and its contents from all risks associated with the work in this Section. Schedule and execute all work without exposing adjacent building areas to water, dust and debris, or materials used by this Contractor. Protect adjacent areas from damage and stains with appropriate barriers and masking. Repair all damage as a result of the work of this Section to its condition at the start of work or, if such cannot be determined, to its original condition. Clean all stains by approved means.

G. Protect the work from damage such as impact, marring of the surfaces, and other damage.

H. Compliance with OSHA and all other safety laws and regulations is the exclusive responsibility of the Contractor, his Subcontractors, suppliers, consultants, and servants.

1.09 BASIS OF PAYMENT

A. See Form for General Bid.

PART 2 – PRODUCTS

2.01 FORM-FACING MATERIALS

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

1. Plywood, metal, or other approved panel materials.

2. Retain subparagraph above if generic specification is enough; revise if necessary. Retain subparagraph below if plywood selection is required.

3. Exterior-grade plywood panels, suitable for concrete forms, complying with DOC PS 1, and as follows:

a. Select one of four subparagraphs below or revise to suit Project. First imparts glossy finish, second imparts matte finish, and third and fourth impart coarser-textured finish depending on face-ply characteristics.

b. High-density overlay, Class 1 or better.

c. Medium-density overlay, Class 1 or better; mill-release agent-treated and edge-sealed.

d. Structural 1, B-B or better; mill-oiled and edge-sealed.

e. B-B (Concrete Form), Class 1 or better; mill-oiled and edge-sealed.

B. Chamfer Strips: Wood, metal, PVC, or rubber strips, 3/4 by 3/4 in. minimum.

C. Form-Release Agent: Commercially formulated form-release agent with a maximum of 350 g/L volatile organic compounds (VOC) that will not bond with, stain, or adversely affect concrete surfaces and will not impair subsequent treatments of concrete surfaces.

1. Formulate form-release agent with rust inhibitor for steel form-facing materials.

D. Form Ties: Factory-fabricated, removable or snap-off metal or glass-fiber-reinforced plastic form ties designed to resist lateral pressure of fresh concrete on forms and to prevent spalling of concrete on removal.

1. Furnish units that will leave no corrodible metal closer than 1 in. to the plane of exposed concrete surface.

2.02 STEEL REINFORCEMENT

A. Epoxy-Coated Reinforcing Bars: ASTM A615 / A615M, Grade 60 ASTM A706 / A706M, deformed bars, ASTM A775/A775M, epoxy coated, with less than 2% damaged coating in each 12 in. bar length.

B. Epoxy-Coated Welded Wire Reinforcement: ASTM A884/A884M, Class A coated, Type 1, plain steel.

2.03 REINFORCEMENT ACCESSORIES

A. Epoxy Repair Coating: Liquid, two-part, epoxy repair coating; compatible with epoxy coating on reinforcement and complying with ASTM A 775 / A 775M.

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

1. For epoxy-coated reinforcement, use epoxy-coated or other dielectric-polymer-coated wire bar supports.

2.04 CONCRETE MATERIALS

A. Ready-Mix Concrete:

1. Cementitious Materials:

a. Portland Cement: ASTM C150, Type I or Type II.

b. Fly Ash: ASTM C618, Class F.

c. Slag: ASTM C989, Grade 100 or 120.

2. Normal-Weight Aggregates:

a. Fine Aggregate: Conform to ASTM C33, shall consist of washed, clean, hard, sharp particles, with a moisture content of neither less than 3% nor more than 5%, free of materials with deleterious reactivity to alkali in cement.

b. Coarse Aggregate: Shall conform to ASTM C33, Class 5S. Aggregate shall be nominal 3/4 in. maximum size (No. 8 distribution per ASTM C33, Table II), clean, well-graded, and saturated surface dry.

c. Aggregates (coarse and fine) may only be used if they meet one of the following conditions:

(1) The aggregate is classified as nonreactive as defined for Class R0 per ASTM C1778 (ASTM C1293 expansion of 0.04% or less, or ASTM C1260 expansion less than 0.10%).

(2) Documentation is submitted and approved showing demonstrated compliance with requirements per Section 8 of ASTM C1778, including all limits contained therein, when used in a cementitious material meeting the specification requirements herein.

(3) They are used in a cementitious material meeting all required preventative measures described per Option 2 of Section 9 of ASTM C1778 for Class SC3, Risk Level 5.

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

a. Air-Entraining Admixture: ASTM C260.

(1) Air-Mix or Perma-Air, Euclid Chemical Co.

(2) Sika AER, Sika Corporation.

(3) Darex AEA or Daravair, W.R. Grace & Co.

b. Water-Reducing Admixture: ASTM C494, Type A.

(1) Eucon WR-75, Euclid Chemical Co.

(2) Plastocrete 161, Sika Corporation.

(3) WRDA, W.R. Grace & Co.

c. Retarding Admixture: ASTM C494, Type B.

d. Water-Reducing and Retarding Admixture: ASTM C494, Type D.

(1) Eucon Retarder 75, Euclid Chemical Co.

(2) Plastiment, Sika Corporation.

(3) Daratard-17, W.R. Grace & Co.

e. High-Range Water-Reducing Admixture: ASTM C494, Type F or G.

(1) Eucon 37, Euclid Chemical Co.

(2) Sikament 300, Sika Corporation.

(3) WRDA 19 or Daracem, W.R. Grace & Co.

f. Plasticizing and Retarding Admixture: ASTM C1017, Type II.

g. Set-Accelerating Corrosion-Inhibiting Admixture: Commercially formulated anodic inhibitor or mixed cathodic and anodic inhibitor with a minimum dosage of 3 gal/cu yd; capable of forming a protective barrier and minimizing chloride reactions with steel reinforcement in concrete and complying with ASTM C494, Type C.

(1) Rheocrete CNI, BASF Construction Chemicals.

(2) DCI, W. R. Grace & Co.

(3) Sika CNI., Sika Corporation.

4. Water: ASTM C94 and potable.

5. Refer to Section 037320 – Concrete Repair for additional material specifications.

2.05 MIX PROPORTIONS

A. Ready-Mix Concrete:

1. Concrete shall be proportioned by a competent concrete technologist on the basis of field experience and trial mixtures.

2. Prepare design mixes for each type and strength of concrete by either laboratory trial batch or field experience methods as specified in ACI 301 and ACI 318. For the trial batch method, use an independent testing agency acceptable to the Engineer for preparing and reporting proposed mix designs.

a. Do not use the same testing agency for field quality-control testing.

b. Limit use of fly ash to not exceed 25% of cement content by weight.

c. Limit use of slag to not exceed 50% of cement content by weight.

3. Limit water-soluble chloride-ion content in hardened concrete to 0.15% by weight of cement.

4. Design mixes to provide normal-weight concrete with the following properties as indicated on Drawings and schedules:

   a. Total Cementitious Content: 705 lbs per cubic yard, maximum. If a low-alkali cement is used to address potential aggregate reactivity, its effectiveness shall be demonstrated by testing according to ASTM C1567 or ASTM C1293.

   b. Twenty-Eight-Day Compressive Strength: 5,000 psi.

   c. Water-to-Cement Ratio: 0.40 maximum.

   d. Air Content: Total 5% with a tolerance of ± 1-1/2% (3.5% to 6.5%) based on 3/4 in. aggregate. If another coarse-aggregate size is used, adjust air content to meet minimum air contents as identified in ACI 318 for severe exposure.

   e. Slump Limits: 4 to 7 in.

5. Adjustment to Concrete Mixes: Mix design adjustments may be requested by Contractor when characteristics of materials, job conditions, weather, test results, or other circumstances warrant, as accepted by Engineer. Laboratory test data for revised mix design and strength results must be submitted to and accepted by Engineer before using in Work.

6. Admixtures: Use admixtures according to manufacturer's written instructions.

   a. Use water-reducing admixture or high-range water-reducing admixture (superplasticizer) in concrete, as required, for placement and workability.

   b. Use accelerating admixture in concrete slabs placed at ambient temperatures below 40°F.

   c. Use water-reducing and water-retarding admixture when required by high temperatures, low humidity, or other adverse placement conditions.

   d. Use high-range water-reducing admixture in pumped concrete and concrete with water-to-cement ratios below 0.45.

   e. Use air-entraining admixture in all concrete unless otherwise indicated.

   f. Use corrosion inhibitor in all concrete unless otherwise indicated.

   g. Use shrinkage-reducing admixture in all concrete unless otherwise indicated.

2.06 CONCRETE MIXING

A. Ready-Mixed Concrete: Measure, batch, mix, and deliver concrete according to ASTM C94/C94M and ASTM C1116, and furnish batch ticket information.

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

2.07 PLACING AND FINISHING EQUIPMENT

A. Placing and finishing equipment shall include adequate mechanized and hand tools for placement and consolidation of plastic concrete and for working down to approximately the correct grade for striking off.

PART 3 – EXECUTION

3.01 GENERAL

A. Coordinate the installation of joint materials, floor drains, and other related materials with placement of forms and reinforcing steel.

3.02 PREPARATION OF EXISTING CONCRETE SURFACES

A. Remove all paint, loose particles, and deleterious material from existing concrete surfaces against which new concrete will be cast by sandblasting.

B. Roughen all concrete surfaces against which new concrete will be cast to a minimum amplitude of 1/4 in. unless otherwise noted.

3.03 FORMWORK

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

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

C. Construct forms tight enough to prevent loss of concrete mortar.

D. Fabricate forms for easy removal without hammering or prying against concrete surfaces. Provide crush or wrecking plates where stripping may damage cast concrete surfaces. Provide top forms for inclined surfaces steeper than 1.5 horizontal to 1 vertical.

1. Install keyways, reglets, recesses, and the like, for easy removal.

2. Do not use rust-stained steel form-facing material.

E. Set edge forms, bulkheads, and intermediate screed strips for slabs to achieve required elevations and slopes in finished concrete surfaces. Provide and secure units to support screed strips; use strike-off templates or compacting-type screeds.

F. Provide temporary openings for cleanouts and inspection ports where interior area of formwork is inaccessible. Close openings with panels tightly fitted to forms and securely braced to prevent loss of concrete mortar. Locate temporary openings in forms at inconspicuous locations.

G. Chamfer exterior corners and edges of permanently exposed concrete.

H. Form openings, chases, offsets, sinkages, keyways, reglets, blocking, screeds, and bulkheads required in the Work. Determine sizes and locations from trades providing such items.

I. Clean forms and adjacent surfaces to receive concrete. Remove chips, wood, sawdust, dirt, and other debris just before placing concrete.

J. Retighten forms and bracing before placing concrete, as required, to prevent mortar leaks and maintain proper alignment.

K. Coat contact surfaces of forms with form-release agent, according to manufacturer's written instructions, before placing reinforcement.

3.04 REMOVING AND REUSING FORMS

A. General: Formwork for similar parts of the Work that does not support weight of concrete may be removed after cumulatively curing at not less than 50°F for 24 hrs after placing concrete, if concrete is hard enough to not be damaged by form-removal operations and curing and protection operations are maintained.

1. Retain option in first subparagraph below if adopting recommendation of ACI 347R. ACI 301 requires concrete to reach its specified compressive strength.

B. Clean and repair surfaces of forms to be reused in the Work. Split, frayed, delaminated, or otherwise damaged form-facing material will not be acceptable for exposed surfaces. Apply new form-release agent.

C. When forms are reused, clean surfaces, remove fins and laitance, and tighten to close joints. Align and secure joints to avoid offsets. Do not use patched forms for exposed concrete surfaces unless approved by Engineer.

3.05 SURFACE PREPARATION AND PLACEMENT OF CONCRETE SLAB

A. Surface Preparation:

1. Remove all loose particles and deleterious materials from the exposed expansion joint support angles to remain, new expansion joint support angles, and existing membrane waterproofing.

B. Screed Guides:

1. Screed guides shall be placed and fastened in position to ensure that the finishing concrete is to the required profile. Wet screeds will not be permitted.

2. The grades and minimum thickness of the new concrete above the prepared surface shall be as specified on the Drawings. The Contractor is to ensure that proper grades and minimum thickness are maintained.

3. Maintain positive slope to all drains; adjust grades as necessary in the field prior to placement.

4. New concrete topping slab shall match adjacent brick paver elevation. New concrete topping slab shall be pitched to drain water towards existing drains.

3.06 CONCRETE PLACEMENT

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

B. Do not add water to concrete during delivery, at Project site, or during placement unless approved by Engineer.

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

1. Deposit concrete in horizontal layers of depth to not exceed formwork design pressures and in a manner to avoid inclined construction joints.

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

3. Do not use vibrators to transport concrete inside forms. Insert and withdraw vibrators vertically at uniformly spaced locations to rapidly penetrate placed layer and at least 6 in. into preceding layer. Do not insert vibrators into lower layers of concrete that have begun to lose plasticity. At each insertion, limit duration of vibration to time necessary to consolidate concrete and complete embedment of reinforcement and other embedded items without causing mixture constituents to segregate.

D. Deposit and consolidate concrete for floors and slabs in a continuous operation, within limits of construction joints, until placement of a panel or section is complete.

1. Consolidate concrete during placement operations so that concrete is thoroughly worked around reinforcement and other embedded items and into corners.

2. Maintain reinforcement in position on chairs during concrete placement.

3. Screed slab surfaces with a straightedge, and strike off to correct elevations.

4. Slope surfaces uniformly to drains where required.

5. Begin initial floating using bull floats or darbies to form a uniform and open-textured surface plane, before excess bleedwater appears on the surface. Do not further disturb slab surfaces before starting finishing operations.

E. Cold-Weather Placement: Comply with ACI 306.1 and as follows. Protect concrete work from physical damage or reduced strength that could be caused by frost, freezing actions, or low temperatures.

1. When average high and low temperature is expected to fall below 40°F for three successive days, maintain delivered concrete mixture temperature within the temperature range required by ACI 301.

2. Do not use frozen materials or materials containing ice or snow. Do not place concrete on frozen subgrade or on subgrade containing frozen materials.

3. Do not use calcium chloride, salt, or other materials containing antifreeze agents or chemical accelerators unless otherwise specified and approved in mixture designs.

F. Hot-Weather Placement: Comply with ACI 301 and as follows:

1. Maintain concrete temperature below 90°F at time of placement. Chilled mixing water or chopped ice may be used to control temperature, provided water equivalent of ice is calculated to total amount of mixing water. Using liquid nitrogen to cool concrete is Contractor's option.

2. Fog-spray forms, steel reinforcement, and subgrade just before placing concrete. Keep subgrade uniformly moist without standing water, soft spots, or dry areas.

3.07 FINISHING SLABS

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

B. Broom Finish: Apply a broom finish to concrete slabs, and elsewhere as indicated.

1. Immediately after concrete has received a floated finish, give the concrete surface a coarse transverse scored texture by drawing a broom or burlap belt across the surface. Coordinate required final finish with Engineer before application.

3.08 CONCRETE PROTECTION AND CURING

A. General: Cure concrete/mortar according to ACI 308R. Protect freshly placed concrete from premature drying and excessive cold or hot temperatures. Comply with ACI 306R for cold-weather protection and ACI 305R for hot-weather protection during curing.

B. Unformed Surfaces:

1. Initial Curing: When concrete/mortar bleed rate, concrete temperature, ambient temperature, relative humidity, wind speed, and solar heating create a risk of premature drying, conduct initial curing using evaporation retarder or fogging during concrete placement and finishing.

2. Intermediate Curing: When concrete/mortar finishing is completed before final set of the concrete and when final curing methods might damage the concrete either mechanically or by raising the water/cement ratio of the near-surface region, conduct intermediate curing using evaporation retarder or fogging.

3. Final Curing: Begin final curing immediately after finishing is complete and after the concrete/mortar has reached final set and will not be damaged by final curing operations. Conduct final curing using moisture curing or moisture-retaining cover. Conduct final curing for a minimum of seven days.

C. Formed Surfaces: Cure formed surfaces for a minimum of seven days. If forms remain during curing period, moisture cure after loosening forms. If forms are removed before end of curing period, continue moisture curing for the remainder of the curing period.

D. Cure concrete by one or a combination of the following methods:

1. Evaporation Retarder: Apply evaporation retarder according to manufacturer's written instructions.

2. Fogging: Continuously fog mist above the concrete/mortar surface to elevate the relative humidity of the air above the surface.

3. Moisture Curing: Keep surfaces continuously moist for not less than seven days with the following materials:

a. Water.

b. Continuous water-fog spray.

4. Absorptive cover, water saturated, and kept continuously wet. Cover concrete surfaces and edges with 12 in. lap over adjacent absorptive covers.

5. Moisture-Retaining Cover Curing: Cover concrete surfaces with moisture-retaining cover for curing concrete/mortar, placed in widest practicable width, with sides and ends lapped at least 12 in., and sealed by waterproof tape or adhesive. Cure for not less than seven days. Immediately repair any holes or tears during curing period using cover material and waterproof tape.

6. Curing Compound: Curing compound shall not be used.

3.09 REMOVAL OF SURFACE DEPOSITS

A. Stains, efflorescence, fins, and other surface deposits resulting from the work of this Section that are objectionable to the Owner's representative shall be removed by methods acceptable to the Engineer.

END OF SECTION

SECTION 036400

CHEMICAL GROUTING

PART 1 – GENERAL

1.01 GENERAL REQUIREMENTS

A. Drawings, Contract Requirements, and the General Requirements (Division 01) of the Contract for Construction are hereby made a part of this Section.

1.02 SCOPE OF WORK

A. Work includes furnishing all labor, materials, equipment, and supervision to accomplish the following chemical grouting work in accordance with the Drawings and Specifications.

1. Inject chemical grout into cracks and joints at locations identified on the Drawings and at other locations identified by the Engineer. Locations to receive chemical grouting include, but are not limited to, leaking cracks, cracks showing signs of past leakage, and construction joints in concrete walls. Remove all surface sealant and injection ports, and patch injection port holes when injection is complete.

1.03 RELATED WORK

A. Work related to this Section includes, but is not limited to, the following:

1. Section 037320 – Concrete Repair.

1.04 REFERENCES

A. The following references are incorporated into these Specifications. These written Specifications take precedence over incorporated references. The references included in the Specifications refer to the most recent revision of the publication. The Contractor shall have the following references at the Project site at all times and shall be familiar with the reference contents:

1. Product manufacturer’s written recommendations.

1.05 SUBMITTALS

A. Subcontractor's qualifications.

B. Sample of the injection material to the Engineer for approval.

C. Manufacturer's instructions for handling, storage, mixing, and placing of the injection material.

D. Details of the proposed injection system.

E. Certification that the injection material supplied hereunder meets all the requirements specified by the manufacturer's written instructions for use on the Work of this Section.

F. Manufacturer's Safety Data Sheets (SDSs) on all hazardous chemical products utilized during the Work of this Section.

1.06 QUALITY CONTROL AND QUALITY ASSURANCE

A. The Contractor shall conduct a quality control program that includes, but is not limited to, the following:

1. Inspect all materials to ensure conformity with Contract Requirements and that all materials are new and undamaged.

2. Establish procedures for executing the Work.

3. Inspect all surface preparation prior to chemical injection.

4. Inspect work in progress to ensure that work is being done in accordance with established procedures and manufacturer's instructions.

5. Inspect all completed work; correct all defective work at no cost to Owner.

B. Chemical grouting work shall be performed by a licensed, certified applicator of the manufacturer supplying the materials. The applicator shall have at least 5 yrs of experience and shall have successfully completed at least two projects within the past 3 yrs involving quantities and complexities similar to those required under this Section.

C. Attend a preinstallation conference to be held with a representative of the Owner, Engineer, Contractor's field superintendent, foreman, and other trades involved to discuss the conduct of the Work of this Section.

1.07 GENERAL PROCEDURES

A. Work only in areas permitted by the Owner-approved schedule and sequence plan.

B. Work area shall be within a plastic sheeting containment area with contained dust (HEPA filters) and fume control.

C. Protect the parking garage, adjacent occupied spaces, and its contents from all risks associated with the Work in this Section. Schedule and execute all work without exposing adjacent building areas or construction phases outside the current work zone to water, dust, debris, or materials used by this Contractor. Protect adjacent areas from damage and stains with appropriate barriers and masking. Repair all damage as a result of the Work of this Section to its condition at the start of work or, if such cannot be determined, to its original condition. Clean all stains by approved means.

D. Compliance with OSHA and all other safety laws and regulations is the exclusive responsibility of the Contractor, its Subcontractors, suppliers, consultants, and servants.

1.08 TECHNICAL SUPPORT

A. The Contractor shall arrange with the material manufacturer or distributor to have the services of a competent field representative at the worksite prior to any mixing of components to instruct the work crews in the proper mixing and application procedures. The representative shall remain at the jobsite after work commences and continue to instruct until the representative, the Contractor, the Engineer, and the Owner are satisfied that the crew has mastered the technique of installing the systems successfully.

1. The manufacturer's field representative must be fully qualified to perform the work and shall be subject to the approval of the Owner.

2. The Contractor shall be completely responsible for the expense of the services of the required manufacturer's field representative, and the Contract Price shall include full compensation for all costs in connection therewith.

1.09 INJECTION MATERIAL QUANTITY RECORDS

A. The Contractor shall keep daily records of injection material quantities, including sketches showing locations and extent of injections, and records of amount of material placed. Notify the Engineer at least 24 hrs prior to each placement of injection material. Do not place injection material until the Engineer has inspected the surface preparation.

1.10 BASIS OF PAYMENT

A. Refer to Form for General Bid.

PART 2 – PRODUCTS

2.01 MATERIALS

A. Chemical waterproofing grouts are to be used for sealing concrete cracks and joints. Polyurethane grouts are intended for use in running-water conditions and as directed by the Engineer. The polyurethane grout used shall have a successful history of application for at least 5 yrs under conditions similar to the current Project.

1. Flex LV PURe, Hydrophobic Polyurethane with Flex Cat PURe (Catalyst) by Grace Construction Products/Deneef Construction Chemicals, Inc., Cambridge, Massachusetts.

2. Dural Aqua-Dam, Hydrophobic Polyurethane Grouting System by Euclid Chemical Company, Cleveland, Ohio.

3. SikaFix HH+, Hydrophobic Polyurethane Grout by Sika Corporation, Lyndhurst, New Jersey.

PART 3 – EXECUTION

3.01 LOCATION OF LEAKING CRACKS AND JOINTS

A. The Drawings show the approximate locations of areas to receive chemical grout. The Engineer will designate the exact locations and lengths of cracks and joints to be grouted at the time of construction.

3.02 SURFACE PREPARATION

A. Clean the surface of injection area if required to locate crack or joint or install a surface seal. Calcite may be left in place if its removal is not required to locate crack or joint.

B. Drill holes on an angle so as to intersect crack or joint on the wall. Holes shall be 1/2 in. to 1 in. in diameter and shall be staggered on opposite sides of the crack or joint.

C. Clean drill holes of dust and debris by blowing out with compressed air and then flush with water from port to port.

3.03 APPLICATION

A. Inject chemical grout in accordance with the manufacturer's instructions.

B. Report any unusual conditions to the Engineer. The use of solvents to dilute the chemical grout shall not be permitted.

C. Do not inject chemical grout when the concrete temperature of the wall to receive grout is 32°F or less.

D. An accelerator may be added to flushing water to increase the cure rate of the chemical grout when the concrete temperature of the wall to receive grout is between 32°F and 55°F.

E. Place injector packer into a hole and connect pump to packer. Pump until all of the following are fulfilled:

1. Grout enters crack or joint.

2. Observable loss of grout returning from the crack or joint is estimated to be less than 25% of volume of grout being pumped.

3. Damage is not being done to the structure.

4. The injected grout reaches the next entry port.

5. The injected grout has not extended for more than 5 ft along the crack or joint away from the grout hole.

F. Remove all surface seals and injector packers when injection is complete. When injector packers are removed, patch injection holes, remove excess surface grout, and apply surface sealer per manufacturer's recommendations.

G. Scrape area and clean up excess grout.

H. Repeat Parts E, F, and G at all drill holes.

I. Upon completion of the injection of chemical grout into the cracks or joints, allow time for the chemical grout to cure sufficiently as recommended by manufacturer so as to permit removal of the injector packers without any drain or runout of the grout from the crack or joint.

J. Any areas of the crack or joint remaining damp or showing signs of recent leakage should be reinjected.

K. Perform all work in a neat and workmanlike manner.

END OF SECTION

SECTION 037320

CONCRETE REPAIR

PART 1 – GENERAL

1.01 GENERAL REQUIREMENTS

A. Drawings, Contract Requirements, and the General Requirements (Division 1) of the Contract for Construction are hereby made a part of this Section.

1.02 SCOPE OF WORK

A. Work includes, but is not limited to, providing all labor, materials, equipment, and supervision to accomplish the following concrete repair work in accordance with the Drawings and Specifications.

1. Repair areas of delaminated and/or spalled concrete at the topside and underside of the double-tee beam flanges.

2. Repair areas of delaminated and/or spalled concrete at the double-tee beam stems.

3. Repair areas of delaminated and/or spalled concrete at the topside and underside of the inverted-tee beams.

4. Repair areas of delaminated and/or spalled concrete at the walls, columns, and spandrel beams.

5. Repair delaminated and/or spalled concrete at the curbs.

6. Repair areas of delaminated and/or spalled concrete at the topside of the slabs-on-grade.

7. Remove and replace the ADA-accessible pedestrian ramp at the sidewalk entrance at the Upper Level as shown on the Drawings.

8. Remove and replace the curb cut at the Lower Level entrance as shown on the Drawings.

9. Repair concrete at existing floor drain replacement areas at locations shown on the Drawings.

10. Install nonshrink grout at the metal fence posts at the parapet walls at the facade.

1.03 RELATED WORK

A. Coordinate the work of this Section with the work of other trades under this Contract, including, but not limited to:

1. Section 021000 – Shoring.

2. Section 036400 – Chemical Grouting.

3. Section 071816 – Vehicular-Traffic-Bearing Waterproofing (part of 070001 filed sub-bid).

4. Section 071900 – Penetrating Sealer (part of 070001 filed sub-bid).

5. Section 079200 – Joint Sealants (part of 070001 filed sub-bid).

6. Section 079500 – Expansion Joints (part of 070001 filed sub-bid).

7. Section 220001 – Plumbing (filed sub-bid).

1.04 REFERENCES

A. Follow the guidelines contained in the latest editions of the following codes, specifications, and standards, including references contained in each document, except where more-stringent requirements are shown or specified.

