BOARD OF SELECTMEN Belkin Family Lookout Farm, 89 Pleasant Street AGENDA May 17, 2018 6:00 PM

CITIZEN'S CONCERNS

APPOINTMENTS

- 1. Procurement Officer: Contracts
 - a. Camp Arrowhead Construction Contract
 - b. Emergency Alert Contract
 - c. Water Mains Rehabilitation Contract
- 2. Lookout Farm Site Visit

ITEM TITLE:Procurement Officer: ContractsITEM SUMMARY:a. Camp Arrowhead Construction Contractb. Emergency Alert Contractc. Water Mains Rehabilitation Contract

ATTACHMENTS:

Description	Upload Date	Туре
Camp Arrowhead Contract Award Recommendation	5/17/2018	Cover Memo
Camp Arrowhead-Project Manual	5/17/2018	Cover Memo
Camp Arrowhead-Plans	5/17/2018	Cover Memo
Emergency Alert Contract Award Recommendation	5/11/2018	Cover Memo
Water Mains Rehabilitation Contract Award Recommendation	5/11/2018	Cover Memo
Water Mains-Invitation for Bids	5/11/2018	Cover Memo
Water Mains-Addendum 1	5/11/2018	Cover Memo
Water Mains-Addendum 2	5/11/2018	Cover Memo
Water Mains-Addendum 3	5/11/2018	Cover Memo
Water Mains-Drawings	5/11/2018	Cover Memo

TOWN OF NATICK MASSACHUSETTS



TO: Natick Board of Selectmen William Chenard, Acting Town Administrator Jemma Lambert, Director, Natick Community Services Karen Partanen, Director, Natick Recreation and Parks Randy Johnson, Resolution Architects, LLC

FROM: Bryan R. Le Blanc, Procurement Officer

DATE: May 17, 2018

SUBJECT: CONTRACT AWARD Rehabilitation of the Camp Arrowhead Building (Re-Bid)

On May 17, 2018, bids were received, pursuant to M.G.L. c. 149, §§44A *et seq.*, for rehabilitation of the Camp Arrowhead Building in the Town of Natick, Massachusetts. Bids were received from four (4) bidders. (See attached.) This was a second re-bid, as no bids were received in the initial round of procurement. All bids from eligible bidders in the second round exceeded then available funding in the first re-bid round. In this round, we disqualified one of the bidders, Unicon Construction, Inc., for leaving the bid amount blank on its bid form.

Marino Construction, Inc. ("Marino Construction") is the lowest responsible and eligible bidder. We recommend that the Natick Board of Selectmen award the contract to Marino Construction for the complete main bid work, as provided for in the Town's Invitation for Bids, subject to approval by the Commonwealth of Massachusetts Department of Conservation and Recreation (DCR). The amount of the award will be for \$395,000.00, as provided for in Marino Construction's bid. We have reviewed the bids received and have checked the references and qualifications of Marino Construction.

Please advise if you have any questions or require additional information.

Bids Received:	05/17/18
Newspaper Advertisement (<u>Metrowest Daily News</u>):	05/02/18
Website Posting:	04/25/18
Town Hall Posting	04/25/18
Central Register:	05/02/18
COMMBUYS Posting:	04/25/18

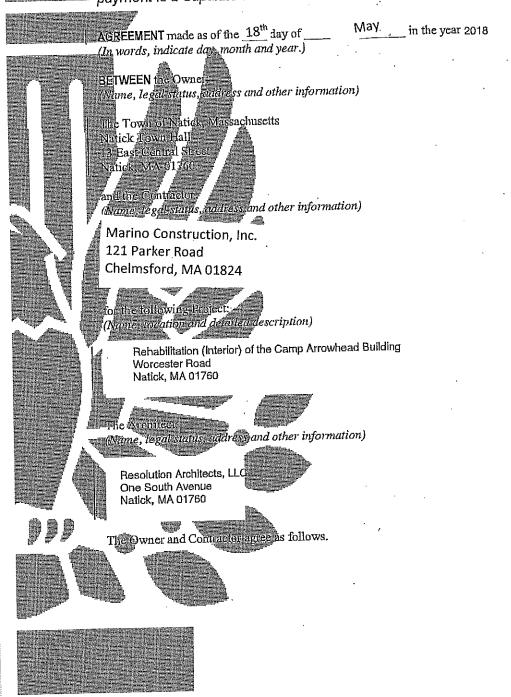
Funding:2016 Special Town Meeting #2 Article 62018 Spring Annual Town Meeting Article 14 Motion F

DEPARTMENT OF PUBLIC WORKS • 75 WEST STREET • NATICK, MASSACHUSETTS 01760 TEL. 508-647-6550 • FAX. 508-647-6560 • WWW.NATICKMA.GOV

					Town of Natick	ttick						
					IFB Opening Form	Form						
Bida - Rematuetion of the Camp Arrowhead Bailaing (Ra-Bid (2)) -No bids received in first reamd of procurement, Second bida meseded	-No bide received in fi	cat round of proceed	sent. Second bids exter	લેલ્વે budgtt.								
Date & Time: May 17, 2018, 9:30 A.M. EDST	M. EDST											1
	Envelope Sealed & Marked	DCAMM Certificate of Eligibility &	Certificate of Non-Collusion		Tax Compliance Cent of Corporate Certification Biddler	Conflict of Interest Certificate	Signature of Bidder & Addenda	Certificate of Insurability	Compliance with MGL 151B	Certificate of Non-Debarment	Práce	. <u></u>
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Company Name		1	×	×	×	×	×	bid.	×	×	Inn-Tesponisven Jun	
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Mill City Construction, Lincoln, RI	×	×	×	×	<		:	Not with	×	×	\$1,187,781.00	
Dagle Elec. Construction, Wilmington	×	×	×	×	×	×	×	bid.	,			T
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▲ A A Document A101[™] – 2007

Standard Form of Agreement Between Owner and Contractor where the basis of payment is a Stipulated Sum



ADDITIONS AND DELETIONS:

The author of this document has added information needed for its completion. The author may also have revised the text of the original AIA standard form. An Additions and Deletions Report that notes added information as well as revisions to the standard form text is available from the author and should be reviewed. A vertical line in the left margin of this document indicates where the author has added necessary information and where the author has added to or deleted from the original AIA text.

This document has Important legal consequences. Consultation with an attomey is encouraged with respect to its completion or modification.

AIA Document A201™-2007, General Conditions of the Contract for Construction, is adopted in this document by reference. Do not use with other general conditions unless this document is modified.

Init. 1

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TABLE OF ARTICLES

HE CONTRACT DOCUMENTS

THE WORK OF THIS CONTRACT

DATE OF COMMENCEMENT AND SUBSTANTIAL COMPLETION

- CONTRACT SUM
- PAYMENTS
- DISPUTE RESOLUTION

TERMINATION OR SUSPENSION

MISCELLANEOUS PROVISIONS

ENUMERATION OF CONTRACT DOCUMENTS

INSURANCE AND BONDS

10

THE CONTRACT DOCUMENTS ARTICLE V

The Contract Documents consist of this Agreement, Conditions of the Contract (General, Supplementary and other Conditions), Drawings, Specifications, Addenda issued prior to execution of this Agreement, other documents listed in this Agreement and Modifications issued after execution of this Agreement, all of which form the Contract, and are as fully a part of the Contract as if attached to this Agreement or repeated herein. The Contract represents the entire and integrated agreement between the parties hereto and supersedes prior negotiations, representations or agreements, cither written or oral. An enumeration of the Contract Documents, other than a Modification, appears in Article 9

ARTICLE-2 THE WORK OF THIS CONTRACT

The Contractor shall fully execute the Work described in the Contract Documents, except as specifically indicated in the Contract Documents to be the responsibility of others.

ARTICLE 3 DATE OF COMMENCEMENT AND SUBSTANTIAL COMPLETION § 3.1 The date of commencement of the Work shall be the date of this Agreement unless a different date is stated below or provision is made for the date to be fixed in a notice to proceed issued by the Owner. (Insert the date of commencement if it differs from the date of this Agreement or, if applicable, state that the date

be fixed in a notice to proceed.)

| N/A

It prior to the commencement of the Work, the Owner requires time to file mortgages and other security interests, the Owner's time requirement shall be as follows:

\$ 3:2 The Contract Time shall be measured from the date of commencement.

§ 333 The Contractor shall achieve Substantial Completion of the entire Work not later than sixty (60) calendar days from the date of commencement.

(Insert number of calendar days. Alternatively, a calendar date may be used when coordinated with the date of commencement. If appropriate, insert requirements for earlier Substantial Completion of certain portions of the Work.)

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Portion of Work

Substantial Completion Date

subject to adjustments of this Contract Time as provided in the Contract Documents. hiseral provisions, if any, for liquidated damages relating to failure to achieve Substantial Completion on time or for bonus payments for early completion of the Work.)

SEE PROJECT MANUAL

ARTICLE 4 CONTRACT SUM

§ 41 The Owner shall pay the Contractor the Contract Sum in current funds for the Contractor's performance of the Contract. The Contract Sum shall be J' (\$), subject to additions and deductions as provided in the Contract

three hundred ninety-five thousand dollars and zero cents (\$395,000.00)

Contract Sum is based upon the tollowing alternates, if any, which are described in the Contract and are hereby a solut by the Owner.

(State the numbers or other identification of accepted alternates. If the bidding or proposal documents permit the Owner to accept other alientates subsequent to the execution of this Agreement, attach a schedule of such other alternates showing the amount for each and the date when that amount expires.)

rice: state quantity limitations, if any, to which the unit price will be applicable.)

Units and Limitations

Price Per Unit (\$0.00)

3

4.4 Allowances included in the Contract Sum, if any

N/A

Identify allowance and state exclusions, if any, from the allowance price.)

Price N/A

ARTICLE 5 PAYMENTS § 5.1 PROGRESS PAYMENTS

§ 4.3 Whit prices, if any

ltëm

See Project Manual

ltem

-N/A

Adentify and state

§ 5.1.1 Based upon Applications for Payment submitted to the Architect by the Contractor and Certificates for Payment issued by the Architect the Owner shall make progress payments on account of the Contract Sum to the Contractor as provided below and elsewhere in the Contract Documents.

5.1.2 The period covered by each Application for Payment shall be one calendar month ending on the last day of the month, or as follows:

Per M.G.L. c. 30, §39K.

5.5.1.3 Provided that an Application for Payment is received by the Architect not later than the first day of a month, the Swner shall make payment of the certified amount to the Contractor not later than the fifteenth day of the same month. If an Application for Payment is received by the Architect after the application date fixed above, payment shall be made by the Owner not later than fifteen (15) days after the Architect receives the Application for Payment.

(Federal, state or local laws may require payment within a certain period of time.)

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§ 5.1.4 Each Application for Payment shall be based on the most recent schedule of values submitted by the Contractor in accordance with the Contract Documents. The schedule of values shall allocate the entire Contract Sumanong the various portions of the Work. The schedule of values shall be prepared in such form and supported by such data to substantiate its accuracy as the Architect may require. This schedule, unless objected to by the Architect, shall be used as a basis for reviewing the Contractor's Applications for Payment.

§ 5:15 Applications for Payment shall show the percentage of completion of each portion of the Work as of the end more period covered by the Application for Payment.

5.1.6 Subject to other provisions of the Contract Documents, the amount of each progress payment shall be computed as tollows:

Take that portion of the Contract Sum properly allocable to completed Work as determined by multiplying the percentage completion of each portion of the Work by the share of the Contract Sum allocated to that portion of the Work in the schedule of values, less retainage of five percent (5 %) Pending final determination of cost to the Owner of changes in the Work, amounts not in dispute shall be included as provided in Section 7.3.9 of AIA Document A201TM-2007, General Conditions of the Contract for Construction;

Add Hat portion of the Contract Sum properly allocable to materials and equipment delivered and suitably stored at the site for subsequent incorporation in the completed construction (or, if approved madyance by the Owner, suitably stored off the site at a location agreed upon in writing), less retainage of five percent (5 %); Subtract the aggregate of previous payments made by the Owner; and

Subtract autounts, if any, for which the Architect has withheld or nullified a Certificate for Payment as provided in Section 9.5 of AIA Document A201-2007.

7 The progress payment amount determined in accordance with Section 5.1.6 shall be further modified under

e following circumstances Add, upon Substantial Completion of the Work, a sum sufficient to increase the total payments to the full amount of the Contract Sum, less such amounts as the Architect shall determine for incomplete Work retainage applicable to such work and unsettled claims; and

(Section-9.8.5) of AIA Document A201-2007 requires release of applicable retainage upon Substannal Completion of Work with consent of surety, if any.)

Add if in al completion of the Work is thereafter materially delayed through no fault of the Contractor, any additional amounts payable in accordance with Section 9.10.3 of AIA Document A201 2007.

§ 5.118 Reduction of limitation of retainage, if any, shall be as follows: (17 is intended, prior to Substantial Completion of the entire Work, to reduce or limit the retainage resulting from The percentages inserted in Sections 5:1.6.1 and 5.1.6.2 above, and this is not explained elsewhere in the Contract Documents, insert here provisions for such reduction or limitation.)

None.

.1,

5.1.9 Exception the Owner's prior approval, the Contractor shall not make advance payments to suppliers for materials or comment which have not been delivered and stored at the site.

S 5/2 FINAL PAYMENT

§ 5.2.1 Final payment, constituting the entire unpaid balance of the Contract Sum, shall be made by the Owner to the Gentractorwhen

The Contractor has fully performed the Contract except for the Contractor's responsibility to correct Work as provided in Section 12.2.2 of AIA Document A201-2007, and to satisfy other requirements,

many, which extend beyond final payment; and

a final Certificate for Payment has been issued by the Architect.

§ 5.2.2 The Owner's final payment to the Contractor shall be made no later than 30 days after the issuance of the Architect's final Certificate for Payment, or as follows:

init.

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ARTICLE 6 DISPUTE RESOLUTION 5.6.1.INITIAL DECISION MAKER

The Architect will serve as Initial Decision Maker pursuant to Section 15.2 of AIA Document A201-2007, unless the parties appoint below another individual, not a party to this Agreement, to serve as Initial Decision Maker. (If the parties mutually agree, insert the name, address and other contact information of the Initial Decision Maker, afother than the Architect.)

§ 6.2 BINDING DISPUTE RESOLUTION

For any Claim subject to, but not resolved by, mediation pursuant to Section 15.3 of AIA Document A201–2007, the method of binding dispute resolution shall be as follows:

(Check the appropriate box. If the Owner and Contractor do not select a method of binding dispute resolution below, or do not subsequently agree in writing to a binding dispute resolution method other than litigation, Claims will be resolved by litigation in a court of competent jurisdiction.)

Astentration pursuant to Section 15.4 of AIA Document A201-2007

Effigation in a court of competent jurisdiction

RTICLE 77 JERMINATION OR SUSPENSION

∠Other (Speci)

§ 7.1 The Contract may be terminated by the Owner or the Contractor as provided in Article 14 of AIA Document A201, 2007.

72 The Work may be suspended by the Owner as provided in Article 14 of AIA Document A201-2007.

ARTICLE 8 MISCELLANEOUS PROVISIONS

§ 8.1 Where reference is made in this Agreement to a provision of AIA Document A201–2007 or another Contract Document, the reference refers to that provision as amended or supplemented by other provisions of the Contract Documents

§ BZP ayments due and unpaid under the Contract shall bear interest from the date payment is due at the rate stated below, or in the absence thereof, at the legal rate prevailing from time to time at the place where the Project is

located. (Insert rate of interest agreed upon, if any.)

Zero percent (0%)

[¶ X

§-8:3 The Owner snepresentative: (Name, address and other information)

William D. Chenard Acting Town Administrator Natick Town Hall 13 East Central Street Natick, MA 01760

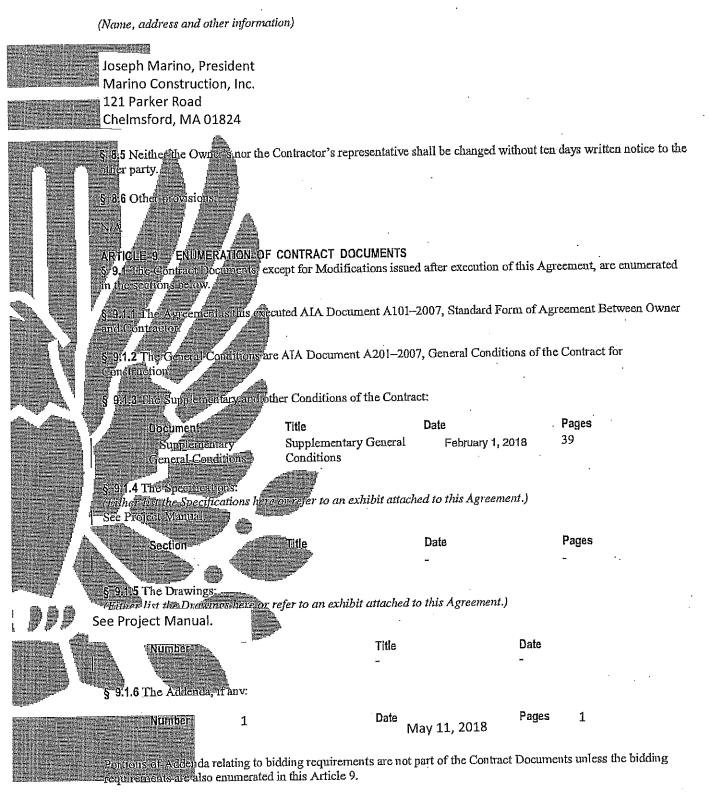
§ 8.4 The Contractor's representative:

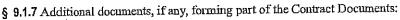
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AIA Document E201TM-2007, Digital Data Protocol Exhibit, if completed by the parties, or the .1 following:

N/A

K¥/∆

Other documents, if any, listed below: (List here any additional documents that are intended to form part of the Contract Documents. AIA Document A201-2007 provides that bidding requirements such as advertisement or invitation to bid, Instructions to Bidders, sample forms and the Contractor's bid are not part of the Contract Documents unless enumerated in this Agreement. They should be listed here only if intended to be part of the Contract Documents.)

ARTICLE 10 INSURANCE AND BONDS

The Contractor shall purchase and maintain insurance and provide bonds as set forth in Article 11 of AIA Document

(State bonding section enteriors, if any, and limits of liability for insurance required in Article 11 of AIA Document

Type of insurance or bond Pertormance Bond abor and Materials Payment Bond Limit of liability or bond amount (\$0.00) 100% of Total Contract Price 100% of Total Contract Price

CONTRACTOR

(Printed Name of Contractor)

ement entered into as of the day and year first written above.

The Town of Natick, Massachusetts

Chairman

The Natick Board of Selectmen B

deleter

Amy K, Mistrot

(Partieranlis

OWNER

A201-2007

207=2007.)

Susan G. Salamoff, Vice Chairman

Michael J. Hickey, Jr., Clerk

Ъу:

Printed Name

Signature

Printed Title

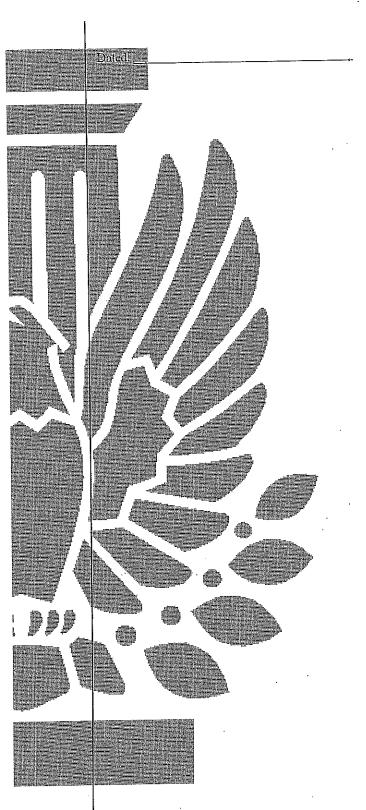
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Jonathan H. Freedman

Richard P. Jennett, Jr.

Init.

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Dated:

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APPROVED AS TO AVAILABILITY OF APPROPRIATION:

This is to certify, pursuant to M.G.L. c. 44, §31C, that an appropriation in the amount of this Agreement is available therefore and that the Natick Board of Selectmen is authorized to execute this Agreement and to approve all requisitions and execute change orders.

Dated: Arti P. Mehta Comptroller, Town of Natick TO FORMONLY, AND NOT AS TO SUBSTANCE ROVED A Dated: John P. Flynn, E AIA Document A101TM – 2007. Copyright © 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1967, 1974, 1977, 1987, 1991, 1997 and 2007 by The American Institute of Architects. All rights reserved. WARNING: This AIA[®] Document is protected by U.S. Copyright Law and international Treaties. Unauthorized reproduction or distribution of this AIA[®] Document, or any portion of it, may result in severe civil and criminal penalties, and will be prosecuted to the maximum extent possible under the taw. This document was produced by AIA software at 13:49:20 on 02/27/2017 under Order No.0337119105_1 which expires on 03/19/2017, and is not for resale. User Notes: Init. 1

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		silita.	of		Name)	and I further certi	fy that at a
	(Ifitle)						
	meeting of	Esaid Corporation duly	called and held on		, 20	, at which mee	ting all
	Directors	were present and votin	g, the following vote	e was unanime	ously passed:		
	VOTED.	To Authomze	and empower either	(Name			
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			Printec	l Name			
			Printed	l Title			
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	authenty	to sign for the Corpor	ation" shall be attack	ned.	*	-	

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BID FORM FOR GENERAL BID

To the Awarding Authority: Town of Natick, Massachusetts Board of Selectmen Natick Town Hall 13 East Central Street Natick, MA 01760

- The undersigned Bidder proposes to furnish all labor and materials required for A. Rehabilitation (Interior) at the Camp Arrowhead Building in the Town of Natick, in accordance with the accompanying plans and specifications for the Contract price specified below, subject to additions and deductions according to the terms of the specifications.
- This bid includes addenda numbered Β.
- C.

The proposed lump sum contract price is three hundred nearly five the user 2 - co dollars (\$,395.).000 For alternate No. M/A Add \$ M/A ; Subtract M/A

Not/Applicable (Repeat preceding line for each alternate)

The subdivision of the proposed contract price is as follows: D.

> Item, 1, The work of the general contractor, being all work other than that covered by Item 2. \$ /MA

Item 2. Sub-bids as follows:

Sub-Trade

Name of Sub-Bidder

Amount of Sub-Bid

Bonds Required (Indicated by "Yes" or "No")

Sub-bids as follows:

The undersigned agrees that each of the above named sub-bidders will be used for the work indicated at the amount stated, unless a substitution is made. The undersigned further agrees to pay the premiums for the performance and payment bonds furnished by sub-bidders as requested herein and that all of the cost of all such premiums is included in the amount set forth in Item 1 of this bid.

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

The undersigned agrees that, if he is selected as general contractor, he will within five (5) days, Saturdays, Sundays and legal holidays excluded, after presentation thereof by the awarding authority, execute a contract in accordance with the terms of this bid and furnish a performance bond and also a labor and materials or payment bond, each of a surety company qualified to do business under the laws of the commonwealth and satisfactory to the awarding authority and each in the sum of the contract price, the premiums for which are to be paid by the general contractor and are included in the contract price; provided, however, that if there is more than 1 surety company, the surety companies shall be jointly and severally liable.

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

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

The Bidder has familiarized himself with the nature and extent of the Contract Documents, Work, site, locality, and all local conditions and Laws and Regulations that in any manner may affect cost, progress, performance or furnishing of the Work.

This Bid is genuine and not made in the interest of or on behalf of any undisclosed person, firm or corporation and is not submitted in conformity with any agreement or rules of any group, association, organization or corporation; Bidder has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid; Bidder has not solicited or induced any person, firm or corporation to refrain from bidding; and Bidder has not sought by collusion to obtain for itself any advantage over any other Bidder or over Owner.

The Bidder certifies that it has reviewed the insurance requirements contained in the Contract Documents and certifies that it will comply with them. The Bidder also certifies its completion of the attached Contractor Certification forms.

The following documents are attached to and made a condition of this Bid:

(a) Required Bid Security in the amount of five (5%) percent of PROPOSED LUMP SUM CONTRACT PRICE appearing in Paragraph 4 above, and in a form as described in the Instructions to Bidders.

(b) A copy of a "Certificate of Eligibility" issued by the Deputy Commissioner of the Commonwealth of Massachusetts Division of Capital Asset Management and Maintenance (DCAMM) showing that the Bidder has the classification and capacity rating to perform the work required.

(c) An update statement in such form as the Deputy Commissioner of DCAMM shall prescribe.

The undersigned hereby certifies that the Bidder named below will comply with the minority workforce percentage ratio and specific affirmative action steps contained in the EEO/AA/Supplier Diversity Office (SDO) provisions of this Contract. The Bidder receiving the award of the Contract shall be required to obtain from each of its subcontractors a copy of the certification by said subcontractor, regardless of tier, that it will comply with the minority workforce ratio and specific affirmative action steps contained in these EEO/AA/SDO Contract provisions and submit it to the contracting agency prior to the award of such subcontract.

The undersigned certifies under penalties of perjury that there have been no substantial changes in his financial position or business organization of the Bidder named below other than those changes noted within the application since the applicant's most recent statement and that the bid is in all respects *bona fide*, fair and made without collusion or fraud with any other person. "Person" shall mean any natural person, joint venture, partnership, corporation or other business or legal entity which sells materials, equipment or supplies used in or for, or engages in the performance of, the same or similar construction, reconstruction, installation, demolition, maintenance or repair work or any part thereof. C 149 s44D (1)(b)

The undersigned further certifies under penalty of perjury that the said Bidder named below is not presently debarred from doing public construction work in the Commonwealth of Massachusetts under the provision of Section 29F of Chapter 29, or any other applicable debarment provisions of any other Chapter of the General Laws or any rule or regulation promulgated thereunder.

THIS BID SUBMITTED ON .5/17. 20.18

Name	of Bidder: Marino Construction Inc.
	By
	Signafure
· · ·	To seph Marins Printed Name
• •	President Printed Title
:	
(Cor	Attest(Secretary)
	Business Address: 121 Parker Rd
	Chelmsford MA 01824
	Phone Number: (781) 844-5464
	E-mail Address: J. Marine construction & green licon
	Fax: 978-256-6383

:

.

CERTIFICATE OF NON-COLLUSION

The undersigned certifies, under penalties of perjury, that this Bid 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.

Marino Construction Trc. Name of Bidder

121 Parkes Rol Address of Bidder

Chelmoford, M 01824

<u>781 - 844 - 5464</u> Telephone Nymber

By: _____(Signature) Joseph Marine Printed Name

President Printed Title

5/17/18 Date



Resolution Architects One South Avenue Natick, MA 01760 P: (508) 315-3666 ResolutionArchitects.com

. ÷.

May 11, 2018

ADDENDUM NO. 1

Restoration of Camp Arrowhead Natick, MA

All Plan Holders To:

- Byran LeBlanc; Town of Natick Procurement Officer Cc:
 - 1. The Drawings dated May 2, 2018 and Project Manual dated May 2, 2018, are amended as noted in the following addendum.
 - 2. This Addendum consists of One (1) items and no (0) Attachments.
 - 3. Bidders shall note receipt of all Addenda on the bid form. Failure to due this will cause rejection of the bid.

ITEM 1 **Roofing Spec**

In Specification Section 07 31 00, 2.01 A, Delete subparagraph 10

Insert new subparagraph 4:

Acceptable Manufacturers: 4. GAF "Marquis" WeatherMax Equal by Certainteed or Tamko

End of Addendum No. 1

CERTIFICATE OF TAX COMPLIANCE

Pursuant to Massachusetts General Laws (M.G.L.) c. 62C,§49A, I certify under the penalties of perjury that the Bidder named below has complied with all laws of the Commonwealth of Massachusetts pertaining to the payment of taxes, to the reporting of employees and contractors, and to the withholding and remitting of child support.

Marino Construction Tre. Name of Bidder

12 Packer Rd Address of Bidder

Chelnsford MA 01824

<u>781-344-5464</u> Telephone Number

(Signature) Joseph Marian Printed Name President Printed Title Ву: __

5/17/18 Date

CONFLICT OF INTEREST CERTIFICATION

The Bidder hereby certifies that:

1. The Bidder has not given, offered, or agreed to give any gift, contribution, or offer of employment as an inducement for, or in connection with, the award of a Contract pursuant to this Invitation for Bids.

2. No consultant to, or subcontractor for, the Bidder has given, offered, or agreed to give any gift, contribution, or offer of employment to the Bidder, or to any other person, corporation, or entity as an inducement for, or in connection with, the award to the consultant or subcontractor of a Contract by the Bidder.

3. No person, corporation, or other entity, other than a bona fide full time employee of the Bidder has been retained or hired to solicit for or in any way assist the Bidder in obtaining the Contract (pursuant to this IFB) upon an agreement or understanding that such person, corporation or entity be paid a fee or other compensation contingent upon the award of a Contract to the Bidder.

4. The Bidder understands that the Massachusetts Conflict of Interest Law, Chapter 268A of the Massachusetts General Laws, applies to the Bidder with respect to the transaction outlined in the IFB.

5. The Bidder understands that the Bidder, his/her/its officers, employees, agents, subcontractors, and affiliated entities, shall not participate in any activity which constitutes a violation of the Massachusetts Conflict of Interest Law or which creates an appearance of a violation of the Massachusetts Conflict of Interest Law.

Marine Construction Inc. Name of Bidder 121 Parker Rol Address of Bidder Chelmford MA 01804 781-844-5464 Telephone Number By: (Signature) Poseph rinted Name President Printed Title 5/17/18 Date

CERTIFICATE OF CORPORATE BIDDER

I, <u>Toseph Marine</u>, certify that I am the <u>President</u> of the Corporation named as Bidder in the attached Bid; that <u>Joseph Marine</u>, who signed said Bid on behalf of the Bidder was then <u>President</u> of said Corporation; that I know his/her signature hereto is genuine and that said Bid was duly signed, sealed and executed for and on behalf of its governing body.

(Corporate Seal)

Marine	Construct	ion Toc.
Name of Bidd	er	

121 Parker Rel Address of Bidder

Chelmsford, MA 01824

<u>TISI- 844-5464</u> Telephone Nymber

By: (Signature) Joseph Marino Printed Name

President Printed Title

5/17/18 Date

This Certificate shall be completed where Bidder is a Corporation and shall be so completed by its Clerk. In the event that the Clerk is the person signing the Bid on behalf of the Corporation, this certificate shall be completed by another officer of the Corporation.

CERTIFICATE OF COMPLIANCE WITH M.G.L. c. 151B

The Bidder hereby certifies that it is in compliance with and shall remain in compliance with Massachusetts General Laws (M.G.L.) Chapter 151B and shall not discriminate on any prohibited basis outlined therein. The Bidder also hereby certifies that it shall comply with any and all applicable Supplier Diversity Office (SDO) thresholds that have been established in conjunction with this Invitation for Bids.

Marino Construction Inc. Name of Bidder (2) Parker Rol Address of Bidder Chelmsford MA 01824 781-844-5464 Telephone Number By: ___ (Signature) Joseph Marino Printed Name President Printed Title 5/17/18 Date

CERTIFICATE OF NON-DEBARMENT

The Bidder hereby certifies that it is presently not debarred, suspended, or otherwise prohibited from practice by any federal, state, or local agency, and that, should any proceeding arise in which it is debarred, suspended, or otherwise prohibited from practice by any federal, state, or local agency, the Bidder shall inform the Town of Natick within one (1) business day of such debarrent, suspension, or prohibition from practice.

Mariou Construction Tre. Name of Bidder 121 Parker Ral Address of Bidder Chelmsford MA 01824 <u>Telephone Number</u> By: <u>(Signature)</u> <u>Tose ph Marino</u> Printed Name President Printed Title <u>5 | 17 | 18</u> Date

OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION CERTIFICATION

The Bidder named below agrees that if it is selected as the Contractor, it shall comply with the provisions of M.G.L. Chapter 30, Section 39S.

The Bidder named below certifies, under penalties of perjury, that it is able to furnish labor that can work in harmony with all other elements of labor employed or to be employed in the work; that all employees to be employed at the worksite will have successfully completed a course in construction safety and health approved by the United States Occupational Safety and Health Administration that is at least ten (10) hours in duration at the time the employee begins work and who shall furnish documentation of successful completion of said course with the first certified payroll report for each employee; and that all employees to be employed in the work subject to this bid have successfully completed a course in construction safety and health approved by the United States Occupational Safety and Health Administration that is at least ten (10) hours in duration.

Name of Bidder

Marino Construction Inc. 121 Parker Rd. Chelmsford MA BI824 Address of Bidder By: Signature Marias Joseph Printed Name President Printed Title 5/17/18 Date

BID BOND

KNOW ALL PERSONS BY THESE PRESENTS: that

(Name of Contractor)	
121 Park Road, Chelmsford, MA 01824	
Address of Contractor)	
Corporation, hereinafter called PRINCIPAL and (Corporation, Partne	ership, or Individual)
North American Specialty Insurance Company	
(Name of Surety)	
5200 Matcalf OPN111, Overland Park, KS 66202	
(Address of Surety)	
hereinafter called Surety, arc hold and firmly bound unto	1 1
Town of Natick, Massachusetts	
(Name of Owner)	
c/o Natick Board of Selectmen, Natick Town Hall, 13 East Central Street, N (Address of Owner)	lalick, MA 01760
hereinafter called Owner, in the total aggregate penal sum of	
Five Percent of Attached Bid	Dollars (\$5% _

in lawful money of the United States, for the payment of which sum well and truly to be made, we bind ourselves, our heirs, executors, administrators, successors, and assigns, jointly and severally, firmly by these presents. Project: Camp Arrowhead Restoration, Project #2018.03.14

THE CONDITION OF THIS OBLIGATION is such that whereas, the Principal has submitted to the Natick Board of Selectmen a certain Bid, attached hereto and made a part hereof and hereby incorporated by reference herein, to enter into a Contract, in writing, for the replacement of the existing Equipment Maintenance Garage roof.

NOW, THEREFORE,

(a) If said Bid shall be rejected, or

Page 1 of 3

(b) If said Bid shall be accepted and the Principal shall executed and deliver a Contract in the Form of Contract allached hereto (properly completed in accordance with said Bid) and shall furnish a Bond for his faithful performance of said Contract, and for the payment of all persons furnishing materials or performing labor in connection therewith, and shall in all other respects perform the agreement created by the acceptance of said Bid,

then this obligation shall be void, otherwise the same shall remain in full force and effect; it being expressly understood and agreed that the liability of the Surety for any and all claims hereunder shall, in no event, exceed the penal amount of this obligation as herein stated.

The Surety, for value received, hereby stipulates and agrees that the obligations of said Surety and its Bond shall be in no way impaired or affected by any extension of the time within which the Owner may accept such Bid; and said Surety does hereby waive notice of any such extension.

IN WITNESS WHEREOF, the Principal and the Surety have hereunto set their hands and seals, and such of them as are corporations have caused their corporate seals to be hereto affixed and these presents to be signed by their proper officers, the day and year first set forth above.

