

Addendum No. 1 to RFP 15-19



CITY OF SOMERVILLE, MASSACHUSETTS
Department of Purchasing
JOSEPH A. CURTATONE
MAYOR

To: Prospective Bidders IFB 15-19, Webster Avenue Water Main Upgrades

From: Orazio DeLuca, Contract Manager

Date: September 26, 2014

Re: Clarifications – Bid Opening Postponed

Addendum No. 1 to RFP 15-19

The City is issuing this addendum #1 to IFB 15-19 Webster Avenue Water Main Upgrade, for the following date change,

1. The bid opening date has been changed to:

FIDAY, OCTOBER 17, 2014 @ 11:00 AM

Thank you-
Orazio P. DeLuca
Contract Manager
Purchasing Department
City of Somerville
617-625-6600 x 3407

**CITY OF SOMERVILLE MASSACHUSETTS
SOMERVILLE CITY HALL
93 HIGHLAND AVENUE
SOMERVILLE, MA 02143
BIDDING INSTRUCTIONS FOR
WEBSTER AVENUE WATER MAIN UPGRADES
Bid No. 15-19**

Enclosed you will find an invitation to bid for: Webster Avenue Water Main Upgrades. Contract is from **November 3, 2014 to December 31, 2015.** Substantial completion of this project will be August 15, 2015 and Final Completion will be November 15, 2015.

A Pre-Bid Conference will be held on Thursday, October 2, 2014 at 11:00 AM, at the DPW, 2nd floor Conference Room, One Franey Road, Somerville MA.

When submitting bid, please identify the bid item and number clearly. All bids must be sealed and delivered to Purchasing Department, City of Somerville, 93 Highland Ave., Somerville, MA 02143. Please mark the outside of all bid envelopes with the Bid number above and write "IFB 15-19, Webster Avenue" on the bid envelope.

BIDS SUBMITTED MUST BE AN ORIGINAL.

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

- 1) "Notice to Bidders" signed by person submitting bid.
- 2) "Signature Form" complete when submitting your bid.
- 3) Tax Compliance/Non Collusion Form
- 4) Certificate of Signature Authority
- 5) Somerville Living Wage Form
- 6) Quality Requirements
- 7) Bid Pricing Page
- 8) Prevailing Wage Compliance Form
- 9) Responsible Employer Ordinance (REO)

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

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

Your cooperation is greatly appreciated.

NOTICE TO BIDDERS
BID #15-19

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

SECTION A. Sealed bids for: **Webster Avenue Water Main Upgrades**. The bids will be received at the office of the Purchasing Director, Somerville City Hall, 93 Highland Avenue, Somerville, MA. 02143 no later than **Friday, October 10, 2014 at 11:00 A.M.** at which time and place they will be publicly opened and read.

A Pre-Bid Conference will be held on Thursday, October 2, 2014 at 11:00 AM DPW 2nd floor Conference Room, One Franey Road, Somerville, MA.

SECTION B. Forms of price bid, specifications and terms of contract can be obtained at the above office on or after **Wednesday, September 24, 2014.**

SECTION C. Bid envelopes shall be clearly marked as follows: "**Bid No: 15-19, Webster Avenue**".

SECTION D. If **awarded** vendor is a Corporation, vendor must comply with request for "Certificate of Good Standing". See attached instructions.

SECTION E. **INSURANCE: Awarded Vendor** must comply with insurance requirements as stated in the bid package.

SECTION F. Living Wage - see specifications
Prevailing Wage Rates

SECTION G. The requirements in Section **E or F** will be waived if the words "Non-Applicable" (N/A) are inserted in the space designated.

SECTION H. The copy of the bid deposited with the City will be accompanied by a bid guarantee in the amount of **5% of the proposed bid amount.** A Bid bond, Certified Check, Treasurer's Check, or Cashier's Check made payable to the City must be submitted with each bid. Said bid guarantee will become the property of the City of Somerville if the proposal is accepted and the bidder either neglects or refuses to comply with the terms of the proposal. Bid guarantee will be returned within 30 days to all unsuccessful bidders.

SECTION I. A Payment Bond in the amount of 50% of the total contract price will be required by the City.

Bonds shall be issued by a Surety company qualified to do business under the laws of the Commonwealth of Massachusetts and satisfactory to the City. Every bid bond, every performance bond and every payment bond issued for any construction work in the commonwealth shall be the bond of a surety company organized pursuant to Section 105 of Chapter 175 or of a surety company authorized to do business in the commonwealth under the provisions of Section 106 of said Chapter 175 and be approved by the U.S. Department of Treasury and are acceptable as sureties and reinsurers on federal bonds under Title 31 of the United States Code, sections 9304 to 9308.

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

SECTION K. The City reserves the right to cancel a contract, if awarded bidder does not respond to all necessary documents and required signature forms within twenty (20) working days of receipt of contract.

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

Signature: _____

Signature Name & Title: _____

Company: _____

Date: _____ Tel. No: _____ Fax: _____

City of Somerville

Invitation for Bids for

**Webster Avenue Water Main Upgrades
Bid No. 15-19**

I. General Information and Bid Submission Requirements

Bid Delivery

All bids must be delivered to City of Somerville, Purchasing Department, 93 Highland Avenue, Somerville, MA 02143.

A Pre-Bid Conference will be held on Thursday, October 2, 2014 at 11:00 AM DPW 2nd floor Conference Room, One Franey Road, Somerville, MA.

Bids must be delivered by: **11:00 A.M. on Friday, October 10, 2014**

1 copy of the bid should be submitted. Bids must be sealed and marked as follows:
"Bid for Webster Avenue, Bid 15-19"

All bids must include a non-collusion form, tax compliance certificate, bid pricing sheet, reference form as provided in this IFB, and 5% bid surety in the amount of **5% of the proposed bid amount.** A Bid bond, Certified Check, Treasurer's Check, or Cashier's Check made payable to the City must be submitted with each bid. Said bid guarantee will become the property of the City of Somerville if the proposal is accepted and the bidder either neglects or refuses to comply with the terms of the proposal. Bid guarantee will be returned within 30 days to all unsuccessful bidders.

Bid Signature

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

Time for Bid Acceptance

The contract will be awarded within 60 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 apparent lowest responsive and responsible bidder (or, for a contract requiring payment, the apparent highest responsive and responsible bidder.)

Bonding Requirements

A Payment Bond in the amount of 50% of total contract price is required upon contract award.

Prevailing Wage Requirements

Bidders will be required to comply with the Prevailing Wage Laws, M.G.L. c. 30-39M. The applicable prevailing wage rates are attached.

Notwithstanding anything to the contrary in Articles of the General Conditions (included in the Contract) 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.

The General Contractor shall submit payroll information on a weekly basis in a format approved by the 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 Director of Engineering.

The City will take an active role in reviewing and monitoring these payrolls weekly. If the City suspects any violations, the City will report them to the Attorney General's Fair Labor and Practices Division. The Attorney General's Office, after conducting an investigation and a hearing can order the bidder to halt work, if it finds prevailing wage violations. Within fifteen days after completion of its portion of the work the bidder must submit a Statement of Compliance with the prevailing wage law. The City reserves the right to conduct hearings on bids that are significantly below the average bid price submitted on a project, to make findings of fact, and determinations. Weekly payrolls are public records and the bidder shall make them available upon request.

The Bidder is required to keep these records for a period of three years from the date of completion of this contract.

Changes and Addenda

If any changes are made to this IFB, an addendum will be issued. Addenda will be mailed or faxed to all bidders on record as having picked up the IFB. No changes may be made to the bid documents, by the Bidders; without written authorization and/or an addendum from the Purchasing Department.

Questions about the IFB

Questions concerning this invitation for bids must be submitted in writing to: Orazio DeLuca, City of Somerville, Purchasing Department, 93 Highland Avenue, Somerville, MA 02143 **before 4:30 P.M. on Monday, October 6, 2014.** Questions may be delivered, mailed, faxed to: 617-625-1344, or e-mailed to odeluca@somervillema.gov. Written responses will be mailed or faxed to all bidders on record as having picked up the IFB.

If any Bidders or proposers contact anyone outside of Purchasing, for information about this proposal, the bid/proposal will be disqualified from the bidding process.

Modification or Withdrawal of Bids, Mistakes, and Minor Informalities

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

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

Right to Cancel/Reject Bids

The City of Somerville may cancel this IFB, or reject in whole or in part any and all bids, if the City determines that cancellation or rejection serves the best interests of the City.

Unbalanced Bids

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

Bid Prices to Remain Firm

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

Unforeseen Office Closure

If, at the time of the scheduled bid opening, Purchasing Department is closed due to uncontrolled events such as fire, snow, ice, wind, or building evacuation, the bid opening will be postponed until 2:00 p.m. on the next normal business day. Bids will be accepted until that date and time.

II. Purchase Description/Scope of Services

Contract Term Length and Renewal Options

The contract will remain in effect from **November 3, 2014 to December 31, 2015.**

Price Submission

All prices must be stated in Unit Prices and Total Amounts as requested on the Bid price submission pages.

Estimated Quantities

The City of Somerville has estimated the quantities required for each of the items on the bid price submission pages, however, these estimates are estimates only and are not guaranteed.

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. Samples may be requested before a final decision is made. The City has the right to make the final determination as to whether an alternate brand is equal to the brand specified.

Warranty

The bidder warrants that (1) the Supplies sold are merchantable, (2) that they are fit for the purpose for which they are being purchased, (3) that they are absent any latent defects and (4) that they are in conformity with any sample which may have been presented to the City.

The bidder guarantees that upon inspection, any defective or inferior Supplies shall be replaced without additional cost to the City. The Vendor will assume any additional cost accrued by the City due to the defective or inferior Supplies.

The bidder guarantees all Supplies for a period of one (1) year, or as otherwise specified herein.

Invoicing

Vendor will mail an invoice to the ordering department after completion and delivery of the order.

Cancellation

The City reserves the right to cancel this contract at any time on any grounds, including the vendor's failure to comply with the specifications provided herein.

Specifications/Scope of Work

General

The work to be performed under this contract consists of furnishing labor, materials, and equipment for the specified replacement and construction of water main and water main cleaning and lining on Webster Avenue.

Examination of Property

The contractor shall fully inform himself of the existing conditions where the work is to be done.

Protection of Property

The contractor shall take all precautions to protect the property of the City from injury and shall be held responsible for all employees or any person or persons, instrument or device directly or indirectly employed by him. Any corresponding damages shall be replaced, repaired and paid for by the contractor to the satisfaction of the City.

Quality of Workmanship

All work must be done in a thorough workmanlike manner.

Experience

The contractor shall have been established in the specified field for at least 5 years.

Response Time

The contractor must respond within forty-eight hours when issued notification by the City of Somerville.

Laws and Regulations

The contractor shall comply with all Federal, State and Local laws regulations and ordinances governing this type of work. The Contractor shall comply with all Mass DOT specifications as apply.

Replacement Components

The contractor shall carry sufficient stock of OEM quality parts and components.

Estimates and Surveys

The contractor shall, as required, furnish estimates and survey proposed work at no cost to the City.

SCOPE OF WORK AND SPECIFICATIONS WEBSTER AVENUE WATER MAIN UPGRADES

SCOPE OF WORK

The work to be performed under this contract includes replacement and construction of approximately 750 linear feet of water main and appurtenances, and approximately 1,000 linear feet of water main cleaning and lining. Please refer to technical specifications for complete information.

PROVISION FOR TRAVEL AND PROSECUTION OF THE WORK

The street and adjacent side streets shall remain open to travel throughout the period required for the completion of the improvement except as permitted by the City of Somerville Traffic Commission. Reasonable facilities shall be provided by the contractor for the convenient and safe passage of pedestrians through the project and also to and from properties abutting the improvement. Particular care shall be taken at all times to establish and maintain such methods of procedure as will not create hazards of an unusual nature.

WORK SCHEDULE

Work on this project is mainly restricted to a ten hour day, five-day week with the Prime Contractor and all Sub Contractors working on the same shift. Peak hour work restrictions may apply as specified in the Street Permit or as directed by the Engineer.

DISPOSAL OF SURPLUS MATERIAL

Surplus material resulting from the various kinds of excavation and not required for use on the project shall be disposed of by the contractor, outside the project limits, at his own responsibility and shall be compensated as stated in the technical specifications.

REMOVAL AND DISPOSAL OF STRUCTURES AND OBSTRUCTIONS

The Contractor shall accept and hold entire responsibility for the stacking and protection of materials that have been removed from the site and that are to be reused in the work. Any materials lost or damaged through lack of protection or carelessness by the Contractor shall be replaced at his expense.

PROTECTION AND RESTORATION OF PROPERTY

Special care shall be exercised by the Contractor during the prosecution of the work, to save from harm and injury any structure, public or private, water system situated above or below the surface, and adjacent properties lying within the scope of the project, not specifically designated to be removed or otherwise altered.

Any damage to private property due to the construction activities of the Contractor shall be repaired to the Homeowner's satisfaction within thirty (30) working days.

STREET TREES

Existing trees shall be retained and their roots protected at all times during construction.

BACKFILLING FOR STRUCTURES AND PIPES

All backfilling for structures and pipes shall conform to the Commonwealth of Massachusetts Department of Public Works Standard Specification for Highways and Bridges, 1988, Section 150.64.

RETAINAGE

A Retainage of 5% shall be held by the City. This sum shall be held by the City for a period of sixty (60) days after final estimate is made and the work is accepted by the City.

NOTE: Contractor's equipment is not to be parked or stored at the Public Works Yard at any time.

All unit prices quoted herein shall be firm for the duration of the Contract, regardless of any changes in the cost of materials or labor.

SPECIAL PROVISIONS

NOTICE TO OWNERS OR UTILITIES

Written notice shall be given by the Contractor to all public service corporations or officials owning or having charge of publicly or privately owned utilities of his intention to commence operations affecting such utilities at least one week in advance of the commencement of such operations, and the contractor shall, at the same time, file a copy of such notice with the Engineer.

Bidders are hereby notified that information is available regarding the existing utility structures which may be encountered within and adjacent to the limits of the work and the corporations owning controlling same. The completeness of this list is not guaranteed by the Department.

City of Somerville
Department of Public Works
Superintendent of Lights & Lines
Engineering Division
Water Division
Sewer Division
One Franey Road
Somerville, MA 02145
Tel. (617) 625-6600

Time Warner Cable
300 Commercial Avenue
Malden, MA 02148
Tel. (781) 397-2600

Massachusetts Water Resource Authority
(MWRA)
59 Amaranth Avenue
Medford, MA 02155
Tel. (781) 306-2130

NSTAR
NSTAR Way
Westwood, MA 02090
Tel. (781) 441-8000

Somerville Dept. of Traffic
and Parking
133 Holland Street
Somerville, MA 02144
Tel. (617) 625-6600 x7900

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

RCN – CATV
115 West First Street
South Boston, MA 02127
Tel. (617) 670-2927

Comcast
116 Crosby Road
Unit 10
Dover, NH 03820
Tel. (603) 749-9194

Verizon New England
185 Franklin Street
Suite 1250
Boston, MA 02210
Tel. (617) 743-4524

Algonquin Gas Trans Co.
8 Wilson Way
Westwood, MA

Dept. of Conservation & Recreation
Division of Urban Parks & Recreation
153 Causeway Street
Boston, MA

Bell Atlantic (BA)
285 Lucas Street
Woburn, MA 01801
Tel. (781) 939-3566

Media One
790 Main Street
Wilmington, MA 01887
Tel. (978) 658-0400

The Contractor shall notify Massachusetts "DIG SAFE" 72 hours prior to start of construction.

"DIG SAFE" call center: 1-888-DIGSAFE or 1-888-344-7233.

BOND REQUIREMENTS

A 50% Payment Bond of the total contract price will be required from the successful bidder.

PREVAILING WAGE REQUIREMENTS

Bidders will be required to comply with the Prevailing Wage Laws, M.G.L., C.30-39M. Every bidder will be required to submit a certified payroll to the City every week. The City will take an active role in reviewing and monitoring these payroll weekly. If the City suspects any violations, the City will report them to the Attorney General's Fair Labor and Business Practices Division. The Attorney General's Office, after conducting an investigation and a hearing can order the bidder to halt work, if it finds prevailing wage violations. Within fifteen days after completion of its portion of the work the bidder must submit a Statement of Compliance with the prevailing wage law. The City reserves the right to conduct hearings on bids that are significantly below the average bid price submitted on a project, to make findings of fact and determinations. Weekly payrolls are public records and the bidder shall make them available upon request.

The Bidder is required to keep these records for a period of three years from the date of the completion of this contract.

CONTRACT PERIOD

The contract will be from **November 3, 2014 to December 31, 2015**

INSURANCE REQUIREMENTS

(See attached)

INSURANCE REQUIREMENTS

The Vendor/Contractor shall maintain in full force and effect during the duration of this contract insurance issued by companies qualified to do business in the Commonwealth of Massachusetts, as follows:

- a) COMMERCIAL GENERAL LIABILITY, in primary amounts not less than:

\$ 2,000,000.00 per occurrence

\$ 2,000,000.00 aggregate

- b) AUTOMOBILE LIABILITY, including the use of all vehicles owned, leased, hired or borrowed, with limits not less than \$ 2,000,000.00 combined single limit covering work performed under this contract.
- c) WORKER'S COMPENSATION, statutory coverage as provided by General Laws, Chapter 152, as amended.

The Vendor/Contractor shall deposit with City certificates of insurance for such coverage in form and substance satisfactory to the City, **naming the City and Kleinfelder as an additional insured**, and shall deliver to the City new policies or certificates thereof for any insurance about to expire at least ten (10) days before such expiration. All such insurance policies shall contain an endorsement requiring **thirty (30) days written notice** to the City prior to cancellation or change in coverage, scope or amount of any such policy or policies. The Vendor/Contractor shall furnish the City with the name and telephone number of the insurance agent and with copies of the insurance policies and endorsements. The Vendor/Contractor shall submit all changes or alterations in the policies to the City for its approval.

CITY OF SOMERVILLE, MA
WEBSTER AVENUE WATER MAIN UPGRADES
ITEMIZED BID LIST

Item No.	Description	Estimated Quantity	Extended Total
1	Mobilization	1	\$
	Dollars (\$)) Lump Sum		
2	Traffic Control	1	\$
	Dollars (\$)) Lump Sum		
3	Utility Coordination	1	\$
	Dollars (\$)) Lump Sum		
4a	20" DI Water Main	685	\$
	Dollars (\$)) per LF		
4b	16" DI Water Main	10	\$
	Dollars (\$)) per LF		
4c	12" DI Water Main	10	\$
	Dollars (\$)) per LF		

4d	10" DI Water Main Dollars (\$)) per LF	50	\$
4e	8" DI Water Main Dollars (\$)) per LF	10	\$
4f	6" DI Water Main Dollars (\$)) per LF	200	\$
5a	20" Butterfly valve and box Dollars (\$)) each	8	\$
5b	10" Gate valve and box Dollars (\$)) each	1	\$
5c	6" Gate valve and box Dollars (\$)) each	19	\$
6	D.I. Fittings Dollars (\$)) per LB	12,310	\$

7	Mechanical and Push On Joint Restraints		120	\$
	Dollars (\$) each			
8	Hydrants		6	\$
	Dollars (\$) each			
9	1" & 3/4" Water Service Taps		17	\$
	Dollars (\$) each			
10	1" and 3/4" Water Services		380	\$
	Dollars (\$) per LF			
11a	Exploratory excavation		75	\$
	Dollars (\$) per CY			
11b	Below trench bottom excavation		100	\$
	Dollars (\$) per CY			
12a	Structural fill		250	\$
	Dollars (\$) per CY			

12b	Gravel Subbase		280	\$
	Dollars (\$) per CY			
12c	Common fill		140	\$
	Dollars (\$) per CY			
12d	Crushed Stone		20	\$
	Dollars (\$) per CY			
12e	Miscellaneous concrete		50	\$
	Dollars (\$) per CY			
13a	Soil and Waste Management		1	\$
	Dollars (\$) Lump Sum			
13b	Disposal of construction debris as solid waste		715	\$
	Dollars (\$) per ton			
13c	OHM - Disposal of Soil - Daily Cover Unlined Landfill (Class A-1, A-2)		265	\$
	Fifteen and 00/100 + =			
	Dollars (\$15.00 +) per ton			

13d	OHM - Disposal of Soil - Daily Cover Lined Landfill (Class B-1) Eighteen and 00/100 + _____ = _____ Dollars (\$18.00 + _____) per ton	265	\$
13e	OHM - Disposal of Soil - Daily Cover Lined Landfill (Class B-2) Twenty and 00/100 + _____ = _____ Dollars (\$20.00 + _____) per ton	265	\$
13f	OHM - Non-Hazardous Solid Waste Recycling (Class B-5) Forty Five and 00/100 + _____ = _____ Dollars (\$45.00 + _____) per ton	75	\$
14	Calcium Chloride	20	\$
15a	Dollars (\$) _____) per bag 2" Temporary Bituminous Concrete Repair	70	\$
15b	Dollars (\$) _____) per ton 4" Base Course HMA	200	\$
15c	Dollars (\$) _____) per ton 2" Top Course HMA	110	\$

15d	3" Bituminous Concrete Driveway	10	\$
	Dollars (\$) per ton		
15e	Remove and Reset Granite Curb	50	\$
	Dollars (\$) per LF		
16a	Cleaning and Cement Mortar Lining 20" Water Main	480	\$
	Dollars (\$) per LF		
16b	Cleaning and Cement Mortar Lining 10" Water Main	510	\$
	Dollars (\$) per LF		
17	Bypass Flow Handling	1	\$
	Dollars (\$) Lump Sum		

Company Name: _____

Signature: _____

Signature Name & Title: _____

Telephone #: _____ Fax #: _____

Date: _____

ADDENDA #1 _____ #2 _____ #3 _____ #4 _____ ACKNOWLEDGED

Failure to acknowledge receipt of addenda may result in your bid being rejected.

**FORM FOR GENERAL BID
FOR CONSTRUCTION CONTRACT**

To the Awarding Authority

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

(project)

(city or town)

in accordance with the accompanying plans and specifications prepared by

Kleinfelder
(name of Engineer)

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

B. This bid includes addenda numbered _____

C. This proposed contract price is _____

(total bid in words)

\$ _____

(total bid in figures)

D. If there is attached a "Bid Form for Alternates", the Bidder shall fill in prices for each alternate. All blank spaces must be filled in. The omission of any item will result in the rejection of a bid. The price of each alternate shall include its pro rata share of overhead and profit;

E. The Undersigned Bidder agrees that, if it is selected as general contractor, it 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, each of a surety company qualified to do business under the laws of the Commonwealth of Massachusetts and satisfactory to the Awarding Authority and each in the sum of the contract price, the premiums for which are to be paid by the general contractor and are included in the contract price.

F. The Undersigned Bidder hereby certifies that it is able to furnish labor that can work in harmony with all other elements of labor employed or to be employed on the Project and that it will comply fully with all laws and regulations applicable to this Award, including

applicable provisions if MGL Chapter 149, ss.44A - J and MGL Chapter 30, ss. 39M et seq.

- G. The Undersigned Bidder further certifies under the penalties of perjury that this bid is in all respects bona fide, fair and made without collusion or fraud with any other person. As used in this subsection the work "person" shall mean any natural person, joint venture, partnership, corporation or other business or legal entity.
- H. The Undersigned Bidder agrees to comply with federal and state equal opportunity and labor requirements, including payment of prevailing wages.

- I. The Undersigned Bidder certifies that it is a (Sole Proprietorship, General Partnership, Limited Partnership, Corporation, Trust, Joint Venture) _____, that the Federal Employer Identification Number (EIN) of the Bidder is # _____, and that it is in compliance with all federal, state, and local laws regarding taxation, and that:

1) if a Sole Proprietorship, it conducts business under the name _____, and that a D/B/A Certificate has been filed with the Clerk of the City of Somerville, and that the residential address of the sole proprietor is _____, and that the Bidder has been conducting business under that name for _____ years.

2) if a General Partnership, then name of the General Partnership is _____, the General partnership has been doing business under that name for _____ years, and the names and residential addresses of the General Partners are _____

3) if a Limited Partnership, the name of the Limited partnership is _____, the Limited Partnership has been doing business under that name for _____ years, the names and residential addresses of the General Partners of the Limited Partnership are _____

and, a Certificate of Limited Partnership (obtainable from the Secretary of the Commonwealth) is submitted with this Form for Bid.

4) If a Corporation, the Bidder is incorporated in the State of _____, the name of the Corporation is _____
The Corporation has been doing business under that name for _____ years, the names and residential addresses of its officers are:

President: _____

Treasurer: _____

Clerk: _____

and a current Certificate of Legal Existence, (obtainable from the Secretary of the Commonwealth for Massachusetts corporations and non-Massachusetts corporations

which are properly registered as foreign corporations doing business in the Commonwealth), is submitted with this Form for Bid.

5) if a Joint Venture, the name of the Joint Venture is

the Joint Venture has been operating under that name for _____ years, the names and business addresses of the Joint Venturers are:

the above-requested information regarding individual business entities is furnished for each joint venturer as follows

and that a copy of the joint venture agreement is furnished with this Form for Bid.

J. 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:

K. The Undersigned Bidder certifies that the following three projects were completed during the previous six years and may be contacted by the Awarding Authority as references:

<u>Name of Town & Project</u>	<u>\$Amount</u>	<u>Name and Tel. No. of Contact</u>
_____	_____	_____
_____	_____	_____
_____	_____	_____

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

M. An itemized Schedule of Values is attached with this Form for Bid.

Executed this _____ day of _____ 2014.

On behalf of _____
(Undersigned Bidder Name)

(Business Address) and (Telephone)

By: _____
(Name and Address of Person Signing Bid)

(Title of Person Signing bid)

III. Quality Requirements

Please respond to the following questions. A negative response to any of the following questions will automatically disqualify the vendor:

	Yes	No
Has the contractor been established, in the Water Main Reconstruction field, for at least 5 years?		
Will vendor be able to respond within 48 hours after notification to proceed from the City?		
The Contractor is able to provide all labor, materials and equipment necessary to perform the required street resurfacing, according to the specifications?		
The Contractor is fully qualified to perform the Water Main Reconstruction project as specified; and is able to provide qualified personnel that will consist of a full crew?		
Can the Vendor certify that all employees to be provided, have successfully completed at least 10 hours of OSHA approved training in Construction Safety and Health?		
Optional: Vendor: Are you a State Office for Minority and Women Owned Business Assistance (SOMWBA) certified minority or woman owned business?		

IV. References

Please include on a separate sheet (see form enclosed) a minimum of three references for whom similar Water Main Reconstruction services have been provided. Include contact person and telephone number along with company name and address.

All prices must include travel time, fuel costs, delivery, and any other additional costs not provided for on the bid price sheet.

V. Rule for Award

One contract will be awarded to the lowest responsive and responsible bidder.

VI. Bid Pricing Sheet

Please quote on the listed items. Prices are to include equipment, delivery, the cost of fuel, the cost of labor and all other charges related to the products and services listed. Prices are to remain the same for the entire contract period.

IV. References
REFERENCE FORM

Bidder: _____

IFB Title: **Webster Avenue Water Main Upgrades**

Bidder must provide references from three municipalities.

Reference: _____ Contact: _____

Address: _____ Phone: _____

_____ Fax: _____

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

Reference: _____ Contact: _____

Address: _____ Phone: _____

_____ Fax: _____

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

Reference: _____ Contact: _____

Address: _____ Phone: _____

_____ Fax: _____

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

TECHNICAL SPECIFICATIONS

CITY OF SOMERVILLE, MASSACHUSETTS

WEBSTER AVENUE WATER MAIN UPGRADES

SEPTEMBER 2014

WATER DEPARTMENT SUPERINTENDENT

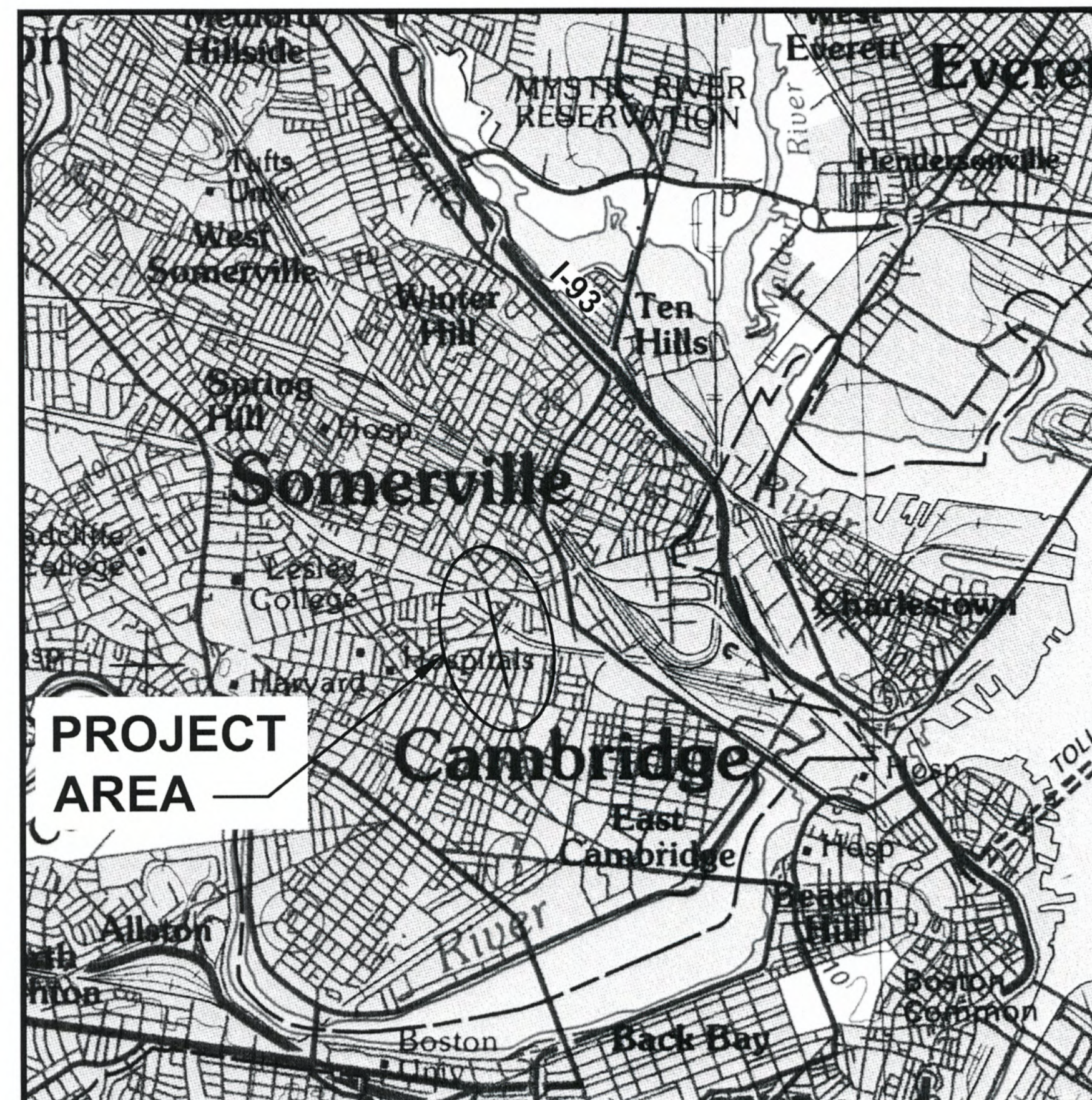
GINGER BARRETT

ACTING DIRECTOR OF ENGINEERING

MELISSA MIGUEL, P.E.

DEPARTMENT OF PUBLIC WORKS COMMISSIONER

STANLEY KOTY

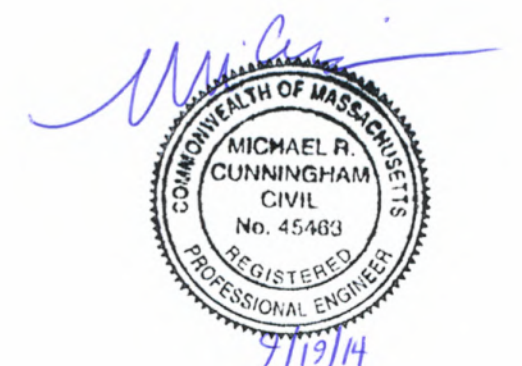


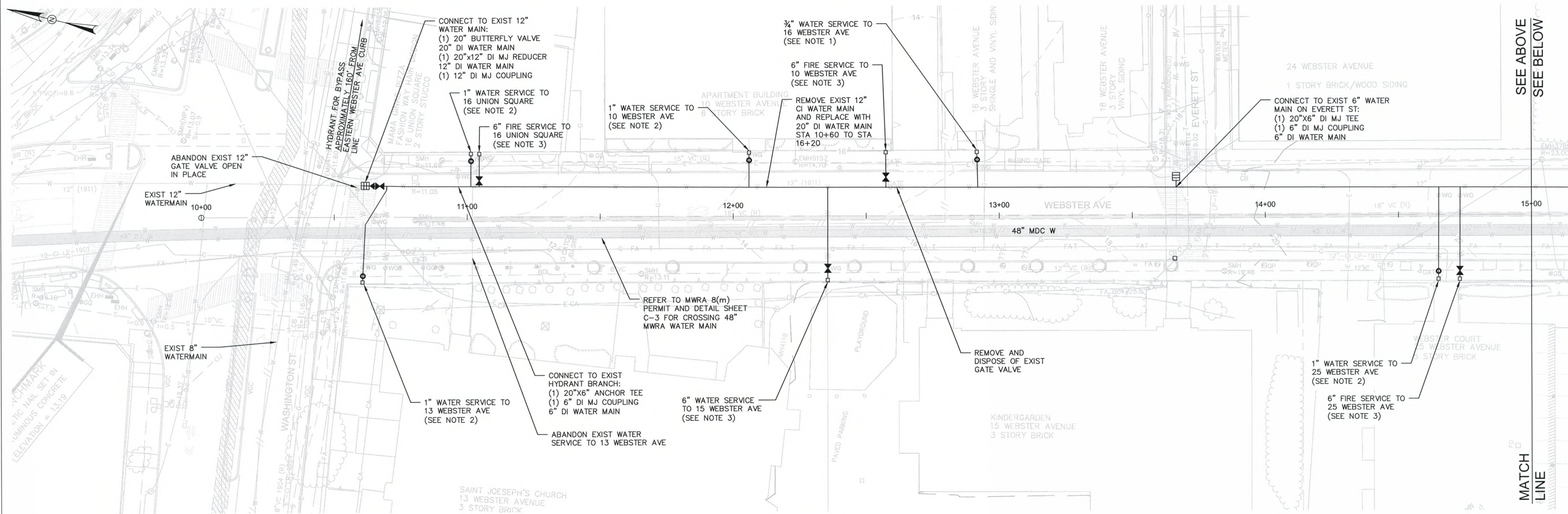
LOCUS PLAN

(N.T.S.)

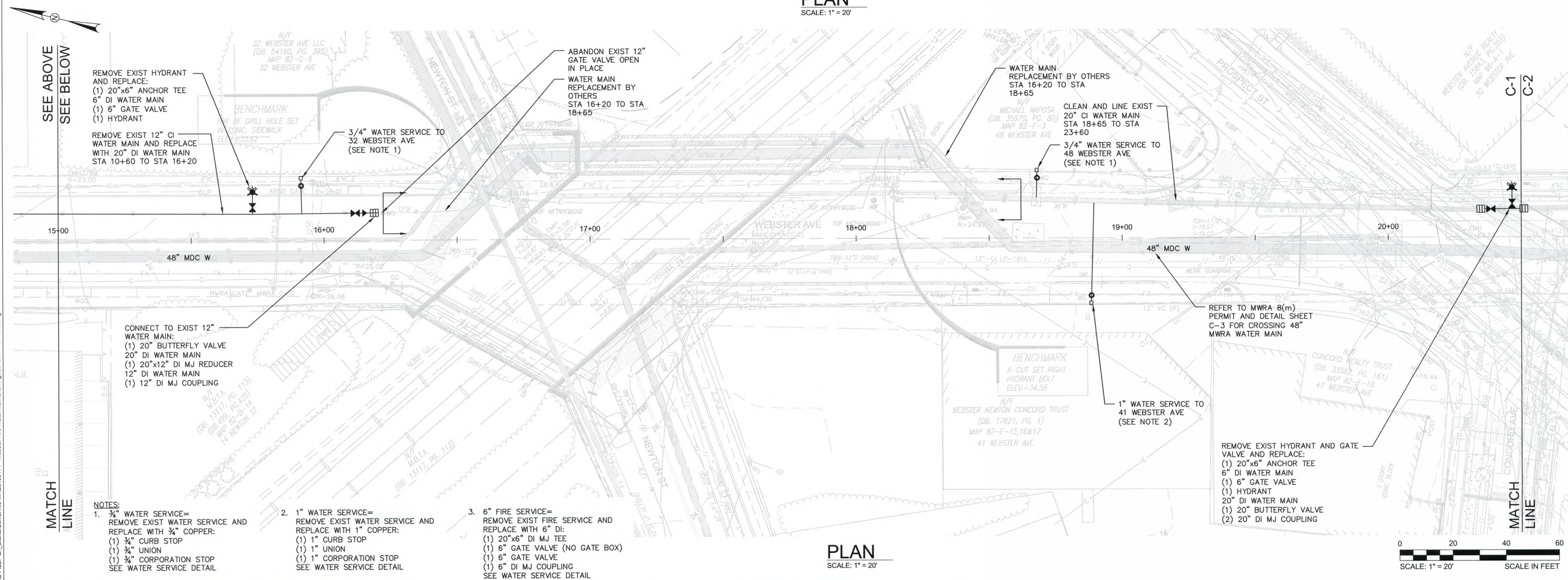
DRAWING LIST

SHEET	DRAWING TITLE
G-1	GENERAL NOTES AND LEGEND
C-1	WATER MAIN PLAN STA 10+00 TO STA 20+50
C-2	WATER MAIN PLAN STA 20+50 TO STA 30+50
C-3	WATER MAIN DETAILS (1 OF 3)
C-4	WATER MAIN DETAILS (2 OF 3)
C-5	WATER MAIN DETAILS (3 OF 3)





PLAN
SCALE: 1" = 20'



PLAN

SCALE: 1" = 20'

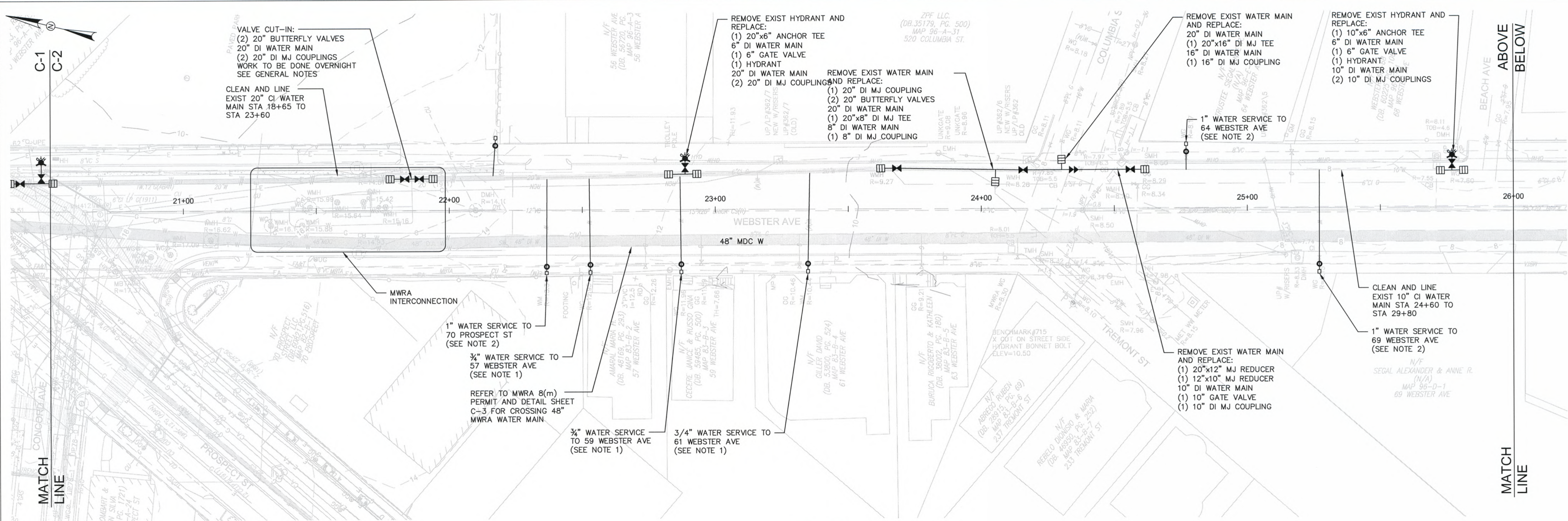


KLEINFELDER
Bright People. Right Solutions.

<div style="text-align: center;"> WATER MAIN PLAN STA 10+00 TO STA 20+50 </div>	DATE	SEPTEMBER 2014
	PROJECT NO.	20150414
	DRAWN BY	GOLEARY
	CHECKED BY	MFC
	FILE NAME	20150414-C-Plans
CITY OF SOMERVILLE, MASSACHUSETTS WEBSTER AVE WATER MAIN UPGRADES		

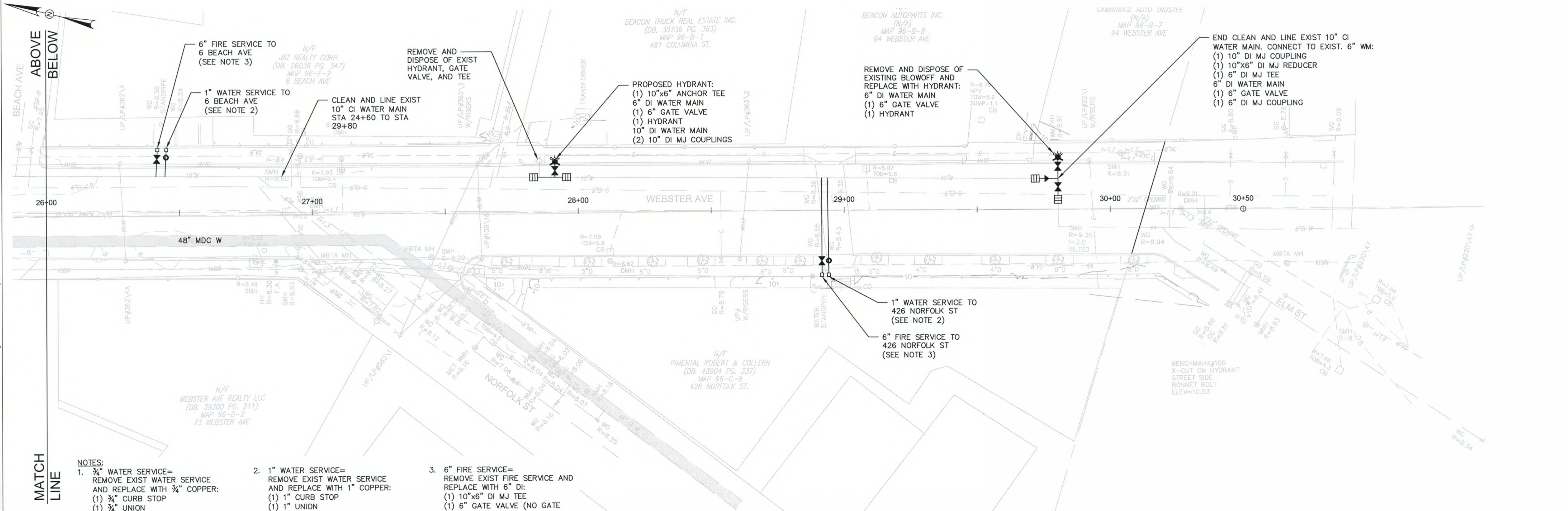
PLOTTED: 9/18/2014 4:16 PM BY: Angus Cheary

CAD FILE: G:\clients\Somerville\MA20150414 - Webster Ave Water Main\Drawings\20150414-C-Plans.dwg LAYOUT: WATER MAIN PLAN STA 20+50 TO STA 30+50



PLAN

SCALE: 1" = 20'



PLAN

SCALE: 1" = 20'

NOTES:

1. 3/4" WATER SERVICE= REMOVE EXIST WATER SERVICE AND REPLACE WITH 3/4" COPPER: (1) 1" CURB STOP (1) 3/4" UNION (1) 3/4" CORPORATION STOP SEE WATER SERVICE DETAIL
2. 1" WATER SERVICE= REMOVE EXIST WATER SERVICE AND REPLACE WITH 1" COPPER: (1) 1" CURB STOP (1) 1" UNION (1) 1" CORPORATION STOP SEE WATER SERVICE DETAIL
3. 6" FIRE SERVICE= REMOVE EXIST FIRE SERVICE AND REPLACE WITH 6" DI: (1) 10"x6" DI MJ TEE (1) 6" GATE VALVE (NO GATE BOX) (1) 6" GATE VALVE (1) 6" DI MJ COUPLING SEE WATER SERVICE DETAIL



REVISIONS	
NO.	DESCRIPTION

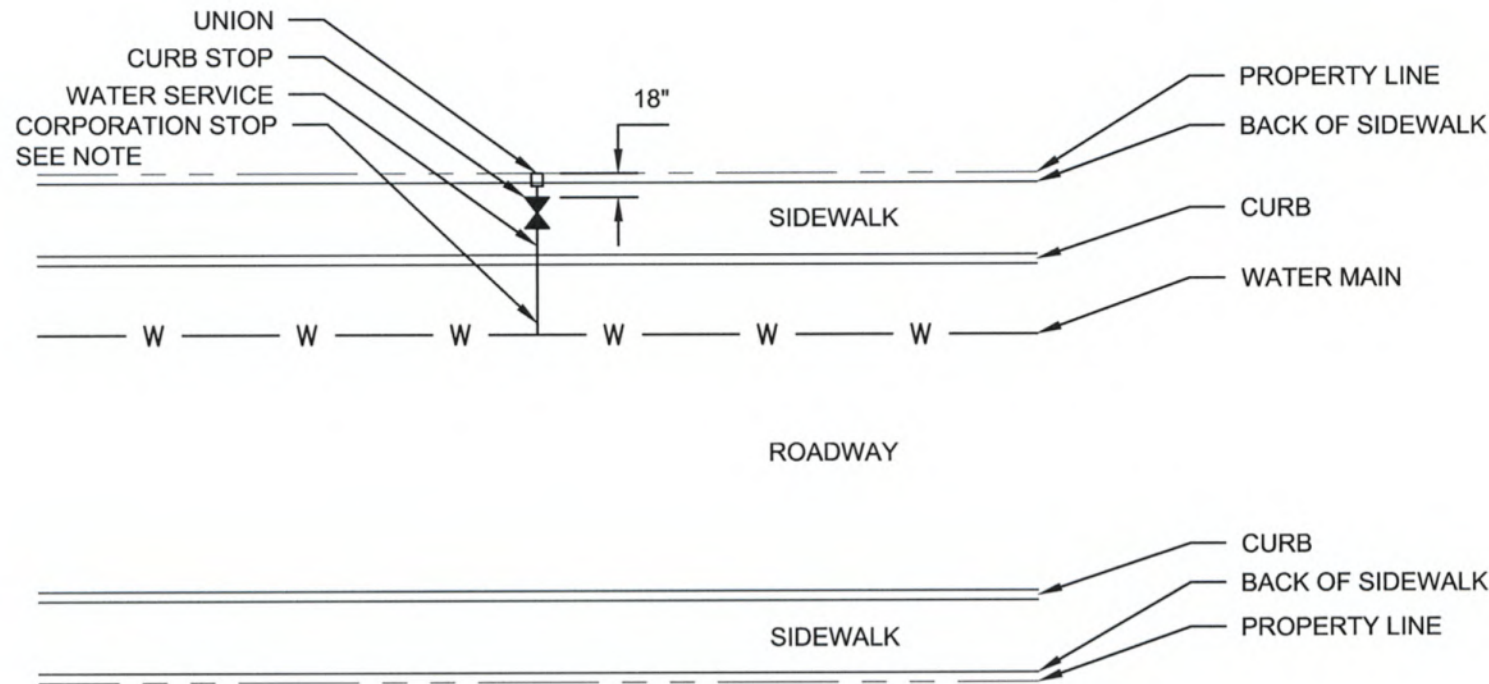
DATE	SEPTEMBER 2014
PROJECT NO.	20150414
DRAWN BY	GOLEARY
CHECKED BY	MRC
FILE NAME	20150414-C-Plans

WATER MAIN PLAN
STA 20+50 TO STA 30+50

CITY OF SOMERVILLE, MASSACHUSETTS
WEBSTER AVE WATER MAIN UPGRADES

SHEET

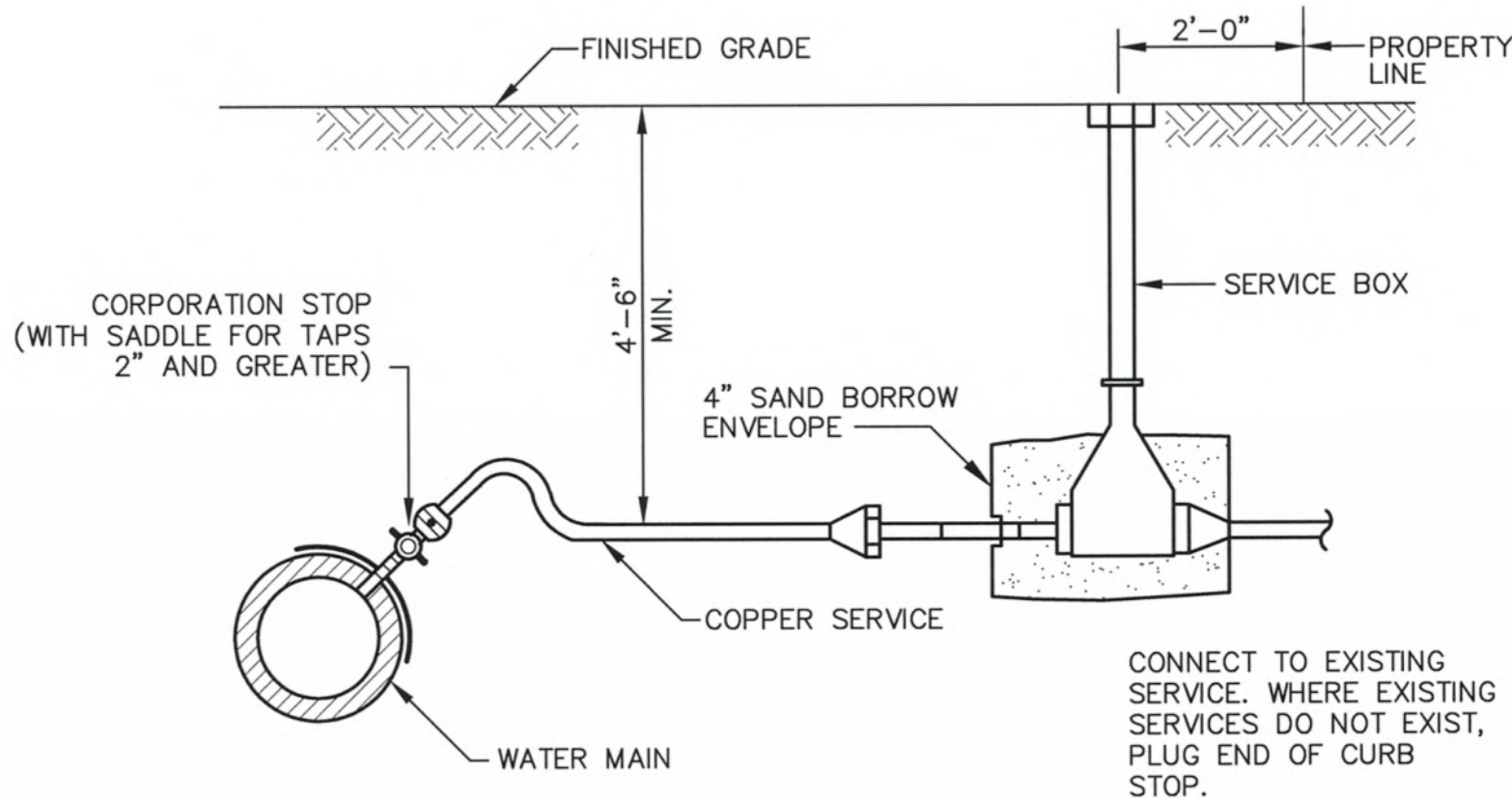
C-2



- NOTE:
1. ALL NEW SERVICE TAPS ON EXISTING MAINS SHALL INCLUDE A SADDLE. CONTRACTOR TO SHUT OFF AND ABANDON EXISTING CORPORATION STOP AT MAIN.
 2. FOR FIRE SERVICES CONTRACTOR SHALL PROVIDE TWO (2) FULL SIZE GATE VALVES AND ONE (1) GATE BOX. GATE VALVES AT THE PROPERTY LINE SHALL HAVE GATE BOXES.

TYPICAL WATER SERVICE DETAIL

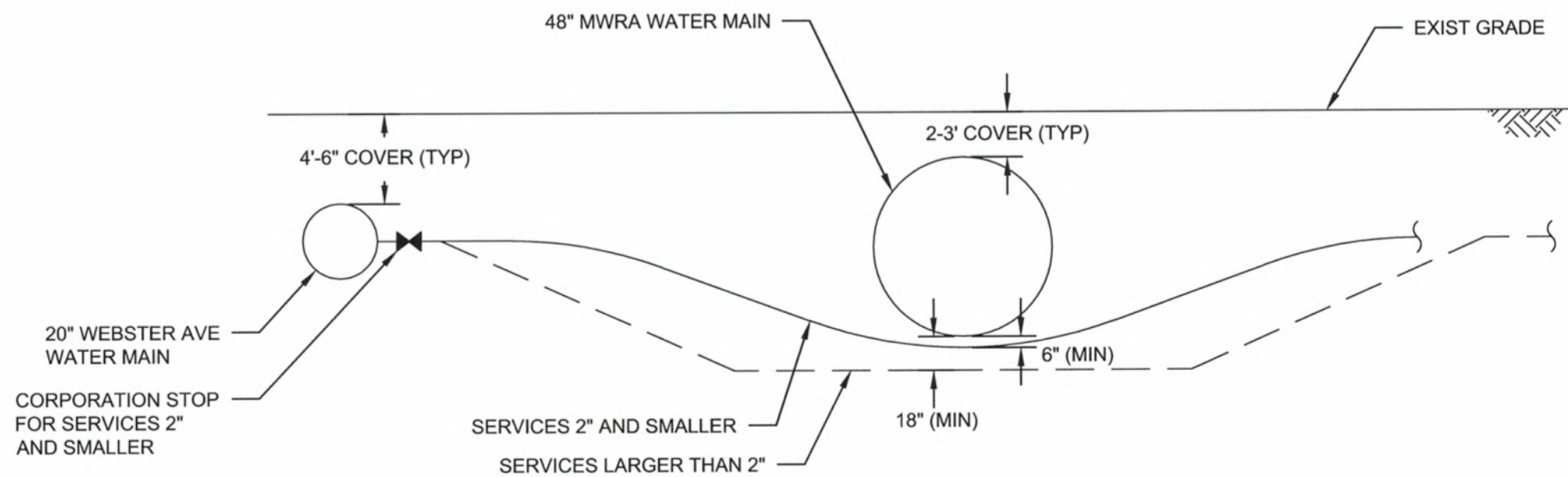
SCALE: N.T.S.



- NOTES:
1. FLUSH ALL NEW SERVICE LINES PRIOR TO CONNECTING TO EXISTING.
 2. AFTER CONNECTION, CONTRACTOR SHALL ASSIST WATER DEPT. PERSONNEL IN FLUSHING SERVICE LINES UP TO THE METER.

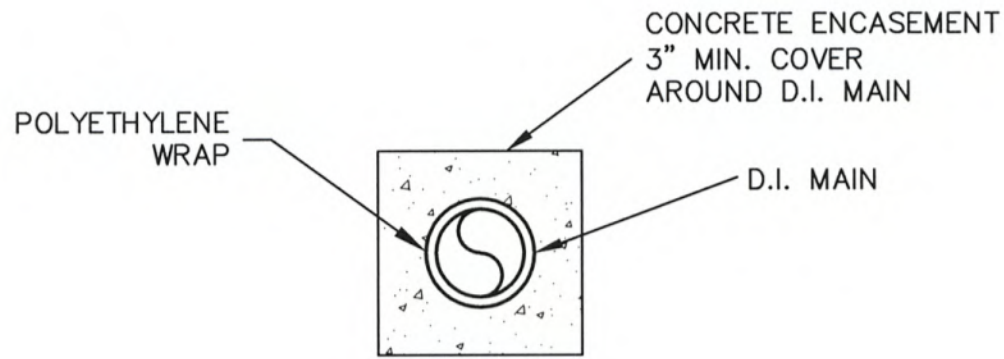
COPPER SERVICE CONNECTION

SCALE: N.T.S.



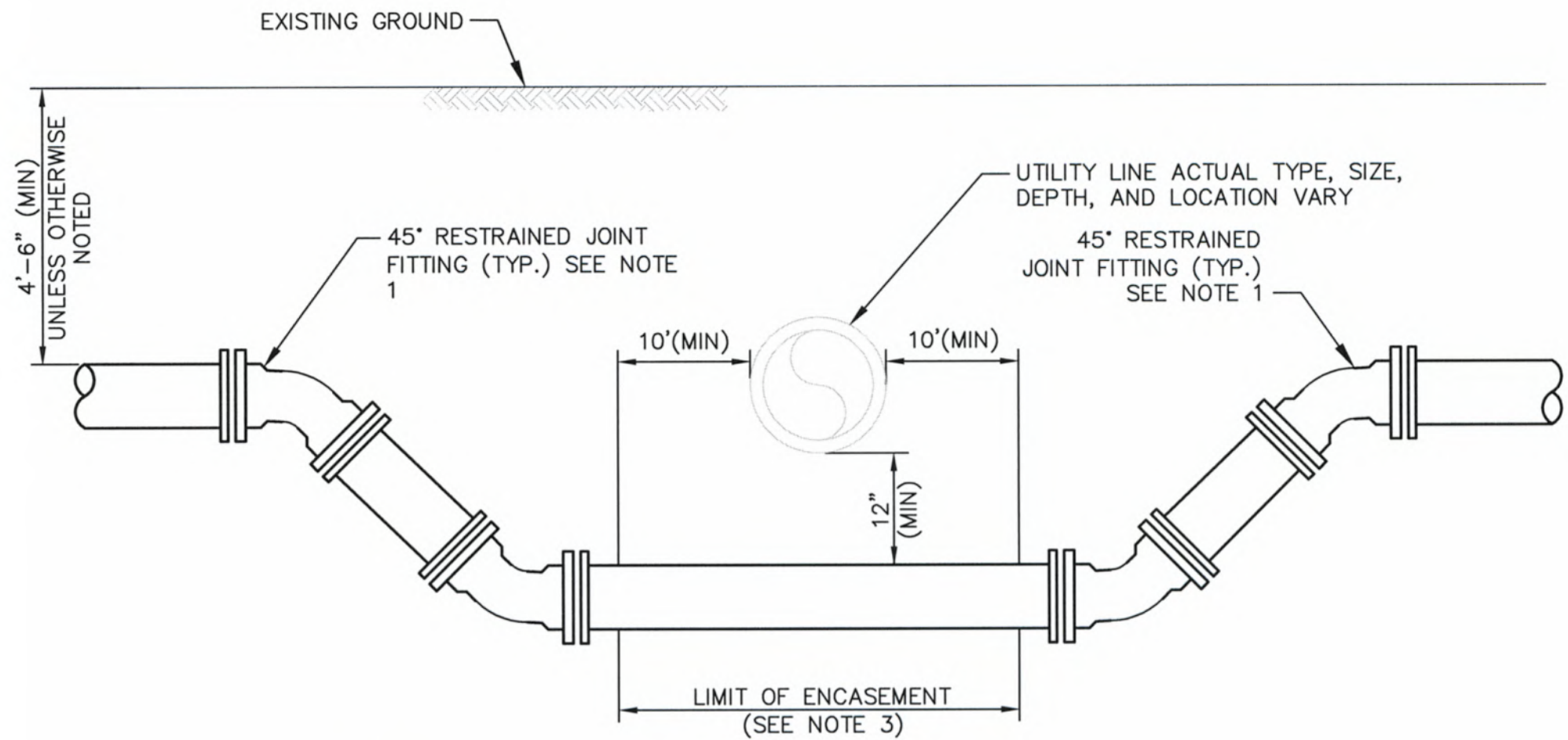
MWRA WATER MAIN CROSSING DETAIL FOR WATER SERVICES

SCALE: N.T.S.



CONCRETE ENCASEMENT FOR SEWER MAIN CROSSINGS

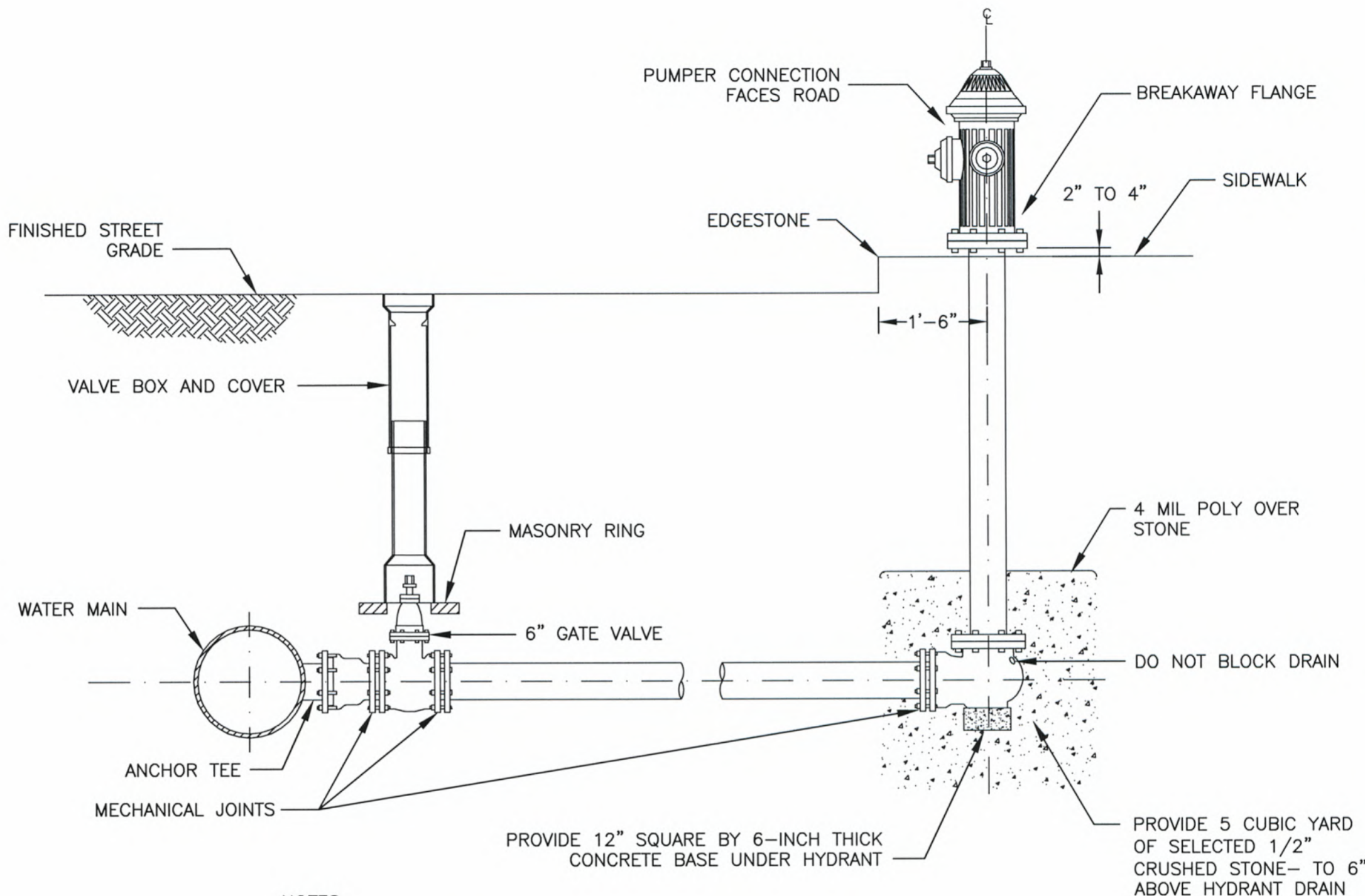
SCALE: N.T.S.



- NOTES:
1. CONTRACTOR TO UTILIZE FITTINGS ONLY WHEN PIPE DEFLECTION CANNOT BE USED TO CLEAR OBSTRUCTION.
 2. ALL CROSSINGS TO BE UNDER UTILITY UNLESS OTHERWISE SHOWN.
 3. SEE DETAIL THIS SHEET FOR CROSSING UNDER SEWER MAINS. MAINTAIN 18-INCH MINIMUM VERTICAL CLEARANCE FOR CROSSING UNDER SEWER SERVICES.
 4. INSULATE ALL SMALL DIAMETER WATER MAIN HAVING LESS THAN 4'-6" COVER AND ALL LARGE DIAMETER WATER MAIN (16" OR 20") HAVING LESS THAN 3'-6" COVER.

TYPICAL UTILITY CROSSING DETAIL

SCALE: N.T.S.



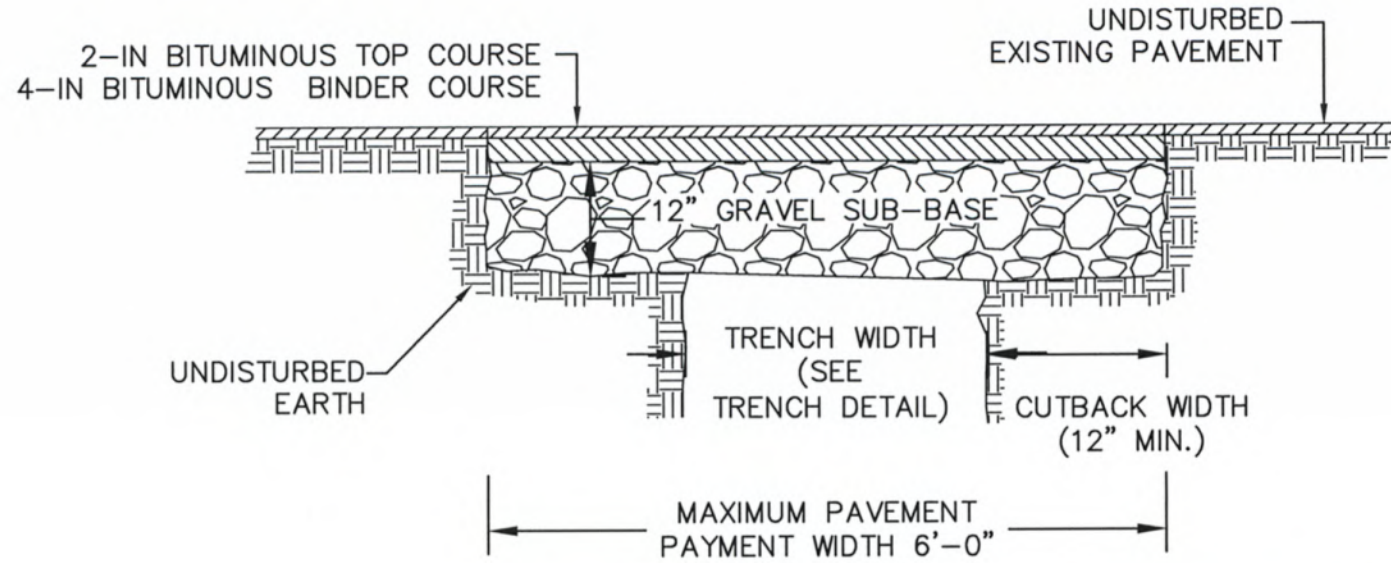
- NOTES:
1. PROVIDE HYDRANT, VALVE AND TEE JOINTS WITH RESTRAINED MECHANICAL JOINTS.