1. ACI 301 – Specifications for Structural Concrete.

2. ACI 304R – Guide for Measuring, Mixing, Transporting, and Placing Concrete – and as specified.

3. ACI 305R – Guide to Hot Weather Concreting.

4. ACI 306R – Guide to Cold Weather Concreting.

5. ACI 308R – Guide to Curing Concrete.

6. ACI 309R – Guide for Consolidation of Concrete.

7. ACI 318 – Building Code Requirements for Reinforced Concrete.

8. ACI 347 – Recommended Practice for Concrete Formwork.

9. ICRI Guideline No. 310.1R – Guide for Surface Preparation for the Repair of Deteriorated Concrete Resulting from Reinforcing Steel Corrosion.

10. ICRI Guideline No. 310.2R – Selecting and Specifying Concrete Surface Preparation for Sealers, Coatings, Polymer Overlays, and Concrete Repair.

11. CRSI – Placing Reinforcing Bars Recommended Practices.

1.05 SUBMITTALS

A. Subcontractors' qualifications.

B. Samples of, and manufacturer's data sheets for all materials to be used, each properly labeled.

C. Manufacturer's MSDS sheets for all materials to be used.

D. Certifications (in time to prevent delay in the work) by the producers of the materials that all materials supplied comply with all the requirements of the appropriate ASTM and ACI Standards.

E. Concrete mix proportions and mixing procedures, and application and curing procedures.

F. Schedule of time showing areas of work.

1.06 QUALITY CONTROL AND QUALITY ASSURANCE

A. The Contractor shall conduct a quality control program that includes, but is not limited to, the following:

1. Inspection of all materials to ensure conformity to Contract requirements and that all materials are new and undamaged.

2. Establishment of procedures for executing the work.

3. Inspecting all surface preparation prior to repair material application.

4. Inspecting all reinforcement, dowels, and other required repair accessories for placement in plan and elevation.

5. Inspection of work in progress to ensure that work is being done in accordance with established procedures; manufacturer's instructions; specific Engineer instructions, if given; or recommended practices as given in the references of Para. 1.04.

6. Performing in situ tests of the repair material in place to demonstrate that it has reached the strength required for removal of shores. Test procedures shall be approved by the Engineer.

7. Inspection of all work completed, including visually examining all repairs for cracking and sounding all repairs to check for debonding.

8. Compressive strength testing of repair mortar and repair concrete cylinders as required by these Specifications or the Engineer. Testing requirements and procedures shall be approved by the Engineer.

9. Direct-tension testing of bonded repair mortar as required by these Specifications or the Engineer. Testing requirements and procedures shall be approved by the Engineer.

B. Qualifications:

1. The Contractor and its site superintendent shall have at least 5 yrs of experience supervising the installation of similar concrete repairs at similar deteriorated structures.

C. Preinstallation Conference:

1. Attend a preinstallation conference to be held with a representative of the Owner, Engineer, Contractor's field superintendent, foreman, and other trades involved to discuss the conduct of the work of this Section.

D. Source Limitations: Obtain each type or class of cementitious material of the same brand from the same manufacturer’s plant, obtain aggregate from one source, and obtain admixtures through one source from a single manufacturer.

E. The Owner's Testing Agency may conduct quality assurance tests. Provide access to work areas and provide assistance for tests as necessary.

F. Mockups:

1. Prepare a mockup in trial areas designated by the Owner and Engineer to demonstrate that the equipment, personnel, and methods of installation are capable of producing results satisfactory to the Engineer. The mockups shall consist of one mockup of each repair type identified in the Form for General Bid. The mockups, if approved, can become part of the finished Work.

2. The mockups shall be constructed in the same manner as intended for the remaining concrete repairs, including demolition, surface preparation, installation, and curing. The Engineer shall inspect the prepared surfaces; the installation of required supplemental steel, dowels, concrete pins, and other accessories; and the application of the protective coating at the existing reinforcement prior to placement of the repair mortar. New mockups should be conducted prior to changes in materials, procedures, or equipment during the course of the Work.

3. After installation, the mockups shall be inspected by sounding. The presence of plastic shrinkage cracks due to inadequate finishing or curing, unsound concrete, or honeycombing due to inadequate consolidation shall be cause for rejection. If necessary, the mockup shall be repeated until the repair material can be installed successfully.

1.07 TECHNICAL SUPPORT

A. The Contractor shall arrange with the materials manufacturer or distributor to have the services of a competent field representative at the worksite prior to any mixing of components to instruct the work crews in the proper mixing and application procedures. He shall remain at the jobsite after work commences and continue to instruct until he, the Contractor, and the Owner are satisfied that the crew has mastered the technique of installing the systems successfully.

1. The manufacturer's field representative must be fully qualified to perform the work and shall be subject to the approval of the Owner.

2. The Contractor shall be completely responsible for the expense of the services of the required manufacturer's field representative, and the Contract price shall include full compensation for all costs in connection therewith.

1.08 GUARANTEE AND WARRANTY

A. Provide a Warranty for all Work under this Section in a document stating that if, within 2 yrs after the Date of Substantial Completion of the Work, any of the Work of this Section is found to be defective or not in accordance with the Contract Documents, the Contractor shall correct it promptly after receipt of a written notice from the Owner to do so, unless the Owner has previously given the Contractor a written acceptance of such condition. Also, state that the Contractor shall bear all costs incurred by the Owner, including reasonable attorney's fees, to enforce compliance with the obligation of this Warranty. The obligation of this Warranty shall run directly to the Owner and may be enforced by the Owner against the Contractor, shall survive the termination of the Contract, and shall not be limited by conditions other than this Contract.

1.09 GENERAL PROCEDURES

A. Work only in areas permitted by the Owner-approved schedules and sequence plans.

B. Remove all tools, buckets, and materials from work areas, and store neatly at a central location daily at the end of work.

C. Do not stockpile materials, debris, or equipment on elevated slab.

D. Construction loads shall not exceed 40 lbs per square foot.

E. Deliver materials clearly marked with legible and intact labels with manufacturer's name and brand name, and identifying contents of containers.

F. Store materials in areas where temperatures and environmental conditions conform to manufacturer's recommendations and instructions.

G. Protect the parking garage and its contents from all risks associated with the work in this Section. Schedule and execute all work without exposing adjacent building areas or construction phases outside the current work zone to water, dust, debris, or materials used by this Contractor. Protect adjacent areas from damage and stains with appropriate barriers and masking. Repair all damage as a result of the work of this Section to its condition at the start of work or, if such cannot be determined, to its original condition. Clean all stains by approved means.

H. Compliance with OSHA and all other safety laws and regulations is the exclusive responsibility of the Contractor, its subcontractors, suppliers, consultants, and workforce.

1.10 BASIS OF PAYMENT

A. See Form for General Bid.

PART 2 – PRODUCTS

2.01 MATERIALS

A. Specialty Repair Concrete for Full-Depth Repairs and Partial-Depth Topside Repairs:

1. MasterEmaco T 1061 by BASF Corporation Building Systems, Shakopee, Minnesota.

2. SikaQuick 1000 by Sika Corporation, Lyndhurst, New Jersey.

3. Planitop 18 ES, by MAPEI Corporation, Deerfield Beach, Florida.

B. Specialty Repair Concrete for Underside Repairs and Vertical Repairs:

1. MasterEmaco S 440CI by BASF Corporation Construction Systems, Shakopee, Minnesota.

2. SikaTop 111 PLUS by Sika Corporation, Lyndhurst, New Jersey.

3. Planitop 25, by MAPEI Corporation, Deerfield Beach, Florida.

C. Specialty Repair Mortar for Partial-Depth Underside Repairs and Vertical Repairs (repair areas less than 1 ft by 1 ft and 2 in. deep, only):

1. MasterEmaco N 425 by BASF Corporation Building Systems, Shakopee, Minnesota.

2. SikaQuick VOH by Sika Corporation, Lyndhurst, New Jersey.

3. Planitop 12 SR by MAPEI Corporation, Deerfield Beach, Florida.

D. Aggregate for Extending Specialty Repair Concrete:

1. Aggregate shall conform to ASTM C33, Class 4S, nominal 3/8 in. maximum size (No. 8 distribution per ASTM C33, Table II), clean, well graded, saturated surface dry, and shall have low absorption and high density.

2. Coarse aggregate may only be used if they meet one of the following conditions:

a. The aggregate is classified as nonreactive as defined for Class R0 per ASTM C1778 (ASTM C1293 expansion of 0.04% or less, or ASTM C1260 expansion less than 0.10%).

b. Documentation is submitted and approved showing demonstrated compliance with requirements per Section 8 of ASTM C1778, including all limits contained therein, when used in a cementitious material meeting the specification requirements herein.

c. They are used in a cementitious material meeting all required preventative measures described per “Option 2” of Section 9 of ASTM C1778 for Class SC3, Risk Level 5.

E. Curing Materials:

1. Absorptive Cover: AASHTO M182, Class 2, burlap cloth made from jute or kenaf, weighing approximately 9 oz per square yard (305 g per square meter) when dry.

2. Moisture-Retaining Cover: One of the following, complying with ASTM C171:

a. Polyethylene-Coated, Blended Polyester Fabric: HydraCure Wet Curing Cover, PNA Construction Technologies, Inc., 9 Dunwoody Park, Suite 111, Atlanta, GA 30338.

b. Polyethylene film.

c. Polyethylene-coated burlap.

d. Use of curing compounds is strictly prohibited.

F. Water: Potable.

G. Specialty Nonshrink Grout for Fence Post Repairs at the top of the Perimeter Wall:

1. MasterFLow 100 by BASF Corporation Building Systems, Shakopee, Minnesota.

2. Sikadur 35 Hi-Mod LV Epoxy Grouting Adhesive by Sika Corporation, Lyndhurst, New Jersey.

3. Planigrout 712 by MAPEI Corporation, Deerfield Beach, Florida.

H. Adhesive for Reinforcing Bar Dowels and Adhesive Anchors:

1. Hilti HIT-HY 200 epoxy by Hilti, Inc., Tulsa, Oklahoma.

2. AC100+ Gold by Powers Fasteners, Brewster, New York.

3. SET-XP by Simpson Strong-Tie, Pleasanton, California.

I. Reinforcement:

1. Epoxy-Coated Reinforcing Bars and Dowels: ASTM A615, Grade 60, deformed bars, epoxy coated in accordance with ASTM A775, with less than 2% damaged coating in each 12 in. bar length.

2. Epoxy-Coated Welded-Wire Reinforcement (WWR): ASTM A1016, epoxy-coated in accordance with ASTM A884, Class A coated, Type 1, deformed steel.

J. Tie Wire: No. 16 gauge annealed, epoxy coated.

K. Steel Pins:

1. 3/8 in. diameter Kwik HUS-EZ screw anchor by Hilti Inc. (carbon steel).

2. 3/8 in. diameter Wedge-Bolt screw anchor by Powers Fasteners (carbon steel).

3. 3/8 in. diameter Titen HD screw anchor by Simpsons Strong-Tie (carbon steel).

L. Supports, chairs, bolsters, spacers, etc., are to conform to Chapter 3 of the CRSI-WRSI Manual of Standard Practice. Provide types that will hold reinforcement in position as shown and are in accordance with requirements of ACI 318 except as specified.

1. Epoxy coated.

M. Protective Coating for Existing Reinforcement: The manufacturer shall be the same as the manufacturer of the specialty repair concrete used on this Project.

1. MasterEmaco P124 by BASF Corporation Building Systems, Shakopee, Minnesota.

2. Sika Armatec 110 Epocem by Sika Corporation, Lyndhurst, New Jersey.

3. Mapefer 1K by MAPEI Corporation, Deerfield Beach, Florida.

2.02 MIX PROPORTIONS

A. Specialty Repair Concrete/Mortar:

1. Proportion and mix specialty repair concrete or mortar in accordance with the manufacturer’s written instructions.

2. Extend specialty concrete with aggregate for specific repair depths in accordance with the manufacturer’s recommendations. Aggregate shall be approved by the material manufacturer and certified by the aggregate supplier to meet ASTM C33. The aggregate suppliers shall certify that no alkali-aggregate reactivity is produced with the proposed aggregate-cement combinations and shall be tested in accordance with ASTM C227.

B. Bonding Grout for Specialty Concrete:

1. Bonding grout shall be as recommended by the specialty concrete manufacturer or consist of one part cement, one part sand, and enough water (± one-half part) to form a consistency of thick paint. Sand shall pass the No. 30 sieve.

2.03 EQUIPMENT

A. Concrete Batching and Mixing Equipment:

1. Batch and mix specialty concrete/mortar in accordance with the manufacturer's written instructions.

B. Demolition Equipment:

1. Use nominal 15 lb class chipping hammers only for demolition at undersides of slabs, and for finish demolition work such as along the edges of the repair areas and at high spots. Do not use chipping hammers heavier than nominal 15 lb class.

2. Use concrete saws, chipping hammers, and other demolition equipment and cutting tools appropriate for the work and approved by the Engineer.

C. Pumping Equipment:

1. The pump for placing the concrete into forms and cavity shall be compatible with the material being placed, sized to the quantity of material being installed at any one time, and available for use when needed. Hydraulic/swing valve or peristaltic pumps are recommended. All pumping equipment shall have adequate controls to regulate flow rates.

2. The connection of the pump to the form shall be done with clean rubber hose or a combination of clean hose and clean pipe. Abrupt changes in line size (from larger to smaller) will cause blockage; therefore, long tapered reducers shall be used when changing pipe or hose size.

3. For connections between tight joints or hose sections, use a metal clamp with a rubber gasket. Special attention shall be given to the watertightness of all connections under pressure. Otherwise, the mix will dry out in the line and cause blockage.

4. Pressure gauges shall be attached to the pump line near the exit port to monitor cavity pressure.

2.04 PLACING AND FINISHING EQUIPMENT

A. Placing and finishing equipment shall include adequate mechanized and hand tools for placement and consolidation of plastic concrete and for working down to approximately the correct grade for striking off.

PART 3 – EXECUTION

3.01 LOCATION OF REPAIR AREAS

A. The Contractor is responsible for visually inspecting and sounding all concrete surfaces to discover, identify, and record all deteriorated concrete. The Contractor shall mark all repair locations in the field using permanent paint for review by the Engineer. The Contractor shall notify the Engineer prior to the start of its inspection and sounding work. The Engineer will be present at the start of sounding and at various intervals during the sounding work. The Engineer will verify the location and extent of all repairs with the Contractor prior to the start of demolition. The Engineer and Contractor will agree on the extent and location of all repairs prior to and at appropriate stages during demolition.

1. Concrete shall be considered unsatisfactory when it exhibits weakness due to crazing, cracking, spalling, volume change, disintegration, erosion, scaling, popping, delamination, unbonding, etc.

2. Concrete shall be considered satisfactorily sound when it rings under the hammer blow and resists chipping in a manner equal to virgin original concrete in the structure that has not exhibited deterioration.

B. All repair locations shall be documented on As-Built Drawings that are to be updated on a weekly basis and distributed to the Project team.

3.02 SHORING

A. Refer to Section 021000 – Shoring.

3.03 DEMOLITION AND REMOVAL, AND SURFACE PREPARATION FOR CONCRETE REPAIRS

A. For all concrete demolition and removal activities, install sound barriers if necessary to maintain the acceptable noise level.

B. Prior to conducting demolition, all electrical conduit embedded in the slab shall be located and deactivated. Refer to Drawings for electrical specifications.

C. Provide 3/4 in. deep saw cut edges around the perimeter of the repair area, normal to the face of the surrounding concrete. The saw cuts shall form polygons, which have 90° corners and enclose the deteriorated area. Make saw cuts after sufficient concrete is removed to locate and determine actual concrete cover over reinforcement. Do not cut into reinforcement. Reduce depth of saw cut over reinforcement as required.

D. Remove all loose and unsound concrete in the area to be repaired. Remove concrete to such additional breadth and depth as required to expose uncorroded reinforcing bars and a surface of sound uncontaminated concrete. Remove concrete to a minimum depth of 3/4 in. beyond the innermost layer of reinforcement. Roughen concrete surface to minimum amplitude of 1/4 in. Conduct concrete removal in a manner to prevent cutting, nicking, bending, or otherwise damaging the reinforcement. Repair or replace accidentally damaged reinforcement at no cost to the Owner.

E. Remove all loose particles and deleterious materials from the exposed sound concrete, exposed reinforcing bars, and accessories by sandblasting. Clean reinforcing bars to SSPC-6, commercial blast finish, or better.

F. Do not cut, nick, bend, or damage prestressing steel. Repair all damage at no cost to the Owner.

3.04 SUPPLEMENTAL REINFORCEMENT, SUPPLEMENTAL ACCESSORIES, AND COATING OF EXISITNG REINFORCEMENT AND ACCESSORIES

A. Reinforcing bars with metal loss greater than 15% of the original bar cross section shall be brought to the attention of the Engineer for strength evaluation prior to continuing repair work.

B. Provide supplemental reinforcement as shown on the Drawings and as directed by the Engineer. Tie the reinforcement to existing bars with a minimum lap of 48 bar diameters, or 60 bar diameters for epoxy-coated reinforcement.

C. Where lap splices are not possible or where directed by the Engineer, remove corroded portion of existing reinforcement and splice supplemental reinforcement with mechanical bar splices.

D. Provide supplemental accessories to support exposed reinforcement in accordance with the requirements of CRSI and as directed by the Engineer.

E. Coat all exposed reinforcement and accessories with protective coating in accordance with the coating manufacturer's written instructions. Existing reinforcement and accessories that are completely detached from the concrete during demolition may be replaced with new epoxy-coated reinforcement and accessories in lieu of applying protective coating.

F. The coating shall not be applied to any concrete surface or within 1 in. of the connection between the anodes and the existing reinforcement. The Contractor will be responsible for removing all coating from prepared concrete surfaces prior to placing the repair material.

3.05 FORMWORK

A. Construct forms to match configuration of existing surrounding concrete or as otherwise shown on the Drawings.

B. The Contractor shall design forms in accordance with ACI 347R. Forms shall be designed to withstand safely the pressure developed by the weight and load of repair material and the pump pressure. Maximum pressure exerted on formwork occurs after the cavity is full and pressurized.

C. The Engineer shall review formwork design for information only. Review by the Engineer shall not in any way relieve the Contractor of its responsibility for the safety and adequacy of the formwork.

D. Immediately prior to erecting formwork, remove dust and debris from the previously prepared surfaces of sound concrete and reinforcement with a high-pressure water cleaner capable of pressures in excess of 6,000 psi.

E. Provide impermeable watertight forms at vertical and underside repair areas. Preformed foam gaskets or cast-in-place foam shall be used to address difficult-to-match surfaces. Tape the boundaries of the forms with two-sided rubberized asphalt tape. Provide a secondary seal around the perimeter of the form with silicone sealant. Keep bentonite-impregnated oakum on the job for emergency sealing of form edges. Provide valved ports as required to ensure complete draining of water used for substrate conditioning.

F. Provide openings or valved ports for introduction of the repair concrete or mortar and valved ports to vent air at the top of the lifts. Place vent holes at a minimum of one

vent hole per 8 sq ft of repair area, not more than 8 ft apart, with at least two vent holes per repair.

G. Erect formwork and preload all anchors for attachment of the formwork to the existing structure to prevent slippage during concrete placement. Forms shall be constructed to fit tightly against existing concrete surfaces.

H. For vertical and underside repairs, provide formwork that provides 1-1/2 in. minimum cover over reinforcing steel, unless otherwise noted on the Drawings. Extend formwork beyond existing adjacent formed surface if required to maintain this cover; provide a smooth transition to the adjacent concrete.

3.06 CONCRETE PLACEMENT FOR TOPSIDE REPAIRS

A. Remove dust and debris from the previously prepared concrete surfaces by sweeping and blowing with compressed air.

B. After the bonding surface has been cleaned, and at least 2 hrs prior to placing concrete, prewet the bonding surface with a uniform spray application of water; puddles shall be blown clean. Surface shall be maintained in a saturated surface dry (SSD) condition with no free water. Immediately before placing concrete, a thick coating of bonding grout shall be scrubbed into the SSD-prepared surface. Care shall be exercised to ensure that all parts receive a thorough, even coating and that no excess grout is permitted to collect in pockets. The rate of progress in applying grout shall be limited so that grout does not become dry before it is covered with concrete.

C. Place specialty repair mortar in accordance with the manufacturer’s written instructions. Provide a means of accurately measuring the amount of water introduced to the mix. Follow manufacturer’s written directions for addition of water.

D. Concrete for deep repairs and full-depth repairs shall be spread and vibrated internally. It shall then be screeded to restore the original slab profile or to a profile directed by the Engineer.

E. Mortar for shallow repairs shall not be vibrated internally.

F. Where repair areas exceed 8 ft in width, the Contractor must install temporary elevation grade "stakes" (rebar doweled into slab) to establish final top of slab elevation. The stakes must be of sufficient quantity and spacing to provide uniform repair profile and are to be removed after initial screeding. Concrete profile and clear cover over reinforcement shall match existing.

G. Finish the concrete surface with a hair broom finish and in accordance with the waterproofing manufacturer’s written specifications to be suitable for application of the waterproofing.

3.07 CONCRETE PLACEMENT FOR VERTICAL AND UNDERSIDE REPAIRS

A. After the formwork is in place, fill the repair area with water and allow water to stand for 24 hrs immediately preceding placement. Drain the form 4 hrs before concrete placement.

B. Concrete may be placed either by pouring or pumping.

1. Placement by Pouring:

a. Use a piece of PVC pipe inserted and sealed into a valved port so that a minimum of 2 ft of head can develop to expel material from adjacent vent ports. Pour concrete into the funnel and continue pouring until material expels from vent ports. Add additional material to top off vent port being worked. Move pipe to adjacent vent ports and continue this process until the entire repair area is filled with concrete.

b. For vertical repairs, fill repair area from bottom to top.

c. Concrete shall be placed in a manner so as to avoid honeycombing, bug holes, air pockets, and incomplete filling. Any concrete with such defects shall be removed and replaced at the Contractor's expense.

2. Placement by Pumping:

a. The hardware shall be in place with valves ready to have the hose attached. For vertical or overhead repairs, fill the repair area from bottom to top.

b. Start pumping with all valves open, filling the form in a manner that prevents air entrapment.

c. Continue pumping even after concrete flow occurs from adjacent ports in order to expel air. When the flow is without intrusion of air, the pump is temporarily shut off, the port closed off, and the pump line connected to the adjacent port that has seen flow. This sequence shall continue until the cavity is filled.

d. Clean off the connections as ports are changed by washing the concrete out of the rubber seal and the clamp and grooves in order to reconnect the hose to the pumping ports.

e. Monitor pump line pressure at all times to prevent excessive back pressure when pumping long distances.

f. Special care shall be exercised in the final pressurization, since excessive pump line pressure may cause the form to fail.

g. Cavity pressure shall not exceed the formwork design pressure. The nozzlemen shall carefully watch and listen for "cracking" in the form and/or slight bulging of the form, which is an indication that pressure is building in the form. When this condition is achieved, all vents in the form shall be capped or plugged off and all valves closed.

h. After the concrete has reached the initial set, unscrew the valves and nipples from the flanges and clean them with a water hose. When concrete is still green, use a screwdriver and water to remove the

material. A wire brush is helpful to clean the threads. The valves can be taken apart, and the ball cleaned and regreased.

i. Concrete shall be placed in a manner so as to avoid honeycombing, bug holes, air pockets, and incomplete filling. Any concrete with such defects shall be removed and replaced at the Contractor's expense.

C. Provide adequate labor, equipment, and materials to ensure that the mortar/concrete for each repair is placed within the manufacturer's limit on time between mixing and placing of repair material. If time between mixing and placing exceeds the manufacturer's time limit, construct a bulkhead to achieve a proper construction joint.

D. Place specialty mortar/concrete for deep repairs in accordance with the manufacturer's written instructions for pouring or pumping.

E. Provide a means of accurately measuring the amount of water introduced to the mix. Follow manufacturer's written directions for addition of water.

F. Ensure proper consolidation in the form using mechanical vibrators as required.

3.08 MORTAR PLACEMENT FOR UNDERSIDE AND VERTICAL REPAIRS LESS THAN 1 FT BY 1 FT

A. After the protective coating on reinforcing bars has cured, spray the surface with water to ensure that the substrate is SSD with no standing water.

B. Immediately before placing mortar, a thin coating of bonding grout shall be scrubbed into the SSD-prepared surface. The bonding grout shall be proportioned in accordance with Para. 2.02.I.

C. Before the bond coat dries, thoroughly compact the mortar onto the substrate and around the exposed reinforcement.

D. The specialty repair mortar can be applied in single lifts up to 1-1/2 in. or per manufacturer's instruction, whichever is smaller. If multiple lifts are used, lightly rake the surface of each lift after initial set and before applying subsequent lifts.

E. If the material sags during application, completely remove the specialty repair mortar, properly reprime the existing substrate, and reapply the mortar at a reduced thickness.

F. Finish the specialty repair mortar by striking off with a straight edge, and close with a steel trowel. Do not overwork the completed surface.

G. Provide adequate labor, equipment, and materials to ensure that the mortar for each repair is placed within the manufacturer's limit on time between mixing and placing of repair material.

H. Place specialty repair mortar in accordance with the manufacturer's written instructions. Provide a means of accurately measuring the amount of water introduced to the mix. Follow manufacturer's written directions for addition of water.

3.09 FINISHING FLOORS AND SLABS

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

B. Trowel Finish: After applying float finish, apply first troweling and consolidate concrete by hand or power-driven trowel. Continue troweling passes and restraighten until surface is free of trowel marks and uniform in texture and appearance. Grind smooth any surface defects that would telegraph through applied coatings or floor coverings.

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

1. Immediately after float finishing, slightly roughen trafficked surface by brooming with fiber-bristle broom perpendicular to main traffic route. Coordinate required final finish with the Engineer before application.

3.10 CONCRETE/MORTAR PROTECTION AND CURING

A. General: Cure concrete/mortar according to ACI 308R-01. Protect freshly placed concrete from premature drying and excessive cold or hot temperatures. Comply with ACI 306R for cold-weather protection and ACI 305R for hot-weather protection during curing.

B. Unformed Surfaces:

1. Initial Curing: When concrete/mortar bleed rate, concrete temperature, ambient temperature, relative humidity, wind speed, and solar heating create a risk of premature drying, conduct initial curing using evaporation retarder or fogging during concrete placement and finishing.