ł

ATTEST:	Marino Construction Inc.
	Principal
Joseph Marino (Principal Secretary)	
(SEAL)(s)	By
	Signature JOSeph Maches Printed Name
-	Printed Tille
121 Packer Rod Chelins (Addross)	ford M. CISQY (Address)
	North American Specialty Insurance Company (Surety)
ATTEST: <u>UMaulu</u> (Witness as to Surely)	By Attorney-in-Fact Signature Adam W. DeSanctis Printed Name

Page 2 of 3

	Attorney-In-fact
100 Unicorn Park Drive, Woburn MA 01801	Printed Title 5200 Matcalf OPN111 Overland Park, KS 66202
(Address)	(Address)

NOTE: Date of Bond must not be prior to date of Contract.

If the Principal is a partnership, all partners should execute this Bond.

IMPORTANT: Surety companies executing Bonds must appear on the Treasury Department's most current list (Circular 570 as amended) and be authorized to transact business in the State where the Project is located.

Page 3 of 3

SWISS RE CORPORATE SOLUTIONS

NORTH AMERICAN SPECIALTY INSURANCE COMPANY WASHINGTON INTERNATIONAL INSURANCE COMPANY WESTPORT INSURANCE CORPORATION

GENERAL POWER OF ATTORNEY

KNOW ALL MEN BY THESE PRESENTS, THAT North American Specialty Insurance Company, a corporation duly organized and existing under NOW ALL MEN DI THESE PRESENTES, THAT NORM American Speciany insurance Company, a corporation dury organized and existing under laws of the State of New Hampshire, and having its principal office in the City of Overland Park, Kansas and Washington International Insurance Company a corporation organized and existing under the laws of the State of New Hampshire and having its principal office in the City of Overland Park Kansas, and Westwart Insurance Comparison organized under the laws of the State of Missional, and having its principal office in the City of Company a corporation organized and existing ander the laws of the state of new manipulated new indication organized in the City of Park, Kansas, and Westport Insurance Corporation, organized under the laws of the State of Missouri, and having its principal office in the City of

JAMES J. AXON, GREGORY D. JUWA, MICHAEL F. CARNEY, WILDER PARKS, JR., PAUL A. PATALANO, LESLIANN J. ORTIZ, ADAM W. DESANCTIS, MICHAEL T. GILBERT, CHRISTINE B. GALLAGHEJ Overland Park, Kansus cach does hereby make, constitute and appoint:

BYRAN F. JUWA, DAVID A. BOUTIETTE, RICHARD F. CARUSO, REBECCA SHANLEY, JONATHAN E. DUGGAN, LINDSAY A. KNOWLTON, and JORDAN J. TIRONE

Its true and lawful Attorney(s)-in-Fact, to make, execute, seal and deliver, for and on its behalf and as its act and deed, bonds or other writings obligatory in the nature of a bond on behalf of each of said Companies, as surety, on contracts of suretyship as are or may be required or permitted by law, regulation, contract or otherwise, provided that no bond or undertaking or contract or surelyship executed under this authority shall exceed the ONE HUNDRED TWENTY FIVE MILLION (\$125,000,000.00) DOLLARS amount of:

This Power of Attorney is granted and is signed by facsimile under and by the authority of the following Resolutions adopted by the Boards of Directors of North American Specialty Insurance Company and Washington International Insurance Company at meetings duly called and held on March 24, 2000 and Westport Insurance Corporation by written consent of its Executive Committee dated July 18, 2011.

"RESOLVED, that any two of the President, any Senior Vice President, any Vice President, any Assistant Vice President, the Scoretary or any Assistant Scoretary be, and each or any of them hereby is authorized to execute a Power of Attorney qualifying the attorney named in the given Power of Attorney to execute on behalf of the Company bonds, undertakings and all contracts of surety, and that each or any of them hereby is authorized to attest to the execution of any such Power of Attorney and to attach therein the seal of the Company; and it is

FURTHER RESOLVED, that the signature of such officers and the seal of the Company may be affixed to any such Power of Attorney or to any certificate relating thereto by facsimile, and any such Power of Attorney or certificate bearing such facsimile signatures or facsimile seal shall be binding upon the Company when so affixed and in the future with regard to any bond, undertaking or contract of surety to which it is attached."

		FA O	WELL ANCE
UNITE CLALITY AND	CRUATIONAL NO	By Steven P. Anderson, Sentor Vice President of Washington International Insurance Company Steven P. Anderson, Sentor Vice President of Marcican Successfully Insurance Company	E BEAL
A CONFORCE STILL	SEAL SEAL	Steven P. Anderson, Sentor Vice President of Washington International Stream of the Sentor Vice President of Nerth American Specialty Insurance Company & Sentor Vice President of Westport Insurance Corporation	5
SEAL A		& Senior Vice President of Weather that	* Attendu
TALIPA NO	The Property St	By Mike A. Ito, Senior Vice President of Washington International Insurance Company	79 Carlos
WINK YON + KN MUTH	A CHARLEN LINE AND A CHARLEN AND AND A CHARLEN AND AND AND AND A CHARLEN AND AND AND AND AND AND AND AND AND AN	Mike A. 110, Senior Vice President of North American Specially Insurance Company & Senior Vice President of Westport Insurance Corporation	
- annummer.		A Saviar Vice President of Westport Inter and	

IN WITNESS WHEREOF, North American Specialty Insurance Company, Washington International Insurance Company and Westport Insurance Corporation have caused their official seals to be hereunto affixed, and these presents to be signed by their authorized officers this this <u>22</u> day of FEBRUARY , 20 18

North American Specialty Insurance Company Washington International Insurance Company Westport Insurance Corporation

State of Illinois		•		
County of Cook	221	20 18, before me, a Notary Public personally appeared	Steven P. Anderson , S	Senior Vice President of
a it of day of	FEBRUARY	20 18, before me, a Notary Public personally appeared		and 1 . I Gen Dranid

Washington International Insurance Company and Senior Vice President of North American Specialty Insurance Company and Senior Vice President of washington international insurance Company and Senior vice resident of North American Speciary insurance Company and Senior Vice President of Washington International Insurance Company and Senior Vice President of Washington International Insurance Company and Senior Vice President

of North American Specialty Insurance Company and Senior Vice President of Westport Insurance Corporation, personally known to me, who being by me duly sworn, acknowledged that they signed the above Power of Attorney as officers of and acknowledged said instrument to be the

voluntary act and deed of their respective companies,

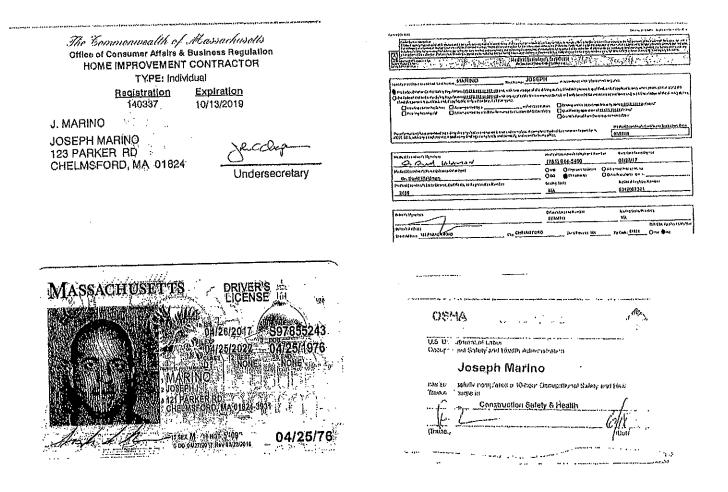


M. Kenny, Notary Public

I, Jeffrey Goldberg, the duly elected Vice President and Assistant Secretary of North American Specialty Insurance Company, Washington International Insurance Company and Westport Insurance Corporation do hereby certify that the above and foregoing is a true and correct copy of a Power of Attorney given by said North American Specialty Insurance Company, Washington International Insurance Company and Westport Insurance

Corporation which is still in full force and effect. IN WITNESS WHEREOF, I have set my hand and affixed the scals of the Companies this $\frac{19^{+4}}{10^{-4}}$ day of $\frac{1}{2}$

Jeffrey Goldberg, Vice Prosistent & Assistant Secretary of Washington International Insurance Company & North American Specially Insurance Company & Vice President & Assistant Secretary of Westport Insurance Corpo



Commonwealth of Massachusetts **Division of Professional Licensure** Board of Building Regulations and Standards Construction Supervisor

CS-070572



Commissioner

Phone: 781-844-5464 Fax: 978-256-6383

Marino Construction Inc. 121 Parker Road Chelmsford, MA 01824

Project Name: Project Location: Project Status: Contact Person: Contact Company: Project Description	Press Box at Watkins Field 200 Catherine St. Gardner MA Completed 2015 Chris Casavant Gardner Public Schools Complete alteration of Press Box at G	Project Cost: \$80,950 Phone: 978-632-1164 Fardner High School
Project Name: Project Location: Project Status: Contact Person:	Melrose 5-14-705-2-319-V 319 Washington St. Melrose MA Completed 2014 Kirk Fulton Melrose Housing Authority : Exterior renovations and vinyl siding	Project Cost: \$23,450 Phone: 781-665-1622
Project Name: Project Location: Project Status: Contact Person: Contact Company Project Descriptio Hemenway	Canton Toilets project #050028 600 Washington St. Completed 2014 Mark Roy–Awarding Authority Canton Housing n: Low Flow toilet replacement at Hag	Project Cost: \$82,416.06 Phone: 781-828-5144 gen Ct., Ruben Ct., &
Project Name: Project Location: Project Status: Contact Person: Contact Company Project Descriptio	Littleton VCT tile 10 Shattuck St., Littleton, MA Completed 2013 Mark Borsuk y: Littleton Housing Authority on: Remove and installed 5,000 square	Project Cost: \$23,560.00 Phone: 774-261-0097 feet of VCT tile
Project Name: Project Location: Project Status: Contact Person: Contact Compan Project Descripti	Dracut Housing 971 Mammoth Road, Dracut MA Completed 2013 Mary Karabatsos-Awarding Author y: Dracut Housing on: Build wall, remove windows, mov	Project Cost: \$18,000.00 brity Phone: 978-957-3515 we door, & install new doors
Project Name: Project Location Project Status: Contact Person:	Reading Housing Authority 22 Frank D. Tanner Drive, reading Completed 2013 Frank Veglie-Awarding Authority	g MA Project Cost: \$13,036 y Phone: 508-361-4422

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Marino Construction Inc. 121 Parker Road Chelmsford, MA 01824

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Phone: 781-844-5464 Fax: 978-256-6383

BIDDER'S COMMERCIAL REFERENCES

Project Name: Andover Storage BuildingProject Location: High Plains Middle SchoolProject Status:Completed 12/17Contact Person:Chris RottiContact Company:RMD Collaborative, LLCProject Description:Erect complete storage building	Project Cost: \$202,675.05 Phone: 617-553-2331
--	---

Project Location: Project Status: Contact Person:	Arson Prop Building and Outdoor Cl 1 State Rd. Stow, MA Completed 2017 James DiRicco Dept. of Fire Services Built Arson building, custom window	Project Cost: \$130,261.90 Phone: 978-567-3161
students and trainees. Project Name: Project Location:	Cambridge City Hall 3 rd Floor Ladie Mass Ave. Cambridge, MA Complete 2017	
Project Status: Contact Person: Contact Company: Project Description:	Paul Lyle City of Cambridge Demo, gut, and completely remodel	Phone: 617-224-2844

	Old Nab bathroom	
	170 Plain St., Westford	Project Cost: \$81,200
	Completed 2010	Phone: 978-399-2552
Contact 1 of Board	DIII Keinson	I none. 770 377 Looz
Contact Company:	Town of Westford	all bathrooms
Project Description:	Complete renovation of two, two sta	ui baunoonis

Project Location: Project Status: Contact Person: Contact Company: Project Description:	Laura Greenough Town of Stow 4 bathroom house with 2 changing a	Project Cost: \$228,239 Phone: 978-855-2298 areas, pavilion, barn for
Project Description:	4 bathroom house with 2 changing a , sunshade, and deck with seating.	areas, pavilion, barn for

Project Location: Project Status: Contact Person:	Al Rogers Honkinton Public Schools	Project Cost: \$10,735 Phone: 508-497-9870
Project Description:	Build interior wall and put in new door	r

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2018.03.14

Camp Arrowhead

NATICK, MASSACHUSETTS BOARD OF SELECTMEN

NOTICE OF AWARD

DATED May 19,2018

BIDDER: Marino Construction, Inc. To: ADDRESS: mstorD, MA01824

The Owner has considered the Bid submitted by you for the above described Work in response to the Invitation for Bids dated May 2, 2018 and Instructions to Bidders.

You are hereby notified that your Bid has been accepted in the amount of $\frac{395,000}{5}$, based upon summation of lump sum prices.

You shall comply with the following conditions precedent within five (5) days (Saturdays, Sundays, and legal holidays excluded) of the date of this Notice of Award, that is by \underline{May}

1. You shall deliver to the OWNER five (5) fully executed counterparts of the Contract, including all the Contract Documents. Each of the Contract Documents shall bear your signature on the cover page.

2. You shall deliver with the executed Contract, the Contract Security (Bonds - including both a fully-executed Performance Bond and a fully-executed Payment Bond - and Certificates of Insurance) as specified in the Instructions to Bidders, General Conditions and Supplementary Conditions.

Failure to comply with these conditions within the time specified will entitle OWNER to consider

Page 1 of 2 Notice of Award 00 51 00 Camp Arrowhead

2018.03.14

your bid abandoned, to annul this Notice of Award and to declare your Bid Security forfeited.

Five (5) copies of each of the proposed Contract Documents accompany this Notice of Award.

Within ten (10) days after you comply with those conditions, OWNER will return to you one (1) fully signed counterpart of the Contract with the Contract Documents attached.

	, gth		11	, _{20_} _/&
Dated this	11	day of	May	, 20

By:

Signature of Owner's Representative

Printed Name

Printed Title

ACCEPTANCE OF NOTICE

Receipt of the above NOTICE OF AWARD is hereby acknowledged this _____ day of ______, 20____.

Printed Name of Contractor

By_

Authorized Signature

Printed Name

Printed Title

Page 2 of 2 Notice of Award 00 51 00

BID SET May 2, 2018



Camp Arrowhead Rehabilitation

Natick, MA 01760

Town of Natick

13 East Central Street Natick, MA 01760

Consultants

Mechanical:

AKAL Engineering, Inc. 44 Central Street Berlin, MA 01503

(508) 869-0403

Structural:

M2 Structural Engineering PC 23 Thornbury Way WIndham, ME 04062

(207) 892-0983

Electrical:

VGNA Inc. 541 Main Street #420 South Weymouth, MA 02190

(781) 335-4200

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NATICK, MASSACHUSETTS BOARD OF SELECTMEN

INVITATION FOR BIDS - REBID

Pursuant to the provisions of Chapter 149, Sections 44A to 44H, inclusive, of the Massachusetts General Laws, the Town of Natick, MA, the Awarding Authority, (hereinafter referred to as "Owner"), by the Natick Board of Selectmen, will receive sealed bids from responsible and eligible bidders for the General Contract ("Contract") for Rehabilitation of the Camp Arrowhead Building, Worcester Road, Natick, MA 01760 (REBID (2)), until <u>9:30 A.M. local time</u>, Thursday, May 17, 2018 (local time), at Natick Public Works, 75 West Street, Natick, MA 01760, at which time they will be publicly opened, read, and registered. If the Procurement Office is closed due to weather or other emergency, the deadline for receipt of bids shall be extended until 9:30 A.M. local time on the next business day that the Procurement Office is open. No filed sub-bids will be used for this project.

The DCAMM classification required for the general contractor is "General Building Construction." No filed sub-bids.

Each and every bid shall be submitted on the Bid Form furnished with the Bidding Documents and shall be sealed in an envelope which is clearly marked in the lower left hand corner "<u>BID FOR</u> <u>REHABILITATION (INTERIOR) OF THE CAMP ARROWHEAD BUILDING.</u>"

A voluntary Pre-Bid conference/Site Walk-Through will be held at 9:30 A.M. local time on May 9, 2018, at Camp Arrowhead, located at 1054 Worcester Road (Route 9) in Natick.

This Invitation for Bids contemplates the following Work to be performed: Rehabilitation (Interior) at the Camp Arrowhead Building in the Town of Natick.

The Contractor shall supply all labor and materials and equipment necessary to complete the work shown on the Contract Drawings and hereafter contained in the Specifications.

The Invitation for Bids ("IFB") may be obtained from the Procurement Office, Natick Public Works, 75 West Street, Natick, MA 01760, between 8:00 A.M. and 4:00 P.M. local time, Monday through Thursday, and between 8:00 A.M. and 12:00 P.M. (noon) local time, Friday, by emailing bleblanc@natickma.org, beginning at 2:00 P.M. local time on Wednesday, May 2, 2018.

Complete instructions for filing Bids are included in the Instructions to Bidders. Every Bid shall be submitted in full accordance with those Instructions to Bidders. Bids shall be valid <u>only</u> when accompanied by <u>all</u> of the following: (1) a fully completed and properly executed "Bid Form for General Bid", in the case of a Bid for the General Contract, or "Bid Form for Filed Sub-Bid", in the case of a Bid for the General Contract, or "Bid Form for Filed Sub-Bid", in the case of a Bid for a Filed Sub-Contract; (2) Bid security in the amount of five percent (5%) of the amount bid, in a form as described in the Instructions to Bidders and made payable to the "Town of Natick Board of Selectmen"; (3) a copy of a "Certificate of Eligibility" issued by the Deputy Commissioner of the Commonwealth of Massachusetts Division of Capital Asset Management and Maintenance (DCAMM) showing that the Bidder has the classification and capacity rating to perform the work required; and (4) an update statement in such form as the Deputy Commissioner of DCAMM shall prescribe.

Wage rates paid under this Contract are subject to the minimum prevailing wage rates established

under the provisions of Chapter 149, Sections 26 to 27G inclusive of the Massachusetts General Laws.

The successful Bidder shall furnish a Performance Bond in the amount of one hundred percent (100%) of the amount of the Contract Price and a Payment Bond in the amount of one hundred percent (100%) of the amount of the Contract Price with a surety company which is acceptable to Owner.

Contract payment shall be by the lump sum price indicated in the Bid Form.

No Bidder may withdraw his Bid for a period of thirty (30) days (Saturdays, Sundays and legal holidays excluded) after the actual date of the opening of the General Bids.

Bids for this Contract are subject to the provisions of Massachusetts General Laws Chapter 149, Sections 44A *et seq.*

The Owner reserves the right to reject any or all bids or to accept any bid deemed by it to be in the best interest of the Town of Natick, and to limit the extent of the work to keep within the limits of available funds.

The award of any contract pursuant to this Invitation for Bids is subject to appropriation by Natick Town Meeting and award by the Natick Board of Selectmen. Award is also subject to approval of the Commonwealth of Massachusetts Department of Conservation and Recreation.

The estimate for this project is two hundred ninety-five thousand dollars and zero cents (\$295,000.00).

Town of Natick, Massachusetts

BOARD OF SELECTMEN

Amy K. Mistrot, Chairman Susan G. Salamoff, Vice Chairman Michael J. Hickey, Jr., Clerk Jonathan H. Freedman Richard P. Jennett, Jr.

> Acting Town Administrator William D. Chenard

ARTICLE 1. DEFINED TERMS AND PROCEDURES

1.1. Terms used in these Instructions to Bidders that are defined in the Standard General Conditions of the Construction Contract (AIA A201 (2007)) and in the Supplementary General Conditions have the meanings assigned to them in the General Conditions and in the Supplementary General Conditions.

1.2. Other terms used in the Bid Documents and not defined elsewhere have the following meanings which are applicable to both the singular and plural thereof:

1.2.1. Owner - the terms "Owner" and "Town" are interchangeable and shall mean the "Town of Natick, Massachusetts ".

1.2.2. Engineer/Architect – Resolution Architects, LLC, One South Avenue, Natick, MA 01760.

1.2.3. Bidder - shall mean a person or entity who submits a Bid directly to Owner.

1.2.4. General Bidder - shall mean a person or entity who submits a Bid directly to Owner on the Work.

1.2.5. Filed Sub-Bidder - shall mean a person or entity who submits a Bid directly to Owner on the work of a Filed Sub-Contract.

1.2.6. Successful Bidder - shall mean the lowest, qualified, responsible and eligible Bidder, as those terms are defined in M.G.L. c. 149, §44A, to whom Owner (on the basis of Owner's evaluation as hereinafter provided) makes an award.

1.2.7. Bid Documents - includes the Invitation for Bids, Instructions to Bidders, the Bid Form and the proposed Contract Documents (which include the Specifications, the Drawings and all Addenda issued prior to receipt of Bids).

1.2.8. Bid Form - shall mean <u>either</u> the "Bid Form for General Bid" or the "Bid Form for Filed Sub-Bid," unless a specific Bid Form is named.

1.2.9. Work - The furnishing all of labor, materials, equipment and other incidentals necessary for or convenient to the successful completion of the Contract and the carrying out of all the duties and obligations imposed by the Contract. Work shall include, in addition to work to be performed on the Contract location in the actual construction process, necessary meetings, shop plans, computations, ordering of materials and equipment, fabrication of material, parts and components, etc.

1.2.10. Provide - Wherever the word "provide" is used in the Specifications in reference to work to be performed by the Contractor, it shall be understood to mean "furnished and installed complete in place" in accordance with the Contract.

1.2.11 Contract – The General Contract for the Project, entered into between the Owner and the General Contractor.

1.2.12 Contractor – The General Contractor for the Project.

1.3. The procedure which is described in the Bid Documents for Bidding and Award of a Contract for the Work will be in accordance with the provisions of Chapter 149, Sections 44A through 44H inclusive of the General Laws of the Commonwealth of Massachusetts, as last revised (hereinafter referred to as "M.G.L. c.149" appropriate Section).

ARTICLE 2. COPIES OF BID DOCUMENTS

2.1. The Invitation for Bids ("IFB") may be obtained from the Procurement Office, Natick Public Works, 75 West Street, Natick, MA 01760, between 8:00 A.M. and 4:00 P.M. local time, Monday through Thursday, and between 8:00 A.M. and 12:00 P.M. (noon) local time, Friday, by emailing <u>bleblanc@natickma.org</u>, beginning on May 2, 2018.

2.2. DELETED.

2.3. Complete sets of Bid Documents shall be used in preparing Bids; Owner does not assume any responsibility for errors or misinterpretations resulting from the use of incomplete sets of Bid Documents.

2.4. Owner, in making copies of Bid Documents available on the above terms, does so only for the purpose of obtaining Bids on the Work and do not confer a license or grant for any other use.

ARTICLE 3. QUALIFICATIONS OF BIDDERS

3.1. To demonstrate qualifications to perform the Work, each Bidder shall be prepared to submit, within five (5) days of Owner's request, written evidence, such as financial data, previous experience, present commitments, and other such data as may be called for below. Each Bid shall contain evidence of Bidder's qualification to do business in the Commonwealth of Massachusetts.

3.2. Every Bid submitted for work of the General Contract work <u>shall be accompanied</u>, inter alia, <u>by</u>: (1) a copy of a "Certificate of Eligibility" issued by the Deputy Commissioner of the Commonwealth of Massachusetts Division of Capital Asset Management and Maintenance (DCAMM), showing that the General Bidder has a classification of "General Building Construction" and capacity rating to perform the work required, and (2) an update statement in such form as the Deputy Commissioner shall prescribe. A blank copy of such form shall be furnished by the Engineer to every person or business entity requesting a copy.

Any Bid submitted without the appropriate certification and update statement shall be invalid; and Owner shall reject such Bid.

3.3. Owner reserves the right to reject <u>any</u> Bid if the evidence submitted by such Bidder, or the investigation of such Bidder, fails to satisfy Owner that such Bidder is properly qualified to carry out the obligations of the Contract and to complete the Work contemplated therein.

ARTICLE 4. PRE-BID CONFERENCE, QUESTIONS, INTERPRETATIONS AND ADDENDA

4.1. A voluntary Pre-Bid conference/Site Walk-Through will be held at 9:30 A.M. local time on May 9, 2018, at Camp Arrowhead, located at 1055 Worcester Road (Route 9) in Natick. Questions, if any, concerning the Bid Documents shall be addressed to:

Procurement Officer Natick Public Works 75 West Street Natick, MA 01760.

Questions regarding this IFB shall be submitted in writing and shall be delivered to the Procurement Officer by the close of business (4:00 P.M. local time, Monday through Thursday, and 12:00 P.M. (noon) local time, Friday) on May 10, 2018. Questions may also be submitted at the following email address: bleblanc@natickma.org. Questions presented after this time shall not be considered. No question shall be considered which is not submitted in writing.

4.2. Addenda may also be issued to modify the Bid Documents as deemed advisable by Owner or Owner.

4.3 Bidder shall be responsible for determining that it has received all Addenda which have been issued.

ARTICLE 5. EXAMINATION OF CONTRACT DOCUMENTS AND SITE

5.1. It is the responsibility of each Bidder before submitting a Bid to: (a) examine the Contract Documents thoroughly; (b) visit the site to become familiar with local conditions that may affect cost, progress, performance or furnishing of the Work; (c) consider federal, state and local Laws and Regulations that may affect cost, progress, performance or furnishing of the Work; (d) study and carefully correlate Bidder's observations with the Contract Documents; and (e) notify Owner of all conflicts, errors or discrepancies in the Contract Documents.

5.2. Reference is made to the Supplementary General Conditions for identification of:

5.2.1. Those reports of explorations and tests of subsurface conditions at the site which have been utilized by Owner in preparation of the Contract Documents. Each Bidder may rely upon the accuracy of the technical data contained in such reports but not upon non-technical data, interpretations or opinions contained therein or for the completeness thereof for the purposes of bidding or construction.

5.2.2. Those drawings of physical conditions in or relating to existing surface and subsurface conditions (except Underground Facilities) which are at or contiguous to the site and which have been utilized by Owner in preparation of the Contract Documents. Bidder may rely upon the accuracy of the technical data contained in such drawings, but not upon the completeness thereof, for the purposes of bidding or construction.

5.2.3 Copies of such reports and drawings will be made available by Owner to any Bidder on request. Those reports and drawings are not part of the Contract Documents, but the technical data contained therein upon which Bidder is entitled to rely

are incorporated therein by reference. Such technical data has been identified and established in the Supplementary General Conditions.

5.3. Information and data reflected in the Contract Documents with respect to Underground Facilities at or contiguous to the site is based upon information and data furnished to Owner by owners of such Underground Facilities or others, and Owner does not assume responsibility for the accuracy or completeness thereof, unless it is expressly provided otherwise in the Supplementary General Conditions.

5.4. Provisions concerning responsibilities for the adequacy of data furnished to prospective Bidders on subsurface conditions, Underground Facilities and other physical conditions, and possible changes in the Contract Documents due to differing conditions appear in Paragraph 4.2 and 4.3 of the General Conditions.

5.5. Before submitting a Bid, each Bidder shall, at Bidder's own expense, make or obtain any additional examinations, investigations, explorations, tests and studies and obtain any additional information and data which pertain to the physical conditions (surface, subsurface and Underground Facilities) at or contiguous to the site or otherwise which may affect cost, progress, performance or furnishing of the Work and which Bidder deems necessary to determine its Bid for performing and furnishing of the Work in accordance with the time, price and other terms and conditions of the Contract Documents.

5.6. The lands upon which the Work is to be performed, rights-of-way and easements for access thereto and other lands designated for use by Contractor in performing the Work are identified in the Contract Documents. All additional lands and access thereto required for temporary construction facilities or storage of materials and equipment are to be provided by Contractor. Easements for permanent structures or permanent changes in existing structures are to be obtained and paid for by Owner unless otherwise provided in the Contract Documents.

5.7. Submission of a Bid shall be conclusive evidence that the Bidder has examined the Bid Documents and is familiar with all the conditions of the Contract. Upon finding any omissions or discrepancy in this the Bid Documents, each Bidder shall notify the Owner immediately so that any necessary addenda may be issued. Failure of a Bidder to investigate completely the Bid Documents and/or to be thoroughly familiar with the Bid Documents shall in no way relieve any such Bidder from any obligation with respect to the Bid.

5.8 The submission of a Bid shall constitute a representation by Bidder that Bidder has complied with every requirement of this Article 5, that without exception the Bid is premised upon performing and furnishing the Work required by the Contract Documents and such means, methods, techniques, sequences or procedures of construction as may be indicated in or required by the Contract Documents, and that the Contract Documents are sufficient in scope and detail to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.

5.9. By submission of a Bid, the Bidder agrees that if its Bid is accepted, then it shall enter into a Contract with the Owner which incorporates all of the requirements herein.

5.10 By submission of a Bid, the Bidder further indicates acceptance of all terms and conditions expressed herein. The Contract Documents contain the provisions required for the construction of the project. Information obtained from an officer, agent, or employee of the Owner or any other person shall not affect the risks or obligations assumed by the Bidder or relieve the Bidder from fulfilling any of the conditions of the Contract.

ARTICLE 6. BID SECURITY

6.1. Each Bid shall be accompanied by Bid security in the form of a Bid Bond, or cash, or a certified check on, or a treasurer's or cashier's check issued by, a responsible bank or trust company, payable to the Owner. A Bid Bond shall be: (a) in a form satisfactory to Owner; (b) with a surety company qualified to do business in the Commonwealth of Massachusetts and satisfactory to Owner; and (c) conditional upon the faithful performance by the principal of the agreements contained in the Bid.

The amount of such Bid security shall be <u>five (5%) per cent</u> of the PROPOSED LUMP SUM CONTRACT PRICE as entered in the Bid Form for General Bid.

6.2. All Bid security of General Bidders, except those of the three (3) lowest responsible and eligible General Bidders, shall be returned within five (5) days (Saturdays, Sundays and legal holidays excluded) after the opening of the General Bids.

The Bid security of the three (3) lowest responsible and eligible General Bidders shall be returned upon the execution and delivery of the General Contract or, if no award is made, within thirty (30) days (Saturday, Sundays and legal holidays excluded) after the opening of the General Bids; except that if any General Bidder fails to perform its agreement to execute a General Contract and furnish a Performance Bond and also a Labor and Materials or Payment Bond as stated in its Bid in accordance with M.G.L. c.149 Section 44E, its Bid security shall become the property of Owner, as liquidated damages; provided that the amount of the Bid security which becomes the property of Owner shall not, in any event, exceed the difference between its Bid and the Bid of the next lowest responsible and eligible Bidder; and provided further that, in case of death, disability, bona fide clerical or mechanical error of a substantial nature, or other similar unforeseen circumstances affecting the General Bidder, its Bid security shall be returned.

6.3. Any Bid which is not accompanied by Bid security as described in Paragraph 6.1 shall be invalid; and Owner shall reject such Bid.

ARTICLE 7. CONTRACT TIME

7.1. The number of days within which the Work is to be substantially completed and also completed and ready for final payment (the Contract Times) are set forth in the Bid Form and the Contract, as may be modified by the General Conditions or Supplementary General Conditions.

ARTICLE 8. LIQUIDATED DAMAGES

8.1. Provisions for liquidated damages are set forth in the Contract or in the General Conditions or Supplementary General Conditions.

ARTICLE 9. SUBSTITUTE OR "OR-EQUAL" ITEMS

9.1. The Contract, if awarded, will be on the basis of materials and equipment described in the Drawings or specified in the Specifications. Whenever it is indicated in the Drawings or specified in the Specifications that a substitute or "or equal" item of material or equipment may be furnished or used by Contractor if acceptable to Owner, application for such acceptance will not be considered by Owner until after the Effective Date of the Contract; all consideration shall comply with M.G.L. c. 30, §39M(b). See General and Supplementary Conditions for further detail.

ARTICLE 10. FILED SUB-CONTRACTS

Unless an objection is raised, general Bidders shall carry the lowest responsible and eligible filed sub-bidder in each subcategory. – Not Applicable.

ARTICLE 11. BID FORM

11.1. The "Bid Form for General Bid" and the "Bid Form for Sub-Bid" are included with the Bid Documents; additional copies of each form may be obtained from Owner.

11.2. The term "Bid Form" shall apply to "Bid Form for General Bid" unless the specific Bid Form is named.

11.3. The Bid price of each item on the Bid Form shall be written in words and in figures. In the event there is a discrepancy in the Bid between a Bid price written in words and a Bid price written in figures, the Bid Price stated in words shall govern.

11.4. All Bids will be compared on the basis of the **"Proposed Contract Price"** listed on the Bid Form for General Bid. The Bid entered shall be for the <u>complete</u> Work as specified and shall include the work of the General Contractor.

11.5. Bids by corporations shall be executed in the corporate name by the president and treasurer (or other corporate officer accompanied by evidence of authority to sign), and the corporate seal shall be affixed and attested by the secretary or an assistant secretary. The corporate address and state of incorporation shall be shown below the signature.

11.6. Bids by partnerships shall be executed in the partnership name and shall be signed by a partner, whose title shall appear under the signature and the official address of the partnership shall be shown below the signature.

11.7. All names shall be typed or printed in ink below the signature.

11.8. The Bid shall contain an acknowledgment of receipt of all Addenda (the numbers of which shall be filled in on the Bid Form). If no Addenda are received the Bidder shall fill in "none" on the Bid Form.

11.9. The address, e-mail and telephone number for communications regarding the Bid shall be shown.

11.10. A conditional or qualified Bid shall not be accepted.

ARTICLE 12. SUBMISSION OF BIDS

12.1. Sealed Bids marked "Town of Natick: Sealed Bid for Rehabilitation (Interior) of the Camp Arrowhead Building in Natick" shall be received by 9:30 A.M. local time, May 17, 2018, at this address:

Natick Public Works 75 West Street Natick, MA 01760.

Bids received after that date and time will be rejected. The clock in the Procurement Office in the Natick Town Hall shall be considered official. The time of receipt of a Bid will determine the acceptability of mailed Bids, regardless of postmark. It shall be the sole responsibility of the Bidder to assure that a Bid has arrived before the time for opening of Bids as specified in the Invitation for Bids.

Each Bidder's name, address and contact phone number shall be clearly visible from the outside of each sealed envelope. No faxed Bids shall be accepted. Conditional Bids will not be accepted.

12.2. Bids submitted for the Work of the General Contract shall be valid only when accompanied by all of the following: (1) a fully completed and properly executed "Bid Form for General Bid"; (2) Bid security in the amount of five percent (5%) of the amount bid and in a form as described in the Instructions to Bidders; (3) a copy of a "Certificate of Eligibility" issued by the Deputy Commissioner of the Commonwealth of Massachusetts Division of Capital Asset Management and Maintenance (DCAMM) showing that the Bidder has the classification and capacity rating to perform the work required. (The DCAMM classification required for this project is "General Building Construction"); and (4) an update statement in such form as the Deputy Commissioner of DCAMM shall prescribe.

12.3 The Bidder assumes all responsibility for the Bid arriving on time. Bids received after the time specified in the Invitation for Bids shall not be accepted. No faxed Bids shall be accepted. The time of receipt of a Bid will determine the acceptability of mailed Bids, regardless of postmark. It shall be the sole responsibility of the Bidder to assure that a Bid has arrived before the time for opening of Bids as specified in the Invitation for Bids.