HYDRANT SETTING WITH GATE VALVE

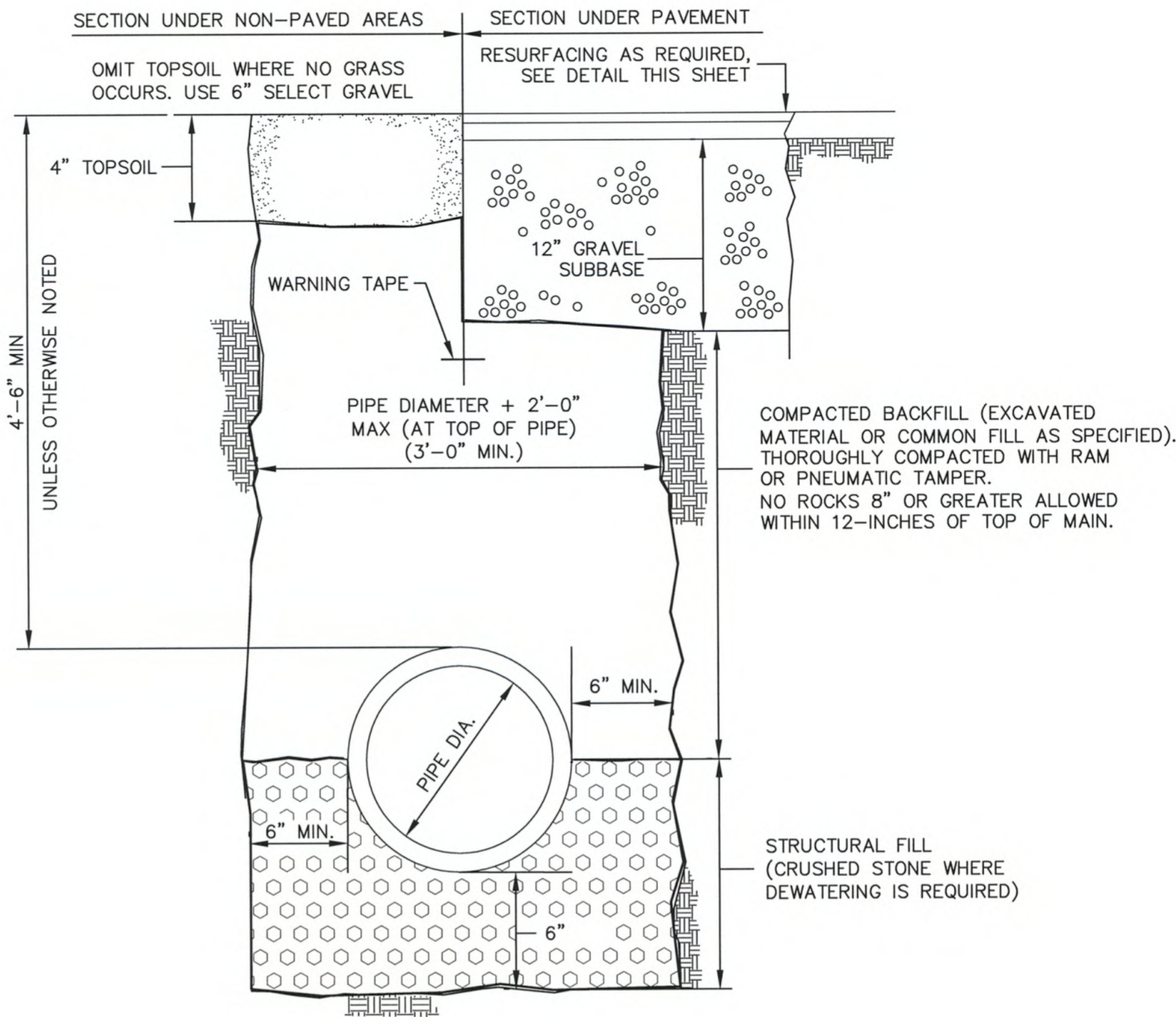
SCALE: N.T.S.

DATE	SEPTEMBER 2014	PROJECT NO.	20150414	DRAWN BY	GOLERY	CHECKED BY	MRC	FILE NAME	20150414-C-Details
REVISIONS									

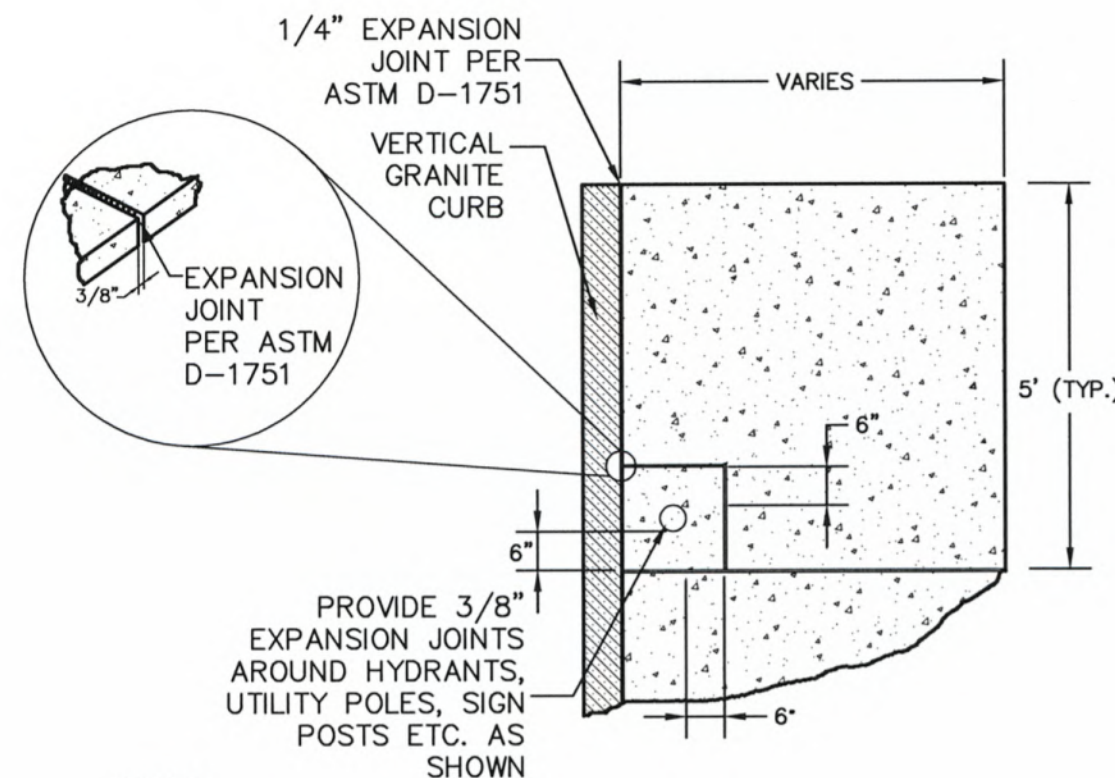
WATER MAIN DETAILS (1 OF 3)		CITY OF SOMERVILLE, MASSACHUSETTS WEBSTER AVE WATER MAIN UPGRADES	
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FINAL TRENCH PAVING DETAIL
SCALE: N.T.S.

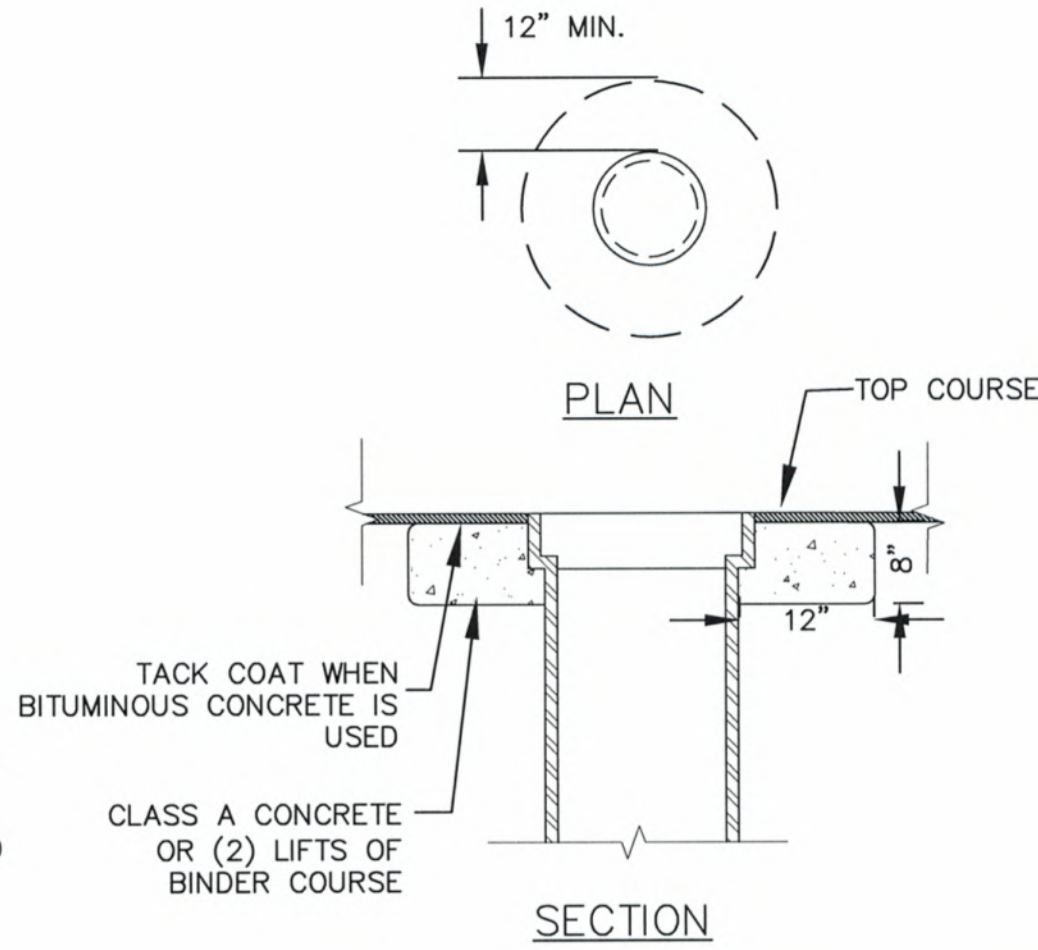


TYPICAL TRENCH DETAIL
SCALE: N.T.S.

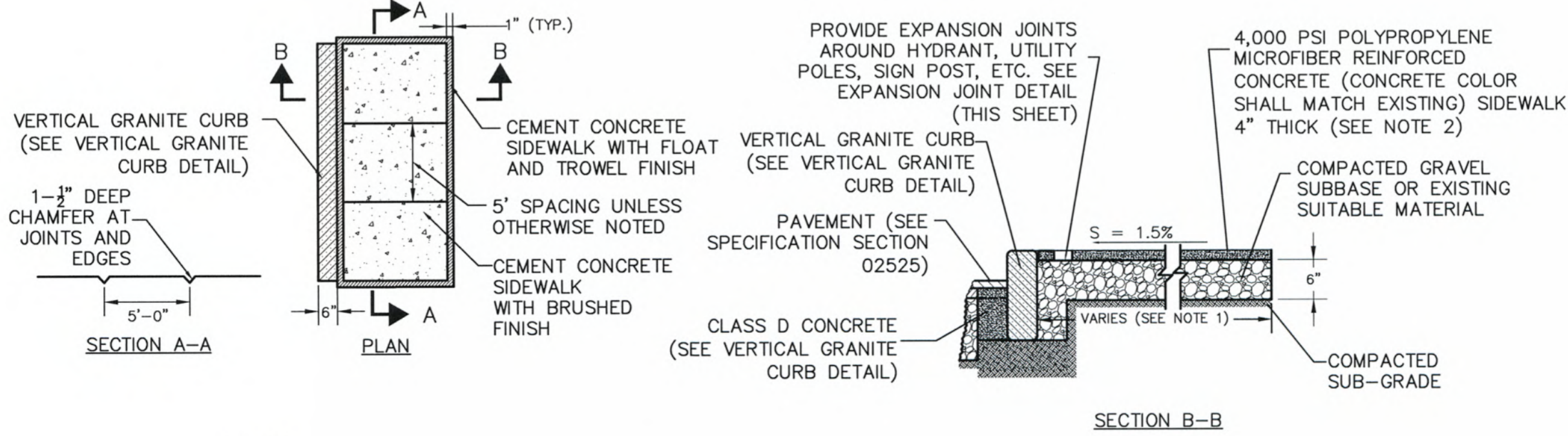


- NOTES:
- EXPANSION JOINTS SHALL BE INSTALLED AT BACK OF SIDEWALK STEPS, WALLS, BUILDINGS, AND OTHER STRUCTURES.
 - EXPANSION JOINTS AT BUILDINGS SHALL BE CAULKED.
 - EXPANSION JOINTS SHALL BE USED AT TRANSITIONS BETWEEN NEW AND EXISTING SIDEWALK JOINTS.
 - EXPANSION JOINTS OF 3/8-IN THICK FOAM SHALL BE PLACED EVERY 30 FEET PERPENDICULAR TO CURB ALIGNMENT EXTENDING THROUGH THE SIDEWALK DEPTH. SEE SECTION 02525 OF THE CONTRACT DOCUMENTS.

EXPANSION JOINT DETAIL
SCALE: N.T.S.

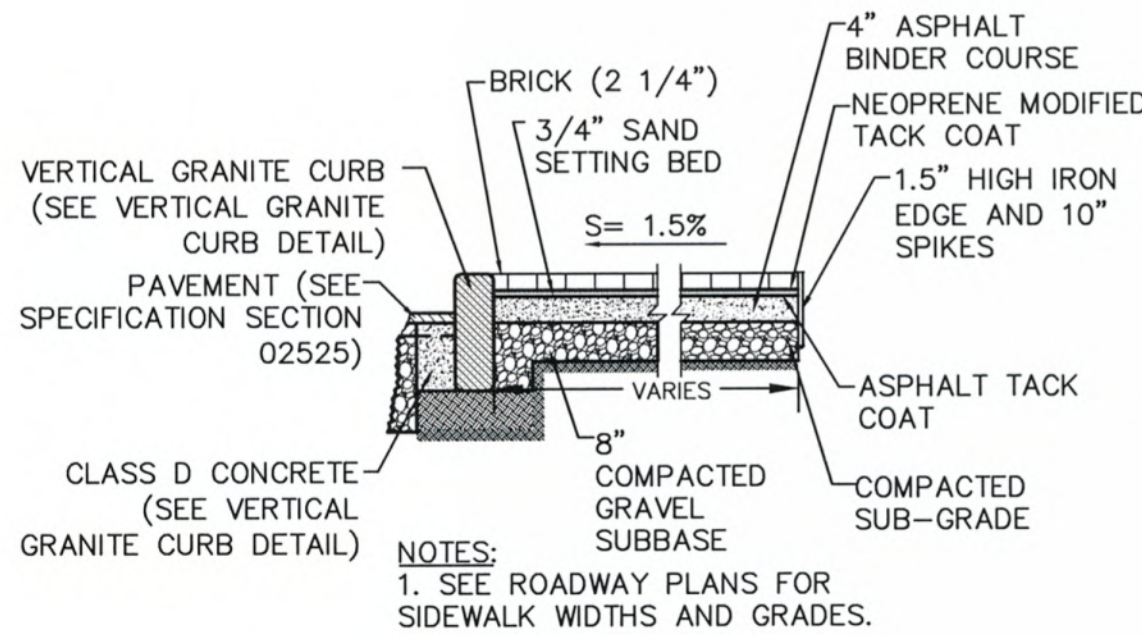


GATE BOX SETTING DETAIL
SCALE: N.T.S.

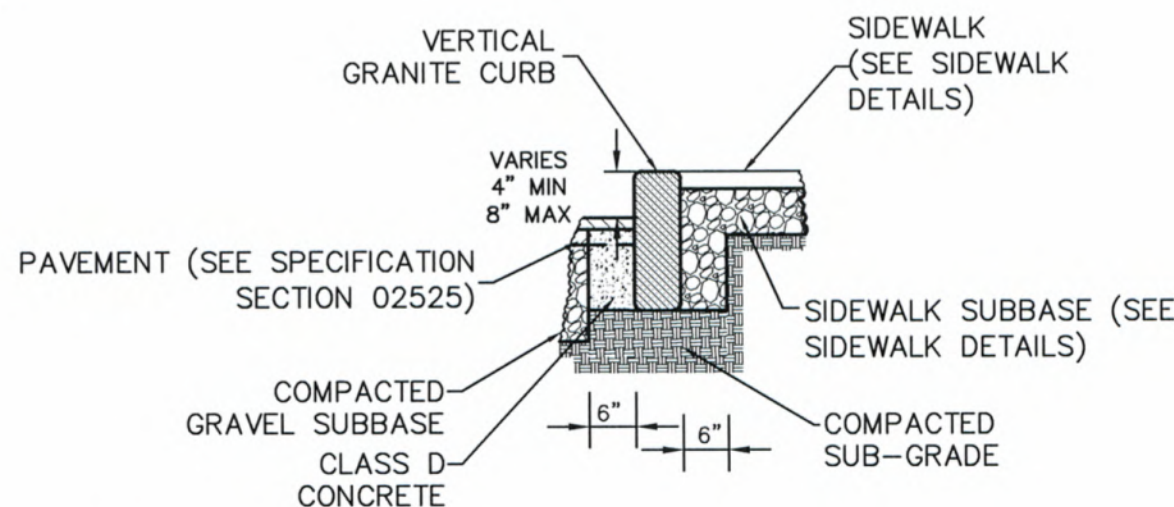


- NOTES:
- NEW SIDEWALK SHALL MATCH WIDTH OF EXISTING SIDEWALK UNLESS OTHERWISE NOTED.
 - SIDEWALK MATERIAL TO MATCH EXISTING SIDEWALK. FOR EXISTING ASPHALT SIDEWALK, SUBSTITUTE 4" CONCRETE.
 - AROUND HYDRANTS, UTILITY POLES SIGN POSTS ETC., SEE EXPANSION JOINT DETAIL (THIS SHEET).
 - SIDEWALKS TO BE BUILT ACCORDING TO ADA AND MA AAB REGULATIONS, 2.0% MAX (0% TOLERANCE) CROSS SLOPE.

CONCRETE SIDEWALK RESTORATION DETAIL
SCALE: N.T.S.



BRICK SIDEWALK RESTORATION DETAIL
SCALE: N.T.S.

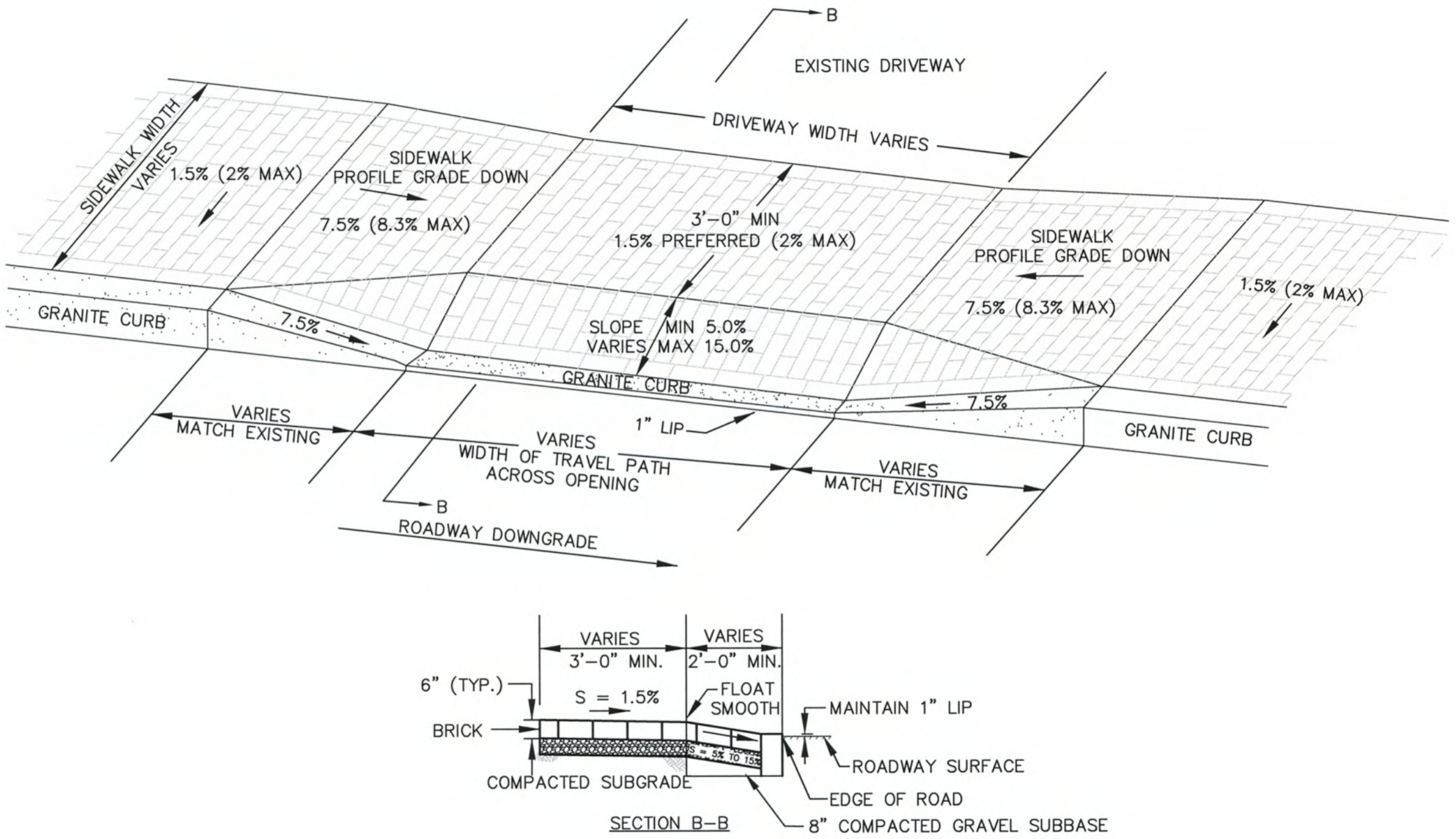


VERTICAL GRANITE CURB RESETTING DETAIL
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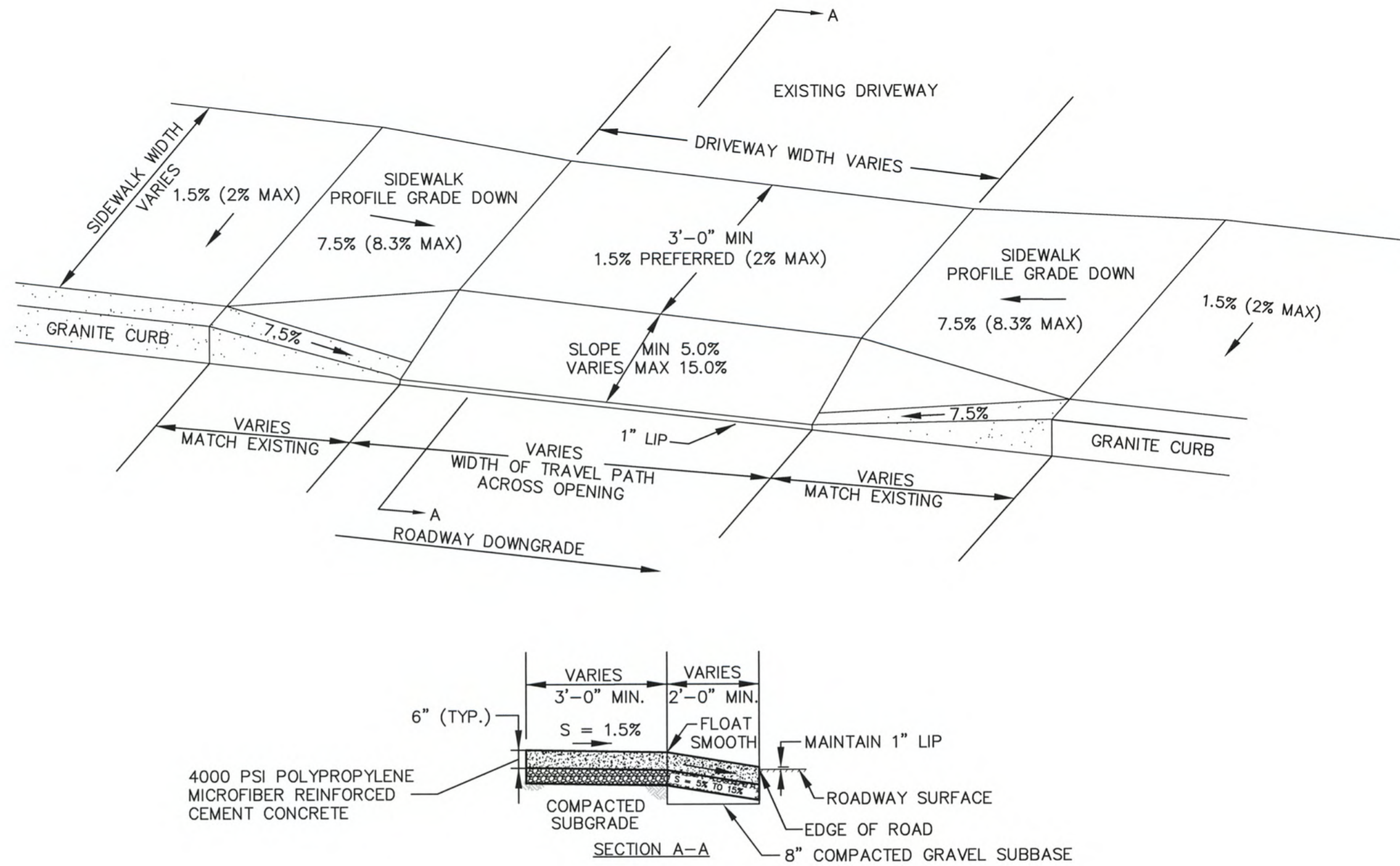
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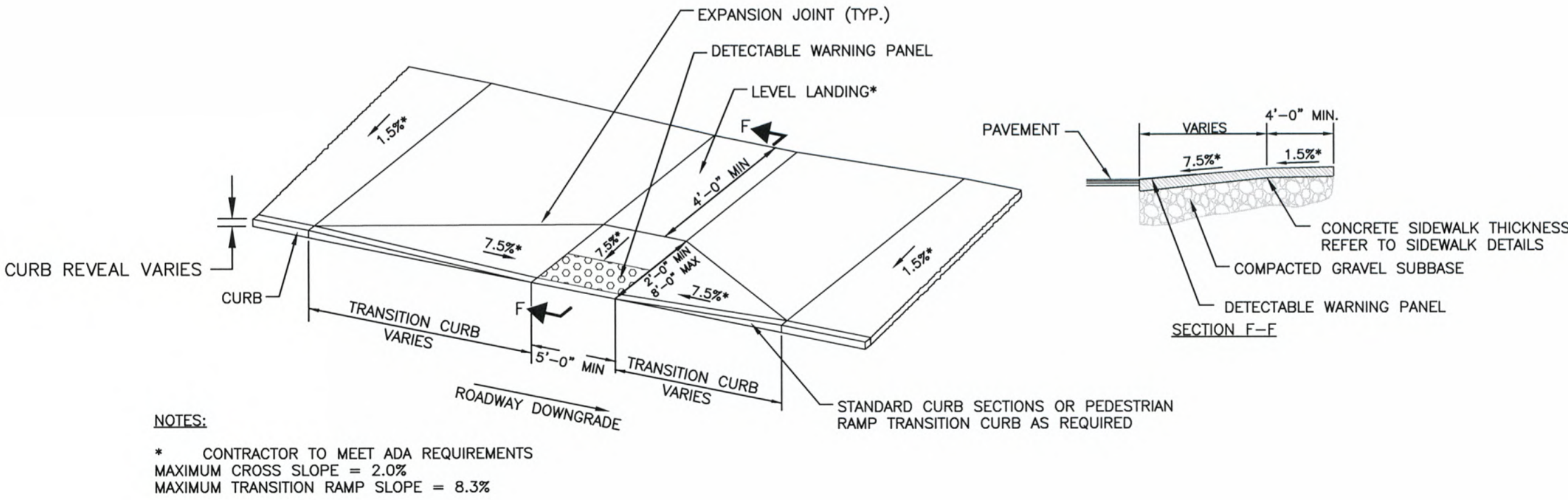
KLEINFELDER - 215 FIRST ST STE 320 | CAMBRIDGE, MA, 02142 | PH:617.497.7800 | FAX:617.498.4630 | www.kleinfelder.com



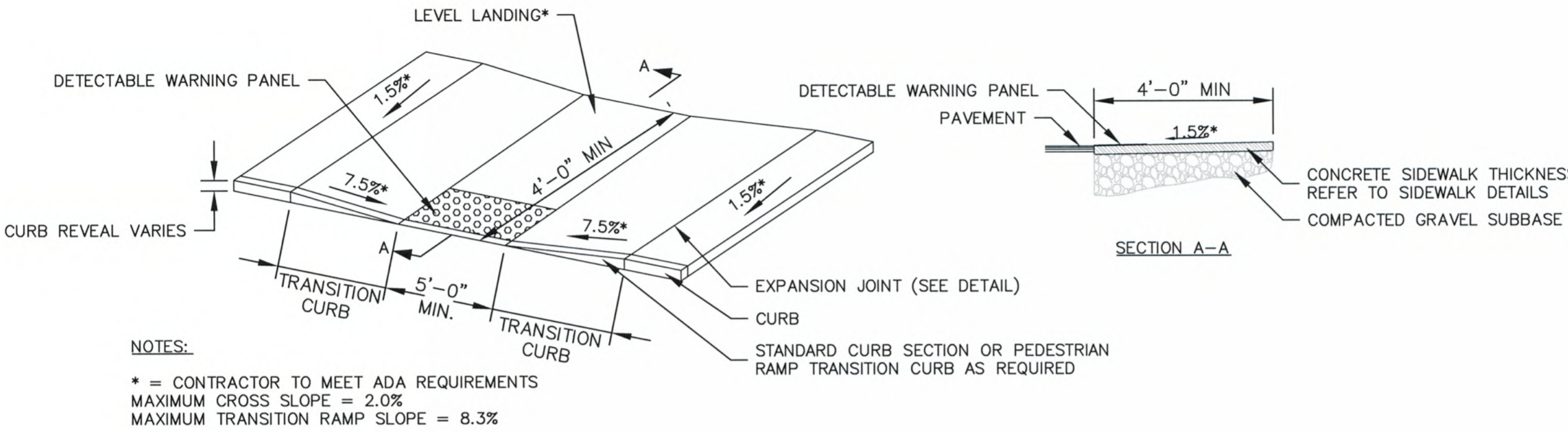
BRICK DRIVEWAY AT SIDEWALK RESTORATION
 SCALE: N.T.S.



CONCRETE DRIVEWAY AT SIDEWALK RESTORATION
 SCALE: N.T.S.



PEDESTRIAN RAMP RESTORATION DETAIL - TYPE I
 SCALE: N.T.S.



PEDESTRIAN RAMP RESTORATION DETAIL - TYPE II
 SCALE: N.T.S.



DATE	SEPTEMBER 2014
PROJECT NO.	20150414
DRAWN BY	GOLEARY
CHECKED BY	MRC
FILE NAME	20150414-C-Details

REVISIONS					

SOMERVILLE, MASSACHUSETTS

**TECHNICAL SPECIFICATIONS
FOR**

WEBSTER AVENUE WATER MAIN UPGRADES

SEPTEMBER, 2014

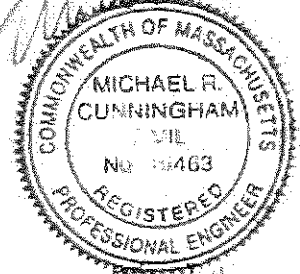


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BIDDING AND CONTRACT REQUIREMENTS – REFER TO CITY CONTRACT

DIVISION 1 – GENERAL REQUIREMENTS

<u>SECTION NO.</u>	<u>SECTION TITLE</u>
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01050	Field Engineering
01063	Miscellaneous Requirements
01069	Massachusetts General Laws
01080	Abbreviations and Definitions
01090	Reference Standards
01108	Health and Safety Procedures
01110	Environmental Protection Procedures
01151	Measurement and Payment
01200	Project Meetings
01300	Submittal Procedures
01310	Construction Progress Schedules
01346	As-Built Drawings
01400	Quality Assurance
01500	Temporary Facilities and Controls
01568	Erosion and Sedimentation Controls
01610	Delivery, Storage and Handling
01700	Contract Closeout
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DIVISION 2 – SITE CONSTRUCTION

<u>SECTION NO.</u>	<u>SECTION TITLE</u>
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02080	Soil and Waste Management
02095	Transportation and Disposal of Soil and Fill
02100	Site Preparation
02140	Dewatering
02160	Temporary Excavation Support Systems
02210	Earth Excavation, Backfill, Fill and Grading
02498	Restoration of Disturbed Areas
02525	Paving, Sidewalks and Curbing
02615	Ductile Iron Pipe and Fittings
02640	Valves and Appurtenances
02645	Hydrants

DIVISION 2 – SITE CONSTRUCTION CONTINUED

<u>SECTION NO.</u>	<u>SECTION TITLE</u>
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02675	Disinfection of Water Mains
02704	Pipeline Pressure and Leakage Testing
02711	Cleaning and Cement Mortar Lining
02761	Bypass Flow Handling

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SECTION 01010

SUMMARY OF WORK

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this section.

1.2 LOCATION OF WORK

- A. The work for the base Contract is located in the City of Somerville on Webster Avenue. The work consists of replacement and construction of approximately 750 linear feet of water main and appurtenances, and approximately 1,000 linear feet of water main cleaning and lining.

1.3 SCOPE OF WORK

- A. Furnish all labor, materials, equipment and incidentals to replace and construct water main and appurtenances, and to clean and line water main complete and ready for operation as indicated on the Drawings and specified herein.
- B. The Work includes, but is not necessarily limited to, the following major items:
 - 1. Grading, excavating, filling, backfilling and compacting for pipe laying, access pits, and for resurfacing.
 - 2. Furnish and install all water pipes, fittings, hydrants, valves, services and connections to existing mains, complete, including necessary appurtenances and service fittings.
 - 3. Furnish and install cement mortar pipelining.
 - 4. Furnish and install by-pass piping. Coordinate with local water department and fire department for use of by-pass system with hydrants and installation of approved backflow devices.
 - 5. Furnish and install project signs, traffic cones, road closure barriers and other miscellaneous traffic control devices as required.
 - 6. Prepare notifications in cooperation with the City of Somerville Communication Department.
 - 7. Prepare a Health and Safety Plan.
 - 8. Furnish, install and maintain all required sedimentation barriers and other items required to comply with the requirements specified hereinafter by the engineer.
 - 9. Perform testing and disinfection of water main and correct all failure, leaks and/or breaks.

10. Remove and dispose of excess material from excavation not required for fill or backfill at the expense of the Contractor, and to the satisfaction of the Owner.
 11. Perform required roadway paving operations.
 12. Restore all signs, pavement markings, fences, walls, drives, curb lines, concrete sidewalks, berms, lawns, shrubbery, and landscaping disturbed during water main installation work.
- C. The work shall also conform to such additional Drawings and addenda to these Specifications and Drawings as may be published or exhibited prior to the opening of bid proposals and to such drawings in explanation of details, or as may be furnished by the Engineer from time to time during the construction.
- D. Work and materials which are necessary in the construction but which are not specifically referred to in the Specification, or shown on the Drawings, but implied by the Contract shall be furnished by the Contractor at his own cost and expense and shall be such as will correspond with the general character of the work as may be determined by the Engineer, whose decisions as to the necessity for and character of such work and materials shall be final and conclusive. It is the intent of these Specifications to produce a complete, operational and finished project whether shown in every detail or not.
- E. In general, work, excluding paving, shall be performed in the following sequence:
1. Installation of erosion control measures.
 2. Installation of by-pass piping.
 3. Replacement and installation of new main.
 4. Connect to existing mains where required.
 5. Pressure test and disinfect new main.
 6. Install new service lines, curb stops and hydrants.
 7. Connect existing services to new lines.
 8. Clean and cement mortar line existing main.
 9. Tie over existing side street connections

Work may be sequenced differently depending upon actual field conditions encountered.

- F. The installation of two (2) new isolation valves at the MWRA connection near Sta 22+00 on Webster Avenue will be conducted overnight between the hours of 9:00 PM to 5:00 AM.

1.4 WORK BY OTHERS

- A. The following work will be performed by others after the completion of or concurrently with the Work of this Contract:

1. MWRA will be conducting work between Newton and Prospect Streets on Webster Avenue. Work is expected to begin approximately July 1, 2015. Contractor shall coordinate schedule with MWRA.

1.5 UNDERGROUND UTILITIES

- A. The underground utilities indicated on the drawings have been located primarily from information furnished by others and are considered approximate both as to size and location. There are additional utilities to be encountered that are not shown on the drawings, and it shall be the Contractor's responsibility to locate all existing utilities and to protect same from damage or harm. All utilities interfered with or damaged shall be properly restored, at the expense of the Contractor, to the satisfaction of its Owner.

- B. The following is a partial list of Owners of Utilities:

Somerville DPW Department
(617) 666-3311x5100

Somerville Water & Sewer Department
(617) 625-6600x5850

Somerville Police Department
(617) 625-1600

National Grid Gas
(800) 233-5325

NStar Electric
(800) 592-2000

Dig Safe
811 or 888-DIG-SAFE

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION 01010

SECTION 01040

PROJECT COORDINATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this section.

1.2 SUMMARY

- A. This section specifies administrative and supervisory requirements necessary for Project coordination including, but not necessarily limited to:
 - 1. Coordination.
 - 2. General installation provisions.
 - 3. Cleaning and protection.
- B. Contractor shall coordinate work with the City of Somerville Communications Department. Notifications shall be prepared in cooperation with the City and shall be submitted to residents 1-week in advance of work.
- C. Progress meetings and preconstruction conferences are included in Section 01200 – Project Meetings.
- D. Requirements for the Contractor's Construction Schedule are included in Section 01300 – Submittal Procedures.
- E. Requirements for Construction Progress Schedules are included in Section 01310 – Construction Progress Schedules.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.1 GENERAL INSTALLATION PROVISIONS

- A. Inspection of Conditions: Inspect the conditions under which Work is to be performed. Do not proceed until unsatisfactory conditions have been corrected in an acceptable manner, and at no additional cost to the Owner.

- B. Manufacturer's Written Instructions: Comply with manufacturer's written installation instructions and recommendations, to the extent that those instructions and recommendations are more explicit or stringent than requirements contained in the Contract Documents.
- C. Inspect materials or equipment immediately upon delivery and again prior to installation. Reject damaged and defective items at no additional cost to the Owner.
- D. Provide attachment and connection devices and methods for securing work. Secure work true to line and level. Allow for expansion and utility movement.
- E. Recheck measurements and dimensions before starting installation or erection.
- F. Install each component during weather conditions and project status that will ensure the best possible results. Isolate each part of the completed construction from incompatible material to prevent deterioration.
- G. Coordinate temporary enclosures with required inspections and tests, to minimize the necessity of uncovering completed construction for that purpose.

3.2 CLEANING AND PROTECTION

- A. During handling and installation, clean and protect construction in progress and adjoining materials in place. Install protective covering to ensure protection from damage or deterioration.
- B. Clean and maintain completed construction as frequently as necessary through the remainder of the construction period.
- C. Limiting Exposures: Supervise construction activities to ensure that no part of the construction, completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period. Where applicable, such exposures include, but are not limited to, the following:
 - 1. Excessive static or dynamic loading.
 - 2. Excessive internal or external pressures.
 - 3. Excessively high or low temperatures.
 - 4. Air contamination or pollution.
 - 5. Water or ice.
 - 6. Solvents.

7. Chemicals.
8. Heavy traffic.
9. Misalignment.
10. Unprotected storage.
11. Improper shipping or handling.
12. Theft.
13. Vandalism.

END OF SECTION 01040

SECTION 01050

FIELD ENGINEERING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this section.

1.2 SUMMARY

- A. This section includes the following:
 - 1. Examination of site and conditions of construction.
 - 2. Establishment of lines, grades, and easements.
 - 3. Connections to existing facilities.
 - 4. Restoration and protection of public and private property.
- B. Related section includes the following:
 - 1. Section 01346 - As-Built Drawings
 - 2. Section 02525 - Paving, Sidewalks and Curbing

1.3 SUBMITTALS

- A. Shop Drawings: Submit the following in accordance with Section 01300 – SUBMITTAL PROCEDURES:
 - 1. As-Built Drawings: The Contractor shall be responsible for maintaining two sets of redline “as-built locations and dimensions of work.” The As-Built Drawings shall be submitted to the Owner at substantial completion of the project. See Section 01346.
 - 2. The Contractor shall submit copies of field records and record drawings each month with project invoices. Field data shall be updated each month as applicable.

1.4 PROJECT/SITE CONDITIONS:

A. Environmental Requirements:

1. Unfavorable Construction Conditions:

- a. During unfavorable weather, wet ground or other unsuitable construction conditions, confine operations to work which will not be affected adversely by such conditions.
- b. No portion of Work shall be constructed under conditions which adversely affect quality or efficiency thereof, unless special means or precautions are taken to perform Work in manner acceptable to the Engineer.

2. Easements and Rights-of-Way:

- a. Easements and rights-of-way for utilities, if required, will be provided by the Owner.
- b. Confine construction operations within limits indicated on drawings and/or within limits of easements or public ways.
- c. Place construction tools, equipment, excavated materials, and pipeline materials and supplies, so as to cause least possible damage to property and interference with traffic.
- d. Contractor shall coordinate and obtain approval from the Owner and/or private landowners along the proposed route for the location of construction staging areas.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Use new materials in restoration of existing facilities except where soil materials and plants may be reused, as appropriate.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examination of Site and Verification of Conditions:

1. Before starting operations, examine site to become acquainted with conditions to be encountered.

2. Verify exact locations of sewers, water mains, gas mains, above or below ground electrical wires, other utilities, conduits and structures which may interfere with work.
3. Contractor shall perform test pit excavations in locations where he feels information is required to perform the work, as approved by the Engineer.

3.2 APPLICATION

A. Connections to Existing Facilities:

1. Make connections to existing facilities as indicated on drawings or as specified.
2. Obtain permission from specific utility owners in writing prior to undertaking connections.
 - a. Protect facilities against deleterious substances and damage.
3. Plan in advance all connections to existing facilities which are in service.
 - a. All equipment, materials, and labor shall be on hand at time of undertaking connections to existing facilities in service.
 - b. Work shall proceed continuously if necessary to complete connections within the time designated by the Engineer.
 - c. Existing water distribution systems to be connected to and shall not be taken out of service during periods of high demand; coordinate any disruptions to service with the Owner.
4. Operation of valves or other appurtenances on existing utilities, when required, shall be performed by respective utility personnel only.
 - a. Water distribution system valves shall be operated by Water Department personnel only.
 - (1) A tight shutdown of existing valves is not guaranteed; Contractor shall control leakage past valves to satisfaction of the Owner and Engineer and at no additional cost to the Owner.
 - b. The Contractor shall give the Water Department three working (3) days advance notice prior to performing any work requiring the operation of local water distribution system valves.

B. Restoration and Protection of Public and Private Property:

1. Protect, shore, brace, support, and maintain all underground pipes, conduits, drains, and other underground construction uncovered or otherwise affected by construction operations.
2. Restore all public and private property including pavement, surfacing, curbs, walks, utility poles, guy wires, fences, and other surface structures affected by construction operations, together with all sod and landscaping to their original condition or better, whether within or outside easements.

3.4 CONTRACT CLOSEOUT

- A. Provide in accordance with Section 01700.

END OF SECTION 01050

SECTION 01063

MISCELLANEOUS REQUIREMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this section.

1.2 SUMMARY

- A. The Contractor shall conform to all miscellaneous requirements as herein specified.

1.3 TRAFFIC CONTROL

- A. Contractor shall be solely responsible for traffic control.
- B. For control of traffic, the Contractor shall provide an adequate number of traffic control devices employed at his own expense.
- C. Whenever and wherever traffic is sufficiently congested, public safety is endangered, or as required by authorities having jurisdiction, furnish uniformed police officers to direct traffic and to keep traffic off the area affected by construction operations. Such officers shall be in addition to the traffic control requirements specified in other provisions of the contract.
- D. The Contractor will turn in invoices for police details to the Water Department for payment.
- E. The use of traffic control devices or police shall in no way relieve the Contractor of any responsibility or liability which is his under the terms of the contract. Anticipated traffic control requirements for this project are expected to include cones, barrels, and signs. Owner reserves the right to require additional measures if police require them.

1.4 INTERFERENCE WITH EXISTING WORKS

- A. The Contractor shall at all times conduct his operations so as to interfere as little as possible with existing works. The Contractor shall develop a program, in cooperation with the Engineer and interested officials, which shall provide for the construction and putting into service of the new works in the most orderly manner possible. This program shall be adhered to except as deviations there from are expressly permitted. All work of connecting with, cutting into, and reconstructing existing pipes or structures shall be planned to interfere with the operation of the existing facilities for the shortest possible time when the demands on the facilities best permit such interference, even though it may be necessary to work outside of normal working hours to meet these requirements. Before starting work which will interfere with the operation of existing facilities, the Contractor shall do all possible preparatory work and shall see that all tools, materials, and equipment are made ready and at hand.

The Contractor shall make such minor modifications in the work relating to existing structures as may be necessary, without additional compensation.

- B. The Contractor shall have no claim for additional compensation by reason of delay or inconvenience in adapting his operations to meet the above requirements.
- C. The Contractor shall have no claim for additional compensation by reason of delay or inconvenience in adapting his operations to the need for continuous flow of water.

1.5 BURIED UTILITY WARNING AND IDENTIFICATION TAPE

- A. Provide detectable aluminum foil plastic backed tape or detectable magnetic plastic tape manufactured specifically for warning and identification of buried piping. Tape shall be detectable by an electronic detection instrument. Provide tape in rolls, 3 inches minimum width, color coded for the utility involved with warning and identification imprinted in bold black letters continuously and repeatedly over entire tape length. Warning and identification shall be CAUTION BURIED WATER PIPING BELOW or similar. Use permanent code and letter coloring unaffected by moisture and other substances contained in trench backfill material. Bury tape with the printed side up at a depth of 18 inches below the top surface of earth or the top surface of the subgrade under pavements.

1.6 WATERTIGHTNESS

- A. All structures, pipes, and equipment which are to contain water shall be watertight under all operating conditions for which they are intended. The Contractor shall furnish all labor, materials and equipment and do all work required by the Engineer to make all such parts of the work watertight, or to replace them if in the opinion of the Engineer any leakage is excessive. All

such parts of the work filled with water for testing water tightness shall be left filled as ordered by the Engineer.

1.7 CARE OF WATERCOURSES

- A. The Contractor shall maintain the flow in all watercourses, whether open channels or in pipes, in all sewers and other pipes interfered with in the line of work and convey the flow to a suitable point of discharge so as not to flow upon the work or create a nuisance. In the discharge of water removed from the excavations by pumping or by gravity similar precautions shall be observed.

1.8 FIRE HYDRANTS AND SPRINKLER CONNECTIONS

- A. Fire hydrants on or adjacent to the work shall be kept operational and accessible to fire-fighting equipment at all times.
- B. Contractor shall coordinate any required shutdown of fire sprinkler service lines with the Fire Department and the impacted property owner. Three days notice shall be provided to fire department and property owner prior to deactivating a fire sprinkler line.

PART 2 – PRODUCTS

2.1 TRAFFIC CONTROL DEVICES

- A. Materials required for the work of this Section need not be new, but must be in first-class condition and acceptable to the Owner. Any materials that in the judgment of the Owner are unsatisfactory in appearance or performance shall be removed and immediately replaced by acceptable units.
- B. Signs, portable barricades, and drums shall have "Type III High Intensity Encapsulated Lens Reflective Sheeting" in accordance with Section M9.30.0 of the 1995 MHD Standard Specifications for Highways and Bridges and MUTCD requirements.
- C. Safety Signing for Construction Operations shall be fabricated in accordance with the provisions of subsection M9.30.0, Type III or IV High Intensity, of the MHD Standard Specifications for Highways and Bridges, where these colors are specified.
- D. Portable Type III Barricades shall conform with Standard Plate No. 406.2.0 of the MHD Construction and Traffic Standard Details (Metric Edition). Reflectorized sheeting to conform to Section M9.30.0 Type III or IV, of the MHD Standard Specifications for Highways and Bridges.

PART 3 - EXECUTION (NOT USED)

END OF SECTION 01063

SECTION 01069

MASSACHUSETTS GENERAL LAWS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this section.

1.2 EXCERPTS FROM MASSACHUSETTS STATUTES

- A. In addition to the requirements as set forth under "Compliance with Laws" in the AGREEMENT, particular attention is directed to certain stipulations of Chapter 149 of the General Laws of Massachusetts, as amended to date as follows:

Section 25. "Every employee in public work shall lodge, board, and trade where and with whom he elects; and no person or his agents or employees under contract with the commonwealth, a county, city or town, or with a department, board, commission or officer acting therefore, for the doing of public work shall directly or indirectly require, as a condition of employment therein, that the employee shall lodge, board or trade at a particular place or with a particular person. This section shall be made a part of the contract for such employment."

Section 26. "In the employment of mechanics and apprentices, teamsters, chauffeurs and laborers in the construction of public works by the commonwealth, or by a country, town or district, or by persons contracting or subcontracting for such works, preference shall first be given to citizens of the commonwealth who have been residents of the commonwealth for at least six months at the commencement of their employment who are male veterans as defined in clause Forth-third of section seven of chapter four, and who are qualified to perform the work to which the employment relates; and secondly, to citizens of the commonwealth generally who have been residents of the commonwealth for at least six months at the commencement of their employment, and if they cannot be obtained in sufficient numbers, then to citizens of the United States, and every contract for such work shall contain a provision to this effect".

Section 34. "Every contract, except for the purchase of material or supplies, involving the employment of laborers, workmen, mechanics, foremen or inspectors, to which the commonwealth or any county or any town, subject to

section thirty, is a party, shall contain a stipulation that no laborer, workman, mechanic, foreman or inspector working with the 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 hours in any one day or more than forty-eight hours in any one week, or more than six days in any one week, except in cases of emergency, or in case any town subject to section thirty-one is a party to such a contract, more than eight hours in any one day, except as aforesaid..."

Section 34A. "Every contract for the construction, alteration, maintenance, repair or demolition of or addition to, any public building or other public works for the commonwealth or any political subdivision thereof shall contain stipulations requiring that the contractor shall, before commencing performance of such contract, provide by insurance for the payment of compensation and the furnishing of other benefits under chapter one hundred and fifty-two to all persons to be employed under the contract, and that the contractor shall continue such insurance in full force and effect during the term of the contract. No officer or agent contracting in behalf of the commonwealth or any political subdivision thereof shall award such a contract until he has been furnished with sufficient proof of compliance with the aforesaid stipulations. Failure to provide and continue in force such insurance as aforesaid shall be deemed a material breach of the contract and shall operate as an immediate termination thereof. No cancellation of such insurance, whether by the insurer or by the insured, shall be valid unless written notice thereof is given by the party proposing cancellation to the other party and to the officer or agent who awarded the contract at least fifteen days prior to the intended effective date thereof, which date shall be expressed in said notice. Notice of cancellation sent by the party proposing cancellation by registered mail, postage prepaid, with a return receipt of the addressee requested, shall be a sufficient notice..."

Section 34B. "Every contract for the construction, alteration, maintenance, repair or demolition of, or addition to, any public works for the commonwealth or any political subdivision thereof shall contain stipulations requiring that the contractor shall pay to any reserve police officer employed by him in any city or town the prevailing rate of wage paid to regular police officers employed by him in such city or town."

Attention is also directed to certain stipulations of Chapter 30 as follows:

Section 39F. "(1) Every contract awarded shall contain the following subparagraphs and in each case those subparagraphs shall be binding between the general contractor and each subcontractor.

- “(a) Forthwith after the general contractor receives payment on account of a periodic estimate, the general 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 general contractor.
- “(b) Not later than the sixty-fifth day after each subcontractor substantially completes his work in accordance with the plans and specifications, the entire balance due under the subcontract less amounts retained by the awarding authority as the estimated cost of completing the incomplete and unsatisfactory items of work, shall be due the subcontractor; and the awarding authority shall pay that amount to the general contractor. The general contractor shall forthwith pay to the subcontractor the full amount received from the awarding authority less any amount specified in any court proceedings barring such payment and also less any amount claimed due from the subcontractor by the general contractor.
- “(c) Each payment made by the awarding authority to the general contractor pursuant to subparagraphs (a) and (b) of this paragraph for the labor performed and the materials furnished by a subcontractor shall be made to the general contractor for the account of that subcontractor; and the awarding authority shall take reasonable steps to compel the general contractor to make each such payment to each such subcontractor. If the awarding authority has received a demand for direct payment from a subcontractor for any amount which has already been included in a payment to the general contractor or which is to be included in the payment to the general contractor for payment to the subcontractor as provided in sub-paragraphs (a) and (b), the awarding authority shall act upon the demand as provided in this section.
- “(d) If, within seventy days after the subcontractor has substantially completed the subcontract work, the subcontractor has not received from the general contractor the balance due under the subcontract including any amount due for extra labor and materials furnished to the general contractor, less any amount retained by the awarding authority as the estimated cost of completing the incomplete and unsatisfactory items of work, the subcontractor may demand direct payment of that balance from the awarding authority. The demand shall be by a sworn statement delivered to or sent by certified mail to the awarding authority, and a copy shall be delivered to or sent by certified mail to the general contractor at the same time. The demand shall contain a detailed breakdown of the balance due under the subcontract and also a statement of the status of

completion of the subcontract work. Any demand made after substantial completion of the subcontract work shall be valid even if delivered or mailed prior to the seventieth day after the subcontract work. Within ten days after the subcontractor has delivered or so mailed the demand to the awarding authority and delivered or so mailed a copy to the general contractor, the general contractor may reply to the demand. The reply shall be by a sworn statement delivered to or sent by certified mail to the awarding authority 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 general contractor and of amount due for each claim made by the general contractor against the subcontractor.

- “(e) Within fifteen days after receipt of the demand by the awarding authority, but in no event prior to the seventieth day after substantial completion of the subcontract work, the awarding authority 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 general contractor, less any amount (i) retained by the awarding authority 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 general contractor in the sworn reply; provided, that the awarding authority shall not deduct from any 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 subparagraph (d). The awarding authority 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 subparagraph.
- “(f) The awarding authority shall forthwith deposit the amount deducted from a direct payment as provided in part (iii) of subparagraph (e) in the interest-bearing joint account in the names of the general contractor and the subcontractor in a bank in Massachusetts selected by the awarding authority or agreed upon by the general contractor and the subcontractor and shall notify the general 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 general contractor and the subcontractor or as determined by decree of 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 paragraph (f) shall be made out of amounts payable to the general contractor at the time of receipt of a demand for direct payment for a subcontractor and out of amounts which later become payable to the general contractor and in order of receipt of such demands from subcontractors. All direct payments shall discharge the obligation of the awarding authority to the general contractor to the extent of such payment.
- “(h) The awarding authority shall deduct from payments to a general contractor amounts which, together with the deposits in interest-bearing accounts pursuant to subparagraph (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 general contractor.
- “(i) If the subcontractor does not receive payment as provided in subparagraph (a) or if the general 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 subparagraph (a), the subcontractor may demand direct payment by following the procedure in subparagraph (d) and the general contractor may file a sworn reply as provided in that same subparagraph. A demand made for 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 general contractor. Thereafter the awarding authority shall proceed as provided in subparagraph (e), (f), (g), and (h).”

Section 39N. “Every contract subject to section forty-four A of chapter one hundred and forty-nine or subject to section thirty-nine M of chapter thirty shall contain the following paragraph in its entirety and an awarding authority may adopt reasonable rules or regulations in conformity with that paragraph concerning the filing, investigation and settlement of such claims:

“If, during the progress of the work, the contractor or the awarding authority 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 contracting authority may request an equitable adjustment in the contract price of the contract applying to work affected by the differing site conditions. A request for such an adjustment shall be in writing and shall be delivered by the party

making such claim to the other party as soon as possible after such conditions are discovered. Upon receipt of such a claim from a contractor, or upon its own initiative, the contracting authority shall make an investigation of such physical conditions, and if they differ substantially or materially from those shown on the plans or as 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 to cause an increase or decrease in the cost of performance of the work or a change in the construction methods required for the performance of the work which results in an increase or decrease in the cost of the work, the contracting authority shall make an equitable adjustment in the contract price and the contract shall be modified in writing accordingly."

Section 39O. "Every contract subject to the provisions of section thirty-nine M of this chapter or subject to section forty-four A of chapter one hundred forty-nine shall contain the following provisions (a) and (b) in their entirety...

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

"(b) The general contractor must submit the amount of a claim under provision (a) 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.

Section 39P. "Every contract subject to section thirty-nine M of this chapter or section forty-four A of chapter one hundred forty-nine which requires the awarding authority, any official, its architect or engineer to make a decision on interpretation of the specifications, approval of equipment, material or any other approval, or progress of the work, shall require that the decision made promptly

and, in any event, no later than thirty days after the written submission for decision; but if such decision requires extended investigation and study, the awarding authority, the official, architect or engineer shall, within thirty 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."

Section 39R. "(a) The words herein shall have the meaning stated below whenever they appear in this section:

- "(1) "Contractor" means any person, corporation, partnership, joint venture, sole proprietorship, or other entity awarded a contract pursuant to section thirty-nine M of chapter thirty, sections forty-four A through H, inclusive, of chapter one hundred and forty-nine and sections thirty B through thirty P, inclusive, of chapter seven.
- "(2) "Contract" means any contract awarded or executed pursuant to sections thirty B through thirty P, inclusive, of chapter seven and any contract awarded or executed pursuant to section thirty-nine M of chapter thirty, or sections forty-four A through H, inclusive, of chapter one hundred and forty-nine, which is for an amount or estimated amount greater than one hundred thousand dollars.
- "(3) "Records" means books of original entry, accounts, checks, bank statements and all other banking documents, correspondence, memoranda, invoices, compute printouts, tapes, discs, papers and other documents or transcribed information of any type, whether expressed in ordinary or machine language.
- "(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 awarding authority.
- "(5) "Audit", when used in regard to financial statements, means an examination of records by an independent certified public accountant in accordance with generally accepted accounting principals 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.

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

“(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.

“(8) Accounting terms, unless otherwise defined herein, shall have a meaning in accordance with generally accepted accounting principals and auditing standards.

“(b) Subsection (a)(2) hereof notwithstanding, every agreement of contract awarded or executed pursuant to sections thirty B through thirty P, inclusive, of chapter seven, and pursuant to section thirty-nine M of chapter thirty or to section forty-four A through H, inclusive, of chapter one hundred and forty-nine, shall provide that:

“(1) The contractor shall make, and keep for at least six years after final payment, books, records, and accounts which in reasonable detail accurately and fairly reflect the transactions and dispositions of the contractor, and

“(2) until the expiration of six years after final payment, the officer of inspector general, and the deputy commissioner of capital planning and operations shall have the right to examine any books, documents, papers or records of the contractor or his/her subcontractors that directly pertain to, and involve transactions relating to, the contractor or his/her subcontractors, and

“(3) if the agreement is a contract as defined herein, the contractor

shall describe any change in the method of maintaining records or recording transactions which materially affect any statements filed with the awarding authority, including in his/her description with a letter from the contractor's independent certified public accountant approving or otherwise commenting on the changes, and

“(4) if the agreement is a contract as defined herein, the contractor has filed a statement of management on internal accounting controls as set forth in paragraph (c) below prior to the execution of the contract, and

“(5) if the agreement is a contract as defined herein, the contractor has filed prior to the execution of the contracts and will continue to file annually, an audited financial statement for the most recent completed fiscal year as set forth in paragraph (d) below.

“(c) Every Contractor awarded a contract shall file with the awarding authority a statement of management as to whether the system of internal accounting controls of the contractor and its subsidiaries reasonably assures that:

“(1) transactions are executed in accordance with management's general and specific authorization;

“(2) transactions are recorded as necessary i. to permit preparation of financial statements in conformity with generally accepted accounting principles, and ii. to maintain accountability for assets;

“(3) access to assets is permitted only in accordance with management's general or specific authorization; and

“(4) the recorded accountability for assets is compared with the existing assets at reasonable intervals and appropriate action was taken with respect to any difference.

“Every contractor awarded a contract shall also file in the awarding authority a statement prepared and signed by an independent certified public accountant, stating that he/she has examined the statement of management on internal accounting controls, and expressing an opinion as to

“(1) whether the representations of management in response to this paragraph and paragraph (b) above are consistent with the result of management's evaluation of the system of internal accounting controls; and

“(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.

“(d) Every contractor awarded a contract by the commonwealth or by any political subdivision thereof shall annually file with the deputy commissioner of capital planning and operations 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 financial 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 awarding authority upon request.

“(e) The office of inspector general, the deputy commissioner for capital planning and operations and any other awarding authority shall enforce the provisions of this section. The deputy commissioner of capital planning and operations may after providing an opportunity for the inspector general and other interested parties to comment, promulgate pursuant to the provisions of chapter thirty A such rules, regulations and guidelines as are necessary to effectuate the purposes of this section. Such rules, regulations and guidelines may be applicable to all awarding authorities. A contractor’s failure to satisfy any of the requirements of this section may be grounds for debarment pursuant to section forty-four C of chapter one hundred and forty-nine.

“(f) Records and statements required to be made, kept or filed under provisions of this section shall not be public records as defined in section seven of chapter four and shall not be open to public inspection; provided, however, that such records and statements shall be made available pursuant to the provisions of clause (2) of paragraph (b).

1.3 MINIMUM WAGE RATES

- A. A schedule of minimum wage rates excerpted from that for “Mechanics, Apprentices, Teamsters, Chauffeurs, and Laborers” issued for this work by the Commissioner of Labor and Industries of Massachusetts, in accordance with Chapter 461, Acts of 1935, are included in Appendix A of these specifications.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION 01069

SECTION 01080

ABBREVIATIONS AND DEFINITIONS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS:

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this section.

1.2 RELATED SECTIONS:

- A. Section 01090: Reference Standards

1.3 ABBREVIATIONS:

- A. Where any of the following abbreviations are used in the Contract Documents, they shall have the meaning set forth opposite each. Abbreviations for trade associations and standards organizations are listed in section 01090 - Reference Standards.

AASHTO American Association of State Highway and Transportation Officials

ACI American Concrete Institute

AISC American Institute of Steel Construction

ANSI American National Standards Institute

ASCE American Society of Civil Engineers

ASTM American Society for Testing and Materials

AWWA American Water Works Association

Fed. Spec. Federal Specifications issued by the Federal Supply Service of the
General Services Administration, Washington, D. C.

125-lb. ANSI American National Standard Institute for Cast-iron 250-lb. ANS
or Pipe Flanges and Flanged Fittings, Designation B16.1, for the
250 lb. ANSI Appropriate class

AWG American or Brown and Sharpe Wire Gage

MWRA Massachusetts Water Resource Authority

NPT	National Pipe Thread
OS&Y	Outside screw and yoke
Stl. WG	U. S. Steel Wire, Washburn and Moen, American Steel and Wire or Roebbling Gage
USS Gage	United States Standard Gage
WOG	Water, Oil, Gas
WSP	Working steam pressure

1.4 DEFINITIONS:

- A. Wherever the words defined in this section or pronouns used in their stead occur in the Contract Documents, they shall have the meanings herein given.
- B. General: Basic Contract definitions are included in the Conditions of the Contract.
- C. Indicated: The term indicated refers to graphic representations, notes, or schedules on the Drawings, or other Paragraphs or Schedules in the Specifications, and similar requirements in the Contract Documents. Terms such as shown, noted, scheduled, and specified are used to help the reader locate the reference. There is no limitation on location.
- D. Directed: Terms such as directed, requested, authorized, selected, approved, required, and permitted mean directed by the Engineer, requested by the Engineer, and similar phrases.
- E. Approve: The term approved, when used in conjunction, with the Engineer's action on the Contractor's submittals, applications, and requests, is limited to the Engineer's duties and responsibilities as stated in the Conditions of the Contract.
- F. Regulation: The term regulations includes laws, ordinances, statutes, and lawful orders issued by authorities having jurisdiction, as well as rules, conventions, and agreements within the construction industry that control performance of the Work.
- G. Furnish: The term furnish means supply and deliver to the Project site, ready for unloading, unpacking, assembly, installation, and similar operations.

- H. Install: The term install describes operations at the Project site including the actual unloading, unpacking, assembly, erection, placing, anchoring, applying, working to dimension, finishing, curing, protecting, cleaning, and similar operations.
- I. Provide: The term provide means to furnish and install, complete and ready for the intended use.
1. The term experienced, when used with the term Installer means having a minimum of five previous projects similar in size and scope to this Project, being familiar with the special requirements indicated, and having complied with requirements of the authority having jurisdiction.
 2. Trades: Using terms such as carpentry is not intended to imply that certain construction activities must be performed by accredited or unionized individuals of a corresponding generic name, such as carpenter. It also does not imply that requirements specified apply exclusively to tradespersons of the corresponding generic name.
- J. Project Site is the space available to the Contractor for performing construction activities, either exclusively or in conjunction, with others performing other work as part of the Project. The extent of the Project Site is shown on the Drawings and may or may not be identical with the description of the land on which the Project is to be built.
- K. Testing Agencies: A testing agency is an independent entity engaged to perform specific inspections or tests, either at the Project Site or elsewhere, and to report on and, if required, to interpret results of those inspections or tests.
- L. Elevation: The figures given on the Drawings or in the other Contract Documents after the word "elevation" or abbreviation of it shall mean the distance in feet above the datum adopted by the Engineer.
- M. Rock: The word "rock," wherever used as the name of an excavated material or material to be excavated, shall mean only boulders and pieces of concrete or masonry exceeding 1 cu. yd. in volume, or solid ledge rock which, in the opinion of the Engineer, requires, for its removal, drilling and blasting, wedging, sledging, barring, or breaking up with a power-operated tool. No soft or disintegrated rock which can be removed with a hand pick or power-operated excavator or shovel, no loose, shaken, or previously blasted rock or broken stone in rock fillings or elsewhere, and no rock exterior to the maximum limits of measurement allowed, which may fall into the excavation, will be measured or allowed as "rock."

- N. Earth: The word "earth", wherever used as the name of an excavated material or material to be excavated, shall mean all kinds of material other than rock as above defined.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION 01080

SECTION 01090

REFERENCE STANDARDS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this section.

1.2 QUALITY ASSURANCE:

- A. Should specified reference standards conflict with the Contract Documents, refer to paragraph 3.3 of the General Conditions.

1.3 INDUSTRY STANDARDS (SCHEDULE OF REFERENCES):

- A. Copies of Standards: Each entity engaged in construction on the Project is required to 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, the Contractor shall obtain copies directly from the publication source.

- B. Abbreviations and Names: Trade association names and titles of general standards are frequently abbreviated. The following acronyms or abbreviations, as referenced in Contract Documents, are defined to mean the associated names. Names and addresses are subject to change and are believed, but not assured, to be accurate and up to date as of the date of Contract Documents.

AASHTO American Association of State Highway and Transportation Officials
444 North Capitol Street, N.W.
Washington, DC 20001

ACI American Concrete Institute
Box 19150
Reford Station
Detroit, MI 48219

AGC Associated General Contractors of America
1957 E Street, N.W.
Washington, DC 20006

AI Asphalt Institute
Asphalt Institute Building
College Park, MD 20740

AISI	American Iron and Steel Institute 1000 16th Street, N.W. Washington, DC 20036
ANSI	American National Standards Institute 1430 Broadway New York, NY 10018
ASCE	American Society of Civil Engineers 345 E. 47th Street New York, NY 10017
ASTM	American Society for Testing and Materials 1916 Race Street Philadelphia, PA 19103
AWS	American Welding Society 550 LeJeune Road, N.W. Miami, FL 33135
AWWA	American Water Works Association 6666 West Quincy Avenue Denver, CO 80235
CRSI	Concrete Reinforcing Steel Institute 933 Plum Grove Road Schaumburg, IL 60195
EJCDC	Engineers' Joint Contract Documents Committee American Consulting Engineers Council 1015 15th Street, N.W. Washington, DC 20005
FS	Federal Specification General Services Administration Specifications and Consumer Information Distribution Section (WRSIS) Washington Navy Yard, Building 197 Washington, DC 20407
MHD	Massachusetts Highway Department
NAPA	National Asphalt Pavement Association 6811 Kenilworth Avenue Calvert Building, Suite 620 Riverdale, MD 207307

OSHA Occupational Safety Hazard Administration

WSC Water Systems Council
600 S. Federal Street, Suite 400
Chicago, IL 60605

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION 01090

SECTION 01108

HEALTH AND SAFETY PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

- A. Prepare a Health and Safety Plan (HASP) that meets all applicable state and federal health and safety regulations, including, but not limited to, those listed below. The Contractor shall be solely responsible for developing a HASP suitable for the Contractor's use and all work done by their subcontractors. The Owner, Engineer and/or their representative is not responsible for establishing or enforcing the health and safety requirements of the Contractor, and that nothing herein shall relieve the Contractor from its exclusive responsibility for the health and safety of its employees, and/or its representatives, and/or subcontractors.
- B. The Contractor shall be responsible for being aware of all potential hazards at the site, and reviewing existing information which provides evidence of contamination within the limit of the work.
- C. The Contractor shall also be required to defend, indemnify, and hold the City of Somerville, MA, and the Engineer harmless against any and all claims, liabilities, fines, or penalties arising out of actual or alleged failure of the Contractor and/or its agents, employees, or subcontractors to comply with any health or safety regulation, rule, ordinance, legislation, and/or health and safety plan.
- D. All work required in the Specifications regarding development and implementation of a HASP shall be in accordance with State hazardous waste site regulations (310 CMR 40.0018) and OSHA requirements (29 CFR 1910 and 1926). The HASP shall be submitted to the Engineer prior to site mobilization. Work shall not proceed at the site until the Engineer and the City of Somerville have received a copy of the Contractor's Health and Safety Plan meeting all the requirements specified herein.
- E. The Contractor shall be responsible for the construction, maintenance, and dismantling of the decontamination areas specified within the HASP. This includes providing all labor, materials, and equipment to prepare, maintain in working order, and remove the decontamination area, including collection and disposal of decontamination water and solids, and subsequent dismantling and disposal of materials.

- F. The Contractor is responsible for establishing, implementing and maintaining of ambient air and dust monitoring programs and all other environmental monitoring programs. All such programs shall be operated by the Contractor whenever there are soils handling construction activities occurring at the site.
- G. The Contractor shall be responsible for providing all materials, equipment, and labor associated with applying dust control suppressants, including equipment that shall be required during all soil handling activities, in the event that fugitive dust or excessive odors are encountered.