2. Intermediate Curing: When concrete/mortar finishing is completed before final set of the concrete and when final curing methods might damage the concrete either mechanically or by raising the water/cement ratio of the near-surface region, conduct intermediate curing using evaporation retarder or fogging.

3. Final Curing: Begin final curing immediately after finishing is complete and after the concrete/mortar has reached final set and will not be damaged by final curing operations. Conduct final curing using moisture curing or moisture-retaining cover. Conduct final curing for a minimum of seven days.

C. Formed Surfaces: Cure formed surfaces for a minimum of seven days. If forms remain during curing period, moisture cure after loosening forms. If forms are removed before end of curing period, continue moisture curing for the remainder of the curing period.

D. Cure concrete/mortar by one or a combination of the following methods:

1. Evaporation Retarder: Apply evaporation retarder according to manufacturer's written instructions.

2. Fogging: Continuously fog mist above the concrete/mortar surface to elevate the relative humidity of the air above the surface.

3. Moisture Curing: Keep surfaces continuously moist for not less than seven days with the following materials:

   a. Water.

   b. Continuous water-fog spray.

4. Absorptive cover, water saturated, and kept continuously wet. Cover concrete surfaces and edges with 12 in. lap over adjacent absorptive covers.

5. Moisture-Retaining Cover Curing: Cover concrete surfaces with moisture-retaining cover for curing concrete/mortar, placed in widest practicable width, with sides and ends lapped at least 12 in., and sealed by waterproof tape or adhesive. Cure for not less than seven days. Immediately repair any holes or tears during curing period using cover material and waterproof tape.

6. Curing Compound: Curing compound shall not be used.

E. Appearance of cracks shall be cause for rejection of the work so affected. Rejected concrete shall be removed and replaced at the Contractor's expense.

F. Appearance of unconsolidated or honeycombed concrete shall be cause for rejection of the work so affected. Rejected concrete shall be removed and replaced at Contractor's expense.

G. During the curing period, the concrete shall be protected from damage due to mechanical disturbances, such as shock and vibration due to adjacent construction activities. All finished concrete surfaces shall be protected from damage.

3.11 REPAIR QUANTITY RECORDS

A. Keep daily records of repair quantities, including sketches showing locations and extent of repairs, and records of the amount of material placed. Notify the Engineer at least 24 hrs prior to each placement of concrete. Do not place concrete until the Engineer has inspected the surface preparation and steel reinforcement.

3.12 REMOVAL OF SURFACE DEPOSITS

A. Stains, efflorescence, fins, and other surface deposits resulting from the work of this Section that are objectionable by the Engineer shall be removed by methods acceptable to the Engineer.

3.13 CLEANUP

A. Remove all protection, equipment, unused materials, dirt, dust, rubbish, and debris resulting from the performance of this Work. Clean existing surfaces and all adjoining Work of droppings and where stained by Work of this Section.

END OF SECTION

SECTION 042100

MASONRY REPAIR

(Filed Sub-Bid Required)

PART 1 – GENERAL

1.01 GENERAL PROVISIONS AND RELATED DOCUMENTS

A. Drawings, Contract Requirements, and the General Requirements (Division 01) of the Contract for Construction are hereby made a part of this Section.

B. Time, Manner, and Requirements for Submitting Sub-Bids:

1. Sub-bids for work under this Section shall be for the complete work and shall be filed in a sealed envelope with the City of Somerville at a time and place as stipulated in the "NOTICE TO CONTRACTORS."

   The following should appear on the upper left hand corner of the envelope:

   NAME OF SUB-BIDDER: (Insert name of sub-bidder.)

   SUB-BID FOR SECTION: 042100 – MASONRY REPAIR

2. Each sub-bid submitted for work under this Section shall be filed on forms furnished with these Contract Documents.

3. Sub-bids filed with the Owner shall be accompanied by BID BOND or CASH or CERTIFIED CHECK or TREASURER'S CHECK or CASHIER'S CHECK issued by a responsible bank or trust company payable to the City of Somerville in the amount of 5% of the sub-bid. A sub-bid accompanied by any other form of bid deposit than those specified will be rejected.

C. Sub Sub-Bid Requirements: (None required under this Section.)

D. Reference Drawings: The Work of this Filed Sub-Bid is shown on the following Contract Drawings:

G-001	COVER SHEET
G-002	SCOPE OF WORK
PH-100	PROPOSED PHASING PLAN
S-200	EXTERIOR ELEVATION REPAIR PLANS
S-201	INTERIOR ELEVATION REPAIR PLANS

1.02 SCOPE OF WORK

A. Work includes, but is not limited to, providing all labor, materials, equipment, and supervision to accomplish the following masonry repair work in accordance with the Drawings and Specifications.

1. Repoint deteriorated mortar joints at exterior and interior wall faces at the perimeter wall.

2. Remove and reset the capstone at the perimeter wall.

3. Remove and replace deteriorated brick masonry at the perimeter wall.

4. Remove and replace deteriorated granite masonry at the perimeter wall.

5. Remove and replace broken CMU at the perimeter wall.

1.03 REFERENCES

A. The following references are incorporated into these Specifications. These written Specifications take precedence over incorporated references. The Contractor shall have the following references at the Project site at all times and shall be familiar with the reference contents:

1. ASTM International (ASTM):

a. C90-13 – Standard Specification for Load-Bearing Concrete Masonry Units.

b. C140-13a – Standard Test Method of Sampling and Testing Concrete Masonry Units and Related Units.

c. C150 – Specification for Portland Cement.

d. C207 – Specification for Hydrated Lime for Masonry Purposes.

e. C270-12a – Standard Specification for Mortar for Unit Masonry.

f. C780-12a – Standard Test Method for Preconstruction and Construction Evaluation of Mortars for Plain and Reinforced Unit Masonry.

2. The Masonry Society (TMS):

a. TMS 602 – Specification for Masonry Structures.

1.04 SUBMITTALS

A. Subcontractor's qualifications.

B. Product Data: For each different concrete masonry unit (CMU), accessory, and other manufactured product indicated.

C. Material Certificates: Signed by manufacturer and Contractor certifying that each material complies with requirements.

1. Type of Masonry Unit: Include test data, measurements, and calculations establishing net-area compressive strength of CMU.

2. Each different cement product required for mortar, including name of manufacturer, brand, type, and weight slips at time of delivery.

3. Each type and size of anchors, ties, and metal accessories.

D. Mortar mix design for each type of mortar to be used. The Contractor shall warrant by the submission of the design mixes that such mixes are totally representative of the mortar that the Contractor intends to supply to meet the requirements of the Contract Documents. Submit new design mixes for review and approval when any change in materials is required or needed.

1.05 QUALITY CONTROL AND QUALITY ASSURANCE

A. The Contractor shall conduct a quality control program that includes, but is not limited to, the following:

1. Inspection of all materials to ensure conformity to Contract Requirements and that all materials are new and undamaged.

2. Establishment of procedures for executing the Work.

3. Inspecting all surface preparation prior to installing new materials.

4. Inspection of work in progress to ensure that the Work is being done in accordance with established procedures; manufacturer's instructions; specific Engineer instructions, if given; or recommended practices as given in the references of Para. 1.04.

5. Inspection of all work completed and correction of all defective work.

B. Qualifications:

1. The Contractor and its site superintendent shall have completed work similar in material, design, and extent to that indicated for this Project with a record of successful in-service performance for a period of at least 5 yrs.

C. Preinstallation Conference:

1. Attend a preinstallation conference to be held with a representative of the Owner, Engineer, General Contractor, Contractor's field superintendent, foreman, subcontractor, and other trades involved to discuss the conduct of the Work of this Section.

D. Obtain each type of material from a single manufacturer for the duration of the Project.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Deliver masonry materials to the Project in undamaged condition.

B. Store and handle masonry units off the ground, under cover, and in a dry location to prevent their deterioration or damage due to moisture, temperature changes,

contaminants, corrosion, and other causes. If units become wet, do not place until units are in an air-dried condition.

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

D. Store aggregates where grading and other required characteristics can be maintained and contamination avoided. Store different aggregates separately.

E. Store masonry accessories, including metal items to prevent corrosion and accumulation of dirt and oil.

F. Protect reinforcement, ties, and metal accessories form permanent distortion, and store them off the ground.

1.07 SEQUENCING OF THE WORK

A. Work in conjunction with other trades by performing work on time and according to schedule. Coordinate with other trades to minimize disruption to other work. Avoid traffic over or near completed work.

1.08 GENERAL PROCEDURES

A. Work only in areas permitted by the Owner-approved schedule and phase plan.

B. Remove all tools, buckets, and materials from work areas and store neatly at a central location daily at the end of work.

C. Do not stockpile materials, debris, or equipment on elevated decks.

D. Deliver all materials to the jobsite in original, sealed, undamaged containers properly labeled with product descriptions, including supplier's name, brand name, type of material, date of manufacture, lot number, and shelf life.

E. Comply with all recommendations of the material manufacturers for storage and handling of materials. Store materials on pallets.

F. Protect the building and its contents from all risks associated with the Work in this Section. Schedule and execute all work without exposing adjacent building areas to water, dust and debris, or materials used by this Contractor. Protect adjacent areas from damage and stains with appropriate barriers and masking. Repair all damage that results from the Work of this Section to its condition at the start of work or, if such cannot be determined, to its original condition. Clean all stains by approved means.

G. Protect the Work from damage, such as impact, marring of the surfaces, and other damage.

H. Compliance with OSHA and other safety laws and regulations is the exclusive responsibility of the Contractor and its subcontractor(s), suppliers, consultants, and servants.

1.09 BASIS OF PAYMENT

A. Refer to Form for General Bid.

PART 2 – PRODUCTS

2.01 CONCRETE MASONRY UNITS

A. Concrete Masonry Units: ASTM C90, and as follows:

1. Unit Compressive Strength: Provide units with minimum average net area compressive strength of 1,900 psi.

2. Weight Classification: Normal weight.

3. Provide Type I, moisture-controlled units.

4. Size (Width): Match existing dimensions.

2.02 BRICK MASONRY

A. Brick: ASTM C216, Grade SW. Match existing brick masonry color.

2.03 GRANITE MASONRY

A. All granite shall be of standard architectural grade, free of cracks, seams, starts, or other traits that may impair its structural integrity or function. Match existing granite masonry color and finish.

2.04 MATERIALS

A. Water: Potable.

B. Mason's Sand: ASTM C144, fineness modulus 2.0 to 2.5, beige colored.

C. Sand: ASTM C404, Size No. 1.

D. Hydrated Lime: ASTM C207.

E. Portland Cement: ASTM C150, Type I (nonstaining), low alkali (equivalent alkalis less than 0.6%).

2.05 MASONRY ACCESSORIES

A. Steel Pins: Provide in lengths as required to provide manufacturer-recommended embedment into backup material (either concrete or CMU).

1. 8 mm stainless steel pins by Helifix, Inc. or Bloc-Lok.

2. 8 mm stainless steel Heli-Pin by Power Fasteners.

3. 3/8 in. diameter Titen HD screw Anchor by Simpson Strong-Tie (carbon steel).

B. Sealant: Refer to Specification Section 079200 – Joint Sealants.

2.06 MORTAR AND GROUT MIXES

A. General: Do not use admixtures, including pigments, air-entraining agents, accelerators, retarders, water-repellent agents, antifreeze compounds, or other admixtures, unless otherwise indicated.

1. Do not use calcium chloride in mortar or grout.

2. Add cold-weather admixture (if used) at the same rate for all mortar, regardless of weather conditions, to ensure that mortar color is consistent.

B. Mortar for Masonry Repair: Comply with ASTM C270, Proportion Specification.

1. Type N.

2. Do not use ground limestone or prepared masonry mortar mixes. Use the same brands of cement and lime and the same source of sand throughout the Project for each mix. Do not use any admixture, except those specifically called for herein, without written approval by the Engineer.

PART 3 – EXECUTION

3.01 EXAMINATION

A. Verify all site conditions and dimensions by field measurements in consideration for special conditions associated with repairs to existing construction. Notify the Engineer immediately of any inconsistency between the conditions found and those shown in the Contract Drawings. The Engineer will determine what modifications or additional repairs are necessary.

3.02 PREPARATION

A. Clean all reinforcement by removing mud, oil, or other materials that will adversely affect or reduce bond at the time mortar or grout is placed. Reinforcement with rust and/or mill scale will be accepted, provided the dimensions and weights, including heights of deformations, are not less than required by the ASTM specification covering this reinforcement in this Specification.

B. Prior to placing masonry, remove laitance, loose aggregate, and anything else that would prevent mortar from bonding to the substrate.

C. Do not wet concrete masonry prior to installation unless otherwise indicated.

3.03 INSTALLATION – GENERAL

A. Do not use mortar when masonry surface temperature is below 40°F or above 90°F.

B. Thickness: Build masonry construction to the full thickness shown, using units of nominal thickness indicated.

C. Cut masonry units with motor-driven saws to provide clean, sharp, unchipped edges. Cut units as required to provide continuous pattern and to fit adjoining construction. Use full-size units without cutting, where possible.

3.04 GENERAL REMOVALS

A. Use care in removing existing materials not to damage materials to remain.

B. Cut and remove masonry without cutting, chipping, or otherwise damaging masonry to remain. Remove masonry at transitions to allow for toothing in with existing to remain.

C. Carefully remove coping stones and sill stones as necessary.

D. Carefully cut existing flashing. Cut by scoring against solid surface; do not lift, and limit handling of existing flashing to limit damage to existing material to remain.

3.05 MORTAR REMOVAL FOR POINTING

A. Procedure for removing existing mortar shall be decided upon successful completion of a mockup and approval by the Engineer.

B. Remove existing mortar by cutting down the center of the joint with power tools and then removing remaining mortar with hand tools. To prevent joint enlargement, do not chip or cut into adjacent masonry. Do not overcut into masonry. If joint enlargement occurs, use of power tools may be further restricted.

C. Remove mortar from joints scheduled for pointing to depths equal to 2-1/2 times their widths, but not less than 5/8 in. Leave no cavities in the existing mortar, and remove all deteriorated mortar.

D. Remove mortar from masonry surfaces within raked-out joints to provide reveals with square backs and exposed masonry sides for contact with pointing mortar.

3.06 REPLACEMENT OF CMU BLOCKS

A. Cut adjacent mortar joints using a rotary saw to remove cracked or damaged CMU blocks. Do not damage adjacent CMU blocks.

B. Lay new CMU as follows:

1. Horizontal- and vertical-face shells fully mortared.

2. Webs fully mortared.

3. Tool new mortar joints to match original joints.

3.07 REPAIR OF CRACKED MORTAR JOINTS

A. Remove cracked mortar joints by hand or with power tools such that masonry is not overcut or joints enlarged during mortar removal process. The Engineer will disallow use of power tools if evidence is found that mortar joints are being overcut or enlarged. If using power tools, cut down the center of the joint with power tools and then remove remaining mortar with hand tools. Do not chip or cut into adjacent masonry.

B. Remove mortar from joints scheduled for repair (pointing) to depths equal to 2-1/2 times their widths or until sound mortar is reached, but not less than 5/8 in. or more than 3 in. Remove additional mortar as necessary to leave no cavities in the existing mortar, and remove all cracked or deteriorated mortar.

C. Remove mortar from masonry surfaces within raked-out joints to provide reveals with square backs and exposed masonry sides for contact with pointing mortar.

D. Rinse joint surfaces with water to remove dust and mortar particles. Time application of rinsing so that, at time of pointing, excess water has evaporated or run off, and joint surfaces are damp but free of standing water.

E. Apply mortar in successive layers until a uniform depth is formed. Compact each layer thoroughly and allow to become thumbprint hard before applying next layer. Allow at least 24 hrs to pass between successive stages of mortar application to allow for mortar shrinkage between stages.

F. After joints are filled to a uniform depth, place remaining pointing mortar in successive layers of no greater than 1/2 in. depth until flush with exterior face of masonry. Fully compact each layer and allow to become thumbprint-hard before applying next layer. Where existing masonry has rounded edges, recess final layer slightly from face. Take care not to spread mortar over edges and onto exposed face.

G. When mortar at exterior face is thumbprint hard, tool to form a joint to match existing adjoining joints in tooling. If existing mortar is missing, tool to form concave joints, flush with the face of the masonry. Use a cylindrical tool slightly larger than the joint size to compact mortar against the masonry joint surface. Remove excess mortar from edge of joint by brushing.

H. Finished joints should match existing adjoining joints in color, texture, tooling, size, and profile.

I. If shrinkage cracks develop because of too fast a curing, cure mortar by maintaining in a damp condition for not less than 72 hrs. Keep masonry covered with tarpaulins and use a fog spray periodically to maintain moist conditions under the cover. Do not wash the newly pointed mortar with a stream of water.

3.08 MORTAR MIXES

A. Measurement: Measure cementitious and aggregate material in a dry condition by volume or equivalent weight. Measure materials with an approved device, not by shovel.

B. For pointing only, use prehydrated mortar prepared as follows: Mix materials in a clean mechanical batch mixer. Thoroughly mix cementitious and aggregate materials together before adding any water. Then mix again, adding only enough water to produce a damp, unworkable mix that will retain its form when pressed into a ball. Maintain mortar in this dampened condition for 1 to 2 hrs. Add remaining water in small portions until mortar of desired consistency (somewhat stiffer than bed mortar) is reached. Use within 30 min. of final mixing. Do not retemper or use partially hardened material.

C. Do not use admixtures of any kind in mortar, unless specifically approved by the Engineer.

3.09 BRICK INSTALLATION

A. At a minimum of 24 in. o.c. in the vertical joints of brick masonry units at all courses directly above metal flashing. Provide a minimum of two weep holes at each flashing location.

B. Veneer Anchors:

1. Anchor masonry veneers to concrete and masonry backup with appropriate fasteners.

2. Embed tie sections in masonry joints. Size the masonry ties so that the tie is embedded in two-thirds of the brick depth.

3. Space anchors at 16 in. o.c. vertically and 16 in. o.c. horizontally, with not less than one anchor for each 1.77 sq ft of wall area. Install additional anchors within 8 in. of edges, intervals, control joints, corners, and above flashing.

C. Cut brick masonry to fit around miscellaneous metal installations.

3.10 BRICK CRACK REPAIR

A. Using appropriate cutting tools, rout out cracks to a depth 2-1/2 times the width (minimum 5/8 in.) and a 1/4 in. minimum width. Clean routed cracks of dust and debris using compressed air and a stiff nylon bristle brush of sufficient length to reach the full depth of the cut. Do not use metal wire brushes.

B. Wet substrate, surface dry, prior to crack repair.

C. Pack crack with repair mortar leaving no voids. When crack is deeper than 5/8 in., fill crack in several layers.

D. Tool flush and texture to match adjacent stone surface before mortar sets.

E. Clean mortar from face of stone. Remove droppings and splashed mortar immediately.

3.11 CLEANING AND PROTECTION

A. Conduct all masonry work in a neat and competent manner to prevent staining any surface with mortar or other spills. Avoid dropping mortar on completed brick work or

other elements of the building. If mortar drops or spills on a nonporous material, spot clean immediately using a sponge and clean water. Brush down recently installed exposed masonry units with a soft bristle brush while mortar is hard enough not to smear, but soft enough not to bond tightly to the face of the units.

B. Clean all masonry work promptly after curing by wetting surfaces and washing with a stiff bristle brush to produce a clean and unmarred appearance. Begin cleaning with clean water only, without chemical cleaners. If water alone with a scrub brush is not successful, as determined by the Engineer, use an approved cleaning compound. Dilute the compound with the maximum amount of water that will allow proper cleaning, as approved by the Engineer.

C. Test the cleaning compound in a small inconspicuous area before beginning full-scale cleaning. Cover all existing exposed metal, glass, and other areas as required before cleaning the masonry with any cleaning compounds. Do not use metal scrapers to clean the masonry. Rinse repeatedly with clean water after cleaning to remove all traces of mortar and debris. Protect all exterior finishes, including glass and aluminum, from any damage or staining caused by this work.

D. Protect all trees and landscaping from wash-down water and chemicals used during wash down.

END OF SECTION

SECTION 055000

STRUCTURAL STEEL

PART 1 – GENERAL

1.01 GENERAL REQUIREMENTS

A. Drawings, Contract Requirements, and the General Requirements (Division 01) of the Contract for Construction are hereby made a part of this Section.

1.02 SCOPE OF WORK

A. The Work includes furnishing all labor, materials, equipment, and supervision to accomplish the following structural steel work in accordance with the Drawings and Specifications. The Work under this Section includes, but is not limited to:

1. Reweld broken double-tee beam flange connections.

2. Install steel subframing at the double-tee beam flanges at locations shown on the Drawings and as identified by the Engineer.

1.03 RELATED WORK

A. Work related to this Section includes, but is not limited to, the following:

1. Section 037320 – Concrete Repair.

2. Section 071816 – Vehicular-Traffic-Bearing Waterproofing.

3. Section 071900 – Penetrating Sealer.

4. Section 079200 – Joint Sealants.

1.04 REFERENCES

A. The following references are incorporated into these Specifications. These Specifications take precedence over incorporated references.

1. AISC – Specification for Design, Fabrication and Erection of Structural Steel for Buildings.

2. AISC – Code of Standard Practice.

3. AWS – Structural Welding Code – Steel.

1.05 SUBMITTALS

A. Submit shop drawings for the items listed below showing all details, identification marks, and installation elevations to the Engineer for approval prior to start of fabrication.

1. Steel subframing for double-tee beam flanges.

B. Furnish mill and fabrication shop certificates that all materials comply with these Specifications, indicating the chemical analysis and yield strength of samples from all structural steel, including rolled shapes, angles, plates, tubes, and pipe.

C. Welder qualification certificates.

D. Submit test reports of existing steel, as well as proposed welding procedures, to ensure compatibility of connections between existing and proposed steel. The Contractor is responsible for the cost of testing.

1.06 QUALIFICATIONS

A. This Contractor for the work specified under this Section shall have been engaged in the satisfactory manufacture and erection of structural steel on projects of the same magnitude as specified herein for a period of at least five years. Furthermore, the products shall conform to the standards of quality control outlined in the American Institute of Steel Construction Specifications.

1.07 GENERAL PROCEDURES

A. Work only in areas permitted by the Owner-approved schedule.

B. Remove all tools, buckets, and materials from work areas and store neatly at a central location daily at the end of work.

C. Do not stockpile materials, debris, or equipment on the parking deck.

D. Construction loads shall not exceed 40 psf.

E. Deliver materials clearly marked with legible and intact labels with manufacturer's name and brand name and identifying contents of containers.

F. Store materials in areas where temperatures conform to manufacturer's recommendations and instructions.

G. Protect the parking garage and its contents from all risks associated with the work in this Section. Schedule and execute all work without exposing adjacent building areas to water, dust and debris, or materials used by this Contractor. Protect adjacent areas from damage and stains with appropriate barriers and masking. Repair all damage as a result of the work of this Section to its condition at the start of work or, if such cannot be determined, to its original condition. Clean all stains by approved means.

H. Protect the work from damage, such as impact, marring of the surfaces, and other damage.

I. Compliance with OSHA and all other safety laws and regulations is the responsibility of the Contractor, his subcontractors, suppliers, consultants, and laborers.

1.08 BASIS OF PAYMENT

A. See Form for General Bid.

PART 2 – PRODUCTS

2.01 METALS, GENERAL

A. Provide materials with smooth, flat surfaces unless otherwise indicated. For components exposed to view in the completed work, provide materials without seam marks, roller marks, rolled trade names, or blemishes.

2.02 FERROUS MATERIALS

A. Steel Plates, Bars, Angles, and Channels: ASTM A36.

B. Bolts: ASTM A325.

C. Steel Rods for Double-Tee Flange Connections: Stainless Steel Grade 316.

D. Steel Assembly for Replacement of Broken Double-Tee Flange Connections: Stainless Steel Grade 316.

E. Steel assemblies as indicated shall be hot-dip-galvanized in conformance to ASTM A123.

F. All indicated stainless steel assemblies shall be Stainless Steel Grade 316.

2.03 FASTENERS

A. Expansion Anchors for Concrete: Refer to Section 037320 – Concrete Repair.

B. Epoxy Adhesive: Refer to Section 037320 – Concrete Repair.

2.04 MISCELLANEOUS MATERIALS

A. Welding Electrodes for All Complete Joint Penetration Welds: Shall be rated as providing minimum Charpy V-Notch toughness of 20 ft-lbs at –20°F.

B. Other Welding Electrodes: Comply with AWS requirements for base metal being welded.

1. Double-Tee Flange Connections: E 309L for carbon to stainless steel or stainless to stainless steel.

C. Cold-Galvanizing Compound:

1. Z.R.C. Cold Galvanizing Compound by Z.R.C. Chemical Products.

2. 7000 System Cold Galvanizing Compound by Rust-oleum.

3. Galvalox Cold Galvanizing Compound by Sumter Coatings.

PART 3 – EXECUTION

3.01 FABRICATION, GENERAL

A. Provide complete steel assemblies, including metal framing, post supports, struts, railings, clips, brackets, bearing plates, and other components necessary to support and anchor equipment on supporting structure.

1. Join components by welding unless otherwise indicated.

2. Use connections that maintain structural value of joined pieces.

3. Join components to allow for thermal movements where spans are longer than 20 ft, unless otherwise indicated on the Drawings.

B. Preassembled Ladder, Anchors, and Supports: Assemble ladder, anchors, and supports in shop to the greatest extent possible. Disassemble units only as necessary for shipping and handling limitations. Clearly mark units for reassembly and coordinated installation.

C. Cut, drill, and punch metals cleanly and accurately. Remove burrs and ease edges to a radius of approximately 1/32 in. unless otherwise indicated. Remove sharp or rough areas on exposed surfaces.

D. Form bent-metal corners to the smallest radius possible without causing grain separation or otherwise impairing work.

E. Form exposed work true to line and level with accurate angles and surfaces and straight edges.

F. Weld connections to comply with the following:

1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.

2. Obtain fusion without undercut or overlap.

3. Remove welding flux immediately.

4. Weld exposed corners and seams continuously unless otherwise indicated.

5. At exposed connections, finish exposed welds and surfaces smooth and blended so that no roughness shows after finishing and contour of welded surface matches that of adjacent surface.

G. Form exposed connections with hairline joints, flush and smooth, using concealed fasteners where possible. Where exposed fasteners are required, use Phillips flat-head (countersunk) screws or bolts unless otherwise indicated. Locate joints where they are least conspicuous.