ARTICLE 13. MODIFICATION AND WITHDRAWAL OF BIDS

13.1. Changes, modifications or withdrawal of Bids shall be submitted in writing to the Procurement Officer prior to the deadline and shall be contained in a sealed envelope clearly marked, as

appropriate, "CORRECTION, MODIFICATION OR WITHDRAWAL OF SEALED BID FOR SERVICES RELATED TO REHABILITATION (INTERIOR) OF THE CAMP ARROWHEAD BUILDING IN THE TOWN OF NATICK." No corrections, modifications, or withdrawal of Bids shall be permitted after Bids have been opened.

13.2 Bids may be withdrawn at any time prior to the scheduled time (or authorized postponement thereof) for the opening of Bids.

ARTICLE 14. OPENING OF BIDS

14.1. All Bids will be opened and read aloud publicly at the time and place indicated in the Invitation for Bids.

ARTICLE 15. BIDS TO REMAIN OPEN

15.1. All Bids will remain open by Owner for a period of thirty (30) days (Saturdays, Sundays and legal holidays excluded) after the actual day of opening of General Bids.

ARTICLE 16. AWARD OF CONTRACT

16.1. A contract will be awarded, if at all, pursuant to M.G.L. c. 149, §44A, to the lowest qualified responsible and eligible Bidder. According to M.G.L. c. 149, §44A, the term "Responsible" means demonstrably possessing the skill, ability and integrity necessary to faithfully perform the work called for by a particular contract, based upon a determination of competent workmanship and financial soundness in accordance with the provisions of M.G.L. c. 149, §44D.

According to M.G.L. c. 149, §44A, the term "Eligible" means able to meet all requirements for bidders or offerors set forth in M.G.L. c. 149, §§44A-44H and not debarred from bidding under M.G.L. c. 149, §44C or any other applicable law, and who shall certify that he is able to furnish labor that can work in harmony with all other elements of labor employed or to be employed on the work.

16.2. The Owner reserves the right to eliminate sections of the work or parts of sections, as may be determined by the Owner as a basis of award, to keep within the limits of available funds, or to add sections of the work previously eliminated, provided that such action comports with generally accepted principles of public bidding in the Commonwealth.

16.3. Owner reserves the right to reject any and all Bids, to waive any and all informalities if it is in the Owner's best interest to do so, and the right to disregard all nonconforming, non-responsive or conditional Bids.

16.4. Owner also reserves the right to reject the Bid of any Bidder that it considers to be unqualified.

16.5. Every Bid which is not accompanied by <u>all</u> of the items required by Articles 12.1 and 12.2 of these Instructions to Bidders or which otherwise does not conform with M.G.L. c.149 Section 44A to 44H inclusive, or which is on a form not completely filled in, or which is incomplete, conditional or obscure or which contains any information not called for, shall be invalid and shall be rejected by Owner.

16.6. Owner may conduct such investigations as Owner deems necessary to assist in the evaluation of any Bid and to establish the responsibility, qualifications and financial ability of Bidders to perform and furnish the Work in accordance with the Contract Documents to Owner's satisfaction within the prescribed time.

16.7. If a contract is to be awarded, Owner will give the Successful Bidder a Notice of Award within thirty (30) days (excluding Saturdays, Sundays and legal holidays) after the day of the General Bid opening. All Bids shall remain open for thirty (30) days (excluding Saturdays, Sundays and legal holidays) after the day of the General Bid opening, but Owner may, in its lawful discretion, release any Bid and return the Bid security prior to that date. The time allowed between the opening of General Bids and the Notice of Award of the Contract specified above may be extended by mutual agreement between Owner and the Bidder.

ARTICLE 17. CONTRACT SECURITY AND INSURANCE CERTIFICATES

17.1. The General Conditions and the Supplementary Conditions set forth Owner's requirements as to Performance and Payment Bonds. When the Successful Bidder delivers the executed Contract to Owner, it shall be accompanied by the required performance and payment Bonds.

17.2. The General Conditions and Supplementary Conditions sets forth Owner's requirements as to insurance. When the successful Bidder delivers the executed Contract to Owner, it shall be accompanied by certificates indicating that the required insurance has been secured.

17.3. Attorneys-in-fact who sign Bid Bonds or Payment Bonds and Performance Bonds shall file with each Bond, a certified and effective dated copy of their Power of Attorney.

17.4. The Successful Bidder shall provide insurance as indicated in the General Conditions and as amended in the Supplementary Conditions. The successful Bidder shall provide separate Owner's Protective Liability Insurance, with the Owner only as insured. A Rider clause to the Contractor's Liability Insurance shall not be acceptable. Each certificate and policy of insurance required by this Contract shall contain a cancellation provision as indicated below with **no variations**.

"Should any of the above described policies be cancelled or materially amended before the Expiration date therefore, the issuing insurer or the Contractor will mail within thirty (30) days written notice to the certificate holder named to the left".

17.5 The Successful Bidder shall provide to the Owner, with its proof of insurance coverage, endorsements or riders to the policies of Commercial General Liability Insurance, Automobile Liability Insurance, and Excess Liability Insurance, Umbrella Form, which indicate that the Town of Natick is named as an additional insured on each such policy.

ARTICLE 18. SIGNING OF CONTRACT

18.1. When Owner gives a Notice of Award to the Successful Bidder, it will be accompanied by the required number of unsigned counterparts of the Contract with all other written Contract Documents attached. Within five (5) days (Saturdays, Sundays and legal holidays excluded) after presentation thereof by Owner, Contractor shall sign and deliver the required number of counterparts of the Contract and attached documents to Owner with the required Bonds and insurance certificates. Within ten (10) days thereafter, Owner will deliver one fully signed counterpart to Contractor.

18.2. If the Successful Bidder fails to perform its agreement to execute a Contract in accordance with the terms of its Bid, within the above time limits, and furnish the required Bonds and insurance certificates, which are acceptable to Owner, Owner may consider the Bidder in default.

If the Bidder is determined to be in default, Bidder's Bid security shall become the property of Owner, as liquidated damages, and Owner will consider the Bid of the next lowest qualified responsible and eligible Bidder.

ARTICLE 19. NOTICE TO PROCEED

19.1. The Notice to Proceed will be issued within thirty (30) days of the execution of the Contract by Owner. This time may be extended by mutual agreement between Owner and Successful Bidder.

19.2. The Notice to Proceed will establish the date of Commencement of the Work, the date of Substantial Completion and the date of Final Completion, as they are defined in the General Conditions and the Supplementary General Conditions.

ARTICLE 20. SALES AND USE TAX EXEMPTION

20.1. Owner is exempt from Commonwealth of Massachusetts Sales and Use Tax on materials and equipment to be incorporated in the Work. Said taxes shall <u>not</u> be included in the Contract Price. Owner shall provide a Certificate of Exemption Number at the pre-construction meeting.

ARTICLE 21. LAWS, REGULATIONS AND PERMITS

21.1. The Bidder's attention is directed to the fact that all applicable local, federal and state laws; municipal ordinances; and the rules and regulations of all authorities having jurisdiction over the Work, shall apply to the Contract throughout, and they shall be deemed to be included in the Contract Documents as though they were written out in full therein.

21.2. The Owner shall be responsible for monitoring Bidder's compliance with any Laws or Regulations.

21.3 Contractor shall obtain building, electrical, road opening and trench opening permits.

ARTICLE 22. MINIMUM PREVAILING WAGE RATES

22.1. Minimum Prevailing Wage Rates as determined by the Commissioner of the Executive Office of Labor and Workforce Development (EOLWD) ("the Commissioner") under the provisions of the Commonwealth of Massachusetts General Laws, Chapter 149, Section 26 to 27D, as most recently revised, shall apply to the Work of this Contract. The Minimum Prevailing Wage Rates Determination of the Commissioner for the Work is included in the Supplementary General Conditions.

22.2. The Minimum Prevailing Wage Rates Determination establishes minimum wage rates only. Owner will <u>not</u> consider any claims by Contractor for additional compensation which is paid in excess of these minimum prevailing wage rates.

22.3. The Minimum Prevailing Wage Rates Determination shall be kept posted in a conspicuous place at the site of the Work throughout the active progress of the Work.

22.4. Regulations implementing M.G.L. c. 149, §§26-27D state that payment of compensation to workmen for work performed on public work on a lump sum basis, piece work system, or a price certain for the completion of a certain amount of work, or the production of a certain result shall be deemed a violation of the Act regardless of the average hourly earning resulting therefrom. This shall result in the disqualification of any Bidder employing these methods.

22.5. The Contractor shall submit weekly payrolls to the Owner during the progress of this Contract for each day work is performed.

ARTICLE 23. GUARANTEE

23.1. The Contractor shall furnish all supplies, equipment, and labor necessary for the performance of the services and/or delivery of equipment required by the Contract. Any equipment delivered, unless otherwise agreed by the parties, shall be of generally merchantable quality and shall be fit for the purpose sought by the Owner. All manufacturers' warranties on any equipment delivered shall be assigned to the Town of Natick.

23.2 The Contractor warrants that it has in its employ, and throughout the term of the Contract or any extension or renewal thereof, shall continue to have in its employ a sufficient number of persons experienced in performing services required by the Contract, such that the Contractor's obligations under the Contract shall be carried out with the highest degree of professionalism and care.

23.3 The Contractor shall further warrant to the Owner that the work to be performed under the Contract shall be free from defects in material and workmanship for twelve (12) months after a) the Contractor fully completes the work and b) the Owner takes possession for occupancy, whichever occurs later. If any defects in material or workmanship regarding the work occur within said twelve (12) month period, the Contractor shall have the option of repairing or replacing the defective component(s) involved in the work.

ARTICLE 24. WEATHER PROTECTION

24.1. Pursuant to Section 44G of M.G.L. 149, the Contractor shall provide weather protection and adequate heat for all construction included in this Contract during the months of November through March.

ARTICLE 25. NONDISCRIMINATION IN EMPLOYMENT

25.1. In connection with the performance of work under the Contract, the Contractor shall not discriminate against any employee or applicant for employment because of race, color, religious creed, national origin, age, sex, gender identity, sexual orientation (which shall not include persons whose sexual orientation involves minor children as the sex object), genetic information, ancestry, children, marital status, veteran status or membership in the armed services, the receiving of public assistance, and handicap. The aforesaid provision shall include, but not be limited to the following: advertising; recruitment; hiring; rates of pay or other forms of compensation; terms, conditions or privileges of employment; employment upgrading; transfer; demotion; layoff; and termination. The Contractor shall post hereafter in conspicuous places, available for employees and applicants for employment, notices to be provided by the Massachusetts Commission Against Discrimination or other applicable agency of the Commonwealth of Massachusetts setting forth the provisions of the Fair Employment Practices Law of the Commonwealth. The Contractor shall also undertake in good faith, affirmative action measures designed to eliminate any discriminatory barriers in the terms and conditions of employment on the grounds of race, color, religious creed, national origin, age, sex, gender identity, sexual orientation (which shall not include persons whose sexual orientation involves minor children as the sex object), genetic information, ancestry, children, marital status, veteran status or membership in the armed services, the receiving of public assistance, and handicap, and to eliminate and remedy any effects of such discrimination in the past.

ARTICLE 26. SAFETY

26.1. This project is subject to the Safety and Health Regulations of the U.S. Department of Labor, as set forth in Title 29 CFR Part 1926, to all subsequent amendments thereto, and to the Massachusetts Executive Office of Labor and Workforce Development (EOLWD), Division of Industrial Safety "Rules and Regulations for the Prevention of Accidents in Construction Operations" (Chapter 454 CMR 10.00 *et seq.*). Contractors shall be familiar with the requirements of these regulations.

26.2. Each Bidder shall certify 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 work; that all employees to be employed at the worksite shall have successfully completed a course in construction safety and health approved by the United State Occupational Safety and Health Administration that is at least ten (10) hours in duration at the time the employee begins work. Each Bidder shall also certify that he shall furnish documentation of successful completion of said course with the first certified payroll report for each employee; and that the Bidder shall comply fully with all laws and regulations applicable to awards made subject to section 44A.

ARTICLE 27. CONTRACT TERMINATION

27.1. In addition to rights afforded under the Contract General Conditions, Owner reserves the right to

terminate this Contract upon written notice to the Contractor if a source of money to fund the Contract is not available during any year of the Contract term. In the alternative, the parties may agree in writing to amend the Contract to provide for a Contract price which represents the reduced appropriation for a Contract year.

ARTICLE 28. UNBALANCED BIDS

28.1. Bidder shall not submit unbalanced prices for any of the bid items on the <u>Bid</u>. All prices shall be reasonable for the Work entailed.

28.2. Certain bid items may have set minimum and/or maximum prices to provide uniformity in the comparison of bids established by Owner and indicated on the <u>Bid</u> form. Bids submitted not in compliance with these established amounts, may be rejected for non-compliance with the Instructions to Bidders.

ARTICLE 29. COMPLIANCE WITH LAWS

29.1 The Successful Bidder shall comply with all provisions of Federal, Massachusetts and Town of Natick law applicable to his work including, without limitation, statutes, by-laws, rules, regulations, orders and directives, as amended, and including, without limitation, the Williams-Steiger Occupational Safety and Health Act of 1970, as amended, and related regulations, as amended, in effect throughout the term of this Contract and any extension or renewal thereof. Without limitation, the Successful Bidder shall comply, to the extent applicable, with the provisions of Chapter 149, Section 26 to 27D of the Massachusetts General Laws, as amended. Any Contract shall be considered to include in their entirety all terms respecting workers' compensation insurance and other terms required to be included in it by Chapter 152 of the Massachusetts General Laws, as amended, and any other laws, as though such terms were set forth in their entirety herein.

ARTICLE 30. USE OF ALCOHOL AND CONTROLLED AND/OR SUBSTANCES PROHIBITED

The use of alcoholic beverages, narcotics, and controlled and/or mood altering substances, except for current valid, legal prescriptions, by any officer, employee, agent, or representative of the Successful Bidder is prohibited on the Owner's property which is the subject matter of the Bid Documents and during all hours of work under any contract with the Owner. If any officer, employee, agent, or representative of the Successful Bidder violates the foregoing provision, the Owner shall have the right to order that such officer, employee, agent, or representative of the Successful Bidder shall not be permitted to return to work under any contract with the Owner. Under such circumstances, the Successful Bidder shall promptly remove the subject officer, employee, agent, or representative from the job site and shall not permit the subject officer, employee, agent, or representative to perform further work in conjunction with any contract with the Owner.

ARTICLE 31. SUPPLIER DIVERSITY OFFICE

The Successful Bidder shall be required to comply with all applicable Supplier Diversity Office thresholds for this project. The combined MBE/WBE goal for this project is 10.4%. See SDO guidelines, which are attached hereto and which are incorporated herein by reference.

BID FORM FOR GENERAL BID

To the Awarding Authority: Town of Natick, Massachusetts Board of Selectmen Natick Town Hall 13 East Central Street Natick, MA 01760

- A. The undersigned Bidder proposes to furnish all labor and materials required for Rehabilitation (Interior) at the Camp Arrowhead Building in the Town of Natick, in accordance with the accompanying plans and specifications for the Contract price specified below, subject to additions and deductions according to the terms of the specifications.
- B. This bid includes addenda numbered _____.

C. The proposed lump sum contract price is _____

dollars (\$_____).

For alternate No._____ Add \$_____; Subtract _____

Not/Applicable (Repeat preceding line for each alternate)

D. The subdivision of the proposed contract price is as follows:

Item 1. The work of the general contractor, being all work other than that covered by Item 2. \$_____

Item 2. Sub-bids as follows:

Sub-Trade	Name of <u>Sub-Bidder</u>	Amount of <u>Sub-Bid</u>	Bonds Required (Indicated by "Yes" or "No")
		<u>\$</u>	

Sub-bids as follows:

The undersigned agrees that each of the above named sub-bidders will be used for the work indicated at the amount stated, unless a substitution is made. The undersigned further agrees to pay the premiums for

the performance and payment bonds furnished by sub-bidders as requested herein and that all of the cost of all such premiums is included in the amount set forth in Item 1 of this bid.

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

The undersigned agrees that, if he is selected as general contractor, he will within five (5) days, Saturdays, Sundays and legal holidays excluded, after presentation thereof by the awarding authority, execute a contract in accordance with the terms of this bid and furnish a performance bond and also a labor and materials or payment bond, each of a surety company qualified to do business under the laws of the commonwealth and satisfactory to the awarding authority and each in the sum of the contract price, the premiums for which are to be paid by the general contractor and are included in the contract price; provided, however, that if there is more than 1 surety company, the surety companies shall be jointly and severally liable.

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

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

The Bidder has familiarized himself with the nature and extent of the Contract Documents, Work, site, locality, and all local conditions and Laws and Regulations that in any manner may affect cost, progress, performance or furnishing of the Work.

This Bid is genuine and not made in the interest of or on behalf of any undisclosed person, firm or corporation and is not submitted in conformity with any agreement or rules of any group, association, organization or corporation; Bidder has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid; Bidder has not solicited or induced any person, firm or corporation to refrain from bidding; and Bidder has not sought by collusion to obtain for itself any advantage over any other Bidder or over Owner.

The Bidder certifies that it has reviewed the insurance requirements contained in the Contract Documents and certifies that it will comply with them. The Bidder also certifies its completion of the attached Contractor Certification forms.

The following documents are attached to and made a condition of this Bid:

(a) Required Bid Security in the amount of five (5%) percent of PROPOSED LUMP SUM CONTRACT PRICE appearing in Paragraph 4 above, and in a form as described in the Instructions to Bidders.

(b) A copy of a "Certificate of Eligibility" issued by the Deputy Commissioner of the Commonwealth of Massachusetts Division of Capital Asset Management and Maintenance (DCAMM) showing that the Bidder has the classification and capacity rating to perform the work required.

(c) An update statement in such form as the Deputy Commissioner of DCAMM shall prescribe.

The undersigned hereby certifies that the Bidder named below will comply with the minority workforce percentage ratio and specific affirmative action steps contained in the EEO/AA/Supplier Diversity Office (SDO) provisions of this Contract. The Bidder receiving the award of the Contract shall be required to obtain from each of its subcontractors a copy of the certification by said subcontractor, regardless of tier, that it will comply with the minority workforce ratio and specific affirmative action steps contained in these EEO/AA/SDO Contract provisions and submit it to the contracting agency prior to the award of such subcontract.

The undersigned certifies under penalties of perjury that there have been no substantial changes in his financial position or business organization of the Bidder named below other than those changes noted within the application since the applicant's most recent statement and that the bid is in all respects *bona fide*, fair and made without collusion or fraud with any other person. "Person" shall mean any natural person, joint venture, partnership, corporation or other business or legal entity which sells materials, equipment or supplies used in or for, or engages in the performance of, the same or similar construction, reconstruction, installation, demolition, maintenance or repair work or any part thereof. C 149 s44D (1)(b)

The undersigned further certifies under penalty of perjury that the said Bidder named below is not presently debarred from doing public construction work in the Commonwealth of Massachusetts under the provision of Section 29F of Chapter 29, or any other applicable debarment provisions of any other Chapter of the General Laws or any rule or regulation promulgated thereunder.

THIS BID SUBMITTED ON _____ 20___

Name of Bidder:	
By	
Signature	
Printed Name	
Printed Title	
(Corporate Seal)	
Attest	
(Secretary)	
Business Address:	
Phone Number: ()	
E-mail Address:	
Fax:	

CERTIFICATE OF NON-COLLUSION

The undersigned certifies, under penalties of perjury, that this Bid 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.

Name of Bidder

Address of Bidder

Telephone Number

By: ____

(Signature)

Printed Name

Printed Title

CERTIFICATE OF TAX COMPLIANCE

Pursuant to Massachusetts General Laws (M.G.L.) c. 62C,§49A, I certify under the penalties of perjury that the Bidder named below has complied with all laws of the Commonwealth of Massachusetts pertaining to the payment of taxes, to the reporting of employees and contractors, and to the withholding and remitting of child support.

Name of Bidder

Address of Bidder

Telephone Number

By: _____(Signature)

Printed Name

Printed Title

CONFLICT OF INTEREST CERTIFICATION

The Bidder hereby certifies that:

1. The Bidder has not given, offered, or agreed to give any gift, contribution, or offer of employment as an inducement for, or in connection with, the award of a Contract pursuant to this Invitation for Bids.

2. No consultant to, or subcontractor for, the Bidder has given, offered, or agreed to give any gift, contribution, or offer of employment to the Bidder, or to any other person, corporation, or entity as an inducement for, or in connection with, the award to the consultant or subcontractor of a Contract by the Bidder.

3. No person, corporation, or other entity, other than a bona fide full time employee of the Bidder has been retained or hired to solicit for or in any way assist the Bidder in obtaining the Contract (pursuant to this IFB) upon an agreement or understanding that such person, corporation or entity be paid a fee or other compensation contingent upon the award of a Contract to the Bidder.

4. The Bidder understands that the Massachusetts Conflict of Interest Law, Chapter 268A of the Massachusetts General Laws, applies to the Bidder with respect to the transaction outlined in the IFB.

5. The Bidder understands that the Bidder, his/her/its officers, employees, agents, subcontractors, and affiliated entities, shall not participate in any activity which constitutes a violation of the Massachusetts Conflict of Interest Law or which creates an appearance of a violation of the Massachusetts Conflict of Interest Law.

Name of Bidder

Address of Bidder

Telephone Number

By: ____

(Signature)

Printed Name

Printed Title

CERTIFICATE OF CORPORATE BIDDER

I,	, certify that I a	im the	of the
I, Corporation named as Bidder in the attac behalf of the Bidder was then hereto is genuine and that said Bid was c	ched Bid; that	,	who signed said Bid on
behalf of the Bidder was then	of s	aid Corporation;	that I know his/her signature
hereto is genuine and that said Bid was o	luly signed, sealed an	nd executed for a	nd on behalf of its
governing body.			
(Corporate Seal)			
Name of Bidder			
Address of Bidder			
T-l-shows Massilian			
Telephone Number			
By:			
By:(Signature)			
(2-8			
Printed Name			
Printed Title			
Date			
Date			

This Certificate shall be completed where Bidder is a Corporation and shall be so completed by its Clerk. In the event that the Clerk is the person signing the Bid on behalf of the Corporation, this certificate shall be completed by another officer of the Corporation.

CERTIFICATE OF COMPLIANCE WITH M.G.L. c. 151B

The Bidder hereby certifies that it is in compliance with and shall remain in compliance with Massachusetts General Laws (M.G.L.) Chapter 151B and shall not discriminate on any prohibited basis outlined therein. The Bidder also hereby certifies that it shall comply with any and all applicable Supplier Diversity Office (SDO) thresholds that have been established in conjunction with this Invitation for Bids.

Name of Bidder

Address of Bidder

Telephone Number

By:

(Signature)

Printed Name

Printed Title

CERTIFICATE OF NON-DEBARMENT

The Bidder hereby certifies that it is presently not debarred, suspended, or otherwise prohibited from practice by any federal, state, or local agency, and that, should any proceeding arise in which it is debarred, suspended, or otherwise prohibited from practice by any federal, state, or local agency, the Bidder shall inform the Town of Natick within one (1) business day of such debarment, suspension, or prohibition from practice.

Name of Bidder

Address of Bidder

Telephone Number

By: _____

(Signature)

Printed Name

Printed Title

CERTIFICATE OF FOREIGN CORPORATION

If the Bidder is a foreign corporation, the Bidder certifies that the corporation is qualified to do business in the Commonwealth of Massachusetts.

Name of Bidder

Address of Bidder

By:

Signature

Printed Name

Printed Title

Date

(Company Name)

(Signature/Title)

OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION CERTIFICATION

The Bidder named below agrees that if it is selected as the Contractor, it shall comply with the provisions of M.G.L. Chapter 30, Section 39S.

The Bidder named below certifies, under penalties of perjury, that it is able to furnish labor that can work in harmony with all other elements of labor employed or to be employed in the work; that all employees to be employed at the worksite will have successfully completed a course in construction safety and health approved by the United States Occupational Safety and Health Administration that is at least ten (10) hours in duration at the time the employee begins work and who shall furnish documentation of successful completion of said course with the first certified payroll report for each employee; and that all employees to be employed in the work subject to this bid have successfully completed a course in construction safety and health approved by the United States Occupational Safety and Health Administration that is at employee; and that all employees to be employed in the work subject to this bid have successfully completed a course in construction safety and health approved by the United States Occupational Safety and Health Administration that is at least ten (10) hours in duration at ten (10) hours in duration.

Name of Bidder

Address of Bidder

By:

Signature

Printed Name

Printed Title

BID BOND

KNOW ALL PERSONS BY THESE PRESENTS: that

(Name of Contractor)	
(Address of Contractor)	
a, hereinafter called PRINCIPAL and (Corporation, Partner	ship, or Individual)
(Name of Surety)	
(Address of Surety)	
hereinafter called Surety, are held and firmly bound unto	
Town of Natick, Massachusetts (Name of Owner)	
c/o Natick Board of Selectmen, Natick Town Hall, 13 East Central Street, Nati (Address of Owner)	ick, MA 01760
hereinafter called Owner, in the total aggregate penal sum of	
	Dollars (\$
in lawful money of the United States, for the payment of which sum well and t ourselves, our heirs, executors, administrators, successors, and assigns, jointly these presents.	

THE CONDITION OF THIS OBLIGATION is such that whereas, the Principal has submitted to the Natick Board of Selectmen a certain Bid, attached hereto and made a part hereof and hereby incorporated by reference herein, to enter into a Contract, in writing, for the replacement of the existing Equipment Maintenance Garage roof.

NOW, THEREFORE,

(a) If said Bid shall be rejected, or

(b) If said Bid shall be accepted and the Principal shall executed and deliver a Contract in the Form of Contract attached hereto (properly completed in accordance with said Bid) and shall furnish a Bond for his faithful performance of said Contract, and for the payment of all persons furnishing materials or performing labor in connection therewith, and shall in all other respects perform the agreement created by the acceptance of said Bid,

then this obligation shall be void, otherwise the same shall remain in full force and effect; it being expressly understood and agreed that the liability of the Surety for any and all claims hereunder shall, in no event, exceed the penal amount of this obligation as herein stated.

The Surety, for value received, hereby stipulates and agrees that the obligations of said Surety and its Bond shall be in no way impaired or affected by any extension of the time within which the Owner may accept such Bid; and said Surety does hereby waive notice of any such extension.

IN WITNESS WHEREOF, the Principal and the Surety have hereunto set their hands and seals, and such of them as are corporations have caused their corporate seals to be hereto affixed and these presents to be signed by their proper officers, the day and year first set forth above.

D · · · 1

ATTEST:

	Principal
(Principal Secretary)	_
(SEAL)(s)	By Signature
	Printed Name
	Printed Title
(Address)	(Address)
	(Surety)
ATTEST:	
(Witness as to Surety)	ByAttorney-in-Fact Signature
	Printed Name

Printed Title

(Address)

(Address)

NOTE: Date of Bond must not be prior to date of Contract.

If the Principal is a partnership, all partners should execute this Bond.

IMPORTANT: Surety companies executing Bonds must appear on the Treasury Department's most current list (Circular 570 as amended) and be authorized to transact business in the State where the Project is located.



UPDATE STATEMENTS ARE NOT PUBLIC RECORDS AND ARE NOT OPEN TO PUBLIC INSPECTION (M.G.L. C.149, §44D)

Update Statement

TO ALL BIDDERS AND AWARDING AUTHORITIES

A Completed and Signed Contractor Update Statement Must Be Submitted with Every Bid for a Contract Pursuant To M.G.L. c.149, AND M.G.L. c. 149A. Any Bid Submitted Without An Update Statement Is Invalid And Must Be Rejected.

AWARDING AUTHORITIES

If the Awarding Authority determines that the bidder does not demonstrably possess the skill, ability and integrity necessary to perform the work on the project, it must reject the bid.

BIDDER'S AFFIDAVIT

I swear under the pains and penalties of perjury that I am duly authorized by the bidder named below to sign and submit this Contractor Update Statement on behalf of the bidder named below, that I have read this Contractor Update Statement, and that all of the information provided by the bidder in this Contractor Update Statement is true, accurate, and complete as of the bid date.

Bid Date

Print Name of Company

Project Number (or name if no number)

Bidder's Address

Awarding Authority

Bidder Telephone Number

SIGNATURE⇒

Bidder's Authorized Representative

INSTRUCTIONS

INSTRUCTIONS TO BIDDERS

- This form must be completed and submitted by all contractors bidding on projects where DCAMM Certification is required.
- You must give complete and accurate answers to all questions and provide all of the information requested. MAKING A MATERIALLY FALSE STATEMENT IN THIS UPDATE STATEMENT IS GROUNDS FOR REJECTING YOUR BID AND FOR DEBARRING YOU FROM <u>ALL</u> PUBLIC CONTRACTING.
- This Update Statement must include all requested information that may not have been previously reported on the application used for your company's most recently issued (not extended or amended) Contractor Certificate of Eligibility. The Update Statement must cover the entire period since the date of your Application, NOT since the date of your Certification.

INSTRUCTIONS TO AWARDING AUTHORITIES

Determination of Bidder Qualifications

- It is the awarding authority's responsibility to determine who the lowest eligible and responsible bidder is. You must consider <u>all</u> of the information in the low bidder's Update Statement in making this determination. <u>Remember</u>: this information was not available to the Division of Capital Asset Management and Maintenance at the time of certification.
- The bidder's performance on the projects listed in Parts 1 and 2 must be part of your review.
- Contact the project references.

 AWARDING AUTHORITIES ARE STRONGLY ENCOURAGED TO REVIEW THE LOW BIDDERS CERTIFICATION FILE. WITH THE IMPLEMENTATION OF ELECTRONIC DOCUMENT MANAGEMENT FILE REVIEWS CAN BE PROVIDED ELECTRONICALLY. To discuss your request/options contact DCAMM's Contractor Certification (857) 204-1305.

Bidding Limits for Prime Contractors

<u>Single Project Limit</u>: The total amount of the bid, including all alternates, may not exceed the bidder's Single Project Limit.

<u>Aggregate Work Limit</u>: The annual value of the work to be performed on the contract for which the bid is submitted, when added to the annual cost to complete the bidder's other projects in progress, may not exceed the bidder's Aggregate Work Limit.

Correction of Errors and Omissions in Update Statements

<u>Correction of Other Defects</u>: An awarding authority may, in its discretion, give a contractor notice of defects, other than mistakes or omissions of form, in the contractor's Update Statement, and an opportunity to correct such defects, provided the correction of such defects is not prejudicial to fair competition. An awarding authority may reject a corrected Update Statement if it contains unfavorable information about the contractor that was omitted from the Update Statement filed with the contractor's bid.

PART 1 - COMPLETED PROJECTS

List all public *building* projects your company has completed <u>since</u> your most recently issued DCAMM Certificate of Eligibility. You must report all requested information not previously reported on that DCAMM application*.

PROJECT TITLE & LOCATION	WORK CATEGORY	CONTRACT PRICE	START DATE	DATE COMPLETED

Attach additional sheets if necessary

* If your company has been terminated from a project prior to completion of the work or has failed or refused to complete its work under any contract, full details and an explanation must be provided. See Part 3 (Project Performance) of this Update Statement.

PROVIDE THE FOLLOWING REFERENCE INFORMATION FOR EACH COMPLETED PROJECT LISTED ON THE PREVIOUS PAGE.

PROJECT TITLE	COMPANY NAME	CONTACT PERSON	TELEPHONE
	OWNER:		
	DESIGNER:		
	GC:		
	OWNER:		
	DESIGNER:		
	GC:		
	OWNER:		
	DESIGNER:		
	GC:		
	OWNER:		
	DESIGNER:		
	GC:		
	OWNER:		
	DESIGNER:		
	GC		
	OWNER:		
	DESIGNER:		
	GC:		

Is your company or any individual who owns, manages or controls your company affiliated with any owner, designer or general contractor named above, either through a business or family relationship?

Are any of the contact persons named above affiliated with your company or any individual who owns, manages or control your company, either through a business or family relationship?

If you have answered YES to either question, explain. _____

PART 2 - PROJECTS IN PROGRESS

List all public building construction projects your company has under contract on this date regardless of when or whether the work commenced.

1	2	3	4	5	6	7	8	9
PROJECT TITLE & LOCATION	WORK CATEGORY	START AND END DATES	ON SCHEDULE (yes / no)	CONTRACT PRICE	% NOT COMPLETE	\$ VALUE OF WORK NOT COMPLETE (col. 5 X col. 6)	NO. OF YEARS REMAINING* (see note below)	ANNUALIZED VALUE OF INCOMPLETE WORK (col. 7 ÷ col. 8) (divided by)

ANNUALIZED VALUE OF <u>ALL</u> INCOMPLETE CONTRACT WORK (Total of Column 9) \$_____

<u>Column 8</u> • If less than one year is left in the project schedule, write 1.

• If more than 12 months are left in the project schedule, divide the number of months left in the project schedule by 12 (calculate to three decimal places).

PROJECT TITLE	COMPANY NAME	CONTACT PERSON	TELEPHONE
	OWNER:	Owner Contact Person	
	DESIGNER:	Designer Contact Person	
	GC:	GC Contact Person	
	OWNER:	Owner Contact Person	
	DESIGNER:	Designer Contact Person	
	GC:	GC Contact Person	
	OWNER:	Owner Contact Person	
	DESIGNER:	Designer Contact Person	
	GC:	GC Contact Person	
	OWNER:	Owner Contact Person	
	DESIGNER:	Designer Contact Person	
	GC:	GC Contact Person	
	OWNER:	Owner Contact Person	
	DESIGNER:	Designer Contact Person	
	GC:	GC Contact Person	
	OWNER:	Owner Contact Person	
	DESIGNER:	Designer Contact Person	
	GC:	GC Contact Person	

PROVIDE THE FOLLOWING REFERENCE INFORMATION FOR EACH INCOMPLETE PROJECT LISTED ON THE PREVIOUS PAGE.

Is your company or any individual who owns, manages or controls your company affiliated with any owner, designer or general contractor named above either through a business or family relationship?

Are any of the contact persons named above affiliated with your company or any individual who owns, manages or control your company, either through a business or family relationship?

If you have answered YES to either question, explain. _____

PART 3 - PROJECT PERFORMANCE

For Parts 3 and 4, if you answer YES to any question, please provide on a separate page a complete explanation. Information you provide herein must supplement the Application for your most recently issued (not extended or amended) DCAMM Certificate of Eligibility. You must report all requested information not previously reported on that DCAMM Application for Certificate of Eligibility. Include all details [project name(s) and location(s), names of all parties involved, relevant dates, etc.].

	YES	NO
 Has your company been terminated on any contract prior to completing a project or has any officer, partner or principal of your company been an officer, partner or principal of another company that was terminated or failed to complete a project? 		
2. Has your company failed or refused either to perform or complete any of its work under any contract prior to substantial completion?		
3. Has your company failed or refused to complete any punch list work under any contract?		
4. Has your company filed for bankruptcy, or has any officer, principal or individual with a financial interest in your current company been an officer, principal or individual with a financial interest in another company that filed for bankruptcy?		
5. Has your surety taken over or been asked to complete any of your work under any contract?		
6. Has a payment or performance bond been invoked against your current company, or has any officer, principal or individual with a financial interest in your current company been an officer, principal or individual with a financial interest in another company that had a payment or performance bond invoked?		
7. Has your surety made payment to a materials supplier or other party under your payment bond on any contract?		
8. Has any subcontractor filed a demand for direct payment with an awarding authority for a public project on any of your contracts?		
9. Have any of your subcontractors or suppliers filed litigation to enforce a mechanic's lien against property in connection with work performed or materials supplied under any of your contracts?		
10. Have there been any deaths of an employee or others occurring in connection with any of your projects?		
11. Has any employee or other person suffered an injury in connection with any of your projects resulting in their inability to return to work for a period in excess of one year?		