1.2 DUST CONTROL

- A. During excavation of soil and fill material, dust shall be controlled to limit potential spread of contaminants and potential exposure of contaminants to workers and the public. The dust control measures implemented at the site shall be performed in accordance with this Section.
- B. During the progress of the work, the Contractor will conduct his operations and maintain the area of his activities, including sweeping and sprinkling of water if acceptable to the Engineer, so as to minimize the generation and dispersion of dust.

1.3 AIR MONITORING

- A. Air monitoring shall involve direct reading instruments capable of providing real-time indications of air contaminants to protect on-site personnel and the local population. The Contractor's Site Health and Safety Officer and Superintendent shall be responsible for assuring that monitoring is conducted in an approved manner, that air monitoring/sampling are conducted at a frequency sufficient to ensure accurate assessments of site conditions, and that work practices, engineering controls, and/or personal protective equipment are proper for the conditions.
- B. At a minimum, detectors for organic contaminants shall be utilized to monitor on-site and off-site breathing zones and possible sources of potentially hazardous material (e.g., excavations, regrading, etc.). All personnel shall be made aware of the potential hazards and be informed of air monitoring information. Particular attention to air quality shall be made in the work area during earthwork activities to ensure that contaminants do not escape to the atmosphere and affect off-site population, on-site control, working conditions, and personnel protection measures.
- C. The Contractor shall keep accurate documentation of all air monitoring, which shall be made available to the Owner and Engineer for review at all times.

PART 2 - PRODUCTS

2.1 HEALTH AND SAFETY PLAN AND CERTIFICATIONS

A. The Contractor shall, prior to the start of work on the site, submit six (6) copies of its site-specific Health and Safety Plan to the Engineer. Submit with the site-specific Health and Safety Plan, a certification that states the following:

1. The Contractor hereby certifies that the Contractor and any workers engaged in work on the project meet the requirements of 29 CFR 1910.120 and the provisions of the American National Standards Institute, Standard Z88.2, for training, medical surveillance, and respirator protection unless the operation does not involve employee exposure or the reasonable possibility for employee exposure to safety or health hazards. These requirements include, but are not limited to, the following items:
 - a. The Contractor's employees have been examined by a licensed physician within the last 12 months, and have been determined to be physically able to perform the work and use the respirator and other protective or safety equipment required for this assignment.
 - b. The employees have received health and safety training for working in environments with known and unknown hazards within the past twelve months.
 - c. The Contractor has established and is maintaining a respiratory protection program that complies with the provision of 29 CFR 1910.134.
 - d. The Contractor maintains appropriate surveillance of the work area conditions and degree of employee exposure or stress.
2. The Contractor shall further certify that only respirators approved or accepted by NIOSH/MSHA shall be provided and used by the Contractor's employees; that each of the Contractor's employees has been properly fitted to the respirators provided by the Contractor, including a test of the face-to-face piece seal; that the Contractor has provided its employees with written procedures covering the use of respirators in dangerous atmospheres; and that the Contractor has established a program for inspection, maintenance, and care of the respirators.

The certification shall be signed and dated by the Contractor.

3. Work shall not proceed at the project site until the Engineer has received all certification(s) and the Contractor's Health and Safety Plan. Any delays incurred by the Contractor relating to the Health and Safety Plan shall be the responsibility of the Contractor, and constitute no additional costs or claims to the City of Somerville.

PART 3 - EXECUTION

3.1 HEALTH AND SAFETY PLAN CONTENTS, MAINTENANCE, AND IMPLEMENTATION

- A. The Contractor's Plan shall address the specific work activities to be conducted by the Contractor. The HASP shall include, but not be limited to, the following:
 1. All anticipated hazards based on site conditions, construction activities and the levels of contamination and information presented in previous studies.
 2. Provisions for continually updating the Plan in accordance with any new applicable state and federal regulations or any additional information regarding conditions at the site.
 3. The following information, shall be included in the HASP in accordance with the minimum standards set forth in 29 CFR 1910.120, 29 CFR 1910.1000, and 29 CFR 1926, and 310 CMR 40.0018:
 - a. Contractor's Standard Operating Procedures, including Personnel Training and Field Orientation; Personal Hygiene Requirements and Guidelines; Field Monitoring of Site Contaminants; Respiratory Protection Training and Requirements; Levels of Protection and Selection of Equipment Procedures; Zone Delineation of the Project Site; Site Security and Entry Control Procedures; Contingency and Emergency Procedures; and Listing of Emergency Contacts.
 - b. Identification of Contractor's Site Safety Officer.
 - c. Identification of Contractor's Designated Field Personnel.
 - d. Identification of hazard and risks associated with the Contractor's work.
 - e. Type of Medical Surveillance Program.

- f. List of all hazardous materials that the Contractor shall have on site; the location of the latest Material Safety Data Sheets (MSDS) for each material listed; and the plan for notifying all on-site personnel, including, but not limited to, the Engineer and/or their representatives, of the presence of hazardous materials on site. If there are no hazardous materials to be brought on site, the Contractor shall provide a written statement to the Engineer and/or their representative, prior to initiating work activities, certifying that the Contractor shall not transport, store, or use hazardous materials on site.
- B. The Contractor shall keep a copy of the HASP on site during all operations and shall conduct daily health and safety meetings. Failure to keep a copy of the HASP on site, or any other breach of the Contractor's Plan, shall be cause for stopping work at the cost of the Contractor. Delays caused by the Contractor's failure to comply with the health and safety regulations, or any health and safety plan, shall not entitle the Contractor to recover any additional costs or time lost. The Contractor shall not be allowed to resume activities until corrective measures are implemented.
- C. Medical surveillance records, OSHA 40-hour training forms, accident forms, and all other documentation requirements of the Contractor's health and safety plan for personnel working on the site shall be up-to-date and kept on file at the site. The Contractor shall provide documentation of employee status upon request of the Engineer.
- D. The Contractor shall make available Level C personal protective equipment and clothing, not including respirators, to the Engineer and/or their representative for use during site inspections by the Engineer and/or their representative, up to a maximum of three (3) complete sets per day. These shall be supplied and maintained at no cost to the Owner and shall be returned to the Contractor upon completion of the work (except for expendable disposal protective clothing). The Contractor shall provide a repository for collection of disposed health and safety materials. Collection and disposal of contaminated expendable supplies shall be the Contractor's responsibility.
- E. The level of dermal and respiratory protection shall be determined based upon continuous air monitoring to be performed by the Contractor. The Engineer may conduct duplicate air monitoring for quality control purposes. As air monitoring indicates the levels of contaminants in the air, the personal protective equipment shall be determined based upon established standards and the standards set forth in the Contractor's Health and Safety Plan. Regardless, modified Level D protection for all on-site personnel is the minimum project requirement.
- F. The Contractor shall be aware of site-specific requirements, such as site security during non-working hours, limited work space, and minimizing the effects of soil excavation, in preparing its health and safety program.

HEALTH AND
SAFETY PROCEDURES

3.2 ROUTINE SAFETY MEETINGS

- A. The Contractor shall keep a copy of the HASP on site during all operations, and shall conduct routine health and safety meetings to ensure that all work is being performed in accordance with OSHA regulations, the Contractor's HASP, and prior to initiating a new task, following an incident or following any changes to the HASP necessitated by site conditions. Failure to conduct routine safety meetings may be cause for stopping work at the cost of the Contractor.

END OF SECTION 01108

SECTION 01110

ENVIRONMENTAL PROTECTION PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this section.

1.2 SCOPE OF WORK

- A. The work covered by this section consists of furnishing all labor materials and equipment and performing all work required for the prevention of environmental pollution in conformance with applicable laws and regulations, during and as the result of construction operations under this Contract. For the purpose of this Specification, environmental pollution is defined as the presence of chemical, physical, or biological elements or agents which adversely affect human health or welfare; unfavorably alter ecological balances of importance to human life; affect other species of importance to man; or degrade the utility of the environment for aesthetic and/or recreational purposes.
- B. The control of environmental pollution requires consideration of air, water, and land, and involves management of noise and solid waste, as well as other pollutants.
- C. Schedule and conduct all work in a manner that will minimize the erosion of soils in the area of the work. Provide erosion control measures such as, diversion channels, sedimentation or filtration systems, berms, staked hay bales, seeding, mulching, or other special surface treatments as are required to prevent silting and muddying of streams, rivers, impoundments, lakes, etc. All erosion control measures shall be in place in an area prior to any construction activity in that area.

Specific requirements for erosion and sedimentation controls are specified in Section 01568.

- D. These Specifications are intended to ensure that construction is achieved with a minimum of disturbance to the existing ecological balance between a water resource and its surroundings. These are general guidelines. It is the Contractor's responsibility to determine the specific construction techniques to meet these guidelines.

ENVIRONMENTAL PROTECTION PROCEDURES

- E. Schedule and conduct all work in a manner that will minimize the level of noise escaping the site, especially at night and on weekends.

1.3 APPLICABLE REGULATIONS

- A. Comply with all applicable Federal, State, and local laws and regulations concerning environmental pollution control and abatement.

1.4 NOTIFICATIONS

- A. The Engineer will notify the Contractor in writing of any non-compliance with the foregoing provisions or of any environmentally objectionable acts and corrective action to be taken. State or local agencies responsible for verification of certain aspects of the environmental protection requirements shall notify the Contractor in writing, through the Engineer, of any non-compliance with State or local requirements. The Contractor shall, after receipt of such notice from the Engineer or from the regulatory agency through the Engineer, immediately take corrective action. Such notice, when delivered to the Contractor or his authorized representative at the site of the work, shall be deemed sufficient for the purpose. If the Contractor fails or refuses to comply promptly, the Owner may issue an order stopping all or part of the work until satisfactory corrective action has been taken. No part of the time lost due to any such stop orders shall be made the subject of a claim for extension of time or for excess costs or damages by the Contractor unless it is later determined that the Contractor was in compliance.

1.5 IMPLEMENTATION

- A. Prior to commencement of the work, meet with the Engineer to develop mutual understandings relative to compliance with this provision and administration of the environmental pollution control program.
- B. Remove temporary environmental control features, when approved by the Engineer, and incorporate permanent control features into the project at the earliest practicable time.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.1 EROSION CONTROL

- A. Provide positive means of erosion control such as shallow ditches around construction to carry off surface water. Erosion control measures such as siltation basins, hay check dams, mulching, jute netting, and other equivalent techniques shall be used as appropriate. Offsite surface water shall be diverted around the site to a downstream channel ahead of siltation barriers. Flow of surface water into excavated areas shall be prevented. Ditches around construction area shall also be used to carry away water resulting from dewatering of excavated areas. At the completion of the work, ditches shall be backfilled and the ground surface restored to original condition.

3.2 PROTECTION OF STREAMS WETLANDS, AND SURFACE WATER

- A. Care shall be taken to prevent or reduce to a minimum any damage to any stream, drainage ditch, storm drain or sewer from pollution by debris, sediment, or other material, or from the manipulation of equipment and/or materials in or near such streams. Water that has been used for washing or processing, or that contains oils or sediments that will reduce the quality of the water in the stream, shall not be directly returned to the stream. Such water will be diverted through a settling basin or filter before being directed into the streams.
- B. The Contractor shall not discharge water from dewatering operations directly into any live or intermittent stream, channel, wetlands, surface water, or any storm drain. Water from dewatering operations shall be treated by filtration, settling basins, or other approved method to reduce the amount of sediment contained in the water to allowable levels.
- C. All preventative measures shall be taken to avoid spillage of petroleum products and other pollutants. In the event of any spillage, prompt remedial action shall be taken in accordance with a contingency action drawing or plan approved by the Massachusetts Department of Environmental Protection. Contractor shall submit to copies of approved contingency drawings or plans to the Engineer.
- D. Water being flushed from structures or pipelines after disinfection, with a chlorine residual of 2 mg/l or greater, shall be treated with a dechlorination solution, in a method approved by the Engineer, prior to discharge.

3.3 PROTECTION OF LAND RESOURCES

- A. Land resources within the project boundaries and outside the limits of permanent work shall be restored to a condition, after completion of construction, that will appear to be natural and not detract from the appearance of the project. Confine all construction activities to areas shown on the Drawings.

ENVIRONMENTAL PROTECTION PROCEDURES

- B. Outside of areas requiring earthwork for the construction of the new facilities, the Contractor shall not deface, injure, or destroy trees or shrubs, nor remove or cut them without prior approval. No ropes, cables, or guys shall be fastened to or attached to any existing nearby trees for anchorage unless specifically authorized by the Engineer. Where such special emergency use is permitted, first wrap the trunk with a sufficient thickness of burlap or rags over which softwood cleats shall be tied before any rope, cable, or wire is placed. The Contractor shall in any event be responsible for any damage resulting from such use.
- C. Where trees may possibly be defaced, bruised, injured, or otherwise damaged by the Contractor's equipment, dumping or other operations, protect such trees by placing boards, planks, or poles around them. Monuments and markers shall be protected similarly before beginning operations near them.
- D. Any trees or other landscape feature scarred or damaged by the Contractor's equipment or operations shall be restored as nearly as possible to its original condition. The Engineer will decide what method of restoration shall be used and whether damaged trees shall be treated and healed or removed and disposed of.

All scars made on trees by equipment, construction operations, or by the removal of limbs larger than 1-in. in diameter shall be coated as soon as possible with an approved tree wound dressing. All trimming or pruning shall be performed in an approved manner by experienced workmen with saws or pruning shears. Tree trimming with axes will not be permitted.

Trees that are to remain, either within or outside established clearing limits, that are subsequently damaged by the Contractor and are beyond saving in the opinion of the Engineer, shall be immediately removed and replaced.

- E. The locations of the Contractor's storage, and other construction building, required temporarily in the performance of the work, shall be cleared portions of the job site and shall not be within wetlands or floodplains. The preservation of the landscape shall be an imperative consideration in the selection of all sites and in the construction of buildings.
- F. Remove all signs of temporary construction facilities such as haul roads, work areas, structures, foundations of temporary structures, stockpiles of excess of waste materials, or any other vestiges of construction as directed by the Engineer. It is anticipated that excavation, filling, and plowing of roadways will be required to restore the area to near natural conditions which will permit the growth of vegetation thereon. The disturbed areas shall be prepared and seeded as described in Section 02480, or as approved by the Engineer.
- G. All debris and excess material will be disposed of outside wetland or floodplain areas in an environmentally sound manner.

ENVIRONMENTAL PROTECTION PROCEDURES

3.4 PROTECTION OF AIR QUALITY

- A. Burning. The use of burning at the project site for the disposal of refuse and debris will not be permitted.
- B. Dust Control. The Contractor will be required to maintain all excavations, embankments, stockpiles, access roads, plant sites, waste areas, borrow areas, and all other work areas within or without the project boundaries free from dust which could cause the standards for air pollution to be exceeded, and which would cause a hazard or nuisance to others.
- C. An approved method of stabilization consisting of sprinkling or other similar methods will be permitted to control dust. The use of chlorides may be permitted with approval from the Engineer.
- D. Sprinkling, to be approved, must be repeated at such intervals as to keep all parts of the disturbed area at least damp at all times, and the Contractor must have sufficient competent equipment on the job to accomplish this if sprinkling is used. Dust control shall be performed as the work proceeds and whenever a dust nuisance or hazard occurs, as determined by the Engineer.

3.5 NOISE CONTROL

- A. The Contractor shall make every effort to minimize noises caused by his operations. Equipment shall be equipped with silencers or mufflers designed to operate with the least possible noise in compliance with State and Federal (OSHA) regulations.

END OF SECTION 01110

ENVIRONMENTAL PROTECTION PROCEDURES

SECTION 01151

MEASUREMENT AND PAYMENT

PART 1 - GENERAL

1.1 SUMMARY

- A. Under the price specified to be paid for each item, the Contractor shall furnish all labor, materials, equipment, and plant and perform all operations to complete all work as indicated and specified. All supervision, overhead items, bond and permit costs, protection and precautions and all other costs, incidental to the construction work, complete, and as specified, are also included.
- B. A complete, finished, working job, as intended by the general nature of these Specifications, shall be produced whether or not any particular wording or direction is omitted or inadvertently not clearly stated.
- C. Measurement for payment shall be by the Engineer, except where noted elsewhere in this Specification. Measurement for payment for lump sum items shall be on the basis of percentage of work complete and in place.
- D. Each unit or lump sum price stated in the Bid shall constitute full compensation as herein specified for each item of work completed in accordance with the Drawings and Specifications.
- E. The prices for those items which involve fill shall include compensation for transportation and disposal of surplus uncontaminated excavated soil, unsuitable uncontaminated excavated material, and handling water.
- F. The prices for all pipe items shall constitute full compensation for furnishing, laying, jointing, and testing of pipe; chlorinating, excavation and backfill; and clean up.
- G. Unit prices submitted for various items of work will be utilized for determining prices of any additional work necessary during construction.
- H. Owner reserves the right to delete any item or modify estimated quantities without penalty. Contractor shall make no claim as to lost profits or added costs due to quantity adjustments or deletions.
- I. Unit prices listed shall be the basis of cost adjustment for additional items of work required by a change order.

1.2 ITEM DESCRIPTION

A. Item 1 – Mobilization:

1. Payment for Mobilization will be at lump sum price bid for this item in the proposal and shall be payable when the Contractor is operational on the site. Operational is defined as the substantial commencement of work on site as described in the following paragraph. The Lump Sum price bid for mobilization shall not exceed 5 percent of the Total Amount of Bid.
2. Mobilization shall include all costs of initiating the Contract, exclusive of the cost of materials. Mobilization includes securing and constructing a staging area(s) for materials furnishing and installing pre-construction traffic management signage; fabrication and installation of project sign; distributing contact numbers for Contractor's staff to Owner and Engineer; submission and approval of initial shop drawings; submission and approval of CPM schedule; submission and approval of Traffic Management Plans; submission and approval of initial work plans and sequencing plans; obtaining all necessary permits; installing temporary power, lighting and water for construction purposes; implementing security features; furnishing and installing temporary sanitary facilities; transporting all necessary trucks and construction equipment to the site necessary to begin construction; and all other work necessary to start Construction.

B. Item 2 – Traffic Control

1. Measurement for payment for Traffic and Pedestrian Management will be on a percent of the Lump Sum bid calculated by dividing the elapsed time to date by the original Contractual construction time limit as approved by the Engineer.
2. Payment for Traffic Management shall be based on the lump sum price bid for this item in the proposal. Under the lump sum price for this item, the Contractor shall furnish all labor, materials, tools, equipment, and incidentals required to provide, maintain, relocate, and remove Traffic Management and Control in areas directly or indirectly influenced by construction within the limits of work or outside the limits of work; along truck routes inside or outside the limits of work; as delineated in the approved Traffic Management Plan, by the MUTCD, ADA, MA AAB, and MHD standards; and as further required by the Owner and Engineer. The work further includes, but is not limited to; obtaining permits; coordination with

the City Department of Public Works and Traffic and Parking Department; coordination with private property owners within the limits of work; preparing, submitting, reviewing, implementing, and revising traffic management and control plans; furnishing, installing, and maintaining traffic management devices based on approved traffic management and control plans including precast concrete barriers with fencing and plywood panels, reflectorized drums, lane delineators, portable barricades, variable message boards, safety signing for construction operations, temporary crosswalks, and cones; temporary pavement markings; removal of temporary and existing pavement markings; furnishing, installing, shimming, pinning, maintaining, and removing steel road plates; furnishing, installing, and removing cold patch pavement as necessary or as directed by the Engineer; ordering and coordinating police details; furnishing and installing temporary construction fencing; maintaining roadways and sidewalks inside or outside the limits of work; establishing and dismantling detours; covering existing traffic signs; obtaining, posting and maintaining "No Parking" signs; meeting with police details daily; coordinating police detail locations; and all incidental work, whether listed here or not, required to provide maintenance and protection of traffic and pedestrians.

3. The following items are not included for payment under this item and are included for payment elsewhere; bituminous hot mix asphalt pavement; and Police Details. Police Details will be paid directly by the Owner.

C. Item 3 – Utility Coordination

1. Measurement for payment for Utility Support and Coordination will be on a percent of the Lump Sum bid calculated by dividing the elapsed time to date by the contractual construction time limit as approved by the Engineer.
2. Payment for Utility Support and Coordination will be based on the bid for this item in the proposal. Under the Lump Sum Price bid for this item, the Contractor shall furnish all labor, materials, tools, equipment and incidentals required to maintain continuity of gas, telephone, electric, telecommunications, cable TV, and privately owned utilities. The work includes all trunk, supply, transmission, service and main lines impacted by the Work. Under the Lump Sum Price bid for this item, the Contractor shall also furnish all labor, materials, tools, equipment and incidentals to coordinate and/or temporarily support all utilities exposed during the excavation for the

installation of the Work; submission of all utility coordination and support work plans and shop drawings; coordinate the protection of and protect all overhead utilities; and perform all coordination with the utility companies for the relocation, protection, support, and other work required to facilitate the completion of the project. This Item further includes utility location (Dig Safe); coordination of construction with existing utility owners and operators; providing access for utility owners and operators to their respective utilities; and City approved notifications to and communications with affected homeowners and residents.

3. The following items are not included for payment under this item and are included for payment elsewhere; labor, materials, tools, equipment and incidentals required to maintain continuity of water mains; and restoration of curbing, sidewalks, and bituminous concrete pavement.

D. Item 4 - Water Mains:

1. Under the unit price items 4a through 4f, water main pipe will be measured for payment by the linear foot of water main installed, complete and accepted in place. Measurement will be along the water main centerline without deduction for valves and fittings. Hydrant branch lines will be measured from the center of the main line tee to the centerline of the hydrant.
2. Payment for the water pipe as specified will be made at the Contract unit price stated in the Bid Proposal for the quantities as measured in place on a linear foot basis. Payment shall be considered as full compensation for furnishing all labor, equipment, materials, and services for installing the pipe; connections to existing mains; preparing and maintaining as-built drawings, for removing and disposing of existing pipe, valves, hydrants, and fittings as necessary; draining of decommissioned water lines; couplings not included for payment elsewhere; trench excavation; furnish, put in place, maintain and remove bracing including trench boxes and trench shields; furnish and install utility marker tape; cutting or excavation of existing sheeting; backfilling, compaction, cutting and capping existing mains, plugging and closing gate valves and removing gate boxes on abandoned lines prior to final paving, restoring the trench surface to grade; removing and resetting sections of fence and guardrail, protection and required repairs to existing signs, posts, walls and other features to pre-construction conditions, protection of existing trees or removal and replacement as required, sedimentation and erosion control, dewatering; disposal of excavated materials; repair and/or relocation of any utility lines broken and/or conflicting with construction; permit compliances and associated fees, landscaping not included for payment

elsewhere, pressure testing; installation and removal of temporary taps and connections for testing; providing water for pressure and leakage tests; disinfection; sampling; laboratory analyses; returning physical features to their original condition; clean up; and all else incidental thereto, for which separate payment is not provided under other items in the Bid Proposal.

3. Water pipe installed but not successfully tested and/or chlorinated will be paid for at a maximum of 95 percent of the unit prices bid under Items 4a through 4f of the proposal. The remaining 5 percent will be paid upon receipt of successful test results by the Engineer. All reductions in payment due to unsuccessful testing will be made prior to normal retainage.
4. Payment for uniformed police will be made directly to the Police Department by the Owner. The Contractor will be responsible for coordinating and providing for police details when required by the Owner. Payment for uniformed police will be made by the Contractor in an event where a bill is rendered for the scheduling of a uniformed officer where construction operations are cancelled.

E. Item 5 - Valves and Valve Boxes:

1. The number of resilient wedge valves with boxes to be paid for under Item 5a through 5c will be measured as the number of different sizes each actually installed in the completed project and accepted by the Engineer.
2. Payment for furnishing and installing valves with boxes will be made for each installed under Items 5a through 5c. Payment will also be considered full compensation for furnishing all labor, equipment, materials, and services required or incidental for the satisfactory completion of the work including the valves to be installed during the nighttime hours.

F. Item 6 - D.I. Fittings:

1. Fittings, including couplings, will be measured for payment by the pound actually installed in the completed project and accepted by the Engineer. Weight shall be based upon manufacturer catalog data and shipping weight slips furnished from the supplier to the Contractor. No payment will be allowed for the weight of cement linings. No payment will be allowed for standard mechanical joint glands and accessories that are not used due to installation of restrained joints.

G. Item 7 - Mechanical Joint and Push On Restraints:

1. The number of mechanical and push-on restrained joints to be paid for under Item 7 will be the number of restraints installed and accepted by the Engineer. Restraints installed for Contractor's convenience shall not be paid for under this item, but are included for payment under the applicable division of Item 1 of the Proposal.
2. Payment for furnishing and installing mechanical joint and push on restraints will be made for each installed under Item 7. Payment shall include costs of all labor, equipment and materials required for installing restrained joints.
3. Payment for furnishing and installing additional fittings required to perform the work will be paid for under the unit price bid in Item 3.

H. Item 8 - Hydrants:

1. Payment for furnishing and installing hydrants will be made for each installed under Item 8. Payment will also be considered full compensation for furnishing all labor, equipment, and materials required for excavation and backfill, placing drain stone, pressure testing, disinfection, removal of excess excavated material, clean up and all else incidental thereto for the satisfactory completion of the work.
2. All valve anchor tees, 6-inch gate valves and boxes, 6-inch D.I. pipe, couplings, and mechanical joint restraints required for hydrant installation will be included for payment under their respective Items in the Proposal.

I. Item 9 - Water Service Taps:

1. Service taps, including corporation stops, fittings, saddles, curb stops and boxes, to be paid for under item 9 will be measured as the actual number of services connected to the new water main in the completed project as accepted by the Engineer. Each service tap shall be complete and include corporation stops, saddles (2-inch taps and taps on existing mains only), fittings, curb stops and boxes. Linear feet of water service will be paid for under Item 10.
2. Payment for furnishing and installing service taps under item 9 will also be considered full compensation for furnishing all labor, equipment, materials, services, excavation and backfill, and all else incidental thereto for which separate payment is not provided.

J. Item 10 – Water Services:

1. Water services to be paid for under Item 10 will be measured for payment by the actual number of linear feet of water services, as specified, measured in place along the centerline of the pipe from the proposed water main to the locations indicated on the standard details.
2. Water services will be paid for at the unit prices bid under Item 10 of the Proposal for the above determined quantities. This price and payment will be considered full compensation for all labor, equipment, materials, and services necessary for installing the copper tubing including excavation, bulleting work, dewatering, cutting or excavating existing sheeting, sheeting and shoring, trench boxes, sand bedding, backfill, compaction, surface restoration, connections, adapters, flushing, and all else incidental for the satisfactory completion of the work.
3. Payment will be inclusive of removal and disposal of existing services being replaced.

K. Item 11- Excavation:

1. Under the unit price bid for Item 11a Exploratory Excavation, the Contractor shall excavate and backfill, as required or directed by the Engineer, such materials as are necessary to locate pipe, utilities and possible obstructions. Included under the unit price is payment for excavation, hand excavation, dewatering, backfill, compaction, furnishing and placing 12-inch sand and gravel subbase under paved areas, all labor, services and equipment necessary for exploratory excavations in the locations of this Contract. Measurement for payment will be on the basis of cubic yards of exploratory excavation as measured by the Engineer.
2. Under the unit price bid for Item 11b Below Grade Excavation, the Contractor shall excavate below the specified depth to clear utilities or match existing mains, or to remove peat or other unsuitable material, below the grade of pipe, when and as directed by the Engineer; load, transport, and waste such material away from the job as directed; furnish and place approved common fill material in the place of material removed.
 - a. Measurement for payment will be on the basis of cubic yards of material excavated within the detailed trench payment width and at authorized depth, as measured by the Engineer.

L. Item 12 - Fill Material:

1. Under the unit price bid for Item 12a the Contractor shall furnish and place structural fill, as specified or directed by the Engineer, for use as trench backfill at the pipe invert as shown on the Typical Trench Detail. Measurement for structural fill placed under Item 12a will be per cubic yard as measured in place, compacted to designated width and thickness as shown in the trench detail or as specified.
2. Under the unit price bid for Item 12b the Contractor shall furnish and place gravel subbase, as specified or directed by the Engineer, for use as 12-inch compacted gravel subbase under pavement, in roads or driveways or above the pipe in the trench as determined by the Engineer. Measurement for gravel subbase placed under Item 12b will be per cubic yard as measured in place, compacted to designated depth.
3. Under the unit price bid for Item 12c, the Contractor shall furnish and place common fill for trench backfill, as specified or directed by the Engineer. Measurement for payment will be on the basis of cubic yards of material placed and compacted to the designated thickness as shown in the trench detail or as specified.
4. Under the unit price bid for Item 12d, the Contractor shall furnish and place crushed stone, as specified or directed by the Engineer. Measurement for payment will be on the basis of cubic yards of material placed and compacted to the designated thickness as shown in the trench detail or as specified.
5. Under the unit price bid for Item 12e, the Contractor shall furnish and place concrete for pipe supports, cradles, encasements, and sidewalk and driveway replacement or wherever directed by the Engineer in such quantities as specified. Included in this cost will be excavation and backfill; disposal of existing concrete; formwork; tie-rods; reinforcing steel; and all materials, equipment and services necessary to satisfactorily place concrete. Measurement for payment will be on the basis of number of cubic yards of concrete measured in place to the satisfaction of the Engineer.
6. Prices include disposal of uncontaminated excavated material. No payment will be made under Item 12 for reuse of excavated backfill materials.

M. Item 13 - Soil and Waste Management

1. Payment for Soil and Waste Management shall be based on the lump sum price complete for Item 13a in the proposal. The Contractor shall furnish all labor, materials, tools, equipment, and incidentals required

for Soil and Waste Management. The work includes, but is not limited to; Environmental Professional; soil/fill sampling; analytical services; development and implementation of all submittals and plans specified including, but not limited to: Health and Safety Plan; Equipment and Personnel Decontamination Plan; Soil and Waste Management Plan; Dust, Vapor, and Odor Plan; Air Quality Control Plan; and a Spill and Discharge Control Plan; submittal of all required certifications; coordination with all parties affected and maintaining proper documentation necessary; disposal of wastes, such as construction-related waste and by-products, and Contractor-generated waste material, such as personal protective equipment, excess materials, debris, wash water, and any other waste materials not specifically addressed in other payment items; waste characterization sampling and analysis costs for the waste referenced above; construct and maintain a secure (enclosed with 8 foot high fencing and gate) soil/fill staging area for soil/fill stockpiling pending analytical testing, reuse, or disposal; all permits and administration fees; collecting and testing surface soil samples pre- and post- use of staging area; placement of polyethylene liner under piles; additional placement of bituminous or cement concrete as may be needed at the staging area; construction of segregated soil/fill bays; signage and lighting at the staging area; installation of sedimentation and erosion control at the staging area; construction of a truck wash down area; construction of a decontamination area with wheel wash; maintenance including placement of daily polyethylene covers over existing stockpiles; performing dust control; street sweeping; vehicle wheel-washing in the staging areas as needed to control airborne dust and sediment from spreading beyond the staging area or presenting a health risk to the workers or public; day to day security measures; maintenance of the soil/fill stockpiles to avoid migration; and maintenance of the sedimentation and erosion control measures; and removal, hauling, and disposal of all items of which the staging area was constructed as well as the restoration of the site to pre-construction conditions.

2. The following items are not included for payment under Item 13a; transportation and disposal of soil and fill material; re-use of soil and fill material on site as backfill; handling unknown materials; sedimentation and erosion control for other uses besides soil management (at the staging area); and all work associated with a staging area for other uses beyond soil and waste management.
3. Item 13b, Disposal of Construction Debris as Solid Waste:
 - a. Under the unit bid price for this item, the Contractor shall furnish all labor, materials, tools, equipment, and incidentals required for Disposal of Construction Debris as Solid Waste.

The work includes, but is not limited to; handle, load, transport, and dispose of excavated bituminous concrete, cobbles, rock, and any other solid waste debris not paid elsewhere within the payment limits.

- b. Measurement for Payment for Disposal of Construction Debris as Solid Waste shall be on the basis of tons of waste actually disposed, as measured at the disposal facility by certified scale, and documented on the return manifest or certified weight slip.
4. Item 13c, Disposal of Soil – Daily Cover Unlined Landfill (Class A-1 and Class A-2):
- a. Under the unit price bid for this item, the Contractor shall furnish all labor, materials, tools, equipment, and incidentals required for Disposal of Soil of Excavated Material as less than RCS-1 (Class A-1 or Class A-2). The work includes, but is not limited to; handle, load, transport, and dispose soil/fill which has been tested and determined to be less than Massachusetts Contingency Plan Reportable Concentrations for S-1 soils (<RCS-1).
 - b. It is the intent that payment under this item shall be limited to soil/fill excavated on site, which is non-remediation waste as defined in the Massachusetts Contingency Plan and has been determined through testing to be suitable for general reuse as fill. This pay item shall apply to material which is suitable for re-use off-site as fill.
 - c. Measurement for Payment for Transport and Disposal on Town Property of Excavated Material as less than RCS-1 (Class A-1 and Class A-2): shall be on the basis of tons of waste actually disposed of as measured by the Engineer, and documented on the log sheet of the appropriate DEP Material Shipping Record form. Material excavated outside of the pay limits indicated elsewhere in the Contract Documents or as directed by the Engineer shall be done at the Contractor's expense, at no additional cost to the Owner.

5. Item 13d, Disposal of Soil – Daily Cover Lined Landfill (Class B-1):

- a. Under the unit price bid for this item, the Contractor shall furnish all labor, materials, tools, equipment, and incidentals required for Disposal of Soil – Daily Cover Lined Landfill (Class B-1). The work includes, but is not limited to; handle, load, transport, and dispose at an appropriately permitted, solid waste facility, all soil/fill which is unsuitable for on-site reuse and is defined as a non-hazardous solid waste suitable for reuse as daily cover at an unlined Massachusetts Landfill (as defined in DEP Policy #COMM-97-001); placing, grading and compacting the material at the disposal site as specified; and all testing, fees, permits, and taxes.
- b. It is the intent, that if the analytical characteristics of the material meet the criteria for this classification, but not that of lower levels of contamination, that the disposal be paid for at the unit price bid for this item regardless of whether the Contractor chooses to dispose of the material as one of the higher unit price options.
- c. Measurement for Payment for Disposal of Soil – Daily Cover Unlined Landfill (Class B-1) shall be on the basis of tons of waste actually disposed, as measured at the disposal facility by certified scale, and documented on the return manifest or certified weight slip and accompanied by the appropriate DEP BWSC Bill of Lading form. Measurement shall be verified as described above and the lesser tonnage, as further described above, paid for. Material excavated outside of the pay limits indicated elsewhere in the Contract Documents or as directed by the Engineer shall be done at the Contractor's expense, at no additional cost to the Owner.

6. Item 13e, Disposal of Soil – Daily Cover Lined Landfill (Class B-2):

- a. Under the unit price bid for this item, the Contractor shall furnish all labor, materials, tools, equipment, and incidentals required for Disposal of Soil – Daily Cover Lined Landfill (Class B-2). The work includes, but is not limited to; handle, load, transport, and dispose at an appropriately permitted, solid waste facility, all soil/fill which is unsuitable for on-site reuse or disposal at one of the lesser unit price options and is defined as a non-hazardous solid waste suitable for reuse as daily cover at a lined Massachusetts Landfill (as defined in

DEP Policy #COMM-97-001); placing, grading and compacting the material at the disposal facility as specified; and all testing, fees, permits, and taxes.

- b. It is the intent, that if the analytical characteristics of the material meet the criteria for this classification, but not that of lower levels of contamination, that the disposal be paid for at the unit price bid for this item regardless of whether the Contractor chooses to dispose of the material as one of the higher unit price options.
- c. Measurement for Payment for Disposal of Soil – Daily Cover Lined Landfill (Class B-2) shall be on the basis of tons of waste actually disposed, as measured at the disposal facility by certified scale, and documented on the return manifest or certified weight slip and accompanied by the appropriate DEP BWSC Bill of Lading form. Measurement shall be verified as described above and the lesser tonnage, as further described above, paid for. Material excavated outside of the pay limits indicated elsewhere in the Contract Documents or as directed by the Engineer shall be done at the Contractor's expense, at no additional cost to the Owner.

7. Item 13f, Non-Hazardous Solid Waste Recycling (Class B-5):

- a. Under the unit price bid for this item, the Contractor shall furnish all labor, materials, tools, equipment, and incidentals required for Non-Hazardous Solid Waste Recycling (Class B-5). The work includes, but is not limited to; handle, load, transport, and dispose at an appropriately permitted, solid waste facility, all soil/fill (including embedded debris or foreign objects), which is not hazardous waste but is unsuitable for other non-hazardous recycling and disposal options listed above; and all fees, permits, and taxes.
- b. It is the intent, that if the analytical characteristics of the material meet the criteria for this classification, but not that of lower levels of contamination, that the disposal be paid for at the unit price bid for this item regardless of whether the Contractor chooses to dispose of the material as one of the higher unit price options.
- c. Measurement for Non-Hazardous Solid Waste Recycling (Class B-5) shall be on the basis of tons of waste actually disposed, as measured at the disposal facility by certified scale, and documented on the return manifest or certified

weight slip and accompanied by the appropriate DEP Bill of Lading form. Measurement shall be verified as described above and the lesser tonnage, as further described above, paid for. Material excavated outside of the pay limits indicated elsewhere in the Contract Documents or as directed by the Engineer shall be done at the Contractor's expense, at no additional cost to the Owner.

N. Item 14 - Calcium Chloride:

1. Under the unit price Item 14, calcium chloride will be measured as the actual number of bags of material placed as directed by the Owner or Engineer and as measured by the Engineer. Dust control by use of water is considered to be included in the cost of pavement replacement.
2. Payment for calcium chloride for dust control will be made for the quantity as determined above at the price per 100 lb. bag for Item 14 in the Bid Proposal for which price and payment will be considered full compensation for all labor, materials, equipment and incidental work thereto required for application of calcium chloride to control dust.

O. Item 15 - Pavement:

1. The quantities of temporary and permanent pavement for drives and streets, Type I-1 bituminous pavement, to be measured for payment under the appropriate subdivisions of Items 15a, 15b, 15c, and 15d will be measured by the actual tonnage of pavement delivered less the quantity placed beyond specified thickness or outside the payment limits. Payment limit will be measured along the centerline of the new water main including hydrant branches measured from the edge of the main line paving to the edge of the existing pavement, and cross-connections measured from the edge of the main line paving to the connection to the existing water main. The Contractor shall submit to the Engineer weight slips for bituminous concrete delivered and placed. The Engineer will measure pavement placed within specified pay limits and multiply the area by the specified thickness by the coefficient to obtain the tonnage of bituminous concrete. Payment will be made based on the number of tons obtained using the measured in place method or the weight slips, whichever is less. A coefficient of 0.056 tons per square yard per inch of thickness shall be used for weight - volume conversions. Limits of width will be measured as specified in the pavement detail. Also included for payment under the appropriate subdivisions of Item 15 are the services, labor, equipment and materials required to furnish, place and remove steel plates, replace pavement markings and/or adjust existing valve, gas and service boxes, castings and structures, not included for payment elsewhere, where required.

Unit costs shall be inclusive of pavement thicknesses in excess of the bid item description as called out in the contract documents and as determined required by the Engineer to match existing conditions.

2. Payment for pavement replacement Type I-1 bituminous concrete for roadway areas disturbed by construction operations, complete, in place and measured by the Engineer, will be made for the quantity as determined above at the prices listed for Items 15a, 15b, 15c and 15d in the Bid proposal.
3. Payment for paving operations required to place temporary paving shall be included in Item 15a.
4. The unit price listed for Item 15a will constitute full compensation for removal and disposal of temporary pavement if applicable, removal of excess gravel if applicable, and cutting and preparing the edges of the existing pavement, if so required, for restoring and regrading the gravel base course, and constructing the base course pavement as specified.
5. The unit price listed for Items 15b will constitute full compensation for constructing the 4-inch bituminous concrete trench width base course and payment cutbacks as specified and/or as indicated on the drawings. The unit prices will include leveling course(s) as required; materials, tools, equipment, labor and work necessary or incidental to the satisfactory completion of all items shown on the details or specified and shall also include raising all existing valve, gas and service boxes, and castings to grade, except those paid for elsewhere.
6. The unit price listed for Items 15c will constitute full compensation for the placement of 2-inch wearing course bituminous pavement trench width as specified and/or as indicated on the drawings. The unit price will include, leveling course(s) as required; materials, tools, equipment, labor and work necessary or incidental to the satisfactory completion of all items shown on the details or specified and shall also include raising all existing valve, gas and service boxes, and castings to grade, except those paid for elsewhere. Limits of bituminous concrete placement shall be pre-marked and approved by the Engineer. Payment shall be inclusive of all pavement markings, except those paid for elsewhere, where required for replacement or as directed by the engineer
7. Under the unit price items 15d, the Contractor shall furnish all plant, labor, equipment, appurtenances and materials to place bituminous concrete driveways and sidewalks as shown on the drawings and as directed by the Engineer. The unit price bid will constitute full compensation for furnishing and placing bituminous concrete, sawcutting, excavation, gravel subbase, compaction, and dust control.

8. Measurement for payment for bituminous driveways and sidewalks will be on the basis of tons of bituminous concrete asphalt used for replacement driveways completed, accepted and measured in place. The Contractor shall submit to the Engineer weight slips for bituminous concrete delivered and placed. Limits of depth will be measured as specified by the Engineer. Any driveway(s) that during the course of construction are damaged by negligent operations of the Contractor shall not be measured for payment, but repaired by the Contractor at his expense as directed by the Engineer.
9. Payment for removing and resetting existing granite curb will be made at the unit price bid per linear foot for Item 15e. Unit price shall include all labor, equipment and materials required to remove, stack and reset granite curbing. Costs shall include concrete and bituminous paving repairs. Measurement will be made on a linear foot basis for curbing removed and reset and accepted by the Engineer.

P. Item 16: Cleaning and Cement Mortar Lining:

1. Measurement for Payment for Cleaning and Cement-Mortar Lining of the existing water main shall be based on the actual linear feet of complete and functional cleaned and cement-mortar lined water main as shown on the Contract Documents or as directed by the Owner or Engineer. Measurement shall be taken along the center line of the pipe from the inside face of access openings.
2. Under the Unit Price bid for this item, the Contractor shall furnish all labor, materials, tools, equipment, and incidentals required for Cleaning and Cement-Mortar Lining of the existing DI water main complete as indicated on the Drawings and Specifications, or as directed by the Owner or Engineer. This work shall include furnishing, installing, and/or performing the following: required submittals and work plans; saw cutting pavement and concrete; excavation of bituminous concrete; excavation for access openings as shown on Contract Documents (spacing not to exceed 1,000 feet) and at all intermediate gates, bends, fittings, and obstructions indicated on the Contract Documents; transporting material; clean and line access openings at each end of pipeline section; cutting existing water main; removal, cleaning, cement-mortar lining, and storage of closure section of pipe cut to provide access; replacement of pipe if section is unsuitable for reuse with new properly lined pipe of sufficient size and length; replacement of pipe ends cracked or damaged by cutting; cleaning of the pipeline with suitable electric scraping machine; removal and disposal of all debris from pipeline in acceptable manner; inspection of interior of cleaned pipeline section; cement-

mortar line pipeline; cement-mortar sharp bends, specials, areas adjacent to valves, and defective areas by hand; disinfection and flushing of pipeline; pipeline testing and sampling; laboratory analyses; dechlorination of chlorinated water; disposal of disinfection, flushing, and dechlorinated water; closure of pipeline access; backfill of pipeline access to grade; incidental work not indicated for payment elsewhere.

Q. Item 17: By-pass Flow Handling:

1. Measurement for payment for Temporary Bypass Piping will be based on the actual linear feet of temporary water main furnished and installed under this item as shown on the Contract Drawings or as required by the Engineer.
2. Payment for Temporary Bypass Piping will be based on the unit price bid for this item in the proposal. No measurement or payment will be made for services from the temporary mains to the property service connections. Payment shall be considered as full compensation for furnishing all labor, equipment, materials, and services for installing 2-inch, 4-inch, and 6-inch (minimum diameters) temporary water lines for individual services, for installing temporary bypass valves, for locating, excavating, where required and connecting to the temporary service lines to all users whose water service will be disrupted for more than 4-hours, for providing temporary fire protection at all hydrants which will be out of service for more than 4-hours, for constructing necessary trenches across streets and driveways to protect temporary water lines, connections to existing hydrants where required; pressure testing; providing water for pressure and leakage tests; disinfection and dechlorination as specified; sampling; laboratory analyses; emergency repairs and maintenance, for removing and disposing of all temporary water lines, and for restoring all property damaged or altered in the course of providing temporary water; clean up; and all else incidental thereto, for which separate payment is not provided under other items in the Bid Proposal.
3. Costs related to labor and materials required to allow flushing of the newly connected service to properties shall be included in this item. Costs to include coordination with property owners, removing existing meters, and flushing of the newly connected service lines.

END OF SECTION 01151

SECTION 01200

PROJECT MEETINGS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this section.

1.2 PRECONSTRUCTION CONFERENCE

- A. A preconstruction conference will be held between the Contractor, the Engineer, the Owner, and applicable agency representatives to review the Contractor's proposed methods of complying with the requirements of the Contract Documents.
- B. Contractor will be notified of the time, date and place where the preconstruction conference will be held.

1.3 PROGRESS MEETINGS WITH ENGINEER

- A. In addition to other regular project meetings for other purposes (as indicated elsewhere in the Contract Documents), hold general progress meetings once each month with times coordinated with preparation of payment requests. Meeting dates shall be established by the Engineer. Require every entity then involved in the planning, coordination or performance of work to be properly represented at each meeting. Include (when applicable) consultants, separate contractors (if any), principal subcontractors, suppliers/manufacturers/fabricators, governing authorities, insurers, special supervisory personnel and others with an interest or expertise in the progress of the work. Review each entity's present and future needs including interface requirements, time, sequence, deliveries, access, site utilization, temporary facilities and services, hours of work, hazards and risks, housekeeping, submittals, change orders, and documentation of information for payment requests. Discuss whether each element of current work is ahead of schedule. Determine how behind-time work will be expedited and secure commitments from the entities involved in doing so. Discuss whether schedule revisions are required to ensure that current work and subsequent work will be completed within the Contract Time. Review everything of significance which could affect the progress of the work.
- B. Within seven days after each progress meeting date, the Engineer will forward copies of the minutes-of-the-meeting to the Contractor.

- C. Immediately following each progress meeting where revisions to the Progress Schedule/Critical Path Schedule have been made or recognized (regardless of whether agreed to by each entity represented), revise the Schedule. Reissue revised Schedule within 3 working days after meeting. At intervals matching the preparation of payment requests, revise and reissue the Schedule to show actual progress of the work in relation to the latest revision of the Schedule.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION 01200

SECTION 01300

SUBMITTAL PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this section.

1.2 SUMMARY

- A. This section specifies the general methods and requirements of submissions applicable to the following work-related submittals.
 - 1. Shop Drawings.
 - 2. Product Data.
 - 3. Samples.
 - 4. Construction or Submittal Schedules.
 - 5. Or equal submittals.
- B. Detailed submittal requirements will be specified in the technical specifications section.

1.3 SHOP DRAWINGS, PRODUCT DATA, SAMPLES

- A. Shop Drawings:
 - 1. Shop drawings, as defined in the General Conditions, and as specified in individual work sections include, but are not necessarily limited to: custom-prepared data such as piping layout, schedule information, setting diagrams, actual shopwork manufacturing instructions, custom templates, and coordination drawings.
 - 2. All shop and working drawings shall be prepared on standard size, 24-in. by 36-in. sheets, except those which are made by changing existing standard shop or working drawings.

3. All shop drawings shall be submitted using a transmittal form approved by the Engineer. Submittal form shall include identification of transmittal number and specification section number.
4. All shop drawings submitted by subcontractors for review shall be sent directly to the Contractor for approval. The Contractor shall be responsible for their submission at the proper time so as to prevent delays in delivery of materials.
5. The Contractor shall check all subcontractor's shop drawings regarding measurements, size of members, materials, and details to satisfy himself that they conform to the intent of the Drawings and Specifications. Shop drawings found to be inaccurate or otherwise in error shall be returned to the subcontractors for correction before submission thereof.

B. Product Data:

1. Product data as specified in individual sections, include, but are not necessarily limited to, standard prepared data for manufactured products (sometimes referred to as catalog data), such as the manufacturer's product specification and printed installation instructions, availability of colors and patterns, manufacturer's printed statements of compliances including certificates of compliance and applicability, roughing-in diagrams and templates, catalog cuts, product photographs, standard wiring diagrams, printed performance curves and operational-range diagrams, production or quality control inspection and test reports and certifications and recommended spare-parts listing, and printed product warranties, as applicable to the Work.

C. Samples:

1. Samples specified in individual sections, include, but are not necessarily limited to, physical examples of the work such as sections of manufactured or fabricated work, small cuts or containers of materials, complete units of repetitively-used products, color/texture/pattern swatches and range sets, specimens for coordination of visual effect, graphic symbols, and units of work to be used by the Engineer or Owner for independent inspection and testing, as applicable to the Work.

1.4 CONTRACTOR'S RESPONSIBILITIES

- A. The Contractor shall review shop drawings, product data and samples, including those by subcontractors, prior to submission to determine and verify the following:
1. Field measurements
 2. Field construction criteria

3. Catalog numbers and similar data
 4. Conformance with the Specifications
- B. Each shop drawing, sample, and product data submitted by the Contractor shall have affixed to it the following Certification Statement including the Contractor's Company name and signed by the Contractor: "Certification Statement: by this submittal, I hereby represent that I have determined and verified all field measurements, field construction criteria, materials, dimensions, catalog numbers and similar data, and I have checked and coordinated each item with other applicable approved shop drawings and all Contract requirements." Shop drawings and product data sheets 11-in. X 17-in. and smaller shall be bound together in an orderly fashion and bear the above Certification Statement on the cover sheet. The cover sheet shall fully describe the packaged data and include a listing of all items within the package. Provide to the Engineer a copy of each submittal transmittal form for shop drawings, product data and samples at the time of submittal of said drawings, product data and samples to the Engineer.
1. Submittals received "WITHOUT" Certification Statement shall not be reviewed.
- C. If a shop drawing shows any deviation from the requirements of the Contract Documents, the Contractor shall make specific mention of the deviations in the Transmittal Form furnished by the Engineer and provide a description of the deviations in a letter attached to the submittal.
- D. The review and approval of shop drawings, samples or product data by the Engineer shall not relieve the Contractor from his responsibility with regard to the fulfillment of the terms of the Contract. All risks of error and omission are assumed by the Contractor and the Engineer will not have responsibility therefor.
- E. No portion of the work requiring a shop drawing, sample, or product data shall be started nor shall any materials be fabricated or installed prior to the approval or qualified approval of such item. Fabrication performed, materials purchased or on-site construction accomplished which does not conform to approved shop drawings and data shall be at the Contractor's risk. The Owner will not be liable for any expense or delay due to corrections or remedies required to accomplish conformity.
- F. Project work, materials, fabrication, and installation shall conform with approved shop drawings, applicable samples, and product data.
1. Manufacturer's printed installation instructions, a part of product data submitted to the Engineer will not be reviewed and are for informational purposes only.

1.5 "OR EQUAL"

- A. Should the Contractor seek approval of a product other than the brand or brands named in these specifications, he shall furnish written evidence that such product conforms in all respects to the specified requirements, and that it has been used successfully elsewhere under similar conditions. Where the specified requirements involve conformance to recognized codes or standards the Contractor shall furnish evidence of such conformance in the form of test or inspection reports, prepared by a recognized agency, and bearing an authorized signature.
- B. Manufacturers' standard data and catalog cut sheets will not be considered sufficient in themselves, and the Engineer will not be responsible for seeking further data from the manufacturer, or for otherwise researching the product. Failure to provide complete data will be cause for rejection of the product.
- C. The Contractor shall be responsible for all additional costs including license fees, foundation, piping and electrical work necessary to accommodate the proposed "or equal" equipment. Items which result in a cost reduction shall be presented and a change order reflecting 65% of the cost savings will be prepared and the contract price modified. Contractor shall prepare an itemized detailed cost savings breakdown and provide all backup and documentation to allow the Engineer to review the proposed savings. Engineer shall have final authority in determining the cost savings value.

1.6 SUBMISSION REQUIREMENTS

- A. Make submittals promptly in accordance with approved schedule, and in such sequence as to cause no delay in the Work or in the work of any other contractor.
- B. All complete submittals shall be submitted sufficiently in advance of construction requirements to provide no less than fifteen (15) days, excluding Saturdays, Sundays and legal holidays for review from the time received at the Engineer's reviewing office. For submittals of major equipment, that require more than fifteen (15) days to review, due to its sheer complexity and amount of detail and also requiring review by more than one engineering discipline, a letter will be sent by the Project Manager or his/her designee to the Contractor informing him/her of the circumstances and the date it is expected the submittal will be returned to the Contractor.
- C. Number of submittals required:
 - 1. Shop Drawings: Unless otherwise stated in the respective Specifications Sections, submit electronically.
 - 2. Product Data: Unless otherwise stated in the respective Specifications submit electronically.

3. Samples: Submit the number stated in the respective Specification Sections.

D. Submittals shall contain:

1. The date of submission and the dates of any previous submissions.
2. The Project title and number.
3. Contractor identification.
4. The names of:
 - a. Contractor
 - b. Supplier
 - c. Manufacturer
5. Identification of the product, with the specification section number, page and paragraph(s).
6. Field dimensions, clearly identified as such.
7. Relation to adjacent or critical features of the Work or materials.
8. Applicable standards, such as ASTM or Federal Specification numbers.
9. Identification of deviations from Contract Documents.
10. Identification of revisions on resubmittals.
11. An 8-in. X 3-in. blank space for Contractor and Engineer stamps.

- E. Each shipment of drawings shall be accompanied by a transmittal form furnished by the Engineer giving a list of the drawing numbers and the names mentioned above.

1.6 REVIEW OF SHOP DRAWINGS, PRODUCT DATA, WORKING DRAWINGS AND SAMPLES

- A. The Engineer's review is for general conformance with the design concept and contract drawings. Markings or comments shall not be construed as relieving the Contractor from compliance with the contract plans and specifications or from departures therefrom. The Contractor remains responsible for details and accuracy, for coordinating the work with all other associated work and trades, for selecting fabrication processes, for techniques of assembly, and for performing work in a safe manner.

- B. The review of shop drawings, data, and samples will be general. They shall not be construed:
1. as permitting any departure from the Contract requirements;
 2. as relieving the Contractor of responsibility for any errors, including details, dimensions, and materials;
 3. as approving departures from details furnished by the Engineer, except as otherwise provided herein.
- C. If the shop drawings, data or samples as submitted describe variations and show a departure from the Contract requirements which the Engineer finds to be in the interest of the Owner and to be so minor as not to involve a change in Contract Price or time for performance, the Engineer may return the reviewed drawings without noting an exception.
- D. Reviewed shop drawings or product data will be returned to the contractor electronically. Sample will not be returned.
- E. Submittals will be returned to the Contractor under one of the action codes indicated and defined on the transmittal form furnished by the Engineer.
- F. Resubmittals will be handled in the same manner as first submittals. On resubmittals the Contractor shall direct specific attention, in writing, on the letter of transmittal and on resubmitted shop drawings by use of revision triangles or other similar methods, to revisions other than the corrections requested by the Engineer, on previous submissions. Any such revisions which are not clearly identified shall be made at the risk of the Contractor. The Contractor shall make corrections to any work done because of this type revision that is not in accordance to the Contract Documents as may be required by the Engineer.
- G. Partial submittals may not be reviewed. The Engineer will be the only judge as to the completeness of a submittal. Submittals not complete will be returned to the Contractor, and will be considered "Rejected" until resubmitted. The Engineer may at his option provide a list or mark the submittal directing the Contractor to the areas that are incomplete.
- H. If the Contractor considers any correction indicated on the shop drawings to constitute a change to the Contract Documents, the Contractor shall give written notice thereof to the Engineer at least seven working days prior to release for manufacture.
- I. When the shop drawings have been completed to the satisfaction of the Engineer, the Contractor shall carry out the construction in accordance therewith and shall make no further changes therein except upon written instructions from the Engineer.

1.7 GENERAL PROCEDURES FOR SUBMITTALS

- A. Coordination of Submittal Times: Prepare and transmit each submittal sufficiently in advance of performing the related work or other applicable activities, or within the time specified in the individual work sections, of the Specifications, so that the installation will not be delayed by processing times including disapproval resubmittal (if required), coordination with other submittals, inspection, testing (off-site and on-site), purchasing, fabrication, delivery and similar sequenced activities. No extension of time will be authorized because of the Contractor's failure to transmit submittals sufficiently in advance of the Work.

1.8 CERTIFICATION FORMS

- A. If specifically specified in other sections of these Specifications, the Contractor shall submit the applicable certification form for each item required, and in the form attached to this section, completely filled in and stamped.

1.9 CERTIFICATES OF COMPLIANCE

- A. Certificates of Compliance specified in the specifications shall include and mean certificates, manufacturer's certificates, certifications, certified copies, letters of certification and certificate of materials.
- B. The Contractor shall be responsible for providing Certificates of Compliance requested and specified in the technical specifications. Certificates are required for demonstrating proof of compliance with specification requirements and shall be executed in 6 copies unless otherwise specified. Each certificate shall be signed by an official authorized to certify on behalf of the manufacturing company and shall contain the name and address of the Supplier, the project name and location, and the quantity and date or dates of shipment or delivery to which the certificates apply. Copies of laboratory test reports submitted with certificates shall contain the name and address of the testing laboratory and the date or dates of the tests to which the report applies. Certification shall not be construed as relieving the Supplier from furnishing satisfactory material, if after tests are performed on selected samples, the material is found not to meet the specific requirements.

1.10 PERMITS

- A. The Contractor shall obtain necessary permits to construct within a public way, as required by the City of Somerville. All permit fees, bonds, etc., shall be included in Item 1 of the bid. A copy of the permit shall be provided to the Engineer.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION 01300

SECTION 01310

CONSTRUCTION PROGRESS SCHEDULES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this section.

1.2 SUMMARY

- A. CONTRACTOR shall prepare and submit to ENGINEER for review within 30 days after Notice to Proceed, a construction progress schedule.
- B. No work shall be done between 4:00 p.m. and 7 a.m., nor on Sundays or legal holidays, except where required, without written permission of OWNER. Emergency work may be done without prior permission.
- C. The installation of two (2) new isolation valves at the MWRA connection near Sta 22+00 on Webster Avenue will be conducted overnight between the hours of 9:00 p.m. to 5:00 a.m.
- D. MWRA will be conducting work between Newton and Prospect Streets on Webster Avenue. Work is expected to begin approximately July 1, 2015. Contractor shall coordinate schedule with MWRA.
- E. Night work may be established by CONTRACTOR as regular procedure with written permission of OWNER. Such permission, however, may be revoked at any time by OWNER if CONTRACTOR fails to maintain adequate equipment and supervision for proper prosecution and control of work at night.
- F. No work beyond a five-day week or 9-hour day which requires the Engineer to be present shall be allowed. If the Contractor wishes to work beyond the number of hours or days stated herein, he shall submit his request in writing to the Engineer for review. Contractor completion times will be adjusted to reflect extended work periods.
- G. The City moratorium period is typically November 1 – April 1 per the discretion of the City DPW Commissioner.

CONSTRUCTION PROGRESS SCHEDULES

1.3 FORM OF SCHEDULES

- A. Prepare schedules in form of a horizontal bar chart.
 - 1. Provide separate horizontal bar for each trade or operation.
 - 2. Horizontal time Scale: Identify first work date of each week.
 - 3. Scale and spacing to allow space for notations and future revisions.
- B. Format of Listings: Chronological order of start of each item of work.
- C. Identification of Listings: By major specification section numbers.

1.4 CONTENT OF SCHEDULES

- A. Construction Progress Schedule:
 - 1. Show complete sequence of construction by activity.
 - 2. Show dates for beginning and completion of each major element of construction and installation dates for major terms of equipment. Elements shall include, but not limited to, the following:
 - a. Shop drawing submittal – review periods.
 - b. Material and equipment order, and delivery.
 - c. Water main replacement and installation.
 - d. Testing and disinfecting.
 - e. Service connections.
 - f. Cleaning and lining work.
 - g. Backfilling, grading, seeding, sodding, landscaping, fence construction and paving.
 - h. Subcontractor's items of work.
 - i. Final cleanup.
 - j. Allowance for inclement weather.
 - 3. Show projected percentage of completion for each item as of first day of each month.

1.5 SCHEDULE REVISIONS

- A. Every 30 days CONTRACTOR shall revise construction schedule to reflect changes in progress of work.
- B. Indicate progress of each activity at date of submittal.

- C. Show changes occurring since previous submittal of schedule.
 - 1. Major changes in scope.
 - 2. Activities modified since previous submittal.
 - 3. Revised projects of progress and completion.
 - 4. Other identifiable changes.
- D. Provide a narrative report as needed to define.
 - 1. Problem areas, anticipated delays, and impact on schedule.
 - 2. Corrective action recommended and its effect.
 - 3. Effect of changes on schedules of other CONTRACTORS.

1.6 SUBMITTAL REQUIREMENTS

- A. For initial submittal of construction schedule and subsequent revisions thereof, furnish electronic copy of schedule to ENGINEER.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION 01310

SECTION 01346

AS-BUILT DRAWINGS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this section.

1.2 SUMMARY

- A. This section includes the following:

- 1. As-Built Drawings:

- a. The Contractor shall maintain and keep a record copy of as-built drawings. The drawings shall show all materials as installed. A minimum of two (2) swingties to permanent structures shall be shown for all fittings, valves, corporation stops and any other item which will be backfilled upon completion of the work. As-built drawings shall be kept current and will be reviewed monthly. Failure to maintain current as-built drawings will be cause to delay progress payments. As-built drawings shall be available to the Engineer at all times during the life of the Contract. Upon request, the Owner will provide one set of reproducibles of the original Contract Drawings and a sample record drawing showing required style and quality, for this purpose.

General Contractor shall be responsible for coordinating, collecting and updating as-built drawings from subcontractors.

- 1) All drawings shall be made a part of the record drawings and shall include the following:

- a) Contract Drawings: Annotate or redraft, as required, to show all revisions, substitutions, variations, omissions and discrepancies made or discovered during construction concerning location and depth of utilities, piping, ductbanks, conduits, manholes, valves, vaults and other equipment. Revisions shall be made and shown on all drawing views with actual dimensions established to permanent points.
- 2) Prior to preliminary inspection, furnish a reproducible of the record drawings. At the completion of the Contract and before final payment is made, furnish the Engineer one set of reproducibles of the finally approved record drawings reflecting all revisions herein described.

PART 2 - PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION 01346

SECTION 01400

QUALITY ASSURANCE

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this section.

1.2 SUMMARY

- A. This section covers Quality Assurance and Control requirements for this contract.
- B. The Contractor is responsible for controlling the quality of work, including work of its subcontractors and suppliers and for assuring the quality specified in the Technical Specifications is achieved.

1.3 TESTING LABORATORY SERVICES

- A. All tests which require the services of a laboratory to determine compliance with the Contract Documents, shall be performed by an independent commercial testing laboratory acceptable to the Engineer. The laboratory shall be staffed with experienced technicians, properly equipped, and fully qualified to perform the tests in accordance with the specified standards.
- B. Preliminary Testing Services: Unless otherwise specified, the Contractor shall be responsible for all testing laboratory services in connection with concrete materials and mix designs, the design of asphalt mixtures, gradation tests for structural and embankment fills, backfill materials, and all other tests and engineering data required for the Engineer's review of materials and equipment proposed to be used in the Work. The Contractor shall obtain the Engineer's acceptance of the testing laboratory before having services performed, and shall pay all costs for services.
- C. Quality Control Testing Services: Perform all quality control tests in the field or in the laboratory on concrete, asphalt mixtures, moisture-density (Proctor) and gradation tests on structural and embankment fills, and backfill materials, in-place field density tests on structural and embankment fills, and other materials and equipment, during and after their incorporation in the Work. Field sampling and testing shall be performed in the general manner indicated

in the specifications, with minimum interference with construction operations. The Engineer shall determine the exact time and location of field sampling and testing, and may require such additional sampling and testing as necessary to determine that materials and equipment conform with data previously furnished by Contractor and with the Contract Documents.

- D. Arrangements for delivery of samples and test specimens to the testing laboratory will be made by the Contractor. The laboratory tests shall be performed within a reasonable time consistent with the specified standards. Furnish a written report of each test to the Engineer.
- E. Contractor shall furnish all sample materials and cooperate in the sampling and field testing activities, interrupting the Work when necessary. When sampling or testing activities are performed in the field, the Contractor shall furnish personnel and facilities to assist in the activities.
- F. The Contractor shall not retain any testing laboratory against which the Owner or the Engineer have reasonable objection, and if at any time during the construction process the services become unacceptable to the Owner, or the Engineer, either the Owner or the Engineer may direct in writing that such services be terminated. The request must be supported with evidence of improper testing or unreasonable delay. If the Engineer determines that sufficient cause exists, the Contractor shall terminate the services and engage a different testing laboratory.
- G. Transmittal of Test Reports: Written reports of testing and engineering data furnished by the Contractor for the Engineer's review of materials and equipment proposed to be used in the Work shall be submitted as specified for Shop Drawings.
- H. The testing laboratory shall furnish four copies of a written report of each test performed by laboratory personnel in the field or laboratory to the Contractor. Distribution shall be two copies of each test report to the Engineer's Representative, one copy to the Owner, and one copy for the Contractor within three days after each test is completed.

1.4 QUALITY ASSURANCE

- A. Copies of applicable referenced standards are not included in the Contract Documents. Where copies of standards are needed by the Contractor for superintendence and quality control of the work, the Contractor shall obtain a copy or copies directly from the publication source and maintain at the jobsite, available to the Contractor's personnel, subcontractors, and Engineer.

- B. Quality of Materials: Unless otherwise specified, all materials and equipment furnished for permanent installation in the Work shall conform to applicable standards and specifications and shall be new, unused, and free from defects and imperfections, when installed or otherwise incorporated in the Work. Material and equipment shall not be used by the Contractor for any purpose other than that intended or specified unless such use is authorized by the Engineer.
- C. Where so specified, products or workmanship shall also conform to the additional performance requirements included within the Contract Documents to establish a higher or more stringent standard or quality than that required by the referenced standard.

1.5 MATERIALS AND EQUIPMENT

- A. The Contractor shall maintain control over procurement sources to ensure that materials and equipment conform to specified requirements in the Contract Documents.
- B. The Contractor shall comply with manufacturer's printed instructions regarding all facets of materials and/or equipment movement, storage, installation, testing, startup, and operation. Should circumstances occur where the contract documents are more stringent than the manufacturer's printed instructions, the Contractor shall comply with the specifications. In cases where the manufacturer's printed instructions are more stringent than the contract documents, the Contractor shall advise the Engineer of the disparity and conform to the manufacturer's printed instructions. In either case, the Contractor is to apply the more stringent specification or recommendation, unless approved otherwise by the Engineer.

PART 2 - PRODUCTS (NOT USED)

PART 3 – EXECUTION

3.1 QUALITY CONTROL

- A. Quality control is the responsibility of the Contractor, and the Contractor shall maintain control over construction and installation processes to assure compliance with specified requirements.
- B. Certifications for personnel, procedures, and equipment associated with special processes (e.g., welding, cable splicing, instrument calibration, surveying) shall be maintained in the Contractor's field office, available for inspection by the Engineer. Copies will be made available to the Engineer upon request.

- C. Means and methods of construction and installation processes are the responsibility of the Contractor, and at no time is it the intent of the Engineer or Owner to supersede or void that responsibility.

END OF SECTION 01400

SECTION 01500

TEMPORARY FACILITIES AND CONTROLS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this section.

1.2 PLANT AND HOURS OF CONSTRUCTION

- A. Furnish plant and equipment which will be efficient, appropriate, and large enough to secure a satisfactory quality of work and a rate of progress which will insure the completion of the work within the Contract Time. If at any time such plant appears to the Engineer to be inefficient, inappropriate, or insufficient for securing the quality of work required or for producing the rate of progress aforesaid, he may order the Contractor to increase the efficiency, change the character, or increase the plant equipment, and the Contractor shall conform to such order. Failure of the Engineer to give such order shall in no way relieve the Contractor of his obligations to secure the quality of the work and rate of progress required.
- B. Normal construction activity shall take place only between the hours of 7 a.m. to 5:00 p.m., excluding Saturdays, Sundays, and legal holidays. Work outside the above time periods will be permitted only on an emergency basis and only with the approval of the Owner.

1.3 OCCUPYING PRIVATE LAND

- A. The Contractor shall not (except after written consent from the proper parties) enter or occupy with men, tools, materials, or equipment any land outside the rights of way or property of the Owner. A copy of the written consent shall be given to the Engineer, prior to entering or occupying private property.

1.4 PIPE LOCATIONS

- A. Exterior pipelines will be located substantially as indicated on the Drawings, but the right is reserved to the Owner, acting through the Engineer, to make such modifications in location as may be found desirable to avoid interference with existing structures or for other reasons. Where fittings, etc., are noted on the Drawings, such notation is for the Contractor's convenience and does not relieve him from laying and jointing different or additional items where required.