H. Fabricate joints in such a manner as to exclude water. Provide weep holes where water may accumulate.

3.02 STEEL ASSEMBLIES

A. General: Fabricate steel assemblies to comply with requirements indicated for design, dimensions, details, finish, and member sizes, including wall thickness of tube, post spacings, and anchorage, but not less than that needed to withstand indicated loads.

B. Welded Connections: Fabricate steel assemblies with welded connections. Cope components at connections to provide close fit, or use fittings designed for this purpose. Weld all around at connections, including at fittings.

C. Form changes in direction of steel assemblies as indicated on the Drawings.

D. Form simple and compound curves by bending members in jigs to produce uniform curvature for each repetitive configuration required; maintain cross section of member throughout entire bend without buckling, twisting, cracking, or otherwise deforming exposed surfaces of components.

E. Close exposed ends of steel assemblies with prefabricated end fittings.

F. Brackets, Flanges, Fittings, and Anchors: Provide brackets, end closures, flanges, miscellaneous fittings, and anchors for interconnecting components and for attaching to other work.

1. Connect attachments to ladder framing by direct welding unless otherwise indicated.

2. For galvanized steel assemblies, provide galvanized fittings, brackets, fasteners, sleeves, and other ferrous-metal components.

3.03 FINISHES

A. Galvanizing: Hot-dip-galvanize items as indicated to comply with applicable standard listed below:

1. ASTM A123, for galvanizing steel and iron products.

2. ASTM A153, for galvanizing steel and iron hardware.

3. Fill vent and drain holes that will be exposed in finished work, unless indicated to remain as weep holes, by plugging with zinc solder and filing off smooth.

4. Galvanizing is not allowed without approved shop drawings.

5. Color galvanizing shall be applied under the following conditions:

a. Minimum air temperature shall be 50°F. Surface temperature of steel shall be 50°F to 120°F and, in any event, be 5°F higher than the dewpoint. Humidity shall be 85% maximum.

b. The use of iron, steel shot, and aluminum oxide grit as a blast medium, and power wire brushes are not permitted.

c. Surface of substrate shall be dry and free from dust, dirt, oil, grease, or other contaminants. Coating and cure facility shall be maintained free of airborne dust and dirt until coatings are completely cured.

3.04 INSTALLATION

A. Fastening to In-Place Construction: Provide anchorage devices and fasteners where necessary for securing steel subframing to in-place construction.

B. Cutting, Fitting, and Placement: Perform cutting, drilling, and fitting required for installing steel assemblies. Set units accurately in location, alignment, and elevation, measured from established lines and levels and free of rack.

C. Install steel assemblies by field anchoring framing to concrete or masonry walls, or as indicated on the Drawings or by the manufacturer.

D. Fit exposed connections accurately together to form hairline joints. Weld connections that are not to be left as exposed joints but cannot be shop welded because of shipping size limitations. Do not weld, cut, or abrade surfaces of exterior units that have been hot-dip-galvanized after fabrication and are for bolted or screwed field connections.

E. Field Welding: Comply with the following requirements:

1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.

2. Obtain fusion without undercut or overlap.

3. Remove welding flux immediately.

4. At exposed connections, finish exposed welds and surfaces smooth and blended so that no roughness shows after finishing and contour of welded surface matches that of adjacent surface.

3.05 REPAIRS AND PROTECTION

A. Touch-up Painting: After installation, promptly clean, prepare, and prime or reprime field connections, rust spots, and abraded surfaces of prime-painted joists and accessories, bearing plates, and abutting structural steel.

1. Clean and prepare surfaces by SSPC-SP 2 hand-tool cleaning or SSPC-SP 3 power-tool cleaning.

2. Apply a compatible primer of same type as shop primer used on adjacent surfaces.

3. Touch-up and Repair for Color Galvanized Surfaces:

   a. Apply cold galvanizing paint per Para. 3.05.B. Thickness of applied galvanizing repair paint shall be not less than coating thickness required by ASTM A123 or A153 as applicable. Touchup of galvanized surfaces with silver paint, brite paint, or aluminum paints is not acceptable.

   b. For factory-applied finish coatings, field-touch-up shall be performed by factory approved personnel for warranties to apply. Touch-up shall be such that repair is not visible from a distance of 6 feet. A touch-up repair kit and touch-up instructions shall be provided to the Owner for each type of factory-applied finish upon request.

B. Cold Galvanizing Paint: Apply galvanizing paint in accordance with manufacturer's recommendations. As a minimum, provide two coats, with a 3 mil minimum total dry film thickness.

END OF SECTION

SECTION 070001

WATERPROOFING, DAMPPROOFING, AND CAULKING

(Filed Sub-Bid Required)

PART 1 – GENERAL

1.01 GENERAL PROVISIONS AND RELATED DOCUMENTS

A. Drawings, Contract Requirements, and the General Requirements (Division 01) of the Contract for Construction are hereby made a part of this Section.

B. Time, Manner, and Requirements for Submitting Sub-Bids:

1. Sub-bids for work under this Section shall be for the complete work and shall be filed in a sealed envelope with the City of Somerville at a time and place as stipulated in the "NOTICE TO CONTRACTORS."

   The following should appear on the upper left hand corner of the envelope:

   NAME OF SUB-BIDDER: (Insert name of sub-bidder.)

   SUB-BID FOR SECTION: 070001 – WATERPROOFING, DAMPPROOFING, AND CAULKING

2. Each sub-bid submitted for work under this Section shall be filed on forms furnished with these Contract Documents.

3. Sub-bids filed with the Owner shall be accompanied by BID BOND or CASH or CERTIFIED CHECK or TREASURER'S CHECK or CASHIER'S CHECK issued by a responsible bank or trust company payable to the City of Somerville in the amount of 5% of the sub-bid. A sub-bid accompanied by any other form of bid deposit than those specified will be rejected.

C. Sub Sub-Bid Requirements: (None required under this Section.)

D. Reference Drawings: The Work of this Filed Sub-Bid is shown on the following Contract Drawings:

G-001	COVER SHEET
G-002	SCOPE OF WORK
PH-100	PROPOSED PHASING PLAN
S-101	UPPER LEVEL TOPSIDE REPAIR PLAN
S-200	EXTERIOR ELEVATION REPAIR PLANS
S-201	INTERIOR ELEVATION REPAIR PLANS
S-500	CONCRETE WATERPROOFING DETAILS
WP-100	PLAZA DEMOLITION PLAN AND DETAILS
WP-200	WATERPROOFING INSTALLATION PLAN AND DETAILS I
WP-201	WATERPROOFING INSTALLATION PLAN AND DETAILS II

1.02 DESCRIPTION OF WORK

A. Work Included: Provide labor, materials, and equipment necessary to complete the work of this Section, including, but not limited to, the following:

1. All Work of Section 071300 – Hot Fluid-Applied Waterproofing.

2. All Work of Section 071816 – Vehicular-Traffic-Bearing Waterproofing.

3. All Work of Section 071900 – Penetrating Sealer.

4. All Work of Section 079200 – Joint Sealants.

5. All Work of Section 079500 – Expansion Joints.

B. Examine all of the Contract Documents, criteria sheets, and all other Sections of the Specifications for requirements that affect work under this Section, whether or not such work is specifically mentioned in this Section.

C. The work under this Contract shall include all labor, materials, tools, equipment, transportation, insurance, temporary protection, supervision, and incidental items essential for proper installation and operation, even though not specifically mentioned or indicated on the Drawings, but that are usually provided or are essential for proper installation and operation, of all systems as indicated on the Drawings and specified herein.

D. Coordinate work with that of all other Trades affecting or affected by the work of this Section. Cooperate with such Trades to ensure the steady progress of all work under the Contract.

PART 2 – PRODUCTS

Not used.

PART 3 – EXECUTION

Not used.

END OF SECTION

SECTION 071300

HOT FLUID-APPLIED RUBBERIZED ASPHALT WATERPROOFING

(Part of Work of Section 070001 – WATERPROOFING, DAMPPROOFING, AND CAULKING, Filed Sub-Bid Required)

PART 1 – GENERAL

1.01 RELATED DOCUMENTS

A. Drawings, Contract Requirements, and the General Requirements (Division 01) of the Contract for Construction are hereby made a part of this Section.

B. Cooperate and coordinate with all other trades in executing the work described in this Section.

C. Maintain a copy of all applicable drawings, including Shop Drawings and Specifications, at the site during all work covered under this Section.

1.02 SCOPE OF WORK

A. Provide all labor, materials, equipment services, and accessories necessary to furnish and install work on this Section, complete and functional as indicated in the Contract Documents and as specified herein.

B. This Section includes the following:

1. Remove the existing asphalt paving, concrete topping slab, drainage board, and existing rubberized asphalt waterproofing system where indicated on the Drawings. At some locations, brick pavers on sand setting bed are installed in lieu of asphalt paving. Prepare the existing concrete deck to receive new waterproofing.

2. Provide a new hot fluid-applied rubberized asphalt waterproofing and flashing system where indicated on the Drawings. Waterproofing system must be installed in accordance with all manufacturer's instructions and guidelines.

3. Provide membrane base flashing at all penetrations, walls, curbs, and other features where indicated on the Drawings.

4. Provide protection board and drainage layer with filter fabric over the new waterproofing membrane.

5. Provide new concrete topping slab sloped to drain, with perimeter edges matching elevation of existing surfaces to remain.

6. Perform water testing of the new waterproofing membrane installation.

7. Provide all necessary permits and fees for this Work, including special permits for kettles and/or melters for the hot-applied rubberized-asphalt waterproofing.

8. Provide police detail as required at no additional cost to the Owner.

1.03 COORDINATION AND RELATED SECTIONS

A. Refer to other Divisions of these Specifications to determine the type and extent of Work therein affecting the Work of this trade whether or not such Work is specifically mentioned in this Section.

B. Coordinate the work of this Section with the work of other trades under this Contract, including, but not limited to:

1. General: Refer to Division 1.

2. Section 033000 – Cast-in-Place Concrete.

3. Section 037320 – Concrete Repair.

4. Section 079200 – Joint Sealants.

5. Section 079500 – Expansion Joints.

1.04 REFERENCED STANDARDS

A. In general, follow all requirements, recommendations, and procedures of the following standards and publications, except where these Contract Documents (Project Specifications and Drawings) are more stringent:

1. Massachusetts State Building Code, current edition.

2. ASTM D5957 – Standard Guide for Flood Testing Horizontal Waterproofing Installations.

1.05 PROJECT CONDITIONS

A. Verify all site dimensions and existing conditions through field measurements, conducting exploratory openings as required.

B. Notify the Engineer immediately of any inconsistencies between the field conditions and those shown in the Contract Drawings. The Engineer will determine what modifications or additional repairs are necessary.

C. Plans and dimensions under which the Work is to be performed are based on the available drawings of the existing conditions and information gathered from localized exploratory openings. Before submitting bid, the Contractor shall visit during a pre-bid conference and carefully examine site to identify existing conditions and difficulties that will affect Work of this Section. No additional compensation of time extension will be made for dimensional errors or discoverable inaccuracies about existing conditions in the Contract Documents.

1.06 QUALITY CONTROL AND QUALITY ASSURANCE

A. Qualifications:

1. The waterproofing system shall be applied by contractors approved and authorized by the membrane manufacturer to perform the Work. Perform all Work with trained and authorized personnel. The Contractor and the Contractor's site superintendent and mechanics shall have a minimum of 5 yrs of experience installing roofing/waterproofing and the successful installation of at least three projects using hot-applied rubberized asphalt in the past 5 yrs.

B. Installation of the waterproofing system including the membrane, membrane flashings, and protection and drainage layers shall be the sole responsibility of a single installer to ensure undivided responsibility.

C. Obtain waterproofing system materials such as membrane and flashing components from the approved waterproofing system manufacturer throughout the Project. Provide other materials and components only as approved by the manufacturer of the primary waterproofing system.

D. Conduct a quality control program that includes the following as a minimum:

1. Inspect conditions and materials to ensure conformity to the Contract requirements and that the materials are new and undamaged.

2. Establish written procedures for executing and testing the Work.

3. Inspect and test substrate conditions and coordinate with the membrane manufacturers' field representatives and the other trades to ensure proper substrate preparation.

4. Perform adhesion testing of the membrane installation to ensure proper adhesion of the waterproofing to the deck. Perform a minimum of three adhesion tests within membrane application area. Notify the Engineer prior to performing the first adhesion test with enough time to allow the Engineer to schedule a site visit. Perform membrane adhesion testing as specified in Para. 3.03 below. Provide field quality-control reports, including photographs for each test performed identifying the area, time, current temperature during membrane installation, and adhesion testing. Clearly describe results for the Engineer's review.

5. Inspect Work in progress to ensure that the Work complies with established procedures.

6. Inspect completed Work and promptly correct defective Work.

E. The installed waterproofing system must qualify for the manufacturer's standard system warranty. Coordinate with the waterproofing system manufacturer and representatives to provide all necessary construction controls to obtain this warranty. This includes coordination with the manufacturer during the development of Shop Drawings and details in advance of the start of construction.

F. Preconstruction Conference: At the preconstruction conference with related Subcontractors, Owner, and the Engineer at the jobsite review and discuss Project conditions as it relates to the integrity of the waterproofing assembly, including:

1. Review membrane detailing, drainage, expansion joints, and condition of other construction that will affect waterproofing.

2. Review regulations, and requirements of Authorities Having Jurisdiction for insurance, certifications, and inspection and testing if applicable.

3. Review temporary protection requirements for waterproofing system during and after installation.

4. Review waterproofing observation and repair procedures after waterproofing installation.

G. Work in conjunction with the other trades employed on the Project by promptly completing the Work of this Section as required to meet the Project schedule and phasing so as not to impede other trades. Coordinate the Work of this Section with other trades so the intent of the Drawings and Specifications is carried out. Coordinate to minimize disruption to the building, and to avoid unnecessary traffic over areas of completed Work.

1.07 WARRANTY

A. Manufacturer's Standard Warranty: Provide manufacturer's standard warranty.

B. Guarantee all Work under this Section in a document stating that if, within 2 yrs after the Date of Substantial Completion of the Work, any of the work of this Section is found to be defective or not in accordance with the Contract Documents, the Contractor shall correct it promptly after receipt of a written notice from the Owner to do so, unless the Owner has previously given the Contractor a written acceptance of such condition. Also, state that the Contractor shall bear all costs incurred by the Owner, including reasonable attorney's fees, to enforce compliance with the obligations of this Guarantee. The obligation of these Guarantees shall run directly to the Owner and may be enforced by the Owner against the Contractor, shall survive the termination of the Contract, and shall not be limited by conditions other than this Contract.

1.08 SUBMITTALS

A. General: Refer to Section 013000 – Submittals.

B. Provide the following submittals to the Engineer for review and approval. Submit all items in time to allow for review and resubmittal, if needed, without delaying the Work. Do not order materials or start Work before receiving the Engineer's written approval of all submittals:

1. Samples and/or manufacturer's literature for all materials specified and proposed for use on this Project, each properly labeled and with clear reference to the relevant specification section/paragraph/item to which they apply.

2. Manufacturer's MSDS sheets for all materials utilized during the Work of this Section.

3. Certifications by the producers of the materials that all materials supplied comply with all the requirements of the appropriate referenced standards (or industry standards met by the specified materials) that all materials are compatible with adjacent materials and that all materials are suitable for their intended purpose.

4. Manufacturer's current installation instructions and written requirements, including instructions for handling, storage, substrate preparation, mix proportions, mixing procedures, placement, and curing the specified/approved materials.

5. Contractor's Qualification:

   a. Submit evidence that the Contractor is approved by the waterproofing system manufacturer to install their system.

6. Complete Shop Drawing details for each flashing condition, assembly, and fabrication required by the Scope of Work. Shop Drawings shall show all components and materials, dimensions, profiles, joints, terminations, and transitions. Provide Shop Drawings of any waterproofing details not explicitly shown or directly inferred from the design details and coordinate the development of shop drawings with the waterproofing manufacturer as required to qualify for standard system warranty.

7. Sample copy of the form for the membrane manufacturer's warranty to be executed upon Substantial Completion of the Project and provide manufacturer's written approval that the proposed system will be eligible for the warranty once installed.

8. Proposed procedures for contractor and manufacturer quality assurance/quality control (QA/QC) for the waterproofing installation.

9. As work progresses, periodically submit records of adhesion test results and thickness test results.

1.09 STORAGE AND HANDLING

A. Store liquid materials in their original undamaged containers in a clean, dry, protected location and within the temperature range required by waterproofing manufacturer.

B. Remove and replace liquid materials that cannot be applied within their stated shelf life.

C. Protect stored materials from direct sunlight.

1.10 FIELD CONDITIONS

A. Weather Limitations: Apply waterproofing within the range of ambient and substrate temperatures recommended by waterproofing manufacturer.

1. Do not apply waterproofing in snow, rain, fog, or mist.

B. Maintain adequate ventilation during application and curing of waterproofing materials.

PART 2 – PRODUCTS

2.01 GENERAL

A. Provide hot fluid-applied waterproofing materials (does not include expansion joint or sealant products) from same manufacturer throughout Project.

B. Materials are specified for performance and the basis of design for this Project. Materials from other manufacturers, not listed below, will not be accepted unless first discussed with the Owner and the Engineer. If approved, the Contract or is responsible for providing sufficient material and documentation to show the proposed alternate materials meet the same performance requirements and have the same established track record as the specified products.

2.02 HOT-APPLIED RUBBERIZED-ASPHALT MATERIALS

A. Hot-Applied Rubberized Asphalt: Provide a fully reinforced hot fluid-applied waterproofing system, including protection and drainage layers from a single manufacturer to ensure system compatibility and single-source responsibility. Approved systems include:

1. American HydroTech, Inc. Monolithic Membrane 6125-FR (basis-of-design).

2. Carlisle Coating and Waterproofing Inc., CCW-500R.

3. Tremco Commercial Sealants and Waterproofing, Tremproof 6145 Waterproofing Membrane.

B. Components specified herein are based on the polyester-reinforced two-ply Monolithic Membrane 6125-FR (MM6125) by American Hydrotech, Inc., with an average thickness of 215 mils, excluding protection board. All deviations from approved system components listed below requires written manufacturer approval of proposed deviation be submitted to the Engineer for consideration.

1. Primer: Water-based, No-VOC Surface Conditioner by American Hydrotech, Inc.

2. Membrane: Single Component, 100% Solids, Hot Fluid-Applied, Rubberized Asphalt Fabric Reinforced Roofing Membrane 215 mil thick with 25% postconsumer recycled content by American Hydrotech, Inc.

3. Fabric Reinforcing: Polyester fabric reinforcing sheet, Flex Flash F by American Hydrotech, Inc.

4. Membrane Reinforcing: 60 mil thick uncured neoprene flashing, Flex Flash UN by American Hydrotech, Inc.; install on all vertical surfaces, transitions, inside and outside corners, around drains, penetrations, and at cracks. Fabric reinforcing may be used in lieu of membrane reinforcing where approved for use by system manufacturer and substitution is submitted to the Engineer for review and approval.

5. Contact Adhesive: Bonding Adhesive by American Hydrotech, Inc.

6. Membrane Protection Layer: Fiberglass-reinforced rubberized-asphalt sheet, Hydroflex 30 by American Hydrotech, Inc.

7. Drainage Board: Dimpled sheet drainage composite, HydroDrain 990 (21,000 psf compressive strength) with fabric facer by American Hydrotech, Inc.

C. Termination Bar: Predrilled, stainless-steel termination bars, approximately 1 by 1/8 in. (25 by 3 mm) thick, with required stainless-steel anchors at 6 in. o.c.

D. Termination Bar Fasteners: 1/4 in. x 1-3/4 in. nylon expansion anchors with stainless steel pins; Zamac Nailins by Powers Rawl.

PART 3 – EXECUTION

3.01 EXAMINATION

A. Examine all surfaces to receive membrane and flashing for roughness, contaminants, unsound structural substrates, or other conditions that may impair the membrane application. Notify the Engineer in writing of any such conditions; do not commence Work until all defects are remedied. Commencement of all work shall indicate that the Contractor has reviewed and accepts the conditions of all substrates.

B. Verify any and all concrete repairs are fully cured and dried prior to hot-rubberized-asphalt membrane installation.

C. Verify that concrete surface is dry prior to hot-rubberized asphalt membrane installation. Membrane blistering will require repair or replacement as directed by the Engineer.

3.02 GENERAL PROCEDURES

A. Membrane substrates must be dry, clean, smooth, and free of depressions, voids, and protrusions. Do not work in rain, snow, winds gusting over 30 mph, temperatures below 40°F, or in the presence of any water. Comply with applicable recommendations by manufacturers of all materials for workmanship and handling, except as modified in this Section.

B. Prepare the rubberized asphalt in a double-jacketed oil bath or air-jacketed melter with mechanical agitation, specifically designed for the preparation of rubberized-asphalt membrane. Heat the membrane to the temperature range recommended by the manufacturer. Place oil bath or melter in a well-ventilated area, away from windows, doors, intake vents, etc., where approved by the Owner. Locate melting equipment only in locations approved by the Owner in advance.

C. Provide a fume-recovery hood on the melting equipment for the hot-rubberized asphalt to capture fumes and prevent them from escaping into nearby areas. Fume-recovery hood shall be an effective, commercially available hood designed for the size and type of asphalt-heating equipment in use and recommended by the manufacturer of the asphalt-heating equipment and the manufacturer of the hot-applied rubberized-asphalt system. Operate the fume-recovery hood at all times that the melter is in use and as necessary to prevent fumes from escaping into adjacent areas.

D. Complete the entire waterproofing assembly, including surfacing and flashing, in a given area each working day; do not phase Work in daily work area. Proceed with flashing Work concurrently with membrane installation to prevent water entry at flashing locations.

E. Components of the membrane system may be toxic and flammable. Heed all manufacturer's cautions and warnings regarding their use. Take proper precautions.

3.03 FIELD QUALITY CONTROL

A. Adhesion Testing: When rubber is cool, perform manual adhesion (pull-tab) testing of hot fluid-applied rubberized-asphalt waterproofing membrane. Repair waterproofing membrane after adhesion test is complete.

1. Testing Procedure:

a. Create a minimum of one test cut (pull-tab) at each application area of new hot rubber, on both the horizontal and vertical surfaces. A minimum of four total adhesion tests are required.

b. Using a utility knife, create a three-sided rectangular cut through the membrane system. Begin with a 2 in. horizontal cut followed by two vertical (downward) 4 in. cuts beginning at each end of the horizontal cut. Ensure that the tool is sharp such that it cuts and does not tear the membrane during preparation.

c. Using a scraper or five-in-one tool, separate the top (horizontal), cut from the substrate forming a 1 in. membrane "tab."

d. Manually grip the tab horizontally with even force and hold at 90° to the surface.

e. Manually pull the tab at 90° to the face of the substrate gradually until failure occurs.

2. Determining Test Results: Notwithstanding the basis-of-design manufacturer's less-stringent adhesion requirements, the following shall govern for this Project:

   a. If a cohesive failure (within the rubberized-asphalt membrane) is the predominant mode of failure, the test area is acceptable (pass).

   b. If an adhesive failure (bond to substrate) and/or interlayer failure (between membrane layers) is the predominant mode of failure, the test area is not acceptable (fail).

   c. The Engineer shall have final say whether test results are acceptable.

3. Passing Tests: If a test area is determined to be acceptable, proceed as follows:

   a. Repair membrane at test area and proceed with installation.

4. Testing Failures: If a test area is determined to be a failure, proceed as follows:

   a. Immediately contact the Owner and the Engineer.

   b. With a representative from the manufacturer, the Contractor, the Owner, and the Engineer present, perform two more tests spaced evenly within the boundaries of the failed hot-rubber-application area to determine the extent of material that is not properly adhered.

   c. Remove all unadhered waterproofing materials within the adhesion-failure or interlayer-failure area, clean and prime the substrate, then apply a minimum 12 in. x 12 in. "test" area of hot rubber to the substrate. When test area has cooled, perform a pull test as outlined under Para. 3.3.A.2. Repeat this substrate preparation and adhesion testing process as many times as necessary to demonstrate that the rubberized asphalt application is achieving adequate adhesion to the substrate; repeat this process as many times as necessary at no additional cost to the Owner until adhesion testing has passed. When adhesion testing has passed, prepare the substrate and material(s) in the same manner used for the passing test to complete the installation at the repair area.

3.04 WATERPROOFING SUBSTRATE PREPARATION

A. Remove existing waterproofing membrane, including residue, to existing concrete substrate. Prepare concrete substrate to CSP 3-5 or as recommended by the manufacturer of the materials being applied, except as modified in this Section.

B. Obtain the Engineer's approval for all cast-in-place concrete Work prior to starting any waterproofing Work.

C. Thoroughly clean dirt and debris from the substrate using a broom or vacuum. Use a stiff bristle brush and water to scrub dirt from the substructure as necessary and allow

substrates to dry thoroughly. If necessary, dry deck by artificial means approved in advance by the Engineer. Use electric dryers, portable blowers, or compressed air, but no open-flame dryers. As a final step, remove any remaining loose debris by cleaning the concrete substrate using an air compressor.

D. The concrete substrate must be sufficiently dry prior to installing waterproofing primer or membrane. Reliable information does not exist in the industry to predict the required drying time, or to accurately measure the moisture content and determine whether it is acceptable for waterproofing installation. Therefore, the following performance criteria will be used on this Project: The substrate must be sufficiently dry to avoid causing blistering of the membrane. The Contractor shall prepare mockups and check them for blistering as the means of determining whether the substrate is sufficiently dry to proceed with the installation. The following steps are suggested as a guide for the Contractor to evaluate when conditions are likely to be favorable for installing a mockup:

1. Confirm the near-surface moisture content of the concrete at the beginning and throughout the installation and in accordance with ASTM D4263. The moisture content will likely need to be less than 5% as measured with a Tramex Concrete Encounter moisture meter. Confirm the waterproofing manufacturer's requirements and comply with them.

2. Conduct the "plastic sheet test" (ASTM D4263) or "rubber mat test" to check for moisture actively evaporating from the substrate, particularly in sunny conditions.