PART 4 - Legal or Administrative Proceedings; Compliance with Laws

Please answer the following questions. Information must supplement all judicial and administrative proceedings involving bidder's company, which were instituted or concluded (adversely or otherwise) since your company's application for your most recently issued (not extended or amended) Certificate of Eligibility. You must report all requested information not previously reported on that DCAMM application for Certificate of Eligibility.

The term "<u>administrative proceeding</u>" as used in this Contractor Update Statement includes (i) any action taken or proceeding brought by a governmental agency, department or officer to enforce any law, regulation, code, legal, or contractual requirement, except for those brought in state or federal courts, or (ii) any action taken by a governmental agency, department or officer imposing penalties, fines or other sanctions for failure to comply with any such legal or contractual requirement.

The term "anyone with a financial interest in your company" as used in this Section "I", shall mean any person and/or entity with a 5% or greater ownership interest in the applicant's company.

If you answer YES to any question, on a separate page provide a complete explanation of each proceeding or action and any judgment, decision, fine or other sanction or result. Include all details (name of court or administrative agency, title of case or proceeding, case number, date action was commenced, date judgment or decision was entered, fines or penalties imposed, etc.).

		YES	NO
1.	Have any civil, judicial or administrative proceedings involving your company or a principal or officer or anyone with a financial interest in your company been brought, concluded, or settled relating to the procurement or performance of any construction contract, including but not limited to actions to obtain payment brought by subcontractors, suppliers or others?		
2.	Have any criminal proceedings involving your company or a principal or officer or anyone with a financial interest in your company been brought, concluded, or settled relating to the procurement or performance of any construction contract including, but not limited to, any of the following offenses: fraud, graft, embezzlement, forgery, bribery, falsification or destruction of records, or receipt of stolen property?		
3.	Have any judicial or administrative proceedings involving your company or a principal or officer or anyone with a financial interest in your company been brought, concluded, or settled relating to a violation of any state's or federal procurement laws arising out of the submission of bids or proposals?		
4.	Have any judicial or administrative proceedings involving your company or a principal or officer or anyone with a financial interest in your company been brought, concluded, or settled relating to a violation of M.G.L. Chapter 268A, the State Ethics Law?		

PART 4 - Legal or Administrative Proceedings; Compliance with Laws (continued)

	YES	NO
5. Have any judicial or administrative proceedings involving your company or a principal or officer or anyone with a financial interest in your company been brought, concluded, or settled relating to a violation of any state or federal law regulating hours of labor, unemployment compensation, minimum wages, prevailing wages, overtime pay, equal pay, child labor or worker's compensation?		
6. Have any judicial or administrative proceedings involving your company or a principal or officer or anyone with a financial interest in your company been brought, concluded, or settled relating to a violation of any state or federal law prohibiting discrimination in employment?		
7. Have any judicial or administrative proceedings involving your company or a principal or officer or anyone with a financial interest in your company been brought, concluded, or settled relating to a claim of repeated or aggravated violation of any state or federal law regulating labor relations?		
8. Have any proceedings by a municipal, state, or federal agency been brought, concluded, or settled relating to decertification, debarment, or suspension of your company or any principal or officer or anyone with a financial interest in your company from public contracting?		
9. Have any judicial or administrative proceedings involving your company or a principal or officer or anyone with a financial interest in your company been brought, concluded, or settled relating to a violation of state or federal law regulating the environment?		
10. Has your company been fined by OSHA or any other state or federal agency for violations of any laws or regulations related to occupational health or safety? Note: this information may be obtained from OSHA's Web Site at www.osha.gov		
11. Has your company been sanctioned for failure to achieve DBE/MBE/WBE goals, workforce goals, or failure to file certified payrolls on any public projects?		
12. Other than previously reported in the above paragraphs of this Section I, have any administrative proceedings or investigations involving your company or a principal or officer or anyone with a financial interest in your company been brought, concluded, or settled by any local, state or federal agency relating to the procurement or performance of any construction contract?		
13. Are there any other issues that you are aware which may affect your company's responsibility and integrity as a building contractor?		

PART 5 - SUPERVISORY PERSONNEL

List all supervisory personnel, such as project managers and superintendents, who will be assigned to the project if your company is awarded the contract. **Attach the resume of each person listed below**.

NAME	TITLE OR FUNCTION

PART 6 - CHANGES IN BUSINESS ORGANIZATION OR FINANCIAL CONDITION

If YES, attach a separate page providing complete details.			
since the date your current Certificate of Eligibility was issued?	🗌 Yes	🗌 No	
Have there been any changes in your company's business organ	nization, f	financial cor	dition or bonding capacity

PART 7 – LIST OF COMPLETED CONSTRUCTION PROJECTS SUBMITTED TO THE DIVISION OF CAPITAL ASSET MANAGEMENT AND MAINTENANCE.

Attach a copy of the completed construction projects which was submitted with your company's most recent DCAMM online application DCAMM Certificate of Eligibility.

- The Attachment must include a complete copy of the Completed Projects and Projects in Progress
- Dated signature page of your online application report submitted to the Division of Capital Asset Management and Maintenance Contractor Certification Office

NATICK, MASSACHUSETTS BOARD OF SELECTMEN

NOTICE OF AWARD

DATED _____

To:	BIDDER:		
	ADDRESS:		

The Owner has considered the Bid submitted by you for the above described Work in response to the Invitation for Bids dated ______ and Instructions to Bidders.

You are hereby notified that your Bid has been accepted in the amount of \$_____, based upon summation of lump sum prices.

You shall comply with the following conditions precedent within five (5) days (Saturdays, Sundays, and legal holidays excluded) of the date of this Notice of Award, that is by ______

- 1. You shall deliver to the OWNER five (5) fully executed counterparts of the Contract, including all the Contract Documents. Each of the Contract Documents shall bear your signature on the cover page.
- 2. You shall deliver with the executed Contract, the Contract Security (Bonds including both a fully-executed Performance Bond and a fully-executed Payment Bond and Certificates of Insurance) as specified in the Instructions to Bidders, General Conditions and Supplementary Conditions.

Failure to comply with these conditions within the time specified will entitle OWNER to consider

Page 1 of 2 Notice of Award 00 51 00 your bid abandoned, to annul this Notice of Award and to declare your Bid Security forfeited.

Five (5) copies of each of the proposed Contract Documents accompany this Notice of Award.

Within ten (10) days after you comply with those conditions, OWNER will return to you one (1) fully signed counterpart of the Contract with the Contract Documents attached.

Dated this ______ day of ______, 20___.

By:

Signature of Owner's Representative

Printed Name

Printed Title

ACCEPTANCE OF NOTICE

Receipt of the above NOTICE OF AWARD is hereby acknowledged this _____ day of ______, 20___.

Printed Name of Contractor

By_____

Authorized Signature

Printed Name

Printed Title

Page 2 of 2 Notice of Award 00 51 00

Margin AIA° Document A101[™] – 2007

Standard Form of Agreement Between Owner and Contractor where the basis of payment is a Stipulated Sum

AGREEMENT made as of the day of in the year 2018 (In words, indicate day, month and year.)

BETWEEN the Owner: (Name, legal status, address and other information)

The Town of Natick, Massachusetts Natick Town Hall 13 East Central Street Natick, MA 01760

and the Contractor: (Name, legal status, address and other information)

for the following Project: (Name, location and detailed description)

> Rehabilitation (Interior) of the Camp Arrowhead Building Worcester Road Natick, MA 01760

The Architect: (Name, legal status, address and other information)

Resolution Architects, LLC One South Avenue Natick, MA 01760

The Owner and Contractor agree as follows.

ADDITIONS AND DELETIONS:

The author of this document has added information needed for its completion. The author may also have revised the text of the original AIA standard form. An Additions and Deletions Report that notes added information as well as revisions to the standard form text is available from the author and should be reviewed. A vertical line in the left margin of this document indicates where the author has added necessary information and where the author has added to or deleted from the original AIA text.

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

AIA Document A201[™]-2007, General Conditions of the Contract for Construction, is adopted in this document by reference. Do not use with other general conditions unless this document is modified.

1

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TABLE OF ARTICLES

- 1 THE CONTRACT DOCUMENTS
- 2 THE WORK OF THIS CONTRACT
- 3 DATE OF COMMENCEMENT AND SUBSTANTIAL COMPLETION
- 4 CONTRACT SUM
- 5 PAYMENTS
- 6 DISPUTE RESOLUTION
- 7 **TERMINATION OR SUSPENSION**
- MISCELLANEOUS PROVISIONS 8
- 9 **ENUMERATION OF CONTRACT DOCUMENTS**
- 10 INSURANCE AND BONDS

ARTICLE 1 THE CONTRACT DOCUMENTS

The Contract Documents consist of this Agreement, Conditions of the Contract (General, Supplementary and other Conditions), Drawings, Specifications, Addenda issued prior to execution of this Agreement, other documents listed in this Agreement and Modifications issued after execution of this Agreement, all of which form the Contract, and are as fully a part of the Contract as if attached to this Agreement or repeated herein. The Contract represents the entire and integrated agreement between the parties hereto and supersedes prior negotiations, representations or agreements, either written or oral. An enumeration of the Contract Documents, other than a Modification, appears in Article 9.

ARTICLE 2 THE WORK OF THIS CONTRACT

The Contractor shall fully execute the Work described in the Contract Documents, except as specifically indicated in the Contract Documents to be the responsibility of others.

DATE OF COMMENCEMENT AND SUBSTANTIAL COMPLETION **ARTICLE 3**

§ 3.1 The date of commencement of the Work shall be the date of this Agreement unless a different date is stated below or provision is made for the date to be fixed in a notice to proceed issued by the Owner. (Insert the date of commencement if it differs from the date of this Agreement or, if applicable, state that the date will be fixed in a notice to proceed.)

N/A

If, prior to the commencement of the Work, the Owner requires time to file mortgages and other security interests, the Owner's time requirement shall be as follows:

N/A

§ 3.2 The Contract Time shall be measured from the date of commencement.

§ 3.3 The Contractor shall achieve Substantial Completion of the entire Work not later than sixty (60) calendar days from the date of commencement.

(Insert number of calendar days. Alternatively, a calendar date may be used when coordinated with the date of commencement. If appropriate, insert requirements for earlier Substantial Completion of certain portions of the Work.)

Init. 1

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Portion of Work

Substantial Completion Date

, subject to adjustments of this Contract Time as provided in the Contract Documents. (Insert provisions, if any, for liquidated damages relating to failure to achieve Substantial Completion on time or for *bonus payments for early completion of the Work.*)

SEE PROJECT MANUAL.

CONTRACT SUM ARTICLE 4

§ 4.1 The Owner shall pay the Contractor the Contract Sum in current funds for the Contractor's performance of the Contract. The Contract Sum shall be (\$), subject to additions and deductions as provided in the Contract Documents.

§ 4.2 The Contract Sum is based upon the following alternates, if any, which are described in the Contract Documents and are hereby accepted by the Owner:

(State the numbers or other identification of accepted alternates. If the bidding or proposal documents permit the Owner to accept other alternates subsequent to the execution of this Agreement, attach a schedule of such other alternates showing the amount for each and the date when that amount expires.)

§ 4.3 Unit prices, if any:

(Identify and state the unit price; state quantity limitations, if any, to which the unit price will be applicable.)

Item

Units and Limitations

Price Per Unit (\$0.00)

See Project Manual.

§ 4.4 Allowances included in the Contract Sum, if any: (Identify allowance and state exclusions, if any, from the allowance price.)

Item	
N/A	

ARTICLE 5 PAYMENTS § 5.1 PROGRESS PAYMENTS

§ 5.1.1 Based upon Applications for Payment submitted to the Architect by the Contractor and Certificates for Payment issued by the Architect, the Owner shall make progress payments on account of the Contract Sum to the Contractor as provided below and elsewhere in the Contract Documents.

Price N/A

§ 5.1.2 The period covered by each Application for Payment shall be one calendar month ending on the last day of the month, or as follows:

Per M.G.L. c. 30, §39K.

§ 5.1.3 Provided that an Application for Payment is received by the Architect not later than the first day of a month, the Owner shall make payment of the certified amount to the Contractor not later than the fifteenth day of the same month. If an Application for Payment is received by the Architect after the application date fixed above, payment shall be made by the Owner not later than fifteen (15) days after the Architect receives the Application for Payment.

(Federal, state or local laws may require payment within a certain period of time.)

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§ 5.1.4 Each Application for Payment shall be based on the most recent schedule of values submitted by the Contractor in accordance with the Contract Documents. The schedule of values shall allocate the entire Contract Sum among the various portions of the Work. The schedule of values shall be prepared in such form and supported by such data to substantiate its accuracy as the Architect may require. This schedule, unless objected to by the Architect, shall be used as a basis for reviewing the Contractor's Applications for Payment.

§ 5.1.5 Applications for Payment shall show the percentage of completion of each portion of the Work as of the end of the period covered by the Application for Payment.

§ 5.1.6 Subject to other provisions of the Contract Documents, the amount of each progress payment shall be computed as follows:

- .1 Take that portion of the Contract Sum properly allocable to completed Work as determined by multiplying the percentage completion of each portion of the Work by the share of the Contract Sum allocated to that portion of the Work in the schedule of values, less retainage of five percent (5 %). Pending final determination of cost to the Owner of changes in the Work, amounts not in dispute shall be included as provided in Section 7.3.9 of AIA Document A201TM–2007, General Conditions of the Contract for Construction;
- .2 Add that portion of the Contract Sum properly allocable to materials and equipment delivered and suitably stored at the site for subsequent incorporation in the completed construction (or, if approved in advance by the Owner, suitably stored off the site at a location agreed upon in writing), less retainage of five percent (5 %);
- .3 Subtract the aggregate of previous payments made by the Owner; and
- .4 Subtract amounts, if any, for which the Architect has withheld or nullified a Certificate for Payment as provided in Section 9.5 of AIA Document A201-2007.

§ 5.1.7 The progress payment amount determined in accordance with Section 5.1.6 shall be further modified under the following circumstances:

- Add, upon Substantial Completion of the Work, a sum sufficient to increase the total payments to the .1 full amount of the Contract Sum, less such amounts as the Architect shall determine for incomplete Work, retainage applicable to such work and unsettled claims; and (Section 9.8.5 of AIA Document A201–2007 requires release of applicable retainage upon
 - Substantial Completion of Work with consent of surety, if any.)
- .2 Add, if final completion of the Work is thereafter materially delayed through no fault of the Contractor, any additional amounts payable in accordance with Section 9.10.3 of AIA Document A201-2007.

§ 5.1.8 Reduction or limitation of retainage, if any, shall be as follows:

(If it is intended, prior to Substantial Completion of the entire Work, to reduce or limit the retainage resulting from the percentages inserted in Sections 5.1.6.1 and 5.1.6.2 above, and this is not explained elsewhere in the Contract Documents, insert here provisions for such reduction or limitation.)

None.

§ 5.1.9 Except with the Owner's prior approval, the Contractor shall not make advance payments to suppliers for materials or equipment which have not been delivered and stored at the site.

§ 5.2 FINAL PAYMENT

§ 5.2.1 Final payment, constituting the entire unpaid balance of the Contract Sum, shall be made by the Owner to the Contractor when

- the Contractor has fully performed the Contract except for the Contractor's responsibility to correct .1 Work as provided in Section 12.2.2 of AIA Document A201–2007, and to satisfy other requirements, if any, which extend beyond final payment; and
- a final Certificate for Payment has been issued by the Architect. .2

§ 5.2.2 The Owner's final payment to the Contractor shall be made no later than 30 days after the issuance of the Architect's final Certificate for Payment, or as follows:

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DISPUTE RESOLUTION **ARTICLE 6** § 6.1 INITIAL DECISION MAKER

The Architect will serve as Initial Decision Maker pursuant to Section 15.2 of AIA Document A201–2007, unless the parties appoint below another individual, not a party to this Agreement, to serve as Initial Decision Maker. (If the parties mutually agree, insert the name, address and other contact information of the Initial Decision Maker, *if other than the Architect.*)

N/A

§ 6.2 BINDING DISPUTE RESOLUTION

For any Claim subject to, but not resolved by, mediation pursuant to Section 15.3 of AIA Document A201–2007, the method of binding dispute resolution shall be as follows:

(Check the appropriate box. If the Owner and Contractor do not select a method of binding dispute resolution below, or do not subsequently agree in writing to a binding dispute resolution method other than litigation, Claims will be resolved by litigation in a court of competent jurisdiction.)

Arbitration pursuant to Section 15.4 of AIA Document A201–2007 1

X] Litigation in a court of competent jurisdiction

[] Other (Specify)

ARTICLE 7 TERMINATION OR SUSPENSION

§ 7.1 The Contract may be terminated by the Owner or the Contractor as provided in Article 14 of AIA Document A201–2007.

§ 7.2 The Work may be suspended by the Owner as provided in Article 14 of AIA Document A201–2007.

MISCELLANEOUS PROVISIONS **ARTICLE 8**

§ 8.1 Where reference is made in this Agreement to a provision of AIA Document A201–2007 or another Contract Document, the reference refers to that provision as amended or supplemented by other provisions of the Contract Documents.

§ 8.2 Payments due and unpaid under the Contract shall bear interest from the date payment is due at the rate stated below, or in the absence thereof, at the legal rate prevailing from time to time at the place where the Project is located.

(Insert rate of interest agreed upon, if any.)

Zero percent (0%). § 8.3 The Owner's representative: (Name, address and other information)

William D. Chenard Acting Town Administrator Natick Town Hall 13 East Central Street Natick, MA 01760

§ 8.4 The Contractor's representative:

Init. 1

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§ 8.5 Neither the Owner's nor the Contractor's representative shall be changed without ten days written notice to the other party.

§ 8.6 Other provisions:

N/A

ENUMERATION OF CONTRACT DOCUMENTS ARTICLE 9

§ 9.1 The Contract Documents, except for Modifications issued after execution of this Agreement, are enumerated in the sections below.

§ 9.1.1 The Agreement is this executed AIA Document A101–2007, Standard Form of Agreement Between Owner and Contractor.

§ 9.1.2 The General Conditions are AIA Document A201–2007, General Conditions of the Contract for Construction.

§ 9.1.3 The Supplementary and other Conditions of the Contract:

Document	Title	Date	Pages
Supplementary	Supplementary General	February 1, 2018	39
General Conditions	Conditions		
§ 9.1.4 The Specifications:			
(Either list the Specifications he	re or refer to an exhibit attach	ed to this Agreement.)	
See Project Manual.			

Section	Title	Date	Pages
-	_	-	-

§ 9.1.5 The Drawings:

Init.

1

(Either list the Drawings here or refer to an exhibit attached to this Agreement.)

Number	Title	Date
-	-	-
§ 9.1.6 The Addenda, if any:		
Number	Date	Pages

Portions of Addenda relating to bidding requirements are not part of the Contract Documents unless the bidding requirements are also enumerated in this Article 9.

§ 9.1.7 Additional documents, if any, forming part of the Contract Documents:

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AIA Document E201TM–2007, Digital Data Protocol Exhibit, if completed by the parties, or the .1 following:

N/A

.2 Other documents, if any, listed below:

> (List here any additional documents that are intended to form part of the Contract Documents. AIA Document A201–2007 provides that bidding requirements such as advertisement or invitation to bid, Instructions to Bidders, sample forms and the Contractor's bid are not part of the Contract Documents unless enumerated in this Agreement. They should be listed here only if intended to be part of the Contract Documents.)

N/A

INSURANCE AND BONDS ARTICLE 10

The Contractor shall purchase and maintain insurance and provide bonds as set forth in Article 11 of AIA Document A201-2007.

(State bonding requirements, if any, and limits of liability for insurance required in Article 11 of AIA Document A201-2007.)

Type of insurance or bond Performance Bond Labor and Materials Payment Bond Limit of liability or bond amount (\$0.00) 100% of Total Contract Price 100% of Total Contract Price

CONTRACTOR

(Printed Name of Contractor)

This Agreement entered into as of the day and year first written above.

(Paragraphs deleted) **OWNER** The Town of Natick, Massachusetts

By: The Natick Board of Selectmen

Signature

by:

Susan G. Salamoff, Vice Chairman

Jonathan H. Freedman, Chairman

Richard P. Jennett, Jr., Clerk

Printed Title

Printed Name

Michael J. Hickey, Jr.

Amy K. Mistrot

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Dated:

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Dated:

APPROVED AS TO AVAILABILITY OF APPROPRIATION:

This is to certify, pursuant to M.G.L. c. 44, §31C, that an appropriation in the amount of this Agreement is available therefor, and that the Natick Board of Selectmen is authorized to execute this Agreement and to approve all requisitions and execute change orders.

Dated: _____

Arti P. Mehta Comptroller, Town of Natick

APPROVED AS TO FORM ONLY, AND NOT AS TO SUBSTANCE

John P. Flynn, Esq.

Dated:

1

CERTIFICATE OF VOTE

I,(Cleri	, hereby certify	that I am the duly qualified and acting
	of Of (Corporation Name)	and I further certify that at a
(Title)	(Corporation Name)	
meeting of said	d Corporation duly called and held on	, 20, at which meeting all
Directors were	e present and voting, the following vote was unanimously pass	sed:
VOTED:	To Authorize and empower either(Name	,
	(Name	
(Title)	; (Name)	,
	; or; Name)	,
(Title)	(Name)	
Corporation. I, further certif	fy that the above vote is still in effect on this the day o	of, 20
and has not be	en changed or modified in any respect.	
	Signature	
	Printed Name	
	Printed Title	
	on contained hereabove shall be executed by CONTRACTOR gn for the Corporation" shall be attached.	or copy of current "certification of

Init.

NOTICE TO PROCEED

Dated	, 20	<u>.</u>	
То:			
	(Contract	or)
		(Addre	ss)
Yo	u are hereby notified to common, 20, on or befor	ence worl e	x in accordance with the Contract dated, 20, and you are required to achieve
substantial	completion of all work within a completion within		, 20, and you are required to achieve () consecutive calendar days thereafter, and to () consecutive calendar days thereafter. In
accordance	e with Article 3 of the Contract	t, the date	s of Substantial Completion and Final Completion are
	<u>OW</u>	<u>'NER: T(</u>	OWN OF NATICK, MASSACHUSETTS
		By	
		-	(Authorized Signature)
			Printed Name
	ANCE OF NOTICE the above Notice to Proceed is	hereby a	Printed Title ucknowledged by
this the	day of	20	
By:			
5	(Authorized Signature)		
	Printed Name		
	Printed Title		

PERFORMANCE BOND

KNOW ALL PERSONS BY THESE PRESENTS: that

(Name of Contractor)

(Address of Contractor)

a ______, hereinafter called PRINCIPAL and (Corporation, Partnership, or Individual)

(Name of Surety)

(Address of Surety)

hereinafter called Surety, are held and firmly bound unto

Town of Natick, Massachusetts

(Name of Owner)

c/o Natick Board of Selectmen, Natick Town Hall, 13 East Central Street, Natick, MA 01760 (Address of Owner)

hereinafter called Owner, in the total aggregate penal sum of

_____ Dollars (\$_____)

in lawful money of the United States, for the payment of which sum well and truly to be made, we bind ourselves, our heirs, executors, administrators, successors, and assigns, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION is such that whereas, the Principal entered into a certain contract with the Owner, dated the _____ day of ______ 2018, a copy of which is hereto attached and made a part hereof for Rehabilitation (Interior) of the Camp Arrowhead Building in the Town of Natick.

Camp Arrowhead

Now, THEREFORE, if the Principal shall well, truly and faithfully perform its duties, all the undertakings, covenants, terms, conditions, and agreements of said Contract during the original term thereof, and any extensions thereof which may be granted by the Owner, with or without notice to the Surety and during the Owner, with or without notice to the Surety and during the Owner, with or without notice to the Surety and during the One (1) year guarantee period, and if the Principal shall satisfy all claims and demands incurred under such Contract, and shall fully indemnify and save harmless the Owner from all costs and damages which it may suffer by reason of failure to do so, and shall reimburse and repay the Owner all outlay and expense which the Owner may incur in making good any default, then this obligation shall be void, otherwise to remain in full force and effect.

PROVIDED, FURTHER, that the said security, for value received hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the contract or to Work to be performed thereunder or the Specifications accompanying same shall in any way affect its obligation on this Bond, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the Contract or to the Work or to the Specifications.

PROVIDED, FURTHER, that it is expressly agreed that the Bond shall be deemed amended automatically and immediately, without formal and separate amendments hereto, upon amendment to the Contract not increasing the Contract Price more than twenty percent (20%), so as to bind the Principal and the Surety to the full and faithful performance of the Contract as so amended.

The term "Amendment", wherever used in this Bond, and whether referring to this Bond, the Contract or the Loan Documents shall include any alteration, addition, extension, or modification of any character whatsoever.

PROVIDED, FURTHER, that no final settlement between the Owner and the Principal shall abridge the right of the other beneficiary hereunder, whose claim may be unsatisfied. The Owner is the only beneficiary hereunder.

Page 2 of 4 Performance Bond 00 61 13 WITNESS WHEREOF, this instrument is executed in five (5)_counterparts, each of which shall be deemed an original, this _____ day of _____, 2018.

ATTEST:

	Principal
(Principal Secretary)	
(SEAL)(s)	By Signature
	Signature
	Printed Name
	Printed Title
(Address)	(Address)
	(Surety)
ATTEST:	
	By
(Witness as to Surety)	Attorney-in-Fact Signature
	Printed Name
	Printed Title
(Address)	(Address)

NOTE: Date of Bond must not be prior to date of Contract.

If the Principal is a partnership, all partners should execute this Bond.

Page 3 of 4 Performance Bond 00 61 13 IMPORTANT: Surety companies executing Bonds must appear on the Treasury Department's most current list (Circular 570 as amended) and be authorized to transact business in the State where the Project is located.

PAYMENT BOND

KNOW ALL PERSONS BY THESE PRESENTS: that

(Name of Contractor)

(Address of Contractor)

a ______, hereinafter called PRINCIPAL and (Corporation, Partnership, or Individual)

(Name of Surety)

(Address of Surety)

hereinafter called Surety, are held and firmly bound unto

Town of Natick, Massachusetts

(Name of Owner)

c/o Natick Board of Selectmen, Natick Town Hall, 13 East Central Street, Natick, MA 01760 (Address of Owner)

hereinafter called Owner, and unto all persons, firms, and corporations who or which may furnish labor, or who furnish materials to perform as described under the contract and to their successors and assigns in the total aggregate penal sum of

_____ Dollars (\$_____)

in lawful money of the United States, for the payment of which sum well and truly to be made, we bind ourselves, our heirs, executors, administrators, successors, and assigns, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION is such that whereas, the Principal entered into a certain contract with the Owner, dated the _____ day of _____ 2018, a copy of which is hereto attached and made a part hereof for Rehabilitation (Interior) at the Camp Arrowhead Building in the Town of Natick.

Page 1 of 4 Payment Bond 00 61 16

Camp Arrowhead

NOW, THEREFORE, if the Principal shall promptly make payment to all persons, firms, and corporations furnishing materials for or performing labor in prosecution of the Work provided for in such Contract, and any authorized extensions or modification thereof, including all amounts due, including, without limitation, for materials, lubricants, oil, gasoline, coal and coke, repairs on machinery, equipment and tools, consumed or used in connection with the construction of such Work, and for all labor cost incurred in such Work including that by a Subcontractor, and to any mechanic or materialman lienholder whether it acquires its lien by operation of State or Federal law; then this obligation shall be void, otherwise to remain in full force and effect.

PROVIDED, that beneficiaries or claimants hereunder shall be limited to the Subcontractors, and persons, firms, and corporations having a direct contract with the Principal or its Subcontractors.

PROVIDED, FURTHER, that the said Surety for value received hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the contract or to the Work to be performed thereunder or the Specifications accompanying the same shall in any way affect its obligation on this Bond, and it does hereby waive notice to the terms of this contract or to the Work or to the Specifications.

PROVIDED, FURTHER, that it is expressly agreed that this Bond shall be deemed amended automatically and immediately, without formal and separate amendments hereto, upon amendment to the Contract not increasing the Contract Price more than twenty percent (20%), so as to bind the Principal and the Surety to the full and faithful performance of the Contract as so amended.

The term "Amendment", wherever used in this Bond and whether referring to this Bond, the Contract or the Loan Documents shall include any alteration, addition, extension or modification of any character whatsoever.

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

Page 2 of 4 Payment Bond 00 61 16

Camp Arrowhead

WITNESS WHEREOF, this instrument is executed in five (5)_counterparts, each of which shall be deemed an original, this _____ day of _____ 2018. ATTEST:

Principal

(Principal Secretary)	_	
(SEAL)(s)	By Signature	
	Printed Name	
	Printed Title	
(Address)	(Address)	
	(Surety)	
ATTEST:		
	By	
(Witness as to Surety)	Attorney-in-Fact Signature	
	Printed Name	
	Printed Title	
(Address)	(Address)	

NOTE: Date of Bond must not be prior to date of Contract.

If the Principal is a partnership, all partners should execute this Bond.

IMPORTANT: Surety companies executing Bonds must appear on the Treasury Department's most current list (Circular 570 as amended) and be authorized to transact business in the State where the Project is located.

Town of Natick

General Conditions

The General Conditions shall be AIA Document A201-2007, the provisions of which are incorporated herein by reference.

Page 1 of 1 General Conditions 00.72.00

SUPPLEMENTARY GENERAL CONDITIONS

I. THE GENERAL CONDITIONS

The "General Conditions of the Contract for Construction", AIA Document A201, (2007), is a part of the Contract.

II. THE SUPPLEMENTARY GENERAL CONDITIONS

The following supplements modify, delete and/or add to the General Conditions. Where any Article, Paragraph or subparagraph in the General Conditions is supplemented by one of the following paragraphs, the provisions of such Article, Paragraph, or subparagraph shall remain in effect and the supplemental provisions shall be considered as added thereto. Where any Article, Paragraph, or subparagraph in the General Conditions is amended, voided or superseded by any of the following paragraphs, the provisions of such Article, Paragraph or subparagraph not so amended, voided, or superseded shall remain in effect.

All references to the "Architect" shall mean the Engineer, Resolution Architects, LLC, One South Avenue, Natick, MA 01760.

III. MODIFICATIONS TO VARIOUS ARTICLES OF THE AIA GENERAL CONDITIONS

ARTICLE 1: GENERAL PROVISIONS

1.1.1 Delete the final sentence. Add the following provision:

"In the event of any conflict among the Contract Documents, the Documents shall be construed according to the following priorities:

Highest Priority:	Modifications to the Contract
Second Priority:	Contract
Third Priority:	Addenda to Bid Documentslater date to take precedence
Fourth Priority:	Supplementary General Conditions
Fifth Priority:	General Conditions
Sixth Priority:	Division 1, General Requirements
Seventh Priority	Technical Specifications

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Eighth Priority	Drawings, with larger scale drawings to	
	take precedence	
Ninth Priority	Invitation to Bid, Instruction to Bidders,	
-	The Contractor's General Bid."	

Notwithstanding the order of priority of documents set forth in Article 1.1.1, any matters contained in the Specifications which have been omitted from the Drawings or vice versa shall be construed as though contained in both. In the event of any duplication, conflict, or discrepancy between the Drawings and the Specifications or between other contract clauses, so far as the same pertains to the Drawings, the Specifications or any modifications to the Drawings or the Specifications, the matter shall be promptly brought to the attention of the Owner, without whose instructions the Contractor shall not adjust the matter except at his own risk. Any instructions of the Owner shall be given in writing."

ARTICLE 2: OWNER

2.1.1 Add the following at the end of the text:

"The Owner and its authorized representatives, as well as Engineer and Owner's Project Manager, if any, shall at all times have access to and be permitted to observe and review all Work, materials, payrolls, records of personnel, conditions of employment, invoices for materials, and generally all records relating to the Work. No member, officer, agent, employee, representative or official of the Owner shall in any way, directly or indirectly, be personally liable, under any provisions of the Contract."

- 2.1.2 Delete subparagraph 2.1.2.
- 2.1.3 Add Subparagraph 2.1.3

"No officer, official, agent or employee of Owner shall have the power to amend, modify or alter the Contract or waive any of its provisions or to bind the Owner by making any promise or representation not contained herein except by an amendment, in writing, executed by the Owner in the same manner as the Contract is executed. Neither party may rely on any conduct, statement, action, inaction or course of conduct of the employees, agents or officers of the other party as having changed, modified or amended the Contract. Neither party shall be construed as waiving any provision of the Contract unless the waiver is executed in writing as an amendment to the Contract. No waiver by either party of any default of breach shall constitute a waiver of any subsequent default or breach. Forbearance or indulgence in any form or manner by either party shall not be construed as waiver of any term or condition hereto nor shall it limit the legal or equitable remedies available to that party."

- 2.2.1 Delete subparagraph 2.2.1.
- 2.2.2 Delete subparagraph 2.2.2.
- 2.2.3 Delete the terms "legal limitations" and "a legal description of the site." Delete the second sentence.
- 2.2.4 Change subparagraph 2.2.4 to read as follows:

"Information or services required of the Owner hereunder shall be furnished by the Owner with reasonable promptness and in accordance with M.G.L. c. 30, § 39P, as applicable, after receipt from the Contractor of a reasonably detailed written request for such information or services."

2.2.6 Add the following subparagraph:

"Reference is made to Massachusetts General Laws Chapter 30, Section 39P, the provisions of which are incorporated herein."

- 2.3 After the last sentence, add: "The Contractor shall remain responsible for maintaining progress and shall not be entitled to any increase in Contract Time or Contract Sum, and the Contractor shall reimburse the Owner for all costs incurred by the Owner and attributable to such an order to stop the Work. The Owner shall also have the authority, without any notice to the Contractor, to clean up or correct any situation which presents a hazardous or unsafe condition or which materially affects the Owner's use of the facility. Reasonable costs incurred by the Owner for such clean-up or correction shall be charged to the Contractor and paid to the Owner by the Contractor."
- 2.4 Delete paragraph 2.4 in its entirety and substitute the following in its place:

"If the Contractor defaults or neglects to carry out the Work in accordance with the Contract Documents and fails within a seven (7)-day period after receipt of written notice from the Owner to commence and continue correction of such default or neglect with diligence and promptness, or if, having commenced such correction, the Contractor fails to continue such cure with diligence, then the Owner may, upon written notice to the Contractor, and without prejudice to other remedies the Owner may have, correct such deficiencies. In performing any work pursuant to this paragraph, the Owner shall have the right to take possession of the site and of all materials, equipment, tools, and construction equipment and machinery thereon owned by the Contractor or any Subcontractor."