TEMPORARY FACILITIES AND CONTROLS

- B. Piping is indicated diagrammatically on the Drawings, and the exact location is to be determined in the field.

1.5 DIMENSION OF EXISTING STRUCTURES

- A. Where the dimensions and locations of existing structures are of importance in the installation or connection of any part of the Work, the Contractor shall verify such dimensions and locations in the field before the fabrication of any material or equipment which is dependent on the correctness of such information.

1.6 OPEN EXCAVATIONS

- A. All open excavations shall be adequately safeguarded by providing temporary barricades, fencing, caution signs, lights, and other means to prevent accidents to persons and damage to property. The Contractor shall, at his own expense, provide suitable and safe bridges and other crossings for accommodating travel by pedestrians and workmen. Bridges provided for access during construction shall be removed when no longer required. The length or size of excavation will be controlled by the particular surrounding conditions, but shall always be confined to the limits prescribed by the Engineer. If the excavation becomes a hazard, or if it excessively restricts traffic at any point, the Engineer may require special construction procedures such as limiting the length of the open trench, prohibiting stacking excavated material in the street, and requiring that the trench shall not remain open overnight.
- B. The Contractor shall take precautions to prevent injury to the public due to open trenches. All trenches, excavated material, equipment, or other obstacles which could be dangerous to the public shall be well lighted at night.

1.7 TEST PITS

- A. Test pits for the purpose of locating underground pipeline or structures in advance of the construction shall be excavated and backfilled by the Contractor in areas where the Contractor deems it necessary to obtain subsurface information. Test pits shall be backfilled immediately after their purpose has been satisfied and the surface restored and maintained in a manner satisfactory to the Engineer.

TEMPORARY FACILITIES AND CONTROLS

1.8 INTERFERENCE WITH AND PROTECTION OF STREETS

- A. Contractor shall not close or obstruct any portion of a street, road, or private way without obtaining permits therefore from the proper authorities. If any street, road or private way shall be rendered unsafe by the Contractor's operations, he shall make such repairs or provide such temporary ways or guards as shall be acceptable to the proper authorities.
- B. Streets, roads, private ways, and walks not closed shall be maintained passable and safe by the Contractor, who shall assume and have full responsibility for the adequacy and safety of provisions made therefore
- C. The Contractor shall, at least 24 hours in advance, notify the Police, Fire and School Departments in writing, with a copy to the Engineer, if the closure of a street or road is necessary. He shall cooperate with the Police Department in the establishment of alternate routes and shall provide adequate detour signs, plainly marked and well lighted, in order to minimize confusion.

1.9 CARE AND PROTECTION OF PROPERTY

- A. The Contractor shall be responsible for the preservation of all public and private property, and shall use every precaution necessary to prevent damage thereto. If any direct or indirect damage is done to public or private property by or on account of any act, omission, neglect, or misconduct in the execution of the work on the part of the Contractor, such property shall be restored by the Contractor, at his expense, to a condition similar or equal to that existing before the damage was done, or he shall make good the damage in other manner acceptable to the Engineer.

1.10 PROTECTION AND RELOCATION OF EXISTING STRUCTURES AND UTILITIES

- A. The Contractor shall assume full responsibility for the protection of all buildings, structures, and utilities, public or private, including poles, signs, services to buildings, utilities in the street, gas pipes, water pipes, hydrants, sewers, drains, and electric and telephone cables, whether or not they are shown on the Drawings. The Contractor shall carefully support and protect all such structures and utilities from injury of any kind. Any damage resulting from the Contractor's operations shall be repaired by him at his expense.
- B. Assistance will be given the Contractor in determining the location of existing services. The Contractor, however, shall bear full responsibility for obtaining all locations of underground structures and utilities (including existing water services, drain lines, and sewers). Services to buildings shall be maintained, and all costs or charges resulting from damage thereto shall be paid by the Contractor.

TEMPORARY FACILITIES AND CONTROLS

- C. Protection and temporary removal and replacement of existing utilities and structures as described in this section shall be a part of the work under the Contract and all costs in connection therewith shall be included in Item 1 of the Bid Proposal.
- D. If, in the opinion of the Engineer, permanent relocation of a utility owned by the Town is required, he may direct the Contractor, in writing, to perform the work. Work so ordered will be paid at the Contract unit prices, if applicable, or as extra work. If relocation of a privately owned utility is required, the Contractor will notify the Utility to perform the work as expeditiously as possible. The Contractor shall fully cooperate with the Utility, and shall have no claim for delay due to such relocation. The Contractor shall notify all utility companies in writing at least 72 hours (excluding Saturdays, Sundays, and Legal holidays) before excavating in any public way. Contractor shall also notify (Massachusetts Dig Safe, telephone number 811 or 1-800-344-7233) at least 72 hours prior to start of work.
- E. The Contractor shall coordinate the removal and replacement of traffic loops and signals, if required for the performance of the work, at no additional cost to the Owner.

1.11 CLEANUP AND DISPOSAL OF EXCESS MATERIAL

- A. During the course of the work, the Contractor shall keep the site of his operations in as clean and as neat a condition as is possible. He shall dispose of all residue resulting from the construction work and, at the conclusion of the work, he shall remove and haul away any surplus excavation, broken pavement, lumber, equipment, temporary structures, and any other refuse remaining from the construction operations, and shall leave the entire site of the work in a neat and orderly condition.
- B. In order to prevent environmental pollution arising from the construction activities related to the performance of this Contract, the Contractor and his subcontractors shall comply with all applicable Federal, State, and local laws, and regulations concerning waste material disposal, as well as the specific requirements stated in this section and elsewhere in the Specifications.
- C. The Contractor is advised that the disposal of excess excavated material in wetlands, buffer zones, stream corridors, and plains is strictly prohibited even if the permission of the property owner is obtained. Any violation of this restriction by the Contractor or any person employed by him, will be brought to the immediate attention of the responsible regulatory agencies, with a request that appropriate action be taken against the offending parties. Therefore, the Contractor will be required to remove the fill at his own expense and restore the area impacted.

TEMPORARY FACILITIES AND CONTROLS

1.12 PROTECTION OF CONSTRUCTION AND EQUIPMENT

- A. All newly constructed work shall be carefully protected from injury in any way. No wheeling or walking or placing of heavy loads on it shall be allowed and all portions injured shall be reconstructed by the Contractor at its own expense.
- B. All structures shall be protected in a manner approved by the Engineer. Should any of the structures become heaved, cracked, or otherwise damaged, all such damaged portions of the work shall be completely repaired and made good by the Contractor at his own expense and to the satisfaction of the Engineer.
- C. If, in the final inspection of the work, any defects, faults or omissions are found, the Contractor shall cause the same to be repaired or removed and replaced by proper materials and workmanship without extra compensation for the materials and labor required. Further, the Contractor shall be fully responsible for the satisfactory maintenance and repair of the construction and other work undertaken herein for at least the guarantee period described in the Contract Documents.
- D. The Contractor shall take all necessary precautions to prevent damage to any structure due to water pressure during and after construction and until such structure is accepted and taken over by the Owner.

1.13 TEMPORARY UTILITIES

- A. Temporary Light and Power: The Contractor shall at his own expense, provide his own temporary light and power as required for the prosecution and completion of work.
- B. Temporary Telephone: The Contractor shall have installed at his own expense a job telephone for his use and for the use of the Engineer. The Contractor shall pay all phone charges.
- C. Temporary Water: Water for drinking purposes and other usage will be provided by the Contractor at his own expense.
- D. Sanitary Provisions: The Contractor shall provide and maintain sanitary accommodations for the use of his employees and the Engineer, as may be necessary to comply with the requirements and regulations of the local and state departments of health.

1.14 WATER SUPPLY

- A. The Contractor shall make arrangements and pay for all water necessary for construction, testing and start-up purposes from the Water Department.

TEMPORARY FACILITIES AND CONTROLS

- B. No direct cross connections will be permitted between the public water supply and the new water mains, or any other point where the possibility of backflow of contaminated water exists. All connections to points where there is the possibility of backflow shall be arranged to prevent backflow of contaminated water and shall be approved by the Water Department's Backflow Prevention Inspector before they are put into operation.

1.15 ACCESS TO THE WORK

- A. The Contractor shall provide sufficient and proper facilities at all times for inspection of all work under this project in preparation or in progress, by the Owner, the agents and employees of the Owner, by authorized representatives of the State of MA and the Federal Government and by the Engineers.
- B. The Contractor shall furnish the Engineer or his authorized representative and other personnel mentioned above with such facilities and assistance as are necessary to ascertain performance of the work in accordance with the plans and specifications.

1.16 DUST CONTROL

- A. During the progress of the work, the Contractor shall conduct his operations and maintain the area of his activities, including sweeping and sprinkling of water as necessary, so as to minimize the creation and dispersion of dust. If the Engineer decides that it is necessary to use calcium chloride, and it is allowed by local authorities, for more effective dust control, the Contractor shall furnish and apply the material as directed.
- B. Calcium chloride shall be commercial grade, furnished in 100 lb, 5-ply bags, stored under weatherproof cover and stacked alternately for ventilation. Application for dust control shall be at the rate of about 1/2 pound per square yard, unless otherwise directed by the Engineer.

1.17 POLLUTION CONTROL

- A. The Contractor shall conduct clean-up and disposal operations, as necessary, to comply with state and local ordinances and anti-pollution laws.
- B. Outdoor burning of rubbish and waste material on the site will not be permitted.
- C. Disposal of volatile fluid wastes (such as mineral spirits, oil, gasoline, or paint thinner) in storm or sanitary sewer systems or into streams or waterways is not permitted.

TEMPORARY FACILITIES AND CONTROLS

1.18 PRECAUTIONS DURING ADVERSE WEATHER

- A. During adverse weather and against the possibility thereof, the Contractor shall take all necessary precautions so that the Work may be properly done and satisfactory in all respects. When required, protection shall be provided by use of tarpaulins, wood and building-paper shelters, or other suitable means.
- B. During cold weather, materials shall be preheated, if required, and the materials and adjacent structure into which they are to be incorporated shall be made and kept sufficiently warm so that a proper bond will take place and a proper curing, aging, or drying will result. Protected spaces shall be artificially heated by suitable means which will result in a moist or a dry atmosphere according to the particular requirements of the work being protected. Ingredients for concrete and mortar shall be sufficiently heated so that the mixture will be warm throughout when used.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION 01500

TEMPORARY FACILITIES
AND CONTROLS

SECTION 01568

EROSION AND SEDIMENTATION CONTROLS

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this section.

1.2 SUMMARY

- A. Provide all work and take all measures to control soil erosion resulting from construction operations, prevent flow of sediment from construction site, and contain construction materials (including excavation and backfill) within protected working area as to prevent damage to any catchbasin, stream or wetlands.

1.3 SUBMITTALS

- A. Shop Drawings: Submit the following in accordance with Section 01300 - SUBMITTAL PROCEDURES:
 - 1. Two weeks prior to the start of the work, submit to Engineer, for review, a plan with detailed sketches showing the proposed methods to be used for controlling sedimentation and erosion during construction.

1.4 QUALITY ASSURANCE

- A. Use acceptable procedures, including use of water diversion structures, diversion ditches, settling basins, and sediment traps.
- B. Operations restricted to areas of work indicated on drawings and area which must be entered for construction of temporary or permanent facilities.
- C. If construction materials are washed away during construction, remove materials from fouled areas.
- D. Stabilize diversion outlets by means acceptable to Engineer.
- E. Engineer has authority to limit surface area of erodible earth material exposed by clearing and grubbing, excavation, borrow and fill operations and to direct immediate permanent or temporary pollution control measures to prevent

EROSION AND SEDIMENTATION CONTROLS

contamination of any stream or wetlands, including construction of temporary berms, dikes, dams, sediment basins, sediment traps, slope drains, and use of temporary mulches, mats, or other control devices or methods as necessary to control erosion.

- F. Contractor to visually inspect catch basins adjacent to work areas. Any basins containing silt and debris shall be noted by the Contractor prior to construction. A written notice shall be provided to the Engineer listing location of filled basins.

PART 2 – PRODUCTS

2.1 BALES

- A. Straw or other suitable material acceptable to Engineer.

1. Twine for strawbales shall be biodegradable.

2.2 WOOD STAKES

- A. 2 in. by 2 in. by 3 ft.

2.3 SILT FENCE

- A. Silt fence for sedimentation barriers and erosion control shall be woven geotextile fabric having the following properties:

<u>Property</u>	<u>ASTM Test Method</u>	<u>Value</u>
Grab Strength	D4632	100 lbs. (minimum)
Permittivity	D4491	0.10 sec-1 (minimum)
Apparent Opening Size	D4751	20-30 Sieve Opening
Ultra-Violet Stability	D4355	70% (minimum)

2.4 SILT SACKS

- A. Provide silt sacks in accordance with the construction details and manufacturer's recommendations. Silt sack to be UV resistant polypropylene with a minimum weight of 2.5 OZ/SY.

EROSION AND SEDIMENTATION

PART 3 – EXECUTION

3.1 GENERAL

- A. Do not discharge chemicals, fuels, lubricants, bitumen, raw sewage and other harmful waste into or alongside any body of water or into natural or man-made channels.

3.2 INSTALLATION

- A. Install sedimentation barriers in all locations as directed, surrounding base of all deposits of stored excavated material outside of disturbed area, and where directed by the Engineer.
- B. Install sedimentation barriers immediately after site is cleared and before trench excavation. Locate sedimentation barriers, surrounding stored material, approximately 6 ft. from material.
- C. Construct earth berms or diversions to intercept and divert runoff water from critical areas.
- D. Protect catch basins from sedimentation by installing straw bales around the basin or siltation fabric or silt traps under grating casting.
- E. Discharge silt-laden water from excavations through a filter bag, filter fabric mat and/or baled straw or straw sediment traps to ensure that only sediment-free water is returned to watercourses.
- F. Do not place excavated soil material adjacent to water-course in manner that will cause it to wash away by high water or runoff.
- G. Prevent damage to vegetation by excessive watering or silt accumulation in the discharge area.
- H. Do not dump spoiled material into any streams, wetlands, surface waters, or unspecified locations.
- I. Prevent indiscriminate, arbitrary, or capricious operation of equipment in streams, wetlands or surface waters.
- J. Do not pump silt-laden water from trenches or excavations into surface waters, streams, wetlands, or natural or man-made channels leading thereto.
- K. Prevent damage to vegetation adjacent to or outside of construction area limits.

EROSION AND SEDIMENTATION

CONTROLS

- L. Do not dispose of trees, brush, debris, paints, chemicals, asphalt products, concrete curing compounds, fuels, lubricants, insecticides, washwater from concrete trucks or hydroseeders, or any other pollutant in streams, wet-lands, surface waters, or natural or man-made channels leading thereto, or unspecified locations.
- M. Do not alter flow line of any stream unless indicated or specified.
- N. Clean and dispose of debris from sedimentation barriers on a weekly basis.
- O. Upon completion of work and upon approval of Engineer, remove and dispose of sedimentation barriers.
- P. Clean catch basins, which have become silted-up due to construction.
- Q. Temporary sediment trap(s) for dewatering shall be installed per the contract documents and as directed by the engineer or the City of Somerville, MA.

END OF SECTION 01568

SECTION 01610

DELIVERY, STORAGE AND HANDLING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this section.

1.2 SUMMARY

- A. This section specifies the general requirements for the delivery, handling, storage and protection for all items required in the construction of the work. Specific requirements, if any, are specified with the related item.

1.3 TRANSPORTATION AND DELIVERY

- A. Transport and handle items in accordance with manufacturer's printed instructions.
- B. Schedule delivery to reduce long term on-site storage prior to installation and/or operation. Under no circumstances shall equipment be delivered to the site more than one month prior to installation without written authorization from the Engineer.
- C. Coordinate delivery with installation to ensure minimum holding time for items that are hazardous, flammable, easily damaged or sensitive to deterioration.
- D. Deliver products to the site in manufacturer's original sealed containers or other packing systems, complete with instructions for handling, storing, unpacking, protecting and installing.
- E. All items delivered to the site shall be unloaded and placed in a manner which will not hamper the Contractor's normal construction operation or those of subcontractors and other contractors and will not interfere with the flow of necessary traffic.
- F. Provide equipment and personnel to unload all items delivered to the site.

- G. Promptly inspect shipment to assure that products comply with requirements, quantities are correct, and items are undamaged. For items furnished by others (i.e. Owner, other Contractors), perform inspection in the presence of the Engineer. Notify Engineer verbally, and in writing, of any problems.

1.4 STORAGE AND PROTECTION

- A. Store and protect products in accordance with the manufacturer's printed instructions, with seals and labels intact and legible. Storage instruction shall be studied by the Contractor and reviewed with the Engineer by him. Instructions shall be carefully followed and a written record of this kept by the Contractor. Arrange storage to permit access for inspection.
- B. Store loose granular materials on solid flat surface in a well-drained area. Prevent mixing with foreign matter.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION 01610

SECTION 01700

CONTRACT CLOSEOUT

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this section.

1.2 SUMMARY

- A. This section specifies administrative and procedural requirements for project closeout, including but not limited to:
 - 1. Closeout procedures.
 - 2. Final cleaning.

1.3 CLOSEOUT PROCEDURES

- A. Submit written certification that Contract Documents have been reviewed, Work has been inspected, and that Work is complete in accordance with Contract Documents and ready for Engineer's inspection.
- B. Provide Engineer with copies of all permits and test results upon completion of the work.
- C. Provide submittals to Engineer that are required by governing or other authorities.
- D. Submit final Application for Payment identifying total adjusted Contract Sum, previous payment, and sum remaining due.
- E. Submit all warranties.
- F. Submit written notice that all subcontractors and suppliers have been paid in full.
- G. Submit written notice showing the disposition of all insurance filings and claims.
- H. Copy of "Statement of Compliance" filed with the Division of Labor and Workforce Development, as required under the State Wage Rate Provisions.

1.4 FINAL CLEANING

A. Complete the following cleaning operations before requesting inspection for Certification of Substantial Completion.

1. Clean the site, including landscape development areas, of rubbish, litter and other foreign substances. Sweep paved areas broom clean; remove stains, spills and other foreign deposits. Rake grounds that are neither paved nor planted, to a smooth even-textured surface.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION 01700

SECTION 01710

CLEANING UP

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. During its progress, the work and the adjacent areas affected thereby shall be cleaned up and all rubbish, surplus materials, and unneeded construction equipment shall be removed and all damage repaired so that the public and property owners will be inconvenienced as little as possible.
- B. Where material or debris has washed or flowed into or been placed in existing watercourses, ditches, gutters, drains, pipes structures, work done under this contract, or elsewhere during the course of the Contractor's operations, such material or debris shall be entirely removed and satisfactorily disposed of during the progress of the work, and the ditches, channels, drains, pipes, structures, and work, etc., shall, upon completion of the work, be left in a clean and neat condition.
- C. On or before the completion of the work, the Contractor shall, unless otherwise especially directed or permitted in writing, tear down and remove all temporary buildings and structures built by him; shall remove all temporary works, tools, and machinery or other construction equipment furnished by him; shall remove, acceptably disinfect, and cover all organic matter and material containing organic matter in, under, and around privies, houses, and other buildings used by him; shall remove all rubbish from any grounds which he has occupied; and shall leave the roads and all parts of the premises and adjacent property affected by his operations in a neat and satisfactory condition.
- D. The Contractor shall thoroughly clean all materials and equipment installed by him and his sub-contractors, and on completion of the work shall deliver it undamaged and in fresh and new-appearing condition. All mechanical equipment shall be left fully charged with lubricant and ready for operation.

- E. The Contractor shall restore or replace, when and as directed, any public or private property damaged by his work, equipment, or employees, to a condition at least equal to that existing immediately prior to the beginning of operations. To this end the Contractor shall do as required all necessary street or driveway, walk, and landscaping work. Suitable materials, equipment, and methods shall be used for such restoration. The restoration of existing property or structures shall be done as promptly as practicable as work progresses and shall not be left until the end of the contract period.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION 01710

SECTION 01850

TRAFFIC MANAGEMENT

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this section.

1.2 SUMMARY

- A. This section includes the following:
 - 1. Pedestrian and vehicular traffic and other safety control devices, requirements and management for the protection of the traveling public and working personnel during construction and related operations, as approved by the Owner.
 - 2. The design, application, and installation of all devices required by this section shall conform to the requirements of the Manual on Uniform Traffic Control Devices (MUTCD) and Part VI Latest Edition, published by the U. S. DOT, latest edition, American Disabilities Act (ADA), and the Commonwealth of Massachusetts, Highway Department (MHD), Standard Specifications for Highways and Bridges, Section 850, except as modified herein.
 - 3. Traffic control during construction and maintenance operations includes installing and maintaining temporary pedestrian and construction facilities, furnishing, installing, inspecting, resetting, and removing channelization devices necessary to maintain pedestrian and vehicular traffic during construction and fencing of excavations as required.
- B. The Contractor shall be solely responsible for site safety and traffic management. All work and materials shall be in accordance with state and local requirements.

1.3 SUBMITTALS

- A. Traffic Management Plan: The Contractor shall submit to the Engineer for informational purposes only, a traffic management plan, complete with details of the proposed methods, including materials.
- B. Safety Signing for Construction Operations: The Contractor shall submit temporary pedestrian and construction work zone sign placement sketches showing the proposed sign setups he intends to use to provide the necessary traffic control and protection during the progress of the work, plus the sign size

and layout. These sketches shall be submitted to the Engineer for informational purposes only before work begins.

- C. Before starting any work under this Contract, the Contractor shall prepare, and submit to the Engineer for informational purposes only, a plan that indicates the traffic routing proposed by the Contractor during the various stages and time periods of the work, and the temporary pedestrian and construction facilities, temporary barricades, signs, drums, and other traffic control devices to be employed during each stage and time period of the work, to maintain traffic and access to abutting properties. Particular care shall be taken to establish and maintain methods and procedures that will not create unnecessary or unusual hazards to public safety. Traffic control devices required only during working hour operations shall be removed at the end of each working day.
- D. The Contractor shall submit to the Engineer the information required by this section a minimum of 10 working days prior to the start of construction and prior to the start of construction at any new location throughout the duration of work under this contract.
- E. Contractor shall coordinate and obtain approval of the traffic management plan from applicable officials in the City of Somerville, prior to submittal to the Engineer. Contractor shall comply with all applicable requirements of the municipalities in which work occurs at no additional cost to the Owner.

1.4 QUALITY ASSURANCE

- A. Provide in accordance with Section 01400.

1.5 DELIVERY, STORAGE AND HANDLING

- A. Provide in accordance with Section 01610 and as specified.
- B. No material shall be stored within the work area or on adjacent roadways or residential streets except which is needed to complete the work for that day.

1.6 SYSTEM DESCRIPTION

- A. Materials required for the work of this Section need not be new, but must be in first-class condition and acceptable to the Engineer and Authorities having jurisdiction. Any materials that in the judgment of the Engineer are unsatisfactory in appearance or performance shall be removed and immediately replaced by acceptable units.
- B. Signs, portable barricades, and drums shall have "Type III High Intensity Encapsulated Lens Reflective Sheeting" in accordance with Section M9.30.0 of the MHD Standard Specifications for Highways and Bridges and MUTCD requirements.

- C. Safety Signing for Construction Operations shall be fabricated in accordance with the provisions of subsection M9.30.0, Type III or IV High Intensity, of the MHD Standard Specifications for Highways and Bridges, where these colors are specified.
- D. Portable Type III Barricades shall conform with Standard Plate No. 406.2.0 of the MHD Construction and Traffic Standard Details (Metric Edition). Reflectorized sheeting to conform to Section M9.30.0 Type III or IV, of the MHD Standard Specifications for Highways and Bridges.
- E. Precast concrete median barrier shall conform with Standard Plate No. 401.15.0 of the MHD Construction and Traffic Standard Details.
- F. Traffic Drums shall conform to Standard Plate No. TR.7.1 of the MHD Construction and Traffic Standard Detail and provided in the type and quantity required by the standards specified herein.
- G. Temporary pavement markings and devices shall be used as required by MUTCD and ADA standards for traffic control and pedestrian safety.
- H. The Contractor shall provide necessary access for fire apparatus and other emergency vehicles through the work zones to abutting properties at all times.
- I. At the end of each working period, trenches in areas of public travel shall be covered with steel plates, each edge of the plates shall be either beveled or protected by a bituminous concrete ramp at a slope of two feet horizontally to 1-inch vertically. Any temporary patching material may be used to construct the ramps. The cost of necessary patching materials, and their maintenance and removal, will be considered incidental to the work being performed with no separate payment.
- J. Sweeping and cleaning of surfaces beyond the limits of the project required to clean up material caused by spillage or vehicular tracking during the various phases of the work shall be considered as incidental to the work being performed under the Contract and there will be no additional compensation. Sweeping and cleaning shall be done daily.

1.7 UTILITIES

- *A. The Contractor shall be responsible for the coordination of his work with all utility work being performed by utility owners in relation to this project or projects adjacent to this project. The Contractor shall phase all work in a manner that will provide positive and safe through movement of traffic passing the construction site.

B. Utility companies known to have facilities in the project area include, but are not limited to the following:

1. City of Somerville (water, sewer, and drainage)
2. National Grid (gas)
3. NSTAR (electric)
4. MWRA (water)

1.8 TEMPORARY LIGHTING

A. The Contractor shall provide all the temporary lighting to properly illuminate the work area and approaches in the event of nighttime work.

1.9 EXCAVATIONS

A. Open excavations adjacent to the traveled way or shoulders shall not remain open through non-work hours unless adequately steel plated for the passage of heavy vehicles.

1.10 PERMITS

A. The Contractor shall be responsible for obtaining all permits to perform the work.

1.11 ACCESS TO PROPERTIES

A. At least one serviceable driveway access to all residences and businesses within the project shall be maintained at all times.

1.12 HAULING

A. The Contractor is advised that all roads and bridges within or adjacent to the project shall be subject to legal loads and vehicles.

B. The Contractor is advised that no agreements have been made by the Owner with surrounding cities or towns to relieve the Contractor of liability for damage to local roads and bridges caused by the Contractor's operation. The Contractor shall contact appropriate officials of the surrounding cities or towns concerning hauling over city or town roads and bridges.

1.13 TRAFFIC CONTROL STANDARDS AND SPECIFICATIONS

A. The following standards and specifications are to be considered to be part of the Traffic Control Plan:

1. Section 850 of the Standard Specifications.
2. Manual on Uniform Traffic Control Devices, current edition including all revisions, amendments and addenda.

1.14 BARRICADES, WARNING SIGNS AND OTHER PROTECTIVE DEVICES

A. Install, inspect, remove and rest all temporary construction elements in accordance with an approved construction staging sequence and traffic management plan.

B. Regulatory and warning devices shall be subject to removal, replacement, and repositioning as often as necessary, and as directed by the Owner.

C. Maintenance of Construction and Regulatory Signing

1. Safety signing for construction operations shall consist of furnishing, positioning, repositioning, inspecting, maintaining, and removing regulatory, warning, and guide signs and temporary bus stop signs and taxi stop signs and their supports as approved by the City of Somerville.
2. Replace all signs which are damaged or are missing from their location without additional compensation.
3. Maintain all signs in a satisfactory manner including the removal of dirt or road film that cause a reduction in sign reflective efficiency.

D. Portable Barricades

1. Furnish, install, relocate, remove, re-install, and maintain portable barricades in accordance with MHD and MUTCD requirements or as directed.
2. Barricades shall be maintained in good and serviceable condition throughout the duration of the Contract.
3. Temporary pedestrian and construction facilities shall be kept clean and freshly painted as required.

E. Signs, Covered

1. Cover any existing regulatory and warning signs as necessary.
2. Use a cover, which shall be securely fastened to the existing sign and shall completely cover the legend of the existing sign. The cover shall

remain in place as long as necessary at which time it shall be promptly removed.

3. Signs shall be covered without causing any damage to the existing sign.

F. Traffic Signals

1. Traffic signals shall remain operable at all times throughout the duration of the contract unless approved otherwise.
2. It shall be the Contractor's responsibility to maintain the traffic signal system in good working order. The Contractor, at his expense, shall repair any damage to the traffic signal system resulting from the Contractor's work. Any alterations made to traffic signals needed to perform the work in this Contract shall be done by a Contractor certified to work on traffic signal installations and will be subject to the approval of the signal owner.

G. Temporary Precast Concrete Median Barrier

1. Temporary precast concrete median barrier shall be furnished and installed, once relocated, to protect work zones and excavations, which cannot be completed and backfilled within a daily work period. Barriers shall be removed when no longer required.
2. Temporary precast barrier for use for temporary pedestrian and construction facilities shall have three (3) shelves cast in the barrier to receive a post for panel and fence installations.

H. Temporary Safety Fencing

1. Temporary orange plastic safety fencing, 4 feet high, shall be erected at work zones abutting pedestrian travel paths and at work zones hazardous to pedestrians.

1.15 TRAFFIC OFFICERS SERVICE

- A. Uniformed officers shall be utilized to maintain safe traffic flow throughout the construction period.
- B. Forty-eight hours of advance notice of starting work shall be given to the Police Department. Contractor is required to use as many police details as needed to ensure the safety of pedestrians and traffic at all times.
- C. Contractor shall provide notification to, and coordinate work with Police Agencies and incorporate any work hour restrictions into the work schedule.

1.16 PEDESTRIAN TRAFFIC

- A. Sidewalks shall be maintained at all times through the construction period. Temporary sidewalks, pedestrian detours and pedestrian and construction facilities shall be constructed as needed to maintain pedestrian traffic and business access.
- B. Pedestrian access will be provided to abutting land uses such as residences and businesses at all times, and in accordance with MUTCD and ADA requirements.
- C. Unobstructed walkways of 6 feet minimum width, unless otherwise approved by the municipality, will be provided at all times.
- D. Temporary pedestrian walkways shall be separated from roadway and constructed areas by barricades.

1.17 TRAFFIC CONTROL REQUIREMENTS

- A. The Contractor shall meet the following conditions, unless otherwise specifically approved by the Agency having jurisdiction:
 - 1. All work shall be prosecuted with proper regard for the convenience of the public and in a manner to permit unimpeded traffic flow whenever possible. The interruption of traffic will not be permitted unless specifically allowed by the Agency having jurisdiction and in conformance with MUTCD requirements. Contractor shall maintain one lane, 11-foot minimum roadway width, at all times on all roads. Contractor shall maintain one-way traffic on all side streets and travel ways.
 - 2. The Contractor shall be responsible for coordination with the Agencies affected by the project.
 - 3. Traffic control devices and signs shall be removed, demounted or properly covered for those periods of the day not in use. Signs designating beginning and end of construction zones shall be installed and maintained on all side streets adjacent to work areas.
 - 4. The DPW shall be notified of any re-routing of traffic 72 hours in advance. Approval must be obtained from the DPW prior to any rerouting of traffic (except emergencies). Coordination with other city agencies or departments will be by the DPW.
 - 5. The Contractor shall coordinate the work with the schedules of delivery trucks to the adjacent stores and property owners so as not to impede their access.
 - 6. No operations shall be conducted, including the loading or unloading of vehicles, on or near the traveled lanes or road shoulders without first erecting warning signs and channelizing devices as directed. These

precautions shall be maintained at all times while work is in progress.

7. Construction signs and channelizing devices shall be used to separate traffic from the work areas and for traffic control. Placement, other than as shown in the plans or the MUTCD, will require prior approval.
8. Temporary signs and channelizing devices shall not be set up until there is adequate visibility or appropriate construction lighting. The Contractor shall schedule his work so that temporary signs and channelizing devices are removed and traffic is returned to its normal pattern before the end of the work period.
9. Work requiring overnight lane closures shall not begin until all materials required for the completion of each nights work are delivered or available to the project site, unless otherwise approved by the Engineer.
10. Accesses to residences and businesses shall be maintained at all times.
11. Work operations shall not be performed on the roadway in such a manner that traffic is obstructed or endangered simultaneously from both sides of the roadway.
12. The Contractor shall keep all roadway areas open to traffic as clear as possible at all times. Materials shall not be stored on any roadway area or within 10 ft. of the traveled way. Material shall be delivered to the installation areas as they are needed to provide a continuous installation. Location of storage areas shall be subject to approval.
13. The Contractor shall remove all equipment and construction vehicles from the traveled way and shoulders open to traffic during non-work hours. Vehicles shall be parked no closer than 10 feet from the traveled way in pre-approved areas unless specifically permitted.
14. The Contractor shall furnish 60" x 30" approved signs reading "CONSTRUCTION VEHICLE - DO NOT FOLLOW" to be used on trucks hauling to the project, when such signs are deemed necessary by the Engineer. The color, type of sheeting and size of lettering shall conform to that of the permanent construction signs.
15. Each driver of any vehicle used on this contract shall be furnished written instructions concerning the manner of operation for that vehicle. Specifically, these instructions shall warn against stopping on the traveled portions of the roadway, against passing other vehicles, and against traveling in close proximity to other vehicles. A copy of these instructions shall be given to the Engineer.
16. Temporary signs and channelizing devices shall not be set up in inclement weather.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION 01850

SECTION 02010

SUBSURFACE INVESTIGATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this section.

1.2 SUMMARY

- A. The Contractor acknowledges that he has satisfied himself as to the nature and location of the work, the general and local conditions, particularly those bearing upon transportation, disposal, handling, and storage of materials, availability of labor, water, electric power, roads and uncertainties of weather, groundwater table or similar physical conditions at the site, subsurface materials to be encountered, the character of equipment and facilities needed prior to and during the prosecution of the work and all other matters which can in any way affect the work or the cost thereof under this Contract. Any failure by the Contractor to acquaint himself with all available information concerning these conditions will not relieve him from responsibility for estimating properly the difficulty or cost of successfully performing the work.

1.3 SUBSURFACE DATA

- A. The Contractor acknowledges that he assumes all risk contingent upon the nature of the subsurface conditions, to be actually encountered by him in performing the work covered by the Contract, even though such actual conditions may result in the Contractor performing more or less work than he originally anticipated.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION 02010

SECTION 02080

SOIL AND WASTE MANAGEMENT

PART 1 – GENERAL

1.1 QUALIFICATIONS

- A. The Contractor shall be experienced and knowledgeable and have the trained and qualified personnel needed to conduct the work as specified herein, as outlined in 1.8(B).

1.2 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification sections, apply to work of this section.

1.3 OBJECTIVE and OVERVIEW

- A. This Section includes furnishing all plant, labor, equipment, appliances, and materials, and performing all operations in connection with the handling, treating, stockpiling, transporting, and disposal and/or reuse of soil and associated fill and waste material resulting from the construction operations as specified.
- B. The objective of soil management practices is to handle all soil and fill excavated during this Contract in accordance with applicable state, federal and local regulations and bylaws and to implement off-site soil management in a cost-effective manner. In the course of the work, it may be necessary to excavate and handle potentially contaminated soil/fill. The soil/fill management practices specified herein apply to all soil/fill excavated during the course of this Contract. To the maximum extent possible, the Contractor shall reuse geotechnically suitable excavated material prior to using imported backfill to reduce the volume of material to be disposed off-site. Imported backfill shall be used only as accepted by the Engineer.
- C. The work area is in the vicinity of multiple Massachusetts Contingency Plan-listed releases. Accordingly, the potential exists for encountering oil or hazardous materials (OHM)-impacted soil and/or groundwater during soil excavation.
- D. This Section includes protocol for handling and management of waste materials, including, but not limited to, construction debris, municipal waste, boulders, soil, fill, ash, rubble, and empty or crushed drums and/or drum parts. The Contractor shall provide the services of an Environmental Professional qualified to coordinate all soil/fill-handling activities with the Owner or Engineer and/or their representative.

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WASTE MANAGEMENT

- E. Excavation and management of project soils and groundwater shall be conducted in accordance with:
1. A release-specific URAM Plan to be prepared by the Owner's Licensed Site Professional (LSP) and submitted to Massachusetts Department of Environmental Protection (MassDEP) by the City of Somerville in the event that a release is encountered; or,
 2. A Release Abatement Measure (RAM) Plan to be prepared by the Owner's Licensed Site Professional (LSP) and submitted to MassDEP by the City of Somerville for work on private properties with existing Activity and Use Limitations;
- F. All work shall be conducted in compliance with the following Contractor-prepared plans:
1. Site-Specific Health and Safety Plan;
 2. Soil Management Plan;
 3. Equipment and Personnel Decontamination Plan;
 4. Dust, Vapor and Odor Control Plan;
 5. Air Monitoring and Quality Control Plan; and
 6. Spill and Discharge Control Plan.

1.4 DEFINITIONS

- A. Area of Contamination: For the purpose of managing soil which is Resource Conservation and Recovery Act (RCRA) hazardous waste, the area of contamination is the contiguous area within which the waste has been identified.
- B. Area of Excavation: For the purposes of reusing soil/fill on-site, the *area of excavation* is considered to be the approximate area in which the soil/fill was removed provided that area is consistent in soil strata, color, texture, geotechnical properties, and has substantially similar visual and olfactory characteristics as accepted by the Engineer. Soil/fill returned to the *area of excavation* shall be placed approximately in the same horizontal and vertical location from which it originated, with the exception that the area of excavation shall include rock excavation in the public Right of Way as accepted by the Engineer and provided the soil/fill re-used has no visual or olfactory evidence of contamination.
- C. Asphalt, Brick and Concrete (ABC): Asphalt pavement, brick and concrete (ABC) rubble means rubble that contains only weathered (cured) asphalt pavement, clay bricks and attached mortar normally used in construction, or concrete that may contain rebar.

- D. Excavation: The removal of materials encountered to the elevation and width limits indicated in the Contract Drawings, Specifications, or as directed by the Engineer.
- E. Fill (Historic Fill): Fill, also known as historic fill or miscellaneous fill, is defined as a mixture of soil and other materials which have been located in the area through man-made processes primarily for the purpose of grading, backfilling or filling in low areas. Materials commonly associated with historic fill includes, but are not limited to; coal, glass, brick, ash, wood fragments and other similar granular materials. Historic fill shall not include boulders, ledge, consolidated rock, asphalt pieces, concrete, railroad timbers, rail, cobblestones or other abandoned building materials that would preclude the disposal of the urban fill as daily cover at a landfill.
- F. Hazardous Waste:
1. Defined in 310 CMR 40.0006; or
 2. Defined in 40 CFR 261.3.
 3. A waste, or combination of wastes, that, because of its quantity, concentration, or physical, chemical, or infectious characteristics may:
 - a. Cause or significantly contribute to an increase in mortality or cause or significantly contribute to an increase in a serious irreversible or incapacitating reversible illness; or
 - b. Pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, disposed of, or otherwise managed.
- G. Peat: A substance of vegetable origin, consisting of roots and fibers, moss, etc., in various stages of decomposition, and found as a kind of turf or bog. Peat shall be considered natural soil when it is encountered in small amounts (layers 1-foot (304.8 mm) or less in thickness) and when it is impractical to separate the peat from the natural soil or urban fill strata. Otherwise, peat shall be considered a distinctive stratum.
- H. Sediment: All detrital and inorganic or organic matter situated on the bottom of lakes, ponds, streams, rivers, the ocean, or other surface water bodies.
- I. Soil Classification Categories: Unless specifically stated otherwise terms used in this specification are as defined in the Massachusetts Contingency Plan (MCP), 310 CMR 40.0006. For purposes of this Section, sediments shall also be included as soil. The following definitions and soil classifications apply to these specifications:
1. (Class A-1) Background: Any soil or fill material which has concentrations of chemicals consistent with MassDEP-published

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concentrations for natural soil or attributable to known geologic conditions. A-1 soil may also contain diminimus total petroleum hydrocarbon concentrations (up to 100 parts per million (ppm)) attributable to non-reportable releases listed in 310 CMR 40.0317. A-1 soil may be reused as common fill/ordinary borrow provided it also meets the physical requirements as specified herein and as specified in Section 02210 - Earth Excavation, Backfill, Fill and Grading. Excess soil/fill that meets the definition of background, and that contains OHM at concentrations less than release notification thresholds established by 310 CMR 40.0300 and 40.1600, shall be transported under a Material Shipping Record (MSR).

Excess soil/fill that meets the definition of background, and that contains OHM at concentrations greater than release notification thresholds established by 310 CMR 40.0300 and 40.1600, shall be transported under a non-electronic Bill of Lading (BOL) or a MSR.

Background soil may also be re-used off-site provided it is reused in compliance with MassDEP Policy WSC#-13-500, Similar Soils Provision Guidance. The Contractor shall identify one or more disposal facilities/locations with soil management plans indicating compliance with the Similar Soils Provision Guidance and appropriate to receive the material to be disposed. Background soil may be used in gravel processing facilities provided the soil analytical data is comparable to materials being used by the facility and such use is approved by the Engineer.

2. (Class A-2) Impacted: Any soil or fill material which contains OHM at concentrations greater than MassDEP-published concentrations for natural soil or those greater than concentrations attributable to known geologic conditions or total petroleum hydrocarbons greater than 100 ppm, but less than release notification thresholds established by 310 CMR 40.0300 and 40.1600. Impacted soil may be reused in the area of excavation or as fill provided it is reused in an area of equal or greater contamination and meets the physical requirements as specified herein and as specified in Section 02210 - Earth Excavation, Backfill, Fill and Grading. Class A-2 soils requiring off-site transportation and disposal/reuse shall be transported using a MSR.

Impacted soil may also be re-used off-site provided it is reused in compliance with MassDEP Policy WSC#-13-500, Similar Soils Provision Guidance. The Contractor shall identify one or more disposal facilities/locations with soil management plans indicating compliance with the Similar Soils Provision Guidance and appropriate to receive the material to be disposed. Background soil may be used in gravel processing facilities provided the soil analytical data is comparable to materials being used by the facility and such use is approved by the Engineer.

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3. (Class B) Regulated: Any soil or fill material which contains OHM at concentrations equal to or greater than a release notification threshold established by 310 CMR 40.0300 and 40.1600, regardless of whether it is exempt from notification.

Any soils which contain either petroleum or chemical odor or visual indications of oil or hazardous materials as accepted by the Engineer shall be handled as potentially contaminated soils. Soils which do not exhibit any evidence of contamination can be reused within the area of excavation without first performing laboratory analyses. Any excavated soil/fill material which is not reused within the area of excavation, must be characterized prior to reuse. After analytical results are available, soil/fill shall be handled in accordance with the type and degree of contamination (if any) present in the soil/fill. Soil/fill which may be contaminated shall be set aside by the Contractor for assessment by the Contractor's Environmental Professional. Soil/fill which is staged and characterized can be reused within the area of excavation or elsewhere on site provided the material has been tested and has equal or less contamination than the point where it is to be reused and it is not reused beneath a permanent structure such as a building foundation.

4. Class B soil which cannot be reused on site shall be reused off-site, recycled, or disposed of at a permitted facility as described below, unless it also meets the regulatory definition of hazardous waste as defined in 40 CFR part 261 or contains detectable asbestos. Subcategories of Class B are defined as follows:

- a. Class B-1: Soil/fill that meet all applicable criteria (i.e., MassDEP Policy # COMM 97-001 - Reuse and Disposal of Contaminated Soil at Massachusetts Landfills Policy, and/or facility-specific permit requirements) for reuse as daily cover, intermediate cover, or pre-cap contouring material at in-state unlined landfills. Note: per COMM 97-001, sediments may not be re-used as Class B-1.
- b. Class B-2: Soil/fill that meet all applicable criteria (i.e., COMM 97-001 and/or facility-specific permit requirements) for reuse as daily cover, intermediate cover, or pre-cap contouring material at in-state lined landfills.
- c. Class B-3: Soil/fill that meet all applicable criteria for in-state recycling at an asphalt batching plant and/or the specific licensing requirements for the proposed in-state recycling facility.
- d. Class B-4: Soil/fill that contain concentrations of contaminants that exceed in-state, lined, and unlined landfill reuse criteria as well as in-state asphalt batching acceptance criteria, but meet the criteria for regional thermal treatment facilities, and are not classified as a RCRA Hazardous Waste.

- e. Class B-5: Soil/fill that contain concentrations of contaminants that exceed in-state, lined and unlined landfill reuse criteria or which require removal to regional disposal facilities and are not classified as RCRA Hazardous Waste.
 - f. Class B-6: Soil/fill which does not meet one of the designations above due to excessive foreign materials and/or debris that are not classified as a hazardous waste.
5. (Class C) Hazardous Waste: A waste, or combination of wastes, that, because of its quantity, concentration, or physical, chemical, or infectious characteristics may cause or significantly contribute to an increase in mortality or cause or significantly contribute to an increase in a serious irreversible or incapacitating reversible illness; or pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, disposed of, or otherwise managed. Also included within the definition of hazardous waste is hazardous waste as defined 310 CMR 40.0006 and 40.CFR 261.3. Hazardous waste as defined in 40 CFR 261.3 is a solid waste that exhibits any of the characteristics of hazardous waste in excess of regulation levels presented in 40 CFR 261, subpart C and/or that is listed in 40 CFR 261, subpart D; that is a mixture of solid and hazardous waste; or that is derived from a listed waste. Soil suspected of having the characteristics of a hazardous waste or of containing a listed hazardous waste shall not be removed from the excavation or staged at another location except at the direction of the Engineer. Subcategories of Class C shall be as follows:
- a. Class C-1: Soils classified as hazardous waste that can be treated on-site to eliminate the toxicity characteristic (e.g., for lead).
 - b. Class C-2: Material determined to contain "listed" or "characteristic" hazardous waste constituents which cannot be treated on-site. Land disposal of hazardous soil is prohibited until the soil has been treated to meet Land Disposal Restrictions (LDR) standards pursuant to 40 CFR 268.48. This material must be transported to an out-of-state approved RCRA permitted disposal or treatment facility under a Uniform Hazardous Waste Manifest. Land disposal following achievement of the Uniform Treatment Standards shall be at a RCRA landfill.
- J. Special Waste: means any solid waste that is determined not to be a hazardous waste pursuant to 310 CMR 30.000 and that exists in such quantity or in such chemical or physical state, or any combination thereof, so that particular management controls are required to prevent an adverse impact from the collection, transport, transfer, storage, processing, treatment or disposal of the solid waste. Asbestos and polychlorinated biphenyls (PCB)-

contaminated soils/fill (at regulated concentrations) are examples of special waste categories.

- K. Soil (Natural Soils): Soil, otherwise known as natural soil, is defined as unconsolidated sand, gravel, silt and clay, and the organic material which has become part of the unconsolidated soil matrix.
- L. Over Excavation: Consists of removal of materials beyond indicated elevations and width limits indicated in the Contract Documents without direction of the Engineer. Over-excavation material handling, transportation and disposal, backfilling and compaction shall be at the Contractor's expense. Over-excavations shall be backfilled and compacted as specified for excavations of the same class, unless otherwise directed by the Engineer.
- M. Unknown Materials: Any material, that is not readily identifiable as non-hazardous waste, and which has not been previously characterized or encountered during site investigation activities. The Unknown Material classification is to be used in the event that an unexpected, unusual material is encountered for which special handling procedures shall be required in order to handle the material safely. Such wastes include but are not limited to:
 - 1. Unlabelled drums or containers containing material which is not readily identifiable as a non-hazardous substance.
 - 2. Any material which varies significantly from material previously observed on site and which cannot be readily identified as non-hazardous.
 - 3. Waste material of unusual color or odor or material with indications of hazardous levels (e.g. exceeding OSHA permissible exposure limits) of contaminants as evidenced on an organic vapor monitor or other similar instrument.

The Owner reserves the right to apply generator knowledge to classify and profile the material as a previously encountered waste or as a known waste. In the event that a material is encountered which the Contractor is uncertain as to its nature, the Owner or their representative shall assess the material with the Contractor and direct the Contractor as to the nature of the material being known or unknown.

1.5 WORK INCLUDED

- A. Managing excavated soil and fill material.
- B. Characterization of soil, fill, and unknown material for disposal/reuse purposes; field screening and soil management/segregation; temporary storage/staging; and characterization (as may be necessary for unknown materials and/or for

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compliance with receiving facility requirements); and disposal and/or reuse of excavated soil and fill material.

The Contractor's Environmental Professional shall characterize all excavated soil and fill material prior to reuse off-site or disposal. Characterization requirements may vary depending on the site selected to receive soil suitable for reuse or the disposal facility permits and policies. The Contractor is responsible for final waste characterization and shall determine if any additional waste characterization is required at no additional cost to the Owner.

All laboratory chemical analyses conducted shall utilize currently accepted U.S. Environmental Protection Agency (U.S. EPA) and applicable state agency analytical protocols and procedures. Laboratory chemical analysis reports shall meet MassDEP Compendium of Analytical Methods (CAM) requirements for analysis which have published CAM requirements. The MassDEP MCP Analytical Method Protocol Certification Form shall be provided by the Laboratory with all sample results.

- C. Management of contaminated groundwater: If groundwater potentially impacted by OHM, based on visual or olfactory evidence, is encountered in the course of the work, construction dewatering and discharge permits and groundwater treatment may be necessary, in accordance with Specification 02140, depending upon the discharge method(s) and/or location(s) utilized by the Contractor. The Owner and Engineer shall be notified by the Contractor if groundwater potentially impacted by OHM is identified.

- D. All work at the site must be performed in accordance with all applicable federal, state, and local regulations, permits and licenses, including, but not limited to:

1. The applicable parts of the Code of Federal Regulation (CFR) Title 40: Protection of Environment, pertaining to the Comprehensive Environmental Response and Liability Act (CERCLA) and the Superfund Amendments and Reauthorization Act (SARA), RCRA, and the National Emission Standards for Hazardous Air Pollutants (NESHAPS) as regulated by the U.S. EPA;
2. State regulations specified in the MCP (310 CMR 40.0000), and Massachusetts General Law 21E - Massachusetts Oil and Hazardous Materials Release Prevention and Response Act, and applicable MassDEP guidelines and policies;
3. MassDEP Technical Update. Background Levels of Polycyclic Aromatic Hydrocarbons and Metals in Soil (2002)
4. Department of Transportation (DOT) regulations 49 CFR, and state transportation licenses and permits;

5. OSHA regulations (including, but not limited to, 29 CFR 1910.1000, 29 CFR 1926, and CFR 1910.120), 40-hour Occupational Safety and Health Administration (OSHA) training (plus 8-hour refresher training) and all other applicable state and federal regulations regarding health and safety requirements;
6. NIOSH/OSHA/USCG/EPA: "Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities" October 1985, DHHS (NIOSH). Publ. No. 85-115;
7. Department of Transportation training;
8. U.S. Army Corps of Engineers Section 404 Programmatic General Permit, Commonwealth of Massachusetts;
9. General Contractor's license;
10. National Pollutant Discharge Elimination System (NPDES) Notice of Intent (NOI) to discharge and associated Construction General Permits and Remediation General permits;
11. Regional and local Publicly Owned Treatment Works (POTW) pre-treatment and construction dewatering requirements and permits;
12. Excavation and/or grading permits;
13. Special use permits;
14. Special waste haulers certificate;
15. Massachusetts Wetlands Protection Act and associated Order of Conditions; and
16. The Contractor's Soil Management Plan (SMP) and Health and Safety Plan to protect the workers and the public;
17. Massachusetts Division of Occupational Safety (DOS): The Removal, Containment or Encapsulation of Asbestos (453 CMR 6), including all clarifications, policy statements, etc;
18. Massachusetts Department of Environmental Protection: 310 CMR 7.00, 7.09, 7.15 and all related amendments and policy statements;
19. MassDEP: Asbestos Cement Pipe Guidance Document (2011);

20. MassDEP Technical Update: Considerations for Managing Contaminated Soil: RCRA Land Disposal Restrictions and Contained-In Determinations, August 2010.
 21. MassDEP Similar Soils Provision Guidance WSC#-13-500 (2013)
 22. MassDEP Reuse and Disposal of Contaminated Soil at Massachusetts Landfills Policy #COMM-97-001 (1997)
- E. Implementation of the submitted Health and Safety Plan (HASP) and other applicable monitoring and control plans includes establishing work zones (e.g., support zone, contamination reduction zone, exclusion zone), preparing a decontamination pad(s) and staging area(s), performing the appropriate environmental monitoring, training and medical monitoring of personnel, coordinating waste disposal and waste characterization as needed.
- F. The Contractor shall develop, implement, maintain, supervise, and be responsible for all soil management practices during the course of this contract. The Contractor's Environmental Professional shall be present during all field screening, segregating, handling, and characterization of all soils excavated in the course of completing this contract to ensure that soil is managed in accordance with applicable laws, regulations, and this Section.

Soil management activities shall include and be conducted as specified herein:

1. Providing and constructing a secure soil staging area sized to adequately segregate soils in accordance with the conditions specified without impeding construction-related activities. The Contractor is to use existing information and obtain additional information as may be needed at no additional cost to the Owner to minimize the need for a staging area. If a staging area is required to characterize unknown or excess material for any reason, the Contractor is responsible for locating, selecting, preparing and securing the area. Contractor shall provide means of separating potentially contaminated material from the staging area ground surface to prevent the potential of cross-contamination. Separation method to be provided in accordance with 3.4(C).
2. Excavated soil that cannot be re-used on site shall either be loaded directly into containers for off-site reuse or disposal (provided the material is consistent in visual, olfactory and chemical characteristics as observed in previous investigations) or be staged at a location determined and secured by the Contractor pending sampling and analytical characterization by the Contractor's Environmental Professional with the exception that soil suspected of having the characteristics of a hazardous waste or of containing a listed hazardous waste shall not be removed from the excavation or staged at another location except at the direction of the Engineer. Since individual

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disposal facilities have different permit conditions and specific pre-characterization data requirements, the Contractor is responsible for final soil characterization prior to transport and disposal. The Contractor is hereby made aware that for the purposes of disposal, final soil characterization is the responsibility of the Contractor and costs for securing a staging area and conducting waste characterization shall be incorporated into the Contractor's bid price for construction.

3. The Contractor shall control and contain runoff of free liquids drained from stockpiled soil/fill. Free liquids shall be managed in accordance with applicable regulations. Moisture content of the soil/waste material shall be monitored by the Contractor and adjusted to meet disposal facility requirements.
 4. Soil that has been chemically stabilized shall be confirmed through laboratory chemical analysis to be characteristically non-hazardous pursuant to RCRA prior to off-site shipment and disposal.
 5. Soil/fill shall not be staged within 100 feet (30.5 meters) of a wetland, Reservoir, or Area of Critical Environmental Concern. Soil/fill shall not be staged in the work area over night.
 6. Excavating unknown, previously uncharacterized material which may be classified as RCRA hazardous waste and disposing of it at an approved facility and/or on-site treatment of these materials to render it non-hazardous prior to and disposing of it at an approved facility.
 7. Removing characterized on-site materials for off-site re-use or disposal.
 8. Demobilizing the site, including, but not limited to, removing and disposing of construction-related equipment and materials used for personnel and equipment decontamination and related waste such as personal protective equipment (PPE), decontamination water/solids, temporary covers, and washwater storage tanks; disconnection of temporary utilities; and final clean-up to pre-construction conditions.
 9. The Contractor shall manage unknown material separately and temporarily stage the material pending characterization.
- G. All incidental, Contractor-generated waste (such as Personal Protective Equipment, decontamination wash water, etc.) resulting from the services hereunder are the property and responsibility of the Contractor and are to be disposed of by the Contractor under a Uniform Hazardous Waste Manifest and/or by a Massachusetts Bureau of Waste Site Cleanup BOL, as appropriate.
- H. The Contractor is responsible for identifying potential hazards at the site and reviewing existing information.

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1.6 RELATED WORK

- A. Section 01151 – MEASUREMENT AND PAYMENT
- B. Section 01108 – HEALTH AND SAFETY PROCEDURES
- C. Section 01500 - TEMPORARY FACILITIES AND CONTROLS
- D. Section 02010 - SUBSURFACE INVESTIGATION
- E. Section 02095 - TRANSPORTATION AND DISPOSAL OF SOIL AND FILL
- F. Section 02210 – EARTH EXCAVATION, BACKFILL, FILL AND GRADING
- G. Section 02140 – DEWATERING

1.7 EXISTING CONDITIONS

- A. No chemical characterization of soil in the project alignment has been conducted by the City of Somerville in support of this project. Based on a review of MassDEP files, a MWRA Contractor repairing water supply pipes encountered petroleum-impacted soils at 55 Webster Street and at the intersection of Webster and Prospect Streets in 2003 and managed soil as a Utility-related Abatement Measure (URAM) under release Tracking Number (RTN 3-23021). MassDEP Files indicate that properties adjacent to project alignment have had assessments or cleanups of soil with reportable concentrations of petroleum, PCBs, chlorinated volatile organic hydrocarbons (VOCs) and lead. At one property, the concentrations of lead in soil required on-site stabilization prior to disposal. The Contractor is obligated to manage the contaminated soil and groundwater, if encountered in accordance with applicable state and federal regulations.

1.8 SUBMITTALS

- A. The Contractor shall prepare a Work Plan that generally describes the work to be performed under Section 02080 Part 3 (Execution). The work plan shall include, but not be limited to detailing the submittal and implementation of the following:
 - 1. Site-Specific Health and Safety;
 - 2. Soil Management;
 - 3. Dust, Vapor, and Odor Control;
 - 4. Air Monitoring and Quality Control; and

5. Spill and Discharge Control.

The Work Plan shall be submitted to the Owner and Engineer for review and acceptance at least two weeks prior to beginning any intrusive work at the site.

- B. The Contractor shall provide the qualifications of the Environmental Professional(s) to be assigned to this project. The Environmental Professional(s) shall be at a minimum certified, registered or licensed as an Environmental Professional or equivalent and hold a Bachelor of Science Degree in Environmental Science, Environmental Engineering, or Public Health or related degree and have sufficient experience in similar work to perform the responsibilities detailed herein. The Environmental Professional(s) shall have demonstrated experience in management of RCRA hazardous waste soils
- C. Soil Management: The Contractor shall prepare a Soil Management Plan (SMP) that outlines measures for soil and fill sampling, field screening, laboratory chemical analysis, treatment, and disposal/reuse. The SMP shall be signed by a Massachusetts Licensed Site Professional. At a minimum, the SMP shall address the following:
1. Methods, procedures, and equipment used for treating, excavating, dewatering, characterizing, segregating, reusing/backfilling, loading, transporting, and tracking of soil/fill materials encountered during excavation operations, including Class A, B, and C soils;
 2. A list of all transporters and waste facilities, complete with license numbers, permit numbers, contact person, and address and telephone number that the Contractor utilizes for waste disposal. In addition, a copy of a memorandum of understanding between the Contractor and each disposal facility shall be attached. The memorandum of understanding shall detail that the disposal facility agrees to accept a specified quantity of waste as characterized in the contract specifications and detail what, if any, restrictions may apply. The Contractor shall provide copies of the permits held by each disposal facility which the Contractor plans to use to dispose of non-hazardous solid waste; and if necessary to dispose of hazardous waste (due to lead toxicity), PCB-impacted waste and asbestos-containing waste;
 3. A summary of the history of compliance actions for each disposal/recycling facility proposed to be used by the Contractor. The compliance history shall include a comprehensive list of any state or federal citations, notices of non-compliance, consent decrees or violations relative to the management of waste (including remediation waste) at the facility. The Owner reserves the right to reject any facility on the basis of poor compliance history;

4. Procedures for securing the staging area, controlling dust and soil/fill migration, prevention of contamination of excavated soil by trucks used for asphalt, separation of stockpiled materials from staging area ground surface, preventing damage to uncontaminated areas via contaminant migration and for decontaminating vehicles and personnel exiting the staging area;
5. The means and methods for decontaminating all equipment and personnel, including provisions for installing an equipment decontamination pad if required or specified;
6. Methods and procedures for identifying stockpiled material (e.g., labeling, marking containers) and procedures for identification and tracking;
7. Methods, procedures, and equipment used for obtaining the necessary information needed to satisfy the off-site reuse/disposal facility requirements specified herein and/or by the facility;
8. Methods, procedures, and equipment proposed for assessing and handling Unknown Materials. The SMP shall indicate which laboratory(ies) the Contractor shall utilize for chemical analysis soil, groundwater and unknown materials:
 - a. An Unknown Materials information sheet shall be developed as part of the Contractor's SMP, upon which the Contractor shall record information such as container type, size, and condition; and, any identifying characteristics of the unknown material. The format of the information sheet shall be as accepted by the Owner and/or its representatives;
 - b. The Contractor's plan for notifying the Owner and Engineer in the event that an unknown material as defined in this specification is encountered. The plan shall include the phone numbers and names of the Owner's representative(s) that the Contractor will contact in such an event.
9. Provisions for separation of incompatible materials;
10. Protocol for over-packing drums (if encountered); and
11. Procedures for consolidating (i.e., bulking) compatible materials for disposal.
12. Procedures for dewatering; testing, handling, treatment, and disposal/discharge of groundwater.

D. Soil Management/Tracking Documentation:

Prior to off-site disposal or reuse, the Contractor shall provide to the Engineer a letter from the disposal facility indicating that the facility has reviewed the available data relative to the soil/fill to be delivered and agrees that the soil/fill meets their acceptance criteria. The letter shall be signed by a duly authorized representative of the receiving facility.

Within the time constraints established in state and/or Federal laws and regulations, the Contractor shall submit to appropriate authority(ies), as applicable, Uniform Hazardous Waste Manifests and/or BOLs for all soils and associated fill disposed or reused of off-site utilizing such documents. Copies of all manifests, BOLs, and all other documents used to track and/or permit off-site transportation of soils shall be submitted to the Engineer within ten (10) days of shipment. The Contractor is responsible for preparation of all manifests, MSRs, and all other related documents completely, legibly, and accurately prior to submitting them to the Owner and/or its representative for generator and LSP signatures. BOLs shall be prepared electronically by the Owner's LSP; the Contractor shall be responsible for providing information necessary for completion of the BOL. The Contractor shall be responsible for paying for any and all fines associated with inaccurate, incorrect, or improperly completed manifests, BOLs and all other related documents, including fines resulting from late or untimely submittals.

E. Spill and Discharge Control (SDC): The SDC program shall provide contingency measures and reporting responsibilities for potential uncontrolled spills and discharges of contaminated and/or hazardous materials, including, but not limited to, leachate, decontamination water, sewage, and other on-site waste materials. In addition to the above listed items, the SDC program shall specifically contain: procedures for containing dry and liquid spills; absorbent material available on site; storage of spilled materials; governmental reporting (i.e., notification) procedures; decontamination procedures; discharges of sanitary or combined sewers into storm drains either by flow handling/bypassing or accidental or unintentional discharge; and procedures for protecting wetlands and surrounding public and private property.

The Spill and Discharge Plan shall indicate the location and quantity of the materials to be staged on site and the basis for the quantities (i.e. indicate the vessel which will be on site containing the greatest volume of oil or hazardous materials). No fuel or oil tanks or drums may be temporarily staged on site unless they are stored within a secondary containment system. Fuel deliveries shall be performed in a designated area which has either secondary spill containment or an impervious surface with absorbent berms located around the point of fuel delivery. The Spill and Discharge Plan shall indicate the location of the fueling area and the nature of secondary containment which the Contractor intends on utilizing.

1. Notification Procedures: The Contractor shall prepare in advance of work activities a notification list, complete with phone numbers, addresses, and contact names for all parties to be notified in the event of a spill. This list shall include:
 - a. Owner's designated representatives;
 - b. Owner;
 - c. Fire Department;
 - d. Engineer; and
 - e. Massachusetts Department of Environmental Protection (as required per 310 CMR 40.0000).

The Owner shall be notified immediately of an uncontrolled spill or discharge. If human health or the environment are potentially threatened, the Contractor shall take immediate action to abate the conditions and notify emergency personnel.

2. Spill Incident Report(s): In the event of an uncontrolled spill or discharge, a written report detailing each uncontrolled spill or discharge shall include, at a minimum, the cause and resolution of incident, outside agencies involved, and date of occurrence. The report shall be submitted to the Owner within 48 hours of the incident. The Contractor shall document all spills on the as-built Drawings and submit the Drawings to the Owner at project completion. The Contractor shall be responsible for remediating any spills or releases of oil or hazardous materials as a result of the Contractor's activities. The site shall be remediated to pre-release conditions at no additional cost to the Owner.

- F. Dust, Vapor and Odor Control (DVOC): The DVOC program shall include measures to control objectionable dust, vapors, and odors originating from the site. The DVOC Plan shall describe procedures to minimize the creation of dust, and the control of objectionable vapors and odors originating from the site. At a minimum, the DVOC program shall include air monitoring as specified in paragraph 3.6.

PART 2 – PRODUCTS

2.1 DUST CONTROL

- A. Air monitoring shall include total dust testing using MIE, Inc. Miniram PDM-3 Dust Monitors, or like instruments.

2.2 SPILL CONTROL

- A. At a minimum, the Contractor shall maintain on-site absorbent pads, booms and absorbent materials in sufficient quantity to address a release of fuel oil,

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hydraulic oil or other OHM that the Contractor intends to use or store on site, including fuel oil and hydraulic oil that is used within earth moving equipment. The quantity of spill containment materials maintained on site shall be sufficient to respond to a catastrophic release from the vessel containing the greatest quantity of oil or hazardous material on-site.

2.3 EQUIPMENT DECONTAMINATION PAD

- A. The Contractor shall provide all materials and labor to complete an equipment decontamination pad. Liner materials and collection system shall be selected by the Contractor to perform as specified.

PART 3 – EXECUTION

3.1 GENERAL

- A. All work in this section will be performed in accordance with the Contractor's Work Plan, SMP and Site-Specific HASP.
- B. The primary concern of the Contractor in the excavating, handling, sampling, bulking, and on-site storage of soil/fill and/or drummed material (if encountered) will be to protect the health and safety of the site workers, the public, and the environment.
- C. The Contractor shall keep a copy of the HASP on site during all operations and shall conduct daily health and safety meetings. Failure to keep a copy of the HASP on-site, or any other breach of the Contractor's Plan, may be cause for stopping work at the cost of the Contractor. Delays caused by the Contractor's failure to comply with the health and safety regulations or any health and safety plan shall not entitle the Contractor to recover any additional costs or time lost. The Contractor shall not be allowed to resume activities until corrective measures are accepted by the Engineer and/or their representative and implemented.
- D. Medical surveillance records, OSHA 40-hour training forms, accident forms, and all other documentation requirements of the Contractor's safety and health program for personnel working on the site (who are subject to exposure to potentially contaminated soil) shall be up-to-date and kept on file at the site. The Contractor shall provide documentation of employee status upon request of the Engineer and/or their representative.

3.2 SOIL/FILL MANAGEMENT

- A. Soil and fill material that is managed under a URAM Plan pursuant to the MCP, which is staged off-site, and which is not characteristically hazardous, may be re-used within fourteen (14) calendar days of excavation. Any material which is suitable for re-use as ordinary borrow, based on analytical

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results and could have been placed on site, but was not, due to Contractor delay (i.e. analytical results were not available within 10 days following excavation) will be disposed in accordance with the applicable regulations by the Contractor at no cost to the Owner.

- B. Soil and fill material that is managed under a URAM Plan pursuant to the MCP, which is staged off-site and which is determined at the staging area to be characteristically hazardous for lead may be treated (stabilized) within the "Area of Contamination" (AOC) only and must be reused or disposed of within sixty (60) calendar days of excavation. No treatment may occur at the staging area unless staging area is located within the AOC. Class B, C, and other contaminated soils shall have a limit on storage of one hundred and twenty (120) days per the MCP and/or ninety (90) days as per RCRA, as applicable. .
- C. Class B and C excavated soils shall be completely covered with a minimum 10-mil thick layer of plastic tarp. Soils exhibiting evidence of potential contamination including but not limited to odors and/or staining shall be covered prior to characterization and off-site reuse or disposal. Stockpiled soils determined to be Class B or C, as described herein, shall be securely covered at the close of each day and continuously when not being added to or otherwise being handled by the Contractor. Stockpiles, including those of Class A soils, shall also be covered at times as directed by the Engineer.
- D. All soil that is excavated from private properties outside of the Right of Way, and the public Right of Way shall at all times be segregated by the location of origin. Soil from each location shall only be used as backfill on the property of origin and shall not be used as backfill on other properties, except as allowed by the Engineer. Soil from each location shall not be moved off the property without the approval of the Engineer. Surplus soil from individual parcels shall not be mixed with soil from other parcels or from the Right of Way without the approval of the Engineer.
- E. Excavated soil shall be managed such that it is not exposed to contamination following excavation. Equipment and supplies in contact with excavated soil shall be free of asphalt, petroleum products or other hazardous materials that could be transferred to soil. Vehicles used to transport asphalt shall not be used to transport soil except by permission of and following inspection by of the truck, by the Engineer.

3.3 SOIL/FILL CHARACTERIZATION

- A. Soil and fill material shall be classified based on the criteria established in the accepted SMP and these Specifications.
- B. Soil shall be preliminarily segregated based on the Soil Classification Categories detailed in Sub-section 1.4, except as indicated below.