E. Inspect the condition of the waterproofing and flashing substrates. Report any unusual condition (such as unsound concrete) to the Engineer promptly and stop Work so as not to cover damaged areas. The Engineer will determine the nature of repairs to be made to damaged substrates. Do not install the waterproofing until the concrete has cured for a minimum of fourteen days without written approval from the waterproofing manufacturer. Do not use any liquid-membrane curing compounds without written approval from the Engineer and waterproofing membrane manufacturer.

F. After thoroughly cleaning the substrate and successfully completing any manufacturer-required moisture tests, apply a test patch of the waterproofing membrane to the surface of the concrete deck. Obtain written approval from the Engineer of the adhesion of the test patch to the substrate prior to proceeding with installation of the membrane over the field of the substrate.

G. Maintain records of adhesion test results on site, available for review by the Engineer during site visits, and submit results periodically for record.

H. Apply surface conditioner to the structural concrete/concrete repairs using a handheld sprayer evenly at a rate of 300 sq ft to 600 sq ft per gallon depending on surface texture. Surface conditioner shall "tan" the surface, not blacken it. Allow 24 hrs for the surface conditioner to thoroughly dry prior to membrane application.

3.05 HOT-APPLIED RUBBERIZED-ASPHALT GENERAL INSTALLATION

A. Horizontal Surfaces: Apply membrane to 90 mils thickness, set reinforcing fabric (spunbound polyester) with minimum 1 in. to 2 in. overlap with membrane between layers in all horizontal surfaces, immediately apply an additional layer of 125 mils; membrane over reinforcing fabric to total average dry film thickness of 215 mils. Install separate protection sheet immediately while membrane is still hot with 2 in. to 3 in. overlap. This membrane/protection assembly must be covered with subsequent topping materials as soon as possible, within thirty days of membrane application. Do not install protection layer in a 1 ft x 1 ft area to perform adhesion testing of membrane application. Patch protection layer as required by manufacturer following successful membrane adhesion testing.

B. Install the protection board on all horizontal and vertical surfaces while the rubberized asphalt is still hot. Cut and fit the protection board around all penetrations and obstructions.

3.06 HOT-APPLIED RUBBERIZED-ASPHALT FLASHING INSTALLATION

A. Detail all penetrations, transitions, terminations, etc., as required herein and as shown on the Drawings prior to installing the membrane over the field of the substrate.

B. Flashing at Base of Rising Walls: Pretreat the corner at the base of the wall by applying a 90 mil base coat of rubberized asphalt, reinforcing fabric and 125 mil top coat of rubberized asphalt, extending 3 in. up the vertical walls and 3 in. onto the horizontal surface unless otherwise shown on the Drawings. Adhere membrane base flashing in hot-rubberized asphalt 3 in. onto horizontal surface and minimum of 8 in. up vertical wall or as shown on the Drawings. Where membrane base flashing is installed in hot-rubberized asphalt, lap adjacent pieces a minimum of 6 in. and ensure that all transverse seams are fully sealed watertight with hot-rubberized asphalt. Fasten membrane base flashing to the vertical walls using the specified termination bar fastened at 6 in. o.c. Proceed with the application of the rubberized asphalt in the field. Lap the base and top coats of rubberized asphalt and reinforcing fabric onto the membrane flashing to the base of the wall.

C. Crack Pretreatment:

1. All Visible Cracks Less Than 1/4 in. Wide: Apply an adhesion coat of rubberized asphalt extending 4 in. on each side of the crack. Set a 6 in. wide piece of Flex Flash UN membrane flashing into the hot rubberized asphalt, centered over the crack. Proceed with the application of the rubberized asphalt in the field; apply rubberized asphalt and reinforcing fabric over membrane flashing.

2. Cracks 1/16 in. Wide or Greater: Notify Engineer immediately upon discovering cracks in concrete deck greater than 1/16 in. in width.

3.07 PLAZA DRAINS

A. Set Flex Flash UN membrane flashing around new bi-level drain bowl extending minimum 6 in. each direction from edge of drain bowl in 90 mils of hot-rubberized

asphalt. Proceed with application of rubberized asphalt in the field; apply rubberized asphalt and reinforcing fabric over membrane flashing. Do not allow rubberized asphalt to flow into drain pipe.

3.08 THICKNESS MEASUREMENTS

A. Measure the total thickness (base coat and top coat) of completed sections of the waterproofing membrane during installation, before installing the protection layer. Take and record at least three thickness measurements for each day's work area. Provide additional hot-rubberized asphalt as required to maintain minimum system thickness throughout work area. Maintain records of thickness test results on site, available for review by the Engineer during site visits, and submit results periodically for record.

B. If thickness measurements indicate that the membrane is being applied at less than the specified thickness, increase the frequency of the thickness measurements to not less than one test per 10 sq ft until the application problems have been corrected.

C. Repair any areas of thickness measurement testing either by the Contractor or the Engineer at no additional cost to the Owner.

D. Provide documentation of the thickness measurements to the Engineer for review. Record measurement date, location, and thickness on a parking deck plan to be submitted to the Engineer.

E. Submit records of the amount of hot-applied rubberized asphalt applied in the work area each week as well as the size of the work area to the Engineer for approval each week.

F. Do not proceed with subsequent layers of the waterproofing system and paving if the minimum membrane thickness requirements are not met. Obtain written approval of the thickness measurements for each area before installing subsequent layers of the waterproofing system. Any areas covered with subsequent layers prior to receiving approval are subject to rejection.

3.09 CLEANUP

A. At the end of each workday, collect all debris, trash, etc., and place in a suitable container.

B. Do not store full trash containers on the site.

C. Do not overload the structural deck with trash containers.

D. Keep the Work areas neat and clean. Do not allow debris or construction materials to blow around or off the site.

E. Promptly remove from the site all used brushed and rollers at the end of each day. Do not place used mops in trash containers.

END OF SECTION 071300

SECTION 071816

VEHICULAR-TRAFFIC-BEARING WATERPROOFING

(Part of Work of Section 070001 – WATERPROOFING, DAMPPROOFING, AND CAULKING, Filed Sub-Bid Required)

PART 1 – GENERAL

1.01 GENERAL REQUIREMENTS

A. Drawings, Contract Requirements, and the General Requirements (Division 01) of the Contract for Construction are hereby made a part of this Section.

1.02 SCOPE OF WORK

A. The Work under this Section includes furnishing all labor, materials, equipment, and supervision to accomplish the following waterproofing work in accordance with the Drawings and Specifications. The Work under this Section includes, but is not limited to, the following:

1. Remove existing coating, prepare surfaces and install vehicular-traffic-bearing waterproofing at the crossover areas at the elevated deck as shown on the Drawings.

1.03 RELATED WORK

A. Specification Sections that directly relate to the Work of this Section include, but are not limited to, the following:

1. Section 037320 – Concrete Repair.

2. Section 079200 – Joint Sealants.

1.04 SUBMITTALS

A. Provide the following submittals with the Bid Proposal:

1. A list of similar garages in which the Contractor has successfully installed vehicular-traffic-bearing waterproofing.

B. Provide the following submittals to the Engineer for approval sufficiently in advance of construction to allow ample time for checking, resubmittal, and rechecking:

1. Samples of or manufacturer's product data sheets for all materials specified or needed, each properly labeled.

2. Proposed method of removing the existing traffic-deck-coating system.

3. Method of surface preparation for application of the traffic-bearing waterproofing.

4. 6 in. by 6 in. sample of the waterproofing systems on plywood, for thickness, composition, color, and texture.

5. Manufacturer's written instructions regarding surface preparation and installation of waterproofing materials and systems.

6. Construction schedule and phase plan showing proposed work areas, sequence of the Work, and coordination with traffic flow in the garage.

1.05 QUALITY CONTROL AND QUALITY ASSURANCE

A. The Contractor shall conduct a quality control program that includes, but is not limited to, the following:

1. Inspection of all materials to ensure conformity to Contract requirements and that all materials are new and undamaged.

2. Establishment of procedures for executing the Work.

3. Inspection of all surface preparation prior to material application.

4. Inspection of work in progress to ensure that work is being done in accordance with established procedures and manufacturer's instructions.

5. Inspection of all work completed and correction of all defective work.

B. Qualifications:

1. The vehicular-traffic-bearing waterproofing applicator shall have a minimum of 5 yrs of experience in the application of waterproofing systems similar to those specified in this section.

2. The Contractor's site superintendent shall have at least 5 yrs of experience supervising the installation of vehicular-traffic-bearing waterproofing.

C. Preinstallation Conference:

1. Attend a preinstallation conference to be held with a representative of the Construction Manager, the Engineer, the Contractor's field superintendent, the foreman, and other trades involved to discuss the conduct of the Work of this Section.

D. Field Samples:

1. Vehicular-Traffic-Bearing Waterproofing:

a. Install a sample of the vehicular-traffic-bearing waterproofing at the Project site. The sample shall be a minimum of 25 sq ft and shall be representative of the installed system. The Engineer shall select the sample location. The Owner shall approve the sample, and when approved, it will be the standard of quality for the Work.

b. The Engineer will perform bond testing on the cured test sample as per ASTM D4541 – Standard Test Method for Pull-Off Strengths of Coatings Using Portable Adhesion Testers. The Contractor will provide assistance to perform bond testing, including, but not limited to, partial-depth topside coring.

2. Adhesion Testing:

a. The minimum required bond strength of new waterproofing coating to the concrete deck or existing coating shall be per the adhesion requirements of the manufacturer, or 200 psi, whichever is greater.

b. Perform three adhesion tests at the mockup location to confirm that the bond of the new waterproofing coating to the concrete deck is acceptable. Provide alternate means of surface preparation, priming, and coating application and install additional field mockups, if required, to meet the adhesion requirements.

1.06 GUARANTEE

A. Guarantee all Work under this Section in a document stating that if, within 5 yrs after the Date of Substantial Completion of the Work, any of the Work of this Section is found to be defective or not in accordance with the Contract Documents, the Contractor shall correct it promptly after receipt of a written notice from the Owner to do so, unless the Owner has previously given the Contractor a written acceptance of such condition. Also, the Contractor shall bear all costs incurred by the Owner, including reasonable attorney's fees, to enforce compliance with the obligations of this Guarantee. The obligation of these Guarantees shall run directly to the Owner, may be enforced by the Owner against the Contractor, shall survive the termination of the Contract, and shall not be limited by conditions other than this Contract.

1. Defects to be covered under the vehicular-traffic-bearing waterproofing guarantee shall include, but not be limited to, debonding, reflective cracking at cracks and joints, and premature wear (exposure of the base coat prior to the end of the guarantee period).

1.07 WARRANTY

A. Provide a 5 yr manufacturer's warranty for the vehicular-traffic-bearing waterproofing.

1. Defects to be covered under the vehicular-traffic-bearing waterproofing warranty shall include, but not be limited to, debonding, reflective cracking at cracks and joints, or premature wear (exposure of the base coat prior to the end of the guarantee period).

2. The vehicular-traffic-bearing waterproofing systems specified herein are minimum required systems expected to achieve a minimum service life of 5 yrs without debonding, reflective cracking at cracks and joints, or premature wear. The manufacturer shall visit the parking garage during the Bid period as required to become familiar with the structural system and the types and frequency of vehicles. The manufacturer shall identify modifications, if any, to

the specified systems necessary to achieve the 5 yr warranty. The Contractor shall include the cost of required system modifications in the Bid.

B. Include a manufacturer's Maintenance Manual specifically prepared for this Project and coordinated with warranty requirements (two copies). Include, as a minimum, procedures for monitoring performance and instructions for general maintenance.

1.08 TECHNICAL SUPPORT

A. The Contractor shall arrange with the materials' manufacturer or distributor to have the services of a competent field representative at the work site prior to any mixing of components to instruct the work crews in the proper mixing and application procedures. The representative shall remain at the jobsite after work commences and continue to instruct until the representative, the Contractor, and the Engineer are satisfied that the crew has mastered the technique of installing the systems successfully.

1. The manufacturer's field representative must be fully qualified to perform the Work and shall be subject to the approval of the Owner.

2. The Contractor shall be completely responsible for the expense of the services of the required manufacturer's field representative, and the Contract Price shall include full compensation for all costs in connection therewith.

3. The Contractor shall contact the manufacturer of the traffic-bearing waterproofing system and confirm that the primers and coating system that will come into contact with the flexible conduits and wiring associated with the mechanical equipment is compatible with and will adhere to the surface of the flexible conduits without causing degradation.

1.09 GENERAL PROCEDURES

A. Remove all tools, buckets, and materials from work areas and store neatly at a central location daily at the end of work. Move equipment and storage areas as work progresses to avoid abuse of new work.

B. Do not stockpile materials, debris, or equipment on parking deck.

C. Construction loads on unshored portions of the structure before the start of demolition and after completion of repairs shall not exceed the design loads shown on the Design Drawings for the original construction.

D. Construction loads shall not exceed the design loads shown on the Design Drawings for the original construction.

E. Deliver all materials to the jobsite in sealed, undamaged containers properly labeled with product descriptions, including date of manufacture, lot number, and shelf life.

F. Comply with all recommendations of the material manufacturers for storage and handling of materials. Store materials on pallets. Store liquids at 75°F for at least 24 hrs before application. Handle materials so as to prevent damage.

G. Protect the parking garage and its contents from all risks associated with the Work in this Section. Schedule and execute all work without exposing adjacent building areas or construction phases outside the current work zone to water, dust, debris, or materials used by this Contractor. Protect adjacent areas from damage and stains with appropriate barriers and masking. Repair all damage as a result of the Work of this Section to its condition at the start of work or, if such cannot be determined, to its original condition. Clean all stains by approved means.

H. Materials may be skin irritants or sensitizers. Accordingly, advise applicator to avoid contact with eyes and skin, inhalation of vapors, and ingestion. Use protective and safety equipment on site. Heed all label warnings by manufacturers. Make application in accordance with applicable safety laws.

I. Compliance with OSHA and other safety laws and regulations is the exclusive responsibility of the Contractor, its subcontractor(s), suppliers, consultants, and servants.

1.10 BASIS OF PAYMENT

A. See Form for General Bid.

PART 2 – PRODUCTS

2.01 MATERIALS

A. General: Materials and manufacturers specified below for accessory items are generally referred to for identification; products of other manufacturers meeting the requirements itemized below may be submitted for approval. Check availability of all specified items upon Contract signing and order early so that the Work is not delayed. Check the requirements of the manufacturer to be certain they are met by the job conditions to be qualified for warranty.

B. Vehicular-Traffic-Bearing Waterproofing: The following waterproofing systems represent the minimum requirements. Prior to bidding, the manufacturer shall visit the site to inspect the decks and observe vehicle traffic to decide whether the specified minimum systems are sufficient to obtain the guarantee and warranties identified in Paras. 1.06 and 1.07 of this Section. Identify with the Bid modifications, if any, that are required to these systems to obtain the specified guarantee and warranties. Color as selected by the Owner from manufacturer's standards.

C. Vehicular-Traffic-Bearing Waterproofing (Full System for Heavy-Duty Traffic System):

1. MasterSeal Traffic 2500 by BASF, high-solids polyurethane system at 60 mils total system exclusive of primer and aggregate.

a. Color as selected by the Owner from manufacturer's standards.

b. Primer: MasterSeal P 255. To yield 5 to 8 wet mils.

c. Liquid Flashing: Self-flashing elastomeric base coat as specified by the system manufacturer.

(1) Apply detail coat over all repaired cracks, joints, and concrete patching material a minimum distance of 3 in. on each side to yield a total thickness of 30 dry mils using BASF MasterSeal M 265 series polyurethane coating.

d. Surfacing aggregate for vehicular traffic areas, including parking areas:

(1) MasterSeal 941.

(2) 16-30 mesh, rounded silica sand.

e. Base Coat: MasterSeal M 265. To yield 25 wet mils.

f. Wear Coat: MasterSeal TC 275. To yield 15 wet mils.

g. Top Coat: MasterSeal TC 295. To yield 20 wet mils.

2. Alternate Vehicular-Traffic-Bearing Waterproofing Systems:

a. Auto-Guard FC by Neogard. Heavy Duty Vehicular Traffic System with Neogard FC7540/FC7964 as a top coat (Exterior Applications). 52 mils total system exclusive of primer and aggregate.

b. Sikalastic 720/745 Traffic System by Sika Corporation. Heavy Duty Vehicular Traffic System with Sikalastic 745 AL as a top coat (Exterior Applications). 55 mils total system exclusive of primer and aggregate.

PART 3 – EXECUTION

3.01 EXAMINATION OF AREAS TO RECEIVE WATERPROOFING

A. The Contractor is responsible for inspecting all concrete surfaces to receive waterproofing and for identifying all cracks and joints to be sealed prior to installation of the waterproofing system. Refer to Para. 3.03 for surface preparation requirements.

3.02 GENERAL WORKMANSHIP

A. Comply with all recommendations of the manufacturer of the system for storage and handling of materials.

B. Do not permit open flame and smoking materials to be used inside the parking garage.

C. Use containers to hold or transport coatings, primers, or sealants that are clean and in good condition.

D. Do not dilute primers, cements, adhesives, coatings, or sealants. Keep containers closed except when removing materials from them. Do not allow contact between

various materials through mixing or remains, or dual use of transporting or application equipment. Do not use equipment with remains of previous materials.

E. Do not apply materials until the concrete and air temperatures are above 50°F. Temperatures must remain above 50°F during curing.

F. Materials may be skin irritants or sensitizers. Accordingly, advise applicator to avoid contact with eyes and skin, inhalation of vapors, and ingestion. Use protective and safety equipment on site. Heed all label warnings by manufacturers. Make application in accordance with applicable safety laws.

G. Compliance with OSHA and other safety laws and regulations is the exclusive responsibility of the Contractor and its subcontractor(s), suppliers, consultants, and servants.

3.03 SURFACE PREPARATION

A. Clean all surfaces to receive traffic-bearing waterproofing. Remove all grease, oil, and other deleterious material in accordance with the traffic-bearing waterproofing manufacturer's written recommendations.

1. All metal surfaces to receive waterproofing shall be free of rust, loose or flaking paint, and other surface contaminants. Follow the system manufacturer's written recommendations for preparation of metal surfaces.

B. Shot blast all surfaces to receive vehicular-traffic-bearing waterproofing.

C. Cracks and Cold Joints:

1. Visible hairline cracks (less than 1/16 in. in width) in concrete and cold joints shall be cleaned, primed as required, and treated with the base coat material a minimum distance of 3 in. on each side of crack to yield a total thickness of 30 dry mils, or as recommended by the manufacturer.

2. Large cracks (greater than 1/16 in. in width) shall be routed and sealed. Sealant shall be applied to inside area of crack only, not applied to deck surface. Detail sealed cracks with the base coat material a distance of 3 in. on each side of crack to yield a total thickness of 30 dry mils, or as recommended by the manufacturer.

3.04 FLASHINGS

A. Provide fluid-applied integral flashings at all locations where a horizontal surface abuts a vertical surface and at all deck penetrations. Fluid-applied flashings shall be installed at a wet-film thickness of 25 mils minimum, or as recommended by the manufacturer. Use non-flowing-type coating.

B. At projections through deck coatings where the projections are structurally and rigidly connected to the substrate, such as pipes, rigidly connected wall/slab intersections, and similar such connected items having very limited movement, provide a 1/2 in. bead

of sealant, or as recommended by the manufacturer. Tool sealant to form a cove and allow to cure before flashing.

C. At locations of potential high movement, such as wall/slab intersections that are not structurally and rigidly connected, provide 10 in. minimum width of sheet flashing or one layer of uncoated woven fiberglass cloth embedded in nonflow base coat, or as recommended by the manufacturer. Where sheet flashings are used, they shall be free or unbonded to the substrate within 2 in. vertically and horizontally from meeting angle, but shall be fully bonded for not less than 2 in. on vertical surface and 4 in. on horizontal surface, or as recommended by the manufacturer. Do not use precured sheet flashings over expansion joints in horizontal surfaces.

D. Prepare shop drawings for all flashings and sealant joints, including plans showing location and extent; details showing exact profile, lengths, joints, terminations, intersections; and methods of attachment.

3.05 VEHICULAR-TRAFFIC-BEARING WATERPROOFING APPLICATION

A. Prior to commencement of the vehicular-traffic-bearing waterproofing application, the manufacturer and installer of the vehicular-traffic-bearing waterproofing shall check surface and moisture content of concrete to verify that they are suitable for vehicular-traffic-bearing waterproofing application. Advise the Engineer, in writing, that surfaces are suitable for vehicular-traffic-bearing waterproofing application.

B. Install heavy-duty vehicular-traffic-bearing waterproofing by the Broadcast-and-Backroll method. The waterproofing system components shall yield 60 wet mils, minimum, exclusive of primer and aggregate:

1. Primer: Where required, apply primer to all concrete and metal surfaces in strict accordance with application rates and procedures outlined by manufacturer to yield their specified wet mils for the waterproofing system. Apply base coat within 12 hrs of application of primer. Reprime if base coat cannot be applied within 12 hrs.

2. Base Coat: Apply base coat material at the rates recommended by the manufacturer to yield their specified wet mils for the waterproofing system. Extend base coat over cracks and control joints that have received detail treatment.

3. Wear Coat: Apply wear coat material at the rates recommended by the manufacturer to yield their specified wet mils for the waterproofing system, and immediately broadcast aggregate, evenly distributed, into wet coating to point of rejection at a rate recommended by the manufacturer of the waterproofing system. When dry, remove excess aggregate.

4. Top Coat: Apply top coat material at the rates recommended by the manufacturer to yield their specified wet mils for the waterproofing system.

3.06 CLEANING

A. Remove debris resulting from completion of coating operation from the Project site.

B. Refer to manufacturer's written maintenance recommendations for typical cleaning methods.

3.07 PROTECTION

A. After completion of application, do not allow vehicular traffic on coated surfaces for a period of at least 24 to 48 hrs at 75°F and 50% RH, or until completely cured.

END OF SECTION

SECTION 071900

PENETRATING SEALER

(Part of Work of Section 070001 – WATERPROOFING, DAMPPROOFING, AND CAULKING, Filed Sub-Bid Required)

PART 1 – GENERAL

1.01 GENERAL REQUIREMENTS

A. Drawings, Contract Requirements, and the General Requirements (Division 01) of the Contract for Construction are hereby made a part of this Section.

1.02 SCOPE OF WORK

A. The Work under this Section includes furnishing all labor, materials, equipment, and supervision to accomplish the following penetrating sealer work in accordance with the Drawings and Specifications. The Work under this Section includes, but is not limited to:

1. Prepare surfaces and install a penetrating sealer at the topside of the Upper Level.

1.03 RELATED WORK

A. Specification Sections that directly relate to the Work of this Section include, but are not limited to, the following:

1. Section 037320 – Concrete Repair.
2. Section 071816 – Vehicular-Traffic-Bearing Waterproofing.
3. Section 079200 – Joint Sealants.
4. Section 079500 – Expansion Joints.
5. Section 220001 – Plumbing.

1.04 SUBMITTALS

A. Provide the following submittals with the Bid Proposal:

1. A list of similar garages in which the Contractor has successfully installed penetrating sealer. Include the name and telephone number of references familiar with each project.

B. Provide the following submittals sufficiently in advance of construction to allow ample time for checking, resubmittal, and rechecking:

1. Samples of all materials specified or needed, each properly labeled.

2. Material data sheet.

3. Method of surface preparation for application of silane sealer.

1.05 QUALITY CONTROL AND QUALITY ASSURANCE

A. The Contractor shall conduct a quality control program that includes, but is not limited to, the following:

1. Inspection of all materials to ensure that they conform to Contract Requirements and that all materials are new and undamaged.

2. Establishment of procedures for executing the Work.

3. Inspecting all surface preparation prior to material application.

4. Inspection of work in progress to ensure that work is being done in accordance with established procedures and manufacturer's instructions.

5. Inspection of all work completed and correction of all defective work.

B. Qualifications:

1. The sealer applicator shall be licensed by the manufacturer of the products to be used on the Project with a minimum of 5 yrs of experience in the application of the product system.

2. The Contractor's site superintendent shall have at least 5 yrs of experience supervising the installation of penetrating sealer.

C. Preinstallation Conference:

1. Attend a preinstallation conference to be held with a representative of the Construction Manager, Engineer, Contractor's field superintendent, foreman, and other trades involved to discuss the conduct of the Work of this Section.

1.06 GUARANTEE

A. Guarantee all Work under this Section in a document stating that if, within 5 yrs after the Date of Substantial Completion of the Work, any of the Work of this Section is found to be defective or not in accordance with the Contract Documents, the Contractor shall correct it promptly after receipt of a written notice from Owner to do so, unless the Owner has previously given the Contractor a written acceptance of such condition. Also, state that the Contractor shall bear all costs incurred by the Owner, including reasonable attorney's fees, to enforce compliance with the obligations of this Guarantee. The obligation of these Guarantees shall run directly to the Owner and may be enforced by the Owner against the Contractor, shall survive the termination of the Contract, shall not be limited by conditions other than this Contract, and shall be assignable by the Owner to a Buyer of the property.

1.07 WARRANTY

A. Provide a 5 yr manufacturer's warranty, the form of which is equivalent to the special warranty published and provided by the manufacturer named in this Specification at the date of this Contract. The Owner shall be the sole judge of equivalency, without recourse by the Contractor, of any unnamed manufacturer.

B. Include a manufacturer's maintenance manual specifically prepared for this Project and coordinated with warranty requirements (two copies). Include, as a minimum, procedures for monitoring performance and instructions for general maintenance.

1.08 TECHNICAL SUPPORT

A. The Contractor shall arrange with the materials' manufacturer or distributor to have the services of a competent field representative at the worksite, prior to any mixing of components, to instruct the work crews in the proper mixing and application procedures. The representative shall remain at the jobsite after work commences and continue to instruct until the representative, the Contractor, and the Engineer are satisfied that the crew has mastered the technique of installing the systems successfully.

1. The manufacturer's field representative must be fully qualified to perform the Work and shall be subject to the approval of Owner.

2. The Contractor shall be completely responsible for the expense of the services of the required manufacturer's field representative, and the Contract price shall include full compensation for all costs in connection therewith.

1.09 GENERAL PROCEDURES

A. Remove all tools, buckets, and materials from work areas and store neatly at a central location daily at the end of work. Move equipment and storage areas as work progresses to avoid abuse of new work.

B. Do not stockpile materials, debris, or equipment on parking deck.

C. Deliver all materials to the jobsite in sealed, undamaged containers properly labeled with product descriptions, including date of manufacture, lot number, and shelf life.