ARTICLE 3: CONTRACTOR

3.1.2 Add the following new provision after the present text:

"The Contractor warrants that its financial condition is sound and that the Contractor shall be capable of obtaining any bonds required by the Contract Documents. The Contractor shall promptly advise the Owner of any occurrence, event, fact, or other matter that has had or will have a materially adverse effect upon the financial condition of the Contractor."

3.1.3 Add the following new provision after the present text:

"The Contractor hereby represents and warrants to the Owner that the Contractor is a business entity which is experienced and skilled in the construction of projects of the type described in the Contract Documents, is licensed to engage in the general construction business in the Commonwealth of Massachusetts, and is in compliance with all applicable governmental laws and regulations precedent thereto."

- 3.3.4-
- 3.3.17 Add the following new provisions:

"3.3.4 The Contractor shall furnish sufficient forces, plant and equipment as may be necessary to insure the progress of the Work in accordance with the Project Schedule.

3.3.5 If, in the opinion of the Owner, the Contractor has fallen behind the Project Schedule, the Contractor shall submit a revised schedule demonstrating the manner in which the desired rate of progress may be increased and shall take such steps, at the Contractor's own cost, as may be necessary to meet the Project Schedule. It shall be the responsibility of the Contractor to maintain its schedule so as not to delay the progress of the Work or the scheduled work of separate Contractors.

3.3.6 The Contractor shall be solely responsible for properly laying out the Work, and for all lines, elevations and measurements for all of the Work. It shall verify the figures shown on the Drawings before laying out the Work and will be responsible for any error or inaccuracies resulting from its failure to do so. In the event that the Contractor shall, while laying out the Work, become aware of (i) any conflicts among or between the Drawings, the Specifications or any

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Modification to the Drawings or the Specifications and the actual layout of the Work, or (ii) any conflicts or inconsistencies in the Drawings and Specification themselves, it shall promptly notify the Owner, without whose instructions the Contractor shall not adjust the matter except at his own risk. Coordination of all work shall include without limitation, review of all shop drawings (including, without limitation, structural, mechanical, and electrical drawings) submitted by Subcontractors for various trades or subdivisions of work and approval of shop drawings indicated by Contractor's stamp of approval.

3.3.7 The Contractor shall comply with all provisions of Federal, Massachusetts and local law applicable to his work including, without limitation, statutes, by-laws, rules, regulations, orders and directives, as amended, and including, without limitation, the Williams-Steiger Occupational Safety and Health Act of 1970, as amended, and related regulations, as amended, in effect throughout the term of the Contract and any extension or renewal thereof. Without limitation, the Contractor shall comply with the provisions of Chapter 149, Section 26 to 27D of the Massachusetts General Laws, as amended, and the applicable minimum wage rates as determined by the Massachusetts Commissioner of Labor and Industries. The Contract shall be considered to include in their entirety all terms respecting workers' compensation insurance and other terms required to be included in it by Chapter 152 of the Massachusetts General Laws, as amended, and any other laws, as though such terms were set forth in their entirety herein.

3.3.8 If this Project requires the containment, abatement or removal of asbestos or material containing asbestos, lead or waste containing lead-based paint, the Contractor shall ensure that the person or entity performing the asbestos or lead related services is licensed pursuant to applicable State laws and regulations.

3.3.9 Chemical waste shall be stored in corrosion resistant containers, removed from the Project site, and disposed of not less frequently than everv three weeks unless directed otherwise. Disposal of chemical waste shall be in accordance with requirements of the U.S. Environmental Protection Agency (EPA) and the Massachusetts Department of Environmental Protection (DEP). Fueling and lubricating of vehicles and equipment shall be conducted in a manner that affords the maximum protection against spills and evaporation. Lubricants to be discarded or burned shall be disposed of in accordance with approved procedures meeting all applicable Federal, State and Local regulations. In the event of an oil or hazardous materials spill large enough to violate Federal, State or Local regulations, the Contractor shall notify the Owner immediately. The Contractor shall be responsible for immediately cleaning up any oil or hazardous waste spills resulting from its operations. Any costs incurred in cleaning up any such spills shall be borne exclusively by the Contractor.

3.3.10 The Contractor shall be solely responsible for compliance with laws and regulations governing the handling, storage, use or disposal of hazardous materials or wastes used, stored, generated or disposed of in connection with construction of the Work and shall obtain all permits and approvals, give all required notices, and observe all applicable procedures prescribed by the EPA, DEP or other governmental authorities having jurisdiction with respect to such activities. At the Owner's request, the Contractor shall properly furnish the Owner with evidence satisfactory to the Owner demonstrating the Contractor's compliance with such procedures, the giving of such notices, and the issuance of such permits and approvals.

3.3.11 The Contractor shall provide and maintain in good operating condition suitable and adequate fire protection equipment and services, and shall comply with all reasonable recommendations regarding fire protection made by the representatives of the fire insurance company carrying insurance on the Work or by the local fire chief or state fire marshal. The area within the site limits shall be kept orderly and clean, and all combustible rubbish shall be promptly removed from the site.

3.3.12 The Contractor shall at all times protect excavations, trenches, buildings and materials from rain water, ground water, backup or leakage of sewers, drains and other piping, and from water of any other origin, and shall remove promptly any accumulation of water. The Contractor shall provide and operate all pumps, piping and other equipment necessary to this end.

3.3.13 The Contractor shall be responsible for all security measures necessary and appropriate to protect the Work area until acceptance by the Owner to assure that the Work, and all materials and equipment stored at the Site, are fully and completely protected against loss or damage due to vandalism, theft, or malicious mischief. The Contractor shall not use guard dogs for this purpose unless authorized in advance in writing by the Owner. If the Owner approves the use of guard dogs, each dog shall at all times be accompanied by an adult handler.

3.3.14 The Contractor shall be responsible for the adequate strength and safety of all scaffolding, staging, and hoisting equipment and for temporary shoring, bracing, and tying.

3.3.15 The Contractor shall furnish on site all personal protective equipment as required, approved first aid supplies, the name of its first-aid attendant, and a posted list of emergency facilities.

3.3.16 No unauthorized visitors shall be allowed on the Work site without permission from the Contractor.

3.3.17 If the Contractor fails to comply with its obligations under Subparagraphs 3.3.4 - 3.3.16, the Owner, without prejudice to any other remedies available to the Owner, may provide for such measures and charge the reasonable cost thereof to the Contractor."

3.4.1 At the end of this subparagraph, add the following:

"The word "provide" shall mean furnish and install completely, including connections, unless otherwise specified."

3.4.2.1-

3.4.2.9 Add the following new provisions:

3.4.2.1* (Statutory reference: M.G.L. c. 30, §39M(b)

Where products or materials are prescribed manufacturer name, trade name, or catalog reference, the word "or approved equal" shall be understood to follow. An item shall be considered equal to the item so named or described if, in the opinion of the Owner,

(a) it is at least equal in quality, durability, appearance, strength, and design,

(b) it performs at least equally the function imposed by the general design for the Work,

(c) it conforms substantially, even with deviations, to the detailed requirements for the items as indicated by the specifications."

Any structural or material changes made necessary to accommodate any substitute products or materials under this paragraph shall be at the expense of the Contractor or Subcontractor responsible for the Work items. 3.4.2.2 The Contractor shall be responsible for determining that all materials furnished for the Work meet all requirements of the Contract Documents. The Owner may require the Contractor to produce reasonable evidence that a material meets such requirements such as certified reports of past tests by qualified testing laboratories, reports of studies by qualified experts, or other evidence which, in the opinion of the Owner, would lead to a reasonable certainty that any material used or proposed to be used, in the Work meets the requirements of the Contract Documents. All such data shall be furnished at the Contractor's expense. This provision shall not require the Contractor to pay for periodic testing is specifically required by the Contract Documents to be perfoemd at the Contractor's expense.

3.4.2.3 In all cases in which a manufacturer's name, trade name or other proprietary designation is used in connection with materials or articles to be furnished under the Contract, whether or not the phrase "or equal" is used after such name, the Contractor shall furnish the product of the named manufacturer(s) without substitution, unless written request for a substitute has been submitted by the Contractor and approved in writing by the Owner.

3.4.2.4 If the Contractor proposed to use a material which, while suitable for the intended use, deviates in any way from the detailed requirements of the Contract Documents, the Contractor shall inform the Owner in writing of the nature of such deviations at the time material is submitted for approval, and shall request such written approval of the deviation from the requirements of the Contract Documents.

3.4.2.5 In requesting approval of deviations or substitutions, the Contractor shall provide, upon request, evidence leading to a reasonable certainty that the proposed substitution or deviation will provide a quality of result at least equal to that otherwise attainable. If, in the opinion of the Owner, the evidence presented by the Contractor does not provide a sufficient basis for such reasonable certainty, the Owner may reject such a substitution or deviation without further investigation.

3.4.2.6 The Contract Documents are intended to produce a building of consistent character and quality of design. All components of the building including visible items of mechanical and electrical equipment have been selected to have a coordinated design in relation to the overall appearance of the building. The

Owner shall judge the design and appearance of proposed substitutes on the basis of their suitability in relation to the overall design of the Project, as well as for their intrinsic merits. The Owner will not approve as equal to materials specified in the proposed substitutes which, the Owner's opinion, would be out of character, obtrusive, or otherwise inconsistent with the character or quality of the design of Project. In order to permit coordinated design of color and finishes the Contractor shall, if required by the Engineer, furnish the substituted material in any color, finish, texture, or pattern which would have been available from the manufacturer originally specified, at no cost to the Owner.

3.4.2.7 Any additional cost, or any loss or damage arising from the substitution of any material or any method for those originally specified shall be borne by the Contractor, notwithstanding approval or acceptance of such substation by the Owner, unless such substitution was made at the written request or direction of the Owner.

3.4.2.8 The representations provided in this paragraph shall be in addition to and not in limitation of any warranty required by the Contract Documents or otherwise prescribed by law.

3.4.2.9 The Contractor shall procure and deliver to the Owner, no later than the date claimed by the Contractor as the date of Final Completion, all special warranties required by the Contract Documents, Delivery by the Contractor shall constitute the Contractor's guarantee to the Owner that the warranty will be performed in accordance with its terms and conditions.

3.4.3 At the end of this subparagraph, add the following:

"The Contractor shall employ labor subject to contract terms and conditions in order to ensure harmonious labor relations on the site and prevent strikes or labor disputes. The Contractor, in the event of a labor dispute including strikes, shall take whatever action is required at no expense to the Owner to prevent the disruption of the Work. The Contractor shall not permit employment of any person who is not of good character and morals nor permit disorderly or indecent conduct on the job site. He shall not permit the consumption of alcoholic beverages or illegal drugs on the job site nor permit any employment or person under his supervision or control to be under the influence thereof."

Add new Subparagraphs as follows:

* (Statutory reference: M.G.L. c.149, §§30 and 34)

"No laborer, worker, mechanic, foreman or inspector working within this Commonwealth in the employ of the Contractor, Subcontractor or other person doing or contracting to do the whole or part of the Work contemplated by the Contract, shall be required or permitted to work more than eight (8) hours in any one day or more than forty-eight (48) hours in any one week, or more than six (6) days in any one week, except in cases of emergency."

* (Statutory reference: M.G.L. c.149 §25)

"Every employee under the Contract shall lodge, board and trade where and with whom he elects, and neither the Contractor nor his agents or employees shall, either directly or indirectly, require as a condition of the employment of any person that the employee shall lodge, board or trade at a particular place or with a particular person."

* (Statutory Reference: M.G.L. c.149 §34B)

"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 in such city or town."

"The Contractor is solely responsible for the proper and safe operation and maintenance of all utility systems within the construction limits, whether these are supplied by the Owner's distribution system or otherwise, until the Work is accepted by the Owner, and until the Owner has notified the Contractor that other arrangements have been made. The Contractor shall maintain and operate appurtenances within the construction area which serve the distribution system, subject to periodic inspection by the Owner's operating personnel. Inspection by any representative or personnel of the Owner shall not relieve the Contractor of his responsibilities in connection with operation and maintenance of these facilities and equipment. The Contractor shall provide the Owner at least seventy-two (72) hours' advance notice of the Contractor's desire to extend, connect, disconnect, or turn on or off any steam, electric, water, or other service from the Owner's supply systems. The actual operation shall be witnessed and approved by an authorized representative of the Owner. All plumbing, heating, and electrical work, including installation of equipment, and other work to be performed by the Contractor, shall be carried out without interference with the Owner's normal operation. Where any work requires interruption of any service, the Contractor shall make advance arrangements with the Owner for dealing with and minimizing such interruption.

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The Contractor agrees to procure materials, equipment, labor and supplies from such sources and to perform all Work on the Project with labor, material suppliers and Subcontractors that will work harmoniously with the Owner's employees, employees of other contractors employed by the Owner, and with other elements of labor involved in the construction of the Project or the operation of the building in which the Project is located, including, without limitation, any tenant improvement work contractors engaged by Owner or any tenants of Owner."

3.9 Change the title of this article to "Superintendence."

Change the text to read as follows:

"3.9.1 The Contractor shall employ a competent superintendent, reasonably acceptable to the Owner, and necessary assistants who shall be in attendance at the Project site full time and at all times during the progress of the Work until the date of Final Completion. The Contractor shall remove the superintendent if requested to do so in writing by the Owner, and shall promptly replace him with a competent person reasonably acceptable to the Owner, at no increase in the Contract Sum or Contract Time.

3.9.2 The Contractor shall establish the building grades, lines, levels, column, wall and partition lines required by the various Subcontractors in laying out their Work.

3.9.3 The Contractor shall coordinate and supervise the Work performed by Subcontractors to the end that the Work is carried out without conflict between trades so that no trade, at any time, causes delay to the general progress of the Work. The Contractor and all Subcontractors shall at all times afford each trade, any separate contractor, or the Owner, every reasonable opportunity for the installation of Work and the storage of materials.

3.9.4 The Contractor shall attend job meetings with the Owner and its designees from time to time as the Owner may desire. The Contractor shall be represented by a principal, or project manager or by the Contractor's own superintendent. An authorized representative of any Subcontractor or Sub-Subcontractor shall attend such meetings if the representative's presence is requested by the Owner. Such representatives shall be empowered to make binding commitments on all matters to be discussed at such meetings, including costs, payments, Change Orders, time schedules and manpower. Any notices required under the Contract may be served on such representatives."

3.10.4 Add the following subparagraph:

"A copy of the progress schedule shall be kept in the Contractor's field office and be brought up to date weekly to show the actual progress of the Work and to indicate Work to be performed over the next five (5) – ten (10) workdays, for coordination with Owner's administrators. This progress schedule shall clearly show by bar graph or critical path method, as acceptable to the Owner, in sufficient detail, the interrelationships between the various operations and the percentage of completion and the dollar value on the first day of each month for the Work in each section of the specifications and also for the entire Work. The graph shall also show the date that the Work in each section commenced."

3.11 Delete and insert the following in its place:

"The Contractor shall maintain at the construction site a record set of Contract Documents which shall record all deviations from the Drawings and Specifications and shall be updated in detail to reflect the actual progress of the Work. The Owner shall have free and complete access to such Contract Documents during the Work. Upon Substantial Completion, the Contractor shall furnish to the Owner one set of "as built" plans in such form as the Owner shall require. The Contractor shall also maintain a record set of the Specifications, Addenda, Change Orders and other Modifications in good order and marked and annotated currently to record changes made during the Work."

3.13 Change paragraph 3.13 to read as follows:

"3.13 The right of possession of the premises and improvements made thereon shall remain at all times in the Owner. The Contractor's right to entry and use thereof arises solely from the permission granted by the Owner under the Contract Documents. The Contractor shall confine the Contractor's apparatus, the storage of materials and the operations of the Contractor's workmen to limits indicated by law, ordinances, the Contract Documents and permits and/or directions of the Owner and shall not unreasonably encumber the premises with the Contractor's materials. The Owner shall not be liable to the Contractor, the Subcontractors, their employees or anyone else with respect to the conditions of the premises, except only for a condition caused directly and solely by the negligence of the Owner. The Contractor shall at all times maintain a safe workplace, in full compliance with all federal, state, and local health and safety statutes and regulations and shall indemnify and hold harmless the Owner and the Owner's officers, employees, boards, commissions, committees from and against any and all liability, loss, damage or expense arising from Contractor's failure to do so.

The Contractor shall use only areas specifically assigned by the Owner agents, representatives, and assigns for parking, storage of materials and construction operations and shall comply with all Town of Natick municipal regulations regarding use of and parking on public ways. The Contractor shall repair any and all streets, drives, curbs, sidewalks, and landscaping which are disturbed by construction operations and shall leave them in as good condition after completion of the were as they Work in before commencement of the Work. The Contractor shall not place or maintain, or allow to be placed or maintained, on or about the Project site any advertising matter, sign, bill, poster, or billboard of any kind, except those required by law or the Contract Documents, without the prior written consent of the Owner.

* Statutory Reference (M.G.L. c. 149, §44G(D)) Nothing herein shall alter the Contractor's responsibilities pursuant to M.G.L. c. 149, §44G(D), which provides:

"(D) Every contract subject to section forty-four A shall include specifications for the installation of weather protection and shall require that the contractor shall install the same and that he shall furnish adequate heat in the area so protected during the months of November through March. Standards for such specifications shall be established by the commissioner or his designee."

3.18 Delete this Paragraph in its entirety and replace with the following:

"3.18.1 The Contractor shall compensate the Owner for all damage to the Owner's property of any nature arising out of the Contractor's work. To the fullest extent permitted by law, the Contractor shall indemnify, defend, and hold harmless the Owner and the Owner's officers, employees, boards, commissions, committees, agents and representatives from and against all claims, causes of action, suits, costs, damages, and liability of any kind which arise out of the breach by the Contractor of its obligations under the Contract, or the act or omission of the Contractor, its Subcontractors, or their officers, employees, agents and representatives and assigns or anyone directly or indirectly employed by them, or anyone for whose acts or omissions they may be liable, regarding the Work to be performed by the Contractor under the Contract, or which arise out of the violation of any Federal, Massachusetts or local statute, by-law, rule, regulation, order or directive, or which relate to personal injury or property

damage suffered by the Contractor or any of its officers or employees regarding the subject matter of the Contract.

Neither the Owner, nor any of its officers, employees, boards, committees, commissions, agents and representatives shall be under any personal obligation or shall incur any personal liability by reason of the Contract, the execution thereof or anything relating thereto which arises out of the violation of any provision of the Contract, or the violation of any Federal, Massachusetts or local statute, by-law, rule, regulation, order or directive, or which relates to personal injury or property damage suffered by the Contractor or its employees, regarding the subject matter of the Contract."

ARTICLE 4: ARCHITECT

No changes.

ARTICLE 5: SUBCONTRACTORS

5.1.3 Add the following new provision:

"5.1.3 All Subcontractors shall be obligated to the Owner for indemnification defense and to hold the Owner harmless and to have the same insurance requirements and obligations as the Contractor, with the Owner being listed as an additional insured as relates to claims which may be made against the Owner."

5.2.5 Add the following new provision:

"5.2.5 The form of the subcontract shall be submitted to the Owner for its approval, which shall not be unreasonably withheld or delayed. Each subcontract shall expressly provide for such contingent assignment referred to in subparagraph 5.4.1."

5.3.2 Add the following new provision:

"5.3.2 The Contractor shall be fully responsible to the Owner for all acts and omissions of the Subcontractors and Suppliers at all tiers, to the same extent as the Contractor is responsible for the Contractor's own acts and omissions. Nothing in the Contract Documents shall create a contractual relationship between the Owner and any Subcontractor or Supplier, nor create an express or implied duty or obligation on the part of the Owner to any Subcontractor or Supplier or the Subcontractor's sureties, to pay or to see the payment of any monies owed to them."

5.4.2 Delete subparagraph 5.4.2.

ARTICLE 6: CONSTRUCTION BY OWNER OR BY SEPARATE CONTRACTORS

6.1.4 Delete Subparagraph 6.1.4 and insert in its place:

"6.1.4 The Owner reserves the right of access to any part of the Project at all times to install other work either with its own forces or with separate contractors hired by Owner. Such access is not to be construed to mean partial occupancy by the Owner, and no claim for increase in the Contract Time or Sum will be considered unless such Owner's contractors have delayed or damaged the Contractor's work. The Contractor shall permit the Owner to place and to install as much furniture, equipment, wiring, and other materials during the progress of the Work as is possible before the completion of the various parts of the Work and agrees that such placing and installation of equipment shall not in any way evidence the completion or acceptance of the Work or any portion of it."

6.1.5 Add the following new provision:

"6.1.5 The Contractor acknowledges that there may be separate contractors performing other work related to the Project, including, without limitation, utility work and telecommunications work. The Contractor agrees to coordinate the performance of the Work with the Work of such other contractors, and the Contractor covenants and agrees that the Contractors and all of of its forces shall work in harmony with all such separate contractors. The Owner agrees to include a substantially similar provision in its contracts with other contractors performing work at the Project site. "

6.2.4 Add the following at the end of subparagraph 6.2.4:

"If such separate contractor sues the Owner on account of any damage alleged to have been caused by the Contractor, the Owner shall notify the Contractor, who shall defend such proceedings at the Contractor's expense, and if any judgment or award against the Owner arises therefrom, the Contractor shall pay or satisfy it and shall reimburse the Owner for all attorneys' fees and court costs which the Owner has incurred. The Owner shall have no responsibility for attorneys' fees or court or arbitration costs that the Contractor has incurred.

6.2.5 Delete subparagraph 6.2.5. Add the following as new subparagraph 6.2.5:

"6.2.5 Should the Contractor sustain damage through an act or omission of a Subcontractor or any party providing labor, materials, equipment, or services to the Contractor, the Contractor shall have no claim against the Owner for such damage."

ARTICLE 7: CHANGES IN THE WORK

Delete all in its entirely. Replace with the following:

7.1 GENERAL

A Change Order is a written order to the Contract signed to show the recommendation of the Project Manager, the approval and the authorization of the Owner, executed with the same formality as the Contract, issued after the execution of the Contract, authorizing a change in the Work or an adjustment in the Contract Sum or the Contract Time. The Contract Sum and Contract Time may be changed only by Change Order. A Change Order signed by the Contractor indicates the Contractor's Contract therewith, including the adjustment in the Contract Sum or the Contract Time.

A Change Order request may originate with the Owner, the Project Manager, or the Contractor and shall be submitted to the Owner. The Change Order request must be made in writing and in accordance with the provisions of the Contact and applicable procedures of the Owner. The term equitable adjustment, as used in this paragraph, shall include all adjustments to the Contract Price or to the Time to which the Contractor is entitled, pursuant to M.G.L.. c.30, Sections 39N and 39O. Such equitable adjustment shall be made in accordance with the provisions of this Article.

A Change Order may be submitted for changes in the Contract work, including but not limited to, changes in:

- (a) the plans and specifications
- (b) in the method or manner or performance of the Work; and/or
- (c) in the schedule for performance of the Work.

Whenever a Change Order is requested or ordered, and said Change Order will cause an adjustment in the Contractor's cost, the Contractor may request an equitable adjustment in writing in the Contract price. The Owner and the Contractor shall attempt to negotiate an equitable adjustment in the Contract price before commencement of the pertinent work. In the absence of an Contract for an equitable adjustment and when so directed, the Contractor shall proceed with the Change Order work on a time and material basis as provided in subparagraph 7.2(c) of this Article, and the Contractor will provide the Owner with a written notice to that effect.

Contractor shall provide the Owner with all cost and pricing data used in computing the amount of the equitable adjustment, and the Contractor shall certify that the pricing data used was accurate, complete, and current.

7.1.1 With respect to any sum of money due to be paid by the Contractor to the Owner under the Contract, an appropriate Change Order shall be issued deducting said sum of money from payments then due or thereafter due to the Contractor from the Owner. If such deductions from payments then due or thereafter due to the Contractor from the Owner are not sufficient to cover such amounts, the Contractor shall pay the difference to the Owner.

7.2 COMPUTING EQUITABLE ADJUSTMENTS

Equitable adjustments in the Contract price shall be determined according to one of the following methods, or a combination thereof, as determined by the Owner:

(a) fixed price basis, provided that the fixed price shall be inclusive of items (1) through (5) (below) and shall be computed in accordance with those provisions;

(b) estimated lump sum basis, to be adjusted in accordance with contract unit prices, or other agreed upon unit prices provided that the unit prices shall be inclusive of all costs related to such equitable adjustment;

(c) time and materials basis, on a not-to-exceed predetermined upset amount to be subsequently adjusted on the basis of actual costs based on the following items (1) through (5):

(1) the cost at prevailing rates for direct labor, material, supplies and use of equipment exclusive of hand tools;

(2) plus cost of Workers' Compensation Insurance, union fringe benefits, federal unemployment taxes, Federal Social Security, and Massachusetts

Unemployment Compensation, or, as an alternative the Contractor may elect to use a flat twenty (20%) percent of the total labor rate in item (I);

(3) plus fifteen (15%) percent of item (I) for overhead, superintendence, and profit, which will be paid to the Contractor for work performed by the Contractors' own trade forces (for work performed by a Subcontractor, the Subcontractor will be entitled to a fifteen (15%) percent mark-up and the Contractor to a five (5%) percent mark-up; for work performed by a Subsubcontractor, the Subcontractor, the Subcontractor will be entitled to a five (5%) percent mark-up; for work performed by a Subsubcontractor, the Subcontractor to a five (5%) percent mark-up, and the Contractor to a five (5%) percent markup;

(4) if the net change is in addition to the contract price, it shall include the Contractor's overhead, superintendence, and profit. On any change which involves a net credit, no allowances for overhead, superintendence, and profit shall be figured;

(5) plus actual direct premium cost of payment and performance bonds required of the Contractor and its Subcontractors, provided there will be an appropriate credit for bond premiums in the case of a credit Change Order.

(d) If unit prices are stated in the Contract Documents or subsequently agreed upon, or if quantities originally contemplated are so changed in a proposed Change Order or Construction Change Directive that application of such unit prices to quantities of Work proposed will cause substantial inequity to the Owner or Contractor, the applicable unit prices shall be equitably adjusted.

7.3 WORK PERFORMED UNDER PROTEST

The Contractor shall perform all work as directed by the Owner and if the Owner determines that certain work for which the Contractor has requested a Change Order does not represent a change in the Contract, or if the Contractor and Owner cannot agree to the amount of compensation for a Change Order, the Contractor shall perform said work under protest and must follow the procedures described in the following subparagraphs (a) and (b):

(a) If the Contractor claims compensation for a Change Order not approved by the Owner, the Contractor shall, on or before the first working day following commencement of any such work or sustaining of any such damage, submit to the Owner's representative a written statement of the nature of such work or damage sustained. The Contractor will not be entitled to compensation for any portion of its Change Order claim related to work performed prior to the Owner's receipt of the written statement referred to in the previous sentence.

(b) On or before the second (2nd) working day after the commencement of such work or sustaining of such damage, and daily thereafter, the Contractor shall file to the extent possible with the Owner itemized statements of the details and costs of such work performed or damage sustained; calculated pursuant to subparagraph 7.2c or this Article; and unless such statements shall be made as so required, its claim for such compensation shall be forfeited and invalid and it shall not be entitled to payment on account of any such work or damage.

(c) The Owner shall have the right to reject Change Orders executed by the Contractor under a reservation of rights.

7.4 COMPUTING TIME EXTENSIONS

Contract Time shall not be changed due to a delay in the Contractor's early completion date until all Contract Float is used and performance of the specified work necessarily extends beyond the Contract Time. The Contract Float is the period during which the schedule entitles the contractor to an excusable delay even though the original Contract delivery or completion schedule allows more time than is actually necessary to perform the Work. An extension in Contract Time will not be approved unless the Contractor demonstrates through a detailed Critical Path Method (CPM) schedule analysis that unforeseeable causes, beyond the control of and without the fault or negligence of both the Contractor and the Subcontractors or Suppliers at any tier, led to performance or completion of all or part of the Work beyond the corresponding Contract Time despite the Contractor's reasonable and diligent actions. If granted, an extension in Contract Time shall be the Contractor's sole and exclusive remedy for any delay, disruption, interference, hindrance, and associated costs, however caused.

7.5 STATUTORY PROVISIONS – DIFFERING SITE CONDITIONS; TIMELY DECISIONS

The Contractor's attention is directed to M.G.L. c.30, sections 39I, 39J, 39N, 39O, and 39P, as well as to 39G (if applicable), the provisions of which apply to the Contract.

*(a) Differing Site Conditions, M.G.L. c.30, section 39N.

"If, during the progress of the Work, the Contractor or the Owner 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 Owner may request an equitable adjustment in the Contract price 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 as discovered. Upon receipt of such a claim from a Contractor, or upon its own initiative, the Owner 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 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 Owner shall upon submission by the Contractor of a properly submitted change order request, make an equitable adjustment in the Contract price and the Contract shall be modified in writing accordingly."

*(b) Timely decision by the Owner. M.G.L. c.30, Section 39P.

"Whenever the Contract requires the Owner to make a decision during construction of the Project on interpretation of the specifications, approval of equipment, material, or any other approval, or progress of the Work, that decision shall be made promptly and, in the event, no later than thirty (30) days after receipt of a written submission for such decision by the Contractor, but if such decision requires extended investigation and study, the Owner shall, within thirty (30) days after the receipt of the submission, give the Contractor written notice of the reasons why the decision cannot be made within the thirty (30) day period and the date by which the decision will be made."

7.6 Add new Paragraph 7.6 as follows:

7.6* CERTIFICATE OF APPROPRIATIONS

7.6.1* Statutory reference: M.G.L. c.44 §31C)

"The Contract shall not be deemed to have been made until the auditor or accountant or other officer of the city or town having similar duties has certified thereon that an appropriation in the amount of the Contract is available therefor and that an officer or agent of the city, town, or Awarding Authority has been authorized to execute said contract and approve all requisitions and change orders. No order to the Contractor for a change in or addition to the Work, whether in the form of a drawing,

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plan, detail or any other written instruction, unless it is an order which the Contractor is willing to perform without any increase in the contract price, shall be deemed to be given until the auditor or accountant, or other officer of the Awarding Authority having similar duties, has certified thereon that an appropriation in the amount of such order is available therefor; but such certificate shall not be construed as an admission by the Awarding Authority of its liability to pay for such work. The certificate of the auditor or accountant or other officer of the Awarding Authority having similar duties that an appropriation in the amount of the Contract or in the amount of such order is available shall bar any defense by the Awarding Authority on the grounds of insufficient appropriation."

ARTICLE 8: TIME

8.3.4 Add the following language:

The Owner and the Contractor shall comply with M.G.L. c.30, §39K, as stated in Article 9.6, below.

The Owner and the Contractor shall also comply with M.G.L. c. 30, §390:

*(Statutory reference: M.G.L., c.30 §390)

"(a) The Awarding Authority may order the Contractor in writing to suspend, delay, or interrupt all or any part of the Work for such period of time as it may determine to be appropriate for the convenience of the Awarding Authority; provided, however, that if there is a suspension, delay or interruption for fifteen (15) days or more or due to a failure of the Awarding Authority to act within the time specified in the Contract, the Awarding Authority shall make an adjustment in the contract price for any increase in the cost of performance of the Contract but shall not include any profit to the 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 the Contract provides for an equitable adjustment of the contract price under any other contract provisions.

(b) The Contractor shall 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 the 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 (20) days before the Contractor notified the Awarding Authority in writing of the act or failure to act involved in the claim.

In the event a suspension, delay, interruption or failure to act of the Awarding Authority increases the cost of performance to any Subcontractor, that Subcontractor shall have the same rights against the Contractor for payment for an increase in the cost of his performance as provisions (a) and (b) give the Contractor against the Awarding Authority, but nothing in provisions (a) and (b) shall in any way change, modify or alter any other rights which the Contractor or the Subcontractor may have against each other."

ARTICLE 9: PAYMENTS AND COMPLETION

9.6: Delete all and add new Sub-subparagraphs 9.6.1.1 through 9.6.1.4, as follows: (Statutory reference: M.G.L. c.30 §39K)

"9.6.1.1" Within fifteen (15) days (thirty (30) days in the case of the Commonwealth, including local housing authority) after receipt from the Contractor, at the place designated by the Awarding Authority if such a place is so designated, of a periodic estimate requesting payment of the amount due for the preceding month, the Awarding Authority will make a periodic payment to the Contractor for the Work performed during the preceding month and for the materials not incorporated in the Work but delivered and suitably stored at the site (or some location agreed upon in writing) to which the Contractor has title or to which a Subcontractor has title and has authorized the Contractor to transfer title to the Awarding Authority, upon certification by the Contractor that he is the lawful owner and the materials are free from all encumbrances, but less (1) a retention based on its estimate of the fair value of its claims against the Contractor and less (2) a retention for direct payments to Subcontractors based on demands for same in accordance with the provisions of Subparagraph 9.6.2, and less (3) a retention not exceeding five (5) percent of the approved amount of the periodic payment. After the receipt of a periodic estimate requesting final payment and within sixty-five (65) days after (a) the Contractor fully completes the Work or substantially completes the Work so that the value of the Work remaining to be done is, in the estimate of the Awarding Authority, less than one (1) percent of the original Contract price, or (b) the Contractor substantially completes the Work and the Awarding Authority takes possession for occupancy, whichever occurs first, the Awarding Authority shall pay the Contractor the entire balance due on the Contract less (1) a retention based on its estimate of the fair value of its claims against the Contractor and of the cost of completing the incomplete and unsatisfactory items of work and less (2) a retention for direct payments to Subcontractors based on demands for same in accordance with the provisions of Subparagraph 9.6.2 of these Supplementary General Conditions, or based on the record of payments by the Contractor to the Subcontractors under the Contract if such record of payment indicates that the Contractor has not paid Subcontractors as provided in Subparagraph 9.6.2. If the Awarding Authority fails to make payment as herein provided, there shall be added to each such payment daily interest at the rate of three (3) percentage points above the rediscount rate then charged by the Federal Reserve Bank of Boston commencing on the first day after said payment is due and continuing until the payment is delivered or mailed to the Contractor; provided, that no interest shall be due, in any event, on the amount due on a periodic estimate for final payment until fifteen (15) days (twenty four (24) days in the case of the Commonwealth, including local housing authority) after receipt of such periodic estimate from the Contractor, at the place designated by the Awarding Authority if such a place is so designated. The Contractor agrees to pay to each Subcontractor a portion of any such interest paid in accordance with the amount due each Subcontractor.

9.6.1.2* The Awarding Authority may make changes in any periodic estimate submitted by the Contractor, and the payment due on said periodic estimate shall be computed in accordance with the changes so made, but such changes or any requirement for a corrected periodic estimate shall not affect the due date for the periodic payment or the date for the commencement of interest charges on the amount of the periodic payment computed in accordance with the changes made, as provided herein; provided, that the Awarding Authority may, within seven (7) days after receipt, return to the Contractor for correction, any periodic estimate which is not in the required form or which contains computations not arithmetically correct and, in that event, the date of receipt of such periodic estimate in proper form and with arithmetically correct computations. The date of receipt of a periodic estimate received on a Saturday shall be the first working day thereafter.