1. Potential Asbestos Containing Material (PACM): If soil/fill suspected of including asbestos-containing debris is encountered during excavation, the Contractor or the Contractor-hired Environmental Professional shall immediately contact the Engineer to discuss the nature and extent of the PACM and to assess potential hazards and appropriate handling procedures. Prior to handling and removing the PACM, MassDEP shall be notified and approval for handling and disposal obtained. Discovery and management of PACM shall be documented as required in the SMP. Evidence of PACM includes but is not limited to the presence of suspect asbestos-containing building debris such as broken or crushed asbestos-cement (transite) piping, vinyl floor tiling, tar-based pipe wrap, roofing paper or paper-like insulation materials. Following MassDEP approval, such soil/fill shall be managed in accordance with applicable regulations, segregated, and stockpiled pending confirmatory analysis. Soils shall be analyzed for OHM to determine appropriate disposal requirements, as required by the proposed disposal facility.
2. Unknown Material. If unknown material is encountered during excavation, the Contractor or the Contractor-hired Environmental Professional shall immediately contact the Engineer to discuss the nature and extent of the unknown material and to assess potential hazards and appropriate handling procedures. Prior to handling and removing the unknown material from the excavation area, the Contractor and Owner and/or its representatives, shall visually assess the material and its potential hazards. Drums shall be assessed to determine whether they are leaking, bulging (evidence of reactive waste), crushed, or empty. Crushed, empty, and/or skeletal parts of drums shall be handled as solid waste, as specified. The Contractor shall record any identification or markings on the drummed material(s). Discovery and management of unknown materials shall be documented as required in the SMP.

- C. Disposal Characterization: Waste characterization shall be the responsibility of the Contractor. The Contractor shall be responsible for determining the characterization requirements of each disposal facility in advance to facilitate timely disposal and to adequately estimate the disposal costs. The Contractor shall perform additional segregation based on disposal requirements. Disposal or reuse of the material shall depend on sampling and characterization analytical results. The Contractor shall, at the direction of the Engineer, provide a split sample to the Engineer. The Contractor shall provide notice to the Engineer of when sampling will occur so that the Engineer may observe the sampling procedure.

Samples shall be characterized using MassDEP Compendium of Analytical Methods (CAM) with MassDEP Analytical Protocol Certification Form for applicable methods.

Stockpiles within the staging area shall be sampled and characterized within a timely manner so as not to impede construction activities or preclude the reuse of soil/fill on site. If soil/fill cannot be reused on site due to the Contractor's delay in sampling material, the Contractor shall dispose of the soil/fill at no additional cost to the Owner including the cost of imported fill material used in its place.

3.4 STAGING AREAS

- A. Unless the staging area is comprised of an impervious surface material such as asphalt or concrete, the Contractor shall pre-characterize the surface soils (0-6") at the staging area(s) prior to staging any soils to document the existing conditions relative to contamination which may result from using the area to stage excess or unknown materials. A minimum of one composite surface soil sample, consisting of at least five grab samples, for every 2,500 square feet of staging area shall be collected by the Contractor prior to staging materials at the location. The samples will be submitted to a certified laboratory for analysis for:
 - 1. RCRA 8 total metals;
 - 2. Volatile organic compounds (U.S. EPA Method 8260B);
 - 3. Semi-volatile organic compounds (U.S. EPA Method 8270);
 - 4. Total petroleum hydrocarbons (U.S. EPA Method 8100M or equivalent); and
 - 5. PCBs (U.S. EPA Method 8082).
- B. At the completion of the work, the Contractor shall replicate the pre-staging sampling and analysis protocol to assess impacts to the area from use as a staging area.
- C. Stockpiles located within the soil staging areas shall be placed on a 20-mil HDPE liner and bermed to minimize the effects of contamination release. Each soil category shall be staged in separate areas with berms constructed a minimum of 2 feet above the existing grade with common fill, hay bales, concrete barriers, or functionally equivalent berm material. Waste characterized as RCRA hazardous waste shall not be stored on site for a period greater than sixty (60) days. All other waste must be disposed off-site within ninety (90) days of excavation.
- D. Excavated material that has not been characterized and which exhibits odor, staining and/or constituents which indicate the potential for OHM, or which have through laboratory chemical analysis been determined to be impacted by OHM above RCS-1 concentrations shall be completely covered with a minimum 10-mil thick layer of plastic tarp at the end of each working day and secured with tires, ropes, anchors or equivalent material. The covered system shall be capable of resisting actual wind gusts at the site, with a minimum wind capacity of 40 miles per hour. The stockpile covers shall be installed and secured at the end of each working day and at all times when

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earthwork is not taking place on site. Stockpile covers shall be immediately recovered should wind forces expose any of the excavated materials. Stockpiles shall also be covered at times as directed by the Engineer.

- E. Stockpiles are to be segregated based on a review of pre-characterization data and visual and olfactory conditions and field screening results obtained during excavation. Stockpiles shall be segregated by source location as approved by Engineer. Each stockpile must be clearly separated from adjacent stockpiles.
- F. Stockpiles shall be limited in size to approximately 500 cubic yards, unless approved by the Engineer. If, as a result of combining soil piles into larger volumes than 500 cubic yards, soil must be disposed of as a higher cost bid item than would otherwise be required, the Contractor shall be responsible for the additional cost.
- G. Stockpiles shall be clearly designated by a sign post or marker which can be cross-referenced with samples collected from the pile for characterization purposes. The signs/markers are not to be moved, except by authorized personnel and not until the soil is ready to be either reused on site or loaded for off-site disposal.
- H. Excavated soil shall not be added to a stockpile after it has been sampled for characterization.
- I. Unknown, potentially hazardous soils/debris and drummed materials encountered during the project shall be located in a separate bermed location. The Contractor's Soil Management Plan shall provide construction details of the dimensions and protective measures proposed for the staging area(s). The construction details and protective measures are subject to the acceptance of the Owner and/or its representatives. The Contractor shall select the area to facilitate handling of the material and to minimize interference with other ongoing construction activities. The Owner or Engineer must agree with the location prior to construction.

3.5 EQUIPMENT AND PERSONNEL DECONTAMINATION

- A. Equipment and personnel decontamination area(s), conforming with the Contractor's HASP and these Specifications, shall be constructed in such a manner to protect existing site surfaces, materials, and structures from contamination. Equipment decontamination areas shall be sized adequately to provide for the decontamination of the largest piece of equipment to be decontaminated. Filter fabric shall be placed over an impermeable liner to protect the liner from rips, punctures, or tears from traffic and heavy equipment.
- B. The Contractor shall establish a site-specific decontamination protocol and decontamination areas for personnel and equipment utilized at the subject

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site. Personnel and equipment decontamination shall be conducted in compliance with the HASP.

- C. The decontamination protocol shall include (i) the means, methods, and materials for the proposed decontamination procedures; (ii) the procedures employed to contain and store the wash or rinse liquids/sludges; (iii) procedures used to sample, analyze, and characterize the contaminated wash or rinse liquids/sludges; (iv) procedures to contain or clean contaminated equipment and PPE; and (v) the procedures for handling and disposing of solid wastes generated from site decontamination activities. All sample analysis or sample compositing shall be completed by a certified laboratory. The Contractor shall be responsible for the cost of this analytical work. The Contractor shall submit a copy of the analytical results and laboratory certifications to the Owner for review prior to proceeding with disposal. The Contractor shall be responsible to properly manifest and dispose of all residual wastes generated from on-site activities in conformance with federal, state, and local environmental and transportation regulations. The Contractor shall be responsible for the manifests and procedures to be used to package and dispose of contaminated solid wastes, wash, or rinse liquids at an EPA or state-approved treatment or disposal facility. The Contractor shall be responsible for any releases from site or decontamination activities due to its work, and will remediate any release for which the Contractor is responsible to pre-existing conditions at the Contractor's expense.
- D. Provisions for collecting decontamination water will be incorporated into the maintenance of the decontamination pad and will include placing an impermeable liner over a sloped surface such that water is directed, if necessary, into an area for subsequent pumping to 55-gallon drums or other appropriate tankage. Following completion of the work, the wash water shall be characterized by the Contractor and disposed off-site, in accordance with federal, state, and local regulations.

3.6 ENVIRONMENTAL FIELD MONITORING/DUST CONTROL

- A. The Contractor shall hire an Environmental Professional to keep accurate documentation of all air monitoring, which will be made available to the Engineer or Owner upon request.
- B. During excavation and construction, the Contractor shall monitor the air quality at and surrounding the areas where construction activities involve soil handling such as excavation, re-location, staging, loading or grading of soil/waste materials. Air monitoring shall involve appropriate techniques capable of providing real-time indications of air contaminants to protect on-site personnel and the local population. If there are indications of contamination, the frequency of air monitoring shall be determined by the Contractor's Industrial Hygienist or competent environmental health professional. The Contractor's Site Health and Safety Officer and Superintendent shall be responsible for assuring that monitoring is conducted

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in an appropriate manner, and that work practices, engineering controls and/or Personal Protective Equipment are proper for the conditions.

- C. The air monitoring program is to be designed to protect public health and the environment from the potential generation of dust and contaminant release during work. At a minimum, or as directed by the Engineer, the air monitoring shall include daily monitoring and documentation of one upwind, and two downwind conditions during periods of activity on the site and when there is a potential for dust being generated on the site. The air monitoring information including air monitoring in the vicinity of all site activities shall also be utilized for establishing levels of personal protection measures in the Contractor's Site Specific Health and Safety Plan. The Contractor shall submit his/her air quality monitoring program for review prior to commencement of site activities. At the direction of the Engineer, air monitoring may be limited to visual and odor monitoring; instrument monitoring may be required at any time by the Engineer, based on the results of visual and odor monitoring.
- D. Air monitoring shall be performed by the Contractor during all soil handling operations. In contaminated areas, detectors for organic contaminants and dust should be utilized to monitor on-site and off-site breathing zones and possible sources of potentially hazardous material (e.g. excavations, regrading, etc.). All personnel shall be made aware of the potential hazards and be informed of air monitoring information by the Contractor. Particular attention to air quality shall be made in the work area during earthwork activities to ensure that contaminants do not escape to the atmosphere and affect off-site population, on-site control, working conditions and personnel protection measures.
- E. Dust shall be controlled during excavation of soil/fill material to limit potential spread of contaminants and potential exposure of contaminants to workers and the public.
- F. Ambient dust levels at the site shall be monitored by the Contractor prior to construction. During construction, real-time dust monitoring shall be conducted during any soil/fill handling activities. The monitoring shall consist of total dust testing using MIE, Inc. Miniram PDM-3 Dust Monitors, or like instruments. The total dust criteria at the site shall conform to the requirements of the HASP. Should fugitive dust quantities exceed 20 percent of the ambient level, the Contractor shall perform additional measures to reduce the total dust concentrations.
- G. Nuisance dust levels shall be reduced by pre-wetting the surface soils and by establishing and maintaining clean access roads. The Contractor's Dust, Vapor, and Odor Control Plan shall describe the procedures and materials to minimize dust. At a minimum, the Contractor shall provide clean water, free from salt, oil, and other deleterious materials.

Areas of exposed earth to be excavated shall be lightly sprayed with water before excavation if there is potential for nuisance dust generation. Additional water spray may be utilized only when any indication of excessive dust is observed. To the extent feasible, the Contractor shall minimize the use of water within the limits of excavation.

Access roads shall be sprayed with water on a regular basis to minimize the generation of dust.

- H. All containers temporarily storing waste material shall be covered at all times except as necessary to place waste material into the container. The Contractor shall monitor the covers daily to ensure the covers are in place and effectively eliminating the generation of dust and make appropriate notes in the site log.
- I. In the event that asbestos containing materials are encountered, dust control measures, which may include negative air containment, shall be instituted in accordance with all applicable local, state and federal laws and regulations.

3.7 VAPOR AND ODOR CONTROL

- A. The Contractor shall provide the materials and labor to control objectionable vapors and odor in accordance with the Contractor's Vapor and Odor Control Plan. The Contractor shall limit the exposure area and shall cover the exposure area with synthetic reusable covers, lime, foam suppressants, or other methods to reduce off-site odors to acceptable levels. The Contractor shall not use soil suitable for on-site reuse as cover to control vapor and odors.

3.8 BULKING

- A. Following characterization and compatibility testing of waste material, the Contractor shall place compatible materials into common containers to reduce transport and disposal costs. In addition, materials that are improperly contained shall be transferred into the appropriate containers. Drums and containers used during this project shall meet the appropriate DOT, OSHA, and U.S. EPA regulations for the materials contained. The Contractor shall describe the bulking procedures in the Soil and Fill Management Plan.

3.9 BACKFILLING AND COMPACTION

- A. Excavated areas shall be backfilled with appropriate backfill material (including excavated material suitable for reuse and, when necessary, imported off-site material). Imported backfill used in excavated areas shall have been analyzed and certified as free of contaminants and as specified in Section 02210 – EARTH EXCAVATION, BACKFILL, FILL, AND GRADING.

END OF SECTION 02080

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SECTION 02095

TRANSPORTATION AND DISPOSAL OF SOIL AND FILL

PART 1 – GENERAL

1.1 DESCRIPTION

- A. Furnish all labor, materials, equipment, and incidentals required to transport waste material off site, and dispose, reuse or recycle excess soil (defined herein as including sediments and fill) or waste materials at a licensed facility approved by the Owner.
- B. All personnel involved in the transportation of waste from the site shall have the required Department of Transportation (DOT) and Occupational Safety and Health Administration (OSHA) training.

1.2 RELATED WORK

- A. Section 01108 – HEALTH AND SAFETY PROCEDURES
- B. Section 01500 – TEMPORARY FACILITIES AND CONTROLS
- C. Section 02010 – SUBSURFACE INVESTIGATION
- D. Section 02080 – SOIL AND WASTE MANAGEMENT
- E. Section 02210 – EARTH EXCAVATION, BACKFILL, FILL AND GRADING

1.3 SUBMITTALS

- A. Submit the following in accordance with Section 01300 – SUBMITTALS:
 - 1. A list of all transporters, destination/receiving sites and waste facilities, complete with license numbers and permit numbers (as appropriate), contact person, and address and telephone number that the Contractor utilizes for soil management and waste disposal. In addition, a copy of a memorandum of understanding between the contractor and each facility that will receive excess soil and/or waste material shall be attached to the Waste Management Plan. The memorandum of understanding shall detail the terms under which the facility agrees to accept a specified quantity of soil or waste and detail what if any restrictions may apply.
 - 2. Where appropriate the Contractor shall submit waste manifests for all waste disposed off site to the appropriate authority, agency, facility,

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or person within the time constraints specified by state and federal regulations. Copies of all waste manifests and Bill of Lading documentation including weigh slips and Bill of Lading summary sheets shall be provided to the Owner within 10 days. It is the responsibility of the Contractor to complete all waste manifests and bills of lading completely and accurately prior to submitting them to the Owner. For Massachusetts Department of Environmental Protection (MassDEP) Bills of Lading the Contractor shall provide the Owner's Licensed Site Professional (LSP) all information required for preparation of electronic Bills of Lading. The Contractor shall be responsible for preparation of Material Shipping Records. The Contractor shall be responsible for submitting to the Owner's LSP all information necessary for preparation of LSP opinion letters to disposal facilities and coordinating disposal documentation with all parties. The Owner's LSP and the Owner shall sign any MassDEP Bill of Lading forms where required only after the Contractor has provided the information required for preparation of electronic MassDEP forms. The Contractor shall reimburse the Owner for any and all fines associated with inaccurate, incorrect, or improperly completed waste manifests, including fines resulting from late or untimely submittals.

3. Disclose a summary of the history of compliance for each disposal/recycling facility proposed to be used by the Contractor. The compliance history shall include a comprehensive list of any state or federal citations, notices of non-compliance, consent decrees or violations relative to the management of waste (including remediation waste) at the facility. The Owner reserves the right to reject any facility on the basis of poor compliance history.
4. Prior to transporting any soils or fill material to a disposal facility the Contractor shall submit a letter from the disposal facility indicating that the facility has reviewed the available data and the generator's profile of the material and the facility agrees that it meets the facility's acceptance criteria.
5. Following off-site disposal of soil or fill materials at a disposal facility the Contractor shall submit Material Shipping Record or Bill of Lading load log sheets signed by the facility.
6. Following disposal of all the soil represented by a Material Shipping Record or Bill of Lading, the Contractor shall submit that Material Shipping Record "Acknowledgment of Receipt by Receiving Facility" or Contractor shall arrange for receiving facility to sign that Bill of Lading "Attestation of Disposal", as applicable, within 60 days of shipment.

PART 2 – PRODUCTS

2.1 GENERAL

- A. Provide completed Bills of Lading, Material Shipping Records, manifests, certificates of disposal, weight slips and all other documentation relative to disposal, reuse or recycling of soil and waste material.

PART 3 – EXECUTION

3.1 GENERAL

- A. The Contractor shall reuse, recycle or dispose of all excess soil resulting from excavation activities in accordance with federal, state and local regulations and these specifications. Transport shall be by a permitted and licensed waste transporter. The Contractor shall be responsible for supplying the proper manifests to be approved and signed by a representative of the Owner.
- B. Prior to disposal, it shall be the responsibility of the Contractor to maintain segregated waste stockpiles in conformance with all applicable federal, state, and local waste disposal regulations and as specified in Section 02080 - SOIL AND WASTE MANAGEMENT.
- C. The Contractor shall be responsible for preparing and keeping in proper order all waste manifests, Bills of Lading, Material Shipping Records, and shall designate one person who shall be made available to sign all transportation documentation. The Contractor shall be responsible for obtaining the generator's signature and all other signatures required for the proper completion of the manifests. The Contractor shall allow a minimum of five working days from the date of the submittal for any documents requiring the signature of the Owner and/or the LSP. The manifests shall document the handling of the waste from the time it is generated until the time it is properly disposed.
- D. The Contractor shall be responsible for obtaining all federal, state, and local permits and variances to allow transport of materials on public roadways.
- E. The Contractor shall be responsible to inform the Owner if hazardous waste disposal will not be performed within 60 days of hazardous waste characterization. This notification shall take place a minimum of 30 days prior to the 60-day deadline. No hazardous waste stockpiled at the site shall remain on site more than 60 days after it is characterized.
- F. The Contractor shall obtain certificates of disposal for all disposed waste.

- G. Transportation of solid wastes shall be in compliance with any relevant federal, state and local special waste requirements, and such as to assure that waste material is not released during transit.

3.2 SOLID WASTES

- A. Transporters of solid wastes that include, but are not limited to, contaminated soil/fill (including oil-contaminated soil/fill), construction and demolition debris, non-hazardous laboratory wastes, bottles, tires, metal parts, asbestos cement, tree stumps, brush, and grass cuttings will utilize truck or dumpsters specifically designed to ensure that material, dust, or liquid is not released in transit. No truck shall be allowed to exit the site until all free liquids are drained from soil/fill being transported off-site. Material shall be covered at all times. The vehicle in which the waste is transported shall be driven directly to the intended destination without any stops or detours in between, except those necessary in response to road conditions, vehicle service needs, or emergencies. Discharge or release of material during transport shall be immediately reported to the Owner. Transporters shall clean up any discharge that occurs in transit, at the Contractor's expense.
- B. The disposal site shall be permitted by the state in which the facility is located to receive and dispose of solid waste, and shall be approved for use by the Owner. The Contractor shall provide copies of the disposal facility's operating permit.
- C. Manifesting of solid waste shall be required and shall include vehicle identification; date of loading and disposal; tonnage, as measured at the disposal site; and signature of the Owner and/or its representative, transporter, and disposal facility's representative. Transportation of the wastes shall be accompanied by the appropriate manifests such as a Bill of Lading, as required in the Code of Massachusetts Regulations (CMR) 310 CMR 40.0030, a Waste Material Shipping Record or by a Uniform Hazardous Waste Manifest. The original shall be returned to the Owner, and/or their representative, within ten (10) working days of disposal.
- D. All solid waste shall be disposed in accordance with all applicable federal, state and local laws and regulations, as well as all other state laws through which the waste material is being transported.
- E. Transport of soils in which asbestos containing materials have come to be located shall be transported and disposed of in accordance with Section 02080 – SOIL AND WASTE MANAGEMENT and all applicable local, state and federal laws and regulations.

3.3 HAZARDOUS WASTES

- A. Transporters of hazardous wastes shall be in conformance with Code of Federal Regulations (CFR) 40 CFR, Part 171, all other federal laws and

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regulations, 310 CMR 30.400, and all other state laws through whose boundaries the waste material is being transported. The transporter shall provide copies of its U.S. Environmental Protection Agency (EPA) identification number, Massachusetts transporter's license, and proof of driver training in transporting hazardous waste.

- B. The disposal site shall be in conformance with 40 CFR, Part 264 and relevant laws of the state in which the facility is located. The Contractor shall provide copies of the disposal facility's EPA and state treatment and disposal permit.
- C. Manifesting of hazardous wastes shall be in conformance with 40 CFR, Part 264, Subpart E and 310 CMR 30.405.

3.4 DUST CONTROL

- A. Dust control measures shall be implemented during loading and transport of waste material from the site in accordance with the contractor's Dust Control Plan, as specified in Section 02080 – SOIL AND WASTE MANAGEMENT.

END OF SECTION 02095

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SECTION 02100
SITE PREPARATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this section.

1.2 SUMMARY

- A. This section includes the following:
 - 1. Provide labor, material, tools and equipment to prepare site as indicated and specified.
 - 2. Protection of existing trees and vegetation outside the limit of work and specifically designated trees and vegetation within the limit of work.

- B. Related sections include the following:

- 1. Section 02210: Earth Excavation, Backfill, Fill and Grading.

PART 2 - PRODUCTS

2.1 WOOD CHIPS

- A. Chips from cleared wood, not including elm wood or bark.
- B. Provide additional wood chips as directed by Engineer.

PART 3 - EXECUTION

3.1 EXISTING TREES AND VEGETATION

- A. Protect existing trees from damage.
- B. Accept responsibility for damages outside these lines.

3.2 EXISTING STRUCTURES AND PROPERTY

- A. Remove and reset at completion of project existing signs, posts, catchbasin frames and grates, manhole frames and covers, and granite curbing within construction path unless directed otherwise.
- B. Store at a site designated by Owner, items in reusable condition as determined by Engineer.
- C. For work in loamed areas, strip loam to one side to avoid mixing with excavation materials. Do not take loam from site.

3.3 STOCKPILES

- A. Stockpiles shall be neatly trimmed and graded to provide drainage from surfaces and to prevent depressions where water may become impounded. All construction operations shall be performed to prevent mixing of objectionable materials with the topsoil, and stockpiles shall be protected and shall not be disturbed except for subsequent operations for replacing topsoil. The location of stockpiles shall be approved by the Owner and the Engineer.

3.4 EXCESS TOPSOIL

- A. Topsoil which has been stripped and stockpiled, but is not needed after the completion of all final topsoiling and grassing shall be stockpiled on site in a location to be approved by the Engineer and shall remain the property of the Owner.

3.5 CONTRACT CLOSEOUT

- A. Provide in accordance with Section 01700.

END OF SECTION 02100

SECTION 02140

DEWATERING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this section.

1.2 SUMMARY

- A. This section includes the following:
 - 1. Design, furnish, operate, maintain, and remove temporary dewatering systems to control groundwater and surface water to maintain stable, undisturbed subgrades, and permit work to be performed under dry and stable conditions. Work to be done as part of dewatering includes, but is not limited to:
 - a. Prevent surface water from entering the excavation during construction.
 - b. Implement erosion control measures for disposing of discharge water.
 - 2. If flushing is used during pipeline cleaning operations, properly manage and dispose of discharge water.
 - 3. Common dewatering methods include, but are not limited to, sump pumping, deep wells, well points, vacuum well points or any combinations thereof.
 - 4. Water removed from excavations shall be reinfiltreated to the ground to the maximum extent feasible. If reinfiltreatment is not feasible, treated water shall be directly or indirectly discharged to a surface water in accordance with a National Pollutant Discharge Elimination System (NPDES) permit issued by the U.S. Environmental Protection Agency (EPA). If neither reinfiltreatment nor surface water discharge is feasible, treated water shall be discharged to the Massachusetts Water Resources Authority (MWRA) through the local sewer system in accordance with the appropriate permit and regulations. In no case shall dewatering flows be directly or indirectly released to surface waters or storm drains prior to settling and appropriate additional treatment. The Contractor is responsible for obtaining necessary permits.

B. Related sections include the following:

1. Section 01568 - Erosion and Sedimentation Control
2. Section 02160 - Temporary Excavation Support Systems
3. Section 02210 - Earth Excavation, Backfill, Fill, and Grading
4. Section 02711 - Cleaning and Cement Mortar Lining

1.3 QUALITY ASSURANCE

- A. Provide in accordance with Section 01400 and as specified.
- B. If subgrade soils are disturbed or become unstable due to dewatering operation or an inadequate dewatering system, notify the Engineer, stabilize the subgrade, and modify system to perform as specified at no additional cost to the Owner.
- C. If oil and/or other hazardous materials are encountered after dewatering begins, immediately notify the Engineer.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Provide piping, fittings, pumps, power and other items required for dewatering system.
- B. Provide and store auxiliary dewatering equipment, consisting of pumps and hoses on the site in the event of breakdown, at least one (1) pump for every five (5) used.
- C. Provide and maintain erosion/sedimentation control devices as indicated or specified and in accordance with the dewatering plan.
- D. Provide temporary pipes, hoses, flumes, or channels for the transport of discharge water to the discharge location.
- E. Provide haybales or sedimentation bags.

PART 3 - EXECUTION

3.1 EXECUTION

- A. Furnish, install and maintain dewatering system.
- B. Carry out dewatering program in such a manner as to prevent undermining or disturbing foundations of existing structures or of work ongoing or previously completed.
- C. Unless otherwise specified, continue dewatering uninterrupted until all structures, pipes, and appurtenances below groundwater level have been completed such that they will not be floated or otherwise damaged by an increase in groundwater elevation.
- D. Discontinue open pumping from sumps and ditches, if such pumping is resulting in boils, loss of fines, softening of the ground, or instability of the slopes. Modify dewatering plan and submit to the Engineer at no additional cost to the Owner.
- E. Where subgrade materials are disturbed or become unstable due to dewatering operations, remove and replace the materials in accordance with Section 02210 at no additional cost to the Owner.
- F. Dewatering Discharge:
 - 1. Transport pumped or drained water to discharge location without interference to other work, damage to pavement, other surfaces, or property.
 - 2. Immediately notify the Engineer if suspected contaminated groundwater is encountered. Do not pump water found to be contaminated with oil or other hazardous material to the discharge locations.
- G. Install and maintain erosion/sedimentation control devices at the point of discharge as indicated or specified.
 - 1. All pumped water shall be discharged into sedimentation basins consisting of haybales to allow settlement of fines prior to release. Sedimentation bags attached to the discharge line may be used in lieu of haybales.
- H. Removal:
 - 1. Do not remove dewatering system without approval from the Engineer.

2. Backfill and compact sumps or ditches with screened gravel or crushed stone wrapped with geotextile fabric in accordance with Section 02210.
3. All dewatering wells shall be abandoned upon completion of the work, and completely backfilled with cement grout.

3.2 CONTRACT CLOSEOUT

- A. Provide in accordance with section 01700.

END OF SECTION 02140

SECTION 02160

TEMPORARY EXCAVATION SUPPORT SYSTEMS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this section.

1.2 SUMMARY

- A. This section includes the following:
 - 1. Design, furnish and install temporary excavation support systems as required to maintain lateral support, prevent loss of ground, limit soil movements to acceptable limits and protect from damage existing and proposed improvements including, but not limited to, pipelines, utilities, structures, roadways, and other facilities.
 - 2. Common types of excavation support system include, but are not limited to singular or multiple stages comprised of cantilevered or internally braced soldier piles and lagging, steel sheetpile wall, timber sheetpile wall, trench box, or combinations thereof. Trench box temporary excavation support system is only acceptable for pipe or utility trench excavations. Temporary unsupported open cut excavation with stable sloping sides is allowed where applicable.
 - 3. Wherever the word "sheeting" is used in this section or on the contract drawings, it shall be in reference to any type of excavation support system specified except trench box.
 - 4. Construction of the temporary excavation support systems shall not disturb the existing structures or the completed proposed structures. Damage to such structures shall be repaired by the Contractor at no additional cost to the Owner.
 - 5. The Contractor shall bear the entire cost and responsibility of correcting any failure, damages, subsidence, upheaval or cave-ins as a result of improper installation, maintenance or design of the temporary excavation support systems. The Contractor shall pay for all claims, costs and damages that arise as a result of the work performed at no additional cost to the Owner.

TEMPORARY EXCAVATION SUPPORT SYSTEMS

B. Related sections include the following:

1. Section 02210: Earth Excavation, Backfill, Fill, and Grading
2. Section 02140: Dewatering

1.3 SUBMITTALS

A. Shop Drawing: Submit the following in accordance with Section 01300 - SUBMITTAL PROCEDURES:

1. Submit the following qualifications four (4) weeks prior to the construction:
 - a. Description of proposed temporary excavation support system(s), details, location, depths, and methods and sequence of installation and removal.

1.4 QUALITY ASSURANCE

- A. Provide in accordance with Section 01400 and as specified.
- B. Conform to the requirements of the OSHA Standards and Interpretations: "Part 1926 Subpart P - Excavation, Trenching, and Shoring", and all other applicable laws, regulations, rules, and codes.

1.5 DESIGN CRITERIA

- A. Design of temporary excavation support systems shall meet the following minimum requirements:
1. Support systems shall be designed for earth pressures, hydrostatic pressure, equipment, temporary stockpiles, construction loads, and other surcharge loads.
 2. Design temporary excavation support systems to withstand an additional 2 feet of excavation below proposed bottom of excavation without redesign except for the addition of lagging and/or bracing.
 3. Maximum width of pipe trench excavation shall be as indicated on the drawings.

TEMPORARY EXCAVATION SUPPORT SYSTEMS

1.6 DELIVERY, STORAGE AND HANDLING

- A. Provide in accordance with Sections 01610 and as specified.
- B. Store sheeting and bracing materials to prevent sagging which would produce permanent deformation. Keep concentrated loads which occur during stacking or lifting below the level which would produce permanent deformation of the material.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Provide specific trench box sizes for each pipe and utility excavation with structural capacity of retaining soil types as described in OSHA's 29 CFR Part 1926 Subpart P.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Bottom of the trench box excavation support system shall be above the pipe invert prior to installing the pipe.
- B. Notify utility owners if existing utilities interfere with the temporary excavation support system. Modify the existing utility with the utility owner's permission or have the utility owner make the modifications at no additional cost to Owner.

3.2 CONTRACT CLOSEOUT

- A. Provide in accordance with Section 01700.

END OF SECTION 02160

TEMPORARY EXCAVATION SUPPORT SYSTEMS

SECTION 02210

EARTH EXCAVATION, BACKFILL, FILL AND GRADING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this section.

1.2 SUMMARY

- A. This section includes the following:
 - 1. Perform the following earth excavation, backfill, fill and grading as indicated or specified:
 - 2. Make excavations to accommodate piping and other structures.
 - 3. Provide materials for backfilling excavations and constructing embankments and fills as indicated and specified.
 - 4. Grade surfaces to meet finished grades indicated.
 - 5. Immediately notify the Engineer if suspected hazardous materials are encountered and cease operations in that part of work.
 - 6. Remove boulders and rock within the excavation limits.
- B. Related sections include the following:
 - 1. Section 01568 - Erosion and Sedimentation Controls
 - 2. Section 02010 - Subsurface Investigation
 - 3. Section 02100 – Site Preparation
 - 4. Section 02140 - Dewatering
 - 5. Section 02160 - Temporary Excavation Support Systems

EARTH EXCAVATION, BACKFILL, FILL AND GRADING

1.3 DEFINITIONS

- A. Percentage of compaction is defined as the ratio of the field dry density, as determined by ASTM D1556 or ASTM D2922 to the maximum dry density determined by ASTM D1557 Procedure C, multiplied by 100.
- B. Proof Roll: Compaction with a minimum of 4 passes of a vibratory steel drum or rubber tire roller. Vibratory plate compactors shall be used in small areas where vibratory steel drum or rubber tire roller can not be used.
- C. Acceptable Material: Material which does not contain organic silt or organic clay, peat, vegetation, wood or roots, stones or rock fragments over 8-inch in diameter, porous biodegradable matter, loose or soft fill, excavated pavement, construction debris, or refuse. Stones or rock fragments shall not exceed 40 percent by weight of the backfill material.
- D. Unacceptable Materials: Materials that do not comply with the requirements for the acceptable material or which cannot be compacted to the specified or indicated density.

1.4 SUBMITTALS

- A. Shop Drawings: Submit the following in accordance with Section 01300 - SUBMITTAL PROCEDURES:

- 1. Backfill Materials: Submit a grain size analysis and curve performed in accordance with ASTM D422 and compaction test results (ASTM D1557 Procedure C) for each proposed source of backfill for review by the Engineer at least ten calendar days prior to use of the material. The grain size analysis shall indicate that the backfill material conforms to the gradation requirements specified.

Other Acceptable Materials: Laboratory testing results of gradation and moisture-density relationship. Submittal shall include specific location of the source and the date when sample was taken.

1.5 QUALITY ASSURANCE AND CONTROL

- A. Provide in accordance with Section 01400 and as specified.
- B. Dewatering and Groundwater Control: Provide and maintain as specified in Section 02140.
- C. Excavations shall be performed in the dry, and kept free from standing water, snow and ice during construction. Bedding and backfill material shall not be placed in water. Water shall not be allowed to rise upon or flow over the bedding and backfill material.

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- D. Temporary Excavation Support Systems: Provide and maintain as specified in Section 02160.
- E. The Contractor shall be solely responsible for making all excavations in a safe manner. All excavation, trenching, and related sheeting, bracing, etc. shall comply with the requirements of OSHA excavation safety standards (29 CFR Part 1926 Subpart P) and State requirements. Where conflict between OSHA and State regulations exists, the more stringent requirements shall apply.
- F. Do not excavate, construct embankments, or fill until all the required submittals have been reviewed by the Engineer.
- G. Formulate excavation, backfilling, and filling schedule and procedures to eliminate possibility of undermining or disturbing foundations of partially and completed structures, pipelines and embankments or existing structures and pipelines.
- H. Field Testing and Inspections:
 - 1. By Contractor's independent testing laboratory, acceptable to the Engineer, at Contractor's expense as specified.
 - 2. Location of tests mutually acceptable to testing laboratory and the Engineer, or as directed by the Engineer.
 - 3. In the event compacted material does not meet specified in-place density, recompact material and retest this area until specified results are obtained at no additional cost to the Owner.
 - 4. Testing laboratory to perform inspection at least once to confirm lift thickness and compaction effort for entire fill area.
- I. Methods of Field Testing:
 - 1. In-Place Density: ASTM D1556, ASTM D2167, or ASTM D2922.
 - 2. In-Place Moisture Content: ASTM D3017, ASTM D4944, or ASTM D4959.
- J. Cut pavement with a saw or pneumatic tools to prevent damage to remaining pavement. Where pavement is removed in large pieces, dispose of pieces before proceeding with excavation. Pavement grinding, in lieu of cutting, will not be allowed.

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- K. Pipes, drains, and other utilities may exist in certain locations not indicated on drawings. No attempt has been made to show all services. Completeness or accuracy of information given is not guaranteed.
- L. Appropriate locations for test pits will be determined in the field by the Contractor. Additional test pits considered as incidental to the normal excavation as required to locate underground utilities, obstructions or water table, shall be performed by the Contractor.
- M. Carefully support and protect from damage, existing pipes, poles, wires, fences, curbing, property line markers, and other structures, which the Engineer determines must be preserved in place without being temporarily or permanently relocated. Should such items be damaged, restore without compensation therefor, to at least as good condition as that in which they were found immediately before the work was begun.
- N. Whenever certain existing structures, as described below, are encountered, and the Engineer so directs, change the location, remove and later restore, or replace such structures, or assist the Owner in doing so. Such work to be paid for under applicable items of work, otherwise as Extra Work.
- O. In removing existing pipes or other structures, include for payment only those new materials which are necessary to replace those unavoidably damaged as determined by the Engineer.
- P. The preceding two paragraphs apply to pipes, wires, and other structures which meet the following: (a) are not indicated on the drawings or otherwise provided for, (b) encroach upon or are encountered near and substantially parallel to the edge of the excavation, and (c) in the opinion of the Engineer, will impede progress to such an extent that satisfactory construction cannot proceed until they have been changed in location, removed (to be later restored), or replaced.
- Q. Restore existing property or structures as promptly as practicable.
- R. If material unacceptable for foundation support, in the opinion of the Engineer, is found at or below the grade to which excavation would normally be carried in accordance with the drawings and/or specifications, remove such material to the required width and depth as directed by the Engineer and replace it with screened gravel, select borrow, or concrete.
- S. Haul away and dispose of surplus excavated materials at locations at no additional cost to the Owner.

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- T. During progress of work, conduct earth moving operations and maintain work site so as to minimize the creation and dispersion of dust. Furnish and spread calcium chloride if the Engineer decides that it is necessary for more effective dust control.
- U. Provide suitable and safe bridges and other crossings where required for accommodation of travel, and to provide access to private property during construction, and remove said structures thereafter.

1.6 COMPACTION

- A. If required by the Engineer, compaction tests shall be conducted at 300-foot intervals. Two tests per location shall be performed, one at a depth of 2-feet and one at a depth of 6-inches.
- B. The degree of compaction is expressed as a percentage of the maximum dry density at optimum moisture content as determined by ASTM Test D1557, Method C. The compaction requirements are as follows:

<u>Area</u>	<u>ASTM Density Degree of Compaction</u>
Pavement base course	95%
Pavement subbase	95%
General fill below pavement subbase	95%
Trench backfill under pavement	95%
Trench backfill unpaved areas	92%
General fill for lawns	92%

- C. Fill that is too wet for proper compaction shall be disced, harrowed, or otherwise dried to a proper moisture content to allow compaction to the required density. If fill cannot be dried within 24 hours of placement, it shall be removed and replaced with drier fill.
- D. Fill that is too dry for proper compaction shall receive water uniformly applied over the surface of the loose layer. Sufficient water shall be added to allow compaction to the required density.
- E. In no case shall fill be placed over material that is frozen. No fill material shall be placed, spread or rolled during unfavorable weather conditions. When work is interrupted by heavy rains, fill operations shall not be resumed until the moisture content and the density of the previously placed fill are as specified.

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- F. In freezing weather, a layer of fill shall not be left in an uncompacted state at the close of the day's operations. Prior to terminating work for the day, the final layer of compacted fill shall be rolled with a smooth wheeled roller to eliminate ridges of soil left by compaction equipment.

PART 2 - PRODUCTS

2.1 BACKFILL MATERIALS

- A. Use only acceptable materials from excavations or borrows, as determined by the Engineer.
- B. Common Fill:
1. Common fill shall be soil containing no stone greater than 2/3 loose lift thickness. The materials shall be free of trash, ice, snow, tree stumps, roots and other organic and deleterious materials. Common fill shall not contain more than 30 percent of weight of silt and clay. It shall have a maximum dry density of not less than 110 pounds per cubic foot and it shall be of such a nature and character that it can be compacted to the specified densities in a reasonable length of time. Topsoil, silt and clay shall not be considered common fill.
- C. Structural Fill:
1. Structural fill shall consist of gravel and sand consisting of hard durable particles, and free from trash, ice and snow, tree stumps, roots and other organic and deleterious or organic matter. Structural fill shall be used for trench backfill beneath pipes, building foundations and for replacement of soft organic soils below pipe and culvert inverts and below structures. Structural fill shall conform to the following gradation requirements.

Sieve Size	Percent Finer by Weight
6-inch	100
No. 4	30-90
No. 40	10-50
No. 200	0-8

D. Gravel Subbase:

1. Gravel subbase shall consist of inert material that is hard, durable stone and coarse sand, free from loam and clay, surface coatings and deleterious materials. The gravel subbase shall be used in the upper one (1) foot of trench backfill material immediately below pavements and graded in accordance with Massachusetts Highway Department (MHD) specification section M1.03.1 as indicated below:

Sieve Size	Percent Passing by Weight
3-inch	100
1-1/2-inch	70-100
1/4-inch	50-85
No. 4	30-60
No. 200	0-10

F. Crushed Stone:

1. Crushed stone shall consist of durable crushed rock or durable crushed gravel stone, free from ice and snow, sand, clay, loam, or other deleterious or organic material. Crushed stone shall be used as pipe bedding between 12 inches below pipe invert to 6 inches above pipe crown for all concrete pipes, and initial backfill under culverts, support of sewer and drainage structures, as a working mat or as a filter around perforated drain pipe. Crushed stone shall be wrapped in filter fabric, placed in maximum 6-inch thick layers, loose measure, and compacted with a minimum of four (4) passes of a vibratory plate or roller compactor. The crushed stone shall be uniformly blended and shall conform to the following requirements.

Sieve Size	Percent Passing by Weight
1-inch	100
3/4-inch	90-100
5/8-inch	---
1/2-inch	10-50
3/8-inch	0-20
No. 4	0-5
No. 8	---

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G. Filter Fabric:

1. Filter Fabric shall consist of a nonwoven fabric made from polypropylene or polyethylene filaments or yarns. The fabric shall be inert to organic chemicals commonly encountered in the soil.

The fabric shall conform to the following recommended property tests:

Property	Unit	Test Method	Minimum Value
Weight	oz/sy	ASTM D-3776	4.5
Grab Strength	lbs	ASTM D-4632	120
Grab Elongation	percent	ASTM D-4632	55
Trapezoid Tear Strength	lbs	ASTM D-4533	50
Mullen Burst Strength	psi	ASTM D-3786	210
Puncture Strength	lbs	ASTM D-4833	70

Edges and ends of filter fabric shall overlap a minimum of two feet.

2.2 EQUIPMENT

- A. The compaction equipment shall be selected by the Contractor, and shall be capable of consistently achieving the specified compaction requirements. The selected compaction equipment shall meet the following minimum requirements:

1. Manually operated vibratory plate compactors weighing no less than 200 pounds with vibration frequency no less than 1600 cycles per minute.
2. Vibratory steel drum or rubber tire roller weighing at least 12,000 pounds.
3. Water jetting and puddling will not be allowed.

PART 3 - EXECUTION

3.1 SITE MAINTENANCE

- A. Roadway and Site Leveling: Grade roadway and site as to maintain them in a level unrutted condition and to eliminate puddling of surface and subsurface water.

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3.2 EXCAVATION

- A. Execution of any earth excavation shall not commence until the related dewatering, excavation support systems, and required backfill and fill materials submittals are reviewed by the Engineer and all Engineer's comments satisfactorily addressed.
- B. Carry out program of excavation, dewatering, and excavation support systems to eliminate possibility of undermining or disturbing foundations of existing structures or of work previously completed under this contract.
- C. Excavate to widths that give suitable room for building structures or laying and jointing piping.
- D. Do not plow, scrape or dig by machinery near to finished subgrade in a manner that would result in disturbance of subgrade.
- E. Excavate to lines and grades indicated in an orderly and continuous program.
- F. Establish limits of excavation to allow adequate working space for installing forms and for safety of personnel.
- G. Excavate to elevations indicated, or deeper, as directed by the Engineer, to remove unacceptable subgrade material.
- H. Exercise care to preserve material below and beyond the lines of excavations.
- I. Boulders, rock fragments, and concrete less than one-half (0.5) cubic yard encountered during excavation shall not be included for payment as rock.

3.3 SEPARATION OF EXCAVATED MATERIALS FOR REUSE

- A. Remove only existing pavement that is necessary for prosecution of work.
- B. Carefully remove loam and topsoil from excavated areas. Store separately for further use or furnish equivalent loam and topsoil as directed.
- C. Carefully remove acceptable material from excavated areas and store separately for further use as backfill material.

3.4 TRENCH EXCAVATION

- A. When pipe is to be laid in bedding material or concrete cradle, excavate trench by machinery to, or just below designated subgrade. If material remaining at bottom of trench is disturbed, recompaction shall be required.

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- B. When pipe is to be laid directly on bottom of trench, do not excavate lower part of trenches by machinery to subgrade. Remove remainder of material to be excavated just before placing of pipe by use of hand tools. Form a flat or shaped bottom, true to grade, so pipe will have a uniform and continuous bearing. Support on firm and undisturbed material between joints, except for limited areas where use of pipe slings have disturbed bottom.

3.5 DEPTH OF TRENCH

- A. Excavate trenches to depths so as to permit pipe to be laid at a minimum of four feet six inches (4'-6") depth cover or as required to meet existing utility lines.

3.6 WIDTH OF TRENCH

- A. Make pipe trenches as narrow as practicable and do not widen by scraping or loosening materials from the sides. Make every effort to maintain sides of trenches firm and undisturbed until backfilling has been placed and compacted.
- B. Excavate trenches with approximately vertical sides between springline of pipe and elevation 1 ft. above top of pipe.
- C. Trench widths shall be as detailed on the drawings.

3.7 TRENCH EXCAVATION IN FILL

- A. Place and compact material to top of fill or to a minimum height of 1 ft. above top of pipe, whichever is less, when pipe is to be laid in embankment or other recently filled material. Take particular care to ensure maximum consolidation of material under pipe location. Excavate pipe trench as though in undisturbed material.

3.8 EXCAVATION NEAR EXISTING STRUCTURES

- A. Discontinue digging by machinery when excavation approaches pipes, conduits, or other underground structures. Continue excavation by use of hand tools. Include such manual excavation in work to be done when incidental to normal excavation and under items involving normal excavation.
- B. Excavate test pits when determination of exact location of pipe or other underground structure is necessary for doing work properly.

3.9 REMOVAL OF SUBSURFACE OBSTRUCTIONS

- A. Remove indicated subsurface structures and related obstructions to complete the work.

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- B. Promptly notify the Engineer when any unexpected subsurface facilities are encountered during excavation such as utility lines and appurtenances, walls and foundations.

3.10 UNAUTHORIZED EXCAVATION

- A. When the bottom of any excavation for structures is taken out beyond limits indicated or specified, backfill, with screened gravel and crushed stone wrapped with non-woven geotextile fabric or with 1,500 psi (10 Mpa) concrete.

3.11 REUSE AND DISPOSAL OF SURPLUS EXCAVATED MATERIALS

- A. Reuse surplus acceptable excavated materials for backfill; deposit neatly and grade so as to make or widen fills, flatten side slopes, or fill depressions; or legally dispose off-site; all as directed or permitted and without additional compensation.

3.12 SUBGRADE PREPARATION AND PROTECTION

- A. Remove loam and topsoil, loose vegetable matter, stumps and large roots from areas upon which embankments will be built or material will be placed for grading. Shape subgrade as indicated on drawings, and prepare by forking, furrowing, or plowing so that the first layer of new material placed thereon will be well bonded to it.
- B. As directed by the Engineer, overexcavate unacceptable materials below the foundation subgrade. Backfill the overexcavation with compacted screened gravel or crushed stone wrapped with nonwoven geotextile fabric. In no case shall the screened gravel be placed directly on the exposed subgrade prior to placing the geotextile fabric.
- C. Proof roll the pipe trench foundation subgrade prior to backfilling and filling operation, or placing soil-supported pipeline.
- D. Utilize excavating equipment equipped with a toothless or smooth edged, excavating bucket to expose the pipe trench foundation subgrade to avoid disturbance of the bearing surface. Tamp the exposed subgrade with the excavating bucket prior to backfilling and filling operation, or placing soil-supported pipeline.

3.13 CARE AND RESTORATION OF PROPERTY

- A. Enclose uncut tree trunks adjacent to work in wooden boxes of such height as may be necessary for protection from injury from piled material, equipment, operations, or otherwise due to work. Operate excavating machinery and

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cranes of suitable type with care to prevent injury to trees not to be cut and particularly to overhanging branches and limbs.

- B. Cut all branches, limbs, and roots smoothly and neatly without splitting or crushing. Neatly trim, cut the injured portions and cover with an application of grafting wax or tree healing paint as directed by the Engineer.
- C. Protect cultivated hedges, shrubs, and plants which might be injured by the Contractor's operations by suitable means or dig up and temporarily replant and maintain. After construction operations have been substantially completed, replant in original positions and care for until growth is reestablished. If cultivated hedges, shrubs, and plants are injured to such a degree as to effect their growth or diminish in their beauty or usefulness, replace by items of equal kind and quality existing at the start of the work.
- D. Do not use or operate tractors, bulldozers, or other power-operated equipment on paved surfaces when their treads or wheels of which are so shaped as to cut or otherwise damage such surfaces.
- E. Restore surfaces damaged by the Contractor's operations to a condition at least equal to that in which they were found immediately before work commenced. Use suitable materials and methods for such restoration.
- F. Restore road signs, boundary signs, survey disks and other features disturbed during work.

3.14 BACKFILLING - GENERAL

- A. Do not place frozen materials in backfill or place backfill upon frozen material. Remove previously frozen material or treat before new backfill is placed.
- B. Do not place, spread, roll or compact fill material during unfavorable weather conditions. If interrupted by heavy rain or other unfavorable conditions, do not resume until ascertaining that the moisture content and density of the previously placed soil are as specified.
- C. Do not use puddling, ponding, flooding or water jetting as a means of compaction.
- D. Reuse suitable excavated materials when performing backfill operations, at no additional cost to the Owner.

3.15 MATERIAL PLACEMENT AND COMPACTION REQUIREMENTS

- A. Select Borrow, and Fine Aggregate:

1. Dump and spread in layers not to exceed 12-in. uncompacted thickness.
 2. Compact, fill and backfill under structure and bedding for pipes (from below pipe to spring line) to not less than 95 percent. Compact to not less than 90 percent in other areas unless otherwise indicated.
- B. Screened Gravel and Crushed Stone:
1. Dump and spread in layers not to exceed 12-in. uncompacted thickness.
 2. Compact using self propelled vibratory steel drum or rubber tire rollers with a minimum of 4 passes in directions perpendicular to one another in open areas. In small areas, use manually operated vibratory plate compactors with a minimum of 4 passes.
- C. Bank-run Gravel and Acceptable materials for use as non-structural fill:
1. Dump and spread in layers not to exceed 12-in. uncompacted thickness.
 2. Compact to not less than 92 percent unless otherwise indicated.
- D. Backfilling and filling operation shall be suspended in areas where tests are being made until tests are completed and the testing laboratory has advised the Engineer that adequate densities are obtained.

3.16 STRUCTURAL FILL AND BACKFILL UNDER STRUCTURES

- A. Compact fill and backfill under structures and pavements with screened gravel, crushed stone, select borrow, or fine aggregate as specified and indicated.

3.17 NON-STRUCTURAL BACKFILL AROUND STRUCTURES

- A. Use acceptable materials for non-structural backfill around structures and compacted as specified and indicated.
- B. Conduct hydraulic testing as soon as practicable after structures are constructed and other necessary work has been done. Start backfilling promptly after completion of tests.
- C. Deposit material evenly around structure to avoid unequal soil pressure.

3.18 BACKFILLING PIPE TRENCHES

A. General:

1. Begin backfilling and proceed until completed after: the pipes and conduits have been laid, and concrete or masonry structures within the trench have reached their design strength to support all loads.
2. Backfill and compact indicated material under, around, and above pipes, conduits, and other structures to the indicated or specified compaction density requirement. Utilize compaction devices which will not damage the pipe, conduit, or structure within the trench.
3. Do not drop backfill material into trench from a height of more than 5 ft., or in a manner which will damage the pipe, conduit, or other structure within trench.

B. Pipe Trenches:

1. The trenches shall be backfilled as soon as practicable with the material specified herein. All trench backfilling shall be done with special care, in the following manner and as directed by the Engineer.
2. Backfill material for pipe bedding shall be deposited in the trench, uniformly on both sides of the pipe, for the entire width of the trench to the depth indicated. The backfill material shall be placed by hand shovels, in layers not more than 8-inches thick in loose depth, and each layer shall be thoroughly and evenly compacted by tamping on each side of the pipe to provide uniform support around the pipe, free from voids. Crushed stone bedding material shall be placed in layers not more than 6-inches thick, in loose measure, and compacted with at least 4 passes using a vibratory plate or roller compactor.
3. The balance of trench backfill shall be spread in layers not exceeding 12-inches in loose depth. Each layer shall be thoroughly compacted by mechanical methods and shall contain no rock, stones or boulders larger than 4-inches in their greatest dimension.
4. All trench backfilling shall be done with special care and must be carefully placed so as not to disturb the work at any time; if necessary, a timber grillage or other suitable method shall be used to break the fall of material. The moisture content of the backfill material shall be such that proper compaction will be obtained. Puddling or water jetting of backfill with water will not be permitted. Backfill within areas to receive topsoil or pavement construction shall be made to grades required to establish the proper subgrade for the placement of topsoil or pavement base courses.

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5. In backfilling trenches, each layer of backfill material shall be moistened and compacted to a density as specified herein, and in such a manner as to permit the rolling and compaction of the filled trench or excavation with the adjoining earth to provide the required bearing value, so that paving of the excavated and disturbed areas, where required, can proceed immediately after backfilling is completed.
6. Any trenches or excavations improperly backfilled or where settlement occurs shall be reopened, to the depth required for proper compaction, then refilled and compacted with the surface restored to the required grade and condition, at no additional expense to the Owner.
7. During filling and backfilling operations, pipelines will be checked by the Engineer to determine whether any displacement of the pipe has occurred. If the observation of the pipelines shows poor alignment, displaced pipe or any other defects they shall be remedied in a manner satisfactory to the Engineer at no additional cost to the Owner.
8. Puddling of backfill with water in trenches will not be allowed.
9. In areas where the bottom of the excavation is in fine sand and silt and is below the groundwater table, the trench shall be over excavated one foot and the first lift of backfill shall be 12-inches of compacted structural fill or crushed stone to provide a working mat and drainage layer.
10. After backfilling trenches and excavations, the Contractor shall maintain the surfaces of backfill areas in good condition so as to present a smooth surface at all times level with adjacent surfaces. Any subsequent settling over backfilled areas shall be repaired by the Contractor immediately, in a manner satisfactory to the Engineer, and such maintenance shall be provided by the Contractor for the life of this Contract, at no additional expense to the Owner.

3.19 COMPACTION CONTROL

A. Compaction Control

- I. The Engineer shall determine when and where in-place density tests will be required. Tests shall be made in accordance with ASTM Designation: D-1556 as the work progresses, to determine the degree of compaction being attained by the Contractor. Any corrective work required as a result of such tests, such as additional compaction, or a decrease in the thickness of layers, shall be performed by the Contractor at no additional expense to the Owner.

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If the tests show the compaction does not meet the specified requirements, the Contractor shall be responsible for all related retesting costs.

2. Engineer's duties do not include supervision or direction of the actual work by the Contractor, his employees or agents. Neither the presence of the Engineer nor any observation and testing performed by him shall excuse the Contractor from defects discovered in his work at that time or subsequent to the testing.

3.20 CONCRETE PLACEMENT

- A. Concrete shall be placed in accordance with ACI 301. Earth foundation upon which concrete is to be placed shall be clean, free from frost, ice and standing or running water. Prior to placement, the earth foundation shall be leveled and compacted.
- B. Curing and protection of concrete shall be per ACI 301.

3.21 CONTRACT CLOSEOUT

- A. Provide in accordance with Section 01700.

END OF SECTION 02210

SECTION 02498

RESTORATION OF DISTURBED AREAS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary General Conditions and Division 1 Specification Sections, apply to this section.

1.2 SUMMARY

- A. Provide all plant, labor, equipment, appliances and materials, and in performing all operations in connection with restoration to preconstruction conditions of all areas affected by work under this Contract, complete in accordance with the drawings and specifications.

1.3 GENERAL DESCRIPTION

- A. Remove and reset or replace all fencing, guardrails, trees, shrubs, lawns, posts, curbing, signs, roadways, driveways, sidewalks, and other items which interfere with the progress of the work. Shore or guy any utility pole as required by the utility company.
- B. Contractor shall make arrangements and notify property owners 72 hours prior to work which will affect their properties and indicate what will be done to restore the area after construction is completed.
- C. Contractor shall notify all utility companies and local, state and federal authorities which will be affected by his work 72 hours prior to beginning work.
- D. Wherever streets, lawns, roadways, driveways or sidewalks within or outside the contract limit lines have been excavated in fulfilling the work required under this Contract, the Contractor shall furnish and install all materials to bring finished surfaces level with the existing adjacent surfaces and returned to its original condition.
- E. If, during the progress of the contract work, any water pipe, sewer, conduit, drain, or other utility (public or private) is damaged as a result of operations under this Contract, the Contractor, as determined by the Engineer, shall repair all such damage and restore work to its original condition, at no additional expense to Owner.
- F. Restoration work shall be completed to the satisfaction of the Engineer. Work not deemed satisfactory by the Engineer shall be redone by the Contractor at the Contractor's expense.

1.4 TRENCHES NOT IN PAVED AREAS

- A. Where the trench occurs adjacent to paved streets in shoulders, sidewalks, or in cross-country areas, the Contractor shall thoroughly mechanically compact the backfill and shall maintain the surface as the work progresses. If settlement takes place, the Contractor shall immediately deposit additional fill to restore the level of the ground. In areas adjacent to streets and highways which are not to be loam and seeded, the top 12-inch layer of trench backfill shall consist of compacted dense-blend gravel borrow or sand and gravel as required to match existing conditions. Trench backfill in unpaved roadways shall have the top 12-inch layer of backfill consist of compacted sand and gravel.
- B. If in the opinion of the Engineer, the top 12-inch layer is unsuitable for use as base course, he may order the Contractor to remove this layer and to provide material that meets specifications.

END OF SECTION 02498

SECTION 02525

PAVING, SIDEWALKS AND CURBING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this section.
- B. Reference is made herein to the Commonwealth of Massachusetts, Department of Public Works. All references to method of measurement, basis of payment, and payment items in the standard specifications are hereby deleted. References made to particular sections or paragraphs in the standard specifications shall include all related articles mentioned therein.

1.2 SUMMARY

- A. This section includes the following:
 - 1. Removal and replacement of existing bituminous pavement and subbase.
 - 2. Installation of temporary pavement.
 - 3. Installation of permanent trench pavement.
 - 4. Removal and replacement of sidewalks, driveways and aprons.
 - 5. Removal and resetting of curbing.
 - 6. Raising and adjusting castings and valve boxes.
 - 7. Installation of pavement markings.
- B. Related sections include the following:
 - 1. Section 02210 - Earth Excavation, Backfill, Fill and Grading
- C. The Owner reserves the right to delete all or portions of paving work without penalty. Contractor shall not make claim to lost profit for paving deleted from the work.

1.3 SUBMITTALS

- A. Shop Drawings: Submit the following in accordance with Section 01300 - SUBMITTAL PROCEDURES.
 - 1. Product Data: Submit complete data on materials to be used in construction.
 - 2. Design Data: Submit design mix for bituminous base, binder and top course.

1.4 QUALITY ASSURANCE

- A. Provide in accordance with Section 01400 and as specified.
- B. Laboratory Testing Required:
 - 1. The density of the Bituminous Concrete Pavement will be determined by using either the following tests; Nuclear Density Gauge Method ASTM D2950 or the Bulk Specific Gravity Method AASHTO-T166.
- C. For driveway ramps, pedestrian ramps, and sidewalk restoration Contractor shall measure and confirm ADA compliance and complete a City of Somerville ADA Compliance Form.

1.5 PROJECT SITE CONDITIONS/PROJECT DESCRIPTION

- A. Environmental Requirements:
 - 1. Do not place materials when underlying surface is muddy, frozen, or has frost, snow, or water thereon.
 - 2. Do not place concrete when air temperature at time of placement, or anticipated temperature for following 24 hours, is lower than 40°F or higher than 90°F.
- B. Existing Conditions:
 - 1. Drawings show approximate location of existing structures along pipeline route.

C. In general, the following pavement repairs shall be made:

1. In areas where test pits or exploratory excavations occur, or locations of temporary pavement, a 2-inch temporary pavement is to be placed. If this material is disturbed during additional excavation for utility installation, it shall be replaced.
2. Driveway repairs shall consist of a 2-inch permanent base course pavement placed on a weekly basis. After a 90-day minimum period, or a winter settlement period, a 1-inch, full width permanent wearing course overlay shall be placed.

Concrete sidewalk repair shall consist of a 4-inch thick (walks) or 6-inch thick (driveways) repair. Concrete shall be placed after a 90-day settlement period or winter settlement period.
3. Trench repairs shall consist of a 2-inch temporary pavement to be placed. After a winter settlement or 90-day period, the temporary pavement shall be removed and replaced with a 4-inch permanent binder course pavement and a 2-inch permanent top course pavement.
4. Furnish and remove steel plates as required.
5. Driveway aprons and waterways shall be paved as part of the work.
6. The paving thicknesses specified above may vary based on permit or field requirements.
7. Curbing shall be removed and reset as part of the work.

1.6 SEQUENCING AND SCHEDULING

- A. All roadway excavated areas shall be paved daily with temporary trench pavement as specified above. Paving on a weekly basis in municipal roads will be required unless permission not to do so is received from the applicable permit agency and Owner. Temporary pavement shall be maintained a minimum of 90 days in local streets.
- B. The Contractor shall provide temporary markings on the temporary pavements where existing markings are removed, at no additional cost to the Owner.
- C. Use of steel plates require the Contractor to notify the Owner's Department of Public Works prior to use. If approved, steel plates shall be recessed into the roadway and welded as required.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Asphalt:

1. Ensure that asphalt replacement conforms to Class I Bituminous Concrete, Type I-1, MHD - 460.
2. Asphalt mixtures shall be within the composition limits for courses in accordance with MHD M3.11.03, and Table A.

B. Gravel

1. Sub-grade material shall be as specified in Section 02210.
 - a. Temporary paving material shall be base course gradation.
 - b. Permanent binder course material shall be base course gradation.
 - c. Permanent wearing course material shall be top course gradation.
 - d. Waterway material shall be top course gradation.

C. Pavement Markings

1. Temporary and permanent markings shall conform to MHD: M7.01.23 – Fast Drying White Water-borne Traffic Paint (Reflectorized).

PART 3 - EXECUTION

3.1 PREPARATION

A. Protection:

1. Existing Roadway:
 - a. Saw cut existing pavement to required width and depth to avoid damage to adjacent pavement, curbs, gutters, or other structures and as indicated on the drawings.

B. Surface Preparation:

1. Pavement Subbase:

- a. All pavement repairs shall have a subbase placed under pavement a minimum of 12-inches thick after compaction as directed by the engineer. Subbase shall be evenly spread and thoroughly compacted in accordance with the Contract Documents.
- b. The subbase shall be spread in layers not more than 8 - inches thick except the last layer of gravel shall be 4-inches thick, compacted measure. All layers shall be compacted to not less than 95 percent of the maximum dry density of the material as determined by ASTM D1557 Method C at optimum moisture content.
- c. Complete subbase preparation, including dynamic compaction, for full width before placing surfacing materials.

2. Subgrade:

- a. Prepare subgrade in accordance with Section 02210.
- b. Complete subgrade preparation, including dynamic compaction, for full width before placing surface materials.
- c. Stabilize subgrades in accordance with Section 02210 so that loaded construction vehicles do not cause rutting or displacement when depositing materials.

3. Raising and Adjusting Castings:

- a. Prior to top course paving, all existing municipally owned catch basin and manhole castings and curb and valve boxes shall be raised, if necessary, to the proper grade by the Contractor. The Contractor shall replace all gate valve boxes which are adjusted with boxes meeting the municipality standards unless the Owner agrees that the salvaged box is acceptable for reuse.
- b. Castings owned by private utilities shall be raised by the responsible utility. The Contractor shall be responsible for coordinating this work.
- c. The method of adjusting these castings shall be as follows: Cut

around catch basin or manhole castings a minimum of 12-inches from casting. Excavate and if required rebuild up to 12-inches of masonry below the bottom of the casting. Backfill with suitable material and compact to bottom of casting. Place high, early strength cement or bituminous concrete collar, as directed by the Authority, to approximately 1½ inches below the raised casting grade.

- d. The method of raising valve boxes shall be as follows: Cut around valve box a minimum of 12-inches from valve box. Excavate as required and raise the valve box. Pour high early strength cement or bituminous concrete collar, as directed, to approximately 1½ inches below the top of the valve box.
- e. Castings which need to be raised or adjusted to complete final top course full-width paving shall be done immediately prior to paving.

3.2 INSTALLATION

A. General

- 1. Pavement depths shall be as shown on the drawings or as specified herein.

B. Temporary Bituminous Pavement:

- 1. Where specified and after placement of the subbase, the Contractor shall place temporary pavement above the trench, between the edges of the existing pavement.
- 2. The temporary pavement shall be repaired as necessary to maintain the surface of the pavement until replaced by permanent pavement.

C. Permanent Bituminous Pavement:

- 1. Repair asphalt roads, shoulders, and private driveways or streets, cut by line of trench or otherwise damaged during construction operations.
- 2. Compact and finish pavement replacement to provide a smooth transition between new and existing surfaces.
- 3. Where new pavement abuts existing pavement outside the limits of work, saw cut existing pavement full depth for a smooth, regular edge so that new pavement in-fill or new adjoining areas create a neat, straight seam with no feathering.

4. The bituminous paving mixture, equipment, methods of mixing and placing, and the precautions to be observed as to weather, condition of base, etc., shall be in accordance with MHD 460.
5. All paving thicknesses are measured after rolling. Permanent surface courses shall be evenly spread and rolled with a power roller having a minimum weight of 5 tons.
6. Permanent Wearing Course:
 - a. The Contractor shall place bituminous wearing course, the full width of the trench on a properly prepared base course.
 - b. Prior to application of the permanent surface course, the entire surface shall be cleared of dirt and debris using power sweepers or other acceptable methods.
 - c. All thicknesses are measured after rolling.
7. Pavement Placement:
 - a. Unless otherwise permitted by the Engineer for particular conditions, only machine methods of placing shall be used. Methods other than machine methods may be used, at no additional cost to the Owner. The equipment for spreading and finishing shall be mechanical, self-powered pavers, capable of spreading and finishing the mixture true to line, grade, width and crown. The mixtures shall be placed and compacted only at such times as to permit proper inspection and checking by the Engineer.
 - b. After the paving mixtures have been properly spread, initial and intermediate compaction shall be obtained by the use of steel wheel rollers having a weight of not less than 240 pounds per inch width of tread.
 - c. Final rolling of the pavement shall be performed by a steel wheel roller weighing not less than 285 pounds per inch width of tread at a mix temperature and time sufficient to allow for final smoothing of the surface and thorough compaction.
 - d. Immediately after placement of the new pavement, all joints between the existing and new pavements shall be sealed with bitumen RS-1 and sanded.

- e. Where there is no backing for the edges of the pavement, the Contractor shall provide a gravel transition. The gravel transition shall be installed immediately after the pavement is placed, shall be feathered and extend a minimum of 18 inches, and shall be compacted using the same equipment as for pavement compaction. The gravel shall be uniformly graded material with a maximum size of 3/8 to 1/2 inch. The backing installation will be considered incidental to the pavement installation.
- f. The Contractor shall furnish and install paving to provide transition or aprons for driveways and walkways impacted by new pavement installation.

D. Pavement Markings:

- 1. The Contractor shall replace all Reflectorized pavement markings removed or covered-over in carrying out the work, and as directed by the Engineer, no sooner than 48 hours after completion of overlay pavement. Markings shall conform to the latest standards of the municipality or agency having jurisdiction over the roadway.
- 2. The Contractor shall provide temporary markings on the temporary pavements where existing markings are removed at no additional cost to the Owner.
- 3. Painted crosswalks disturbed during construction shall be cleaned and repainted to match preconstruction conditions. Crosswalks requiring repairing shall be repainted in their entirety.

E. Curb and Gutter Replacement:

- 1. Replace curb and gutter with same material to pre-construction lines and curb sections. Reset granite curb to pre-construction line and grade.
- 2. Removal and replacement of curbing shall be done in accordance with Sections 501 and 580, as applicable of the MHD Specifications for Highways and Bridges.
- 3. Provide expansion joints at each intersection with existing curb sections.

4. Use expansion joints one inch wide.
 - a. Fill with expansion joint material and cut to shape of curb section.

F. Sidewalk and Driveway Replacement:

1. Gravel Sidewalks and Driveways:
 - a. Gravel sidewalks shall be restored to a condition at least equal to that existing immediately before the work was started.
2. Cement concrete sidewalks, and driveways:
 - a. Construct in accordance with MHD Section 701, Sidewalks, Wheelchair Ramps and Driveways.
 - b. Use 6x6, W10xW10 welded wire reinforcement.
 - c. Concrete sidewalks shall be 4-inches thick and concrete driveways shall be 6-inches thick.
 - d. The subgrade for the walk or driveway shall be shaped to a true surface conforming to the proposed slope of the walk, thoroughly rolled at optimum moisture content, and tamped with a power roller weighing not less than one ton and not more than 5 tons. All depressions occurring shall be filled with suitable material and again rolled or tamped until the surface is smooth and hard.
 - e. After the subgrade has been prepared, a subbase of gravel at optimum moisture content shall be placed, thoroughly rolled by a power roller, and tamped. The gravel shall be a minimum of 8 inches in thickness.
 - f. The forms shall be smooth, free from warp, strong enough to resist springing out of shape, and deep enough to conform to the thickness of the proposed walk or driveway. All mortar or dirt shall be completely removed from forms that have been previously used. The forms shall be well staked, thoroughly braced, and set to the established lines with their upper edge conforming to the grade of the finished walk or driveway.
 - g. The finished surface shall have sufficient pitch from the outside edge to provide for surface drainage. This pitch shall be 1/4 of an inch per foot unless otherwise directed by the Engineer.

Before the concrete is placed, the subbase for sidewalks shall be thoroughly dampened until it is moist throughout but without puddles of water.

3. General:

- a. Valve boxes, manhole frames, and all other castings shall be carefully set to the proposed finished grades.

G. Bituminous Curbing

1. Bituminous curbing shall be replaced as directed by the Engineer. Curbing shall be machine laid and conform to grade of roadway and adjacent curb areas.
2. Bituminous berms shall be replaced as directed by the Engineer. Berms shall be machine laid and conform to the grade of the roadways. Berms shall be placed in accordance with MHD Specification 470.20.