D. Comply with all recommendations of the material manufacturers for storage and handling of materials. Store materials on pallets. Store liquids at 75°F for at least 24 hrs before application. Handle materials to prevent damage.

E. Protect the parking garage and its contents from all risks associated with the Work in this Section. Schedule and execute all work without exposing adjacent building areas or construction phases outside the current work zone to water, dust, debris, or materials used by this Contractor. Protect adjacent areas from damage and stains with appropriate barriers and masking. Repair all damage as a result of the Work of this Section to its condition at the start of work or, if such cannot be determined, to its original condition. Clean all stains by approved means.

F. Protect the Work from damage such as impact, marring of the surfaces, and other damage.

1.10 BASIS OF PAYMENT

A. See Form for General Bid.

PART 2 – PRODUCTS

2.01 MATERIALS

A. Materials and manufacturers specified below for accessory items are generally referred to for identification; products of other manufacturers meeting the requirements itemized below may be submitted for approval. Check availability of all specified items upon Contract signing, and order early so that the Work is not delayed. Check the requirements of the manufacturer to be certain that they are met by the job conditions to be qualified for warranty.

B. Penetrating Concrete Sealer Waterproofing: Hydrophobic silane sealer, 100% solids.

1. MasterProtect H 1000 by BASF Construction Chemicals, Beachwood, Ohio.

2. Sikagard 705L by Sika Corporation, Lyndhurst, New Jersey.

3. Baracade Silane 100 C by Euclid Chemical Company, Cleveland, Ohio.

PART 3 – EXECUTION

3.01 GENERAL WORKMANSHIP

A. The Application Contractor shall be licensed by the manufacturer of the waterproofing system.

B. Comply with all recommendations of the manufacturer of the system for storage and handling of materials.

C. Do not permit open flame and smoking materials to be used inside the garage.

D. Use containers to hold or transport coatings, primers, or sealants that are clean and in good condition.

E. Do not dilute primers, cements, adhesives, coatings, or sealants. Keep containers closed except when removing materials from them. Do not allow contact between various materials through mixing or remains, or dual use of transporting or application equipment. Do not use equipment with remains of previous materials.

F. Do not apply materials until the concrete and air temperatures are above 50°F. Temperatures must remain above 50°F during curing.

G. Materials may be skin irritants or sensitizers. Accordingly, advise applicator to avoid contact with eyes and skin, inhalation of vapors, and ingestion. Use protective and safety equipment on site. Heed all label warnings by manufacturers. Make application in accordance with applicable safety laws.

H. Compliance with OSHA and other safety laws and regulations is the exclusive responsibility of the Contractor and its subcontractor(s), suppliers, consultants, and laborers.

3.02 PREPARATION OF CONCRETE SURFACES

A. Check concrete surfaces to ensure that surfaces are suitable for application of sealer. Surfaces unsuitable (too smooth, too rough, or contaminated by dirt, oil, or any coating or other impurities) shall be treated as required to make them suitable for application of sealer.

B. Clean all surfaces to receive sealer. Remove all grease, oil, and other deleterious material in accordance with the sealer manufacturer's written recommendations.

C. Shot blast all surfaces to receive sealer.

D. Vacuum all concrete surfaces to remove dust and debris, and rinse thoroughly with clean water.

E. Allow surfaces to dry thoroughly. If necessary, dry by artificial means approved by the Engineer. Use electric dryers, portable blowers, or compressed air, but not open-flame dryers. Test concrete surfaces to confirm that moisture levels are below those identified by the manufacturer to be suitable for application of the sealer.

F. Prior to commencement of sealer application, the manufacturer and installer of the sealer shall check the concrete surfaces to verify that they are suitable for sealer application. Advise the Engineer, in writing, that concrete surfaces are suitable for sealer application.

G. The compatibility of silane treatment with sealants used in various cracks and joints of the floor surface shall be carefully reviewed with the silane manufacturer. The manufacturer's recommendations shall be followed to preclude damage to sealant materials.

3.03 SEALER APPLICATION

A. The directions below are general in nature and may vary in accordance with the sealer manufacturer's recommendations, but only as specifically approved by the Engineer in advance.

B. The silane treatment solution shall be applied as supplied. It cannot be diluted or altered in any way. DO NOT allow any water to get into the solution. Application equipment should contain NO WATER. If the equipment to be used has been cleaned using water and may still be wet, it should be flushed with a small amount of anhydrous alcohol prior to beginning the actual application.

C. The most effective method for applying the silane treatment is to spray it on the surface using low-pressure (15 to 30 psi) positive-displacement airless horticultural spray equipment. All spray equipment should be fitted with fan-spray nozzles, and the spray adjusted to a “wet spray” condition. Mist spraying can allow a substantial portion of the material to be lost to the atmosphere and slow down the application rate. Deck areas should be sprayed using a spray-bar-type unit and other areas sprayed with hand-spray units. The spray equipment, tank, hoses, etc., shall be thoroughly clean and free of water, foreign matter, and oil residue prior to use for spraying the treatment solution.

D. Horizontal surfaces shall be uniformly sprayed to saturate/flood the surface. Proper quantities are being applied when the penetrating liquid-water-repellent solution stands for a few seconds before completely penetrating.

E. Apply penetrating sealer at a coverage rate according to the manufacturer’s recommendations to achieve 0.15 in. of penetration.

F. If the applicator is unable to complete the entire application at one time, the place where the application was stopped shall be clearly marked.

G. Treated surfaces shall be lightly water wetted 12 to 24 hrs following treatment application to ensure that the proper reaction takes place. The reaction rate of the silane with the siliceous mineral in the concrete is a temperature-dependent reaction. Usually, it has completed in 24 hrs or less when the treated surface is exposed to the sun.

END OF SECTION

SECTION 079200

JOINT SEALANTS

(Part of Work of Section 070001 – WATERPROOFING, DAMPPROOFING, AND CAULKING, Filed Sub-Bid Required)

PART 1 – GENERAL

1.01 GENERAL REQUIREMENTS

A. Drawings, Contract Requirements, and the General Requirements (Division 01) of the Contract for Construction are hereby made a part of this Section.

1.02 SCOPE OF WORK

A. Work includes, but is not limited to, providing all labor, materials, equipment, and supervision to accomplish the following joint sealant work in accordance with the Drawings and Specifications:

1. Remove and replace existing sealant at all double-tee beam joints, at the ends of double-tee beams, and other locations at the Upper Level.

2. Rout and seal cracks on the topside of the Upper Level deck at locations identified on the Drawings and as identified by the Engineer.

3. Remove and replace existing sealant at vertical joints at the facade as shown on the Drawings.

4. Provide sealant joints at concrete paving-to-drain joints as shown on the Drawings.

5. Provide sealant at north elevation plaza and curb, including along metal cover plate edges.

1.03 RELATED WORK

A. Work related to this includes, but is not limited to, the following:

1. Section 035000 – Concrete Topping Slab.

2. Section 037320 – Concrete Repair.

3. Section 071300 – Hot Fluid-Applied Waterproofing.

4. Section 071816 – Vehicular-Traffic-Bearing Waterproofing.

B. Materials shall be compatible with the materials of related work with which they come into contact and with the materials covered by other Sections of the Specifications.

1.04 SUBMITTALS

A. Action Submittals:

1. Manufacturer's product data sheets for all materials specified or needed, each properly labeled.

2. Method of surface preparation for application of sheet membrane flashings.

3. Samples:

a. Provide samples of backer rod and bond-breaker tape.

b. Provide sealant color charts for the Owner.

4. Construction Schedule and Phase Plan showing proposed Work areas, sequence of the Work, and coordination with pedestrian traffic flow.

5. Where dissimilar sealant products are in direct contact, such as at top of plaza curb adjacent to new expansion joint, provide written confirmation from sealant product manufacturer(s) that sealant products are compatible and suitable for use in direct contact.

B. Informational Submittals:

1. Manufacturer's written instructions regarding surface preparation and installation of the sheet membrane flashings.

2. Manufacturer's explanation of date codes.

3. Installer Qualifications: Submit written documentation of Installer's qualifications, including the following:

a. A letter referencing projects of similar scope. List recently completed projects related to Contract Work of this Section, including project name, date, location, name of owner and architect, and description of work and products used.

1.05 QUALITY CONTROL AND QUALITY ASSURANCE

A. Conduct a quality control program that includes, but is not limited to, the following:

1. Review and approval of details prior to construction.

2. Inspection of all materials to ensure conformity to Contract requirements and that all materials are new and undamaged.

3. Establishment of procedures for executing the Work.

4. Inspecting all surface preparation before material application.

5. Inspection of Work in progress to ensure that Work is being done in accordance with established procedures and manufacturer's instructions.

6. Inspection of all Work completed and correction of all defective Work.

B. Qualifications:

1. The Contractor shall have completed work similar in material, design, and extent to that indicated for this Project with a record of successful in-service performance for a period of at least 5 yrs.

C. Preinstallation Conference:

1. Attend a preinstallation conference to be held with a representative of the Owner, Engineer, Construction Manager, Contractor's field superintendent, foreman, and other trades involved to discuss the conduct of the Work of this Section.

D. Obtain each type of material from a single manufacturer for the duration of the Project.

1.06 WARRANTY

A. Provide a 2 yr warranty by the manufacturer and Installer, the form of which is equivalent to the standard warranty published and provided by the manufacturers named in this Specification at the date of this Contract. The Owner shall be the sole judge of equivalency, without recourse by the Contractor, of any unnamed manufacturer.

B. Provide the manufacturer's extended warranty for review and selection by the Owner.

C. Warranty time will start at the end of the final phase of the Work, not at the end of each phase.

1.07 TECHNICAL SUPPORT

A. The Contractor shall arrange with the materials manufacturer or distributor to have the services of a competent field representative at the worksite prior to any mixing of components to instruct the work crews in the proper mixing and application procedures. The field representative shall remain at the jobsite after work commences and continue to instruct until the field representative, the Contractor, and the Owner are satisfied that the crew has mastered the technique of installing the systems successfully.

1. The manufacturer's field representative must be fully qualified to perform the work and shall be subject to the approval of the Owner.

2. The Contractor shall be completely responsible for the expense of the services of the required manufacturer's field representative, and the Contract price shall include full compensation for all costs in connection therewith.

3. Provide written certification to the Engineer prior to start of construction that the system installer is approved by the manufacturer of the sealant system components.

4. Each manufacturer of products used in this Section shall certify compatibility of its product with other products of this Section and all other Sections with which they may come into contact.

5. Upon request, the manufacturer shall furnish a sample of the materials to be used on this Project to the Owner for chemical analysis.

6. The Contractor shall review and approve details prior to construction.

B. Adhesion Testing:

1. Perform adhesion testing of the specified liquid-applied sealants on all substrates.

2. The Contractor shall retain the services of all sealants' manufacturers to conduct/direct adhesion testing.

3. Provide samples of each sealant applied with and without primers to each substrate. Apply samples so that peel testing can be conducted.

4. Allow adhesion test samples to cure for twenty-one days.

5. Notify the Engineer two days prior to sample application and testing.

6. Provide a written report of the test results and manufacturer's recommendations for sealant use to the Engineer.

7. Do not begin general sealant installation until testing is complete and approved.

1.08 DELIVERY, STORAGE, AND HANDLING

A. All materials are to be delivered in the original, unopened, undamaged containers, properly labeled. Remove all damaged materials from the site.

B. All materials are to be new and of recent manufacture. Sealants are to be a maximum of six months old. Provide key for the sealant manufacturer's date coding on the sealant containers.

C. Store temperature-sensitive materials indoors at the temperatures recommended by the manufacturers. If materials are exposed to temperatures outside the range recommended by the manufacturers, provide heated/cooled storage space sufficient to store enough materials for each day's work so that the materials will be at the correct working temperatures.

1.09 GENERAL PROCEDURES

A. Deliver materials to the site only in manufacturer’s original containers, clearly marked with legible, intact labels with manufacturer's name and brand name and identifying contents of containers.

B. Do not stockpile materials, debris, or equipment on the parking deck or other public areas.

C. Construction loads shall not exceed 40 psf.

D. Remove all tools, buckets, and materials from work areas and store neatly at a central location daily at the end of work. Move equipment and storage areas as work progresses to avoid abuse of new work.

E. Store materials in original unopened containers. Protect materials from exposure to moisture, direct sunlight, and damage during storage. Provide proper temperature and ventilation in storage areas. Comply with all recommendations of the material manufacturers for storage and handling of materials. Do not store any materials in the occupied buildings.

F. Any materials determined to be damaged by the Owner or the Engineer are to be removed from the jobsite and replaced at no cost to the Owner.

G. Materials shall be marked with the date of manufacture and shelf life. Do not use products beyond the expiration of their shelf life. Store flammable materials in a cool, dry, protected area away from sparks and open flames.

1.10 BASIS OF PAYMENT

A. See Form for General Bid.

PART 2 – PRODUCTS

2.01 GENERAL

A. Compatibility: Provide joint sealants, backings, and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by sealant manufacturer, based on testing and field experience.

2.02 PARKING GARAGE SEALANTS

A. Joints between Double-Tee Beam Flanges and Inverted-Tee Beams with Width Not Exceeding 2 in.:

1. Sikaflex-2c NS by Sika Corporation. Color to be selected by the Owner.

2. MasterSeal NP-2 by BASF Corporation. Color to be selected by the Owner.

3. Iso-Flex 888 QC by Lymtal International, Inc. Color to be selected by the Owner.

B. Joints between Double-Tee Beam Flanges and Inverted-Tee Beams with Width Exceeding 2 in.:

1. Sikaflex-15 LM, low-modulus elastomeric sealant by Sika Corporation. Color to be selected by the Owner.

2. MasterSeal NP-2 by BASF Corporation. Color to be selected by the Owner.

3. Iso-Flex 888 QC by Lymtal International, Inc. Color to be selected by the Owner.

C. Joints at Vertical Elements:

1. Sikaflex-15 LM, low-modulus elastomeric sealant by Sika Corporation. Color to be selected by the Owner.

2. MasterSeal NP-2 by BASF Corporation. Color to be selected by the Owner.

3. Iso-Flex 888 QC by Lymtal International, Inc. Color to be selected by the Owner.

D. Elastomeric Sealants: Comply with ASTM C920 and other requirements indicated for each liquid-applied chemically curing sealant specified, including those referencing ASTM C920 classifications for type, grade, class, and uses related to exposure and joint substrates.

E. Perimeter Joints at Drains and Concrete and Granite Paving Expansion Joints at Rising Walls: Single-Component Neutral-Curing Silicone Sealant: Nonstaining, single-component, nonsag, plus 100% and minus 50% movement capability, traffic and non-traffic-use, neutral-curing silicone joint sealant; ASTM C920, Type S, Grade NS, Class 100/50, Uses T and NT.

1. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, the following:

a. Dow Corning Corporation: 790.

b. GE Silicones: SilPruf LM SCS2700.

c. Tremco Inc.: Spectrem 1.

d. Pecora Corporation: 864.

F. Plaza Sealant at Joints, Curb and at Metal Cover Plate: Two-component polyurethane-based elastomeric nonsag sealant. Meets ASTM C920, Type M, Grade NS, use T, NT, O, M, G, A and Federal Specification TT-S-00227E. Provide primer as required by manufacturer.

1. Metal Plate Cover: Sikaflex-2c NS Traffic Guard by Sika Corporation. Color to be selected by the Owner. Provide primer as required by sealant manufacturer.

2. Curb: Provide exterior-grade silicone sealant compatible with silicone-coated precompressed foam expansion joint and sealant products. Provide primer as required by sealant manufacturer.

3. Approved equivalent.

2.03 SEALANT PRIMER

A. Sikaflex 429 Primer, by Sika Corporation.

B. MasterSeal P176 by BASF Corporation.

C. Iso-Flex Primer #10 by Lymtal International, Inc.

2.04 BACKER ROD AND ACCESSORIES

A. Cylindrical Sealant Backings: ASTM C1330, Type C (closed-cell material with surface skin), polyethylene foam, nonabsorbent to water and gas. Provide products of size and density to control sealant depth and to otherwise contribute to optimum sealant performance.

B. Bond-Breaker Tape: Polyethylene tape or other plastic tape recommended by sealant manufacturer for preventing sealant from adhering to rigid, inflexible joint-filler materials or joint surfaces at back of joint where such adhesion would result in sealant failure. Provide self-adhesive tape where applicable.

PART 3 – EXECUTION

3.01 EXAMINATION

A. Verify all site conditions and dimensions by field measurements in consideration of the special conditions associated with the alteration of existing construction and reconstruction. Notify the Engineer immediately of any inconsistency between field conditions found during demolition and those shown in the Contract Drawings. The Engineer will determine what modifications or additional repairs are necessary.

B. Mark deficiencies in the substrates that may adversely affect sealant application for correction by the Contractor. Notify the Engineer in writing of the deficiencies.

C. Commencement of Work indicates acceptance of the substrate and underlying conditions by the Contractor.

3.02 JOBSITE ADHESION TESTS

A. Perform adhesion tests in accordance with manufacturer's instructions and ASTM C1193 – Method A, Field-Applied Sealant Joint Hand-Pull Tab as follows:

1. During Project sealant application, test adhesion of exterior perimeter sealant joints at the rate of one test per 400 ft of installed sealant. Three weeks after installation, cut a tab on a joint and test adhesion similar to that described in Para. 1.07.B.

2. For sealants applied between dissimilar materials, test both sides of joint.

3. If any sample debonds from the substrate, the sealant manufacturer shall make recommendations regarding changes in surface preparation or primers and submit these recommendations to the Engineer for approval. Sealants failing adhesion test shall be removed, substrates cleaned, sealants reinstalled, and retesting performed. Repeat sealant adhesion tests as many times as required to produce an acceptable application at no additional cost to the Owner.

4. Maintain test log and submit report to Engineer indicating tests, locations, dates, results, and remedial actions.

5. Patch test areas in accordance with manufacturer's instructions.

3.03 GENERAL WORKMANSHIP FOR CRACK SEALANTS

A. Comply with all recommendations of the manufacturer of the sealant system for surface preparation and installation of sealants.

B. Use containers to hold or transport coatings, primers, or sealants that are clean and in good condition.

C. Do not dilute primers or sealants. Keep containers closed, except when removing materials from them. Do not allow contact between various materials through mixing or remains, or dual use of transporting or application equipment. Do not use equipment with remains of previous materials.

D. Do not apply materials until the concrete and air temperatures are above 40°F and rising. Temperatures must remain above 40°F during curing.

3.04 ROUTING OF CRACKS

A. Cracks in the existing concrete should be routed to between 1/4 in. minimum and 1/2 in. maximum depth. The width of the routed channel shall be equal to twice its depth.

B. Inspect newly exposed surfaces of the concrete to receive the work, and report immediately in writing to the Engineer as required in the General Conditions any deficiencies in the surface that render it unsuitable for proper execution of this Work. Do not proceed with work until unsatisfactory conditions have been corrected in an acceptable manner. Commencement of work implies acceptance of related work.

C. Correct unsatisfactory conditions in a manner acceptable to the installer before installation of the sealant system.

D. All surfaces that are to receive sealant shall be dry and thoroughly cleaned of all loose particles, laitance, dirt, dust, oil, grease, or other foreign matter. Remove all existing contaminants from the surface. Follow manufacturer's recommendation for proper method of cleaning.

E. Check preparation of substrate to ensure adhesion of sealant.

3.05 SEALANT JOINT CONSTRUCTION

A. For typical butt sealant joints, place the backer rod or bond breaker so that the sealant depth measured at the center of the joint after tooling is one-half of the sealant joint width, with a minimum depth of 1/4 in. and a maximum depth of 1/2 in. Avoid three-sided adhesion at sealant joints.

B. At fillet (triangular) joints, extend the sealant at least 3/8 in. onto the substrate beyond the bond-breaker tape or backer rod and at least 5/8 in. onto the substrate perpendicular to the tape or rod. The minimum thickness between the edge of the tape or rod and the surface of the sealant joint shall be at least 1/4 in.

3.06 SURFACE PREPARATION

A. Do not install sealant until the substrate has first been cleaned and, if required, primed. Remove dirt or other foreign substances, including existing sealant remnants, from surfaces to receive sealant. Surfaces shall be dry before preparation begins. The surface preparation is to be done immediately before insertion of the final backer rod or bond breaker and after temporary rods or seals are removed.

B. Prepare metal surfaces as required by these Specifications or as recommended by sealant manufacturer and required by field adhesion test results.

C. Do not scratch, mar, or otherwise damage the aluminum-framed window surface during sealant removal.

D. Solvent clean surfaces with manufacturers' recommended cleaner using the "two cloth" method per Dow recommendations immediately before insertion of the final backer rod or bond breaker and after temporary rods or seals are removed. Test substrates to ensure compatibility with solvents; notify the Engineer of incompatible materials. Do not solvent clean at temperatures below 45°F. Allow solvent to completely evaporate before continuing. Do not use alcohol on surfaces.

3.07 INSTALL BACKUP MATERIAL

A. Unless noted otherwise, install clean, dry backup rod or bond-breaker tape in or over joint openings against dry substrates. Remove wet materials from the jobsite. Replace backer rods not sealed over by the end of each day, and prepare surfaces again.

B. Change rod sizes as frequently as required by the variation in the joint width. Do not twist multiple rods together. Butt ends of rods tightly. Provide a full range of rod sizes at the site of sealant work.

C. Do not touch with fingers or otherwise contaminate the substrate surfaces while inserting the backer rod or bond-breaker tape.

D. Do not rupture the skin of the closed-cell skin backer rod during installation. Do not cut rod lengthwise as substitute for smaller-diameter rod. Remove rods containing punctures.

3.08 APPLY PRIMER (WHERE REQUIRED)

A. Apply primer to substrates. Apply primer to clean, dry substrates at ambient temperatures above 45°F.

B. Pour primer into a clean container for use. Do not pour more than a 10 min. supply into container to prevent deterioration of the product.

C. Replace cap on primer can immediately after pouring. Remove from the site any primer that contains a white precipitate or that has thickened.

D. Apply primer with a clean brush. Do not apply primer to exposed surfaces beyond sealant. Mask surfaces before priming, except where surface irregularities will allow the primer to wick beneath the masking tape. Use only one coat of primer. Do not apply primer in a thick layer, which will form a white, powdery film. Remove films with a clean, dry, lint-free cloth and repair in accordance with manufacturer's written recommendations.

E. Allow primer to dry. Do not allow primer to become wet before sealant application.

3.09 APPLICATION

A. Inspect each cartridge or container of sealant before use, and verify that the production date is within six months of the date of application. Remove from the site sealant more than six months old. Each applicator shall understand the method of coding the production date on the cartridge.

B. Mask along joint exposed surfaces not already masked for priming before applying sealant.

C. Recheck correct backer rod and bond-breaker tape positioning before applying sealant.

D. Apply sealant only to clean, dry, primed surfaces (where required) at ambient temperatures above 45°F. Seal joints within 10 hrs of primer application.

E. Fill joints solidly and continuously with sealant, neatly applied with a standard caulking gun in a continuous motion using a slight pressure. “Push” the sealant bead ahead of the nozzle; do not “drag” the sealant.

F. Within 5 min. of sealant application and before skin develops on sealant, dry-tool the joint surface with a concave metal tool to ensure intimate contact with substrate and to eliminate air bubbles. Do not use liquid for tooling. Provide a smooth, uniform finished surface.

G. Remove masking tape within 10 min. of tooling. Avoid contaminating adjacent surfaces with excess sealant. Remove traces of smears and droppings on metal or glass surfaces promptly using a solvent recommended by the sealant manufacturer that will not damage or discolor the building surfaces. Remove smears and droppings on porous surfaces by mechanical means after the initial cure of the sealant.

H. Coordinate work with other trades to prevent contamination of fresh sealant by dust or other debris.

3.10 CLEANUP

A. Remove all excess sealant and masking materials from the structure.

END OF SECTION

SECTION 079500

EXPANSION JOINTS

(Part of Work of Section 070001 – WATERPROOFING, DAMPPROOFING, AND CAULKING, Filed Sub-Bid Required)

PART 1 – GENERAL

1.01 GENERAL REQUIREMENTS

A. Drawings, Contract Requirements, and the General Requirements (Division 01) of the Contract for Construction are hereby made a part of this Section.

1.02 SCOPE OF WORK

A. Work includes furnishing all labor, materials, equipment, and supervision to accomplish the following expansion joint work in accordance with the Drawings and Specifications:

1. Remove and replace the expansion joints at the locations shown on the Drawings. Joints to be replaced include both exposed and concealed expansion joints at the Plaza and Elevated Parking Deck.

2. Perform associated miscellaneous sealant replacement at the expansion joints.

3. Remove and replace the termination bars at locations identified by the Engineer.

1.03 RELATED WORK

A. Work related to this Section includes, but is not limited to, the following:

1. Section 033000 – Cast-in-Place Concrete.

2. Section 037320 – Concrete Repair.

3. Section 071300 – Hot Fluid-Applied Waterproofing.

4. Section 079200 – Joint Sealants.

1.04 SUBMITTALS

A. Submit manufacturer's literature completely describing all materials, standard instructions, and any special instructions and/or precautions applicable to this Project. Prior to development of final shop drawings, prepare a preliminary drawing of the joint system for approval.

B. Submit detailed shop drawings of all expansion joints, including details and joint terminations and intersections.

C. Schedule of time showing areas of work.

1.05 QUALITY CONTROL AND QUALITY ASSURANCE

A. Conduct a quality control program that includes, but is not limited to, the following:

1. Inspection of all materials to ensure conformity with Contract requirements and that all materials are new and undamaged.

2. Establishment of procedures for executing the work.

3. Inspection of all surface preparation prior to material application.

4. Inspection of work in progress to ensure that work is being done in accordance with established procedures and manufacturer's instructions.

5. Inspection of all work completed and correction of all defective work.

B. Qualifications:

1. The expansion joint installer shall be licensed by the manufacturer of the products to be used on the Project with a minimum of 5 yrs of experience in the application of the product system.

2. The Contractor's site superintendent shall have at least 5 yrs of experience supervising the installation of expansion joint sealing systems.

C. Preinstallation Conference:

1. Attend a preinstallation conference to be held with a representative of the Owner, Engineer, the Contractor's field superintendent, foreman, and other trades involved to discuss the conduct of the work of this Section.