9.6.1.3* All periodic estimates shall be submitted to the Awarding Authority, or to its designee as set forth in writing to the Contractor, and the date of receipt by the Awarding Authority or its designee shall be marked on the estimate. All periodic estimates shall contain a separate item for each subtrade and each subsubtrade listed in sub-bid form as required by specifications and a column listing the amount paid to each Subcontractor and sub-subcontractor as of the date the periodic estimate is filed. The person making payment for the Awarding Authority shall add the daily interest provided for herein to each payment for each day beyond the due date based on the date of receipt marked on the estimate.

9.6.1.4* A certificate of the Owner to the effect that the Contractor has fully or substantially completed the Work shall, subject to the provisions of Subparagraph 4.6.2 be conclusive for the purposes of this Subparagraph 9.6.1."

9.6.2 Add new Sub-subparagraphs 9.6.2.1 through 9.6.2.13, as follows: (Statutory reference: M.G.L. c.30 §39F)

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

9.6.2.2* Not later than the sixty-fifth (65th) 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 Contractor. The 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 Contractor.

9.6.2.3* Each payment made by the Awarding Authority to the Contractor pursuant to Sub-subparagraphs 9.6.2.1 and 9.6.2.2 for the labor performed and the materials furnished by a Subcontractor shall be made to the Contractor for the account of that Subcontractor; and the Awarding Authority shall take reasonable steps to compel the 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 Contractor or which is to be included in a payment to the Subcontractor as provided in Sub-subparagraphs 9.6.2.1 and 9.6.2.2, the Awarding Authority shall act upon the demand as provided in this Subparagraph 9.6.2.

9.6.2.4* If, within seventy (70) days after the Subcontractor has substantially completed the subcontract work, the Subcontractor has not received from the Contractor the balance due under the subcontract including any amount due for extra labor and materials furnished to the Contractor, less any amount retained by the 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 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 (70th) day after the Subcontractor has substantially completed the subcontract work. Within ten (10) days after the Subcontractor has delivered or so mailed the demand to the Awarding Authority and delivered or so mailed a copy to the Contractor, the Contractor may reply to the demand. The reply shall be by a sworn statement delivered to or sent by certified mail to the 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 Contractor and of the amount due for each claim made by the Contractor against the Subcontractor.

9.6.2.5* Within fifteen (15) days after receipt of the demand by the Awarding Authority, but in no event prior to the seventieth (70th) 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 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 Contractor in the sworn reply; provided that the Awarding Authority shall not deduct from a direct payment any amount as provided in part (iii) if the reply is not sworn to, or for which the sworn reply does not contain the detailed breakdown required by Sub-subparagraph 9.6.2.4. 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 Sub-subparagraph.

9.6.2.6* The Awarding Authority shall forthwith deposit the amount deducted from a direct payment as provided in part (iii) of Sub-subparagraph 9.6.2.5 in an interest-bearing joint account in the names of the Contractor and the Subcontractor in a bank in Massachusetts selected by the Awarding Authority 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 Contract between the Contractor and the Subcontractor of a court of competent jurisdiction.

9.6.2.7* All direct payments and all deductions from demands for direct payments deposited in an interest-bearing account or accounts in a bank pursuant to Sub-subparagraph 9.6.2.6 shall be made out of amounts payable to the Contractor at the time of receipt of a demand for direct payment from a Subcontractor and out of amounts which later become payable to the Contractor

and in the order of receipt of such demands from Subcontractors. All direct payments shall discharge the obligation of the Awarding Authority to the Contractor to the extent of such payment.

9.6.2.8* The Awarding Authority shall deduct from payments to a Contractor amounts which, together with the deposits in interest-bearing accounts pursuant to Sub-subparagraph 9.6.2.6, are sufficient to satisfy all unpaid balances of demands for direct payment received from Subcontractors. All such amounts shall be earmarked for such direct payments, and the Subcontractors shall have a right in such deductions prior to any claims against such amounts by creditors of the Contractor.

9.6.2.9* If the Subcontractor does not receive payment as provided in Subsubparagraph 9.6.2.1 or if the Contractor does not submit a periodic estimate for the value of the labor or materials performed or furnished by the Subcontractor and the Subcontractor does not receive payment for same when due less the deductions provided for in Sub-subparagraph 9.6.2.1, the Subcontractor may demand direct payment by following the procedure in Sub-subparagraph 9.6.2.4 and the Contractor may file a sworn reply as provided in that same Subsubparagraph. 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 Awarding Authority shall proceed as provided in Subsubparagraphs 9.6.2.5 through 9.6.2.8

9.6.2.10* Any assignment by a Subcontractor of the rights under this section to a surety company furnishing a bond under the provisions of M.G.L. c.149, §29 shall be invalid. The assignment and subrogation rights of the surety to amounts included in a demand for direct payment which are in the possession of the Awarding Authority or which are on deposit pursuant to Sub-subparagraph 9.6.2.6 shall be subordinate to the rights of all Subcontractors who are entitled to be paid under this section and who have not been paid in full.

9.6.2.11* "Subcontractor" as used in Sub-subparagraphs 9.6.2.1 through 9.6.2.13 shall mean a person who is approved by the Awarding Authority in writing as a person performing labor or both performing labor and furnishing materials pursuant to a contract with the Contractor.

9.6.2.12* A Contractor or a Subcontractor shall enforce a claim to any portion of the amount of a demand for direct payment deposited as provided in Subsubparagraph 9.6.2.6 by a petition in equity in the superior court against the other and the bank shall not be a necessary party. A Subcontractor shall enforce a claim for direct payment or a right to require a deposit as provided in Subsubparagraph 9.6.2.6 by a petition in equity in the superior court against the Awarding Authority and the Contractor shall not be a necessary party. Upon motion of any party the court shall advance for speedy trial any petition filed as provided in this paragraph. M.G.L. c.231, §§59 and 59B shall apply to such petitions. The court shall enter an interlocutory decree upon which execution shall issue for any part of a claim found due pursuant to §§59 and 59B and, upon motion of any party, shall advance for speedy trial the petition to collect the remainder of the claim. Any party aggrieved by such interlocutory decree shall have the right to appeal therefrom as from a final decree. The court shall not consolidate for trial the petition of any Subcontractor with the petition of one or more Subcontractors of the same general contract unless the court finds that a substantial portion of the evidence of the same events during the course of construction (other than the fact that the claims sought to be consolidated arise under the same general contract) is applicable to the petitions sought to be consolidated and that such consolidation will prevent unnecessary duplication of evidence. A decree in any such proceeding shall not include interest on the disputed amount deposited in excess of the interest earned for the period of any such deposit. No person except a Subcontractor filing a demand for direct payment for which no funds due the Contractor are available for direct payment shall have a right to file a petition in a court of equity against the Awarding Authority claiming a demand for direct payment is premature, and such Subcontractor must file the petition before the Awarding Authority has made a direct payment to the Subcontractor and has made a deposit of the disputed portion as provided in part (iii) of Sub-subparagraph 9.6.2.5 and in Subsubparagraph 9.6.2.6.

9.6.2.13* In any petition to collect any claim for which a Subcontractor has filed a demand for direct payment the court shall, upon motion of the Contractor, reduce by the amount of any deposit of a disputed amount by the Awarding Authority as provided in part (iii) of Sub-subparagraph 9.6.2.5 and in Sub-subparagraph 9.6.2.6 any amount held under a trustee writ or pursuant to a restraining order or injunction."

ARTICLE 10: PROTECTION OF PERSONS AND PROPERTY

10.1 Add the following language to the end of the present text:

* Statutory Reference (M.G.L. c. 149, §44G(D))

The Contractor shall comply with M.G.L. c. 149, §44G(D), which provides:

"(D) Every contract subject to section forty-four A shall include specifications for the installation of weather protection and shall require that the contractor shall install the same and that he shall furnish adequate heat in the area so protected during the months of November through March. Standards for such specifications shall be established by the commissioner or his designee.'

Prior to commencing services under this Contract, the Contractor shall furnish the Owner, in writing, the names, addresses and telephone numbers of not fewer than two (2) principal employees of his business who are to be contacted in the event of an after-hours emergency."

10.2.8 Add the following language after the present text:

"The Contractor shall promptly remedy damage and loss to property of the Owner. If the damage or loss is due in whole or in part to Contractor's failure to take the precautions required in Article 10, the Contractor shall, subject to any reimbursement to which the Contractor is entitled under Property insurance required by the Contract Documents, bear the cost. The Contractor shall be fully and solely responsible for all Work and other operations carried out on any adjacent properties. The insurance required under the General Conditions, as modified by the Supplementary General Conditions, shall cover such Work operations, and the Contractor shall indemnify and defend the Owner from and against any and all claims suits, losses or costs arising out of such Work or operations or caused by the failure of the Subcontractor, regardless of tier, or anyone directly or indirectly employed by any of them or anyone for whose acts they may be liable, to take precautions required by Article 10."

10.2.9-

10.2.12 Add the following new provisions:

"10.2.9 The Contractor shall provide and maintain in good operating condition suitable, adequate fire protection equipment and services, and shall comply with all reasonable recommendations regarding fire protection made by the representatives of the insurance company carrying insurance on the Work or by the local fire chief or state fire marshal. The area within the site limits shall be kept orderly and clean, and all combustible rubbish shall be promptly removed from the site.

10.2.10 The Contractor shall at all times protect excavations, trenches, filing material from rain water, ground water, backup or leakage of sewers, drains, and piping, and from water of any other origin and shall remove promptly any accumulation of water. The Contractor shall provide and operate all pumps, piping and other equipment necessary to this end.

10.2.11 The Contractor shall remove all snow and ice which may result in damage or delay.

10.2.12 The Contractor shall arrange for, coordinate and pay all costs associated with crossing guards and police details required for the Work."

10.3 Delete the present text and replace with the following language:

"In the event that the Contractor encounters on the site material reasonably believed to be asbestos, polychlorinated biphenyl (PCB), or any other toxic or hazardous waste or oil as defined by M.G.L. c. 21E, which has not been rendered harmless, the Contractor shall immediately stop work in the area affected and shall immediately notify the Owner in writing. Work in the area affected shall not be resumed except upon written order of the Owner."

ARTICLE 11: INSURANCE AND BONDS

11.1 Delete Article 11.1 and replace with the following text:

"The Contractor shall provide and maintain throughout the term of the Contract and any extension or renewal thereof the following insurance with companies that are authorized and licensed in the Commonwealth of Massachusetts to issue policies for the coverages and limits so required. The Contractor shall also ensure that any and all Subcontractors and sub-subcontractors provide insurance in the following limits and that the Owner is named as an additional insured and meet the following requirements.

a. Workers' Compensation Insurance as required by the laws of the Commonwealth of Massachusetts and Employer's Liability Insurance in the amount of \$1,000,000/\$1,000,000/\$1,000,000.

b. Commercial General Liability Insurance, \$1,000,000 each occurrence and \$2,000,000 aggregate limit. Commercial General Liability insurance shall include personal injury liability, broad form property damage liability, products/completed operations liability and broad form contractual liability. Products/completed operations liability insurance shall be maintained for at least three (3) years after the completion of the Work required to be performed by the Contractor under the Contract.

c. Automobile Liability Insurance – Combined single limit of \$1,000,000.

d. Professional Liability Insurance - If the Contractor or any Subcontractor or Sub-subcontractor provides architectural, design, and/or architecting services, the Contractor shall procure professional liability insurance with limits of \$1,000,000 per occurrence and \$2,000,000 aggregate.

e. Pollution/Environmental Legal Liability - Combined single limit of \$1,000,000.

f. Aviation and/or Marine Insurance – DELETED

g. Excess Liability Insurance, Umbrella Form - \$2,000,000 per occurrence and \$2,000,000 aggregate limit, which shall be following form, providing coverage over commercial general liability insurance, automobile liability insurance, pollution/environmental legal liability insurance, and employer's liability under workers' compensation insurance.

The Owner shall be named as an additional insured on each such policy of Commercial General Liability Insurance, Excess Liability insurance, Umbrella Form, Automobile Liability Insurance, Pollution/Environmental Legal Liability.

h. Owner's Protective Liability Insurance, issued to the Owner at the expense of the Contractor, with the Owner only as named insured - \$1,000,000 each occurrence and \$2,000,000 aggregate limit.

i. 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.

j. All certificates and policies shall contain the following provision:

"Notwithstanding any other provision herein, should any of the above policies be cancelled or materially amended before the expiration date thereof, the issuing company will mail thirty (30) days prior written notice thereof to the named certificate holder and to the Natick Board of Selectmen, Natick Town Hall, 13 East Central Street, Natick, MA 01760, before such cancellation or amendment shall take place."

k. Certificates evidencing such insurance in five (5) copies shall be furnished to the Owner at the execution of the Contract. Such certificated

shall not merely name the types of policies provided, but shall specifically refer to the Contract and shall state that such insurance is as required by the Contract. The Contractor shall make no claims against the Owner or their officers for any injury to any officers or employees or for damage to its equipment arising out of work contemplated by the Contract.

I. The Contractor shall also be required to provide to the Owner with its proof of insurance coverage endorsements or riders to the policies of commercial general liability insurance, automobile liability insurance, pollution/environmental legal liability insurance and excess umbrella liability insurance, umbrella form, which indicate that the Owner is named as an additional insured on each such policy.

m. No insurance shall be obtained from an insurer which:

i. is not licensed to sell insurance in the Commonwealth of Massachusetts; or

ii. is not authorized to provide insurance as an excess or surplus lines insurer, and does not have a current Best's rating of A or better."

11.4.3 Add the following paragraph:

"The Contractor shall furnish a Performance Bond, acceptable to the Owner, as security for the faithful performance of its obligations under the Contract. Said Performance Bond shall be in the amount of one hundred percent (100%) of the Contract Price and shall be issued by a surety company qualified to do business under the laws of the Commonwealth of Massachusetts and approved by the Owner. Said Performance Bond shall obligate the Contractor, its surety, and their successors and assigns for all of the Work required to be performed by the Contractor under the Contract. Said Performance Bond shall remain in effect no less than one (1) year after the expiration of the term of the Contract, or any extension or renewal thereof."

The Contractor shall furnish a Payment Bond, acceptable to the Owner, as security for the faithful payment of its obligations under the Contract. Said Payment Bond shall be in the amount of one hundred percent (100%) of the Contract Price and shall be issued by a surety company qualified to do business under the laws of the Commonwealth of Massachusetts and approved by the Owner. Said Payment Bond shall obligate the Contractor, its surety, and their successors and assigns to pay for labor, materials and equipment furnished for use regarding the Work to be performed by the Contractor under the Contract. Said Payment Bond shall remain in effect no less than one (1) year after the expiration of the term of the Contract, or any extension or renewal thereof."

ARTICLE 12: UNCOVERING AND CORRECTION OF WORK

12.2.1 In the second sentence, insert the words "and any cost, loss or damage to the Owner resulting from such failure or defect," between the words "thereby," and "shall."

12.2.5 In the second sentence, insert the words "and to pay any cost, loss, or damage incurred by the Owner resulting from such breach, failure, or defect" between the words "Documents" and "may."

ARTICLE 13:STATUTORY PROVISIONS

Renumber Article 13 as Article 17, and renumber paragraphs 13.01 through 13.07 as paragraphs 17.01 through 17.07.

Insert new paragraphs 13.1 through 13.7 in the General Conditions:

"ARTICLE 13 - CONTRACTOR'S ACCOUNTING METHOD REQUIREMENTS

(Statutory reference: M.G.L. c.30, §39R)

SC_13.1*-

SC-13.5* Add new paragraphs 13.1 through 13.5, to the General Conditions as follows:

"13.1 The words defined herein shall have the meaning stated below whenever they appear in this Article 13:

13.1.1 "Contractor" means any person, corporation, partnership, joint venture, sole proprietorship, or other entity awarded a contract pursuant to §39M of c.30, §§44A-44H inclusive, of c.149, §11C of c.25, or (§§44 et seq. inclusive, of c.7C), which is for an amount or estimated amount greater than one hundred thousand dollars.

13.1.2 "Contract" means any contract awarded or executed pursuant to (§§44 et seq. inclusive, of c.7C), and any contract awarded or executed pursuant to §11C of c.25A, §39M of c.30, or §§44A-44H, inclusive, of c.149, which is for an amount or estimated amount greater than one hundred thousand dollars.

13.1.3 "Records" means books of original entry, accounts, checks, bank statements and all other banking documents, correspondence, memoranda, invoices, computer printouts, tapes, discs, papers and other documents or transcribed information of any type, whether expressed in ordinary or machine language.

13.1.4 "Independent Certified Public Accountant" means a person duly registered in good standing and entitled to practice as a certified public accountant under the laws of the place of his/her residence or principal office and who is in fact independent. In determining whether an accountant is independent with respect to a particular person, appropriate consideration should be given to all relationships between the accountant and that person or any affiliate thereof. Determination of an accountant's independence shall not be confined to the relationships existing in connection with the filing of reports with the Awarding Authority.

13.1.5 "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 principles and auditing standards for the purpose of expressing a CERTIFIED opinion thereon, or, in the alternative, a qualified opinion or a declination to express an opinion for stated reasons.

13.1.6 "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 s/he 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 therefor shall be stated. An accountant's report shall include as a 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.

13.1.7 "Management", when used herein, means the chief executive officers, partners, principals, or other person or persons primarily responsible for the financial and operational policies and practices of the Contractor.

13.1.8 Accounting terms, unless otherwise defined herein, shall have a meaning in accordance with generally accepted accounting principles and auditing standards.

13.2 Every Contract or contract awarded or executed pursuant to (§§44 et seq. inclusive, of c.7C), §11C of c.25A, and pursuant to §39M of c.30 or to §§44A-44H, inclusive, of c.149, shall provide that:

13.2.1 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.

13.2.2 Until the expiration of six years after final payment, the Awarding Authority, Office of 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/her Subcontractors that directly pertain to, and involve transactions relating to, the Contractor or his/her Subcontractors.

13.2.3 If the Contract 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 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.

13.2.4 If the Contract is a contract as defined herein, the Contractor has filed a statement of management on internal accounting controls as set forth in Paragraph 13.3 below prior to the execution of the contract.

13.2.5 If the Contract 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 13.5 below.

13.3 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:

13.3.1 transactions are executed in accordance with management's general and specific authorization;

13.3.2 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;

13.3.3 access to assets is permitted only in accordance with management's general or specific authorization; and

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

13.4 Every Contractor awarded a contract shall also file with the Awarding Authority a statement prepared and signed by an independent certified public accountant, stating that he or she has examined the statement of management on internal accounting controls, and expressing an opinion as to

13.4.1 whether the representations of management in response to this paragraph and Paragraph 13.2 above are consistent with the result of management's evaluation of the system of internal accounting controls; and

13.4.2 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.

13.5 Every Contractor awarded a contract by the Commonwealth or by any political subdivision thereof shall

annually file with the Commissioner of Division of Capital Asset Management during the term of the Contract a financial statement prepared by an independent certified public accountant on the basis of an audit by such accountant. The final statement filed shall include the date of final payment. All statements shall be accompanied by an accountant's report. Such statement shall be made available to the Owner upon request.

13.6 Records and statements required to be made, kept or filed under the provisions of this Article 13 shall not be public records as defined in M.G.L. c.4, §7 and shall not be open to public inspection; provided, however, that such records and statements shall be made available pursuant to the provisions of Subparagraph 13.2.2 and 13.5."

13.7 M.G.L. Chapter 30, Section 39M (b) provides that, where a proprietary specification is used: "(b) Specifications for such contracts, and specifications for contracts awarded pursuant to the provisions of said sections forty-four A to forty-four L of said chapter one hundred and forty-nine, shall be written to provide for full competition for each item of material to be furnished under the contract; except, however, that said specifications may be otherwise written for sound reasons in the public interest stated in writing in the public records of the Awarding Authority or promptly given in writing by the Awarding Authority to anyone making a written request therefor, in either instance such writing to be prepared after reasonable investigation. Every such contract shall provide that an item equal to that named or described in the said specifications may be furnished; and an item shall be considered equal to the item so named or described if, in the opinion of the Awarding Authority: (1) it is at least equal in guality, durability, appearance, strength and design, (2) it will perform at least equally the function imposed by the general design for the public work being contracted for or the material being purchased, and (3) it conforms substantially, even with deviations, to the detailed requirements for the item in the said specifications. For each item of material the specifications shall provide for either a minimum of three named brands of material or a description of material which can be met by a minimum of three manufacturers or producers, and for the equal of any one of said name or described materials."

13.8 Additional Statutory Incorporations - The Contract shall be considered to include in their entirety all terms respecting workers' compensation insurance and other terms required to be included in it by Chapter 152 of the Massachusetts General Laws, as amended, and applicable provisions of any other laws, including, without limitation, Chapter 30, Sections 39F, 39G, 39K, 39L, 39M, 39N, 39O, 39P, and 39R of the Massachusetts General Laws, as amended, and Chapter 149, Sections 34, 34A, and 34B of the Massachusetts General Laws, as amended, and Chapter 82, Section 40 of the Massachusetts General Laws, as amended, as though such terms were set forth in their entirety herein.

ARTICLE 14: TERMINATION OR SUSPENSION OF THE CONTRACT

14.2 - Replace Article 14.2 with the following:

"14.2 TERMINATION BY THE OWNER

If the Contractor is adjudged a bankrupt, or if the Contractor makes a general assignment for the benefit of the Contractor's creditors, or if a receiver is appointed on account of the Contractor's insolvency, or if the Contractor persistently or repeatedly refuses or fails, except in cases for which extension of time is provided, to supply enough properly skilled workmen or proper materials, or if the Contractor fails to make prompt payment to Subcontractors or for materials or labor, or persistently disregards laws, ordinances, rules, regulations or orders of any public authority having jurisdiction or disregards an instruction, order or decision of the Owner, or otherwise is guilty of a substantial violation of any provision of the Contract, then the Contractor shall be in default, and the Owner may, without prejudice to any other right or remedy and upon written notice to the Contractor, take possession of all materials, tools, appliances, equipment, construction equipment and machinery and vehicles, offices and other facilities on the Project site, and all materials intended for the Work, wherever stored, and, seven (7) days after such notice, may, if such default is not cured within such seven (7) day period, terminate the Contract, terminate the employment of the Contractor, accept assignment of any or all subcontracts pursuant to Paragraph 5.4, and finish the Work by whatever method the Owner may deem expedient. The Owner shall be entitled to collect from the Contractor all direct, indirect, and consequential damages suffered by the Owner on

account of the Contractor's default, including without limitation additional services and expenses of the Owner made necessary thereby. The Owner shall be entitled to hold all amounts due the Contractor at the date of termination until all of the Owner's damages have been established, and to apply such amounts to such damages."

ARTICLE 15: CLAIMS AND DISPUTES

- 15.3 Delete all references to arbitration.
- 15.4 Delete the arbitration provision in its entirety.

ARTICLES 16 : NONDISCRIMINATION IN EMPLOYMENT

16.1 Contracts for work under this bid will obligate the Contractor and Subcontractors not to discriminate in employment practices.

16.2 In connection with the performance of work under the Contract, the Contractor shall not discriminate against any employee or applicant for employment because of race, color, religious creed, national origin, age, sex, gender identity, sexual orientation (which shall not include persons whose sexual orientation involves minor children as the sex object), genetic information, ancestry, children, marital status, veteran status or membership in the armed services, the receiving of public assistance, and handicap. The previous sentence shall include, but not be limited to, the following: advertising, recruitment; hiring; rates of pay or other forms of compensation; terms; conditions or privileges of employment; employment upgrading; transfer; demotion; layoff; and termination. The Contractor shall take affirmative actions to insure that applicants are employed, and that employees are treated during their employment, without regard to race, color, religious creed, national origin, sex, gender identity, sexual orientation (which shall not include persons whose sexual orientation involves minor children as the sex object), age, genetic information, ancestry, children, marital status, veteran status or membership in the armed services, the receiving of public assistance, and handicap.

ARTICLE 17: MISCELLANEOUS PROVISIONS

Add the following provisions after renamed 17.01 through 17.07:

17.08 The Contract is made subject to all laws of the Commonwealth of Massachusetts.

17.09 If any provision of the Contract Documents is determined to be invalid or unenforceable by final judgment of a court of competent jurisdiction, the remaining provisions shall continue in effect to the extent permitted by law.

17.10 All provisions of law required to be inserted in the Contract Documents shall be and are inserted herein. If any such provision is not herein inserted or is inserted in improper form, upon the application of either party, the Contract Documents shall be changed by the Owner, at no increase in contract sum or contract time, so as to strictly comply with the law and without prejudice to the rights of either party herein.

17.11 In the event that any legal or equitable action, suit, or claim, counter-claim, cross-claim, or third-party claim of any kind relating to the Contract is filed, pleaded or initiated by the Owner or Contractor against the other party to the Contract, which results in a judgment, award or order of any kind in favor of the Owner, the Contractor shall be responsible for all reasonable costs, expenses, attorney's fees and expert witness fees incurred by the Owner in filing, prosecuting, maintaining, appealing or defending against such action, suit, or claim, counter-claim, cross-claim, or third-party claim.

17.12 No officer, member of a board, commission or committee, employee or agent of the Owner shall be personally or individually liable to the Contractor with respect to the Contract or the Work. Each subcontract shall include the foregoing limitation, which shall be effective if the Owner ever succeeds to the Contractor's rights and obligations under the subcontract.

17.13 The Contract may be amended only by written Contract of the parties.

17.14 Certification of Tax Compliance - By entering into an Contract with the Owner, the Contractor certifies under the penalties of perjury, pursuant to M.G.L. Chapter 62C, Section 49A(b), that it has complied with all laws of the Commonwealth of Massachusetts relating to taxes, to the reporting of employees and Contractors, and to the withholding and remitting of child support.

17.15 Conflict of Interest - The Contractor understands that the Massachusetts Conflict of Interest Law, Chapter 268A of the Massachusetts General Laws, applies to the Contractor with respect to the services required to be provided under the Contract. The Contractor and its officers, employees, agents, Subcontractors and affiliated agencies shall not participate in any activity which constitutes a violation of the Massachusetts Conflict of Interest Law or which creates an appearance of a violation of the Massachusetts Conflict of Interest Law.

17.16 Prevailing Wage - Prevailing wage rates, as contained in the bidding documents, shall be paid, pursuant to M.G.L. Chapter 149, Sections 26-27G, if they are applicable.

17.17 Non-Collusion - By entering into the Contract with the Owner, the Contractor certifies under penalties of perjury that its bid has been made and submitted in good faith and without collusion or fraud with any 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.

17.18 Independent Contractor Status - The Contractor shall provide services under any Contract with the Owner as an independent contractor with the Owner and not as an employee of the Owner. No employee, agent or representative of the Contractor shall be entitled to receive any benefits of employment with the Owner, including without limitation salary, overtime, vacation pay, holiday pay, sick leave, health insurance, life insurance, pension or deferred compensation.



Reginald Nunnally

Executive Director

THE COMMONWEALTH OF MASSACHUSETTS Executive Office for Administration and Finance OPERATIONAL SERVICES DIVISION

One Ashburton Place, Suite 1017 Boston, MA 02108-1552

> Charles D. Baker Governor Karyn E. Polito Lieutenant Governor Kristen Lepore Secretary Gary J. Lambert Assistant Secretary for Operational Services

SUPPLIER DIVERSITY OFFICE CONSTRUCTION REFORM PROGRAM MUNICIPALITIES GENERAL GUIDELINES

The Supplier Diversity Office (SDO) issues the Construction Reform Program guidelines on the <u>Municipality Guidelines</u> webpage in accordance with the statutory standards set forth in <u>Chapter 193 of the Acts of 2004</u>, which includes a municipal affirmative marketing program for currently certified firms in the Commonwealth of Massachusetts.

THE BIDDING AND CONTRACT INSTRUCTIONS ON THE <u>MUNICIPALITY GUIDELINES</u> WEBPAGE MUST BE INCORPORATED INTO CONTRACT DOCUMENTS, AS REQUIRED BY CHAPTER 193 OF THE ACTS OF 2004.

Municipalities must incorporate Minority Business Enterprise (MBE) and Women Business Enterprise (WBE) goals into both their design and construction procurement for municipal contracts for the construction, reconstruction, alteration, remodeling, repair or demolition of any public building by any city or town that includes funding provided by the Commonwealth such as legislative appropriations, grant awards, reimbursements and municipal commitments to use state funds.

Only firms which are <u>currently</u> MBE or WBE <u>certified</u> by the Supplier Diversity Office (SDO) at the date of contract award will be counted for Construction Reform program purposes. The firm's current SDO state certification letter **shall serve as the sole and exclusive proof of state certification**.

Certification as a Disadvantaged Business Enterprise (DBE), certification as an MBE/WBE by any agency other than SDO, or submission of an application to SDO for certification as an MBE/WBE <u>shall not confer</u> MBE or WBE status on a firm for purposes of construction reform program participation credit.

Affirmative Marketing Participation Goals:

The combined goals below were established by the Division of Capital Asset Management and Maintenance (DCAMM) and the Supplier Diversity Office (SDO) and require a reasonable representation of both MBE and WBE firms:

Design Participation:Combined MBE/WBE goal of (17.9%)Construction Participation:Combined MBE/WBE goal of (10.4%)

www.mass.gov/osd

Documentation submitted with your signature means that you swear under the pains and penalties of perjury that you have read and understand it. Any false claims for MBE/WBE credit are subject to the Massachusetts False Claims Act and any applicable civil or criminal penalties as determined by the Massachusetts Attorney General's office.¹

Questions and Contact Information:

Separate and individual PDF files are attached for your reference. All questions concerning the Construction Reform Act and the implementation of the new law may be directed to the SDO Director of Construction Reform at **617-502-8851** or by e-mail at John.B.Fitzpatrick@state.ma.us

¹ See generally, MG.L. c.12, §§5A-5O, inclusive.

ATTACHMENT A

PROCEDURE FOR PRE-ADVERTISING ADJUSTMENT OF MBE/WBE PARTICIPATION GOALS

A. Affirmative Marketing Participation Goals:

The combined goals below were established by the Division of Capital Asset Management and Maintenance (DCAMM) and the Supplier Diversity Office (SDO) and require a reasonable representation of both MBE and WBE firms.

Design Participation:	Combined MBE/WBE goal of (17.9%)
Construction Participation:	Combined MBE/WBE goal of (10.4%)

All documentation submitted in connection with MBE/WBE credit must be true, accurate and correct to the best of your knowledge. Your signature on any MBE/WBE goal-related document means that you have read and understand it. Any false claims for MBE/WBE credit are subject to the Massachusetts False Claims Act and any applicable civil or criminal penalties as determined by the Massachusetts Attorney General's office.¹

B. Criteria for Adjustment of Goals:

An Awarding Authority may file a written request for the adjustment of participation goals with the Executive Director of the SDO prior to the advertising of the contract.² Factors that may be considered include any or all of the following:

- Actual availability of SDO certified Minority-Owned Business Enterprises (MBE) or Women-Owned Business Enterprises (WBE);
- The geographic location of the project;
- The scope of work of the project including the opportunities for sub-contracting and subdividing the work and other relevant factors; and
- The SDO, at the request of the awarding authority or any perspective bidder may agree to assist in MBE/WBE outreach. The SDO is not required nor obligated to do this. It is a complementary service provided, and one the SDO strongly suggests be taken advantage of.

C. Project Thresholds:

Participation Goals³ can be adjusted by the Awarding Authority without filing a formal request with SDO if the total estimated construction or design cost is \$100,000 or less.

D. Supporting Documentation for Design and Construction Projects will include, but are not limited to the following:

- 1. Documents to support a reduction/waiver request should include a general description of the project, a copy of the detailed project estimates and the deadline for placement of project advertisement;
- 2. The reasons that the Awarding Authority or its representative is requesting a reduction/waiver of the MBE/WBE participation goals;
- 3. Documentation that there may be a lack of eligible MBE/WBEs to perform the design or construction contract work after reviewing the SDO Business Directory;
- 4. Documentation that all subcontracting opportunities were identified and made available to meet the MBE/WBE participation goals;
- 5. The Awarding Authority may also submit any other information supporting its request for adjustment of the MBE/WBE participation goals; and
- 6. All applicable sections of the **Massachusetts False Claims Act** as well as any related civil or criminal penalties as determined by the Massachusetts Attorney General are incorporated by reference into this document.⁴

E. Request for Adjustment of Design and Construction Goals:

- Requests by an Awarding Authority for Adjustment of MBE/WBE Participation Goals must be submitted in writing no less than ten (10) working days before the deadline for placement of advertisements for the contract. Applications should be directed to the SDO Director of Construction Reform, One Ashburton Place, Room 1017, Boston, MA 02108 or by e-mail to: John.B.Fitzpatrick@state.ma.us,
- 2. Requests for adjustments on Design and Construction Goals must be applied for separately and are not interchangeable. Participation credits for modular projects can be awarded under either the design or construction goals, but not both.
- 3. The written request for the reduction/waiver must include the reasons for it and all supporting documentation.
- 4. The SDO will provide a written response prior to the advertising deadline.

¹ See generally, MG.L. c.12, §§5A-5O, inclusive.

² In rare instances after advertising and before bidding based on new information you may request an adjustment post-advertisement. Any adjustment granted must be the subject of an Addendum.

For state-assisted building projects.

⁴ See generally, MG.L. c.12, §§5A-5O, inclusive.

ATTACHMENT B

PROCEDURES FOR PRE-BID REDUCTION/WAIVER OF MBE/WBE PARTICIPATION GOALS

A. Affirmative Marketing Participation Goals:

The combined goals below were established by the Division of Capital Asset Management and Maintenance (DCAMM) and the Supplier Diversity Office (SDO) and require a reasonable representation of both MBE and WBE firms.

Design Participation:	Combined MBE/WBE goal of (17.9%)
Construction Participation:	Combined MBE/WBE goal of (10.4%)

All documentation submitted in connection with MBE/WBE credit must be true, accurate and correct to the best of your knowledge. Your signature on any MBE/WBE goal-related document means that you have read and understand it. Any false claims for MBE/WBE credit are subject to the Massachusetts False Claims Act and any applicable civil or criminal penalties as determined by the Massachusetts Attorney General's office.¹

B. Criteria for Adjustment of Goals:

Potential Bidders may request a written adjustment before bids are submitted. An awarding authority cannot grant an adjustment of goals. Only the SDO has the authority to do this. Written requests must demonstrate that there is no feasible way to meet established contract goals and that a **"Diligent Good Faith Effort"** was made to comply. The request for reduction/waiver will ultimately be decided by the SDO. Factors that may be considered include any or all of the following:

- Actual availability of certified Minority- and/or Women-Owned Business Enterprises (MBE/WBEs);
- The geographic location of the project;
- The scope of work of the project including the opportunities for sub-contracting and subdividing the work;
- Documentation that shows the Bidder attempted in a diligent good faith effort to fulfill contract goals and was unable to do so; and
- Other relevant factors;

Although the SDO is not obligated to do so, the SDO may agree to assist either an awarding authority or any potential bidder with its MBE/WBE outreach. **We strongly encourage you to use this service.**

C. Required Supporting Documentation from Potential Construction Bidders:

- Using the SDO Reduction/Waiver Request form, the Bidder must prove that notices were sent to certified firms.
- They must break down larger scopes of work into its smallest component parts so that the widest available pool of ready, willing and able certified MBE/WBE firms may participate;
- In the event that an individual scope of work was not made available to ready, willing and able certified firms in certain trade categories,³ a bidder must explain why in writing. Follow up documentation such as phone logs, or e-mail may be required to determine with certainty whether the firms were interested in performing the work.
- Additional documentation of reasonable efforts on the part of the Bidder to assist a potential MBE/WBE firm may include items such as, but not limited to: (a) bonding, insurance, lines of credit or any other type of assistance; or (b) evidence that the Bidder placed advertisements in appropriate media and trade association publications.
- The Bidder shall also submit any other information reasonably requested by the Awarding Authority.