3.3 PROTECTION

- A. Protect replacement work with barricades or other devices as approved by Engineer so that no damage occurs as a result of subsequent construction operations.
 1. Repair damages or other irregularities to satisfaction of Engineer, at no additional cost to the Owner, before final acceptance by the Engineer.

3.4 GUARANTEE

- A. During the one year guarantee period, the Contractor shall maintain the surfacing and shall promptly fill with similar material any depressions and holes that may occur so as to keep the surfacing in a safe and satisfactory condition for traffic.

3.5 CONTRACT CLOSEOUT

- A. Provide in accordance with Section 01700.

END OF SECTION 02525

SECTION 02615

DUCTILE-IRON PIPE AND FITTINGS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this section.

1.2 SUMMARY

- A. This section includes the following:
 - 1. Furnishing and installing ductile-iron pipe, fittings and accessories, as indicated and specified.
- B. Joints:
 - 1. For joints in buried exterior pipelines, provide push-on joint.
 - 2. All fittings and valves shall be mechanical joint.
- C. Related sections include the following:
 - 1. Section 01063 - Miscellaneous Requirements
 - 2. Section 02210 - Earth Excavation, Backfill, Fill and Grading
 - 3. Section 02640 - Valves and Appurtenances
 - 4. Section 02645 - Hydrants
 - 5. Section 02675 - Disinfection of Water Mains
 - 6. Section 02704 - Pipeline Pressure and Leakage Testing

1.3 SUBMITTALS

- A. Shop Drawings: Submit the following in accordance with Section 01300 - SUBMITTAL PROCEDURES:
 - 1. Submit shop drawings or descriptive literature, or both, showing dimensions, joint and other details for each type and class of pipe, fitting and restraint system to be furnished for the project. All materials furnished under the Contract shall be manufactured only in accordance with the Specifications.

Submittals shall include material information, dimensions, pipe class information, weights, coating and lining system data.

2. For North American pipe and fittings, submit manufacturer's literature stating that the ductile iron pipe and fittings have been manufactured and tested in accordance with AWWA/ANSI specifications.
3. Submit information on country of manufacturer for various items as specified. Fittings manufactured in countries other than United States or Canada shall require the following certifications:

Epoxy Coating – Affidavit or Certificate of Compliance stating the coating conforms to all applicable requirements of AWWA C116 and that all inspections have been conducted and met per Section 4.4 and 5 of AWWA C116.

Cement Coating/Lining – Affidavit or Certificates of Compliance that the sand and seal coat material tests and inspections as required by AWWA C104 have been conducted and the results are in full compliance with the standards.

Fittings – Fittings shall have Affidavits of Conformance – Sworn Statements that all tests and inspections as required by AWWA CI53 have been conducted and the results are in full compliance with the standards.

Test Data – Certified copies of all test data shall accompany the Affidavits of Compliance or Conformance.

1.4 QUALITY ASSURANCE

- A. Provide in accordance with Section 01400 and as specified.
- B. Owner reserves, at his own expense, the right to inspect and test materials provided by an independent service at manufacturer's plant or elsewhere. Materials which testing shows to be not in compliance shall be removed and replaced at no additional costs to the Owner. All expenses related to the material testing which showed non-compliance shall be reimbursed to the Owner by the Contractor.
- C. All standards referenced in this section shall be the latest current version.

1.5 DELIVERY, STORAGE AND HANDLING

- A. Provide in accordance with Section 01610.

PART 2 - PRODUCTS

2.1 PIPE

A. Ductile Iron:

1. Ductile iron pipe shall be that of a North American (United States or Canadian) manufacturer who can demonstrate at least 5 years of successful experience in manufacturing ductile iron pipe. The pipe shall be equipped with push-on joints.
2. All ductile iron pipe shall conform to ANSI A21.50 (AWWA C150) and ANSI A21.51 (AWWA C151).
3. The ductile iron pipe shall be Class 52 and furnished in nominal 18-foot minimum lengths, with Push-on Joints as manufactured by U.S. Pipe, Griffin Pipe Products, Clow Water Systems, or equal with gaskets conforming to AWWA C111 ANSI A21.11 "Rubber Gasket Joints".
4. The ductile iron pipe shall be double cement lined inside and then asphalt seal coated on the outside and inside approximately 1 mil. thick. The cement lining shall conform to AWWA C104 ANSI A21.4.
5. The pipe shall be furnished along with necessary materials and equipment recommended by the manufacturer for use in joining pipe lengths and fittings.

2.2 FITTINGS

- #### A.
- Fittings shall be manufactured in North America (United States and Canada) and shall be compact ductile iron Class 350 Mechanical Joint, conforming to ANSI Specification A21.53 (AWWA C153), latest edition, for pipe sizes 16-inches and smaller, and Class 350 standard Mechanical Joint fittings conforming to AWWA C110/ANSI A21.10, latest edition except as specified, for pipe sizes 16 through 24-inches, unless specifically stated otherwise in the specifications or on the drawings. Fittings shall be suitable for use with restraints as specified hereinafter. Fittings shall be of the same material and have the same lining and coating as the pipe specified above. All fittings shall be marked with the weight and shall have distinctly cast upon them the pressure rating, the manufacturer's identification, nominal diameter of openings and the number of degrees or fraction of the circle on all bends.
1. Hydrant tees shall have a rotatable mechanical joint gland on the 6-inch plain end branch to provide positive valve restraint, unless otherwise allowed by the Engineer.
 2. Caps and plugs installed in all new work as indicated on the drawings shall be provided with a threaded corporation or bleeder valve so that air and water pressure can be relieved prior to future connection.

3. Solid sleeves shall be ductile iron with 350 psi rating. Sleeves shall conform to ANSI/AWWA C110.

2.3 JOINTS

- A. Provide mechanical joint fittings or push-on joint pipe with necessary accessories, conforming to ANSI A21.11.
 1. Provide gasket composition suitable for exposure to potable water.
 2. Provide mechanical joint gaskets with copper tips to provide electrical continuity.
 3. Provide serrated brass wedges for push-on joints to provide electrical continuity; two per joint for pipe 12-in. and smaller and four per joint for larger pipe.
- B. Provide pipe flanges and accessories conforming to ANSI A21.15.
 1. Provide flat faced flanges.
 2. Provide 1/8 in. thick, full faced gaskets suitable for exposure to liquid within pipe.

2.4 RESTRAINED JOINTS

- A. Restrained joints shall be furnished for installation on all fittings, sleeves, couplings, hydrants, valves and pipe adjacent to these items. Refer to Paragraph 3.2D for restrained lengths. Restraints for mechanical joints shall be Megalug Series 1100 as manufactured by EBAA Iron Co., Uni-flange Series 1400 Mechanical Joint Restraint or equal. Restraints for push-on joints shall be Series 1700 as manufactured by EBAA Iron Co., or Series 1390 as manufactured by Uni-Flange.
- B. Restraint systems for push-on pipe utilizing steel-wedge gaskets having a pressure rating of 350 psi will be acceptable.
- C. Restraints for couplings shall be Series 3800 Mega-Coupling as manufactured by EBAA Iron Co., or Series 1100 CH Split Megalug Coupling Harness as manufactured by EBAA Iron Co. or equal.

2.5 COUPLINGS

- A. Couplings shall be manufactured in accordance with AWWA C219 and as specified hereinafter.
- B. Couplings shall be furnished with SBR gaskets per ASTM D2000 MBA 710, have fusion bonded epoxy coating in accordance with AWWA C213. Ductile iron center and end rings shall comply with ASTM A536. Bolts shall be high strength-low alloy steel,

5/8-inch diameter steel per AWWA C111. Couplings shall be suited for extended range of pipe materials and diameters. Coupling up to 24-inch diameter shall be rated for 260 psi and shall be Series 501 as manufactured by Romac Industries or equal by Dresser or Rockwell. Couplings shall be manufactured in North America.

- C. Reducing couplings shall be as specified in Paragraph B for couplings and shall be Series 501 RC as manufactured by Romac Industries or equal by Dresser or Rockwell. Reducing couplings shall be manufactured in North America.

2.6 CONNECTIONS - TAPPED

- A. Provide watertight joint with adequate strength against pullout. Use only tapered thread taps.
- B. Maximum size of taps in pipe or fittings without bosses not to exceed that listed in appropriate table of Appendix to ANSI A21.51 based on:
 - 1. 2 full threads for ductile iron.
- C. Where size of connection exceeds that given above for pipe, provide boss on pipe barrel or use tapping saddle. Make tap in flat part of intersection of run and branch of tee or cross, or connect by means of tapped tee, branch fitting and tapped plug or reducing flange, or tapping tee and tapping valve, as indicated or permitted.

2.7 STANDARD LINING AND COATING

- A. Inside of pipe and fittings: Provide double thickness cement lining and bituminous seal coat conforming to AWWA C104. Internal coating and linings shall comply with NSF requirements for potable drinking water usage.
- B. Outside of pipe and fittings shall have a factory applied asphaltic coating per AWWA/ANSI C151/A21.51.

2.8 POLYETHYLENE PIPE ENCASEMENT

- A. Material: Virgin polyethylene conforming to ANSI/ASTM D1248.
- B. Thickness: Minimum nominal thickness of 8 mils.
- C. Material and installation methods to conform to requirements of AWWA C105.

2.9 INSULATION

- A. Pipe insulation shall be installed on all exposed pipes and fittings and pipe and fittings having less than 4-foot bury. Insulation shall be factory foamed-in-place closed cell polyurethane foam insulation which completely fills the annular space between the carrier pipe and the exterior casing. The insulation shall have a minimum in-place density of 2.0 pcf per ASTM D-1621, and a "K" factor of 0.147 BTU-inch/hour per sq.ft per °F. in accordance with ASTM C-177 and have 90-95% closed cell per ASTM D-2856.
- B. Minimum nominal thickness of insulation within a HDPE jacket shall be 2.05 inches for pipes up to 16-inch diameter. Minimum nominal thickness of insulation within a PVC jacket shall be 2.29 inches for pipes up to 10-inch diameter.
- C. Exterior casing for buried pipe shall be seamless extruded white PVC type 1, Grade I, Class 12454-B per ASTM D-1784 or seamless High Density Polyethylene ASTM D-1248. HDPE shall have tensile yield strength of 3300 psi per ASTM D-638 and Tangent Flexural Modules of 175,000 psi per ASTM D-790. Tape casings will not be allowed.
- D. Exterior casing for exposed pipe shall be aluminum roll jacketing manufactured from alloys 3105 and 3003 in accordance with ASTM B-209. Aluminum jacket shall have a nominal thickness of 0.032 inches. Pipe having aluminum jacketing shall have a vapor retarder sheet applied to the exterior surfaces. Jacketing shall be rubber modified asphalt with cross laminated polyethylene. It shall have a total film thickness of 50 mils, minimum tensile strength of 400 psi and minimum elongation of 300%. The jacket shall remain pliable with no cracking at temperatures as low as -25 degrees F. Vapor retarder shall be CI Wrap 50 as manufactured by H.B. Fuller Construction Products, Aurora, IL.
- E. Field joints on HDPE jackets shall be covered with a wrap of Polyken Tape and covered with a HDPE rockshield. PVC jackets shall be covered with a PVC sleeve and a wrap of Polyken tape.

PART 3 - EXECUTION

3.1 HANDLING PIPE

- A. The Contractor shall take care not to damage pipe by impact, bending, compression, or abrasion during handling, and installation. Joint ends of pipe especially shall be kept clean.
- B. Pipe shall be stored above ground at a height no greater than 5 feet, and with even support for the pipe barrel.
- C. Only nylon-protected slings shall be used for handling the pipe. No hooks or bare cables will be permitted.

- D. Gaskets shall be shipped in cartons and stored in a clean area, away from grease, oil, heat, direct sunlight and ozone producing electric motors.

3.2 ALIGNMENT AND PLACEMENT OF PIPE

- A. Jointing of ductile iron pipe and fittings shall be done in accordance with the printed recommendations of the manufacturer and as specified. The last 8-inches of the outside of the spigot end of pipe and the inside of the bell end of pipe shall be thoroughly cleaned. The joint surfaces and the gasket shall be painted with a lubricant just prior to making up the joint. The spigot end shall then be gently pushed home into the bell. The position of the gasket shall be checked to insure that the joint has been properly made and is watertight. Care shall be taken not to exceed the manufacturer's recommended maximum deflection allowed for each joint.
- B. Installation and jointing of push-on ductile iron pipe shall be in accordance with AWWA C600 Sections 9b and 9c, latest revision, as applicable.
- C. Mechanical joints shall be installed with Mega-Lug or Uni-Flange restraints. Restraints shall be installed in full accordance with the manufacturers instructions. All bolt heads on Mega-Lugs or Uni-Flanges shall be tightened sufficiently so that they shear off to provide indication that proper tightening torque was achieved.
- D. Fittings and valves shall be restrained for the minimum lengths listed on the following table:

MINIMUM RESTRAINED LENGTHS

<u>FITTING</u>	<u>RESTRAINT LENGTH</u>
6" - 90° Bend	18-feet in each Direction
20" - 45° Bend	21-feet in each Direction
10" - 45° Bend	11-feet in each Direction
8" - 45° Bend	9-feet in each Direction
6" - 45° Bend	7-feet in each Direction
20" Vertical Offset	
Upper 45° Bend	38-feet in each Direction
Lower 45° Bend	16-feet in each Direction
10" Vertical Offset	
Upper 45° Bend	21-feet in each Direction
Lower 45° Bend	9-feet in each Direction
20" x 20" x 16" Tee	20-feet in each Direction
20" x 20" x 8" Tee	5-feet in each Direction
20" x 20" x 6" Tee	3-feet in each Direction
10" x 10" x 8" Tee	10-feet in each Direction
10" x 10" x 6" Tee	6-feet in each Direction
6" x 6" x 6" Tee	10-feet in each Direction or 25-feet along the Branch
20" x 12" Reducer	57-feet Larger Direction only

MINIMUM RESTRAINED LENGTHS

<u>FITTING</u>	<u>RESTRAINT LENGTH</u>
12" x 10" Reducer	28-feet Larger Direction only
10" x 6" Reducer	30-feet Larger Direction only
20" Valve or Dead-end	91-feet in each Direction
12" Valve or Dead-end	58-feet in each Direction
10" Valve or Dead-end	49-feet in each Direction
8" Valve or Dead-end	41-feet in each Direction
6" Valve or Dead end	31-feet in each Direction
4" Valve or Dead-end	22-feet in each Direction
2" Valve or Dead-end	18-feet in each Direction

Lengths shown are based on 150 psi test pressure, 4-1/2-foot bury, soil type GP, trench Type 3, and 2:1 safety factor. Changes in conditions will require revision in lengths.

- E. Restrained push on joints shall be installed with specified joint restraints. Restraints shall be installed in full accordance with the manufacturer's instructions.
- F. Ductile iron pipe installed near cathodically protected gas lines or within areas subject to corrosive soils or waters shall be fully encased with polyethylene material.
- G. Insulated pipe with jacket is to be installed where shown on the drawings and on any pipe having less than 4-foot cover.
- H. Solid sleeves shall be used to join plain ends on ductile iron pipe. Mechanical joints shall be installed with Mega-Lug, Uni-flange, or MJR restraints, as specified hereinbefore.
- I. Install "Buried Pipe" identification tape in all pipe trenches as specified in Section 01063.

3.3 INSTALLATION

A. Piping Support:

- 1. Furnish and install supports to hold piping at lines and grades indicated or specified.
- 2. Support pipe and appurtenances connected to equipment to prevent any strain imposed on equipment.

B. Pipe and Fittings:

- 1. Remove and replace defective pieces.
- 2. Clear of all debris and dirt before installing and keep clean until accepted.

3. Lay accurately to lines and grades indicated or required. Provide accurate alignment, both horizontally and vertically.
4. Provide firm bearing along entire length of buried pipelines.
- C. Temporary Plugs: When pipe laying not in progress, close open ends of pipe with temporary watertight plugs. If water in trench, do not remove plug until danger of water entering pipe passed.
- D. Appurtenances: Set valves, fittings and appurtenances as indicated.
- E. Clearances: When crossing sewers, the water main shall be laid out such that the crown of the sewer is at least 18-inches below the invert of the water main. One full length of water main shall be centered over the sewer.

3.4 JOINTS AND COUPLINGS

A. Push-on Joints:

1. Insert gasket into groove bell. Apply thin film of nontoxic gasket lubricant over inner surface of gasket in contact with spigot end.
2. Insert chamfered end into gasket. Force pipe past it until it seats against socket bottom.
3. Where required, install restraint and secure push-on joint restraint in accordance with manufacturer's instructions.

B. Mechanical Joints:

1. Wire brush surfaces in contact with gasket and clean gasket.
2. Lubricate gasket, bell, and spigot with soapy water.
3. Slip gland and gasket over spigot, and insert spigot into bell until seated.
4. Seat gasket and press gland firmly against gasket.
5. After bolts inserted and nuts made finger-tight, tighten diametrically opposite nuts progressively and uniformly around joint by torque wrench. Torque bolts to values specified above.

C. Sleeve-Type Coupling:

1. Clean pipe ends for distance of 8 in.
2. Use soapy water as gasket lubricant.

3. Slip follower and gasket over each pipe to a distance of 6 in. from end and place middle ring on pipe end until centered over joint.
4. Insert other pipe end into middle ring and bring to proper position in relation to pipe laid.
5. Press gaskets and followers into middle ring flares.
6. After bolts inserted and nuts made fingertight, tighten diametrically opposite nuts by use of torque wrench of size and torque specified below:

3.5 TESTING

- A. Clean of all dirt, dust, oil, grease and other foreign material, before conducting pressure and leakage tests.
- B. Pressure and Leakage Tests. Refer to Section 02704 for requirements.

3.6 DISINFECTING AND FLUSHING

- A. Disinfect potable water lines using procedures and materials conforming to AWWA C651.
- B. Refer to Section 02675 for additional requirements.

3.7 CONTRACT CLOSEOUT

- A. Provide in accordance with Section 01700.

END OF SECTION 02615

SECTION 02625

POLYVINYL CHLORIDE WATER PIPE

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This section includes the following:

1. Furnishing, installing and testing of polyvinyl chloride water main pipe up to and including 12-inch diameter. Water main pipe shall be Blue Brute as manufactured by Ipex Inc., Ontario, Canada, or equal.
2. All fittings and specials, jointing materials and accessories, of various sizes, classes, joints and types, appurtenant work, at the locations as indicated and/or as directed, complete in place in accordance with the drawings and specifications.

- B. Related sections: The following sections contain requirements that relate to this section:

1. Section 02210 - Earth Excavation, Backfill, Fill and Grading
2. Section 02615 - Ductile Iron Pipe and Fittings
3. Section 02640 - Valves and Appurtenances
4. Section 02675 - Disinfection of Water Mains
5. Section 02704 - Pipeline Pressure and Leakage Testing

POLYVINYL CHLORIDE

WATER PIPE

02625 - 1

1.3 SUBMITTALS

- A. Shop Drawings: Submit the following in accordance with Section 01300 - SUBMITTAL PROCEDURES:
1. Submit shop drawings or descriptive literature, or both, showing pipe dimensions, joint material and dimensions and other details for each type and class of pipe to be furnished for the project. All pipe furnished shall be manufactured only in accordance with the specifications and the drawings.
 2. Submit manufacturer's certification of compliance stating that the PVC pipe meets AWWA C900 standards.
 3. All pipe material shall be NSF-certified as being acceptable for use in potable water supply.

1.4 QUALITY ASSURANCE

- A. Provide in accordance with Section 01400.

1.5 DELIVERY, STORAGE AND HANDLING

- A. Provide in accordance with Section 01610.

PART 2 - PRODUCTS

2.1 PVC WATER TRANSMISSION MAIN

- A. PVC water main shall conform to AWWA C900 standard and shall be DR 18 polyvinylchloride (PVC) pipe, pressure rated 150 psi with a factor of safety of 2.5 and having integral thickened wall bells. Pipe shall be made from clean, approved class 12454-B PVC compound conforming to ASTM resin specification D1784. Water pipe shall be color coded Blue.
- B. All pressure rated pipe shall have ductile iron pipe size equivalent outside diameters compatible with standard ductile iron mechanical joint fittings.
- C. All pipe and fittings shall be marked with size, pressure rating, material, grade and initials of the manufacturer. The pipe shall be furnished in standard 20 foot lengths.

- D. The inside surface of each length of pipe shall be free from nicks, scratches and other surface defects and blemishes. The pipe shall be homogenous throughout free of any bubbles, voids or inclusions.
- E. The integral socket bell of the PVC pipe shall meet the same strength requirements as that of the pipe. The bell shall have grooves into which an elastomeric gasket with solid cross section is inserted.
- F. Elastomeric gaskets for PVC pipe and fittings shall meet the requirements of ASTM F477 for high pressure applications. The elastomeric gasket shall provide a tight seal that protects the line from shock and vibration, and compensates for expansion and contraction of pipe lengths. The elastomeric gasket shall not support the growth of bacteria and shall be suitable for use in potable water.
- G. Lubricant used for joint assembly shall be non-toxic, shall not support the growth of bacteria and shall have no deteriorating effect on the gasket material.

2.2 FITTINGS AND RESTRAINTS

- A. Provide in accordance with Section 02615 Ductile Iron Pipe and Fittings.
- B. Mechanical joint restraint, for fittings and valves used with PVC pipe, shall be incorporated into the design of the follower gland. The restraint mechanism shall consist of a plurality of individually-actuated gripping surfaces to maximize restraint capability. Glands shall be manufactured of ductile iron conforming to ASTM A536-80. The gland shall be such that it can replace the standardized mechanical joint gland and can be used with the standardized mechanical joint bell conforming to ANSI/AWWA C111/A21.11 and ANSI/AWWA C153/A21.53 of latest revision. Twist off nuts, sized same as tee-head bolts, shall be used to insure proper actuating of restraining devices. The restraining gland shall have a pressure rating equal to that of the pipe on which it is used. The restraining glands shall have been tested to UNI-B-13-92, be listed by Underwriters Laboratories, and be approved by Factory Mutual. The restraint shall be the EBAA Iron Series 2000PV or approved equal.
- C. Restraint rings for C-900 PVC pipe bells shall be made of ductile iron components. All ductile iron shall conform to ASTM A536. A split ring shall be used behind the bell and a serrated restraint ring shall be used to grip the pipe. A sufficient number of bolts shall be used to connect the bell ring and the pipe ring. The combination shall have a minimum working pressure rating of 200 psi with a 3:1 safety factor. The restraint shall be the Series 1600 as produced by the EBAA Iron, Inc. or approved equal.

POLYVINYL CHLORIDE

WATER PIPE

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2.3 UNDERGROUND PIPE WARNING TAPE AND TRACING WIRE

- A. Install "Buried Pipe" identification tape in all pipe trenches as specified in Section 01063.
- A. Trace Wire: A No. 12 trace wire shall be installed on PVC mains.

PART 3 - EXECUTION

3.1 PIPE HANDLING

- A. All pipe and fittings shall be carefully handled from the truck onto the ground and into the trench or excavation so as to prevent damage to the pipe. Pipes shall be kept free of dirt and foreign material especially on the inside. Joint ends of pipe shall especially be kept clean.
- B. Pipe stored on site shall be protected from direct sunlight and suitably ventilated.

3.2 ALIGNMENT AND PLACEMENT OF PIPE

- A. Jointing of PVC pipe and fittings shall be done in accordance with the printed recommendations of the manufacturer and as specified. The bell end of the pipe shall be thoroughly cleaned. The joint surfaces and the gasket shall be lubricated prior to making up the joint. The position of the gasket shall be checked to insure the joint has been properly made and is watertight. Care shall be taken not to exceed the manufacturer's recommended maximum deflection allowed for each joint.
- B. The trace wire shall be affixed to the pipe at 10 foot intervals by duct tape and stripped at both ends and connected to butterfly, gate, and combination valves.
- C. Underground utility warning tape shall be placed 16-inches above the PVC main.
- D. Backfill within a height of 18-inches above the top of pipe shall consist of sand and shall be placed and compacted by hand. Mechanical compaction equipment shall not be used until 18-inches of fill has been placed.

3.3 RESTRAINED JOINTS

- A. Pipe restraints shall be installed on all fittings and pipe joints.

3.4 TESTING OF THE PVC WATER TRANSMISSION MAIN

- A. Pressure and Leakage: Refer to Section 02704 for requirements.

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WATER PIPE

3.5 DISINFECTION AND FLUSHING

- A. Refer to Section 02675 for requirements.

3.6 CONTRACT CLOSEOUT

- A. Provide in accordance with Section 01700.

END OF SECTION 02625

SECTION 02640

VALVES AND APPURTENANCES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section including the following:
 - 1. Furnishing and installing valves, at the locations indicated and/or as directed, complete in place in accordance with the drawings and specifications.
 - 2. All valves shall be resilient wedge gate valves. Valves and boxes shall be manufactured in North America.
- B. Related sections include the following:
 - 1. Section 02615 – Ductile Iron Pipe and Fittings

1.3 SUBMITTALS

- A. Shop Drawings: Submit the following in accordance with Section 01300 - SUBMITTAL PROCEDURES:
 - 1. Submit shop drawings and descriptive literature, showing valve dimensions, coatings, materials, country of manufacturer and other details for each type and class of valve to be furnished.
 - 2. Submit shop drawings showing valve box dimensions, materials, country of manufacturer.
 - 3. Submit manufacturer's certification that valve materials used for wetted surface metals in contact with potable water are lead free with lead level not exceeding 0.25% and that materials comply with the 2014 Safe Drinking Water Act Lead Reduction law and with NSF 372.

1.4 QUALITY ASSURANCE

- A. Provide in accordance with Section 01400 and as specified.
- B. All valves furnished under the Contract shall be manufactured only in accordance with the Specifications and the approved drawings.

PART 2 - PRODUCTS

2.1 BUTTERFLY VALVES AND BOXES

- A. Materials used for wetted surface metals in contact with potable water shall be lead free with lead level not exceeding 0.25%. Materials shall comply with the 2014 Safe Drinking Water Act Lead Reduction law and comply with NSF 372.
- B. Butterfly valves shall be cast iron ASTM A-126 Class B body and shall have integrally cast mechanical joint ends, and Type 304 stainless steel body seat made integral with the valve body. Valves and components shall meet all requirements of AWWA C504.
- C. Valve vane shall be constructed of high strength cast iron ASTM A48 Class 40.
- D. Valve shafts for sizes up to and including 12-inch shall be one piece stainless steel extending full size through the disc and bearings. Valve shafts for 14-inch and larger shall be 18-8 stainless steel stub shaft design keyed to the vane with stainless steel taper pins.
- E. Valve seats shall be Buna N vulcanized mechanically secured to the vane with an integral stainless steel seat-retaining ring and self-locking Series 300 stainless steel screw fasteners. Valve seats located in the body on the valve shall be retained by mechanical means without rings or screws. All seats shall provide full 360-coverage and be field adjustable and replaceable.
- F. Valve bearings shall be sleeve type, corrosion resistant, and self-lubricating with load not to exceed 2,500 pounds per square inch.
- G. Valve operator shall be travelling nut type suited for buried service. Operator shall produce required operating torque to seat, unseat or hold the vane steady in any intermediate position. Operator shall produce required operating torque with a maximum input of 150 ft-lbs on the wrench nut. All actuator components between input and stops shall withstand without damage an input torque of 300 ft-lbs minimum. It must be fully gasketed and grease packed and designed to withstand submersion in water to 10 pounds per square inch. Valves shall have 2-inch standard AWWA operating nuts. All valves shall open right.
- H. Valves shall have hydrostatic and leakage tests conducted in accordance with AWWA C504. Valves 12-inch and less shall be tested bubble-tight at a rated

working pressure of 200 psi. Valves 14-inch and larger shall have a rated working pressure of 150 psi.

- I. Butterfly valves shall be the Model 450/4500 as manufactured by M & H Valve Company, Dresser 450 or Clow F5370 or approved equal.
- J. Valve boxes for butterfly valves shall be cast iron, tar coated, sliding type, consisting of three (3) pieces; a flanged bottom piece, a flanged top piece and cover with two (2) lifting holes and the word "water" cast on the top. A minimum 6-inch overlap is required between sliding sections. The inside diameter of boxes shall be at least 5-1/4-inches and lengths shall be as necessary to suit ground elevation.

2.2 RESILIENT WEDGE GATE VALVES AND VALVE BOXES

- A. Materials used for wetted surface metals in contact with potable water shall be lead free with lead level not exceeding 0.25%. Materials shall comply with the 2014 Safe Drinking Water Act Lead Reduction law and comply with NSF 372.
- B. Resilient wedge gate valves shall be iron body, resilient seated type. The valves shall be designed for minimum 200 psi working pressure and 400 psi test pressure. Valves shall have corrosion resistant fusion - bonded interior and exterior coatings.
- C. Valves are to have O-ring seals and a non-rising stem. Valves shall have a 2-inch operating nut. Valves shall open right.
- D. Resilient gate valves shall meet the most recent version of the AWWA standard specification AWWA C509 & C550. Reduced wall valves (C515) will not be accepted.
- E. Resilient wedge valves shall have mechanical joint ends suitable for use with restraints specified in Section 02615.
- F. Valves shall have a 10 mil minimum thickness factory applied epoxy coating on interior and exterior surfaces. Epoxy shall be suitable for potable water usage and NSF 61 certified.
- G. Valves shall be as manufactured in North America by Clow Corporation Model R/W, Mueller Resilient Seat, American-Darling, U.S. Pipe Metroseal 250, AVK Resilient Seat Gate Valve, Kennedy Ken-Seal or equal.
- H. Valve boxes shall be manufactured in the United States and be cast iron, tar coated, sliding, heavy pattern type, consisting of three (3) pieces; a flanged bottom piece, a flanged top piece, and a cover with two (2) lifting holes and the word "water" cast on the top. A minimum 6-inch overlap is required between sliding sections. The inside diameter of boxes shall be at least 5-1/4-inches and lengths shall be as necessary to suit ground elevation.

- I. Valve boxes shall be straight, plumb and centered over valve.

PART 3 - EXECUTION

3.1 CLEANING AND PRIME COATING VALVES AND APPURTENANCES

- A. Prior to shop prime coating, all surfaces of the valves and appurtenances shall be thoroughly clean, dry, and free from all mill-scale, rust, grease, dirt, paint and other foreign substances to the satisfaction of the Engineer.
- B. All ferrous surfaces shall be sand blasted or pickled according to SSPC-SP6 or SSPC-SP8, respectively.
- C. All gears, bearing surfaces and other surfaces not to be painted shall be given a heavy coat of grease or other suitable rust resistant coating unless otherwise specified herein. This coating shall be maintained as required to prevent corrosion during any period of storage and installation and shall be satisfactory to the Engineer through the time of final acceptance.

3.2 INSTALLATION

- A. All valves and appurtenances shall be installed in the location shown on the drawings or where directed by the Engineer. Valves shall be true to alignment and rigidly supported. Any damaged items shall be replaced before they are installed.
- B. Valves shall be installed with restrained mechanical joints as specified in Section 02615.
- C. Care shall be taken to prevent damage to valves and appurtenances during handling and installation. All materials shall be carefully inspected for defects in workmanship and materials, all debris and foreign material cleaned out of valve openings, and all operating mechanisms operated to check their proper functioning, and all nuts and bolts checked for tightness. Valves and other equipment which do not operate easily, or are otherwise defective, shall be repaired or replaced.
- D. Buried valves and boxes shall be set with the operating stem vertically aligned in the center of the valve box. Valves shall be set on a firm foundation and supported by tamping selected excavated material under and at the sides of the valve.

3.3 VALVE BOXES

- A. Valve boxes shall be installed vertically, centered over the operating nut, and the elevation of the top shall be adjusted to conform with the finished surface of roadway or other surface at the completion of the contract. Boxes shall be adequately supported during backfilling to maintain vertical alignment.
- B. Boxes not vertical or centered shall be reset by the Contractor at no additional cost to the Town.

3.4 CONTRACT CLOSEOUT

- A. Provide in accordance with Section 01700.

END OF SECTION 02640

SECTION 02645

HYDRANTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Providing hydrants, gate valves and boxes and appurtenant work, complete in accordance with the drawings and specifications.
- B. Related sections include the following:
 - 1. Section 02210 – Earth Excavation, Backfill, Fill and Grading
 - 2. Section 02615 – Ductile Iron Pipe and Fittings
 - 3. Section 02640 – Valves and Appurtenances

1.3 SUBMITTALS

- A. Shop Drawings: Submit the following in accordance with Section 01300 - SUBMITTAL PROCEDURES:
 - 1. Submit shop drawings and manufacturers descriptive literature, showing hydrant dimensions and features.

1.4 QUALITY ASSURANCE

- A. Provide in accordance with Section 01400 and as specified.
- B. All hydrants furnished under the Contract shall be manufactured only in accordance with the Specifications and the drawings.

PART 2 - PRODUCTS

2.1 HYDRANTS

- A. Fire hydrants shall have mechanical joint inlet connections to the main, two 2-1/2-inch hose connections, and one 4-1/2-inch steamer connection with a

valve opening 5-1/4-inches in diameter minimum. Hydrants shall be traffic model with dual drain ports.

- B. The hydrants shall have an oil reservoir to provide lubrication to all stem threads, bearing surfaces and O-rings each time the hydrant is operated.
- C. The hydrants shall have mechanical joint shoes, 5'-6" or 6'-0" bury (street level areas or raised sidewalk), 5-1/4-inch valve, and conform to the most recent revision of AWWA Specification C-502-85. Hydrant shall be marked with an arrow and the word "open" to indicate the direction to turn the stem to open the hydrant. Hydrants shall open left.
- D. The hydrants are to receive two coats of prime paint before shipment and once installed are to be cleaned and painted by the Contractor. Hydrants shall be painted with red body and bonnet.
- E. Hydrants shall be Mueller Corp Super Centurion, Clow Medallion, Darling B-62B or equal.
- F. All newly installed hydrants shall be bagged until they are in service.

2.2 SAFETY FLANGE REPAIR KITS

- A. Safety flange repair kits shall be complete with stem coupling, safety flange, flange gasket, replacement bolts, nuts and hydrant lubricating oil.
- B. Safety flange repair kits shall be compatible with hydrant furnished.

2.3 EXTENSION KITS

- A. Extension kits shall be complete with extension barrel, extension stem, stem coupling and hardware, flange, flange gasket, bolts, nuts, and hydrant lubricating oil.
- B. Extension kits shall be compatible with hydrant furnished.

PART 3 - EXECUTION

3.1 HYDRANTS

- A. Hydrants shall be installed in conformance to AWWA C600, Section 11, and the latest revision using anchored joints and thrust blocks.
- B. Hydrants shall be set to the bury line at the locations shown on the Drawings or as designated by the Engineer and shall be bedded on a firm foundation. A 5 cubic foot minimum drainage pit shall be filled with 1/2-inch crushed stone and satisfactorily compacted. During backfilling, crushed stone shall be brought up around, and 6-inch over, the drain ports. Each hydrant shall be set in true

vertical alignment and shall be properly braced. Thrust blocks shall be placed between the back of the hydrant inlet and undisturbed soil at the end of the trench.

- C. Hydrants set to high or to low shall be excavated and reset to the proper depth as indicated by the bury line. Hydrant extensions shall be installed where required to maintain proper depth.
- D. Upon installation of the hydrants, they shall be cleaned and painted in accordance with the Owners color scheme.
- E. Remove and stack existing hydrants for salvage as directed by the Owner or Engineer. Removed hydrants shall be delivered to the Owner's storage facility.

3.2 CONTRACT CLOSEOUT

- A. Provide in accordance with Section 01700.

END OF SECTION 02645

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SECTION 02647

CONNECTING TO EXISTING WATER MAINS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This section includes the following:
 - 1. Connecting to existing mains.
- B. Related sections includes the following:
 - 1. Section 02210 – Earth Excavation, Backfill, Fill and Grading
 - 2. Section 02615 - Ductile Iron Pipe and Fittings

1.3 SUBMITTALS

- A. Shop Drawings: Submit the following in accordance with Section 01300 – SUBMITTAL PROCEDURES.
 - 1. Submit shop drawings and manufacturer literature for sleeves, valves, couplings and piping to be used in connecting to existing mains.

PART 2 - PRODUCTS

2.1 COUPLINGS - SLEEVES

- A. Couplings and sleeves shall be as specified in Section 02615.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verification of Conditions: The Contractor shall verify field conditions by test pits or other methods prior to construction.

3.2 INSTALLATION

- A. The Contractor shall make all connections to the existing mains as indicated in the Contract Documents.
- B. The Contractor shall develop a program for the construction and putting into service of the new work subject to the approval of the Engineer. All work involving cutting into and connecting to the existing water mains shall be planned so as to interfere with operation of the existing facilities for the shortest possible time.
- C. The Contractor shall have all preparatory work done prior to making the connection and shall provide all labor, tools, material, and equipment required to do the work in one continuous operation.
- D. The Contractor shall have no claim for additional compensation, by reason of delay or inconvenience, for adapting his operations to the requirements of the Owner.
- E. Under no circumstances shall any customer be without water for a period of more than 4 hours without prior written approval of the Owner. Should it appear that any customer will be without water for more than 4 hours, the Contractor shall install temporary water service at no additional cost to the Owner.
- F. The Owner does not guarantee a tight shut-off for existing local community water valves. No damages shall be claimed by the Contractor for delays in dewatering pipelines nor shall any damages be claimed because of water leaking through closed valves after dewatering is completed. It shall be the responsibility of the Contractor to provide the means to dewater the excavation if required when making connections.
- G. The Contractor shall be responsible for the following restrictions on shutdown of water mains:
 - 1. Valves to be operated only by the Water Department personnel.
 - 2. 24 hour advance notice for shutdown requests shall be given to the Water Department.

3.3 APPLICATION:

A. Cut-ins:

1. Cut-ins to existing mains shall be performed after approved disinfection and pressure test results have been obtained for the new mains.
2. Cut-ins shall be accomplished with fittings or, if possible, pipe deflection.
3. Attachment to existing mains shall be accomplished with restrained mechanical joints, long body solid sleeve.

3.4 CLEANING

- #### A.
- Contractor shall clean the existing main with wire brush and wash the pipe surface and the tapping sleeve and valve interior with 5% hypochlorite (bleach) solution.

3.5 CONTRACT CLOSEOUT

- #### A.
- Provide in accordance with Section 01700.

END OF SECTION 02647

SECTION 02660

WATER SERVICES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This section includes the following:
 - 1. Provide new water services from the new water main to the existing services, including corporation stops, curb stops and boxes, as shown on the drawings or as directed by the Engineer.

1.3 SUBMITTALS

- A. Shop Drawings: Submit the following in accordance with Section 01300 - SUBMITTAL PROCEDURES:

- 1. Submit manufacturer's technical product data or descriptive literature, or both, showing services, corporation stops, curb stops, fittings and other details for each type of service to be furnished for the project.
- 2. For informational purposes only, submit manufacturer's written installation instructions.
- 3. Submit manufacturer's certification that valve materials used for wetted surface metals in contact with potable water are lead free with lead level not exceeding 0.25% and that materials comply with the 2014 Safe Drinking Water Act Lead Reduction law and with NSF 372.

PART 2 - PRODUCTS

2.1 SERVICES

- A. Where indicated on the Drawings, all pipe for services with 2-inch mains or less shall be Copper, Type K tubing and shall conform to the provisions of AWWA C901.

2.2 CORPORATIONS, CURB STOPS AND SADDLES

- A. Materials used for wetted surface metals in contact with potable water shall be lead free with lead level not exceeding 0.25%. Materials shall comply with the 2014 Safe Drinking Water Act Lead Reduction law and comply with NSF 372.
- B. The corporation stops shall meet the most recent revision of the AWWA standard "Threads for Underground Service Line Fittings" (AWWA C800). Corporation stops shall be Mueller 110, Model H-15008, designed for 175 psi test pressure and manufactured by Mueller Inc. Stops to have full keyway and rigid liners.
- C. Curb stops shall be Mueller H15219 Mark II Oriseal with drain suitable for use with polyethylene tubing specified hereinbefore. Stops shall have integral checks and O-ring seal.
- D. Curb stop boxes shall be manufactured in the United States and be cast iron Buffalo type with recessed lid with pentagon bolt, adjustable sliding type.
- E. Service saddles for 2-inch taps and for new services on existing pipe shall be Smith-Blair 313 Double Strap. Bodies shall be ductile iron and straps shall be electrogalvanized carbon steel. Units shall be complete with Buna-N gaskets.

2.3 FITTINGS

- A. Unless otherwise approved, only compression type fittings manufactured by Mueller Inc., or equal, shall be used.
- B. Adapters required to allow connection to existing services shall be provided.

PART 3 - EXECUTION

3.1 CONSTRUCTION

- A. After successful testing and chlorination of the water main, water services shall be installed as a "wet" tap as shown on the drawings, specified, or directed by the Engineer. Exact locations of services shall be located in the field by the Engineer. A service shall be provided as shown on the Drawings. All services shall be installed to a minimum depth of 4'-6" unless specifically shown or directed otherwise by the Engineer.
- B. Water service trenches shall be excavated and backfilled in accordance with Section 02210 of this Specification and in conformance to the details. Services to be installed beneath paved roadways shall be driven beneath the pavement utilizing a pneumatically or hydraulically driven device.

- C. Connections to the existing services shall be thoroughly flushed prior to connecting. Contractor shall coordinate and assist Water Department personnel in removal of the household meter and filters and flushing the entire service line to prevent scale-debris from blocking fixtures and appliances.
- D. Curb boxes shall be straight, plumb, centered over curb stops. Curb stops not straight, plumb or centered shall be removed and reset by the Contractor at no additional cost to the Town.

3.2 CONTRACT CLOSEOUT

- A. Provide in accordance with Section 01700.

END OF SECTION 02660

SECTION 02675

DISINFECTION OF WATER MAINS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This section includes the following:
 - 1. Disinfection of pipelines.
- B. Related section include the following:
 - 1. Section 02615 - Ductile Iron Pipe and Fittings.
 - 2. Section 02704 - Pipeline Pressure and Leakage Testing.

1.3 SYSTEM DESCRIPTION

- A. Disinfect all water main and appurtenances installed under this contract. Disinfection shall occur after successful pressure and leakage testing as specified in Section 02704 has been conducted.
- B. The location of main line and appurtenances are shown on the Drawings.
- C. Pipeline disinfection shall be performed in conjunction with the related work items of dewatering, testing, and discharge of chlorinated water, prior to placing newly installed water main in service. The Contractor's responsibility shall include, but not be limited to the following:
 - 1. Provision of the chlorine product for disinfection at the rate and dose specified shall be in accordance with AWWA standards.
 - 2. Provision of pipeline taps for dosing and testing of chlorinated water, as necessary.
 - 3. Furnishing, installation and removal of bulkheads required for testing.

4. Labor and equipment necessary to dispense the dose chlorine at points and rates as directed by the Engineer.
 5. Labor and equipment to operate newly installed mainline valves, air release valves, and blowoff valves as necessary and directed by the Engineer.
 6. Labor and equipment to dechlorinate the treated water prior to discharge.
- D. The Contractor shall be responsible for disinfecting and putting into service new water mains which shall become the property of the Owner.
- E. Contractor shall be responsible for coordinating all activities with the Owner.

1.4 SUBMITTALS

A. Shop Drawings: Submit the following in accordance with Section 01300 – SUBMITTAL PROCEDURES:

1. One week prior to initiating disinfection work, the Contractor shall submit to the Engineer a written workplan describing fully his proposed work. The workplan shall include, but not be limited to, the following:
 - a. List of main segments by valve or station locations.
 - b. Description of the pipe diameter and lengths to be tested.
 - c. Full description of method to be used (slug or continuous feed) in disinfecting the mains.
 - d. Chlorine agent to be utilized.
 - e. Chlorine material safety data sheets.
 - f. Chlorine batching calculations to show required level of chlorine being added to the mains.
 - g. Flushing methods listing pipe diameter, length, flushing time calculations and location of flushing outlets.
 - h. Methods of measuring chlorine solution being added to the pipe and after it has been added.
 - i. Sample collection techniques.
 - j. Names of personnel who will be conducting the disinfecting and sampling.
 - k. Name of laboratory proposed to perform the tests.
 - l. Dechlorination methods, including dechlorination agent and locations.
 - m. Backflow preventor data (model, size).
2. Engineer shall review the Contractor's workplan. Workplan shall be revised and resubmitted as required by the Engineer.

3. No disinfection work shall commence until Engineer approves the workplan.

1.5 QUALITY ASSURANCE

- A. Provide in accordance with Section 01400.

1.6 PROJECT/SITE CONDITIONS

- A. Contractor shall utilize water from the active water mains to perform disinfection work as specified.
- B. All water shall be discharged in accordance with local, state and federal regulations.

1.7 SEQUENCING AND SCHEDULING

- A. Coordinate operation of existing valves, timing and duration of shut-down of existing mains, and disinfecting, and re-energizing of the water main with the Engineer and where applicable with the Owner including notification of the following prior to the stated work:
 1. Valve Operations: Notify Engineer one (1) working day prior to stated work.
 2. Disinfecting: Notify Engineer three (3) working days prior to stated work.
 3. Notification shall include location of work, length and diameter of the pipe to be disinfected and other pertinent information.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Calcium hypochlorite shall conform to AWWA B300.
 1. Granules with 70 percent available chlorine.
- B. Liquid sodium hypochlorite shall conform to AWWA B300.
- C. Backflow preventer devices (reduced pressure devices), model to be State approved.
- D. Line purge dechlorinator with dechlorination tablets or other method acceptable to the Engineer. Dechlorinator shall have 2-1/2 inch NPT coupling and capacity flow rates of up to 1,600 GPM. Dechlorination tablets shall be ascorbic acid, sodium sulfite or sodium thiosulfate, capable of dechlorinating

the flushed water. Dechlorinator shall be H₂O Neutralizer as manufactured by Measurement Technologies, Inc., Redmond, WA (860-651-3368), Model LPD-250 as manufactured by J. Pollard Co., Hyde Park, NY.

E. Chlorine residual analyzer.

PART 3 - EXECUTION

3.1 PREPARATION

A. General:

1. Perform disinfection in accordance with AWWA C651.
2. The Engineer will review disinfection procedure, designate dosage and will perform necessary water quality tests to verify that disinfection has been accomplished according to public health standards.

B. Flushing:

1. If water of sufficient quantity and pressure is available, flushing as specified here and after should be performed:

Prior to chlorination, mains shall be properly flushed by the Contractor. In general, flushing shall be performed at a flow rate required to achieve a minimum velocity of 2.5 feet per second (approximately 3600 GPM in a 24-inch main, 2400 GPM in a 20-inch main, 1600 GPM in a 16-inch main, 900 GPM in a 12-inch main, 400 GPM in a 8-inch main, 220 GPM in a 6-inch main, and 30 GPM in a 2-inch main). Flushing shall be performed for a sufficient period of time to allow for a minimum of 3 volume changes of water in the main (approximately 20 minutes per 1000-foot of main at the above flow rate).

C. Discharge:

1. Following disinfection, water with concentrations of chlorine shall be dechlorinated and discharged to the atmosphere.
 - a. The Contractor shall notify the Engineer and Owner of the specific location where chlorinated water will be discharged at least three (3) days in advance of proposed discharge.

2. Water with high concentrations of chlorine (residual greater than 2 mg/l) shall be dechlorinated to a level of 2 PPM or less prior to its discharge. Dechlorination shall be conducted by use of a line purge dechlorinator or other method acceptable to the Engineer. Dechlorination shall be in accordance with the manufacturer's instructions and AWWA C651, Section 4.5.

3.2 INSTALLATION

A. Calcium Hypochlorite:

1. Use only as a solution.
2. Pump into pipe with a suitable chemical feed pump.

3.3 APPLICATION

A. Special Techniques:

1. Disinfect pipes by the continuous feed or slug method.
 - a. Continuous feed method:
 - 1) Feed chlorine into pipe so water entering contains 25 mg/l of available chlorine.
 - 2) Apply chlorine continuously until entire pipe is filled with chlorine solution.
 - 3) Retain treated water in pipe for at least 24 hours.
 - 4) Ensure that chlorine residual at end of test is at least 10 mg/l.
 - 5) Operate all valves and hydrants to insure disinfection. Manipulate valves to prevent super chlorinated water from entering existing distribution system.
 - b. Slug Method
 - 1) Slowly feed through the main a slug of water having a chlorine concentration of 100 mg/l so that all parts of the main and appurtenances are exposed to the highly concentrated solution for a period of at least three (3) hours.
 - 2) Water from existing distribution system or other approved supply source shall be made to flow at a constant measured rate, into the new main.
 - 3) At a point not more than ten (10) feet downstream from the beginning of the new main, water entering the new main shall receive a constant dose of free chlorine having a concentration of 100 mg/l.

- 4) The free chlorine shall be measured as it moves through the main. If the level drops below 50 mg/l, flow shall be stopped chlorination equipment shall be relocated to the head of the slug and as flow is resumed, chlorine shall be applied to restore the free available level to 100 mg/l.
- 5) Valves and hydrants shall be operated as the chlorinated water flows past them to insure disinfection occurs.

2. Ensure that appurtenances are fully disinfected.

3.4 FIELD QUALITY CONTROL

A. Tests:

1. Measure chlorine levels with meters or color-wheel. Paper pool strips are not acceptable methods for determining chlorine levels.
2. Bacteriological test samples shall be collected by the Contractor after the chlorine solution has been flushed out of the pipe.
3. Disinfection shall be repeated, as necessary, to produce satisfactory bacteriological samples.
4. Twenty-four (24) hours after the main has been fully dechlorinated and flushed, bacteriological samples shall be taken. Water samples shall be taken from corporation stops along the length of the water main as designated by the Engineer. Samples shall be taken between each valved section of main and each capped end of main, each in duplicate, in sterile bottles and furnished to the Engineer or Owner for delivery to a State approved laboratory for analyses.
5. The results of the tests on these samples will determine the acceptance of the work and allow these new mains to be connected to the Owner's system. The failure of any sample to pass the laboratory tests shall require the Contractor to re-flush and rechlorinate the mains and re-sample and test the water until acceptable results are obtained, all at no additional cost to the Owner.

B. Activation:

1. Upon receipt of satisfactory bacteria sample test results and successful pressure tests, Contractor shall notify Engineer. Copies of all test reports shall be given to the Engineer

2. Contractor shall note that work under this Contract shall not be considered completed until satisfactory installation and testing of the water mains have been completed.
3. All corporations installed for disinfection purposes shall be closed and plugged. All tubing shall be removed.

3.5 CONTRACT CLOSEOUT

- A. Provide in accordance with Section 01700.

END OF SECTION 02675

SECTION 02704

PIPELINE PRESSURE AND LEAKAGE TESTING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This section includes the following:
 - 1. Perform field hydrostatic pressure and leakage testing of pipes.
- B. Related section includes the following:
 - 1. Section 02615 - Ductile Iron Pipe and Fittings

1.3 DEFINITIONS

- A. Leakage - Leakage is defined as total amount of water introduced into pipe during leakage test to maintain test pressure.

1.4 SYSTEM DESCRIPTION

- A. Pipe installed under Section 02615 shall be tested in accordance with the requirements of this section.

1.5 SUBMITTALS

- A. Shop Drawings: Submit the following in accordance with Section 01300 - SUBMITTAL PROCEDURES:
 - 1. Testing schedule and test procedure.
 - a. Indicate proposed time and sequence of testing on schedule.
 - b. Indicated test procedure requirements as follows:
 - (1) Limits of each pipe tested.
 - (2) Position of all valves during testing.

- (3) Location of temporary bulkheads.
- (4) Other applicable procedures.
- (5) Equipment to be utilized.

1.6 SEQUENCING AND SCHEDULING

- A. Complete pressure and leakage testing of pipes prior to final cleaning and disinfection; Engineer shall be present during all testing.
 - 1. Notify Engineer of time and place of testing at least 3 days prior to commencement of work.

PART 2 - PRODUCTS

2.1 EQUIPMENT

- A. Provide test equipment as follows:
 - 1. Piping connections between pipe tested and water source.
 - 2. Equipment, materials, and facilities required to perform specified tests including but not limited to the following:
 - a. Pumping equipment
 - b. Calibrated barrel
 - c. Pressure gauges
 - 3. Sectionalizing devices required including but not limited to the following:
 - a. Flanges
 - b. Valves
 - c. Bulkheads
 - d. Bracing
 - e. Blocking

PART 3 - EXECUTION

3.1 PREPARATION

- A. Provide blocks, anchors, and supports for pipe before test pressure is applied.

3.2 INSTALLATION

A. Water:

1. Schedule filling of line through Engineer at least three (3) days in advance of testing.
2. Do not allow water to enter other parts of the pipeline, not subject to testing, unless approved by the Engineer.
3. Dispose of test water in a manner approved by the Engineer.

B. Venting:

1. Ensure that air release valves and other venting devices are properly installed and placed in open position when filling pipe with water.
2. Do not close hand-operated vent valves until water flows in an uninterrupted stream from each valve.

3.3 APPLICATION

A. Pressure Testing:

1. All pipe and appurtenances installed shall be hydrostatically tested in accordance with ANSI/AWWA C600, latest version unless stated otherwise herein.
 - a. Test pressure, expressed in terms of feet of water, applied at any point in pipe equals arithmetic difference between specified test pressure plane elevation and elevation of horizontal center line of pipe at selected location.
 - b. Multiply value by 0.433 to obtain pounds per square inch.
 - c. Ensure pressure gauges are accurately calibrated.
 - d. Do not attempt pressure testing until all air has been vented from the mains.

2. All new water mains which shall become the property of the Owner shall be pressure tested at 150 psi for a continuous period of two hours.

B. Leakage Testing:

1. Conduct leakage testing in conjunction with pressure tests.
2. Ensure that joints in piping are watertight and free from visible leaks during leakage test.
3. Leakage Test Pressure:
 - a. Maintain specified normal operating line pressure for pressure testing of reach during leakage test.
 - b. Maintain hydrostatic pressure within plus or minus 5 percent during entire time of leakage measurements.
4. Leakage Measurement:
 - a. Do not attempt measurement of leakage until trapped air has been vented and constant test pressure has been established.
 - b. Measure leakage by means of an approved calibrated barrel installed in the pressure piping on discharge of the pump.

(1) Ensure that barrel is accurately calibrated.

5. Allowable Leakage:

- a. Ensure that pipe reach does not exceed the allowable leakage rate.
- b. Calculate allowable leakage with following formula:

$Q = 0.0075 \text{ DLN}$ where

Q = allowable leakage in gallons per hour

D = nominal diameter of pipe in inches

L = length of section tested in thousand feet (1000-foot maximum)

N = square root of avg test pressure in psi (14.14 for 200 psi)

- c. Calculate allowable leakage separately for each diameter and add resulting allowable leakage rates to obtain total allowable leakage for entire reach.

3.4 FIELD QUALITY CONTROL

A. Inspection:

1. Locate defective joints and pipe materials during pressure testing.
2. Locate and repair leaking joints and other defective items of work to reduce pipe leakage to an amount acceptable to Engineer, or where applicable, the Owner's requirements.

3.5 CONTRACT CLOSEOUT

- #### A. Provide in accordance with Section 01700.

END OF SECTION 02704

SECTION 02711

CLEANING AND CEMENT-MORTAR LINING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This section includes the following:

1. Providing labor, equipment and material to clean and cement-mortar line, disinfect and place back in service potable water mains as indicated and specified.
2. Repairing and replacing existing pipe, fittings and valves as directed and approved by Engineer.
3. Installing new valves and hydrants as authorized and approved by Engineer.
4. Coordinating and cooperating with Somerville Water Department and Fire Department.
5. Permitting use by Owner of each section of completed pipeline as soon as possible after lining and curing of lining.

- B. Related section includes the following:

1. Section 02210 - Earth Excavation, Backfill, Fill and Grading
2. Section 02615 - Ductile-Iron Pipe and Fittings
3. Section 02640 - Valves and Appurtenances
4. Section 02645 - Hydrants
5. Section 02675 - Disinfection of Water Mains

6. Section 02704 – Pipeline Pressure and Leakage Testing
7. Section 02761 – Bypass Flow Handling

1.3 SUBMITTALS

A. Shop Drawings: Submit the following in accordance with Section 01300 - SUBMITTAL PROCEDURES:

1. Submit detailed information regarding materials and proportions, strength test results of cement-mortar proposed for lining water mains at least ten (10) days before lining pipeline.
2. Submit detailed information regarding equipment, access openings, disinfection and flushing, testing and operations schedules proposed for cleaning and lining work.
3. By-pass pipe and fitting information and by-pass plan showing temporary hydrants, valves, services, and street locations.
4. Submit information on by-pass pipe, valves, temporary hydrants and service tubing materials.
4. Certifications that all newly-furnished or installed wetted surface metals in contact with potable water comply with the 2014 Safe Drinking Water Act Lead Reduction law and comply with NSF 372.
5. Schedule of proposed cleaning, lining and testing activities.

1.4 QUALITY ASSURANCE

A. Provide in accordance with Section 01400 and as specified.

B. General:

1. Perform work under constant supervision of a foreman with at least five (5) years' experience in this type of work.
2. Minimize interference with operations and maintenance of contiguous potable water distribution systems.
3. Water main that is cleaned and cement-mortar lined but not successfully tested and accepted shall be paid for at a maximum of 95 percent of the unit price bid under this item. The remaining 5 percent shall be paid upon receipt of successful test results by the Engineer. All reductions in payment due to unsuccessful testing shall be made prior to normal retainage. All tests for determining the coefficient "C"

for water mains cleaned and cement-mortar lined under this contract to be completed prior to final acceptance of the work.

- C. Opening and Closing Pipelines: Engineer to determine suitability of existing pipeline sections for reuse as closure pieces.
- D. Cleaning Pipeline: Engineer to inspect for satisfactory cleaning, defects in pipeline and possible repair or replacement.
- E. Cement-Mortar Lining:
 - 1. Engineer's approval required before cement-mortar lining pipeline sections.
 - 2. Lining to be uniform and thickness not less than 3/16-in. and not more than 1/4-in. at any point.
 - 3. Contractor responsible for the proper curing of cement-mortar lining after it is placed.
- F. Required "C" Values:
 - 1. The Contractor shall conduct loss-of-head flow tests to determine the coefficient "C" in the Hazen-Williams formula for the water mains cleaned and lined under this contract after the work has been completed. Contractor shall also conduct fire flow tests at existing hydrant locations to determine available fire flow at a residual pressure of 20 psi. One fire flow test per street where mains have been rehabilitated shall be conducted. Hydrant flow tests shall be in each direction by swapping the flow and static hydrants.
 - 2. Contractor to secure services of qualified Registered Engineer or other approved agency to perform loss-of-head tests and fire flow tests and determine the coefficient "C" in the Hazen-Williams formula and available fire flow for water mains under this contract after cleaning and lining has been completed.
 - 3. Conduct all tests in the presence of the Engineer.
 - 4. The minimum required coefficient "C" in the Hazen-Williams formula for water mains cleaned and lined under this Contract shall be as follows:

<u>Pipe Diameter</u>	<u>C-value</u>
4-inch	90
6-inch	100
8-inch	110
10-inch	115
12-inch	120
14-20-inch	125
> 20-inch	130

- 5.. The coefficient "C" in the Hazen-Williams formula to be determined from the loss-of-head tests and based on nominal pipe diameters with proper allowance being made for bends, fittings and other appurtenances in accordance with accepted practice.
6. The coefficient "C" in the Hazen-Williams formula shall be determined from the loss-of-head test and based on nominal pipe diameters with proper allowance being made for bends, fittings and other appurtenances and reduction of the inside pipe diameter in accordance with accepted practice.
7. For any section of cleaned and lined water main that the coefficient "C", as determined by loss-of-head tests, fails to meet the required value the contract price for payment to be adjusted as follows:
 - a. For drop of 10 points or less below the required coefficient "C" no reduction in the contract prices.
 - b. For drop between 11 and 20 points below the required coefficient "C", contract payments will be reduced 10 percent per point for section failing to meet the required coefficient "C".
 - c. For drop in excess of 20 points below the required coefficient "C", Engineer will decide whether further reduction in payment of 10 percent per point for section will be made, or if cement-mortar lining to be removed and water main properly cement-mortar lined at no additional costs to the Owner.
8. Portions of water main where it is not practical to carry out loss-of-head tests to determine the coefficient "C" through the full extent of cleaned and lined portion, then several sections shall be tested and a weighted average coefficient "C" shall be determined from the tested sections and be considered representative of the entire cleaned and lined water main.

9. All tests for determining the coefficient "C" for water mains cleaned and cement-mortar lined under this contract to be completed prior to final acceptance of the work.

G. Samples:

1. Prepare and provide samples of cement mortar to be used for lining in accordance with AWWA C602 and instructions of Engineer.
2. Samples of cement-mortar used for lining by the Contractor will be used by the Engineer as one standard of comparison for determining acceptability of finished cement-mortar lining.
3. Contractor shall be responsible for taking, making, curing, storing, packing and shipping for testing all samples of cement mortar used for lining.
4. The Contractor shall arrange and pay for tests of cement-mortar samples.
5. Contractor shall take samples from each separate batch of cement-mortar used for lining. Take at least one set of three test samples for each day mortar is used for lining unless otherwise allowed by Engineer.

1.5 SAFETY REQUIREMENTS

- A. Prevent contamination of contiguous potable water distribution system and services.
- B. Coordinate and cooperate with the Somerville Department of Public Works and Fire Department to maintain water distribution and fire protection capability.
- C. Ensure precautions taken for public safety.

PART 2 - PRODUCTS

2.1 CEMENT FOR MORTAR

- A. Use single brand of American-made Portland cement, Type I in accordance with AWWA C602 unless otherwise approved in writing by Engineer.
- B. Use admixtures with specific written approval of Engineer and in accordance with AWWA C602.

2.2 WATER FOR MORTAR

- A. Use potable water from Owner's system with prior approval or otherwise as acceptable to Engineer.

2.3 SAND FOR MORTAR

- A. Use sand in accordance with AWWA C602. It shall consist of inert granular material having strong, durable and uncoated grains.

2.4 CEMENT-MORTAR MIX STRENGTH

- A. Cement-mortar shall attain a minimum compressive strength of 4,500 psi in 28 days. Lining that does not meet this requirement shall be subject to rejection.

2.5 PIPE, FITTINGS, VALVES AND HYDRANTS

- A. Provide water main pipe, fittings, valves and hydrants in accordance with Sections 02615, 02640, and 02647.
- B. Do not reuse pipe, fittings and valves removed unless otherwise approved by the Engineer.
- C. By-pass piping shall be in accordance with Section 02761.
- D. Temporary hydrants and fire service lines shall be equipped with gate valves. Residential connections shall be furnished with suitable shutoff valves.

2.6 EMERGENCY SERVICES

- A. Contractor shall provide 24-hour, 7-days per week emergency services to repair or replace temporary piping or service connections which are damaged during the work period.
- B. Contractor shall provide Engineer and the Somerville Department of Public Works with telephone contact information for personnel who will respond within 1-hour of being notified of a leak or break on the temporary systems. If Contractor's personnel do not respond, the Somerville Department of Public Works may elect to make repairs with his own forces and backcharge the Contractor. Minimum backcharge shall be based on 2 man response for a 4-hour minimum billing period at overtime rates. Additional costs for equipment and materials shall also be backcharged.

PART 3 - EXECUTION

3.1 GENERAL

- A. Furnish, install, maintain and later remove devices necessary to ensure public safety as required and as approved.
- B. Pipe, fittings, valves, hydrants and appurtenances removed and not reused remain property of Owner except as instructed otherwise by the Engineer.

3.2 OPENING AND CLOSING PIPELINES

- A. All existing gate valves are to be operated by Somerville Water Department personnel only.
- B. Clean and line access openings at each end of pipeline section.
- C. Provide access openings for cement-mortar lining machine. Distance between access opening locations shall not exceed 1,000 ft. except by written consent of the Engineer.
- D. Provide additional access openings at intermediate gates, bends, fittings and obstructions indicated on the drawings and at other locations necessary for satisfactory cleaning and lining.
- E. Make additional openings due to bends, fittings or other obstructions not indicated on the drawings as necessary.
- F. Cut ductile and cast-iron pipe with suitable power-operated saw approved by the Engineer. Take care to prevent damage.
- G. Do not cut ductile and cast-iron pipe by hammer and chisel or by wheel type cutters.
- H. Prevent dirt, debris, groundwater or foreign matter from entering pipeline, except for materials needed for cleaning and lining.
- I. Carefully remove, clean, cement-mortar line and safely store for reuse a suitable closure section of pipe cut to permit access. If pipe section is unsuitable for reuse, provide and install a new piece, properly lined, of sufficient size and strength.
- J. Replace pipe ends with possible cracks or pipe sections damaged by cutting as determined by the Engineer.
- K. Closure of pipeline access shall be suitable for system pressures expected without leakage.

3.3 CLEANING PIPELINE

- A. Perform in accordance with AWWA C602 by means of suitable electric scraping machine.
- B. Move scraping machine through pipeline by power winch or motorized driver, or force by hydraulic pressure as appropriate for section to be cleaned.
- C. Provide clean interior metal surfaces in the water main ready to receive the cement-mortar lining.
- D. Clean interior of the pipe such that it is free of sharp projections that would affect thickness of lining and all matter detrimental to lining.
- E. Assure that cleaning debris will not interfere with operation of air valves, services, laterals, valves and other water main appurtenances.
- F. Remove debris from inside of pipe and dispose of in acceptable manner.
- G. At point where debris is flushed or removed from pipe, provide suitable containment and settling area, acceptable to Engineer, to ensure that sediment, other unsatisfactory material and flushing water do not enter into drains, sewers, waterways or onto private property.
- H. Immediately following each debris removal or flushing operation, clean street and other affected areas to satisfaction of Engineer.
- I. Prevent entry of dirt, debris, groundwater, or other foreign matter into pipeline except materials needed for cleaning and lining of pipe. Keep all pipe openings closed with approved plugs during non-work periods.
- J. Upon completion of cleaning operations in each section of pipeline, furnish suitable lights and mirrors for inspecting the interior of cleaned pipeline section.
- K. Advise Engineer of any evidence encountered during cleaning indicating repair or replacement may be required before pipeline section is lined.
- L. Assist Engineer in making inspection to determine acceptability of cleaning and need for repair and replacement. Final determination of acceptability shall be based on C-factor flow testing as specified hereinbefore.

3.4 REPAIR AND REPLACEMENT

- A. Perform repair and replacement authorized and approved by Engineer.

- B. Repair or replace at Contractor's expense pipe, fittings, valves damaged by Contractor's negligence in manner acceptable to Engineer. Allow Engineer to determine if damage is due to Contractor's negligence.

3.5 CEMENT-MORTAR LINING

- A. Perform work in accordance with AWWA C602.
- B. Proceed as soon as possible after pipeline is cleaned and Engineer has approved pipeline to be lined.
- C. Mix for sufficient time to obtain maximum plasticity. Use mortar for lining before initial set takes place.
- D. Trowel lining conforming to AWWA C602.
- E. At sharp bends, specials and areas closely adjacent to valves, and defective areas, apply cement-mortar lining by hand.
- F. Assure cement-mortar lining does not interfere with operations of air valves, hydrants, service laterals, valves and other appurtenances. Contractor to blow back to clear service connections.
- G. Do not pressurize or place back in service cleaned and lined pipe until cement-mortar lining has been satisfactorily cured and not before 72 hours have passed after completion of lining operations in pipeline section.

3.6 INSTALLATION OF NEW VALVES AND HYDRANT ASSEMBLIES

- A. Perform work in accordance with Sections 02640 and 02645.

3.7 DISINFECTION AND FLUSHING

- A. Disinfect and flush pipeline sections, including connections, valves, hydrant laterals, as specified in Section 02675 after cement-mortar lining completed and cured.
- B. Prevent contamination of water in existing water mains. Dispose of water used in disinfecting and flushing in a manner acceptable to the Engineer.

3.9 CONTRACT CLOSEOUT

- A. Provide in accordance with Section 01700.

END OF SECTION 02711

SECTION 02761

BYPASS FLOW HANDLING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes furnishing all labor, materials, equipment and appurtenant work to satisfactorily maintain water service to customers connected to pipelines which may be disturbed or taken out of service during the work of this contract.
- B. Temporary piping used for fire protection shall be a minimum of 6-inch diameter. Four (4) inch diameter pipe may be used upon review by the Engineer and provided the line is connected to existing system at a minimum of two locations. Pipe for potable water shall be a minimum of 2-inch diameter.
- C. Related Sections include the following:
 - 1. Section 02615 – Ductile Iron Pipe and Fittings
 - 2. Section 02640 – Valves and Appurtenances
 - 3. Section 02645 – Hydrants
 - 4. Section 02711 – Cleaning and Cement Mortar Lining

1.3 SUBMITTALS

- A. Submit the following in accordance with Section 01300 – SUBMITTAL PROCEDURES:
 - 1. Submit to the Engineer, the Owner and the local Fire Department for review, prior to providing temporary service, a complete by-pass piping layout including specific by-pass pipe diameter to be used in specific locations and types of temporary fire hydrants.
 - 2. Submit to the Engineer for review Shop Drawings detailing pipe, hose and temporary fire hydrants to be furnished and utilized for use in conjunction with the temporary by-pass pipe and connections to services and laterals.