1.06 GUARANTEE

A. Guarantee all work under this Section in a document stating that if, within 5 yrs after the Date of Substantial Completion of the Work, any of the work of this Section is found to be defective or not in accordance with the Contract Documents, the Contractor shall correct it promptly after receipt of a written notice from the Owner to do so, unless the Owner has previously given the Contractor a written acceptance of such condition. Also, the Contractor shall bear all costs incurred by the Owner, including reasonable attorney's fees, to enforce compliance with the obligations of this Guarantee. The obligations of this Guarantee shall run directly to the Owner and may be enforced by the Owner against the Contractor, shall survive the termination of the Contract, and shall not be limited by conditions other than this Contract.

1.07 WARRANTY

A. Provide a 5 yr manufacturer's warranty, the form of which is equivalent to the standard warranty published and provided by the manufacturers named in this Specification at the date of this Contract. The Owner shall be the sole judge of equivalency, without recourse by the Contractor, of any unnamed manufacturer.

B. Include a manufacturer's Maintenance Manual specifically prepared for this Project and coordinated with warranty requirements (two copies). Include, as a minimum, instructions for repairing and plowing.

1.08 TECHNICAL SUPPORT

A. The Contractor shall arrange with the materials manufacturer or distributor to have the services of a competent field representative at the worksite prior to any mixing of components to instruct the work crews in the proper mixing and application procedures. The representative shall remain at the jobsite after work commences and continue to instruct until the representative, the Contractor, and the Owner are satisfied that the crew has mastered the technique of installing the systems successfully.

1. The manufacturer's field representative must be fully qualified to perform the work and shall be subject to the approval of the Owner.

2. The Contractor shall be completely responsible for the expense of the services of the required manufacturer's field representative, and the Contract price shall include full compensation for all costs in connection therewith.

1.09 GENERAL PROCEDURES

A. Work only in areas permitted by the Owner and as detailed on the approved schedule.

B. Remove all tools, buckets, and materials from work areas and store neatly at a central location daily at the end of work. Move equipment and storage areas as work progresses to avoid abuse of new work.

C. Do not stockpile materials, debris, or equipment on the parking deck.

D. Deliver all materials to the jobsite in sealed, undamaged containers properly labeled with product descriptions, including date of manufacture, lot number, and shelf life.

E. Comply with all recommendations of the material manufacturers for storage and handling of materials. Store materials on pallets. Store liquids at 75°F for at least 24 hrs before application. Handle materials to prevent damage.

F. Protect the building and its contents from all risks associated with the work in this Section. Schedule and execute all work without exposing adjacent building areas to water, dust and debris, or materials used by this Contractor. Protect adjacent areas from damage and stains with appropriate barriers and masking. Repair all damage as a result of the work of this Section to its condition at the start of work or, if such cannot be determined, to its original condition. Clean all stains by approved means.

G. Protect the work from damage such as impact, marring of the surfaces, and other damage.

1.10 BASIS OF PAYMENT

A. See Form for General Bid.

PART 2 – PRODUCTS

2.01 MATERIALS

A. At transitions between expansion joint systems produced by different manufacturers, the Contractor is responsible for obtaining a detail for the transition from one or the other of the supplying manufacturers. The Contractor must submit this detail to the Engineer and obtain approval prior to proceeding. The Contractor will also be responsible for obtaining a letter from one or the other of the supplying manufacturers warranting the transition between the two expansion joint systems.

B. Membrane Expansion Joint at Plaza: Provide flat, vulcanized waterproofing joint integral with the waterproofing membrane to accommodate movements up to ± 2 in. and capable of 500% elongation at –40°F across its length and at all vulcanized points. All details and connections are factory fabricated by means of vulcanization.

1. RedLINE by SITURA INC.

2. Approved equivalent.

C. Precompressed Foam Expansion Joint at Plaza: Provide precompressed foam expansion joint with silicone coating. Provide stainless steel cover plate, fastened to concrete slab at plaza as indicated in the drawings. Expansion joint system shall be a complete system of compatible materials designed by the manufacturer to produce a waterproof expansion joint system. Contractor to conduct in field measurements as required to size joint. Provide manufacturer's specified or approved sealant at all joint edges at precompressed expansion joint on curb and where required by manufacturer.

1. Expansion Joint Products:

a. BASF; Wabo Seismic Weather Seal.

b. Emseal; DSM System.

c. ARCAT, Willseal 250.

d. Approved equivalent.

2. Sealant Products: Provide manufacturer recommended or approved sealant.

D. Traffic-Bearing Expansion Joint System at Elevated Parking Deck Entrance: Watertight deck expansion joint system comprised of a heat-weldable, Santoprene, thermoplastic-rubber, double-celled extrusion with perforated flanges embedded in a cold-applied elastomeric concrete nosing reinforced with aggregates not to exceed 30 mesh and a resin-aggregate ratio not to exceed 1: 1.6. The expansion joint system shall be a complete system of compatible materials designed by the manufacturer to produce a waterproof traffic-bearing expansion joint system.

1. Thermaflex TCR 300 by Emseal Joint Systems, Ltd.

2. WaboCrete Membrane ME-300 by Watson Bowman ACME Corporation.

3. Iso-Flex J30L by Lymtal.

E. Termination Bar: Predrilled, stainless-steel termination bars, approximately 1 in. by 1/8 in. (25 by 3 mm) thick, with required stainless steel anchors at 6 in. o.c.

F. Elastomeric header, primers, and miscellaneous materials required for installation shall be in accordance with the requirements of the expansion joint system manufacturer.

PART 3 – EXECUTION

3.01 INSTALLATION

A. General:

1. Install the expansion joint systems in strict accordance with the manufacturer's written instructions.

2. Provide properly formed and prepared expansion joint openings constructed to the exact dimensions and elevations shown on manufacturer's standard system drawings or as shown on the Contract Drawings. Deviations from these dimensions will not be allowed without the written consent of the engineer of record.

3. Clean the joint opening of all contaminants immediately prior to installation of expansion joint system. Repair spalled, irregular, or unsound joint surfaces using accepted industry practices for repair of the substrates in question. Remove protruding roughness to ensure that joint sides are smooth. Refer to Manufacturers Installation Guide for detailed step-by-step instructions.

B. Membrane Expansion Joint:

1. Apply the first coat of hot-rubberized asphalt at the manufacturer's recommended minimum thickness; embed a reinforcing fabric mesh and apply a second coat of hot asphalt over it. Immediately embed the waterproof expansion joint material in the hot asphalt, making sure that the bottom polyester fleece is in full contact with the hot asphalt.

2. Spread an even coat of hot-rubberized asphalt on the top surface of the expansion joint ensuring the top white polyester fleece is completely covered; embed a reinforcing fabric mesh. Apply a second coat of hot-rubberized asphalt on top of the reinforcing fabric mesh at the manufacturer's minimum recommended thickness. The joint shall not obstruct water flow across its surface and forms a continuous monolithic waterproof barrier.

3. Terminations of the expansion joints shall be sealed watertight. All membrane expansion joint details and connections are factory fabricated by means of vulcanization.

4. The center of the waterproof expansion joint material must be aligned with the center line of the expansion joint gap.

C. Winged Membrane and Precompressed Expansion Joints:

1. The Contractor shall conduct field measurements as required to size expansion joint.

2. The Contractor shall clean the concrete by abrasion blasting to remove all latencies and contaminants or as otherwise required by manufacturer. Joint opening must be free of obstructions and foreign materials prior to installation of expansion joint system. Repair spalled, irregular, or unsound joint surfaces using accepted industry practices for repair of the substrates in question and in accordance with Section 037320 – Concrete Repair. Remove protruding roughness to ensure joint sides are smooth.

D. Clean and Protect:

1. Protect the system and its components during construction. Subsequent damage to the expansion joint system will be repaired at the Contractor's expense. After work is complete, clean exposed surfaces with a suitable cleaner that will not harm or attack the finish.

END OF SECTION

SECTION 090001

PAINTING

(Filed Sub-Bid Required)

PART 1 – GENERAL

1.01 GENERAL PROVISIONS AND RELATED DOCUMENTS

A. Drawings, Contract Requirements, and the General Requirements (Division 01) of the Contract for Construction are hereby made a part of this Section.

B. Time, Manner, and Requirements for Submitting Sub-Bids:

1. Sub-bids for work under this Section shall be for the complete work and shall be filed in a sealed envelope with the City of Somerville at a time and place as stipulated in the "NOTICE TO CONTRACTORS."

   The following should appear on the upper left hand corner of the envelope:

   NAME OF SUB-BIDDER: (Insert name of sub-bidder.)

   SUB-BID FOR SECTION: 090001 – PAINTING

2. Each sub-bid submitted for work under this Section shall be filed on forms furnished with these Contract Documents.

3. Sub-bids filed with the Owner shall be accompanied by BID BOND or CASH or CERTIFIED CHECK or TREASURER'S CHECK or CASHIER'S CHECK issued by a responsible bank or trust company payable to the City of Somerville in the amount of 5% of the sub-bid. A sub-bid accompanied by any other form of bid deposit than those specified will be rejected.

C. Sub Sub-Bid Requirements: (None required under this Section.)

D. Reference Drawings: The Work of this Filed Sub-Bid is shown on the following Contract Drawings:

G-001	COVER SHEET
G-002	SCOPE OF WORK
PH-100	PROPOSED PHASING PLAN
AS-100	LOWER LEVEL STRIPING PLAN
AS-101	UPPER LEVEL STRIPING PLAN
AS-200	STRIPING DETAILS
S-200	EXTERIOR ELEVATION REPAIR PLANS
S-201	INTERIOR ELEVATION REPAIR PLANS

1.02 DESCRIPTION OF WORK

A. Work Included: Provide labor, materials, and equipment necessary to complete the work of this Section, including, but not limited to, the following:

1. All Work of Section 097000 – Steel Painting.

2. All Work of Section 099100 – Traffic Markings.

B. Examine all of the Contract Documents, criteria sheets, and all other Sections of the Specifications for requirements that affect work under this Section, whether or not such work is specifically mentioned in this Section.

C. The work under this Contract shall include all labor, materials, tools, equipment, transportation, insurance, temporary protection, supervision, and incidental items essential for proper installation and operation, even though not specifically mentioned or indicated on the Drawings, but that are usually provided or are essential for proper installation and operation, of all systems as indicated on the Drawings and specified herein.

D. Coordinate work with that of all other Trades affecting or affected by the work of this Section. Cooperate with such Trades to ensure the steady progress of all work under the Contract.

PART 2 – PRODUCTS

Not used.

PART 3 – EXECUTION

Not used.

END OF SECTION

SECTION 097000

STEEL PAINTING

(Part of Work of Section 090001 – PAINTING, Filed Sub-Bid Required)

PART 1 – GENERAL

1.01 GENERAL REQUIREMENTS

A. Drawings, Contract Requirements, and the General Requirements (Division 1) of the Contract for Construction are hereby made a part of this Section.

1.02 SCOPE OF WORK

A. Work includes providing all labor, materials, equipment, and supervision to accomplish the following traffic-marking work in accordance with the Drawings and Specifications.

1. Clean and paint the metal fence at deteriorated locations at the facade.

2. Clean and paint the metal drainage pipe guards at the Lower Level.

1.03 RELATED WORK

A. Work related to this Section includes, but is not limited to, the following:

1. Section 037320 – Concrete Repair.

2. Section 042100 – Masonry Repair.

1.04 REFERENCE SPECIFICATIONS AND STANDARDS

A. Without limiting the general aspects of other requirements of these Specifications, all surface preparation, coating, and painting of exterior surfaces shall conform to the applicable requirements of the Steel Structures Painting Council (SSPC), current Local and Federal Health Standards, and the manufacturer's printed instructions.

B. The Contractor shall abide by 105 CMR 460 Lead Poisoning Preventions and Control for lead containment and abatement requirements.

C. The Engineer's decision shall be final as to interpretation and/or conflict between any of the referenced specifications and standards contained herein.

1.05 CONTRACTOR

A. The Contractor shall hold a valid State Contractor's license, if required, for performing surface preparation and coating/painting work and shall have 3 yrs of practical experience and successful history in the application of specified products to surfaces of steel water tanks. Upon request, he shall substantiate this requirement by furnishing a list of references and job completions.

1.06 QUALITY ASSURANCE

A. Conference: Convene a preconstruction conference to establish procedures to maintain optimum working conditions and to perform this work.

B. General: Quality assurance procedures and practices shall be utilized to monitor all phases of surface preparation, application, and inspection throughout the duration of the Project. Procedures or practices not specifically defined herein may be utilized provided that they meet recognized and accepted professional standards and are approved by the Engineer.

C. Surface Preparation: Surface Preparation will be based upon comparison with "Pictorial Surface Preparation Standards for Painting Steel Surfaces." SSPC-Vis 1-89 Visual Standard.

D. Application: No coating or paint shall be applied when the surrounding air temperature or the temperature of the surface to be coated or painted is below manufacturer's printed instructions to wet or damp surfaces or in rain, snow, fog, or mist; when the temperature is less than 5°F above the dewpoint; and when it is expected that the air temperature will drop below recommended temperatures 6 hrs after application of coating and paint. Dewpoint shall be measured by use of an instrument such as a Sling Psychrometer in conjunction with US Department of Commerce Weather Bureau Psychometric Tables.

E. If above conditions are prevalent, coating or painting shall be delayed or postponed until conditions are favorable. The day's coating or painting shall be completed in time to permit the film sufficient drying time prior to damage by atmospheric conditions.

F. Inspection Devices: The Contractor shall furnish, until final acceptance of coating and painting, inspection devices in good working condition for detection of holidays and measurement of dry-film thickness gauge and certified instrumentation to test accuracy of holiday detectors.

G. Dry-film thickness gauges and holiday detectors shall be made available for the Engineer's use at all times until final acceptance of application. Holiday detection devices shall be operated in the presence of the Engineer.

H. Warranty Inspection: Warranty inspection shall be conducted during the eleventh month following completion of all coating and painting work. All defective work shall be repaired in accordance with this Specification and to the satisfaction of the Engineer/Owner.

1.07 WARRANTY

A. The Contractor shall supply a manufacturer's standard warranty on the paint system application. This would include warranty against delaminating or peeling from the surface it was applied to, rusting of the coated surface, abnormal chalking, or fading of the system.

1. Warranty Period: 5 yrs from date of substantial completion.

1.08 SUBMITTALS

A. Product Data: Submit manufacturer's product data, paint analysis, application instructions, use limitations, and recommendations for each material used. Provide certifications stating that materials comply with requirements and that paint products used are the highest quality produced by the manufacturer.

1.09 SAFETY AND HEALTH REQUIREMENTS

A. General: In accordance with requirements set forth by regulatory agencies applicable to the construction industry and manufacturer's printed instructions and appropriate technical bulletins and manuals, the Contractor shall provide and require use of personal protective lifesaving equipment for persons working in or about the Project site.

B. Head and Face Protection and Respiratory Devices: Equipment shall include protective helmets that shall be worn by all persons while in the vicinity of the work.

C. Ventilation: Where ventilation is used to control hazardous exposure, all equipment shall be explosion-proof. Ventilation shall reduce the concentration of air contaminant to the degree a hazard does not exist. Air circulation and exhausting of solvent vapors shall be continued until coatings have fully cured.

D. Sound Levels: Whenever the occupational noise exposure exceeds maximum allowable sound levels, the Contractor shall provide and require the use of approved ear protective devices.

E. Illumination: Adequate illumination shall be provided while work is in progress, including explosion-proof lights and electrical equipment. Whenever required by the Engineer, the Contractor shall provide additional illumination and necessary supports to cover all areas to be inspected. The level of illumination for inspection purposes shall be determined by the Engineer.

F. Temporary Ladders and Scaffolding: All temporary ladders and scaffolding shall conform to applicable safety requirements. They shall be erected where requested by the Engineer to facilitate inspection and be moved by the Contractor to locations requested by the Engineer.

PART 2 – PRODUCTS

2.01 GENERAL

A. Coating systems shall conform to all current API Standards and carry appropriate approvals for coatings and linings. All coatings, both interior and exterior, shall meet all current US EPA requirements for VOC (Volatile Organic Compounds) Compliance Level. All interior coatings shall be modified for low-temperature applications down to 35°F to facilitate curing.

B. Coating System:

1. Spot Primer: RD-Elastometal by RD Coatings.

2. Intermediate Coat: RD-Monoguard by RD Coatings.

3. Top Coat: RD-Monoguard by RD Coatings.

4. Alternate Coating Systems:

a. Metalatex Semi-Gloss Coating by Sherwin Williams, Inc.

b. Series 2H Hi-Build Tneme Gloss Coating by Tnemec, Inc.

Note: Low-temperature applications may require a force cure.

C. All materials shall be brought to the jobsite in original sealed containers. They shall not be used until the Engineer has inspected contents and obtained data from information on containers or label. Materials exceeding storage life recommended by the manufacturer shall be rejected.

D. All coatings and paints shall be stored in enclosed structures to protect them from weather and excessive heat or cold. Flammable coatings or paint must be stored to conform to the city, county, state, and federal safety codes for flammable coating or paint materials. At all times, coatings and paints shall be protected from freezing.

PART 3 – EXECUTION

3.01 GENERAL

A. All surface preparation coating shall conform to applicable standards of the Steel Structures Painting Council and the manufacturer's printed instructions. Comply with coating manufacturer's recommended surface preparation. The use of mechanical tools will be prohibited unless the Contractor provides appropriate lead containment and abatement measures. Material applied prior to approval of the surface by the Engineer shall be removed and reapplied to the satisfaction of the Engineer at the expense of the Contractor.

B. All work shall be performed by skilled craftsmen qualified to perform the required work in a manner comparable with the best standards of practice. Continuity of personnel shall be maintained, and transfers of key personnel shall be coordinated with the Engineer.

C. The Contractor shall provide a supervisor at the worksite during cleaning and application operations. The supervisor shall have the authority to sign and change orders, coordinate work, and make decisions pertaining to the fulfillment of the Contract.

D. Remove rust, rust scale, loose coating, nonadhering coating, dust, dirt, oil, grease, or any foreign matter that will affect the adhesion or durability of the finish by washing

with abrasive sponges and water and wiped dry with clean rags. All water must be contained. Water must not enter the existing roof drain system.

E. Coating and painting systems include surface preparations, prime coating, and finish coatings. Unless otherwise specified, prime coating shall be field applied. Any offsite work that does not conform to this specification is subject to rejection by the Engineers.

F. Shop-applied prime coatings that are damaged during transportation, construction, or installation shall be thoroughly cleaned and touched up in the field as directed by the Engineer. The Contractor shall use repair procedures that ensure the complete protection of all adjacent primers. The specified repair method and equipment may include wirebrushing, hand or power tool cleaning, or dry-air blast cleaning.

G. The Contractor's coating and painting equipment shall be designed for application of materials specified and shall be maintained in first-class working condition. Compressors shall have suitable traps and filters to remove water and oils from the air. Contractor's equipment shall be subject to approval of the Engineer.

H. Application of the first coat shall follow immediately after surface preparation and cleaning and within an 8 hr working day. Any cleaned areas not receiving first coat within an 8 hr period shall be recleaned prior to application of first coat.

I. Prior to assembly, all surfaces made inaccessible after assembly shall be prepared as specified herein and shall receive the coating or paint system specified.

3.02 MOCKUP

A. Prior to proceeding with surface preparation and painting, the Contractor shall prepare a coating mockup on each element. Contractor shall coordinate mockup location with the Owner and Engineer.

3.03 SURFACE PREPARATION

A. The latest revision of the following surface preparation specifications of the Steel Structures Painting Council shall form a part of this Specification:

1. Facade Metal Fence and Metal Drainage Pipe Guards:

a. All surfaces scheduled for painting shall initially be washed per SSPC SP#12 – Light Cleaning, Water Jet Cleaning Standard. Clean surfaces scheduled for painting by power washing with a minimum 3,000 psi pressure washer to remove contamination, any grease and oil and chlorides. Allow all surfaces to dry thoroughly prior to coating.

b. All washed surfaces scheduled for coating shall be cleaned in accordance with SSPC SP#15 – Power Tool Cleaning, where rust, rust scale, loose and nonadhering coating, and underfilm corrosion exist. The prime coat shall be applied to all cleaned-to-bare-metal surfaces on a same-day basis and prior to the development of any surface rusting. All weld splatters should be cleaned prior to painting.

3.04 APPLICATION, GENERAL

A. Coating and paint application shall conform to the requirements of the Steel Structures Painting Council Paint Application Specification SSPC-PA1, latest revision; the American Water Works Association; and the manufacturer of the coating and paint materials.

B. All paint shall be applied by brush, roller, or sprayed. Paint shall only be applied to rail system. All other areas shall be protected. If paint is applied to other areas, the Contractor shall remove paint at their own expense.

C. Thinning shall be permitted only as recommended by the manufacturer and approved by the Engineer.

D. Each application of coating or paint shall be applied evenly, free of brush marks, sags, and runs, with no evidence of poor workmanship. Care shall be exercised to avoid lapping on glass or hardware. Coatings and paints shall be sharply cut to lines. Finished surfaces shall be free from defects or blemishes.

E. When two coats of coating or paint are specified, where possible, the first coat shall contain sufficient approved color additive to act as an indicator of coverage, or the two coats must be of contrasting color.

F. Film thickness per coat, specified herein, is the minimum required. The Contractor shall apply additional coats as necessary to achieve the specified thickness.

G. All material shall be applied as specified.

3.05 COATING SYSTEMS APPLICATION

A. After completion of surface preparation as specified for the specific system, materials shall be applied as noted herein.

B. Coating System:

1. Spot Primer: 6 – 7 mils DFT single coat (red color), apply to all cleaned-to-bare-metal steel surfaces. Overlap prime coat onto sound, intact existing coating a minimum 3 in. Allow primer to fully cure prior to top-coating.

2. Intermediate Coat: 3.0 – 3.5 mils minimum DFT single coat (grey color), apply to all spot primed steel surfaces.

3. Top Coat: 2.5 – 3.0 mils DFT single coat. Color to match existing color subject to approval by Owner, apply to all exposed steel surfaces (existing painted or newly primed), scheduled for painting.

3.06 COLOR SCHEME

A. The Owner shall select colors for the Project. The Contractor shall submit a current chart of the manufacturer's available colors to the Owner thirty days prior to the start of coating and painting operations.

3.07 FIELD QUALITY CONTROL

A. Testing: The Owner reserves the right to employ an independent testing agency to conduct material evaluation and application tests. The Contractor shall cooperate fully, and when requested, permit samples of materials to be taken from containers as the materials are applied to steel surfaces.

B. Cost of Testing: If tests indicate that materials or work does not comply with the requirements, the Contractor shall pay for tests performed and all retesting, and shall remove and replace noncomplying work.

3.08 CLEANUP AND PROTECTION

A. Provide temporary protection to ensure that existing undamaged surfaces are not damaged. Remove protections and reclean as necessary immediately before final acceptance.

B. Upon completion of the work, all staging, scaffolding, and containers shall be removed from the site and/or disposed of, if required, in a manner approved by the Engineer. Coating or paint spots and oil or stains upon adjacent surfaces shall be removed, and the jobsite cleaned. All damage to surfaces resulting from the work of this Section shall be cleaned, repaired, or refinished to the satisfaction of the Engineer at no cost to the Owner.

END OF SECTION

SECTION 099100

TRAFFIC MARKINGS

(Part of Work of Section 090001 – PAINTING, Filed Sub-Bid Required)

PART 1 – GENERAL

1.01 GENERAL REQUIREMENTS

A. Drawings, Contract Requirements, and the General Requirements (Division 1) of the Contract for Construction are hereby made a part of this Section.

1.02 SCOPE OF WORK

A. Work includes providing all labor, materials, equipment, and supervision to accomplish the following traffic-marking work in accordance with the Drawings and Specifications.

1. Apply all striping, space identifiers, traffic markings, and curb markings at all parking levels as shown on the Drawings.
2. Install clearance bars at the entrance at the Upper Level.
3. Install clearance signage at the entrance at the Lower Level.
4. Install one-way sign at the entrance to the Upper Level.
5. Install axle-load limit sign at the entrance to the Upper Level.
6. Install berm warning signs at the entrance to the Lower Level.
7. Install ADA-accessible parking space signs at all accessible spaces.
8. Install fire extinguishers at the Upper Level.

1.03 RELATED WORK

A. Work related to this Section includes, but is not limited to, the following:

1. Section 037320 – Concrete Repair.
2. Section 071816 – Vehicular-Traffic-Bearing Waterproofing.
3. Section 071900 – Penetrating Sealer.
4. Section 079200 – Joint Sealants.

1.04 REFERENCE STANDARDS

A. FS TT-P-1952 – Paint, Traffic Black, and Airfield Marking, Waterborne; Rev. E, 2007.

B. MPI (APL) – Master Painters Institute Approved Products List; Master Painters and Decorators Association; http://www.paintinfo.com (current edition).

C. FHWA MUTCD – Manual on Uniform Traffic Control Devices for Streets and Highways; U.S. Department of Transportation, Federal Highway Administration; http://mutcd.fhwa.dot.gov (current edition).

1.05 SUBMITTALS

A. Sample color chip.

B. Material cut sheets and specifications.

C. Standard color chip Specimen No. 13538 of Federal Standard 595A.

D. The Contractor shall submit Shop Drawing plans showing new pavement markings and striping within the area of repair work, including parking stalls, numbering, handicap spaces, and directional information. Provide details showing existing stall size, spacing, numbering, other relevant dimensions, etc., for all levels. The striping layout for parking stalls shall match the existing layout.

1.06 QUALITY CONTROL AND QUALITY ASSURANCE

A. The Contractor shall conduct a quality control program that includes, but is not limited to, the following:

1. Inspection of all materials to ensure conformity to Contract requirements and that all materials are new and undamaged.

2. Establishment of procedures for executing the Work.

3. Inspection of all surface preparation prior to material application.

4. Inspection of work in progress to ensure work is being done in accordance with established procedures and manufacturer's instructions.

5. Inspection of all work completed and correction of all defective work.

B. Qualifications:

1. The pavement-marking applicator shall be licensed by the manufacturer of the products to be used on the Project with a minimum of 5 yrs of experience in the application of the product system.

2. The Contractor's site superintendent shall have at least 5 yrs of experience supervising the installation of pavement markings.

C. Attend a preinstallation conference to be held with the Owner, Engineer, Contractor's field superintendent, foreman, and other trades involved to discuss the conduct of the Work of this Section.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Deliver paint in containers of at least 5 gal accompanied by batch certificate.