D. Process for Requesting Waiver/Reduction of Construction Goals:

Requests from prospective general Bidders to reduce or waive the MBE/WBE participation goals must be written. An awarding authority must receive such requests no later than **ten** (10) working days before the general bids are due. Requests submitted beyond this deadline will not be considered.

¹ See generally, MG.L. c.12, §§5A-5O, inclusive.

² Applies to waivers and reductions.

³ Other than work performed by filed Sub-Bidders.

ATTACHMENT C MODEL BIDDING INSTRUCTIONS

A. Affirmative Marketing Participation Goals:

Each Municipality must enforce the current Affirmative Marketing Goals developed by the Division of Capital Asset Management and Maintenance (DCAMM) and Supplier Diversity Office (SDO) as follows: ¹

Design Participation:	Combined MBE/WBE goal of (17.9%)
Construction Participation:	Combined MBE/WBE goal of (10.4%)

All documentation submitted in connection with MBE/WBE credit must be true, accurate and correct to the best of your knowledge. Your signature on any MBE/WBE goal-related document means that you have read and understand it. Any false claims for MBE/WBE credit are subject to the Massachusetts False Claims Act and any applicable civil or criminal penalties as determined by the Massachusetts Attorney General's office.²

A. MBE and WBE Participation Requirements:

- 1. Compliance with the requirements of this Section is a pre-requisite for receiving a Contract Award. The Contractor must utilize a reasonable representation mix of both MBE and WBE firms whose collective participation either meets or exceeds the overall combined contract goal. Both MBE and WBE firms shall have an opportunity to work on public projects with a combined MBE/WBE goal.
- 2. Projects with a combined goal must include a reasonable representation of **<u>both</u>** MBE **<u>and</u>** WBE firms to meet or exceed the combined goal. Both categories must be reflected in the participation goals, e.g. bidders who meet the participation goals of one category, such as MBE, must still find WBE representation. Combined contract participation goals must be reported and tracked separately.
- 3. The MBE and WBE participation goals for this Contract are set forth above. The Awarding Authority reserves the right to accept and review written requests but does not have the authority to reduce or waive the MBE or WBE participation goals established for this contract. Waivers or reductions of MBE/WBE participation are contingent on the following: (a) MBE/WBE availability, (b) geographic location, (c) scope of work, (d) the percentage of work available for subcontracting to MBE/WBEs and/or (e) other relevant factors including documentation by General Bidder showing a **Diligent, Good Faith Effort** to secure commitments from MBE/WBE subcontractors. If these criteria are met, the Awarding Authority may submit the General Bidders request along with all the foregoing documentation to the Executive Director of the Supplier Diversity Office (SDO) for final determination.
- 4. All contracts shall provide MBE/WBE firms with contracting opportunities. If a bidder fails to make a subcontracting opportunity available to certified MBEs/WBEs, it must explain why in writing. The Bidder shall also demonstrate that, where commercially reasonable, subcontracts were divided into smaller scopes or tasks capable of being performed by MBE/WBEs.
- 5. A successful bidder must provide notice of: (a) each MBE/WBE solicited, and (b) each MBE/WBE listed in the SDO directory under the applicable trade category that was not solicited and reasons therefore. The Bidder shall also state the date that notices were mailed and provide a copy of the written notice(s) sent.
- 6. Reasonable follow up efforts include written notices sent to MBE/WBEs with telephone calls or personal visits in order to determine with certainty whether the MBE/WBEs were interested in performing the work. Phone logs or other documentation must be submitted.
- 7. A statement of the response received from each MBE/WBE solicited, including the reason for rejecting any MBE/WBE who submitted a bid or proposal may also be provided
- 8. If MBE/WBEs have difficulty obtaining bonding, insurance or lines of credit to participate in the project, prospective bidders must show reasonable efforts were made to assist MBE/WBEs to obtain bonding, insurance, or lines of credit.
- 9. Reasonable efforts may also include whether a Bidder placed advertisements in appropriate media and trade association publications announcing the Bidder's interest in obtaining bids or proposals from MBE/WBEs, and/or sent written notification to MBE/WBE economic development assistance agencies, trade groups and other organizations notifying them of the Contract and the work to be subcontracted by the Bidder to MBE/WBEs. The Bidder shall also submit any other information reasonably requested by the Awarding Authority to show that the Bidder has taken all possible reasonable steps to achieve the MBE/WBE participation goals.
- 10. If <u>filed Sub-Bids</u> are solicited for this Contract, requests to reduce or waive the MBE/WBE participation goals must be received by the Awarding Authority no later than ten (10) working days after the list of filed Sub-Bidders is sent by the Awarding Authority to persons who have taken out plans for the Contract. If there are no filed Sub-Bids solicited for this Contract, requests to reduce or waive the MBE/WBE participation goals for this Contract must be received by the Awarding Authority no later than ten (10) working days before the date set for the receipt of general Bids. The Awarding Authority Will Not Consider Any Request To Reduce Or Waive The MBE/WBE Participation Goals For This Contract That Is Received After These Deadlines.
- 11. Within five (5) working days after the opening of general Bids, the low Bidder shall submit the following documents to the Awarding Authority's Affirmative Marketing Construction Officer (AMCO): (a) a completed Schedule for Participation by MBE/WBE ("Schedule for Participation") in the form provided by the Awarding Authority showing MBE/WBE participation in amounts equal to or exceeding the MBE/WBE participation goals for this Contract, (b) a completed Letter of Intent in the form provided by the Awarding Authority for each MBE/WBE listed in the Schedule for Participation, and (c) the most recent SDO

¹ Periodically, goals may be changed or adjusted. Check the <u>SDO web site</u> for current MBE/WBE participation goals.

² See generally, MG.L. c.12, §§5A-5O, inclusive.

certification letter for each MBE/WBE listed in the Schedule of MBE/WBE Participation showing that the MBE/WBE is certified in the area of work for which it is listed on the Letter of Intent.

- 12. Each Letter of Intent shall describe the work to be performed by the MBE/WBE (the "MBE/WBE Work") with enough specificity to allow an awarding authority to determine which specific items count for MBE/WBE participation credit. The Awarding Authority reserves the right to reject any Letter of Intent if the price to be paid for the MBE/WBE Work does not bear a reasonable relationship to the value of such work under the Contract.
- 13. Within five (5) working days after receipt of the Schedule for MBE/WBE Participation, Letters of Intent, and most recent SDO certification letter, the Awarding Authority shall review and either approve or disapprove the apparent low Bidder's submissions. If the apparent low Bidder has not submitted an appropriate Schedule for MBE/WBE Participation and appropriate Letters of Intent and SDO most recent certification letter establishing that the MBE/WBE participation goal for the project will be met, the apparent low Bidder will be considered ineligible for Award of the Contract and the Awarding Authority will Award the Contract to the second lowest eligible and responsible Bidder, subject to said Bidder's compliance with these conditions. If funds are insufficient to award to the second lowest Bidder, the project may have to be re-bid.
- 14. General Conditions of the Contract require the Contractor to submit, within thirty (30) days of the Contract Date, copies of current certification letters for all subcontractors, signed subcontracts with all subcontractors or a purchase order or invoice from each material supplier and/or manufacturer listed on the Schedule for MBE/WBE Participation.
- 15. A filed sub-Bidder is not required to submit a Schedule of MBE/WBE Participation with its Bid. It may submit a Letter of Intent with its Bid if it is a SDO certified MBE/WBE. If a filed sub-Bidder intends to sub-subcontract work to a SDO certified MBE/WBE, and the awarding authority permits limited sub-sub-contracting for purposes of MBE/WBE participation, and the filed sub-Bidder wishes that sub-subcontract to be credited toward the participation goals for this Contract, the filed sub-Bidder should submit a Letter of Intent from that MBE/WBE with its Bid.

ATTACHMENT D <u>MODEL CONTRACT INSTRUCTIONS FOR</u> <u>MUNICIPAL CONTRACTS AND STATE ASSISTED BUILDING PROJECTS</u>

A. Affirmative Marketing Participation Goals:

The combined goals below were established by the Division of Capital Asset Management and Maintenance (DCAMM) and the Supplier Diversity Office (SDO) and require a reasonable representation of both MBE and WBE firms:

Design Participation:	Combined MBE/WBE goal of (17.9%)
Construction Participation:	Combined MBE/WBE goal of (10.4%)

All documentation submitted in connection with MBE/WBE credit must be true, accurate and correct to the best of your knowledge. Your signature on any MBE/WBE goal-related document means that you have read and understand it. Any false claims for MBE/WBE credit are subject to the Massachusetts False Claims Act and any applicable civil or criminal penalties as determined by the Massachusetts Attorney General's Office.¹

B. <u>MBE/WBE Participation Credit:</u>

- 1. MBE and WBE participation goals are not interchangeable.
- 2. Participation credit is only given for actual contract work performed by currently certified MBE, WBE or M/WBE firm.
- 3. If the firm awarded the contract is itself currently certified as a MBE/WBE, 100% participation credit will be given for the work performed.
- 4. If the prime contractor is not a certified firm, it shall only receive credit for the portion of work completed by the certified firm.
- 5. MBE/WBE participation credit will be given to a supplier **only** if they are regularly engaged in sales of equipment or supplies to the construction industry from an established place of businesses and bear the risk of loss for product sold prior to delivery to a customer.
- 6. A contractor can count only 10% of the contract price towards an MBE or WBE goal on DCAMM projects.

C. Establishing MBE/WBE Status:

- 1. A business will be eligible for participation credit only if it has been certified by the Supplier Diversity Office (SDO) as a minority business enterprise (MBE) or a woman business enterprise (WBE).
- 2. Certification as a MBE/WBE by any other agency other than SDO <u>does not</u> confer the status to the firm for the purposes of contract participation credit.
- 3. Participation credit shall only be given to firms which are certified at the time of contract award
- 4. A firm currently being initially reviewed as part of the certification process cannot be used by a contractor towards MBE/WBE participation credit.

D. <u>Performance of Contract Work by MBE/WBEs:</u>

- Only currently certified MBE/WBE firms count towards participation goals. If during the course of a contract, a SDO certified MBE/WBE firm is decertified their participation credit will be counted up until the date of decertification
- An awarding authority will not grant MBE/WBE participation credit unless the contract work is actually completed by a certified SDO MBE/WBE firm. No credit will be given for work done by others or for work not on a MBE/WBE schedule of participation.
- 3. Once a letter of intent and a MBE/WBE letter of participation are approved, a contractor may not perform this same work using its own staff without the prior express written prior approval of the Awarding Authority.
- 4. The Contractor shall monitor the performance of MBE/WBE Work to ensure that each scheduled MBE/WBE performs its own work with its own workforce.

¹ See generally, MG.L. c. 12, §§5A-5O, inclusive.

- The Contractor and each MBE/WBE subcontractor shall provide the Awarding Authority with all information and documentation necessary to ascertain whether or not an MBE/WBE has performed its own MBE/WBE Work with its own personnel, tools and equipment.
- 6. Failure to submit documentation to the Awarding Authority shall establish conclusively for the purpose of giving MBE/WBE participation credit under this Contract that such MBE/WBE did not perform such work.

E. Notification of Changes in MBE/WBE Work:

If during the performance of a contract, a contractor determines or has reason to believe that:

- 1. A scheduled MBE/WBE is unable or unwilling to perform its MBE/WBE Work;
- 2. There has been or will be a change in any MBE/WBE Work; or
- 3. That the Contractor will be unable to meet the MBE/WBE participation goal(s) for the Contract for any reason.

Then he/she shall immediately notify the Awarding Authority in writing. Any notice of a change in MBE/WBE Work shall include a revised Schedule of MBE/WBE Participation, and additional or amended Letters of Intent and related subcontracts, as needed.

F. Good Faith Efforts Needed to Support Changes/Reduction of MBE/WBE Participation Goals:

If there is a change or reduction in any MBE/WBE Work which will result in the Contractor failing to meet the MBE/WBE participation goal(s), then he/she shall undertake a diligent, good faith effort to make up the shortfall as follows:

- 1. The Contractor shall identify all items of the Work remaining to be performed under the Contract that they made available for subcontracting to MBE/WBEs along with that which wasn't along with reasons why.
- 2. The Contractor shall send written notices to all MBE/WBEs ready, willing and able to perform such work. The contractor will provide the Awarding Authority with documentation identifying: (i) each MBE/WBE solicited, and (ii) each MBE/WBE listed in the SDO directory under the applicable trade category that was not solicited and the reasons why. The Contractor shall also advise the Awarding Authority of the dates that notices were sent and provide a copy of the written notice(s) sent.
- 3. The Contractor shall make reasonable efforts to follow up on the written notices, including telephone calls or personal visits in order to determine with certainty whether the MBE/WBEs were interested in performing the work. Phone logs or other documentation must be submitted to the Awarding Authority upon request.
- 4. The Contractor shall make documented reasonable efforts to assist MBE/WBEs that need assistance in obtaining insurance, bonds, or lines of credit in order to perform work under the Contract. Supporting documentation will be provided to the Awarding Authority upon request.
- 5. The Contractor shall provide the Awarding Authority with a statement of the response received from each MBE/WBE solicited, including the reason for rejecting any MBE/WBE who submitted a proposal.
- 6. The Contractor shall take any additional measures including, without limitation, placing advertisements in appropriate media and trade association publications announcing the Contractor's interest in obtaining proposals from MBE/WBEs, and/or sending written notification to MBE/WBE economic development assistance agencies, trade groups and other organizations notifying them of the project and of the work available to be subcontracted by the Contractor to MBE/WBEs.

If the Contractor is unable to meet the MBE/WBE participation goals for this Contract after complying fully with each of the above requirements and is otherwise in full compliance with the terms of this provision, the Awarding Authority may reduce the MBE/WBE participation goals for this Contract to the extent that such goals cannot be achieved.

G. Suspension of Payment and/or Performance for Noncompliance:

If a reduction of MBE/WBE goals was given but sufficient good faith efforts (see above) were not documented, then after proper written notice, the Awarding Authority has the discretion to:

- 1. Suspend payment to the Contractor of an amount equal to the value of the work which was to have been performed by an MBE/WBE pursuant to the Contractor's Schedule of MBE/WBE Participation but which was not so performed, in order to ensure that sufficient Contract funds will be available if liquidated damages are assessed;
- 2. Suspend the Contractor's performance of this Contract in whole or in part.

Notice Required Prior to Suspension: The Awarding Authority shall give the Contractor prompt written notice of any action taken and shall give the Contractor and any other interested party, including any MBE/WBEs, an opportunity to present evidence to it that the Contractor is in compliance with the requirements, or that there is some justifiable reason for waiving the requirements in whole or in part. The Awarding Authority may invite SDO to participate in these proceedings

If, based on a totality of the circumstances, it can be shown that all reasonable steps were taken and that the Contractor is in full compliance with the requirements of this Attachment, or that the Contractor has met or will meet the MBE/WBE participation goals for this Contract, the Awarding Authority shall release any funds withheld and lift any related suspension of the Contractor's performance.

H. Liquidated Damages; Termination

If payment by the Awarding Authority or performance by the Contractor is suspended, and if the breach cannot be cured or that same contractor fails to take all reasonable and immediate efforts to comply with the MBE/WBE participation goals set forth in this Contract, subject to the notice provisions above:

- 1. The Awarding Authority may terminate this Contract; or
- 2. The Awarding Authority may retain from final payment to the Contractor, as liquidated damages, an amount equal to the difference between:
 - a. The total of the MBE/WBE participation goals set forth in this Contract, and;
 - b. The amount of MBE/WBE participation credit earned by the Contractor for MBE/WBE Work performed under this Contract minus the cost to restore the loss to the Awarding Authority.
- 3. Any liquidated damages will be assessed separately for MBE and WBE participation.

Discretionary Option to Review Any Additional Mitigating Evidence Prior to Final Decision: Before exercising its rights and remedies, the Awarding Authority may but is not required to give the Contractor and any other interested party a final opportunity to present evidence that the Contractor is in compliance with the requirements or that there is some justifiable reason for waiving the requirements of this Attachment in whole or in part. The Awarding Authority may invite SDO to participate in these proceedings.

SCHEDULE FOR PARTICIPATION BY MINORITY/WOMEN BUSINESS ENTERPRISES

Project Number		
Project Location	1	
Project Name		

- A. Filed Sub-bidders utilizing MBE/WBE firms, and MBE/WBE Sub-bidders attach to Filed Sub-bid.
- B. General Contractor must submit to the Awarding Authority within five (5) working days of the opening of General Bids.

BIDDER CERTIFICATION:

The Bidder agrees that if awarded the contract it will expend at least the amount of the contract set forth below for MBE/WBE participation. For purposes of this commitment, the MBE and WBE designation means that a business has been certified by SDO as a MBE, WBE or MBE/WBE. The Bidder must indicate the MBE/WBE firms it intends to utilize on the project as follows (attach additional sheets if necessary):

Company Name & Address	MBE or WBE	Describe MBE/WBE Scopes of Work (clarify "Labor Only", "Material Only" or "Labor and Material")	If Supplier, Indicate Total Value of Supplies (60% of Total Counts toward Participation)	Total Dollar Value of Participation
1.				
2.				
3.				
4.				
5.				

MBE Goal: \$_____

Total Dollar Value of MBE Commitment: \$_____

WBE Goal:	\$	
-----------	----	--

Total Dollar Value of WBE Commitment: \$

The undersigned hereby certifies that he/she has read the terms and conditions of the contract with regard to MBE/WBE participation and is authorized to bind the Bidder to the commitment set forth above.

Name of Firm	
Business Address	
Print Name	
Authorized Signature	
Title	
Telephone No	
Date	

LETTER OF INTENT MINORITY/WOMEN BUSINESS ENTERPRISES PARTICIPATION

(To be completed by MBE/WBE, and submitted by the General Bidder to the Municipal Affirmative Marketing Construction Officer (AMCO) within five (5) working days of the opening of General Bids or by Filed Sub-bidder with its bid.)

Project Number	
Project Name	
Project Location	
То	
Name of General Bidder/Sub-bidder	

Indicate SDO Certification:

 MBE
WBE
 M/WBE

1. This firm intends to perform work in connection with the above project.

- 2. This firm is currently certified by SDO to perform the work identified below, and has not changed its minority/women ownership, control, or management without notifying SDO within thirty (30) days of such a change.
- 3. This firm understands that if the General Bidder/Sub-bidder referenced above is awarded the contract, the Bidder intends to enter into an agreement with this firm to perform the activity described below for the prices indicated. This firm also understands that the above-referenced firm, as General Bidder/Sub-Bidder, will make substitutions only as allowed by the terms of the Contract.
- 4. This firm understands that under the terms of the contract, only work actually performed by an MBE/WBE will be credited toward MBE/WBE participation goals, and this firm cannot assign or subcontract out any of its work without prior written approval of the Awarding Authority, and that any such assignment or subcontracting will not be credited toward MBE/WBE participation goals.

MBE/WBE PARTICIPATION

	Describe MBE/WBE Scopes of Work (Clarify	If Supplier, Indicate Total Value	
Section/Item Number	"Labor Only", "Material Only" or "Labor	of Supplies (60% of Total Counts	Dollar Value of
(If Applicable)	and Material")	Toward Participation)	Participation
Total Dollar Value \$			
Name of MBE/WBE Firr	n		
Business Address			
Print Name			
Authorized Signature			
Title			
Telephone No	Fax	No	
Date			

EXHIBIT C

CONTRACTOR PROGRESS PAYMENT REPORT MINORITY/WOMEN BUSINESS ENTERPRISES PARTICIPATION

Project Number:
Project Name:
Project Location:
Date:
Periodical Payment No.:
General Contractor:
MBE and/or WBE:

One copy of this report is to be submitted for each Minority Business Enterprise (MBE) and/or Women Business Enterprise (WBE) at the time of submitting a request for payment. Copies of the report must be sent to the Minority Business Enterprise (MBE) and/or Women Business Enterprise (WBE) named above and to the municipalities Affirmative Marketing Construction Officer (AMCO). The AMCO will forward a copy of each Contractor Progress Payment Report to SDO on a quarterly basis.

- 1. The total price to be paid to the above-named Minority Business Enterprise _____ and/or Women Business Enterprise ____: \$______
- The amount remitted to the Minority Business Enterprise and/or Women Business Enterprise as of the above date for work performed under this project:
- 3. Balance due the Minority Business Enterprise and/or Women Business Enterprise as of the above date for work performed under the above-named project: \$_____
- 4. Comments or explanation of amounts indicated under items 1 and 2 above:

5. We hereby certify that the information supplied herein (including pages attached) is correct and complete.

General Contractor:	Minority and/or Women Business Enterprise		
(Signed)	(Signed)		
(Title)	(Title)		
(Date)	(Date)		

ATTACHMENT D <u>MODEL CONTRACT INSTRUCTIONS FOR</u> <u>MUNICIPAL CONTRACTS AND STATE ASSISTED BUILDING PROJECTS</u>

A. Affirmative Marketing Participation Goals:

The combined goals below were established by the Division of Capital Asset Management and Maintenance (DCAMM) and the Supplier Diversity Office (SDO) and require a reasonable representation of both MBE and WBE firms:

Design Participation:	Combined MBE/WBE goal of (17.9%)
Construction Participation:	Combined MBE/WBE goal of (10.4%)

All documentation submitted in connection with MBE/WBE credit must be true, accurate and correct to the best of your knowledge. Your signature on any MBE/WBE goal-related document means that you have read and understand it. Any false claims for MBE/WBE credit are subject to the Massachusetts False Claims Act and any applicable civil or criminal penalties as determined by the Massachusetts Attorney General's Office.¹

B. <u>MBE/WBE Participation Credit:</u>

- 1. MBE and WBE participation goals are not interchangeable.
- 2. Participation credit is only given for actual contract work performed by currently certified MBE, WBE or M/WBE firm.
- 3. If the firm awarded the contract is itself currently certified as a MBE/WBE, 100% participation credit will be given for the work performed.
- 4. If the prime contractor is not a certified firm, it shall only receive credit for the portion of work completed by the certified firm.
- 5. MBE/WBE participation credit will be given to a supplier **only** if they are regularly engaged in sales of equipment or supplies to the construction industry from an established place of businesses and bear the risk of loss for product sold prior to delivery to a customer.
- 6. A contractor can count only 10% of the contract price towards an MBE or WBE goal on DCAMM projects.

C. Establishing MBE/WBE Status:

- 1. A business will be eligible for participation credit only if it has been certified by the Supplier Diversity Office (SDO) as a minority business enterprise (MBE) or a woman business enterprise (WBE).
- 2. Certification as a MBE/WBE by any other agency other than SDO <u>does not</u> confer the status to the firm for the purposes of contract participation credit.
- 3. Participation credit shall only be given to firms which are certified at the time of contract award
- 4. A firm currently being initially reviewed as part of the certification process cannot be used by a contractor towards MBE/WBE participation credit.

D. <u>Performance of Contract Work by MBE/WBEs:</u>

- Only currently certified MBE/WBE firms count towards participation goals. If during the course of a contract, a SDO certified MBE/WBE firm is decertified their participation credit will be counted up until the date of decertification
- An awarding authority will not grant MBE/WBE participation credit unless the contract work is actually completed by a certified SDO MBE/WBE firm. No credit will be given for work done by others or for work not on a MBE/WBE schedule of participation.
- 3. Once a letter of intent and a MBE/WBE letter of participation are approved, a contractor may not perform this same work using its own staff without the prior express written prior approval of the Awarding Authority.
- 4. The Contractor shall monitor the performance of MBE/WBE Work to ensure that each scheduled MBE/WBE performs its own work with its own workforce.

¹ See generally, MG.L. c. 12, §§5A-5O, inclusive.

- The Contractor and each MBE/WBE subcontractor shall provide the Awarding Authority with all information and documentation necessary to ascertain whether or not an MBE/WBE has performed its own MBE/WBE Work with its own personnel, tools and equipment.
- 6. Failure to submit documentation to the Awarding Authority shall establish conclusively for the purpose of giving MBE/WBE participation credit under this Contract that such MBE/WBE did not perform such work.

E. Notification of Changes in MBE/WBE Work:

If during the performance of a contract, a contractor determines or has reason to believe that:

- 1. A scheduled MBE/WBE is unable or unwilling to perform its MBE/WBE Work;
- 2. There has been or will be a change in any MBE/WBE Work; or
- 3. That the Contractor will be unable to meet the MBE/WBE participation goal(s) for the Contract for any reason.

Then he/she shall immediately notify the Awarding Authority in writing. Any notice of a change in MBE/WBE Work shall include a revised Schedule of MBE/WBE Participation, and additional or amended Letters of Intent and related subcontracts, as needed.

F. Good Faith Efforts Needed to Support Changes/Reduction of MBE/WBE Participation Goals:

If there is a change or reduction in any MBE/WBE Work which will result in the Contractor failing to meet the MBE/WBE participation goal(s), then he/she shall undertake a diligent, good faith effort to make up the shortfall as follows:

- 1. The Contractor shall identify all items of the Work remaining to be performed under the Contract that they made available for subcontracting to MBE/WBEs along with that which wasn't along with reasons why.
- 2. The Contractor shall send written notices to all MBE/WBEs ready, willing and able to perform such work. The contractor will provide the Awarding Authority with documentation identifying: (i) each MBE/WBE solicited, and (ii) each MBE/WBE listed in the SDO directory under the applicable trade category that was not solicited and the reasons why. The Contractor shall also advise the Awarding Authority of the dates that notices were sent and provide a copy of the written notice(s) sent.
- 3. The Contractor shall make reasonable efforts to follow up on the written notices, including telephone calls or personal visits in order to determine with certainty whether the MBE/WBEs were interested in performing the work. Phone logs or other documentation must be submitted to the Awarding Authority upon request.
- 4. The Contractor shall make documented reasonable efforts to assist MBE/WBEs that need assistance in obtaining insurance, bonds, or lines of credit in order to perform work under the Contract. Supporting documentation will be provided to the Awarding Authority upon request.
- 5. The Contractor shall provide the Awarding Authority with a statement of the response received from each MBE/WBE solicited, including the reason for rejecting any MBE/WBE who submitted a proposal.
- 6. The Contractor shall take any additional measures including, without limitation, placing advertisements in appropriate media and trade association publications announcing the Contractor's interest in obtaining proposals from MBE/WBEs, and/or sending written notification to MBE/WBE economic development assistance agencies, trade groups and other organizations notifying them of the project and of the work available to be subcontracted by the Contractor to MBE/WBEs.

If the Contractor is unable to meet the MBE/WBE participation goals for this Contract after complying fully with each of the above requirements and is otherwise in full compliance with the terms of this provision, the Awarding Authority may reduce the MBE/WBE participation goals for this Contract to the extent that such goals cannot be achieved.

G. Suspension of Payment and/or Performance for Noncompliance:

If a reduction of MBE/WBE goals was given but sufficient good faith efforts (see above) were not documented, then after proper written notice, the Awarding Authority has the discretion to:

- 1. Suspend payment to the Contractor of an amount equal to the value of the work which was to have been performed by an MBE/WBE pursuant to the Contractor's Schedule of MBE/WBE Participation but which was not so performed, in order to ensure that sufficient Contract funds will be available if liquidated damages are assessed;
- 2. Suspend the Contractor's performance of this Contract in whole or in part.

Notice Required Prior to Suspension: The Awarding Authority shall give the Contractor prompt written notice of any action taken and shall give the Contractor and any other interested party, including any MBE/WBEs, an opportunity to present evidence to it that the Contractor is in compliance with the requirements, or that there is some justifiable reason for waiving the requirements in whole or in part. The Awarding Authority may invite SDO to participate in these proceedings

If, based on a totality of the circumstances, it can be shown that all reasonable steps were taken and that the Contractor is in full compliance with the requirements of this Attachment, or that the Contractor has met or will meet the MBE/WBE participation goals for this Contract, the Awarding Authority shall release any funds withheld and lift any related suspension of the Contractor's performance.

H. Liquidated Damages; Termination

If payment by the Awarding Authority or performance by the Contractor is suspended, and if the breach cannot be cured or that same contractor fails to take all reasonable and immediate efforts to comply with the MBE/WBE participation goals set forth in this Contract, subject to the notice provisions above:

- 1. The Awarding Authority may terminate this Contract; or
- 2. The Awarding Authority may retain from final payment to the Contractor, as liquidated damages, an amount equal to the difference between:
 - a. The total of the MBE/WBE participation goals set forth in this Contract, and;
 - b. The amount of MBE/WBE participation credit earned by the Contractor for MBE/WBE Work performed under this Contract minus the cost to restore the loss to the Awarding Authority.
- 3. Any liquidated damages will be assessed separately for MBE and WBE participation.

Discretionary Option to Review Any Additional Mitigating Evidence Prior to Final Decision: Before exercising its rights and remedies, the Awarding Authority may but is not required to give the Contractor and any other interested party a final opportunity to present evidence that the Contractor is in compliance with the requirements or that there is some justifiable reason for waiving the requirements of this Attachment in whole or in part. The Awarding Authority may invite SDO to participate in these proceedings.

SCHEDULE FOR PARTICIPATION BY MINORITY/WOMEN BUSINESS ENTERPRISES

Project Number		
Project Location	1	
Project Name		

- A. Filed Sub-bidders utilizing MBE/WBE firms, and MBE/WBE Sub-bidders attach to Filed Sub-bid.
- B. General Contractor must submit to the Awarding Authority within five (5) working days of the opening of General Bids.

BIDDER CERTIFICATION:

The Bidder agrees that if awarded the contract it will expend at least the amount of the contract set forth below for MBE/WBE participation. For purposes of this commitment, the MBE and WBE designation means that a business has been certified by SDO as a MBE, WBE or MBE/WBE. The Bidder must indicate the MBE/WBE firms it intends to utilize on the project as follows (attach additional sheets if necessary):

Company Name & Address	MBE or WBE	Describe MBE/WBE Scopes of Work (clarify "Labor Only", "Material Only" or "Labor and Material")	If Supplier, Indicate Total Value of Supplies (60% of Total Counts toward Participation)	Total Dollar Value of Participation
1.				
2.				
3.				
4.				
5.				

MBE Goal: \$_____

Total Dollar Value of MBE Commitment: \$_____

WBE Goal:	\$	
-----------	----	--

Total Dollar Value of WBE Commitment: \$

The undersigned hereby certifies that he/she has read the terms and conditions of the contract with regard to MBE/WBE participation and is authorized to bind the Bidder to the commitment set forth above.

Name of Firm	
Business Address	
Print Name	
Authorized Signature	
Title	
Telephone No	
Date	

LETTER OF INTENT MINORITY/WOMEN BUSINESS ENTERPRISES PARTICIPATION

(To be completed by MBE/WBE, and submitted by the General Bidder to the Municipal Affirmative Marketing Construction Officer (AMCO) within five (5) working days of the opening of General Bids or by Filed Sub-bidder with its bid.)

Project Number	
Project Name	
Project Location	
То	
Name of General Bidder/Sub-bidder	

Indicate SDO Certification:

 MBE
WBE
 M/WBE

1. This firm intends to perform work in connection with the above project.

- 2. This firm is currently certified by SDO to perform the work identified below, and has not changed its minority/women ownership, control, or management without notifying SDO within thirty (30) days of such a change.
- 3. This firm understands that if the General Bidder/Sub-bidder referenced above is awarded the contract, the Bidder intends to enter into an agreement with this firm to perform the activity described below for the prices indicated. This firm also understands that the above-referenced firm, as General Bidder/Sub-Bidder, will make substitutions only as allowed by the terms of the Contract.
- 4. This firm understands that under the terms of the contract, only work actually performed by an MBE/WBE will be credited toward MBE/WBE participation goals, and this firm cannot assign or subcontract out any of its work without prior written approval of the Awarding Authority, and that any such assignment or subcontracting will not be credited toward MBE/WBE participation goals.

MBE/WBE PARTICIPATION

	Describe MBE/WBE Scopes of Work (Clarify	If Supplier, Indicate Total Value	
Section/Item Number	"Labor Only", "Material Only" or "Labor	of Supplies (60% of Total Counts	Dollar Value of
(If Applicable)	and Material")	Toward Participation)	Participation
Total Dollar Value \$			
Name of MBE/WBE Firr	n		
Business Address			
Print Name			
Authorized Signature			
Title			
Telephone No	Fax	No	
Date			

EXHIBIT C

CONTRACTOR PROGRESS PAYMENT REPORT MINORITY/WOMEN BUSINESS ENTERPRISES PARTICIPATION

Project Number:
Project Name:
Project Location:
Date:
Periodical Payment No.:
General Contractor:
MBE and/or WBE:

One copy of this report is to be submitted for each Minority Business Enterprise (MBE) and/or Women Business Enterprise (WBE) at the time of submitting a request for payment. Copies of the report must be sent to the Minority Business Enterprise (MBE) and/or Women Business Enterprise (WBE) named above and to the municipalities Affirmative Marketing Construction Officer (AMCO). The AMCO will forward a copy of each Contractor Progress Payment Report to SDO on a quarterly basis.

- 1. The total price to be paid to the above-named Minority Business Enterprise _____ and/or Women Business Enterprise ____: \$______
- The amount remitted to the Minority Business Enterprise and/or Women Business Enterprise as of the above date for work performed under this project:
- 3. Balance due the Minority Business Enterprise and/or Women Business Enterprise as of the above date for work performed under the above-named project: \$_____
- 4. Comments or explanation of amounts indicated under items 1 and 2 above:

5. We hereby certify that the information supplied herein (including pages attached) is correct and complete.

General Contractor:	Minority and/or Women Business Enterprise		
(Signed)	(Signed)		
(Title)	(Title)		
(Date)	(Date)		

SECTION 00.73.43 PREVAILING WAGES and LABOR REGULATIONS

1. PREVAILING WAGE RATES

- A. The rate per hour to be paid to mechanics, apprentices, teamsters, chauffeurs, and laborers employed on the Work shall not be less than the rate of wages in the attached "Minimum Wage Rates" as determined by the Commissioner of the Massachusetts Department of Labor Division of Occupational Safety. This schedule shall continue to be the minimum rate of wages for said employees during the life of this Contract. Any questions relative to the applicability of any wage rate shall be directed to the Division of Occupational Safety.
- **B.** Keep a legible copy of said schedule posted on the site at all times. Provide the Owner, on a weekly basis, and keep an on-site file of the wage rates and classifications of labor employed on this Work in order that they may be available for inspection by the Owner, Department, Architect, or any agency having jurisdiction.
- **C.** Pay reserve police officers employed on the Work the prevailing rate of wages paid to regular police officers as required by MGL c149 § 34B, as amended. Such police officers shall be covered by Worker's Compensation Insurance and Employers Liability Insurance provided by the Contractor.