3. Submit to the Engineer for review, descriptive literature detailing disinfection procedures relating to the by-pass piping prior to its use.
4. Materials used for wetted surface metals in contact with potable water shall be lead free with lead level not exceeding 0.25%. Materials shall comply with the 2014 Safe Drinking Water Act Lead Reduction law and comply with NSF 372. Submit certification that all pipe, valves and fittings are in full compliance with latest EPA lead free requirements.

1.4 QUALITY ASSURANCE

- A. Provide in accordance with Section 01400 and as specified.
- B. The Contractor designing and installing the bypass flow handling system shall have completed at least five (5) projects of similar size and complexity as this project in the United States within the past three (3) years. Contractor may employ the services of a subcontractor that specializes in this work to fulfill this requirement.
- C. Rejection of any subcontractor and/or manufacturer by the Engineer due to insufficient qualifications shall not be grounds for modifications to the Contract Documents such as change in scope, time of completion or contract amount.

1.5 DELIVERY, STORAGE AND HANDLING

- A. Provide in accordance with Section 01610.

PART 2 - PRODUCTS

2.1 PIPE AND MATERIALS

- A. Piping and materials to be used by the Contractor shall be PVC or steel and have been previously reviewed by the Engineer and shall be fully adequate to withstand the distribution system pressures in the vicinity of project.
- B. All by-pass piping connected to fire hydrants must be provided with a tee and valve for each hose connection so as to maintain sufficient fire protection during the course of the work.
- C. All temporary piping, valves and appurtenances shall be "lead free". Materials used for wetted surface metals in contact with potable water shall be lead free with lead level not exceeding 0.25%. Materials shall comply with the 2014 Safe Drinking Water Act Lead Reduction law and comply with NSF 372.

PART 3 – EXECUTION

3.1 TEMPORARY WATER SERVICE MAINTENANCE

- A. All Pipe and fittings shall be watertight and shall be disinfected prior to being put into service. Disinfection and testing shall be performed by the Contractor and shall comply with Sections 02675 and 02704 of the specifications.
- B. Temporary by-pass facilities shall include hoses and necessary outlets and fittings to each service connection. The Contractor shall furnish, install, and maintain the temporary lines in a safe and operative condition at all times. After service has been restored to a section of water main, the Contractor shall remove the temporary by-pass and related facilities and shall leave the work site in its original condition.
- C. Temporary piping shall be installed adjacent to the roadways where it will cause the least obstruction and where it will be least susceptible to damage. At street intersections or access ways, the pipe shall be installed in a shallow trench to be overlaid with temporary bituminous pavement. At driveways, pipe crossings shall be provided utilizing cold patch cover or other method acceptable to the Engineer.
- D. Contractor to provide 24-hour emergency service personnel to fix and repair any damage to temporary by-pass piping. Contractor to furnish Owner with name and telephone number of person assigned to emergency repair service. Said person shall be capable of arriving at site within 1-hour of notification and providing necessary tools, equipment, and labor to repair damaged by-pass line. If emergency personnel fail to arrive, Owner's forces shall be authorized to take corrective actions, and all costs for labor, materials and equipment shall be backcharged to the Contractor. Minimum charge for Owner's forces shall be two (2) men at 4 hours minimum, overtime rate, plus materials and equipment costs. All backcharges shall be deducted from payments due the Contractor for work performed under this contract.
- E. Water for temporary servicing shall be taken from the nearest available fire hydrant, or as directed by the Engineer and the Owner. If hydrants are unavailable, below ground taps for by-pass connection will be installed by the Contractor under the supervision of the Engineer and the Owner.
- F. All dwellings, whether occupied at the time of the project or not, shall be provided with temporary water service. Prior to activating the service, the Contractor shall disinfect and flush the piping. The Engineer shall review the temporary piping system prior to placing in service.
- G. Prior to installing and activating the temporary service, the Contractor shall notify the Engineer and the Owner in advance to allow the Owner to notify all customers accordingly.
- H. The Contractor shall operate all valves with an Owner's representative present. All necessary safety precautions, including traffic cones and highway safety barriers, shall be provided by the Contractor while operating valves in roadways.
- I. When replacing defective sideline valves, temporary by-pass piping shall not be used for the sole purpose of feeding customers affected by the temporary

shutdown of service. The shutdown shall be coordinated with the Owner and the defective valve shall be replaced.

- J. Temporary fire hydrants shall be furnished, installed and maintained by the Contractor and shall be placed adjacent to existing hydrants while they are out of service procedures. Temporary hydrants shall be maintained by the Contractor until the existing hydrants are restored to service.
- K. Restoration of service to the customer, including disconnection from the by-pass system and reconnection to the new pipeline, is the Contractor's responsibility and shall be performed at his expense.
- L. Contractor shall be responsible for restoring adjacent properties to original condition. All paved roadways, access ways and driveways shall be repaired and repaved to original condition.

3.3 CONTRACT CLOSEOUT

- A. Provide in accordance with Section 01700.

END OF SECTION 02761

PREVAILING WAGE RATES

PAYROLL REPORT FORM COMPLIANCE FORM



DEVAL L. PATRICK
Governor

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

Prevailing Wage Rates

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

RACHEL KAPRIELIAN
Secretary
HEATHER E. ROWE
Director

Awarding Authority: City of Somerville

Contract Number:

City/Town: SOMERVILLE

Description of Work: Webster Avenue Water Main Upgrades

Job Location: Webster Avenue

Information about Prevailing Wage Schedules for Awarding Authorities and Contractors

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

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
Construction						
(2 AXLE) DRIVER - EQUIPMENT TEAMSTERS JOINT COUNCIL NO. 10 ZONE A	08/01/2014	\$32.40	\$9.91	\$8.80	\$0.00	\$51.11
	12/01/2014	\$32.40	\$9.91	\$9.33	\$0.00	\$51.64
	06/01/2015	\$32.75	\$9.91	\$9.33	\$0.00	\$51.99
	08/01/2015	\$32.75	\$10.41	\$9.33	\$0.00	\$52.49
	12/01/2015	\$32.75	\$10.41	\$10.08	\$0.00	\$53.24
	06/01/2016	\$33.25	\$10.41	\$10.08	\$0.00	\$53.74
	08/01/2016	\$33.25	\$10.91	\$10.08	\$0.00	\$54.24
	12/01/2016	\$33.25	\$10.91	\$10.89	\$0.00	\$55.05
(3 AXLE) DRIVER - EQUIPMENT TEAMSTERS JOINT COUNCIL NO. 10 ZONE A	08/01/2014	\$32.47	\$9.91	\$8.80	\$0.00	\$51.18
	12/01/2014	\$32.47	\$9.91	\$9.33	\$0.00	\$51.71
	06/01/2015	\$32.82	\$9.91	\$9.33	\$0.00	\$52.06
	08/01/2015	\$32.82	\$10.41	\$9.33	\$0.00	\$52.56
	12/01/2015	\$32.82	\$10.41	\$10.08	\$0.00	\$53.31
	06/01/2016	\$33.32	\$10.41	\$10.08	\$0.00	\$53.81
	08/01/2016	\$33.32	\$10.91	\$10.08	\$0.00	\$54.31
	12/01/2016	\$33.32	\$10.91	\$10.89	\$0.00	\$55.12
(4 & 5 AXLE) DRIVER - EQUIPMENT TEAMSTERS JOINT COUNCIL NO. 10 ZONE A	08/01/2014	\$32.59	\$9.91	\$8.80	\$0.00	\$51.30
	12/01/2014	\$32.59	\$9.91	\$9.33	\$0.00	\$51.83
	06/01/2015	\$32.94	\$9.91	\$9.33	\$0.00	\$52.18
	08/01/2015	\$32.94	\$10.41	\$9.33	\$0.00	\$52.68
	12/01/2015	\$32.94	\$10.41	\$10.08	\$0.00	\$53.43
	06/01/2016	\$33.44	\$10.41	\$10.08	\$0.00	\$53.93
	08/01/2016	\$33.44	\$10.91	\$10.08	\$0.00	\$54.43
	12/01/2016	\$33.44	\$10.91	\$10.89	\$0.00	\$55.24
ADS/SUBMERSIBLE PILOT PILE DRIVER LOCAL 56 (ZONE 1)	08/01/2014	\$87.36	\$9.80	\$18.17	\$0.00	\$115.33
	08/01/2015	\$90.51	\$9.80	\$18.17	\$0.00	\$118.48
AIR TRACK OPERATOR LABORERS - ZONE 1	06/01/2014	\$34.85	\$7.30	\$12.70	\$0.00	\$54.85
	12/01/2014	\$35.60	\$7.30	\$12.70	\$0.00	\$55.60
	06/01/2015	\$36.35	\$7.30	\$12.70	\$0.00	\$56.35
	12/01/2015	\$37.10	\$7.30	\$12.70	\$0.00	\$57.10
	06/01/2016	\$37.85	\$7.30	\$12.70	\$0.00	\$57.85
	12/01/2016	\$38.85	\$7.30	\$12.70	\$0.00	\$58.85
For apprentice rates see "Apprentice- LABORER"						
ASBESTOS REMOVER - PIPE / MECH. EQUIPT. HEAT & FROST INSULATORS LOCAL 6 (BOSTON)	06/01/2014	\$31.58	\$10.40	\$5.95	\$0.00	\$47.93
	12/01/2014	\$32.48	\$10.40	\$5.95	\$0.00	\$48.83
	06/01/2015	\$33.43	\$10.40	\$5.95	\$0.00	\$49.78
	12/01/2015	\$34.38	\$10.40	\$5.95	\$0.00	\$50.73
ASPHALT RAKER LABORERS - ZONE 1	06/01/2014	\$34.35	\$7.30	\$12.70	\$0.00	\$54.35
	12/01/2014	\$35.10	\$7.30	\$12.70	\$0.00	\$55.10
	06/01/2015	\$35.85	\$7.30	\$12.70	\$0.00	\$55.85
	12/01/2015	\$36.60	\$7.30	\$12.70	\$0.00	\$56.60
	06/01/2016	\$37.35	\$7.30	\$12.70	\$0.00	\$57.35
	12/01/2016	\$38.35	\$7.30	\$12.70	\$0.00	\$58.35
For apprentice rates see "Apprentice- LABORER"						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
ASPHALT/CONCRETE/CRUSHER PLANT-ON SITE <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2014	\$41.49	\$10.00	\$14.20	\$0.00	\$65.69
	12/01/2014	\$42.49	\$10.00	\$14.20	\$0.00	\$66.69
	06/01/2015	\$43.24	\$10.00	\$14.20	\$0.00	\$67.44
	12/01/2015	\$44.49	\$10.00	\$14.20	\$0.00	\$68.69
	06/01/2016	\$45.24	\$10.00	\$14.20	\$0.00	\$69.44
	12/01/2016	\$46.49	\$10.00	\$14.20	\$0.00	\$70.69
	06/01/2017	\$47.49	\$10.00	\$14.20	\$0.00	\$71.69
	12/01/2017	\$48.49	\$10.00	\$14.20	\$0.00	\$72.69
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
BACKHOE/FRONT-END LOADER <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2014	\$41.49	\$10.00	\$14.20	\$0.00	\$65.69
	12/01/2014	\$42.49	\$10.00	\$14.20	\$0.00	\$66.69
	06/01/2015	\$43.24	\$10.00	\$14.20	\$0.00	\$67.44
	12/01/2015	\$44.49	\$10.00	\$14.20	\$0.00	\$68.69
	06/01/2016	\$45.24	\$10.00	\$14.20	\$0.00	\$69.44
	12/01/2016	\$46.49	\$10.00	\$14.20	\$0.00	\$70.69
	06/01/2017	\$47.49	\$10.00	\$14.20	\$0.00	\$71.69
	12/01/2017	\$48.49	\$10.00	\$14.20	\$0.00	\$72.69
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
BARCO-TYPE JUMPING TAMPER <i>LABORERS - ZONE 1</i>	06/01/2014	\$34.35	\$7.30	\$12.70	\$0.00	\$54.35
	12/01/2014	\$35.10	\$7.30	\$12.70	\$0.00	\$55.10
	06/01/2015	\$35.85	\$7.30	\$12.70	\$0.00	\$55.85
	12/01/2015	\$36.60	\$7.30	\$12.70	\$0.00	\$56.60
	06/01/2016	\$37.35	\$7.30	\$12.70	\$0.00	\$57.35
	12/01/2016	\$38.35	\$7.30	\$12.70	\$0.00	\$58.35
For apprentice rates see "Apprentice- LABORER"						
BLOCK PAVER, RAMMER / CURB SETTER <i>LABORERS - ZONE 1</i>	06/01/2014	\$34.85	\$7.30	\$12.70	\$0.00	\$54.85
	12/01/2014	\$35.60	\$7.30	\$12.70	\$0.00	\$55.60
	06/01/2015	\$36.35	\$7.30	\$12.70	\$0.00	\$56.35
	12/01/2015	\$37.10	\$7.30	\$12.70	\$0.00	\$57.10
	06/01/2016	\$37.85	\$7.30	\$12.70	\$0.00	\$57.85
	12/01/2016	\$38.85	\$7.30	\$12.70	\$0.00	\$58.85
For apprentice rates see "Apprentice- LABORER"						
BOILER MAKER <i>BOILERMAKERS LOCAL 29</i>	01/01/2010	\$37.70	\$6.97	\$11.18	\$0.00	\$55.85

Apprentice - BOILERMAKER - Local 29**Effective Date - 01/01/2010**

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

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

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

Apprentice - BRICK/PLASTER/CEMENT MASON - Local 3 Boston**Effective Date - 08/01/2014**

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

Effective Date - 02/01/2015

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$24.76	\$10.18	\$18.22	\$0.00	\$53.16
2	60	\$29.71	\$10.18	\$18.22	\$0.00	\$58.11
3	70	\$34.66	\$10.18	\$18.22	\$0.00	\$63.06
4	80	\$39.62	\$10.18	\$18.22	\$0.00	\$68.02
5	90	\$44.57	\$10.18	\$18.22	\$0.00	\$72.97

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

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
BULLDOZER/GRADER/SCRAPER <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2014	\$41.10	\$10.00	\$14.20	\$0.00	\$65.30
	12/01/2014	\$42.09	\$10.00	\$14.20	\$0.00	\$66.29
	06/01/2015	\$42.83	\$10.00	\$14.20	\$0.00	\$67.03
	12/01/2015	\$44.07	\$10.00	\$14.20	\$0.00	\$68.27
	06/01/2016	\$44.82	\$10.00	\$14.20	\$0.00	\$69.02
	12/01/2016	\$46.05	\$10.00	\$14.20	\$0.00	\$70.25
	06/01/2017	\$47.04	\$10.00	\$14.20	\$0.00	\$71.24
	12/01/2017	\$48.03	\$10.00	\$14.20	\$0.00	\$72.23
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
CAISSON & UNDERPINNING BOTTOM MAN <i>LABORERS - FOUNDATION AND MARINE</i>	06/01/2014	\$35.20	\$7.30	\$12.90	\$0.00	\$55.40
	12/01/2014	\$35.95	\$7.30	\$12.90	\$0.00	\$56.15
	06/01/2015	\$36.70	\$7.30	\$12.90	\$0.00	\$56.90
	12/01/2015	\$37.45	\$7.30	\$12.90	\$0.00	\$57.65
	06/01/2016	\$38.20	\$7.30	\$12.90	\$0.00	\$58.40
	12/01/2016	\$39.20	\$7.30	\$12.90	\$0.00	\$59.40
For apprentice rates see "Apprentice- LABORER"						
CAISSON & UNDERPINNING LABORER <i>LABORERS - FOUNDATION AND MARINE</i>	06/01/2014	\$34.05	\$7.30	\$12.90	\$0.00	\$54.25
	12/01/2014	\$34.80	\$7.30	\$12.90	\$0.00	\$55.00
	06/01/2015	\$35.55	\$7.30	\$12.90	\$0.00	\$55.75
	12/01/2015	\$36.30	\$7.30	\$12.90	\$0.00	\$56.50
	06/01/2016	\$37.05	\$7.30	\$12.90	\$0.00	\$57.25
	12/01/2016	\$38.05	\$7.30	\$12.90	\$0.00	\$58.25
For apprentice rates see "Apprentice- LABORER"						
CAISSON & UNDERPINNING TOP MAN <i>LABORERS - FOUNDATION AND MARINE</i>	06/01/2014	\$34.05	\$7.30	\$12.90	\$0.00	\$54.25
	12/01/2014	\$34.80	\$7.30	\$12.90	\$0.00	\$55.00
	06/01/2015	\$35.55	\$7.30	\$12.90	\$0.00	\$55.75
	12/01/2015	\$36.30	\$7.30	\$12.90	\$0.00	\$56.50
	06/01/2016	\$37.05	\$7.30	\$12.90	\$0.00	\$57.25
	12/01/2016	\$38.05	\$7.30	\$12.90	\$0.00	\$58.25
For apprentice rates see "Apprentice- LABORER"						
CARBIDE CORE DRILL OPERATOR <i>LABORERS - ZONE 1</i>	06/01/2014	\$34.35	\$7.30	\$12.70	\$0.00	\$54.35
	12/01/2014	\$35.10	\$7.30	\$12.70	\$0.00	\$55.10
	06/01/2015	\$35.85	\$7.30	\$12.70	\$0.00	\$55.85
	12/01/2015	\$36.60	\$7.30	\$12.70	\$0.00	\$56.60
	06/01/2016	\$37.35	\$7.30	\$12.70	\$0.00	\$57.35
	12/01/2016	\$38.35	\$7.30	\$12.70	\$0.00	\$58.35
For apprentice rates see "Apprentice- LABORER"						
CARPENTER <i>CARPENTERS -ZONE 1 (Metro Boston)</i>	09/01/2014	\$41.65	\$9.80	\$16.11	\$0.00	\$67.56
	03/01/2015	\$42.67	\$9.80	\$16.11	\$0.00	\$68.58

Apprentice - CARPENTER - Zone 1 Metro Boston**Effective Date - 09/01/2014**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$20.83	\$9.80	\$1.57	\$0.00	\$32.20
2	60	\$24.99	\$9.80	\$1.57	\$0.00	\$36.36
3	70	\$29.16	\$9.80	\$11.40	\$0.00	\$50.36
4	75	\$31.24	\$9.80	\$11.40	\$0.00	\$52.44
5	80	\$33.32	\$9.80	\$12.97	\$0.00	\$56.09
6	80	\$33.32	\$9.80	\$12.97	\$0.00	\$56.09
7	90	\$37.49	\$9.80	\$14.54	\$0.00	\$61.83
8	90	\$37.49	\$9.80	\$14.54	\$0.00	\$61.83

Effective Date - 03/01/2015

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$21.34	\$9.80	\$1.57	\$0.00	\$32.71
2	60	\$25.60	\$9.80	\$1.57	\$0.00	\$36.97
3	70	\$29.87	\$9.80	\$11.40	\$0.00	\$51.07
4	75	\$32.00	\$9.80	\$11.40	\$0.00	\$53.20
5	80	\$34.14	\$9.80	\$12.97	\$0.00	\$56.91
6	80	\$34.14	\$9.80	\$12.97	\$0.00	\$56.91
7	90	\$38.40	\$9.80	\$14.54	\$0.00	\$62.74
8	90	\$38.40	\$9.80	\$14.54	\$0.00	\$62.74

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

CEMENT MASONRY/PLASTERING	07/01/2014	\$43.77	\$10.90	\$18.71	\$1.30	\$74.68
BRICKLAYERS LOCAL 3 (BOSTON)	01/01/2015	\$44.69	\$10.90	\$18.71	\$1.30	\$75.60
	07/01/2015	\$45.29	\$10.90	\$18.71	\$1.30	\$76.20
	01/01/2016	\$46.21	\$10.90	\$18.71	\$1.30	\$77.12

Classification

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

Apprentice - CEMENT MASONRY/PLASTERING - Eastern Mass (Boston)
Effective Date - 07/01/2014

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

Effective Date - 01/01/2015

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$22.35	\$10.90	\$12.21	\$1.30	\$46.76
2	60	\$26.81	\$10.90	\$13.71	\$1.30	\$52.72
3	65	\$29.05	\$10.90	\$14.71	\$1.30	\$55.96
4	70	\$31.28	\$10.90	\$15.71	\$1.30	\$59.19
5	75	\$33.52	\$10.90	\$16.71	\$1.30	\$62.43
6	80	\$35.75	\$10.90	\$17.71	\$1.30	\$65.66
7	90	\$40.22	\$10.90	\$18.71	\$1.30	\$71.13

Notes:

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

Apprentice to Journeyworker Ratio:1:3
CHAIN SAW OPERATOR
LABORERS - ZONE 1

06/01/2014	\$34.35	\$7.30	\$12.70	\$0.00	\$54.35
12/01/2014	\$35.10	\$7.30	\$12.70	\$0.00	\$55.10
06/01/2015	\$35.85	\$7.30	\$12.70	\$0.00	\$55.85
12/01/2015	\$36.60	\$7.30	\$12.70	\$0.00	\$56.60
06/01/2016	\$37.35	\$7.30	\$12.70	\$0.00	\$57.35
12/01/2016	\$38.35	\$7.30	\$12.70	\$0.00	\$58.35

For apprentice rates see "Apprentice- LABORER"

CLAM SHELLS/SLURRY BUCKETS/HEADING MACHINES
OPERATING ENGINEERS LOCAL 4

06/01/2014	\$42.49	\$10.00	\$14.20	\$0.00	\$66.69
12/01/2014	\$43.49	\$10.00	\$14.20	\$0.00	\$67.69
06/01/2015	\$44.24	\$10.00	\$14.20	\$0.00	\$68.44
12/01/2015	\$45.49	\$10.00	\$14.20	\$0.00	\$69.69
06/01/2016	\$46.24	\$10.00	\$14.20	\$0.00	\$70.44
12/01/2016	\$47.49	\$10.00	\$14.20	\$0.00	\$71.69
06/01/2017	\$48.49	\$10.00	\$14.20	\$0.00	\$72.69
12/01/2017	\$49.49	\$10.00	\$14.20	\$0.00	\$73.69

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
COMPRESSOR OPERATOR OPERATING ENGINEERS LOCAL 4	06/01/2014	\$28.80	\$10.00	\$14.20	\$0.00	\$53.00
	12/01/2014	\$29.50	\$10.00	\$14.20	\$0.00	\$53.70
	06/01/2015	\$30.02	\$10.00	\$14.20	\$0.00	\$54.22
	12/01/2015	\$30.89	\$10.00	\$14.20	\$0.00	\$55.09
	06/01/2016	\$31.41	\$10.00	\$14.20	\$0.00	\$55.61
	12/01/2016	\$32.28	\$10.00	\$14.20	\$0.00	\$56.48
	06/01/2017	\$32.97	\$10.00	\$14.20	\$0.00	\$57.17
	12/01/2017	\$33.66	\$10.00	\$14.20	\$0.00	\$57.86

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

DELEADER (BRIDGE) PAINTERS LOCAL 35 - ZONE 1	07/01/2014	\$46.76	\$7.85	\$16.10	\$0.00	\$70.71
	01/01/2015	\$47.66	\$7.85	\$16.10	\$0.00	\$71.61
	07/01/2015	\$48.56	\$7.85	\$16.10	\$0.00	\$72.51
	01/01/2016	\$49.51	\$7.85	\$16.10	\$0.00	\$73.46
	07/01/2016	\$50.46	\$7.85	\$16.10	\$0.00	\$74.41
	01/01/2017	\$51.41	\$7.85	\$16.10	\$0.00	\$75.36

Apprentice - PAINTER Local 35 - BRIDGES/TANKS

Effective Date - 07/01/2014

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

Effective Date - 01/01/2015

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

Notes:

Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
DEMO: ADZEMAN <i>LABORERS - ZONE 1</i>	06/01/2014	\$34.25	\$7.30	\$12.70	\$0.00	\$54.25
	12/01/2014	\$35.00	\$7.30	\$12.70	\$0.00	\$55.00
	06/01/2015	\$35.75	\$7.30	\$12.70	\$0.00	\$55.75
	12/01/2015	\$36.50	\$7.30	\$12.70	\$0.00	\$56.50
For apprentice rates see "Apprentice- LABORER"						
DEMO: BACKHOE/LOADER/HAMMER OPERATOR <i>LABORERS - ZONE 1</i>	06/01/2014	\$35.25	\$7.30	\$12.70	\$0.00	\$55.25
	12/01/2014	\$36.00	\$7.30	\$12.70	\$0.00	\$56.00
	06/01/2015	\$36.75	\$7.30	\$12.70	\$0.00	\$56.75
	12/01/2015	\$37.50	\$7.30	\$12.70	\$0.00	\$57.50
For apprentice rates see "Apprentice- LABORER"						
DEMO: BURNERS <i>LABORERS - ZONE 1</i>	06/01/2014	\$35.00	\$7.30	\$12.70	\$0.00	\$55.00
	12/01/2014	\$35.75	\$7.30	\$12.70	\$0.00	\$55.75
	06/01/2015	\$36.50	\$7.30	\$12.70	\$0.00	\$56.50
	12/01/2015	\$37.25	\$7.30	\$12.70	\$0.00	\$57.25
For apprentice rates see "Apprentice- LABORER"						
DEMO: CONCRETE CUTTER/SAWYER <i>LABORERS - ZONE 1</i>	06/01/2014	\$35.25	\$7.30	\$12.70	\$0.00	\$55.25
	12/01/2014	\$36.00	\$7.30	\$12.70	\$0.00	\$56.00
	06/01/2015	\$36.75	\$7.30	\$12.70	\$0.00	\$56.75
	12/01/2015	\$37.50	\$7.30	\$12.70	\$0.00	\$57.50
For apprentice rates see "Apprentice- LABORER"						
DEMO: JACKHAMMER OPERATOR <i>LABORERS - ZONE 1</i>	06/01/2014	\$35.00	\$7.30	\$12.70	\$0.00	\$55.00
	12/01/2014	\$35.75	\$7.30	\$12.70	\$0.00	\$55.75
	06/01/2015	\$36.50	\$7.30	\$12.70	\$0.00	\$56.50
	12/01/2015	\$37.25	\$7.30	\$12.70	\$0.00	\$57.25
For apprentice rates see "Apprentice- LABORER"						
DEMO: WRECKING LABORER <i>LABORERS - ZONE 1</i>	06/01/2014	\$34.25	\$7.30	\$12.70	\$0.00	\$54.25
	12/01/2014	\$35.00	\$7.30	\$12.70	\$0.00	\$55.00
	06/01/2015	\$35.75	\$7.30	\$12.70	\$0.00	\$55.75
	12/01/2015	\$36.50	\$7.30	\$12.70	\$0.00	\$56.50
For apprentice rates see "Apprentice- LABORER"						
DIRECTIONAL DRILL MACHINE OPERATOR <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2014	\$41.10	\$10.00	\$14.20	\$0.00	\$65.30
	12/01/2014	\$42.09	\$10.00	\$14.20	\$0.00	\$66.29
	06/01/2015	\$42.83	\$10.00	\$14.20	\$0.00	\$67.03
	12/01/2015	\$44.07	\$10.00	\$14.20	\$0.00	\$68.27
	06/01/2016	\$44.82	\$10.00	\$14.20	\$0.00	\$69.02
	12/01/2016	\$46.05	\$10.00	\$14.20	\$0.00	\$70.25
	06/01/2017	\$47.04	\$10.00	\$14.20	\$0.00	\$71.24
	12/01/2017	\$48.03	\$10.00	\$14.20	\$0.00	\$72.23
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
DIVER <i>PILE DRIVER LOCAL 56 (ZONE 1)</i>	08/01/2014	\$58.24	\$9.80	\$18.17	\$0.00	\$86.21
	08/01/2015	\$60.34	\$9.80	\$18.17	\$0.00	\$88.31
DIVER TENDER <i>PILE DRIVER LOCAL 56 (ZONE 1)</i>	08/01/2014	\$41.60	\$9.80	\$18.17	\$0.00	\$69.57
	08/01/2015	\$43.10	\$9.80	\$18.17	\$0.00	\$71.07
DIVER TENDER (EFFLUENT) <i>PILE DRIVER LOCAL 56 (ZONE 1)</i>	08/01/2014	\$62.40	\$9.80	\$18.17	\$0.00	\$90.37
	08/01/2015	\$64.65	\$9.80	\$18.17	\$0.00	\$92.62
DIVER/SLURRY (EFFLUENT) <i>PILE DRIVER LOCAL 56 (ZONE 1)</i>	08/01/2014	\$87.36	\$9.80	\$18.17	\$0.00	\$115.33
	08/01/2015	\$90.51	\$9.80	\$18.17	\$0.00	\$118.48

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
DRAWBRIDGE OPERATOR (Construction)	09/01/2014	\$44.79	\$13.00	\$15.04	\$0.00	\$72.83
ELECTRICIANS LOCAL 103	03/01/2015	\$45.17	\$13.00	\$15.40	\$0.00	\$73.57
	09/01/2015	\$46.13	\$13.00	\$15.43	\$0.00	\$74.56
	03/01/2016	\$47.08	\$13.00	\$15.46	\$0.00	\$75.54

For apprentice rates see "Apprentice- ELECTRICIAN"

ELECTRICIAN	09/01/2014	\$44.79	\$13.00	\$15.04	\$0.00	\$72.83
ELECTRICIANS LOCAL 103	03/01/2015	\$45.17	\$13.00	\$15.40	\$0.00	\$73.57
	09/01/2015	\$46.13	\$13.00	\$15.43	\$0.00	\$74.56
	03/01/2016	\$47.08	\$13.00	\$15.46	\$0.00	\$75.54

Apprentice - ELECTRICIAN - Local 103

Effective Date - 09/01/2014

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	\$17.92	\$13.00	\$0.54	\$0.00	\$31.46
2	40	\$17.92	\$13.00	\$0.54	\$0.00	\$31.46
3	45	\$20.16	\$13.00	\$11.33	\$0.00	\$44.49
4	45	\$20.16	\$13.00	\$11.33	\$0.00	\$44.49
5	50	\$22.40	\$13.00	\$11.67	\$0.00	\$47.07
6	55	\$24.63	\$13.00	\$12.01	\$0.00	\$49.64
7	60	\$26.87	\$13.00	\$12.35	\$0.00	\$52.22
8	65	\$29.11	\$13.00	\$12.68	\$0.00	\$54.79
9	70	\$31.35	\$13.00	\$13.02	\$0.00	\$57.37
10	75	\$33.59	\$13.00	\$13.36	\$0.00	\$59.95

Effective Date - 03/01/2015

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	\$18.07	\$13.00	\$0.54	\$0.00	\$31.61
2	40	\$18.07	\$13.00	\$0.54	\$0.00	\$31.61
3	45	\$20.33	\$13.00	\$11.63	\$0.00	\$44.96
4	45	\$20.33	\$13.00	\$11.63	\$0.00	\$44.96
5	50	\$22.59	\$13.00	\$11.97	\$0.00	\$47.56
6	55	\$24.84	\$13.00	\$12.32	\$0.00	\$50.16
7	60	\$27.10	\$13.00	\$12.66	\$0.00	\$52.76
8	65	\$29.36	\$13.00	\$13.00	\$0.00	\$55.36
9	70	\$31.62	\$13.00	\$13.34	\$0.00	\$57.96
10	75	\$33.88	\$13.00	\$13.69	\$0.00	\$60.57

Notes :

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

Apprentice to Journeyworker Ratio:2:3**

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

Classification

Effective Date

Base Wage

Health

Pension

Supplemental
Unemployment

Total Rate

Apprentice - ELEVATOR CONSTRUCTOR - Local 4

Effective Date - 01/01/2012

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

Notes:

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

Apprentice to Journeyworker Ratio:1:1

ELEVATOR CONSTRUCTOR HELPER ELEVATOR CONSTRUCTORS LOCAL 4	01/01/2012	\$38.59	\$8.78	\$6.96	\$0.00	\$54.33
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For apprentice rates see "Apprentice - ELEVATOR CONSTRUCTOR"

FENCE & GUARD RAIL ERECTOR LABORERS - ZONE 1	06/01/2014	\$34.35	\$7.30	\$12.70	\$0.00	\$54.35
	12/01/2014	\$35.10	\$7.30	\$12.70	\$0.00	\$55.10
	06/01/2015	\$35.85	\$7.30	\$12.70	\$0.00	\$55.85
	12/01/2015	\$36.60	\$7.30	\$12.70	\$0.00	\$56.60
	06/01/2016	\$37.35	\$7.30	\$12.70	\$0.00	\$57.35
	12/01/2016	\$38.35	\$7.30	\$12.70	\$0.00	\$58.35

For apprentice rates see "Apprentice- LABORER"

FIELD ENG.INST.PERSON-BLDG,SITE,HVY/HWY OPERATING ENGINEERS LOCAL 4	05/01/2014	\$38.87	\$10.00	\$14.18	\$0.00	\$63.05
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For apprentice rates see "Apprentice- OPERATING ENGINEERS"

FIELD ENG.PARTY CHIEF-BLDG,SITE,HVY/HWY OPERATING ENGINEERS LOCAL 4	05/01/2014	\$40.29	\$10.00	\$14.18	\$0.00	\$64.47
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For apprentice rates see "Apprentice- OPERATING ENGINEERS"

FIELD ENG.ROD PERSON-BLDG,SITE,HVY/HWY OPERATING ENGINEERS LOCAL 4	05/01/2014	\$20.92	\$10.00	\$14.18	\$0.00	\$45.10
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For apprentice rates see "Apprentice- OPERATING ENGINEERS"

FIRE ALARM INSTALLER ELECTRICIANS LOCAL 103	09/01/2014	\$44.79	\$13.00	\$15.04	\$0.00	\$72.83
	03/01/2015	\$45.17	\$13.00	\$15.40	\$0.00	\$73.57
	09/01/2015	\$46.13	\$13.00	\$15.43	\$0.00	\$74.56
	03/01/2016	\$47.08	\$13.00	\$15.46	\$0.00	\$75.54

For apprentice rates see "Apprentice- ELECTRICIAN"

FIRE ALARM REPAIR / MAINTENANCE / COMMISSIONING ELECTRICIANS LOCAL 103	09/01/2014	\$33.59	\$13.00	\$13.36	\$0.00	\$59.95
	03/01/2015	\$33.88	\$13.00	\$13.70	\$0.00	\$60.58
	09/01/2015	\$34.60	\$13.00	\$13.72	\$0.00	\$61.32
	03/01/2016	\$35.31	\$13.00	\$13.74	\$0.00	\$62.05

For apprentice rates see "Apprentice- TELECOMMUNICATIONS TECHNICIAN"

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
FIREMAN (ASST. ENGINEER) OPERATING ENGINEERS LOCAL 4	06/01/2014	\$34.59	\$10.00	\$14.20	\$0.00	\$58.79
	12/01/2014	\$35.43	\$10.00	\$14.20	\$0.00	\$59.63
	06/01/2015	\$36.05	\$10.00	\$14.20	\$0.00	\$60.25
	12/01/2015	\$37.10	\$10.00	\$14.20	\$0.00	\$61.30
	06/01/2016	\$37.72	\$10.00	\$14.20	\$0.00	\$61.92
	12/01/2016	\$38.76	\$10.00	\$14.20	\$0.00	\$62.96
	06/01/2017	\$39.60	\$10.00	\$14.20	\$0.00	\$63.80
	12/01/2017	\$40.43	\$10.00	\$14.20	\$0.00	\$64.63
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
FLAGGER & SIGNALER LABORERS - ZONE 1	06/01/2014	\$20.50	\$7.30	\$12.70	\$0.00	\$40.50
	12/01/2014	\$20.50	\$7.30	\$12.70	\$0.00	\$40.50
	06/01/2015	\$20.50	\$7.30	\$12.70	\$0.00	\$40.50
	12/01/2015	\$20.50	\$7.30	\$12.70	\$0.00	\$40.50
	06/01/2016	\$20.50	\$7.30	\$12.70	\$0.00	\$40.50
	12/01/2016	\$20.50	\$7.30	\$12.70	\$0.00	\$40.50
For apprentice rates see "Apprentice- LABORER"						
FLOORCOVERER FLOORCOVERERS LOCAL 2168 ZONE 1	09/01/2014	\$40.40	\$9.80	\$17.21	\$0.00	\$67.41

Apprentice - FLOORCOVERER - Local 2168 Zone 1

Effective Date - 09/01/2014

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

Notes:

Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

FORK LIFT/CHERRY PICKER OPERATING ENGINEERS LOCAL 4	06/01/2014	\$41.49	\$10.00	\$14.20	\$0.00	\$65.69
	12/01/2014	\$42.49	\$10.00	\$14.20	\$0.00	\$66.69
	06/01/2015	\$43.24	\$10.00	\$14.20	\$0.00	\$67.44
	12/01/2015	\$44.49	\$10.00	\$14.20	\$0.00	\$68.69
	06/01/2016	\$45.24	\$10.00	\$14.20	\$0.00	\$69.44
	12/01/2016	\$46.49	\$10.00	\$14.20	\$0.00	\$70.69
	06/01/2017	\$47.49	\$10.00	\$14.20	\$0.00	\$71.69
	12/01/2017	\$48.49	\$10.00	\$14.20	\$0.00	\$72.69

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
GENERATOR/LIGHTING PLANT/HEATERS <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2014	\$28.80	\$10.00	\$14.20	\$0.00	\$53.00
	12/01/2014	\$29.50	\$10.00	\$14.20	\$0.00	\$53.70
	06/01/2015	\$30.02	\$10.00	\$14.20	\$0.00	\$54.22
	12/01/2015	\$30.89	\$10.00	\$14.20	\$0.00	\$55.09
	06/01/2016	\$31.41	\$10.00	\$14.20	\$0.00	\$55.61
	12/01/2016	\$32.28	\$10.00	\$14.20	\$0.00	\$56.48
	06/01/2017	\$32.97	\$10.00	\$14.20	\$0.00	\$57.17
	12/01/2017	\$33.66	\$10.00	\$14.20	\$0.00	\$57.86

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

GLAZIER (GLASS PLANK/AIR BARRIER/INTERIOR SYSTEMS) <i>GLAZIERS LOCAL 35 (ZONE 1)</i>	07/01/2014	\$42.05	\$7.85	\$16.10	\$0.00	\$66.00
	01/01/2015	\$42.95	\$7.85	\$16.10	\$0.00	\$66.90
	07/01/2015	\$43.85	\$7.85	\$16.10	\$0.00	\$67.80
	01/01/2016	\$44.80	\$7.85	\$16.10	\$0.00	\$68.75
	07/01/2016	\$45.75	\$7.85	\$16.10	\$0.00	\$69.70
	01/01/2017	\$46.70	\$7.85	\$16.10	\$0.00	\$70.65

Apprentice - GLAZIER - Local 35 Zone 1

Effective Date - 07/01/2014

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

Effective Date - 01/01/2015

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

Notes:

Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
HOISTING ENGINEER/CRANES/GRADALLS OPERATING ENGINEERS LOCAL 4	06/01/2014	\$41.49	\$10.00	\$14.20	\$0.00	\$65.69
	12/01/2014	\$42.49	\$10.00	\$14.20	\$0.00	\$66.69
	06/01/2015	\$43.24	\$10.00	\$14.20	\$0.00	\$67.44
	12/01/2015	\$44.49	\$10.00	\$14.20	\$0.00	\$68.69
	06/01/2016	\$45.24	\$10.00	\$14.20	\$0.00	\$69.44
	12/01/2016	\$46.49	\$10.00	\$14.20	\$0.00	\$70.69
	06/01/2017	\$47.49	\$10.00	\$14.20	\$0.00	\$71.69
	12/01/2017	\$48.49	\$10.00	\$14.20	\$0.00	\$72.69

Apprentice - OPERATING ENGINEERS - Local 4

Effective Date - 06/01/2014

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	55	\$22.82	\$10.00	\$0.00	\$0.00	\$32.82
2	60	\$24.89	\$10.00	\$14.18	\$0.00	\$49.07
3	65	\$26.97	\$10.00	\$14.18	\$0.00	\$51.15
4	70	\$29.04	\$10.00	\$14.18	\$0.00	\$53.22
5	75	\$31.12	\$10.00	\$14.18	\$0.00	\$55.30
6	80	\$33.19	\$10.00	\$14.18	\$0.00	\$57.37
7	85	\$35.27	\$10.00	\$14.18	\$0.00	\$59.45
8	90	\$37.34	\$10.00	\$14.18	\$0.00	\$61.52

Effective Date - 12/01/2014

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	55	\$23.37	\$10.00	\$0.00	\$0.00	\$33.37
2	60	\$25.49	\$10.00	\$14.18	\$0.00	\$49.67
3	65	\$27.62	\$10.00	\$14.18	\$0.00	\$51.80
4	70	\$29.74	\$10.00	\$14.18	\$0.00	\$53.92
5	75	\$31.87	\$10.00	\$14.18	\$0.00	\$56.05
6	80	\$33.99	\$10.00	\$14.18	\$0.00	\$58.17
7	85	\$36.12	\$10.00	\$14.18	\$0.00	\$60.30
8	90	\$38.24	\$10.00	\$14.18	\$0.00	\$62.42

Notes:

Apprentice to Journeyworker Ratio:1:6

HVAC (DUCTWORK) SHEETMETAL WORKERS LOCAL 17 - A	08/01/2014	\$42.79	\$9.82	\$20.54	\$2.19	\$75.34
	02/01/2015	\$43.69	\$9.82	\$20.54	\$2.19	\$76.24
	08/01/2015	\$44.69	\$9.82	\$20.54	\$2.19	\$77.24
	02/01/2016	\$45.69	\$9.82	\$20.54	\$2.19	\$78.24
	08/01/2016	\$46.84	\$9.82	\$20.54	\$2.19	\$79.39
	02/01/2017	\$47.94	\$9.82	\$20.54	\$2.19	\$80.49
	08/01/2017	\$49.04	\$9.82	\$20.54	\$2.19	\$81.59
	02/01/2018	\$50.19	\$9.82	\$20.54	\$2.19	\$82.74

For apprentice rates see "Apprentice- SHEET METAL WORKER"

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
HVAC (ELECTRICAL CONTROLS) <i>ELECTRICIANS LOCAL 103</i>	09/01/2014	\$44.79	\$13.00	\$15.04	\$0.00	\$72.83
	03/01/2015	\$45.17	\$13.00	\$15.40	\$0.00	\$73.57
	09/01/2015	\$46.13	\$13.00	\$15.43	\$0.00	\$74.56
	03/01/2016	\$47.08	\$13.00	\$15.46	\$0.00	\$75.54
For apprentice rates see "Apprentice- ELECTRICIAN"						
HVAC (TESTING AND BALANCING - AIR) <i>SHEETMETAL WORKERS LOCAL 17 - A</i>	08/01/2014	\$42.79	\$9.82	\$20.54	\$2.19	\$75.34
	02/01/2015	\$43.69	\$9.82	\$20.54	\$2.19	\$76.24
	08/01/2015	\$44.69	\$9.82	\$20.54	\$2.19	\$77.24
	02/01/2016	\$45.69	\$9.82	\$20.54	\$2.19	\$78.24
	08/01/2016	\$46.84	\$9.82	\$20.54	\$2.19	\$79.39
	02/01/2017	\$47.94	\$9.82	\$20.54	\$2.19	\$80.49
	08/01/2017	\$49.04	\$9.82	\$20.54	\$2.19	\$81.59
	02/01/2018	\$50.19	\$9.82	\$20.54	\$2.19	\$82.74
For apprentice rates see "Apprentice- SHEET METAL WORKER"						
HVAC (TESTING AND BALANCING - WATER) <i>PIPEFITTERS LOCAL 537</i>	09/01/2014	\$48.69	\$9.20	\$16.64	\$0.00	\$74.53
	03/01/2015	\$49.69	\$9.20	\$16.64	\$0.00	\$75.53
	09/01/2015	\$50.69	\$9.20	\$16.64	\$0.00	\$76.53
	03/01/2016	\$51.69	\$9.20	\$16.64	\$0.00	\$77.53
	09/01/2016	\$52.69	\$9.20	\$16.64	\$0.00	\$78.53
	03/01/2017	\$53.69	\$9.20	\$16.64	\$0.00	\$79.53
For apprentice rates see "Apprentice- PIPEFITTER" or "PLUMBER/PIPEFITTER"						
HVAC MECHANIC <i>PIPEFITTERS LOCAL 537</i>	09/01/2014	\$48.69	\$9.20	\$16.64	\$0.00	\$74.53
	03/01/2015	\$49.69	\$9.20	\$16.64	\$0.00	\$75.53
	09/01/2015	\$50.69	\$9.20	\$16.64	\$0.00	\$76.53
	03/01/2016	\$51.69	\$9.20	\$16.64	\$0.00	\$77.53
	09/01/2016	\$52.69	\$9.20	\$16.64	\$0.00	\$78.53
	03/01/2017	\$53.69	\$9.20	\$16.64	\$0.00	\$79.53
For apprentice rates see "Apprentice- PIPEFITTER" or "PLUMBER/PIPEFITTER"						
HYDRAULIC DRILLS <i>LABORERS - ZONE 1</i>	06/01/2014	\$34.85	\$7.30	\$12.70	\$0.00	\$54.85
	12/01/2014	\$35.60	\$7.30	\$12.70	\$0.00	\$55.60
	06/01/2015	\$36.35	\$7.30	\$12.70	\$0.00	\$56.35
	12/01/2015	\$37.10	\$7.30	\$12.70	\$0.00	\$57.10
	06/01/2016	\$37.85	\$7.30	\$12.70	\$0.00	\$57.85
	12/01/2016	\$38.85	\$7.30	\$12.70	\$0.00	\$58.85
For apprentice rates see "Apprentice- LABORER"						
INSULATOR (PIPES & TANKS) <i>HEAT & FROST INSULATORS LOCAL 6 (BOSTON)</i>	09/01/2014	\$44.11	\$10.95	\$12.10	\$0.00	\$67.16

Classification

Effective Date Base Wage Health Pension Supplemental
Unemployment Total Rate

Apprentice - ASBESTOS INSULATOR (Pipes & Tanks) - Local 6 Boston
Effective Date - 09/01/2014

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

Notes:

Steps are 1 year

Apprentice to Journeyworker Ratio:1:4

IRONWORKER/WELDER IRONWORKERS LOCAL 7 (BOSTON AREA)	03/16/2014	\$41.19	\$7.70	\$19.25	\$0.00	\$68.14
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Apprentice - IRONWORKER - Local 7 Boston
Effective Date - 03/16/2014

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

Notes:

** Structural 1:6; Ornamental 1:4

Apprentice to Journeyworker Ratio:**

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

For apprentice rates see "Apprentice- LABORER"

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

Classification

Effective Date Base Wage Health Pension Supplemental
Unemployment Total Rate

Apprentice - LABORER - Zone 1

Effective Date - 06/01/2014

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

Effective Date - 12/01/2014

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$20.91	\$7.30	\$12.70	\$0.00	\$40.91
2	70	\$24.40	\$7.30	\$12.70	\$0.00	\$44.40
3	80	\$27.88	\$7.30	\$12.70	\$0.00	\$47.88
4	90	\$31.37	\$7.30	\$12.70	\$0.00	\$51.37

Notes:

Apprentice to Journeyworker Ratio:1:5

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

For apprentice rates see "Apprentice- LABORER"

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

For apprentice rates see "Apprentice- LABORER"

LABORER: HAZARDOUS WASTE/ASBESTOS REMOVER	06/01/2014	\$34.25	\$7.30	\$12.70	\$0.00	\$54.25
LABORERS - ZONE 1	12/01/2014	\$35.00	\$7.30	\$12.70	\$0.00	\$55.00
	06/01/2015	\$35.75	\$7.30	\$12.70	\$0.00	\$55.75
	12/01/2015	\$36.50	\$7.30	\$12.70	\$0.00	\$56.50

For apprentice rates see "Apprentice- LABORER"

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

For apprentice rates see "Apprentice- LABORER"

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
LABORER: MULTI-TRADE TENDER <i>LABORERS - ZONE 1</i>	06/01/2014	\$34.10	\$7.30	\$12.70	\$0.00	\$54.10
	12/01/2014	\$34.85	\$7.30	\$12.70	\$0.00	\$54.85
	06/01/2015	\$35.60	\$7.30	\$12.70	\$0.00	\$55.60
	12/01/2015	\$36.35	\$7.30	\$12.70	\$0.00	\$56.35
	06/01/2016	\$37.10	\$7.30	\$12.70	\$0.00	\$57.10
	12/01/2016	\$38.10	\$7.30	\$12.70	\$0.00	\$58.10
For apprentice rates see "Apprentice- LABORER"						
LABORER: TREE REMOVER <i>LABORERS - ZONE 1</i>	06/01/2014	\$34.10	\$7.30	\$12.70	\$0.00	\$54.10
	12/01/2014	\$34.85	\$7.30	\$12.70	\$0.00	\$54.85
	06/01/2015	\$35.60	\$7.30	\$12.70	\$0.00	\$55.60
	12/01/2015	\$36.35	\$7.30	\$12.70	\$0.00	\$56.35
	06/01/2016	\$37.10	\$7.30	\$12.70	\$0.00	\$57.10
	12/01/2016	\$38.10	\$7.30	\$12.70	\$0.00	\$58.10
This classification applies to all tree work associated with the removal of standing trees, and trimming and removal of branches and limbs when the work is not done for a utility company for the purpose of operation, maintenance or repair of utility company equipment. For apprentice rates see "Apprentice- LABORER"						
LASER BEAM OPERATOR <i>LABORERS - ZONE 1</i>	06/01/2014	\$34.35	\$7.30	\$12.70	\$0.00	\$54.35
	12/01/2014	\$35.10	\$7.30	\$12.70	\$0.00	\$55.10
	06/01/2015	\$35.85	\$7.30	\$12.70	\$0.00	\$55.85
	12/01/2015	\$36.60	\$7.30	\$12.70	\$0.00	\$56.60
	06/01/2016	\$37.35	\$7.30	\$12.70	\$0.00	\$57.35
	12/01/2016	\$38.35	\$7.30	\$12.70	\$0.00	\$58.35
For apprentice rates see "Apprentice- LABORER"						
MARBLE & TILE FINISHERS <i>BRICKLAYERS LOCAL 3 - MARBLE & TILE</i>	08/01/2014	\$37.37	\$10.18	\$16.90	\$0.00	\$64.45
	02/01/2015	\$37.82	\$10.18	\$16.90	\$0.00	\$64.90
	08/01/2015	\$38.53	\$10.18	\$16.97	\$0.00	\$65.68
	02/01/2016	\$38.98	\$10.18	\$16.97	\$0.00	\$66.13
	08/01/2016	\$39.68	\$10.18	\$17.05	\$0.00	\$66.91
	02/01/2017	\$40.14	\$10.18	\$17.05	\$0.00	\$67.37

Classification

Effective Date Base Wage Health Pension Supplemental
Unemployment Total Rate

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

Effective Date - 08/01/2014

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

Effective Date - 02/01/2015

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$18.91	\$10.18	\$16.90	\$0.00	\$45.99
2	60	\$22.69	\$10.18	\$16.90	\$0.00	\$49.77
3	70	\$26.47	\$10.18	\$16.90	\$0.00	\$53.55
4	80	\$30.26	\$10.18	\$16.90	\$0.00	\$57.34
5	90	\$34.04	\$10.18	\$16.90	\$0.00	\$61.12

Notes:

Apprentice to Journeyworker Ratio:1:3

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

Classification

Effective Date Base Wage Health Pension Supplemental
Unemployment Total Rate

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

Effective Date - 08/01/2014

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

Effective Date - 02/01/2015

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$24.78	\$10.18	\$18.22	\$0.00	\$53.18
2	60	\$29.74	\$10.18	\$18.22	\$0.00	\$58.14
3	70	\$34.69	\$10.18	\$18.22	\$0.00	\$63.09
4	80	\$39.65	\$10.18	\$18.22	\$0.00	\$68.05
5	90	\$44.60	\$10.18	\$18.22	\$0.00	\$73.00

Notes:

Apprentice to Journeyworker Ratio:1:5

MECH. SWEEPER OPERATOR (ON CONST. SITES)	06/01/2014	\$41.10	\$10.00	\$14.20	\$0.00	\$65.30
OPERATING ENGINEERS LOCAL 4	12/01/2014	\$42.09	\$10.00	\$14.20	\$0.00	\$66.29
	06/01/2015	\$42.83	\$10.00	\$14.20	\$0.00	\$67.03
	12/01/2015	\$44.07	\$10.00	\$14.20	\$0.00	\$68.27
	06/01/2016	\$44.82	\$10.00	\$14.20	\$0.00	\$69.02
	12/01/2016	\$46.05	\$10.00	\$14.20	\$0.00	\$70.25
	06/01/2017	\$47.04	\$10.00	\$14.20	\$0.00	\$71.24
	12/01/2017	\$48.03	\$10.00	\$14.20	\$0.00	\$72.23
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
MECHANICS MAINTENANCE	06/01/2014	\$41.10	\$10.00	\$14.20	\$0.00	\$65.30
OPERATING ENGINEERS LOCAL 4	12/01/2014	\$42.09	\$10.00	\$14.20	\$0.00	\$66.29
	06/01/2015	\$42.83	\$10.00	\$14.20	\$0.00	\$67.03
	12/01/2015	\$44.07	\$10.00	\$14.20	\$0.00	\$68.27
	06/01/2016	\$44.82	\$10.00	\$14.20	\$0.00	\$69.02
	12/01/2016	\$46.05	\$10.00	\$14.20	\$0.00	\$70.25
	06/01/2017	\$47.04	\$10.00	\$14.20	\$0.00	\$71.24
	12/01/2017	\$48.03	\$10.00	\$14.20	\$0.00	\$72.23
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
MILLWRIGHT (Zone 1)	04/01/2014	\$35.73	\$9.80	\$16.21	\$0.00	\$61.74
MILLWRIGHTS LOCAL 1121 - Zone 1	10/01/2014	\$36.68	\$9.80	\$16.21	\$0.00	\$62.69
	04/01/2015	\$37.64	\$9.80	\$16.21	\$0.00	\$63.65

Classification

Effective Date Base Wage Health Pension Supplemental
Unemployment Total Rate

Apprentice - MILLWRIGHT - Local 1121 Zone 1
Effective Date - 04/01/2014

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

Effective Date - 10/01/2014

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

Notes:

Steps are 2,000 hours

Apprentice to Journeyworker Ratio:1:5

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

For apprentice rates see "Apprentice- LABORER"

OILER (OTHER THAN TRUCK CRANES, GRADALLS)	06/01/2014	\$21.48	\$10.00	\$14.20	\$0.00	\$45.68
OPERATING ENGINEERS LOCAL 4	12/01/2014	\$22.00	\$10.00	\$14.20	\$0.00	\$46.20
	06/01/2015	\$22.38	\$10.00	\$14.20	\$0.00	\$46.58
	12/01/2015	\$23.03	\$10.00	\$14.20	\$0.00	\$47.23
	06/01/2016	\$23.42	\$10.00	\$14.20	\$0.00	\$47.62
	12/01/2016	\$24.07	\$10.00	\$14.20	\$0.00	\$48.27
	06/01/2017	\$24.58	\$10.00	\$14.20	\$0.00	\$48.78
	12/01/2017	\$25.10	\$10.00	\$14.20	\$0.00	\$49.30

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

OILER (TRUCK CRANES, GRADALLS)	06/01/2014	\$25.03	\$10.00	\$14.20	\$0.00	\$49.23
OPERATING ENGINEERS LOCAL 4	12/01/2014	\$25.64	\$10.00	\$14.20	\$0.00	\$49.84
	06/01/2015	\$26.09	\$10.00	\$14.20	\$0.00	\$50.29
	12/01/2015	\$26.84	\$10.00	\$14.20	\$0.00	\$51.04
	06/01/2016	\$27.30	\$10.00	\$14.20	\$0.00	\$51.50
	12/01/2016	\$28.05	\$10.00	\$14.20	\$0.00	\$52.25
	06/01/2017	\$28.65	\$10.00	\$14.20	\$0.00	\$52.85
	12/01/2017	\$29.26	\$10.00	\$14.20	\$0.00	\$53.46

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
OTHER POWER DRIVEN EQUIPMENT - CLASS II <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2014	\$41.10	\$10.00	\$14.20	\$0.00	\$65.30
	12/01/2014	\$42.09	\$10.00	\$14.20	\$0.00	\$66.29
	06/01/2015	\$42.83	\$10.00	\$14.20	\$0.00	\$67.03
	12/01/2015	\$44.07	\$10.00	\$14.20	\$0.00	\$68.27
	06/01/2016	\$44.82	\$10.00	\$14.20	\$0.00	\$69.02
	12/01/2016	\$46.05	\$10.00	\$14.20	\$0.00	\$70.25
	06/01/2017	\$47.04	\$10.00	\$14.20	\$0.00	\$71.24
	12/01/2017	\$48.03	\$10.00	\$14.20	\$0.00	\$72.23

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

Painter (Bridges/Tanks) <i>PAINTERS LOCAL 35 - ZONE 1</i>	07/01/2014	\$46.76	\$7.85	\$16.10	\$0.00	\$70.71
	01/01/2015	\$47.66	\$7.85	\$16.10	\$0.00	\$71.61
	07/01/2015	\$48.56	\$7.85	\$16.10	\$0.00	\$72.51
	01/01/2016	\$49.51	\$7.85	\$16.10	\$0.00	\$73.46
	07/01/2016	\$50.46	\$7.85	\$16.10	\$0.00	\$74.41
	01/01/2017	\$51.41	\$7.85	\$16.10	\$0.00	\$75.36

Apprentice - PAINTER Local 35 - BRIDGES/TANKS

Effective Date - 07/01/2014

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

Effective Date - 01/01/2015

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

Notes:

Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
PAINTER (SPRAY OR SANDBLAST, NEW) *	07/01/2014	\$43.45	\$7.85	\$16.10	\$0.00	\$67.40
* If 30% or more of surfaces to be painted are new construction, NEW paint rate shall be used. PAINTERS LOCAL 35 - ZONE 1	01/01/2015	\$44.35	\$7.85	\$16.10	\$0.00	\$68.30
	07/01/2015	\$45.25	\$7.85	\$16.10	\$0.00	\$69.20
	01/01/2016	\$46.20	\$7.85	\$16.10	\$0.00	\$70.15
	07/01/2016	\$47.15	\$7.85	\$16.10	\$0.00	\$71.10
	01/01/2017	\$48.10	\$7.85	\$16.10	\$0.00	\$72.05

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

Effective Date - 07/01/2014

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

Effective Date - 01/01/2015

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

Notes:

Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

PAINTER (SPRAY OR SANDBLAST, REPAINT)	07/01/2014	\$41.51	\$7.85	\$16.10	\$0.00	\$65.46
PAINTERS LOCAL 35 - ZONE 1	01/01/2015	\$42.41	\$7.85	\$16.10	\$0.00	\$66.36
	07/01/2015	\$43.31	\$7.85	\$16.10	\$0.00	\$67.26
	01/01/2016	\$44.26	\$7.85	\$16.10	\$0.00	\$68.21
	07/01/2016	\$45.21	\$7.85	\$16.10	\$0.00	\$69.16
	01/01/2017	\$46.16	\$7.85	\$16.10	\$0.00	\$70.11

Classification

Effective Date Base Wage Health Pension Supplemental
Unemployment Total Rate

Apprentice - PAINTER Local 35 Zone 1 - Spray/Sandblast - Repaint
Effective Date - 07/01/2014

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

Effective Date - 01/01/2015

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

Notes:

Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

PAINTER (TRAFFIC MARKINGS)	06/01/2014	\$34.10	\$7.30	\$12.70	\$0.00	\$54.10
LABORERS - ZONE 1	12/01/2014	\$34.85	\$7.30	\$12.70	\$0.00	\$54.85
	06/01/2015	\$35.60	\$7.30	\$12.70	\$0.00	\$55.60
	12/01/2015	\$36.35	\$7.30	\$12.70	\$0.00	\$56.35
	06/01/2016	\$37.10	\$7.30	\$12.70	\$0.00	\$57.10
	12/01/2016	\$38.10	\$7.30	\$12.70	\$0.00	\$58.10
For Apprentice rates see "Apprentice- LABORER"						
PAINTER / TAPER (BRUSH, NEW) *	07/01/2014	\$42.05	\$7.85	\$16.10	\$0.00	\$66.00
* If 30% or more of surfaces to be painted are new construction, NEW paint rate shall be used. PAINTERS LOCAL 35 - ZONE 1	01/01/2015	\$42.95	\$7.85	\$16.10	\$0.00	\$66.90
	07/01/2015	\$43.85	\$7.85	\$16.10	\$0.00	\$67.80
	01/01/2016	\$44.80	\$7.85	\$16.10	\$0.00	\$68.75
	07/01/2016	\$45.75	\$7.85	\$16.10	\$0.00	\$69.70
	01/01/2017	\$46.70	\$7.85	\$16.10	\$0.00	\$70.65

Classification

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

Apprentice - PAINTER - Local 35 Zone 1 - BRUSH NEW

Effective Date - 07/01/2014

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

Effective Date - 01/01/2015

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

Notes:

Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

PAINTER / TAPER (BRUSH, REPAINT)	07/01/2014	\$40.11	\$7.85	\$16.10	\$0.00	\$64.06
PAINTERS LOCAL 35 - ZONE 1	01/01/2015	\$41.01	\$7.85	\$16.10	\$0.00	\$64.96
	07/01/2015	\$41.91	\$7.85	\$16.10	\$0.00	\$65.86
	01/01/2016	\$42.86	\$7.85	\$16.10	\$0.00	\$66.81
	07/01/2016	\$43.81	\$7.85	\$16.10	\$0.00	\$67.76
	01/01/2017	\$44.76	\$7.85	\$16.10	\$0.00	\$68.71

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - PAINTER Local 35 Zone 1 - BRUSH REPAINT
Effective Date - 07/01/2014

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

Effective Date - 01/01/2015

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

Notes:

Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

PANEL & PICKUP TRUCKS DRIVER	08/01/2014	\$32.23	\$9.91	\$8.80	\$0.00	\$50.94
TEAMSTERS JOINT COUNCIL NO. 10 ZONE A	12/01/2014	\$32.23	\$9.91	\$9.33	\$0.00	\$51.47
	06/01/2015	\$32.58	\$9.91	\$9.33	\$0.00	\$51.82
	08/01/2015	\$32.58	\$10.41	\$9.33	\$0.00	\$52.32
	12/01/2015	\$32.58	\$10.41	\$10.08	\$0.00	\$53.07
	06/01/2016	\$33.08	\$10.41	\$10.08	\$0.00	\$53.57
	08/01/2016	\$33.08	\$10.91	\$10.08	\$0.00	\$54.07
	12/01/2016	\$33.08	\$10.91	\$10.89	\$0.00	\$54.88
PIER AND DOCK CONSTRUCTOR (UNDERPINNING AND DECK)	08/01/2014	\$41.60	\$9.80	\$18.17	\$0.00	\$69.57
PILE DRIVER LOCAL 56 (ZONE 1)	08/01/2015	\$43.10	\$9.80	\$18.17	\$0.00	\$71.07
PILE DRIVER	08/01/2014	\$41.60	\$9.80	\$18.17	\$0.00	\$69.57
PILE DRIVER LOCAL 56 (ZONE 1)	08/01/2015	\$43.10	\$9.80	\$18.17	\$0.00	\$71.07

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - PILE DRIVER - Local 56 Zone 1

Effective Date - 08/01/2014

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

Effective Date - 08/01/2015

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

Notes:

Apprentice to Journeyworker Ratio:1:3

PIPEFITTER & STEAMFITTER	09/01/2014	\$48.69	\$9.20	\$16.64	\$0.00	\$74.53
PIPEFITTERS LOCAL 537	03/01/2015	\$49.69	\$9.20	\$16.64	\$0.00	\$75.53
	09/01/2015	\$50.69	\$9.20	\$16.64	\$0.00	\$76.53
	03/01/2016	\$51.69	\$9.20	\$16.64	\$0.00	\$77.53
	09/01/2016	\$52.69	\$9.20	\$16.64	\$0.00	\$78.53
	03/01/2017	\$53.69	\$9.20	\$16.64	\$0.00	\$79.53

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - PIPEFITTER - Local 537

Effective Date - 09/01/2014

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	\$19.48	\$9.20	\$7.50	\$0.00	\$36.18
2	45	\$21.91	\$9.20	\$16.64	\$0.00	\$47.75
3	60	\$29.21	\$9.20	\$16.64	\$0.00	\$55.05
4	70	\$34.08	\$9.20	\$16.64	\$0.00	\$59.92
5	80	\$38.95	\$9.20	\$16.64	\$0.00	\$64.79

Effective Date - 03/01/2015

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	\$19.88	\$9.20	\$7.50	\$0.00	\$36.58
2	45	\$22.36	\$9.20	\$16.64	\$0.00	\$48.20
3	60	\$29.81	\$9.20	\$16.64	\$0.00	\$55.65
4	70	\$34.78	\$9.20	\$16.64	\$0.00	\$60.62
5	80	\$39.75	\$9.20	\$16.64	\$0.00	\$65.59

Notes:

** 1:3; 3:15; 1:10 thereafter / Steps are 1 yr.

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

Apprentice to Journeyworker Ratio:**

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

For apprentice rates see "Apprentice- LABORER"

PLUMBERS & GASFITTERS	09/01/2014	\$49.66	\$10.32	\$14.54	\$0.00	\$74.52
PLUMBERS & GASFITTERS LOCAL 12	03/01/2015	\$50.66	\$10.32	\$14.54	\$0.00	\$75.52
	09/01/2015	\$51.66	\$10.32	\$14.54	\$0.00	\$76.52
	03/01/2016	\$52.81	\$10.32	\$14.54	\$0.00	\$77.67
	09/01/2016	\$53.86	\$10.32	\$14.54	\$0.00	\$78.72
	03/01/2017	\$54.86	\$10.32	\$14.54	\$0.00	\$79.72

Classification

Effective Date Base Wage Health Pension Supplemental
Unemployment Total Rate

Apprentice - PLUMBER/GASFITTER - Local 12
Effective Date - 09/01/2014

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	35	\$17.38	\$10.32	\$5.42	\$0.00	\$33.12
2	40	\$19.86	\$10.32	\$6.13	\$0.00	\$36.31
3	55	\$27.31	\$10.32	\$8.23	\$0.00	\$45.86
4	65	\$32.28	\$10.32	\$9.64	\$0.00	\$52.24
5	75	\$37.25	\$10.32	\$11.04	\$0.00	\$58.61

Effective Date - 03/01/2015

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	35	\$17.73	\$10.32	\$5.42	\$0.00	\$33.47
2	40	\$20.26	\$10.32	\$6.11	\$0.00	\$36.69
3	55	\$27.86	\$10.32	\$8.22	\$0.00	\$46.40
4	65	\$32.93	\$10.32	\$9.62	\$0.00	\$52.87
5	75	\$38.00	\$10.32	\$11.03	\$0.00	\$59.35

Notes:

** 1:2; 2:6; 3:10; 4:14; 5:19/Steps are 1 yr
Step4 with lic\$55.42 Step5 with lic\$61.79

Apprentice to Journeyworker Ratio:**

PNEUMATIC CONTROLS (TEMP.)	09/01/2014	\$48.69	\$9.20	\$16.64	\$0.00	\$74.53
PIPEFITTERS LOCAL 537	03/01/2015	\$49.69	\$9.20	\$16.64	\$0.00	\$75.53
	09/01/2015	\$50.69	\$9.20	\$16.64	\$0.00	\$76.53
	03/01/2016	\$51.69	\$9.20	\$16.64	\$0.00	\$77.53
	09/01/2016	\$52.69	\$9.20	\$16.64	\$0.00	\$78.53
	03/01/2017	\$53.69	\$9.20	\$16.64	\$0.00	\$79.53

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

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

For apprentice rates see "Apprentice- LABORER"

POWDERMAN & BLASTER	06/01/2014	\$35.10	\$7.30	\$12.70	\$0.00	\$55.10
LABORERS - ZONE 1	12/01/2014	\$35.85	\$7.30	\$12.70	\$0.00	\$55.85
	06/01/2015	\$36.60	\$7.30	\$12.70	\$0.00	\$56.60
	12/01/2015	\$37.35	\$7.30	\$12.70	\$0.00	\$57.35
	06/01/2016	\$38.10	\$7.30	\$12.70	\$0.00	\$58.10
	12/01/2016	\$39.10	\$7.30	\$12.70	\$0.00	\$59.10

For apprentice rates see "Apprentice- LABORER"

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
POWER SHOVEL/DERRICK/TRENCHING MACHINE <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2014	\$41.49	\$10.00	\$14.20	\$0.00	\$65.69
	12/01/2014	\$42.49	\$10.00	\$14.20	\$0.00	\$66.69
	06/01/2015	\$43.24	\$10.00	\$14.20	\$0.00	\$67.44
	12/01/2015	\$44.49	\$10.00	\$14.20	\$0.00	\$68.69
	06/01/2016	\$45.24	\$10.00	\$14.20	\$0.00	\$69.44
	12/01/2016	\$46.49	\$10.00	\$14.20	\$0.00	\$70.69
	06/01/2017	\$47.49	\$10.00	\$14.20	\$0.00	\$71.69
	12/01/2017	\$48.49	\$10.00	\$14.20	\$0.00	\$72.69
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
PUMP OPERATOR (CONCRETE) <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2014	\$41.49	\$10.00	\$14.20	\$0.00	\$65.69
	12/01/2014	\$42.49	\$10.00	\$14.20	\$0.00	\$66.69
	06/01/2015	\$43.24	\$10.00	\$14.20	\$0.00	\$67.44
	12/01/2015	\$44.49	\$10.00	\$14.20	\$0.00	\$68.69
	06/01/2016	\$45.24	\$10.00	\$14.20	\$0.00	\$69.44
	12/01/2016	\$46.49	\$10.00	\$14.20	\$0.00	\$70.69
	06/01/2017	\$47.49	\$10.00	\$14.20	\$0.00	\$71.69
	12/01/2017	\$48.49	\$10.00	\$14.20	\$0.00	\$72.69
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
PUMP OPERATOR (DEWATERING, OTHER) <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2014	\$28.80	\$10.00	\$14.20	\$0.00	\$53.00
	12/01/2014	\$29.50	\$10.00	\$14.20	\$0.00	\$53.70
	06/01/2015	\$30.02	\$10.00	\$14.20	\$0.00	\$54.22
	12/01/2015	\$30.89	\$10.00	\$14.20	\$0.00	\$55.09
	06/01/2016	\$31.41	\$10.00	\$14.20	\$0.00	\$55.61
	12/01/2016	\$32.28	\$10.00	\$14.20	\$0.00	\$56.48
	06/01/2017	\$32.97	\$10.00	\$14.20	\$0.00	\$57.17
	12/01/2017	\$33.66	\$10.00	\$14.20	\$0.00	\$57.86
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
READY MIX CONCRETE DRIVERS after 4/30/10 (Drivers Hired After 4/30/2010) <i>TEAMSTERS LOCAL 25a</i>	07/01/2014	\$27.73	\$7.73	\$8.65	\$0.00	\$44.11
	05/01/2015	\$27.88	\$7.73	\$8.92	\$0.00	\$44.53
	07/01/2015	\$27.88	\$7.98	\$8.92	\$0.00	\$44.78
	05/01/2016	\$28.03	\$7.98	\$9.31	\$0.00	\$45.32
	07/01/2016	\$28.03	\$8.23	\$9.31	\$0.00	\$45.57
	05/01/2017	\$28.18	\$8.23	\$9.72	\$0.00	\$46.13
	07/01/2017	\$28.18	\$8.48	\$9.72	\$0.00	\$46.38
READY-MIX CONCRETE DRIVER <i>TEAMSTERS LOCAL 25a</i>	07/01/2014	\$30.99	\$7.73	\$8.65	\$0.00	\$47.37
	05/01/2015	\$31.14	\$7.73	\$8.92	\$0.00	\$47.79
	07/01/2015	\$31.14	\$7.98	\$8.92	\$0.00	\$48.04
	05/01/2016	\$31.29	\$7.98	\$9.31	\$0.00	\$48.58
	07/01/2016	\$31.29	\$8.23	\$9.31	\$0.00	\$48.83
	05/01/2017	\$31.44	\$8.23	\$9.72	\$0.00	\$49.39
	07/01/2017	\$31.44	\$8.48	\$9.72	\$0.00	\$49.64

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
RECLAIMERS OPERATING ENGINEERS LOCAL 4	06/01/2014	\$41.10	\$10.00	\$14.20	\$0.00	\$65.30
	12/01/2014	\$42.09	\$10.00	\$14.20	\$0.00	\$66.29
	06/01/2015	\$42.83	\$10.00	\$14.20	\$0.00	\$67.03
	12/01/2015	\$44.07	\$10.00	\$14.20	\$0.00	\$68.27
	06/01/2016	\$44.82	\$10.00	\$14.20	\$0.00	\$69.02
	12/01/2016	\$46.05	\$10.00	\$14.20	\$0.00	\$70.25
	06/01/2017	\$47.04	\$10.00	\$14.20	\$0.00	\$71.24
	12/01/2017	\$48.03	\$10.00	\$14.20	\$0.00	\$72.23

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

RESIDENTIAL WOOD FRAME (All Other Work) CARPENTERS -ZONE 1 (Residential Wood)	04/01/2011	\$37.25	\$8.67	\$15.51	\$0.00	\$61.43
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RESIDENTIAL WOOD FRAME CARPENTER ** ** The Residential Wood Frame Carpenter classification applies only to the construction of new, wood frame residences that do not exceed four stories including the basement. CARPENTERS -ZONE 1 (Residential Wood)	05/01/2011	\$27.49	\$6.34	\$6.23	\$0.00	\$40.06
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As of 9/1/09 Carpentry work on wood-frame residential WEATHERIZATION projects shall be paid the RESIDENTIAL WOOD FRAME CARPENTER rate.