B. Store products in manufacturer's unopened packaging until ready for installation.

C. Store and dispose of solvent-based materials, and materials used with solvent-based materials, in accordance with requirements of local Authorities Having Jurisdiction.

1.08 FIELD CONDITIONS

A. Do not install products under environmental conditions outside manufacturer's absolute limits.

1.09 BASIS OF PAYMENT

A. See Form for General Bid.

PART 2 – PRODUCTS

2.01 MATERIALS

A. Marking Paint:

1. Paint shall be a lead-free, acrylic, VOC-compliant traffic-marking paint meeting Federal Specification TT-P-115F Type III. VOC requirements shall be determined from local Authorities Having Jurisdiction.

2. The Pavement-Marking Contractor shall verify compatibility with sealers, joint sealants, coatings, and all other surface treatments.

3. The paint shall visually match Color Chip No. 13538 of Federal Standard 595A when a wet-film thickness of 0.015 in. is applied to a tin panel and allowed to dry for 24 hrs. In case of dispute, the color shall be within the green and red tolerance limits when compared with the latest Highway Yellow Tolerance Chart, PR Color No. 1, U.S. Department of Transportation, Federal Highway Administration.

4. Drying Time: The paint shall have no-pick-up maximum drying time of 20 min. when tested according to ASTM D1640 using a wet-film thickness of 0.01 in. and when applied and tested at 77°F.

5. Manufacturers:

a. Sherwin-Williams Company, Cleveland, Ohio.

b. Glidden, Cleveland, Ohio.

c. Safety Coatings, Inc., Foley, Alabama.

B. Clearance Bar: 5 in. diameter, high-density polyethylene, yellow bar with black lettering.

PART 3 – EXECUTION

3.01 EXAMINATION

A. Inspect surfaces to which paint will be applied and report immediately in writing to the Engineer, as required in the General Conditions, any conditions detrimental to the proper execution of this Work.

B. Do not proceed until unsatisfactory conditions are acceptably remedied. Commencement of Work implies acceptance of related work.

3.02 PREPARATION

A. Before commencing Work, make certain that the work to be painted is in proper condition to receive painting materials and that surfaces are clean, dry, smooth, and at proper temperature as recommended by the paint manufacturer.

B. Do not paint or finish any surface that is wet or damp.

C. Clean all surfaces free of adhering foreign matter, dirt, and dust.

D. Establish survey control points to determine locations and dimensions of markings; provide templates to control paint application by type and color at necessary intervals.

3.03 WORK AREAS

A. Store, mix, and prepare paints only in areas designated by the Contractor for that purpose.

B. Provide clean cans and buckets required for mixing paints and for receiving rags and other waste materials associated with painting. Clean buckets regularly. At the close of each day's work, remove used rags and other waste materials associated with painting.

C. Take precautions to prevent fire in or around painting materials. Provide and maintain a hand fire extinguisher near paint storage and mixing area.

3.04 MIXING

A. Do not intermix materials of different character or different manufacturer.

B. Do not thin material except as recommended by manufacturer.

3.05 APPLICATION

A. Begin pavement marking as soon as practicable after surface has been cleaned and dried.

B. Do not apply paint if temperature of surface to be painted or the atmosphere is less than 50°F or more than 95°F.

C. Apply painting and finishing materials in accordance with approved Shop Drawings.

D. Apply in accordance with the manufacturer's instructions in order to achieve 15 mil wet thickness. Use applicators and techniques best suited for the materials and surfaces to which they are applied. Hand application by pneumatic spray is acceptable at areas other than linework.

E. Determine locations by measurement from survey control points; preserve control points until after markings have been accepted.

F. Mark the International Symbol of Access (Wheelchair Symbol) at indicated parking spaces.

G. Use a suitable template for symbols that will provide a pavement marking with true, sharp edges and ends, of the design and size indicated.

H. Comply with FHWA MUTCD manual (http://mutcd.fhwa.dot.gov) for details not shown.

I. Extend striping to within 3 in. from walls or other vertical surfaces.

J. Provide stripe width equal to 4 in. ±1/8 in. or as necessary to match existing striping.

K. Provide stripe length to match existing striping ±3 in.

3.06 CLEANING

A. Immediately upon completion of the Work and prior to the approval thereof, clean up all paint spots, remove excess materials and equipment, and repair all paint damage to other finishes.

END OF SECTION

SECTION 210001

FIRE SUPPRESSION

(Filed Sub-Bid Required)

PART 1 – GENERAL

1.01 GENERAL PROVISIONS AND RELATED DOCUMENTS

A. Drawings, Contract Requirements, and the General Requirements (Division 01) of the Contract for Construction are hereby made a part of this Section.

B. Time, Manner, and Requirements for Submitting Sub-Bids:

1. Sub-bids for work under this Section shall be for the complete work and shall be filed in a sealed envelope with the City of Somerville at a time and place as stipulated in the "NOTICE TO CONTRACTORS."

   The following should appear on the upper left hand corner of the envelope:

   NAME OF SUB-BIDDER: (Insert name of sub-bidder.)

   SUB-BID FOR SECTION: 210001 – FIRE SUPPRESSION

2. Each sub-bid submitted for work under this Section shall be filed on forms furnished with these Contract Documents.

3. Sub-bids filed with the Owner shall be accompanied by BID BOND or CASH or CERTIFIED CHECK or TREASURER'S CHECK or CASHIER'S CHECK issued by a responsible bank or trust company payable to the City of Somerville in the amount of 5% of the sub-bid. A sub-bid accompanied by any other form of bid deposit than those specified will be rejected.

C. Sub Sub-Bid Requirements: (None required under this Section.)

D. Reference Drawings: The Work of this Filed Sub-Bid is shown on the following Contract Drawings:

G-001	COVER SHEET
G-002	SCOPE OF WORK
PH-100	PROPOSED PHASING PLAN
FPD-100	LOWER LEVEL DEMO FIRE PROTECTION PLAN
FP-100	LOWER LEVEL NEW FIRE PROTECTION PLAN

1.02 DESCRIPTION OF WORK

A. Work Included: Provide labor, materials, and equipment necessary to complete the work of this Section, including, but not limited to, the following:

1. Remove and replace corroded sprinkler pining at locations shown on the Drawings and identified by the Engineer.

2. Alternate No. 2: Remove and replace the fire sprinkler heads as shown on the Drawings.

B. Examine all of the Contract Documents, criteria sheets, and all other Sections of the Specifications for requirements that affect work under this Section, whether or not such work is specifically mentioned in this Section.

C. The work under this Contract shall include all labor, materials, tools, equipment, transportation, insurance, temporary protection, supervision, and incidental items essential for proper installation and operation, even though not specifically mentioned or indicated on the Drawings, but that are usually provided or are essential for proper installation and operation, of all systems as indicated on the Drawings and specified herein.

D. Coordinate work with that of all other Trades affecting or affected by the work of this Section. Cooperate with such Trades to ensure the steady progress of all work under the Contract.

PART 2 – PRODUCTS

Not used.

PART 3 – EXECUTION

Not used.

END OF SECTION

SECTION 220001

PLUMBING

(Filed Sub-Bid Required)

PART 1 – GENERAL

1.01 GENERAL PROVISIONS AND RELATED DOCUMENTS

A. Drawings, Contract Requirements, and the General Requirements (Division 1) of the Contract for Construction are hereby made a part of this Section.

B. Time, Manner, and Requirements for Submitting Sub-Bids:

1. Sub-bids for work under this Section shall be for the complete work and shall be filed in a sealed envelope with the City of Somerville at a time and place as stipulated in the "NOTICE TO CONTRACTORS."

2. The following should appear on the upper left hand corner of the envelope:

   NAME OF SUB-BIDDER: (Insert name of sub-bidder.)

   SUB-BID FOR SECTION: 220001 – PLUMBING

3. Each sub-bid submitted for work under this Section shall be on forms furnished with these Contract Documents.

4. Sub-bids filed with the Owner shall be accompanied by BID BOND or CASH or CERTIFIED CHECK or TREASURER'S CHECK or CASHIER'S CHECK issued by a responsible bank or trust company payable to the City of Somerville in the amount of 5% of the sub-bid. A sub-bid accompanied by any other form of bid deposit than those specified will be rejected.

C. Sub Sub-Bid Requirements: (None required under this Section.)

D. Reference Drawings: The Work of this Filed Sub-Bid is shown on the following Contract Drawings:

G-001	COVER SHEET
G-002	SCOPE OF WORK
PH-100	PROPOSED PHASING PLAN
D-100	EXTERIOR DRAINAGE REPAIRS
S-100	LOWER LEVEL TOPSIDE REPAIR PLAN
S-101	UPPER LEVEL TOPSIDE REPAIR PLAN
S-304	CONCRETE REPAIR DETAILS V
P-001	PLUMBING LEGEND, GENERAL NOTES, SCHEDULE AND SPECIFICATIONS
PD-100	LOWER LEVEL PLUMBING DEMOLITION PLAN
PD-101	UPPER LEVEL PLUMBING DEMOLITION PLAN

P-100 LOWER LEVEL NEW PLUMBING PLAN
P-101 UPPER LEVEL NEW PLUMBING PLAN

1.02 DESCRIPTION OF WORK

A. Work Included: Provide labor, materials, and equipment necessary to complete the work of this Section, including, but not limited to, the following:

1. Remove and replace existing drains at locations shown on the Drawings.

2. Remove and replace existing trench drains at the Lower Level entrance.

3. Remove and replace drainage piping as directed by the Engineer.

4. Clean and flush the plumbing system.

5. Snake out rain leaders and plumbing system.

6. Replace broken drain grates and sediment baskets at existing drains at the Lower Level.

7. Clean and flush oil/water separator at the Lower Level.

8. Clean and scope all parking garage drainage lines, drains, and manholes.

9. Install backflow preventers at the garage drainage outlets as shown on the Drawings.

B. Examine all of the Contract Documents, criteria sheets, and all other Sections of the Specifications for requirements that affect work under this Section, whether or not such work is specifically mentioned in this Section.

C. The work under this Contract shall include all labor, materials, tools, equipment, transportation, insurance, temporary protection, supervision, and incidental items essential for proper installation and operation, even though not specifically mentioned or indicated on the Drawings, but which are usually provided or are essential for proper installation and operation, of all systems as indicated on the Drawings and specified herein.

D. Coordinate work with that of all other Trades affecting or affected by the work of this Section. Cooperate with such Trades to ensure the steady progress of all work under the Contract.

PART 2 – PRODUCTS

Not used.

PART 3 – EXECUTION

Not used.

END OF SECTION

SECTION 260001

ELECTRICAL

(Filed Sub-Bid Required)

PART 1 – GENERAL

1.01 GENERAL PROVISIONS AND RELATED DOCUMENTS

A. Drawings, Contract Requirements, and the General Requirements (Division 01) of the Contract for Construction are hereby made a part of this Section.

B. Time, Manner, and Requirements for Submitting Sub-Bids:

1. Sub-bids for work under this Section shall be for the complete work and shall be filed in a sealed envelope with the City of Somerville at a time and place as stipulated in the "NOTICE TO CONTRACTORS."

   The following should appear on the upper left hand corner of the envelope:

   NAME OF SUB-BIDDER: (Insert name of sub-bidder.)

   SUB-BID FOR SECTION: 260001 – ELECTRICAL

2. Each sub-bid submitted for work under this Section shall be filed on forms furnished with these Contract Documents.

3. Sub-bids filed with the Owner shall be accompanied by BID BOND or CASH or CERTIFIED CHECK or TREASURER'S CHECK or CASHIER'S CHECK issued by a responsible bank or trust company payable to the City of Somerville in the amount of 5% of the sub-bid. A sub-bid accompanied by any other form of bid deposit than those specified will be rejected.

C. Sub Sub-Bid Requirements: (None required under this Section.)

D. Reference Drawings: The Work of this Filed Sub-Bid is shown on the following Contract Drawings:

G-001	COVER SHEET
G-002	SCOPE OF WORK
PH-100	PROPOSED PHASING PLAN
E-000	ELECTRICAL LEGEND AND GENERAL NOTES
E-100	UPPER LEVEL TOPSIDE ELECTRICAL REPAIR PLAN
E-101	UPPER LEVEL UNDERSIDE ELECTRICAL REPAIR PLAN

1.02 DESCRIPTION OF WORK

A. Work Included: Provide labor, materials, and equipment necessary to complete the work of this Section, including, but not limited to, the following:

1. Remove, store, and reinstall electrical fixtures and conduit as required to accomplish the concrete repairs.

2. Remove and replace corroded conduit between junction boxes.

3. Install new LED emergency exit lighting.

4. Remove and replace lightbulbs at Upper Level lampposts.

5. Replace batteries in emergency lighting.

B. Examine all of the Contract Documents, criteria sheets, and all other Sections of the Specifications for requirements that affect work under this Section, whether or not such work is specifically mentioned in this Section.

C. The work under this Contract shall include all labor, materials, tools, equipment, transportation, insurance, temporary protection, supervision, and incidental items essential for proper installation and operation, even though not specifically mentioned or indicated on the Drawings, but that are usually provided or are essential for proper installation and operation, of all systems as indicated on the Drawings and specified herein.

D. Coordinate work with that of all other Trades affecting or affected by the work of this Section. Cooperate with such Trades to ensure the steady progress of all work under the Contract.

PART 2 – PRODUCTS

Not used.

PART 3 – EXECUTION

Not used.

END OF SECTION

SECTION 312000

EARTHWORK

PART 1 – GENERAL

1.01 GENERAL REQUIREMENTS

A. Drawings, Contract Requirements, and the General Requirements (Division 01) of the Contract for Construction are hereby made a part of this Section.

1.02 SCOPE OF WORK

A. Work includes, but is not limited to, providing all labor, materials, equipment, and supervision to accomplish the following work in accordance with the Drawings and Specifications:

1. Remove, regrade, and repave Lower Level garage entrance.

2. Prepare gravel base for hot-mix-asphalt (HMA) patching.

1.03 DEFINITIONS

A. Backfill: Soil and/or fill material and/or controlled low-strength material used to fill an excavation.

B. Borrow: Geotechnically and analytically satisfactory soil imported from offsite for use as fill or backfill.

C. Excavation: Removal of material encountered above subgrade elevations and to lines and dimensions indicated.

D. Fill: Soil materials used to raise existing grades.

E. Fill (Urban Fill): In situ material known as fill, also known as urban fill or miscellaneous fill, is defined as a mixture of soil and other materials that have been located in the area through manmade processes primarily for the purpose of grading, backfilling, or filling in low areas. Material commonly associated with urban fill includes, but are not limited to, glass, brick, ash, wood fragments, and other similar granular materials. Urban fill shall not include boulders, ledge, consolidated rock, asphalt, concrete, railroad timbers, rail, cobblestones, or any other abandoned building materials that would preclude the disposal of the urban fill as daily cover at a landfill. Material containing less than 10%, by volume, solid waste/debris, as determined by the Engineer, shall be classified as urban fill. Material that contains 10% or more solid waste/debris by volume, as determined by the Engineer, shall be classified as solid waste.

F. Soil (Natural Soils): Soil, otherwise known as natural soil, is defined for the purposes of the Contract as unconsolidated sand, gravel, silt and clay, and the organic material that has become part of the unconsolidated soil matrix.

G. Rock: Rock material in beds, ledges, unstratified masses, conglomerate deposits, and boulders of rock material that exceed 1 cu yd for bulk excavation or 3/4 cu yd for footing, trench, and pit excavation that cannot be removed by rock excavating equipment equivalent to the following in size and performance ratings, without systematic drilling, ram hammering, ripping, or blasting, when permitted.

H. Structures: Buildings, footings, foundations, retaining walls, slabs, tanks, curbs, mechanical and electrical appurtenances, manholes, catch basins, or other manmade stationary features constructed above or below the ground surface.

I. Gravel Base: Course placed between the final backfill and the bituminous pavement or concrete sidewalk.

J. Subgrade: Surface or elevation remaining after completing excavation, or top surface of a fill or backfill immediately below sub-base, drainage fill, or topsoil materials.

K. Utilities: On-site underground pipes, conduits, ducts, and cables, as well as underground services within buildings.

1.04 QUALITY ASSURANCE

A. The City of Somerville reserves the right to perform inspections and testing at any time during the execution of work.

B. When rework or replacement of soils are required to achieve compaction, the City of Somerville will conduct confirmatory testing.

C. The Engineer will establish which tests are necessary to determine compliance with these Specifications.

1.05 QUALITY CONTROL

A. The Contractor shall assume full responsibility for control inspection and testing and give sufficient notice to the Engineer to permit the witnessing of the inspections or tests.

B. The Contractor shall engage a qualified, independent testing agency to perform quality control testing and inspections.

1.06 SUBMITTALS

A. Material Test Reports: From a qualified testing agency indicating and interpreting test results for compliance of the following with requirements indicated:

1. Classification according to ASTM D2487 of each on-site fill and backfill, including the existing gravel base beneath the existing sidewalk.

2. Laboratory compaction curve according to ASTM D1557 for each fill and backfill, including the new gravel base and the existing gravel base beneath the existing sidewalk.

3. During construction, submit written confirmation of fill lift thickness, in-place soil moisture content, and percentage of compaction to the Engineer before placing the next lift or constructing sidewalks, including the existing gravel base beneath the existing sidewalk.

B. Pre-excavation Photographs and Videotape: Show existing conditions of adjoining construction and site improvements, including finish surfaces, that might be misconstrued as damage caused by earthwork operations. Submit before earthwork begins. Maintain catalog of up-to-date photographs at the site.

C. Backfill Materials: Submit a grain size analysis and moisture density curve performed in accordance with ASTM D422 and compaction test results (ASTM D1557 Procedure C) for each proposed source of backfill, imported material, and on-site material to be reused, including the existing gravel base beneath the existing sidewalk that is removed and reinstalled, for review by the Engineer at least one week prior to use of the material. The grain size analysis shall indicate that the backfill material conforms to the gradation requirements specified.

D. In addition, a certification statement and analytical results shall accompany each physical sample of earth materials to be imported onto the site, including, but not limited to, gravel base and common fill as applicable. At a minimum, the certification shall state the point of origin and that the material is free of contaminants. The certification shall include representative sample analysis from each point of origin of backfill to be used on the site.

1.07 PROJECT CONDITIONS

A. Existing Utilities: Do not interrupt utilities serving facilities occupied by the Owner or others unless permitted in writing by Engineer and then only after arranging to provide temporary utility services according to requirements indicated.

1. Notify the Engineer not less than two days in advance of proposed utility interruptions.

2. Do not proceed with utility interruptions without the Engineer's written permission.

3. Contact utility-locator service for area where the Project is located before excavating.

1.08 BASIS OF PAYMENT

A. See Form for General Bid.

PART 2 – PRODUCTS

2.01 SOIL MATERIALS

A. Gravel Base: Gravel base material shall meet the requirements of MHD M1.03.1.

B. Satisfactory Soils: ASTM D2487 Soil Classification Groups GW, GP, GM, SW, SP, and SM or a combination of these groups; free of rock or gravel larger than 3 in. in any dimension, debris, waste, frozen materials, vegetation, and other deleterious matter.

C. Unsatisfactory Soils: Soil Classification Groups GC, SC, CL, ML, OL, CH, MH, OH, and PT according to ASTM D2487, fill (urban), or a combination of these groups.

1. Unsatisfactory soils also include satisfactory soils not maintained within 2% of optimum moisture content at time of compaction.

PART 3 – EXECUTION

3.01 PREPARATION

A. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by earthwork operations.

B. Protect and maintain sedimentation controls as shown on the plans during earthwork operations.

3.02 EXCAVATION, GENERAL

A. Unclassified Excavation: Excavate to subgrade elevations regardless of the character of surface and subsurface conditions encountered. Unclassified excavated materials may include bituminous and cement concrete sidewalks and roadways, bricks and cobbles, soil materials, and obstructions. No changes in the Contract Sum or the Contract Time will be authorized for rock excavation or removal of obstructions.

1. If excavated materials intended for fill and backfill include unsatisfactory soil materials and rock, replace with satisfactory soil materials.

2. Remove rock to lines and grades indicated to permit installation of permanent construction without exceeding the following dimensions:

a. 6 in. outside of minimum required dimensions of concrete cast against grade.

b. 12 in. beneath bottom of concrete slabs on grade.

3.03 EXCAVATION FOR STRUCTURES

A. Excavate to indicated elevations and dimensions within a tolerance of ± 1 in. if applicable, extend excavations a sufficient distance from structures for placing and removing concrete formwork, for installing services and other construction, and for inspections.

3.04 EXCAVATION FOR WALKS AND PAVEMENTS

A. Excavate surfaces under walks and pavements to indicated lines, cross sections, elevations, and subgrades.

3.05 EXISTING GRAVEL BASE INSPECTION

A. Notification Point: Notify the Engineer when the existing gravel base is exposed and ready for inspection.

B. If the Engineer determines that unsatisfactory soil is present, or minimum allowable thickness of existing gravel base is not adequate, continue excavation and replace with gravel base to the satisfaction of the Owner and Engineer.

C. Prepare the existing gravel base in accordance with Para. 3.11 below as applicable and proof-roll the existing gravel base with heavy pneumatic-tired equipment to identify soft pockets and areas of excess yielding. Do not proof-roll wet or saturated subgrades.

1. Excavate soft spots, unsatisfactory soils, and areas of excessive pumping or rutting, as determined by Engineer, and replace with gravel base as directed by the Engineer.

D. Reconstruct subgrades damaged by freezing temperatures, frost, rain, accumulated water, or construction activities, as directed by Engineer, without additional compensation.

3.06 STORAGE OF SOIL MATERIALS (IF APPROVED BY THE OWNER)

A. Stockpile borrow soil materials and excavated satisfactory soil materials without intermixing. Place, grade, and shape stockpiles to drain surface water. Cover to prevent windblown dust.

1. Stockpile soil materials away from edge of excavations. Do not store within drip line of remaining trees.

3.07 BACKFILL

A. Place and compact backfill in excavations promptly, but not before completing the following:

1. Testing and inspecting subgrades.

2. Removing concrete formwork as applicable.

3. Removing trash and debris.

B. Place backfill on subgrades free of mud, frost, snow, or ice.

3.08 SOIL MOISTURE CONTROL

A. Uniformly moisten or aerate subgrade and each subsequent fill or backfill soil layer before compaction to within 2% of optimum moisture content.

1. Do not place backfill or fill soil material on surfaces that are muddy, are frozen, or contain frost or ice.

2. Remove, replace or scarify, and air dry otherwise satisfactory soil material that exceeds optimum moisture content by 2% and is too wet to compact to specified dry unit weight.

3.09 COMPACTION OF SOIL BACKFILLS

A. Place backfill and fill soil materials in layers not more than 12 in. in loose depth for material compacted by heavy compaction equipment, and not more than 6 in. in loose depth for material compacted by hand-operated tampers.

B. Place backfill and fill soil materials evenly on all sides of structures to required elevations, and uniformly along the full length of each structure.

C. Compact soil materials to not less than the following percentages of maximum dry unit weight according to ASTM D1557:

1. Under concrete garage entrance, scarify and recompact top 6 in. below subgrade, or of the existing gravel base where applicable, and compact each layer of backfill or fill soil material at 95% minimum.

3.10 GRADING

A. General: Uniformly grade areas to a smooth surface, free of irregular surface changes. Comply with compaction requirements and grade to cross sections, lines, and elevations indicated.

1. Provide a smooth transition between adjacent existing grades and new grades.

2. Cut out soft spots, fill low spots, and trim high spots to comply with required surface tolerances.

B. Site Grading: Slope grades to direct water away from buildings and to prevent ponding. Finish subgrades to required elevations within the following tolerances:

1. Walks: See Section 025240 – Vertical Granite Curbs and Brick Sidewalks.

2. Pavements: ±1/2 in. and to provide positive drainage as indicated on the Drawings.

3.11 GRAVEL BASE

A. Place gravel base on subgrades free of water, mud, frost, snow, or ice.

B. On prepared subgrade, place gravel base under pavements and walks as follows:

1. Shape sub-base course to required crown elevations and cross-slope grades.

2. Place sub-base 6 in. or less in compacted thickness in a single layer.

3. Place sub-base that exceeds 6 in. in compacted thickness in layers of equal thickness, with no compacted layer more than 6 in. thick or less than 3 in. thick.

4. Compact sub-base course at optimum moisture content to required grades, lines, cross sections, and thickness to not less than 95% of maximum dry unit weight according to ASTM D1557.

3.12 FIELD QUALITY CONTROL

A. Testing Agency: The Contractor shall engage a qualified independent testing agency to perform field quality-control testing.

B. Allow testing agency to inspect and test subgrades, existing gravel base layer, and each backfill layer. Proceed with subsequent earthwork only after test results for previously completed work comply with requirements.

C. An Independent Laboratory will test compaction of soils in place according to ASTM D1556, ASTM D2167, ASTM D2922, and ASTM D2937, as applicable. Tests will be performed at the following locations and frequencies:

1. Sidewalk Areas: At subgrade, or at the existing gravel base layer as applicable, and at each compacted backfill layer, at least one test for every 2,000 sq ft or less of sidewalk area, but in no case fewer than three tests.

D. When testing agency reports that subgrades, existing gravel base, gravel base, or backfills have not achieved degree of compaction specified, scarify and moisten or aerate, or remove and replace soil to depth required; recompact and retest until specified compaction is obtained. The Owner will conduct confirmatory testing.

3.13 PROTECTION

A. Protecting Graded Areas: Protect newly graded areas from traffic, freezing, and erosion. Keep free of trash and debris.

B. Repair and reestablish grades to specified tolerances where completed or partially completed surfaces become eroded, rutted, settled, or where they lose compaction due to subsequent construction operations or weather conditions.

1. Scarify or remove and replace soil material to depth as directed by the Engineer; reshape and recompact.

C. Where settling occurs before Project correction period elapses, remove finished surfacing, backfill with additional soil material, compact, and reconstruct surfacing.

1. Restore appearance, quality, and condition of finished surfacing to match adjacent work, and eliminate evidence of restoration to greatest extent possible.

3.14 DISPOSAL OF SURPLUS AND WASTE MATERIALS

A. Disposal: Remove surplus satisfactory soil and waste material, including unsatisfactory soil, trash, and debris, and legally dispose of it off the User Agency's property.

END OF SECTION

PART 4: DRAWINGS

Due to the file size, the drawings may be downloaded from the City of Somerville's Purchasing webpage, here: https://www.somervillema.gov/departments/finance/purchasing