Apprentice - CARPENTER (Residential Wood Frame) - Zone 1

Effective Date - 05/01/2011

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$16.49	\$6.34	\$0.00	\$0.00	\$22.83
2	60	\$16.49	\$6.34	\$6.23	\$0.00	\$29.06
3	65	\$17.87	\$6.34	\$6.23	\$0.00	\$30.44
4	70	\$19.24	\$6.34	\$6.23	\$0.00	\$31.81
5	75	\$20.62	\$6.34	\$6.23	\$0.00	\$33.19
6	80	\$21.99	\$6.34	\$6.23	\$0.00	\$34.56
7	85	\$23.37	\$6.34	\$6.23	\$0.00	\$35.94
8	90	\$24.74	\$6.34	\$6.23	\$0.00	\$37.31

Notes:

Apprentice to Journeyworker Ratio:1:5

RIDE-ON MOTORIZED BUGGY OPERATOR LABORERS - ZONE 1	06/01/2014	\$34.35	\$7.30	\$12.70	\$0.00	\$54.35
	12/01/2014	\$35.10	\$7.30	\$12.70	\$0.00	\$55.10
	06/01/2015	\$35.85	\$7.30	\$12.70	\$0.00	\$55.85
	12/01/2015	\$36.60	\$7.30	\$12.70	\$0.00	\$56.60
	06/01/2016	\$37.35	\$7.30	\$12.70	\$0.00	\$57.35
	12/01/2016	\$38.35	\$7.30	\$12.70	\$0.00	\$58.35

For apprentice rates see "Apprentice- LABORER"

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
ROLLER/SPREADER/MULCHING MACHINE <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2014	\$41.10	\$10.00	\$14.20	\$0.00	\$65.30
	12/01/2014	\$42.09	\$10.00	\$14.20	\$0.00	\$66.29
	06/01/2015	\$42.83	\$10.00	\$14.20	\$0.00	\$67.03
	12/01/2015	\$44.07	\$10.00	\$14.20	\$0.00	\$68.27
	06/01/2016	\$44.82	\$10.00	\$14.20	\$0.00	\$69.02
	12/01/2016	\$46.05	\$10.00	\$14.20	\$0.00	\$70.25
	06/01/2017	\$47.04	\$10.00	\$14.20	\$0.00	\$71.24
	12/01/2017	\$48.03	\$10.00	\$14.20	\$0.00	\$72.23

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

ROOFER (Inc.Roofing Waterproofing &Roofing Dampproofing) <i>ROOFERS LOCAL 33</i>	08/01/2014	\$39.21	\$10.50	\$11.60	\$0.00	\$61.31
	02/01/2015	\$40.11	\$10.50	\$11.60	\$0.00	\$62.21
	08/01/2015	\$41.01	\$10.50	\$11.60	\$0.00	\$63.11
	02/01/2016	\$41.91	\$10.50	\$11.60	\$0.00	\$64.01

Apprentice - ROOFER - Local 33

Effective Date - 08/01/2014

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$19.61	\$10.50	\$3.38	\$0.00	\$33.49
2	60	\$23.53	\$10.50	\$11.60	\$0.00	\$45.63
3	65	\$25.49	\$10.50	\$11.60	\$0.00	\$47.59
4	75	\$29.41	\$10.50	\$11.60	\$0.00	\$51.51
5	85	\$33.33	\$10.50	\$11.60	\$0.00	\$55.43

Effective Date - 02/01/2015

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

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

Apprentice to Journeyworker Ratio:**

ROOFER SLATE / TILE / PRECAST CONCRETE <i>ROOFERS LOCAL 33</i>	08/01/2014	\$39.46	\$10.50	\$11.60	\$0.00	\$61.56
	02/01/2015	\$40.36	\$10.50	\$11.60	\$0.00	\$62.46
	08/01/2015	\$41.26	\$10.50	\$11.60	\$0.00	\$63.36
	02/01/2016	\$42.16	\$10.50	\$11.60	\$0.00	\$64.26

For apprentice rates see "Apprentice- ROOFER"

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
SHEETMETAL WORKER	08/01/2014	\$42.79	\$9.82	\$20.54	\$2.19	\$75.34
SHEETMETAL WORKERS LOCAL 17 - A	02/01/2015	\$43.69	\$9.82	\$20.54	\$2.19	\$76.24
	08/01/2015	\$44.69	\$9.82	\$20.54	\$2.19	\$77.24
	02/01/2016	\$45.69	\$9.82	\$20.54	\$2.19	\$78.24
	08/01/2016	\$46.84	\$9.82	\$20.54	\$2.19	\$79.39
	02/01/2017	\$47.94	\$9.82	\$20.54	\$2.19	\$80.49
	08/01/2017	\$49.04	\$9.82	\$20.54	\$2.19	\$81.59
	02/01/2018	\$50.19	\$9.82	\$20.54	\$2.19	\$82.74

Apprentice - SHEET METAL WORKER - Local 17-A

Effective Date - 08/01/2014

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	\$17.12	\$9.82	\$4.58	\$0.00	\$31.52
2	40	\$17.12	\$9.82	\$4.58	\$0.00	\$31.52
3	45	\$19.26	\$9.82	\$9.09	\$1.15	\$39.32
4	45	\$19.26	\$9.82	\$9.09	\$1.15	\$39.32
5	50	\$21.40	\$9.82	\$9.91	\$1.23	\$42.36
6	50	\$21.40	\$9.82	\$10.16	\$1.24	\$42.62
7	60	\$25.67	\$9.82	\$11.55	\$1.41	\$48.45
8	65	\$27.81	\$9.82	\$12.38	\$1.50	\$51.51
9	75	\$32.09	\$9.82	\$14.02	\$1.68	\$57.61
10	85	\$36.37	\$9.82	\$15.16	\$1.84	\$63.19

Effective Date - 02/01/2015

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	\$17.48	\$9.82	\$4.58	\$0.00	\$31.88
2	40	\$17.48	\$9.82	\$4.58	\$0.00	\$31.88
3	45	\$19.66	\$9.82	\$9.09	\$1.16	\$39.73
4	45	\$19.66	\$9.82	\$9.09	\$1.16	\$39.73
5	50	\$21.85	\$9.82	\$9.91	\$1.25	\$42.83
6	50	\$21.85	\$9.82	\$10.16	\$1.25	\$43.08
7	60	\$26.21	\$9.82	\$11.55	\$1.43	\$49.01
8	65	\$28.40	\$9.82	\$12.38	\$1.52	\$52.12
9	75	\$32.77	\$9.82	\$14.02	\$1.70	\$58.31
10	85	\$37.14	\$9.82	\$15.16	\$1.86	\$63.98

Notes:

Steps are 6 mos.

Apprentice to Journeyworker Ratio:1:4

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

Classification

Effective Date Base Wage Health Pension Supplemental
Unemployment Total Rate

Apprentice - SIGN ERECTOR - Local 35 Zone 1

Effective Date - 06/01/2013

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$12.91	\$7.07	\$0.00	\$0.00	\$19.98
2	55	\$14.20	\$7.07	\$2.45	\$0.00	\$23.72
3	60	\$15.49	\$7.07	\$2.45	\$0.00	\$25.01
4	65	\$16.78	\$7.07	\$2.45	\$0.00	\$26.30
5	70	\$18.07	\$7.07	\$7.05	\$0.00	\$32.19
6	75	\$19.36	\$7.07	\$7.05	\$0.00	\$33.48
7	80	\$20.65	\$7.07	\$7.05	\$0.00	\$34.77
8	85	\$21.94	\$7.07	\$7.05	\$0.00	\$36.06
9	90	\$23.23	\$7.07	\$7.05	\$0.00	\$37.35

Notes:

Steps are 4 mos.

Apprentice to Journeyworker Ratio:1:1

SPECIALIZED EARTH MOVING EQUIP < 35 TONS TEAMSTERS JOINT COUNCIL NO. 10 ZONE A	08/01/2014	\$32.69	\$9.91	\$8.80	\$0.00	\$51.40
	12/01/2014	\$32.69	\$9.91	\$9.33	\$0.00	\$51.93
	06/01/2015	\$33.04	\$9.91	\$9.33	\$0.00	\$52.28
	08/01/2015	\$33.04	\$10.41	\$9.33	\$0.00	\$52.78
	12/01/2015	\$33.04	\$10.41	\$10.08	\$0.00	\$53.53
	06/01/2016	\$33.54	\$10.41	\$10.08	\$0.00	\$54.03
	08/01/2016	\$33.54	\$10.91	\$10.08	\$0.00	\$54.53
	12/01/2016	\$33.54	\$10.91	\$10.89	\$0.00	\$55.34
SPECIALIZED EARTH MOVING EQUIP > 35 TONS TEAMSTERS JOINT COUNCIL NO. 10 ZONE A	08/01/2014	\$32.98	\$9.91	\$8.80	\$0.00	\$51.69
	12/01/2014	\$32.98	\$9.91	\$9.33	\$0.00	\$52.22
	06/01/2015	\$33.33	\$9.91	\$9.33	\$0.00	\$52.57
	08/01/2015	\$33.33	\$10.41	\$9.33	\$0.00	\$53.07
	12/01/2015	\$33.33	\$10.41	\$10.08	\$0.00	\$53.82
	06/01/2016	\$33.83	\$10.41	\$10.08	\$0.00	\$54.32
	08/01/2016	\$33.83	\$10.91	\$10.08	\$0.00	\$54.82
	12/01/2016	\$33.83	\$10.91	\$10.89	\$0.00	\$55.63
SPRINKLER FITTER SPRINKLER FITTERS LOCAL 550 - (Section A) Zone 1	03/01/2014	\$53.58	\$8.42	\$13.60	\$0.00	\$75.60
	10/01/2014	\$54.73	\$8.42	\$13.60	\$0.00	\$76.75
	01/01/2015	\$54.73	\$8.42	\$13.75	\$0.00	\$76.90
	03/01/2015	\$55.73	\$8.42	\$13.75	\$0.00	\$77.90
	10/01/2015	\$56.88	\$8.42	\$13.75	\$0.00	\$79.05
	01/01/2016	\$56.88	\$8.67	\$13.90	\$0.00	\$79.45
	03/01/2016	\$57.88	\$8.67	\$13.90	\$0.00	\$80.45
	10/01/2016	\$59.03	\$8.67	\$13.90	\$0.00	\$81.60
	03/01/2017	\$60.03	\$8.67	\$13.90	\$0.00	\$82.60

Classification

Effective Date Base Wage Health Pension Supplemental
Unemployment Total Rate

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

Effective Date - 03/01/2014

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

Effective Date - 10/01/2014

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

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

Apprentice to Journeyworker Ratio:1:3

STEAM BOILER OPERATOR	06/01/2014	\$41.10	\$10.00	\$14.20	\$0.00	\$65.30
OPERATING ENGINEERS LOCAL 4	12/01/2014	\$42.09	\$10.00	\$14.20	\$0.00	\$66.29
	06/01/2015	\$42.83	\$10.00	\$14.20	\$0.00	\$67.03
	12/01/2015	\$44.07	\$10.00	\$14.20	\$0.00	\$68.27
	06/01/2016	\$44.82	\$10.00	\$14.20	\$0.00	\$69.02
	12/01/2016	\$46.05	\$10.00	\$14.20	\$0.00	\$70.25
	06/01/2017	\$47.04	\$10.00	\$14.20	\$0.00	\$71.24
	12/01/2017	\$48.03	\$10.00	\$14.20	\$0.00	\$72.23

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
TAMPERS, SELF-PROPELLED OR TRACTOR DRAWN OPERATING ENGINEERS LOCAL 4	06/01/2014	\$41.10	\$10.00	\$14.20	\$0.00	\$65.30
	12/01/2014	\$42.09	\$10.00	\$14.20	\$0.00	\$66.29
	06/01/2015	\$42.83	\$10.00	\$14.20	\$0.00	\$67.03
	12/01/2015	\$44.07	\$10.00	\$14.20	\$0.00	\$68.27
	06/01/2016	\$44.82	\$10.00	\$14.20	\$0.00	\$69.02
	12/01/2016	\$46.05	\$10.00	\$14.20	\$0.00	\$70.25
	06/01/2017	\$47.04	\$10.00	\$14.20	\$0.00	\$71.24
	12/01/2017	\$48.03	\$10.00	\$14.20	\$0.00	\$72.23

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

TELECOMMUNICATION TECHNICIAN ELECTRICIANS LOCAL 103	09/01/2014	\$33.59	\$13.00	\$13.36	\$0.00	\$59.95
	03/01/2015	\$33.88	\$13.00	\$13.70	\$0.00	\$60.58
	09/01/2015	\$34.60	\$13.00	\$13.72	\$0.00	\$61.32
	03/01/2016	\$35.31	\$13.00	\$13.74	\$0.00	\$62.05

Apprentice - TELECOMMUNICATION TECHNICIAN - Local 103

Effective Date - 09/01/2014

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	\$13.44	\$13.00	\$0.40	\$0.00	\$26.84
2	40	\$13.44	\$13.00	\$0.40	\$0.00	\$26.84
3	45	\$15.12	\$13.00	\$10.57	\$0.00	\$38.69
4	45	\$15.12	\$13.00	\$10.57	\$0.00	\$38.69
5	50	\$16.80	\$13.00	\$10.83	\$0.00	\$40.63
6	55	\$18.47	\$13.00	\$11.08	\$0.00	\$42.55
7	60	\$20.15	\$13.00	\$11.33	\$0.00	\$44.48
8	65	\$21.83	\$13.00	\$11.59	\$0.00	\$46.42
9	70	\$23.51	\$13.00	\$11.85	\$0.00	\$48.36
10	75	\$25.19	\$13.00	\$12.10	\$0.00	\$50.29

Effective Date - 03/01/2015

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	\$13.55	\$13.00	\$0.41	\$0.00	\$26.96
2	40	\$13.55	\$13.00	\$0.41	\$0.00	\$26.96
3	45	\$15.25	\$13.00	\$10.87	\$0.00	\$39.12
4	45	\$15.25	\$13.00	\$10.87	\$0.00	\$39.12
5	50	\$16.94	\$13.00	\$11.13	\$0.00	\$41.07
6	55	\$18.63	\$13.00	\$11.38	\$0.00	\$43.01
7	60	\$20.33	\$13.00	\$11.64	\$0.00	\$44.97
8	65	\$22.02	\$13.00	\$11.89	\$0.00	\$46.91
9	70	\$23.72	\$13.00	\$12.15	\$0.00	\$48.87
10	75	\$25.41	\$13.00	\$12.41	\$0.00	\$50.82

Notes:

Apprentice to Journeyworker Ratio:1:1

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
TERRAZZO FINISHERS <i>BRICKLAYERS LOCAL 3 - MARBLE & TILE</i>	08/01/2014	\$47.90	\$10.18	\$18.22	\$0.00	\$76.30
	02/01/2015	\$48.46	\$10.18	\$18.22	\$0.00	\$76.86
	08/01/2015	\$49.36	\$10.18	\$18.29	\$0.00	\$77.83
	02/01/2016	\$49.93	\$10.18	\$18.29	\$0.00	\$78.40
	08/01/2016	\$50.83	\$10.18	\$18.37	\$0.00	\$79.38
	02/01/2017	\$51.40	\$10.18	\$18.37	\$0.00	\$79.95

Apprentice - TERRAZZO FINISHER - Local 3 Marble & Tile

Effective Date - 08/01/2014

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

Effective Date - 02/01/2015

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$24.23	\$10.18	\$18.22	\$0.00	\$52.63
2	60	\$29.08	\$10.18	\$18.22	\$0.00	\$57.48
3	70	\$33.92	\$10.18	\$18.22	\$0.00	\$62.32
4	80	\$38.77	\$10.18	\$18.22	\$0.00	\$67.17
5	90	\$43.61	\$10.18	\$18.22	\$0.00	\$72.01

Notes:

Apprentice to Journeyworker Ratio:1:3

TEST BORING DRILLER <i>LABORERS - FOUNDATION AND MARINE</i>	06/01/2014	\$35.45	\$7.30	\$12.90	\$0.00	\$55.65
	12/01/2014	\$36.20	\$7.30	\$12.90	\$0.00	\$56.40
	06/01/2015	\$36.95	\$7.30	\$12.90	\$0.00	\$57.15
	12/01/2015	\$37.70	\$7.30	\$12.90	\$0.00	\$57.90
	06/01/2016	\$38.45	\$7.30	\$12.90	\$0.00	\$58.65
	12/01/2016	\$39.45	\$7.30	\$12.90	\$0.00	\$59.65

For apprentice rates see "Apprentice- LABORER"

TEST BORING DRILLER HELPER <i>LABORERS - FOUNDATION AND MARINE</i>	06/01/2014	\$34.17	\$7.30	\$12.90	\$0.00	\$54.37
	12/01/2014	\$34.92	\$7.30	\$12.90	\$0.00	\$55.12
	06/01/2015	\$35.67	\$7.30	\$12.90	\$0.00	\$55.87
	12/01/2015	\$36.42	\$7.30	\$12.90	\$0.00	\$56.62
	06/01/2016	\$37.17	\$7.30	\$12.90	\$0.00	\$57.37
	12/01/2016	\$38.17	\$7.30	\$12.90	\$0.00	\$58.37

For apprentice rates see "Apprentice- LABORER"

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
TEST BORING LABORER <i>LABORERS - FOUNDATION AND MARINE</i>	06/01/2014	\$34.05	\$7.30	\$12.90	\$0.00	\$54.25
	12/01/2014	\$34.80	\$7.30	\$12.90	\$0.00	\$55.00
	06/01/2015	\$35.55	\$7.30	\$12.90	\$0.00	\$55.75
	12/01/2015	\$36.30	\$7.30	\$12.90	\$0.00	\$56.50
	06/01/2016	\$37.05	\$7.30	\$12.90	\$0.00	\$57.25
	12/01/2016	\$38.05	\$7.30	\$12.90	\$0.00	\$58.25
For apprentice rates see "Apprentice- LABORER"						
TRACTORS/PORTABLE STEAM GENERATORS <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2014	\$41.10	\$10.00	\$14.20	\$0.00	\$65.30
	12/01/2014	\$42.09	\$10.00	\$14.20	\$0.00	\$66.29
	06/01/2015	\$42.83	\$10.00	\$14.20	\$0.00	\$67.03
	12/01/2015	\$44.07	\$10.00	\$14.20	\$0.00	\$68.27
	06/01/2016	\$44.82	\$10.00	\$14.20	\$0.00	\$69.02
	12/01/2016	\$46.05	\$10.00	\$14.20	\$0.00	\$70.25
	06/01/2017	\$47.04	\$10.00	\$14.20	\$0.00	\$71.24
	12/01/2017	\$48.03	\$10.00	\$14.20	\$0.00	\$72.23
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
TRAILERS FOR EARTH MOVING EQUIPMENT <i>TEAMSTERS JOINT COUNCIL NO. 10 ZONE A</i>	08/01/2014	\$33.27	\$9.91	\$8.80	\$0.00	\$51.98
	12/01/2014	\$33.27	\$9.91	\$9.33	\$0.00	\$52.51
	06/01/2015	\$33.62	\$9.91	\$9.33	\$0.00	\$52.86
	08/01/2015	\$33.62	\$10.41	\$9.33	\$0.00	\$53.36
	12/01/2015	\$33.62	\$10.41	\$10.08	\$0.00	\$54.11
	06/01/2016	\$34.12	\$10.41	\$10.08	\$0.00	\$54.61
	08/01/2016	\$34.12	\$10.91	\$10.08	\$0.00	\$55.11
	12/01/2016	\$34.12	\$10.91	\$10.89	\$0.00	\$55.92
TUNNEL WORK - COMPRESSED AIR <i>LABORERS (COMPRESSED AIR)</i>	06/01/2014	\$46.33	\$7.30	\$13.30	\$0.00	\$66.93
	12/01/2014	\$47.08	\$7.30	\$13.30	\$0.00	\$67.68
	06/01/2015	\$47.83	\$7.30	\$13.30	\$0.00	\$68.43
	12/01/2015	\$48.58	\$7.30	\$13.30	\$0.00	\$69.18
	06/01/2016	\$49.33	\$7.30	\$13.30	\$0.00	\$69.93
	12/01/2016	\$50.33	\$7.30	\$13.30	\$0.00	\$70.93
For apprentice rates see "Apprentice- LABORER"						
TUNNEL WORK - COMPRESSED AIR (HAZ. WASTE) <i>LABORERS (COMPRESSED AIR)</i>	06/01/2014	\$48.33	\$7.30	\$13.30	\$0.00	\$68.93
	12/01/2014	\$49.08	\$7.30	\$13.30	\$0.00	\$69.68
	06/01/2015	\$49.83	\$7.30	\$13.30	\$0.00	\$70.43
	12/01/2015	\$50.58	\$7.30	\$13.30	\$0.00	\$71.18
	06/01/2016	\$51.33	\$7.30	\$13.30	\$0.00	\$71.93
	12/01/2016	\$52.33	\$7.30	\$13.30	\$0.00	\$72.93
For apprentice rates see "Apprentice- LABORER"						
TUNNEL WORK - FREE AIR <i>LABORERS (FREE AIR TUNNEL)</i>	06/01/2014	\$38.40	\$7.30	\$13.30	\$0.00	\$59.00
	12/01/2014	\$39.15	\$7.30	\$13.30	\$0.00	\$59.75
	06/01/2015	\$39.90	\$7.30	\$13.30	\$0.00	\$60.50
	12/01/2015	\$40.65	\$7.30	\$13.30	\$0.00	\$61.25
	06/01/2016	\$41.40	\$7.30	\$13.30	\$0.00	\$62.00
	12/01/2016	\$42.40	\$7.30	\$13.30	\$0.00	\$63.00
For apprentice rates see "Apprentice- LABORER"						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
TUNNEL WORK - FREE AIR (HAZ. WASTE) <i>LABORERS (FREE AIR TUNNEL)</i>	06/01/2014	\$40.40	\$7.30	\$13.30	\$0.00	\$61.00
	12/01/2014	\$41.15	\$7.30	\$13.30	\$0.00	\$61.75
	06/01/2015	\$41.90	\$7.30	\$13.30	\$0.00	\$62.50
	12/01/2015	\$42.65	\$7.30	\$13.30	\$0.00	\$63.25
	06/01/2016	\$43.40	\$7.30	\$13.30	\$0.00	\$64.00
	12/01/2016	\$44.40	\$7.30	\$13.30	\$0.00	\$65.00
For apprentice rates see "Apprentice- LABORER"						
VAC-HAUL <i>TEAMSTERS JOINT COUNCIL NO. 10 ZONE A</i>	08/01/2014	\$32.69	\$9.91	\$8.80	\$0.00	\$51.40
	12/01/2014	\$32.69	\$9.91	\$9.33	\$0.00	\$51.93
	06/01/2015	\$33.04	\$9.91	\$9.33	\$0.00	\$52.28
	08/01/2015	\$33.04	\$10.41	\$9.33	\$0.00	\$52.78
	12/01/2015	\$33.04	\$10.41	\$10.08	\$0.00	\$53.53
	06/01/2016	\$33.54	\$10.41	\$10.08	\$0.00	\$54.03
	08/01/2016	\$33.54	\$10.91	\$10.08	\$0.00	\$54.53
	12/01/2016	\$33.54	\$10.91	\$10.89	\$0.00	\$55.34
WAGON DRILL OPERATOR <i>LABORERS - ZONE 1</i>	06/01/2014	\$34.35	\$7.30	\$12.70	\$0.00	\$54.35
	12/01/2014	\$35.10	\$7.30	\$12.70	\$0.00	\$55.10
	06/01/2015	\$35.85	\$7.30	\$12.70	\$0.00	\$55.85
	12/01/2015	\$36.60	\$7.30	\$12.70	\$0.00	\$56.60
	06/01/2016	\$37.35	\$7.30	\$12.70	\$0.00	\$57.35
	12/01/2016	\$38.35	\$7.30	\$12.70	\$0.00	\$58.35
For apprentice rates see "Apprentice- LABORER"						
WASTE WATER PUMP OPERATOR <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2014	\$41.49	\$10.00	\$14.20	\$0.00	\$65.69
	12/01/2014	\$42.49	\$10.00	\$14.20	\$0.00	\$66.69
	06/01/2015	\$43.24	\$10.00	\$14.20	\$0.00	\$67.44
	12/01/2015	\$44.49	\$10.00	\$14.20	\$0.00	\$68.69
	06/01/2016	\$45.24	\$10.00	\$14.20	\$0.00	\$69.44
	12/01/2016	\$46.49	\$10.00	\$14.20	\$0.00	\$70.69
	06/01/2017	\$47.49	\$10.00	\$14.20	\$0.00	\$71.69
	12/01/2017	\$48.49	\$10.00	\$14.20	\$0.00	\$72.69
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
WATER METER INSTALLER <i>PLUMBERS & GASFITTERS LOCAL 12</i>	09/01/2014	\$49.66	\$10.32	\$14.54	\$0.00	\$74.52
	03/01/2015	\$50.66	\$10.32	\$14.54	\$0.00	\$75.52
	09/01/2015	\$51.66	\$10.32	\$14.54	\$0.00	\$76.52
	03/01/2016	\$52.81	\$10.32	\$14.54	\$0.00	\$77.67
	09/01/2016	\$53.86	\$10.32	\$14.54	\$0.00	\$78.72
	03/01/2017	\$54.86	\$10.32	\$14.54	\$0.00	\$79.72
For apprentice rates see "Apprentice- PLUMBER/PIPEFITTER" or "PLUMBER/GASFITTER"						

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

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

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

All steps are six months (1000 hours) unless otherwise specified.

* Ratios are expressed in allowable number of apprentices to journeymen or fraction thereof.

** Multiple ratios are listed in the comment field.

*** APP to JM; 1:1, 2:2, 2:3, 3:4, 4:4, 4:5, 4:6, 5:7, 6:7, 6:8, 6:9, 7:10, 8:10, 8:11, 8:12, 9:13, 10:13, 10:14, etc.

**** APP to JM; 1:1, 1:2, 2:3, 2:4, 3:5, 4:6, 4:7, 5:8, 6:9, 6:10, 7:11, 8:12, 8:13, 9:14, 10:15, 10:16, etc.

MASSACHUSETTS WEEKLY CERTIFIED PAYROLL REPORT FORM



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

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

WEEKLY PAYROLL RECORDS REPORT & STATEMENT OF COMPLIANCE

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

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

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

STATEMENT OF COMPLIANCE

I, _____, 20_____
(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 _____



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 7/1/2014 "Living Wage" shall be deemed to be an hourly wage of no less than **\$12.05** per hour. From time to time, the Living Wage may be upwardly adjusted and amendments, if any, to the contract or subcontract may require the payment of a higher hourly rate if a higher rate is then in effect.

CERTIFICATIONS

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

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

Form: _____
Contract Number: _____

CITY OF SOMERVILLE

Rev. 06/10/14

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 7/1/2014 is **\$12.05** per hour. The only employees who are not covered by the Living Wage Ordinance are individuals in a Youth Program. "Youth Program" as defined in the Ordinance, "means any city, state or federally funded program which employs youth, as defined by city, state or federal guidelines, during the summer, or as part of a school to work program, or in any other related seasonal or part-time program."

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

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

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

Sec. 2-355. Responsible Employer Ordinance.

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

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

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

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

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

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

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

(e) In addition to these sanctions a general bidder or contractor shall be equally liable for any violation of the obligations described in sub-parts (1) 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 _____

I, _____,
(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

CERTIFICATE IN GOOD STANDING

TO: Vendor

FROM: Purchasing Department

RE: **CERTIFICATE IN GOOD STANDING**

The **Awarded Vendor** must comply with our request for a **CURRENT "Certificate in Good Standing"**.

If you require information on how to obtain the "Certificate in Good Standing" or Certificate of Registration (Foreign Corporations) from the Commonwealth of Massachusetts, please call the Secretary of State's Office at (617) 727-2850 (Press #1) located at One (1) Ashburton Place, 17th Floor, Boston, MA 02133 or you may access their web site at :
www.sec.state.ma.us/corp/certificates/certificate_request.asp

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

Thank You,
Purchasing Director

Request for Taxpayer Identification Number and Certification

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

Print or type See Specific Instructions on page 2.	Name (as shown on your income tax return)	
	Business name/disregarded entity name, if different from above	
	Check appropriate box for federal tax classification: <input type="checkbox"/> Individual/sole proprietor <input type="checkbox"/> C Corporation <input type="checkbox"/> S Corporation <input type="checkbox"/> Partnership <input type="checkbox"/> Trust/estate <input type="checkbox"/> Limited liability company. Enter the tax classification (C=C corporation, S=S corporation, P=partnership) ▶ _____ <input type="checkbox"/> Other (see instructions) ▶ _____	
	<input type="checkbox"/> Exempt payee	
	Address (number, street, and apt. or suite no.) City, state, and ZIP code List account number(s) here (optional)	Requester's name and address (optional)

Part I Taxpayer Identification Number (TIN)

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

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

Social security number								
Employer identification number								

Part II Certification

Under penalties of perjury, I certify that:

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

Certification instructions. You must cross out item 2 above if you have been notified by the IRS that you are currently subject to backup withholding because you have failed to report all interest and dividends on your tax return. For real estate transactions, item 2 does not apply. For mortgage interest paid, acquisition or abandonment of secured property, cancellation of debt, contributions to an individual retirement arrangement (IRA), and generally, payments other than interest and dividends, you are not required to sign the certification, but you must provide your correct TIN. See the instructions on page 4.

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

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

Purpose of Form

A person who is required to file an information return with the IRS must obtain your correct taxpayer identification number (TIN) to report, for example, income paid to you, real estate transactions, mortgage interest you paid, acquisition or abandonment of secured property, cancellation of debt, or contributions you made to an IRA.

Use Form W-9 only if you are a U.S. person (including a resident alien), to provide your correct TIN to the person requesting it (the requester) and, when applicable, to:

- Certify that the TIN you are giving is correct (or you are waiting for a number to be issued),
- Certify that you are not subject to backup withholding, or
- Claim exemption from backup withholding if you are a U.S. exempt payee. If applicable, you are also certifying that as a U.S. person, your allocable share of any partnership income from a U.S. trade or business is not subject to the withholding tax on foreign partners' share of effectively connected income.

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

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

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

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



CITY OF SOMERVILLE, MASSACHUSETTS

JOSEPH A. CURTATONE
MAYOR

Vendor Certification

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

TIN

Signature

Printed Name of Person signing

Company

Date



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





**Certificate of Authority
(Corporations Only)**

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

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

(Insert Full Name of Corporation)

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

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

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

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

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

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

4. **ATTEST:**

Signature: _____
(Clerk or Secretary)

AFFIX CORPORATE SEAL HERE

Printed Name: _____

Printed Title: _____

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

Form: _____
Contract Number: _____

CITY OF SOMERVILLE

Rev. 08/01/12



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

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

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

(Complete Name of Limited Liability Company)

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

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

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

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

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

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

5. **Signature:** _____

Printed Name: _____

Printed Title: _____

Date: _____

Form: _____
Contract Number: _____

CITY OF SOMERVILLE

Rev. 08/01/12



Non-Collusion Form and Tax Compliance Certification

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

A. NON-COLLUSION FORM

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

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

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

Name of Business or Entity: _____

Date: _____

B. TAX COMPLIANCE CERTIFICATION

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

Signature: _____
(Duly Authorized Representative of Vendor)

Name of Business or Entity: _____

Social Security Number or Federal Tax ID#: _____

Date: _____

**CITY OF SOMERVILLE
SIGNATURE FORM**

NAME OF COMPANY: _____

ADDRESS: _____

TELEPHONE #: _____ FAX #: _____

DATE: _____ EMAIL: _____

SIGNATURE OF AUTHORIZED CONTRACTING OFFICIAL: _____

TITLE: _____

RESIDENCE: _____

IF COMPANY IS A PARTNERSHIP:

FULL NAME AND RESIDENCE OF EACH PARTNER:

IF COMPANY IS A CORPORATION:

THE CORPORATE NAME IS: _____

THE CORPORATION IS ORGANIZED UNDER THE LAWS OF: _____

THE PRESIDENT IS: _____

THE TREASURER IS: _____

THE CLERK/SECRETARY IS: _____

NAME OF CORPORATION THAT WILL APPEAR ON A POTENTIAL CONTRACTUAL

AGREEMENT IF DIFFERS FROM ABOVE: _____

NAME AND TITLE OF PERSON WHO WILL BE RESPONSIBLE FOR THE SIGNING OF A

POTENTIAL CONTRACTUAL AGREEMENT IF DIFFERS FROM ABOVE:

NAME: _____ TITLE: _____

NAME OF CLERK/SECRETARY WHO WILL ALSO BE SIGNING FOR A POTENTIAL

CONTRACTUAL AGREEMENT IF DIFFERS FROM ABOVE: _____

Appendix A

Sample Contract

**OWNER-CONTRACTOR PUBLIC CONSTRUCTION AGREEMENT
CITY OF SOMERVILLE**

PURCHASING DEPARTMENT FOR end user department

AGREEMENT made this 1st day of month, year, by and between the City of Somerville, a Massachusetts municipal corporation, acting by and through its Purchasing Department, 93 Highland Ave., Somerville, MA 02143 (referred to variously in the Contract Documents as "City", "Owner", "Awarding Authority", and "School") and the following General Contractor (referred to in the Contract Documents as "Contractor" or "General Contractor"):

CONTRACTOR

Name: vendor name

Address: vendor address, city, MA zip

PROJECT

Name: project description

Location: project location

Brief Description: further project description

ARCHITECT: architect name

Address: architect address, city, MA zip

LANDSCAPE ARCHITECT

Name: n/a

Address: _____

ENGINEER

Name: n/a

Address: _____

(The Architect, Landscape Architect, or Engineer is described herein as the "Design Professional".)

THIS CONTRACT IS A

- ☐ Public Works Contract under \$10,000
- ☐ Public Building Contract under \$10,000, subject to the price quote requirements of Chapter 149 of the General Laws
- ☐ Public Building Contract estimated to cost more than \$10,000, but less than \$25,000, subject to the written response requirements of Chapter 149 of the General Laws
- ☐ Public Works Contract estimated to cost more than \$10,000 thereby subject to the bidding requirements of Mass. Gen. Laws, Chapter 30, Section 39M
- ☐ Public Building Contract estimated to cost more than \$25,000, but less than \$100,000, subject to the bidding requirements of Mass. Gen. Laws, Chapter 30, Section 39M
- ☒ Public Works Contract estimated to cost more than \$100,000 subject to the bidding requirements of Mass. Gen. Laws, Chapter 149, Section 44A.

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

Section 1: CONTRACT DOCUMENTS.

The Contract Documents consist of the Owner-Contractor Agreement, Advertisement, Bidding Documents, Technical Specifications, Drawings, General Conditions, Supplementary Conditions, and Addenda issued prior to execution of this Contract, and Modifications agreed to in writing after the execution of this Contract. The following Appendices are attached hereto and are hereby incorporated by reference.

- ☒ Appendix A - Advertisement; Notice to Bidders;
- ☒ Appendix B - Bid Documents - Contractor's Bid
- ☒ Appendix C - Scope of Services - includes a brief description of the project and the Plans and Technical Specifications (Plans on File)
- ☒ Appendix D - Insurance Requirements with Contractor's Insurance Certificate(s)
- ☒ Appendix E - General Conditions
- ☒ Appendix F - Wage Rates; Living Wage Ordinance form
- ☒ Appendix G - Performance Bond and Payment Bond, if contract is over \$2,000

The Contract Documents represent the entire Contract between the parties hereto and supersede prior negotiations, representations, or Contracts, whether written or oral.

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

(b) Substantial Completion: The Contractor shall achieve substantial completion of the work no later than scheduled in the bid documents or date after the Date of Commencement, time being of the essence. For good cause shown, the Commissioner of Public Works may, in his sole discretion, extend the date of substantial completion by written change order.

(c) Damages for Delay. The Contractor and the Contractor's surety shall be liable for and shall pay the City the sum of **\$1,700.00 per calendar day, 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. Substantial Completion shall mean either a) that the work, or portion of the work, has been completed, except for work having a contract price of less than one percent (1%) of the then adjusted total contract price; or b) that substantially all of the work has been completed and opened to public use, except for minor incomplete or unsatisfactory work items that do not materially impair the usefulness of the work.

(d) Suspension of the Work/Excusable Delays. 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 DPW 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 DPW 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);

Section 4. CONTRACT SUM

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

Section 5. CHANGES IN THE CONTRACT

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

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

(2) The General Contractor must submit the amount of a claim under provision (1) to the Awarding Authority in writing as soon as practicable after the end of the suspension, delay, interruption or failure to act and, in any event, not later than the date of final payment under this contract and, except for costs due to a suspension order, the Awarding Authority shall not approve any costs in the claim incurred more than twenty days before the General Contractor notified the Awarding Authority in writing of the act or failure to act involved in the claim.

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

(b) Change Orders. No willful and substantial deviation from the plans and specifications shall be made unless authorized in writing by the Awarding Authority or by the Design Professional in charge of the work who is duly authorized by the Awarding Authority to approve such deviations. In order to avoid delays in the prosecution of the work required by the

contract, such deviation from the plans and specifications may be authorized by a written order of the Awarding Authority or Design Professional so authorized, to be confirmed at a later time by a written Change Order, signed under penalties of perjury, using AIA Document G701 (or its equivalent). The Change Order shall include the following: (1) if such deviation involves any substitution or elimination of materials, fixtures or equipment, the reasons why such materials, fixtures or equipment were included in the first instance and the reasons for substitution or elimination, and, if the deviation is of any other nature, the reasons for such deviation, giving justification therefor; (2) that the specified deviation does not materially injure the project as a whole; (3) that either the work substituted for the work specified is of the same cost and quality, or that an equitable adjustment [increase or decrease as the case may be] has been agreed upon between the Contracting Agency and the General Contractor and the amount in dollars of such adjustment; and (4) that the deviation is in the best interest of the Contracting Authority. The Change Order shall also indicate whether or not the date of substantial completion has been extended. The equitable adjustment in price shall be determined by the unit prices, if any, in the General Contractor's bid; otherwise, it shall be a number which is agreed to by both parties as a fair adjustment and which can be itemized and substantiated to the reasonable satisfaction of the Contracting Authority. Where increases and decreases to the Contract Sum are included in one Change Order, the negotiated allowance for overhead and profit shall be calculated on the basis of the net increase, if any.

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

Section 6. PAYMENTS TO THE CONTRACTOR

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

each subcontractor and sub-subcontractor as of the date the periodic estimate is filed, as required by Chapter 30, Section 39K, of the General Laws.

(1) Time for Payment. In the case of contracts for construction, reconstruction, alteration, remodeling, repair or demolition of a public building, where the amount is more than two thousand dollars, the City shall, in accordance with Chapter 30, Section 39K, of the General Laws, make payment within fifteen days of receipt of the Contractor's Periodic Estimate; provided however, that the City may, within seven days of receipt of an estimate which is not in the required form or which is arithmetically incorrect, return the incorrect estimate to the Contractor for correction, whereupon the date of receipt shall be the date of receipt of the corrected Periodic Estimate. For all other construction contracts, progress payments are governed by Chapter 30, Section 39G of the General Laws, and the City is required to make payment within thirty-five days of receipt of a Periodic Estimate.

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

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

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

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

days after receipt of said list or before the date of substantial completion in the contract, whichever is later. If the Contractor fails to complete such work within such time, the City may send the Contractor a notice in writing by certified mail, return receipt requested, instructing the Contractor that if the work is not completed with seven days after receipt of the notice, the contract will be terminated and the City will complete the incomplete or unsatisfactory work items and charge the cost of the same to the Contractor and the Contractor's sureties.

(3) Retainage after Substantial Completion. Within sixty-five days after the Effective Date of Substantial Completion, the City shall pay the Contractor all but one percent retainage, minus: a) the amount of any disputed work item; and b) five (5) percent of the value of plant materials in the ground; and c) the City's estimated cost of completing all incomplete and unsatisfactory work items. The City shall also deduct an amount equal to the sum of all demands for direct payment filed by subcontractors and not yet paid to subcontractors or deposited in joint accounts pursuant to Chapter 30, Section 39F of the General Laws. The five (5) percent retainage of the value of all plant materials in the ground shall be withheld by the City until final acceptance of such plant materials at the end of the guarantee period.

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

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

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

Section 7. PAYMENT OF SUBCONTRACTORS.

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

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

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

(c) Each payment made by the City to the Contractor pursuant to subparagraphs a) and b) of this section for the labor performed and materials furnished by a subcontractor shall be made to the Contractor for the account of that subcontractor; and the City shall take reasonable steps to compel the Contractor to make each such payment to each such subcontractor. If the City has received a demand for direct payment from a subcontractor for any amount which has been included in a payment to the Contractor or which is to be included in a payment to the Contractor for payment to the subcontractor as provided in subparagraphs a) and b), the City shall act upon the demand as provided in this section.

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

(e) Within fifteen days after receipt of the demand by the City, but in no event prior to the seventieth day after substantial completion of the subcontract work, the City shall make direct payment to the subcontractor of the balance due under the subcontract including any amount due for extra labor and materials furnished to the Contractor, less any amount (1) retained by the City as the estimated cost of completing incomplete or unsatisfactory items of work, (2) specified in any court proceedings barring such payment, or (3) disputed by the Contractor in the sworn reply; provided, that the City shall not deduct from a direct payment any amount as provided in part (3) if the reply is not sworn to, or for which the sworn reply does not contain the detailed breakdown required by subparagraph (d). The City shall make further direct payment to the subcontractor immediately after the removal of any basis for deductions set forth in (1) or (2) above.

(f) The City shall promptly deposit disputed amounts in an interest-bearing, joint account in the names of the Contractor and the subcontractor, in a bank in Massachusetts selected by the City or agreed upon by the Contractor and the subcontractor, and shall notify the Contractor and the subcontractor of the date of the deposit and the bank receiving the deposit. The bank shall pay the amount in the account, including accrued interest, as provided in an agreement between the Contractor and the subcontractor or as determined by decree of a court of competent jurisdiction.

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

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

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

Section 8. PREVAILING WAGE REQUIREMENTS.

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

- (1) pay wages at least once a week;
 - (2) submit payroll information on a weekly basis in a format approved by DPW, 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);
- (b) The Contractor shall submit to DPW 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 material men.
- (c) The contractor shall include language similar to the above in all subcontracts.

Section 9. EQUAL EMPLOYMENT OPPORTUNITY/NONDISCRIMINATION

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

b) the Contractor shall not discriminate, in any stage of the contract from award to completion, in the selection or retention of subcontractors, suppliers, and 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.

Section 10. COPELAND ANTI-KICKBACK ACT.

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

Section 11. WORK HOURS AND SAFETY STANDARDS.

If this contract is in excess of \$2,000 and is federally funded, the Contractor shall comply with Sections 103 and 107 of the Contract Work Hours Safety Standards Acts (40 U.S.C. 327-333), as supplemented by Department of Labor regulations at 29 CFR part 5. To that end, the Contractor shall compute the wages of every mechanic and laborer on the basis of a standard workweek of 40 hours. Work in excess of the standard workweek is permissible, provided that the worker is compensated at a rate of not less than 1-1/2 times the basic rate of

pay for all hours worked in excess of 40 hours in the workweek. The Contractor shall ensure that no laborer or mechanic is required to work in surroundings or under working conditions which are unsanitary, hazardous, or dangerous.

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

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

Section 13. CONTRACTOR'S CERTIFICATIONS.

The Contractor hereby certifies under oath:

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

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

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

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

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

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

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

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

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

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

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

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

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

Section 14. CONTRACTOR'S RECORDS.

(a) 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.

(2) State Requirements: In accordance with G.L. Chapter 30, §39R, for contracts in an amount or estimated amount greater than \$100,000: (i) the General Contractor shall make and keep for at least six years after final payment, books, records, and accounts which in reasonable detail accurately and fairly reflect the transactions and dispositions of the Contractor; and (ii) until the expiration of six years after final payment, the office of the Inspector General and the Commissioner of Capital Asset Management and Maintenance shall have the right to examine any books, documents, papers or records of the Contractor or of his

subcontractors that directly pertain to and involve transactions relating to the Contractor or his subcontractors; and (iii) the Contractor shall describe any change in the method of maintaining records or recording transactions which materially affect any statements filed with the Awarding Authority, including in his description the date of the change and reasons therefor and shall accompany said description with a letter from the Contractor's independent certified public accountant approving or otherwise commenting on the changes; and (iv) the Contractor shall have filed a Statement of Management on Internal Accounting Controls, as described in paragraph "(1)" below prior to the execution of the Contract; and (v) the Contractor has filed prior to execution of the Contract and will continue to file annually, an Audited Financial Statement for the most recent completed fiscal year as set forth in paragraph "(2)" below.

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

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

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

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

Section 15. CONFLICT OF INTEREST LAWS.

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

Section 16. EVENTS OF DEFAULT.

The following shall be considered Events of Default:

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

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

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

Section 17. REMEDIES UPON DEFAULT.

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

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

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

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

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

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

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

Section 18. TERMINATION FOR CONVENIENCE.

(a) The City may terminate this Contract without cause, at any time, effective upon the date of termination specified by written notice to the Contractor, in which case, the Contractor shall be compensated for: (1) sums due under this Contract incurred up to the date of termination for all Work performed and accepted by the City up to the termination date, calculated on a percentage completion basis covering the period of time between the last approved application for payment and the date of termination

using the progress schedule and schedule of values. The Contractor shall use its best efforts to mitigate any expenses and shall in no event incur any new obligations after the date of termination.

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

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

Section 19. INSURANCE

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

Section 20. INDEMNIFICATION.

The Contractor shall indemnify, defend, and save harmless the City from and against any and all liabilities, losses, damages, costs, expenses (including reasonable attorneys' fees), causes of action, suits, claims, and demands and shall pay any judgment entered against the City on account of personal injuries or damage to property arising out of the work of this Contract.

Section 21. NOTICES.

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

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

(b) to the City, addressed to

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

Notices shall be deemed given when mailed or faxed.

Section 22. MODIFICATION.

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

Section 23. ASSIGNMENT/SUBCONTRACTING.

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

Section 24. GOVERNING LAW.

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

Section 25. SEVERABILITY.

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

Section 26. NON-APPLICABILITY OF FEDERAL REQUIREMENTS.

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

 X (check here)

SPECIAL PROVISIONS

Completion Date

This contract will be in effect one year from the date of contract award.

Bonds

A labor and materials bond in the amount of \$25,000 will be required by the successful bidder.

Note: The successful bidder agree that if he is selected as the contractor, he will, within five (5) days, Saturdays, Sundays and legal holidays excluded, after presentation thereof by the Awarding Authority, execute a contract in accordance with the terms of this bid and furnish a labor and materials bond from a surety company qualified to do business under the laws of the Commonwealth of Massachusetts and satisfactory to the Award Authority in the amount stated.

Insurance

The contractor must provide the following insurance certificates before the contract can be fully executed:

General Liability:	\$2,000,000
Automobile:	\$2,000,000
Workers' Compensation:	as required by General Law

The Certificates of Insurance must show the City of Somerville and Kleinfelder as the Certificate Holder and as Additional Insured. Should any policies be cancelled before the expiration date, the issuing company must send written notice to the City 30 days prior to cancellation.

Prevailing Wage Law

Bidders will be required to comply with the Prevailing Wage Laws, M.G.L. c. 149. Every bidder will be required to submit a certified payroll to the City every week. The City will take an active roll in reviewing and monitoring these payrolls weekly. If the City suspects any violations, the City will report them to the Attorney General's Fair Labor and Business Practices Division. The Attorney General's office, after conducting an investigation and a hearing can order the bidder to halt work, if it finds prevailing wage violations. Within fifteen days after completion of its portion of the work, the bidder must submit a Statement of Compliance with the prevailing wage law. The City reserves the right to conduct hearings on bids that are significantly below the average bid price submitted on a project, to make findings of fact, and determinations. Weekly payrolls are public records and the bidder shall make them available upon request. The bidder is required to keep these records for a period of three years from the date of completion of this contract.

GENERAL TERMS AND CONDITIONS

1. CONTRACTOR'S OBLIGATION

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 DPW 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 DPW.

2. PERFORMANCE/PAYMENT BONDS

The Contractor shall furnish a performance bond in an amount at least equal to one hundred percent (100%) of the contract price as security for the faithful performance of this Contract and also a payment bond in an amount not less than one hundred percent (100%) of the contract price or in a penal sum not less than that prescribed by State, territorial or local law, as security for payment of all persons performing labor on the project under this contract and furnishing materials in connection with this contract. The performance bond and the payment bond may be in one or in separate instruments in accordance with local law, and shall to the extent feasible be in the form developed by the American Institute of Architects (AIA).

3. DESIGN PROFESSIONAL'S AUTHORITY

The Design Professional shall endeavor to keep the City informed of the progress of the work, and shall endeavor to ensure conformance with the contract and specifications, relative to the execution of the work. The Design Professional shall determine the amount, quality, acceptability and fitness of several kinds of work and the construction thereof. The Design Professional's estimates and decisions shall be final and conclusive, except as herein otherwise expressly provided. In case any questions shall arise between the parties hereto relative to said contract or specifications, the determination or decision of the Design Professional shall be a condition precedent to the right of the Contractor to receive any money or payment for work under this contract affected in any manner or to any extent by such question. The Design Professional shall decide the meaning and intent of any portion of the specifications and of any plans or drawings where the same may be found obscure or be in dispute. Any differences or conflicts in regard to their work which may arise between the Contractor under this contract and other Contractors performing work for DPW shall be adjusted and determined by the Design Professional. In accordance with Chapter 30, section 30P of the General Laws the Design Professional's decision on interpretation of the specifications, approval of equipment or material, or any other approval, or progress of the work, shall be made promptly and, in any event, no later than thirty days after a written submission for decision; but if such decision requires extended investigation and study, the Awarding Authority or the Design Professional

shall 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.

4. SUBCONTRACTING

- a. The Contractor may utilize the services of specialty subcontractors on those parts of the work which, under normal contracting practices, are performed by specialty subcontractors, subject to the provisions of this section.
- b. The Contractor shall not award any work to any subcontractor without prior written approval of DPW, 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 DPW 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.
- c. 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.
- d. The Contractor shall cause appropriate provisions to be inserted in all subcontracts relative to the work to bind subcontractors to the Contractor by the Terms of the General Conditions and other contract documents insofar as applicable to the work of subcontractors and to give the Contractor the same power as regards terminating any subcontract that DPW may exercise over the Contractor under any provision of the contract documents.
- e. Nothing contained in this contract shall create any contractual relation between any subcontractor and DPW.

5. PERMITS AND CODES

- a. It shall be the Contractor's responsibility to obtain and pay for all permits required in connection with the work. 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.
- b. The Contractor shall comply with all state and local laws, ordinances, and codes. Before installing any work, the Contractor shall examine the Drawings and Technical Specifications for compliance with applicable laws, ordinances, and codes and shall immediately report any discrepancy to OHCD. Where the requirements of the Drawings and Technical Specification fail to comply with applicable laws, ordinances, or codes, OHCD will adjust the Contract by change order to conform to such laws, ordinances or codes (unless waivers in writing covering the differences have been granted by the governing body or department) and make appropriate adjustment in the Contract Price or stipulated unit

prices. Should the Contractor fail to observe the foregoing provisions and proceed with the construction, (notwithstanding the fact that such construction is in compliance with the Drawings and Technical Specifications), the Contractor shall remove such work without cost to OHCD, and a change order will be issued to cover only the excess cost that the Contractor would have been entitled to receive if the change had been made before the Contractor commenced work on the items involved.

c. Notwithstanding the generality of the foregoing, the Contractor shall comply with federal, state and local laws, ordinances, and codes governing the disposal of excavation materials, and debris and rubbish on and off the Project site.

6. ADDITIONAL INSTRUCTIONS AND DETAIL DRAWINGS

The Contractor will be furnished additional instructions and detail drawings as necessary to carry out the work included in the contract. The additional drawings and instructions thus supplied to the Contractor will coordinate with the Contract Documents and will be so prepared that they can be reasonably interpreted as part thereof. The Contractor shall carry out the work in accordance with the additional detail drawings and instructions. The Contractor and the Design Professional or DPW will prepare jointly (a) a schedule, fixing the dates at which special detail drawings will be required, such drawings, if any, to be furnished by the Design Professional or DPW in accordance with said schedule, and (b) a schedule fixing the dates for the submission of shop drawings, the beginning of manufacture, testing and installation of materials, supplies and equipment, and the completion of the various parts of the work; each such schedule to be subject to change from time to time in accordance with the progress of the work.

7. TECHNICAL SPECIFICATIONS AND DRAWINGS

Anything mentioned in the Technical Specifications and not shown on the Drawings, or shown on the Drawings and not mentioned in the Technical Specifications, shall be of like effect as if shown on or mentioned in both. In case of any discrepancy in Drawings, or Technical Specifications, the matter shall be immediately submitted to the Designer or DPW for a decision. Said discrepancy shall not be adjusted by the Contractor, save only at his own risk and expense.

8. SHOP DRAWINGS

a. All required shop drawings, machinery, details, layout drawings, etc. shall be submitted to the Designer or DPW for approval sufficiently in advance of requirements to afford ample time for checking, including time for correcting, resubmitting and rechecking if necessary. The Contractor may proceed, only at his own risk and expense, with manufacture or installation of any equipment or work covered by said shop drawings, etc. until they are approved, and no claim by the Contractor for extension of the Contract time will be granted by reason of his failure in this respect.

b. Any drawings submitted without the Contractor's stamp of approval will not be considered and will be returned to him for proper resubmission. If any drawings show variations from the requirements of the Contract because of standard shop practice or other reason, the Contractor shall make specific mention of such variation in his letter of transmittal in order that, if acceptable, suitable action may be taken for proper adjustment of

Contract price and/or time. Otherwise the Contractor will not be relieved of the responsibility for executing the work in accordance with the Contract even though the drawings have been approved.

c. If a shop drawing is in accord with the Contractor or involves only a minor adjustment in the interest of DPW not involving a change in Contract price or time, the Designer or DPW may approve the drawing. The approval shall be general and shall not relieve the Contractor from his responsibility for adherence to the contract or for any error in the drawing and shall contain in substance the following: "The modification shown on the attached drawing is approved in the interest of DPW to affect an improvement for the Project and is ordered with the understanding that it does not involve any change in the Contract Price or time; that it is subject generally to all Contract stipulation and covenants; and that it is without prejudice to any and all rights of DPW under the Contract and surety bond or bonds."

9. MATERIALS AND WORKMANSHIP

a. Unless otherwise specifically provided for in the Technical Specifications, all workmanship, equipment, materials and articles incorporated in the work shall be new and the best grade of the respective kinds for the purpose. Where equipment, materials, articles or workmanship are referred to in the Technical Specifications as "equal to" any particular standard, the Designer shall decide the question of equality.

b. The Contractor shall furnish to DPW for approval the manufacturer's detailed specifications for all machinery, mechanical equipment and other equipment articles and materials, together with complete information as to type, performance characteristics, and all other pertinent information. Machinery, mechanical and other equipment, materials or articles installed or used without such prior approval shall be at the risk of subsequent rejections.

c. Materials specified by reference to the number or symbol of a specific standard, such as an A.S.T.M. Standard, or a Federal Specification or other similar standard, shall comply with requirements in the latest revision thereof and any amendment or supplement thereto in effect on the date of the invitation for Bids, except as limited to type, class or grade, or modified in such reference. The standards referred to, except as modified in the Technical Specifications, shall have full force and effect as though printed therein.

f. DPW may require the Contractor to dismiss from the work such employee or employees as, DPW or the Designer may deem incompetent, careless, or insubordinate.

10. SAMPLES

a. The Contractor shall promptly submit all material and equipment samples called for in the Contract Documents or required by the Designer or DPW. No such material or equipment shall be manufactured or delivered to the site, except at the Contractor's own risk and expense, until the required samples have been approved in writing by DPW or the Designer. Any delay in the work caused by late or improper submission of samples for approval shall not be considered just cause for an extension of the contract time.

Each sample submitted by the Contractor shall carry a label giving the name of the Contractor, the project for which it is intended, and the name of the producer. The accompanying letter from the Contractor shall state that the sample complies with Contract requirements, shall give the name and brand of the product, its place of origin, the name and address of the producer and all specifications or other detailed information which will assist the Designer in passing upon the acceptability of the sample promptly. It shall also state that all materials or equipment furnished for use in the project will comply with the sample.

b. Approval of any sample shall be general only and shall not constitute a waiver of DPW's right to demand full compliance with Contract requirements. After actual deliveries, the Designer will have such check tests made as he deems necessary in each instance and may reject materials and equipment for cause, even though such materials and equipment have been given general approval. If materials or equipment which fail to meet check tests have been incorporated in the work, the Designer will have the right to cause their removal and replacement by proper materials and equipment or to demand and secure such reparation by the Contractor as is equitable.

c. Except as otherwise specifically stated in the Contract, the costs of samples and tests will be as follows:

- (1) The Contractor shall furnish without extra cost, including packing and delivery charges, all samples required for testing purposes, except those samples taken on the Project by the Designer.
- (2) The Contractor shall assume all costs of retesting materials which fail to meet contract requirement.
- (3) The Contractor shall assume all costs of testing materials offered in substitution for those found deficient.

11. INSPECTION OF THE WORK

a. All materials and workmanship shall be subject to inspection, examination, and/or testing by DPW or its designated representative. DPW shall have the right to reject defective material and workmanship and require it to be promptly segregated and removed from the Project Area and replaced with materials and workmanship of specified quality without charge. If the Contractor fails to proceed at once with the correction of rejected materials and workmanship, DPW may proceed to correct the work itself and charge the cost of the same against any monies which may be due the Contractor, without prejudice to any other rights or remedies of DPW.

b. The Contractor shall furnish promptly all materials reasonably necessary for any tests which may be required. All tests will be performed in such manner as not to delay the work unnecessarily and will be made in accordance with the provisions of the Technical Specifications.

c. The Contractor shall notify DPW sufficiently in advance of covering or concealing any work in order to permit proper inspection. If any work is covered or concealed without the consent of DPW, the Contractor shall uncover and recover such work for inspection at the

contractor's expense, when so requested by DPW. Should it be considered necessary or advisable by DPW to examine work already completed and covered, the Contractor shall on request promptly uncover said work. If such work is found to be defective in any important or essential respect the Contractor shall defray all the expenses of such examination and of satisfactory reconstruction. If, however, such work is found to meet the requirements of the Contract, the actual cost of labor and material necessarily involved in the examination and replacement, plus an additional amount equal to that allowed for change orders shall be allowed the Contractor and he shall, in addition, if completion of the work of the entire Contract has been delayed thereby, be granted a suitable extension of time on account of the additional work involved.

d. Whenever the quantity justifies it, inspections of work may be made at the place of production, manufacture or shipment, in which case, acceptance shall be final, except as regards (1) latent defects, (2) damage or loss in transit; or (3) fraud or such gross mistakes as amount to fraud. Otherwise, inspections of materials shall take place at the Project Site.

e. No examination, inspection, or testing, by DPW or its agent shall relieve the Contractor or the Contractor's sureties of liability for defective materials or workmanship.

f. Any inspection party may include one or more HUD representatives and one or more representatives of each department of the City having jurisdiction over the work being inspected.

12. DEDUCTION FOR INCORRECTED WORK

If DPW deems it expedient not to require the Contractor to correct work not done in accordance with the Contract Documents, an equitable deduction from the Contract Price will be made by agreement between the Contractor and DPW. Any dispute regarding such deduction shall be subject to settlement, in case of dispute, as herein provided.

13. CONSTRUCTION SUPERINTENDENT

At the site of the work the Contractor shall employ a construction superintendent or foreman who shall have full authority to act for the Contractor. Such representative shall be acceptable to the Design Professional or DPW and shall continue in that capacity for the duration of the job unless he ceases to be on the Contractor's payroll.

14. ACCIDENT PREVENTION

a. The Contractor shall exercise proper precaution at all times for the protection of persons and property and shall be responsible for all damages to persons or property, either on or off the site, which occur as a result of his prosecution of the work. The safety provisions of applicable laws and building and construction codes shall be observed and the Contractor shall take or cause to be taken such additional safety and health measures as DPW may determine to be reasonably necessary. Machinery, equipment and all hazards shall be guarded in accordance with the safety provisions of the "Manual of Accident Prevention in Construction" published by the Associated General Contractors of America, Inc., to the extent that such provisions are not in conflict with applicable local laws.

b. The Contractor shall indemnify and save harmless DPW from any claims for damages resulting from personal injury and/or death suffered or alleged to have been suffered by any person as a result of any work conducted under this Contract.

15. EXISTING UTILITY LINES

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 DPW covering this said contract and surety or bonds.

16. CARE OF WORK

a. 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 DPW.

b. 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.

c. In an emergency affecting the safety of life or property, including adjoining property, the Contractor, without special instructions or authorization from DPW is authorized to act at his discretion to prevent such threatened loss or injury, and he shall so act. He shall likewise act if instructed to do so by DPW. Any compensation claimed by the Contractor on account of such emergency work will be determined by DPW as provided in the Section - CHANGES IN THE WORK.

d. 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.

e. 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/or DPW 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.

17. WEATHER PROTECTION

a. 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 DPW, 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.

b. It is the intent of these Specifications to require that, in all Chapter 149, s. 94A contracts, the General Contractor shall provide temporary enclosures and heat to permit construction work to be carried on during the months of November through March in compliance with M.G.L. Chapter 149, Section 44D (G). 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 DPW. 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 DPW 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.

18. SANITARY FACILITIES

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.

19. USE OF PREMISES AND REMOVAL OF DEBRIS

The Contractor expressly undertakes at his own expense:

- a. to store his apparatus, materials, supplies and equipment in such orderly fashion at the site of the work as will not unduly interfere with the progress of his work or the work of any other contractors;
- b. to place upon the work or any part thereof, only such loads as are consistent with the safety of that portion of the work.
- c. to clean up frequently all refuse, rubbish, scrap materials and debris caused by his operations, to the end that at all times the site of the work shall present a neat, orderly and workmanlike appearance.
- d. before final payment to remove all surplus material, false work, temporary structure, including foundations thereof, plant of any description and debris of every nature resulting from this operations, and to put the site in a neat, orderly condition.
- e. to effect all cutting, fitting or patching of his work required to make the same to conform to the plans and specifications and, except with the consent of the Design Professional or DPW not to cut or otherwise work of any other contractor.

20. COORDINATION WITH OTHER CONTRACTORS

The Contractor shall coordinate his operations with those of other Contractors. Cooperation will be required in the arrangement for the storage of materials and in the detailed execution of work. The Contractor, including his subcontractors, shall keep informed of the progress and the detail work of other Contractors and shall notify the Design Professional or DPW immediately of lack of progress or defective workmanship on the part of other Contractors. Failure of a contractor to keep informed of the work progressing on the site and failure to give notice of lack of progress or defective workmanship by others shall be construed as acceptance by him of the status of the work as being satisfactory for proper coordination with his own work.

21. QUANTITIES OR ESTIMATES

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 DPW 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.

22. DISPUTES

a. All disputes arising under this Contract or its interpretation, whether involving law of fact or both, or extra work, and all claims for alleged breach of Contract shall within ten (10) days of commencement of the dispute be presented by the Contractor to DPW for decision. All papers pertaining to claims shall state the facts surrounding the claims in sufficient detail to identify the claim, with its character and scope. In the meantime, the Contractor shall proceed with the work as directed. Any claim not presented within the time limit specified in this paragraph shall be deemed to have been waived, except that if the claim is of a continuing character and notice of the claim is not given within ten (10) days of its commencement, the claim will be considered only for a period commencing ten (10) days prior to the receipt by DPW of notice thereof.

b. The Contractor shall submit proof of the Contractor's claim in detail. Each decision by DPW will be in writing and will be mailed to the Contractor by registered or certified mail, return receipt requested.

c. If the Contractor does not agree with DPW's decision the Contractor shall not delay the work, but shall notify DPW promptly that he is proceeding with the work under protest and he may then except the matter in question from the final release.

23. LAND AND RIGHTS-OF-WAY

Prior to the start of construction, DPW shall obtain all lands and rights-of-way necessary for the carrying out and completion of work to be performed under this contract.

24. WARRANTY OF TITLE

No material, supplies, or equipment to be installed as part of the work shall be purchased subject to any chattel mortgage or under a conditional sale or other agreement by which an interest therein or in any part thereof is retained by the seller or supplier. The Contractor shall warrant good title to all materials, supplies, and equipment installed or incorporated in the work and, upon completion of all work, shall deliver the same to DPW free from any claims, liens, or charges. Neither the Contractor nor any person, furnishing any material or labor for any work covered by this Contract shall have any right to a lien. Nothing contained in this paragraph, however, shall defeat or impair the right of persons furnishing materials or labor to recover under any bond given by the Contractor for their protection, or to recover under any laws permitting such persons to look to funds due the Contractor in the hands of DPW. The provisions of this paragraph shall be given to all persons furnishing materials for the work when no formal contract is entered into for such materials.

25. GENERAL GUARANTY

Neither the final certificate of payment nor any provision in the Contract Documents, nor partial or entire occupancy of the premises by DPW 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. DPW will give notice of observed defects with reasonable promptness.

26. REVIEW OF RECORDS

DPW, 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 DPW through its authorized representatives or agents.