2. WAGE RATE REPORTING

- **A.** The Contractor and all subcontractors shall provide certified payroll affidavits verifying compliance with MGL c.149 §§26 27H.
- **B.** The Contractor and all subcontractors shall provide a Statement of Compliance within 15 days of the completion of its portion of the work. This statement shall be submitted to the Owner on the form found elsewhere in this section.
- C. <u>Weekly Payroll Form</u> www.mass.gov/lwd/docs/dos/prevaling-wage/pw-payroll.pdf
- D. <u>Statement of Compliance</u> www.mass.gov/lwd/docs/dos/prevaling-wage/pw-compliance.pdf

3. APPRENTICE REQUIREMENTS

Apprentices employed pursuant to this determination of wage rates must be registered and approved by the State Apprenticeship Council wherever rates for journeymen or apprentices are not listed.

4. EMPLOYEE OSHA SAFETY TRAINING

- **A.** All employees who work on this construction site must have no less than 10 hours of OSHAapproved safety and health training. See Chapter 306 of the Acts of 2004.
- **B.** The Contractor and all Subcontractors shall furnish to the Owner, with the certified payroll reports, documentation indicating that each employee has successfully completed 10 hours of a course in construction safety and health. This course must be approved by the United States Occupational Health and Safety Administration (OSHA).

END OF PREVAILING WAGE AND LABOR REGULATIONS 00.73.43



CHARLES D. BAKER Governor

KARYN E. POLITO Lt. Governor

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

Prevailing Wage Rates

As determined by the Director under the provisions of the Massachusetts General Laws, Chapter 149, Sections 26 to 27H ROSALIN ACOSTA Secretary WILLIAM D MCKINNEY Director

Awarding Authority:	Town of Natick
Contract Number:	City/Town: NATICK
Description of Work:	Camp Arrowhead - Rehabilitation of 2000 SF Season Camp Structure, at 1054 Worcester Road in Natick, MA. Rough carpentry, roofing, windows, doors, interior finishes, plumbing, HV and Electrical
Job Location:	1054 Worcester Road (On Lake Cochituate) Natick

Information about Prevailing Wage Schedules for Awarding Authorities and Contractors

• This wage schedule applies only to the specific project referenced at the top of this page and uniquely identified by the "Wage Request Number" on all pages of this schedule.

• An Awarding Authority must request an updated wage schedule from the Department of Labor Standards ("DLS") if it has not opened bids or selected a contractor within 90 days of the date of issuance of the wage schedule. For CM AT RISK projects (bid pursuant to G.L. c.149A), the earlier of: (a) the execution date of the GMP Amendment, or (b) the bid for the first construction scope of work must be within 90-days of the wage schedule issuance date.

• The wage schedule shall be incorporated in any advertisement or call for bids for the project as required by M.G.L. c. 149, § 27. The wage schedule shall be made a part of the contract awarded for the project. The wage schedule must be posted in a conspicuous place at the work site for the life of the project in accordance with M.G.L. c. 149 § 27. The wages listed on the wage schedule must be paid to employees performing construction work on the project whether they are employed by the prime contractor, a filed sub-bidder, or any sub-contractor.

• All apprentices working on the project are required to be registered with the Massachusetts Department of Labor Standards, Division of Apprentice Standards (DLS/DAS). Apprentice must keep his/her apprentice identification card on his/her person during all work hours on the project. An apprentice registered with DAS may be paid the lower apprentice wage rate at the applicable step as provided on the prevailing wage schedule. Any apprentice not registered with DLS/DAS regardless of whether or not they are registered with any other federal, state, local, or private agency must be paid the journeyworker's rate for the trade.

• The wage rates will remain in effect for the duration of the project, except in the case of multi-year public construction projects. For construction projects lasting longer than one year, awarding authorities must request an updated wage schedule. Awarding authorities are required to request these updates no later than two weeks before the anniversary of the date the contract was executed by the awarding authority and the general contractor. For multi-year CM AT RISK projects, awarding authority must request an annual update no later than two weeks before the anniversary date, determined as the earlier of: (a) the execution date of the GMP Amendment, or (b) the execution date of the first amendment to permit procurement of construction services. Contractors are required to obtain the wage schedules from awarding authorities, and to pay no less than these rates to covered workers. The annual update requirement is not applicable to 27F "rental of equipment" contracts.

• Every contractor or subcontractor which performs construction work on the project is required to submit weekly payroll reports and a Statement of Compliance directly to the awarding authority by mail or email and keep them on file for three years. Each weekly payroll report must contain: the employee's name, address, occupational classification, hours worked, and wages paid. Do not submit weekly payroll reports to DLS. A sample of a payroll reporting form may be obtained at http://www.mass.gov/dols/pw.

• Contractors with questions about the wage rates or classifications included on the wage schedule have an affirmative obligation to inquire with DLS at (617) 626-6953.

• Employees not receiving the prevailing wage rate set forth on the wage schedule may report the violation to the Fair Labor Division of the office of the Attorney General at (617) 727-3465.

• Failure of a contractor or subcontractor to pay the prevailing wage rates listed on the wage schedule to all employees who perform construction work on the project is a violation of the law and subjects the contractor or subcontractor to civil and

Classification Construction	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
(2 AXLE) DRIVER - EQUIPMENT	12/01/2016	¢20.15	¢10.01	\$10.89	\$0.00	¢52.05
FEAMSTERS JOINT COUNCIL NO. 10 ZONE B	12/01/2010	\$32.15	\$10.91	\$10.89	\$0.00	\$53.95
(3 AXLE) DRIVER - EQUIPMENT	12/01/2016	\$32.22	\$10.91	\$10.89	\$0.00	\$54.02
TEAMSTERS JOINT COUNCIL NO. 10 ZONE B						
4 & 5 AXLE) DRIVER - EQUIPMENT	12/01/2016	\$32.34	\$10.91	\$10.89	\$0.00	\$54.14
TEAMSTERS JOINT COUNCIL NO. 10 ZONE B						
ADS/SUBMERSIBLE PILOT PILE DRIVER LOCAL 56 (ZONE 1)	08/01/2017	\$92.97	\$9.90	\$21.15	\$0.00	\$124.02
	08/01/2018	\$97.80	\$9.90	\$21.15	\$0.00	\$128.85
For apprentice rates see "Apprentice- PILE DRIVER"	08/01/2019	\$102.78	\$9.90	\$21.15	\$0.00	\$133.83
AIR TRACK OPERATOR	12/01/2017	¢22.59	¢7.70	\$12.60	\$0.00	¢54.00
LABORERS - ZONE 2	12/01/2017	\$33.58 \$24.42	\$7.70	\$13.60 \$13.60	\$0.00 \$0.00	\$54.88
	06/01/2018 12/01/2018	\$34.42 \$25.26	\$7.70 \$7.70	\$13.60	\$0.00	\$55.72 \$56.56
	06/01/2019	\$35.26 \$26.12	\$7.70 \$7.70	\$13.60	\$0.00 \$0.00	\$56.56 \$57.43
	12/01/2019	\$36.13 \$36.99	\$7.70 \$7.70	\$13.60	\$0.00	\$57.43 \$58.29
	06/01/2020	\$30. <i>99</i> \$37.88	\$7.70 \$7.70	\$13.60	\$0.00	\$59.18
	12/01/2020	\$37.88 \$38.77	\$7.70 \$7.70	\$13.60	\$0.00	\$60.07
	06/01/2021	\$39.69	\$7.70	\$13.60	\$0.00	\$60.99
	12/01/2021	\$39.09 \$40.60	\$7.70 \$7.70	\$13.60	\$0.00	\$61.99
For apprentice rates see "Apprentice- LABORER"	12/01/2021	\$40.00	\$7.70	ψ15.00	\$0.00	\$01.70
ASBESTOS REMOVER - PIPE / MECH. EQUIPT.	12/01/2017	\$35.90	\$11.50	\$7.10	\$0.00	\$54.50
HEAT & FROST INSULATORS LOCAL 6 (BOSTON)	06/01/2018	\$36.90	\$11.50	\$7.10	\$0.00	\$55.50
	12/01/2018	\$37.90	\$11.50	\$7.10	\$0.00	\$56.50
	06/01/2019	\$38.90	\$11.50	\$7.10	\$0.00	\$57.50
	12/01/2019	\$39.90	\$11.50	\$7.10	\$0.00	\$58.50
	06/01/2020	\$40.90	\$11.50	\$7.10	\$0.00	\$59.50
	12/01/2020	\$41.90	\$11.50	\$7.10	\$0.00	\$60.50
ASPHALT RAKER	12/01/2017	\$33.08	\$7.70	\$13.60	\$0.00	\$54.38
ABORERS - ZONE 2	06/01/2018	\$33.92	\$7.70	\$13.60	\$0.00	\$55.22
	12/01/2018	\$34.76	\$7.70	\$13.60	\$0.00	\$56.06
	06/01/2019	\$35.63	\$7.70	\$13.60	\$0.00	\$56.93
	12/01/2019	\$36.49	\$7.70	\$13.60	\$0.00	\$57.79
	06/01/2020	\$37.38	\$7.70	\$13.60	\$0.00	\$58.68
	12/01/2020	\$38.27	\$7.70	\$13.60	\$0.00	\$59.57
	06/01/2021	\$39.19	\$7.70	\$13.60	\$0.00	\$60.49
	12/01/2021	\$40.10	\$7.70	\$13.60	\$0.00	\$61.40
For apprentice rates see "Apprentice- LABORER"						•
ASPHALT/CONCRETE/CRUSHER PLANT-ON SITE OPERATING ENGINEERS LOCAL 4	12/01/2017	\$46.63	\$10.50	\$15.50	\$0.00	\$72.63
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
BACKHOE/FRONT-END LOADER OPERATING ENGINEERS LOCAL 4	12/01/2017	\$46.63	\$10.50	\$15.50	\$0.00	\$72.63
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
BARCO-TYPE JUMPING TAMPER	12/01/2017	\$33.08	\$7.70	\$13.60	\$0.00	\$54.38
LABORERS - ZONE 2	06/01/2018	\$33.92	\$7.70	\$13.60	\$0.00	\$55.22
	12/01/2018	\$34.76	\$7.70	\$13.60	\$0.00	\$56.06
	06/01/2019	\$35.63	\$7.70	\$13.60	\$0.00	\$56.93
	12/01/2019	\$36.49	\$7.70	\$13.60	\$0.00	\$57.79
	06/01/2020	\$37.38	\$7.70	\$13.60	\$0.00	\$58.68
	12/01/2020	\$38.27	\$7.70	\$13.60	\$0.00	\$59.57
	06/01/2021	\$39.19	\$7.70	\$13.60	\$0.00	\$60.49
For apprentice rates see "Apprentice- LABORER"	12/01/2021	\$40.10	\$7.70	\$13.60	\$0.00	\$61.40
BLOCK PAVER, RAMMER / CURB SETTER	12/01/2017	\$33.58	\$7.70	\$13.60	\$0.00	\$54.88
LABORERS - ZONE 2	06/01/2018	\$34.42	\$7.70	\$13.60	\$0.00	\$55.72
	12/01/2018	\$35.26	\$7.70	\$13.60	\$0.00	\$56.56
	06/01/2019	\$36.13	\$7.70	\$13.60	\$0.00	\$57.43
	12/01/2019	\$36.99	\$7.70	\$13.60	\$0.00	\$58.29
	06/01/2020	\$37.88	\$7.70	\$13.60	\$0.00	\$59.18
	12/01/2020	\$38.77	\$7.70	\$13.60	\$0.00	\$60.07
	06/01/2021	\$39.69	\$7.70	\$13.60	\$0.00	\$60.99
	12/01/2021	\$40.60	\$7.70	\$13.60	\$0.00	\$61.90
For apprentice rates see "Apprentice- LABORER"						
BOILER MAKER BOILERMAKERS LOCAL 29	01/01/2017	\$42.92	\$6.97	\$16.21	\$0.00	\$66.10

Apprentice - BOILERMAKER - Local 29

	ive Date -	01/01/2017				Supplemental	
Step	percent		Apprentice Base Wage	Health	Pension	Unemployment	Total Rate
1	65		\$27.90	\$6.97	\$10.54	\$0.00	\$45.41
2	65		\$27.90	\$6.97	\$10.54	\$0.00	\$45.41
3	70		\$30.04	\$6.97	\$11.35	\$0.00	\$48.36
4	75		\$32.19	\$6.97	\$12.16	\$0.00	\$51.32
5	80		\$34.34	\$6.97	\$12.97	\$0.00	\$54.28
6	85		\$36.48	\$6.97	\$13.78	\$0.00	\$57.23
7	90		\$38.63	\$6.97	\$14.59	\$0.00	\$60.19
8	95		\$40.77	\$6.97	\$15.40	\$0.00	\$63.14

Notes:

Apprentice to Journeyworker Ratio:1:5

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Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
BRICK/STONE/ARTIFICIAL MASONRY (INCL. MASONRY	03/01/2018	\$49.96	\$10.75	\$19.43	\$0.00	\$80.14
WATERPROOFING) Bricklayers local 3 (lowell)	08/01/2018	\$51.31	\$10.75	\$19.56	\$0.00	\$81.62
	02/01/2019	\$51.91	\$10.75	\$19.56	\$0.00	\$82.22
	08/01/2019	\$53.26	\$10.75	\$19.70	\$0.00	\$83.71
	02/01/2020	\$53.86	\$10.75	\$19.70	\$0.00	\$84.31
	08/01/2020	\$55.21	\$10.75	\$19.85	\$0.00	\$85.81
	02/01/2021	\$55.81	\$10.75	\$19.85	\$0.00	\$86.41
	08/01/2021	\$57.21	\$10.75	\$20.01	\$0.00	\$87.97
	02/01/2022	\$57.79	\$10.75	\$20.01	\$0.00	\$88.55

Apprentice - BRICK/PLASTER/CEMENT MASON - Local 3 Lowell

Effecti	ive Date -	03/01/2018				Supplemental		
Step	percent		Apprentice Base Wage	Health	Pension	Unemployment	Total Rate	
1	50		\$24.98	\$10.75	\$19.43	\$0.00	\$55.16	
2	60		\$29.98	\$10.75	\$19.43	\$0.00	\$60.16	
3	70		\$34.97	\$10.75	\$19.43	\$0.00	\$65.15	
4	80		\$39.97	\$10.75	\$19.43	\$0.00	\$70.15	
5	90		\$44.96	\$10.75	\$19.43	\$0.00	\$75.14	

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$25.66	\$10.75	\$19.56	\$0.00	\$55.97
2	60	\$30.79	\$10.75	\$19.56	\$0.00	\$61.10
3	70	\$35.92	\$10.75	\$19.56	\$0.00	\$66.23
4	80	\$41.05	\$10.75	\$19.56	\$0.00	\$71.36
5	90	\$46.18	\$10.75	\$19.56	\$0.00	\$76.49

Apprentice to Journeyworker Ratio:1:5

BULLDOZER/GRADER/SCRAPER OPERATING ENGINEERS LOCAL 4	12/01/2017	\$46.17	\$10.50	\$15.50	\$0.00	\$72.17
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
CAISSON & UNDERPINNING BOTTOM MAN	12/01/2017	\$38.60	\$7.70	\$14.95	\$0.00	\$61.25
LABORERS - FOUNDATION AND MARINE	06/01/2018	\$39.55	\$7.70	\$14.95	\$0.00	\$62.20
	12/01/2018	\$40.50	\$7.70	\$14.95	\$0.00	\$63.15
	06/01/2019	\$41.50	\$7.70	\$14.95	\$0.00	\$64.15
	12/01/2019	\$42.50	\$7.70	\$14.95	\$0.00	\$65.15
	06/01/2020	\$43.49	\$7.70	\$14.95	\$0.00	\$66.14
	12/01/2020	\$44.47	\$7.70	\$14.95	\$0.00	\$67.12
	06/01/2021	\$45.49	\$7.70	\$14.95	\$0.00	\$68.14
	12/01/2021	\$46.50	\$7.70	\$14.95	\$0.00	\$69.15

For apprentice rates see "Apprentice- LABORER"

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
CAISSON & UNDERPINNING LABORER	12/01/2017	\$37.45	\$7.70	\$14.95	\$0.00	\$60.10
LABORERS - FOUNDATION AND MARINE	06/01/2018	\$38.40	\$7.70	\$14.95	\$0.00	\$61.05
	12/01/2018	\$39.35	\$7.70	\$14.95	\$0.00	\$62.00
	06/01/2019	\$40.35	\$7.70	\$14.95	\$0.00	\$63.00
	12/01/2019	\$41.35	\$7.70	\$14.95	\$0.00	\$64.00
	06/01/2020	\$42.34	\$7.70	\$14.95	\$0.00	\$64.99
	12/01/2020	\$43.32	\$7.70	\$14.95	\$0.00	\$65.97
	06/01/2021	\$44.34	\$7.70	\$14.95	\$0.00	\$66.99
	12/01/2021	\$45.35	\$7.70	\$14.95	\$0.00	\$68.00
For apprentice rates see "Apprentice- LABORER"						
CAISSON & UNDERPINNING TOP MAN LABORERS - FOUNDATION AND MARINE	12/01/2017	\$37.45	\$7.70	\$14.95	\$0.00	\$60.10
LABORERS - FOUNDATION AND MARINE	06/01/2018	\$38.40	\$7.70	\$14.95	\$0.00	\$61.05
	12/01/2018	\$39.35	\$7.70	\$14.95	\$0.00	\$62.00
	06/01/2019	\$40.35	\$7.70	\$14.95	\$0.00	\$63.00
	12/01/2019	\$41.35	\$7.70	\$14.95	\$0.00	\$64.00
	06/01/2020	\$42.34	\$7.70	\$14.95	\$0.00	\$64.99
	12/01/2020	\$43.32	\$7.70	\$14.95	\$0.00	\$65.97
	06/01/2021	\$44.34	\$7.70	\$14.95	\$0.00	\$66.99
	12/01/2021	\$45.35	\$7.70	\$14.95	\$0.00	\$68.00
For apprentice rates see "Apprentice- LABORER"						
CARBIDE CORE DRILL OPERATOR Laborers - zone 2	12/01/2017	\$33.08	\$7.70	\$13.60	\$0.00	\$54.38
ABONERS - ZONE 2	06/01/2018	\$33.92	\$7.70	\$13.60	\$0.00	\$55.22
	12/01/2018	\$34.76	\$7.70	\$13.60	\$0.00	\$56.06
	06/01/2019	\$35.63	\$7.70	\$13.60	\$0.00	\$56.93
	12/01/2019	\$36.49	\$7.70	\$13.60	\$0.00	\$57.79
	06/01/2020	\$37.38	\$7.70	\$13.60	\$0.00	\$58.68
	12/01/2020	\$38.27	\$7.70	\$13.60	\$0.00	\$59.57
	06/01/2021	\$39.19	\$7.70	\$13.60	\$0.00	\$60.49
	12/01/2021	\$40.10	\$7.70	\$13.60	\$0.00	\$61.40
For apprentice rates see "Apprentice- LABORER"						
CARPENTER CARPENTERS -ZONE 2 (Eastern Massachusetts)	03/01/2018	\$40.28	\$9.90	\$17.50	\$0.00	\$67.68
	09/01/2018	\$41.32	\$9.90	\$17.50	\$0.00	\$68.72
	03/01/2019	\$42.35	\$9.90	\$17.50	\$0.00	\$69.75

Effect	ive Date -	03/01/2018				Supplemental	
Step	percent		Apprentice Base Wage	Health	Pension	Unemployment	Total Rate
1	50		\$20.14	\$9.90	\$1.73	\$0.00	\$31.77
2	60		\$24.17	\$9.90	\$1.73	\$0.00	\$35.80
3	70		\$28.20	\$9.90	\$12.31	\$0.00	\$50.41
4	75		\$30.21	\$9.90	\$12.31	\$0.00	\$52.42
5	80		\$32.22	\$9.90	\$14.04	\$0.00	\$56.16
6	80		\$32.22	\$9.90	\$14.04	\$0.00	\$56.16
7	90		\$36.25	\$9.90	\$15.77	\$0.00	\$61.92
8	90		\$36.25	\$9.90	\$15.77	\$0.00	\$61.92

Apprentice - CARPENTER - Zone 2 Eastern MA

Effective Date - 09/01/2018

Effecti	ve Date -	09/01/2018					
Step	percent	Apprentice Base Wage	Health	Pension	Unemployment	Total Rate	
1	50	\$20.66	\$9.90	\$1.73	\$0.00	\$32.29	
2	60	\$24.79	\$9.90	\$1.73	\$0.00	\$36.42	
3	70	\$28.92	\$9.90	\$12.31	\$0.00	\$51.13	
4	75	\$30.99	\$9.90	\$12.31	\$0.00	\$53.20	
5	80	\$33.06	\$9.90	\$14.04	\$0.00	\$57.00	
6	80	\$33.06	\$9.90	\$14.04	\$0.00	\$57.00	
7	90	\$37.19	\$9.90	\$15.77	\$0.00	\$62.86	
8	90	\$37.19	\$9.90	\$15.77	\$0.00	\$62.86	
Notes:							
		ed After 10/1/17; 45/45/55/55/70/70/80/80 29.76/ 3&4 \$35.45/ 5&6 \$52.14/ 7&8 \$57.89					
Appre	ntice to Jour	neyworker Ratio:1:5					
CARPENTER WOOD I		10/01/2017	\$26.25	\$7.07	\$7.86	\$0.00	\$41.18
CARPENTERS -ZONE 2 (Woo	od Frame)	04/01/2018	\$\$26.67	\$7.07	\$7.86	\$0.00	\$41.60
		10/01/2018	\$	\$7.07	\$7.86	\$0.00	\$42.02
		04/01/2019	\$27.52	\$7.07	\$7.86	\$0.00	\$42.45
		10/01/2019	\$27.95	\$7.07	\$7.86	\$0.00	\$42.88

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

Effecti	ve Date -	10/01/2017				Supplemental	
Step	percent		Apprentice Base Wage	Health	Pension	Unemployment	Total Rate
1	60		\$15.75	\$7.07	\$0.00	\$0.00	\$22.82
2	60		\$15.75	\$7.07	\$0.00	\$0.00	\$22.82
3	65		\$17.06	\$7.07	\$7.86	\$0.00	\$31.99
4	70		\$18.38	\$7.07	\$7.86	\$0.00	\$33.31
5	75		\$19.69	\$7.07	\$7.86	\$0.00	\$34.62
6	80		\$21.00	\$7.07	\$7.86	\$0.00	\$35.93
7	85		\$22.31	\$7.07	\$7.86	\$0.00	\$37.24
8	90		\$23.63	\$7.07	\$7.86	\$0.00	\$38.56

Apprentice - CARPENTER (Wood Frame) - Zone 2

Effective Date - 04/01/2018

	Effectiv	ve Date - 04/01/2018				Supplemental		
	Step	percent	Apprentice Base Wage	Health	Pension	Unemployment	Total Rate	
	1	60	\$16.00	\$7.07	\$0.00	\$0.00	\$23.07	,
	2	60	\$16.00	\$7.07	\$0.00	\$0.00	\$23.07	,
	3	65	\$17.34	\$7.07	\$7.86	\$0.00	\$32.27	,
	4	70	\$18.67	\$7.07	\$7.86	\$0.00	\$33.60)
	5	75	\$20.00	\$7.07	\$7.86	\$0.00	\$34.93	i i i i i i i i i i i i i i i i i i i
	6	80	\$21.34	\$7.07	\$7.86	\$0.00	\$36.27	
	7	85	\$22.67	\$7.07	\$7.86	\$0.00	\$37.60)
	8	90	\$24.00	\$7.07	\$7.86	\$0.00	\$38.93	i
	Notes:	% Indentured After 10/1/17; 45/4						
		Step 1&2 \$18.88/ 3&4 \$26.26/ 5						
	Appren	tice to Journeyworker Ratio:1:						
CARPENTER W CARPENTERS - ZONI		RAME (All Other Work) d Frame)	06/01/2016	\$25.32	\$9.80	\$16.82	\$0.00	\$51.94
CEMENT MASC			01/01/2018	\$41.67	\$12.35	\$22.41	\$0.30	\$76.73
BRICKLAYERS LOCA	4L 3 (LO)	WELL)	07/01/2018	\$42.59	\$12.35	\$22.41	\$0.30	\$77.65
			01/01/2019	\$43.83	\$12.35	\$22.41	\$0.30	\$78.89
			07/01/2019	\$44.71	\$12.35	\$22.41	\$0.30	\$79.77
			01/01/2020	\$45.95	\$12.35	\$22.41	\$0.30	\$81.01

		ive Date - 01/01/201	8				Supplemental		
	Step	percent	Appre	ntice Base Wage	Health	Pension	Unemployment	Total Rate	
	1	50		\$20.84	\$12.35	\$15.41	\$0.00	\$48.60	
	2	60		\$25.00	\$12.35	\$17.41	\$0.30	\$55.06	
	3	65		\$27.09	\$12.35	\$18.41	\$0.30	\$58.15	
	4 70 5 75 6 80			\$29.17	\$12.35	\$19.41	\$0.30	\$61.23	
				\$31.25	\$12.35	\$20.41	\$0.30	\$64.31	
				\$33.34	\$12.35	\$21.41	\$0.30	\$67.40	
	7	7 90		\$37.50	\$12.35	\$22.41	\$0.30	\$72.56	
	Effect	ive Date - 07/01/201	8				Supplemental		
	Step	percent	Appre	ntice Base Wage	Health	Pension	Unemployment	Total Rate	
	1	50		\$21.30	\$12.35	\$15.41	\$0.00	\$49.06	
	2	60		\$25.55	\$12.35	\$17.41	\$0.30	\$55.61	
	3	65		\$27.68	\$12.35	\$18.41	\$0.30	\$58.74	
	4	70		\$29.81	\$12.35	\$19.41	\$0.30	\$61.87	
	5	75		\$31.94	\$12.35	\$20.41	\$0.30	\$65.00	
	6	80		\$34.07	\$12.35	\$21.41	\$0.30	\$68.13	
	7	90		\$38.33	\$12.35	\$22.41	\$0.30	\$73.39	
	Notes		All other steps are 1,00	00 hrs.				İ	
	Appre	entice to Journeywork	er Ratio:1:3						
IAIN SAW BORERS - ZON		FOR		12/01/2017	7 \$33.0	8 \$7.70	\$13.60	\$0.00	\$54.38
SORERS - ZON	E 2			06/01/2013	8 \$33.9	2 \$7.70	\$13.60	\$0.00	\$55.22
				12/01/2013	8 \$34.7	6 \$7.70	\$13.60	\$0.00	\$56.06
				06/01/201	9 \$35.6	3 \$7.70	\$13.60	\$0.00	\$56.93
				12/01/2019	9 \$36.4	9 \$7.70	\$13.60	\$0.00	\$57.79
				06/01/2020	\$37.3	8 \$7.70	\$13.60	\$0.00	\$58.68
				12/01/2020	\$38.2	7 \$7.70	\$13.60	\$0.00	\$59.57
				06/01/202	1 \$39.1	9 \$7.70	\$13.60	\$0.00	\$60.49
				12/01/202	1 \$40.1	0 \$7.70	\$13.60	\$0.00	\$61.40
		"Apprentice- LABORER"							
AM SHELI ERATING ENG		RRY BUCKETS/HEAD OCAL 4	DING MACHINES	12/01/2017	7 \$47.6	3 \$10.50	\$15.50	\$0.00	\$73.63
For apprentic	e rates see	"Apprentice- OPERATING E	ENGINEERS"						
MPRESSO ERATING ENG				12/01/2017	7 \$31.8	0 \$10.50	\$15.50	\$0.00	\$57.80
For apprentic	e rates see	"Apprentice- OPERATING E	ENGINEERS"						
ELEADER (INTERS LOCA		,		01/01/201	7 \$51.4	1 \$7.85	\$16.10	\$0.00	\$75.36

Apprentice - CEMENT MASONRY/PLASTERING - Lowell 01/01/2018

etive Date - 01/01/2017 percent 50 55 60 65 70 75 80 90 s: Steps are 750 hrs. rentice to Journeyworker Ratio:1:1 e "Apprentice- LABORER" LOADER/HAMMER OPERATOR	Apprentice Base Wage \$25.71 \$28.28 \$30.85 \$33.42 \$35.99 \$38.56 \$41.13 \$46.27 12/01/2017 06/01/2018 12/01/2018 12/01/2019 12/01/2019 12/01/2017	\$7.85 \$7.85	Pension \$0.00 \$3.66 \$3.99 \$4.32 \$14.11 \$14.44 \$14.77 \$15.44 \$15.44 \$17.70 \$7.70 \$7.70 \$7.70 \$7.70 \$7.70 \$7.70 \$7.70 \$7.70 \$7.70	Supplemental Unemployment \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$14.75 \$14.75 \$14.75 \$14.75 \$14.75	Total Rate \$33.56 \$39.79 \$42.69 \$45.59 \$60.85 \$63.75 \$69.56 \$0.00 \$0.00 \$0.00	\$60.10 \$61.05 \$62.00
55 60 65 70 75 80 90 •••• Steps are 750 hrs. ••• "Apprentice- LABORER"	\$28.28 \$30.85 \$33.42 \$35.99 \$38.56 \$41.13 \$46.27 	\$7.85 \$7.85	\$3.66 \$3.99 \$4.32 \$14.11 \$14.44 \$14.77 \$15.44 \$7.70 \$7.70 \$7.70 \$7.70 \$7.70	\$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$14.75 \$14.75 \$14.75	\$39.79 \$42.69 \$45.59 \$57.95 \$60.85 \$63.75 \$69.56 \$0.00 \$0.00	\$61.05
60 65 70 75 80 90 s: Steps are 750 hrs. rentice to Journeyworker Ratio:1:1	\$30.85 \$33.42 \$35.99 \$38.56 \$41.13 \$46.27 	\$7.85 \$7.85	\$3.99 \$4.32 \$14.11 \$14.44 \$14.77 \$15.44 \$7.70 \$7.70 \$7.70 \$7.70 \$7.70	\$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$14.75 \$14.75 \$14.75 \$14.75	\$42.69 \$45.59 \$60.85 \$63.75 \$69.56 \$0.00 \$0.00	\$61.05
65 70 75 80 90 s: Steps are 750 hrs. rentice to Journeyworker Ratio:1:1	\$33.42 \$35.99 \$38.56 \$41.13 \$46.27 	\$7.85 \$7.85	\$4.32 \$14.11 \$14.44 \$14.77 \$15.44 \$7.70 \$7.70 \$7.70 \$7.70 \$7.70	\$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$14.75 \$14.75 \$14.75	\$45.59 \$57.95 \$60.85 \$63.75 \$69.56	\$61.05
70 75 80 90 s: Steps are 750 hrs. rentice to Journeyworker Ratio:1:1	\$35.99 \$38.56 \$41.13 \$46.27 	\$7.85 \$7.85 \$7.85 \$7.85 \$7.85 \$37.65 \$38.60 \$39.55 \$40.55	\$14.11 \$14.44 \$14.77 \$15.44 	\$0.00 \$0.00 \$0.00 \$0.00 \$14.75 \$14.75 \$14.75 \$14.75	\$57.95 \$60.85 \$63.75 \$69.56 	\$61.05
75 80 90 s: Steps are 750 hrs. rentice to Journeyworker Ratio:1:1	\$38.56 \$41.13 \$46.27 	\$7.85 \$7.85 \$7.85 \$7.85 \$7.85 \$37.65 \$38.60 \$39.55 \$40.55	\$14.44 \$14.77 \$15.44 \$7.70 \$7.70 \$7.70 \$7.70 \$7.70	\$0.00 \$0.00 \$0.00 \$14.75 \$14.75 \$14.75 \$14.75	\$60.85 \$63.75 \$69.56	\$61.05
80 90 s: Steps are 750 hrs. rentice to Journeyworker Ratio:1:1	\$38.56 \$41.13 \$46.27 	\$7.85 \$7.85 \$7.85 \$37.65 \$38.60 \$39.55 \$40.55	\$14.44 \$14.77 \$15.44 \$7.70 \$7.70 \$7.70 \$7.70 \$7.70	\$0.00 \$0.00 \$0.00 \$14.75 \$14.75 \$14.75 \$14.75	\$60.85 \$63.75 \$69.56	\$61.05
90 s: Steps are 750 hrs. rentice to Journeyworker Ratio:1:1	\$41.13 \$46.27 	\$7.85 \$7.85 \$37.65 \$38.60 \$39.55 \$40.55	\$14.77 \$15.44 	\$0.00 \$0.00 	\$63.75 \$69.56 	\$61.05
s: Steps are 750 hrs. rentice to Journeyworker Ratio:1:1	\$46.27 	\$7.85 \$37.65 \$38.60 \$39.55 \$40.55	\$15.44 \$7.70 \$7.70 \$7.70 \$7.70 \$7.70 \$7.70	\$0.00 	\$69.56 	\$61.05
Steps are 750 hrs. rentice to Journeyworker Ratio:1:1 e "Apprentice- LABORER"	06/01/2018 12/01/2018 06/01/2019 12/01/2019	\$38.60 \$39.55 \$40.55	\$7.70 \$7.70 \$7.70	\$14.75 \$14.75	\$0.00	\$61.05
rentice to Journeyworker Ratio:1:1	06/01/2018 12/01/2018 06/01/2019 12/01/2019	\$38.60 \$39.55 \$40.55	\$7.70 \$7.70 \$7.70	\$14.75 \$14.75	\$0.00	\$61.05
e "Apprentice- LABORER"	06/01/2018 12/01/2018 06/01/2019 12/01/2019	\$38.60 \$39.55 \$40.55	\$7.70 \$7.70 \$7.70	\$14.75 \$14.75	\$0.00	\$61.05
	06/01/2018 12/01/2018 06/01/2019 12/01/2019	\$38.60 \$39.55 \$40.55	\$7.70 \$7.70 \$7.70	\$14.75 \$14.75	\$0.00	\$61.05
	12/01/2018 06/01/2019 12/01/2019	\$39.55 \$40.55	\$7.70 \$7.70	\$14.75		
	06/01/2019 12/01/2019	\$40.55	\$7.70		\$0.00	\$62.00
	12/01/2019			\$14.75		\$ 0- .00
		\$41.55	\$7.70		\$0.00	\$63.00
	12/01/2017		\$7.70	\$14.75	\$0.00	\$64.00
	12/01/201/	\$38.65	\$7.70	\$14.75	\$0.00	\$61.10
	06/01/2018	\$39.60	\$7.70	\$14.75	\$0.00	\$62.05
	12/01/2018	\$40.55	\$7.70	\$14.75	\$0.00	\$63.00
	06/01/2019	\$41.55	\$7.70	\$14.75	\$0.00	\$64.00
e "Apprentice- LABORER"	12/01/2019	\$42.55	\$7.70	\$14.75	\$0.00	\$65.00
	12/01/2017	\$38.40	\$7.70	\$14.75	\$0.00	\$60.85
	06/01/2018	\$39.35	\$7.70	\$14.75	\$0.00	\$61.80
	12/01/2018		\$7.70	\$14.75	\$0.00	\$62.75
	06/01/2019		\$7.70	\$14.75	\$0.00	\$63.75
	12/01/2019		\$7.70	\$14.75	\$0.00	\$64.75
e "Apprentice- LABORER"						
UUIIEK/JAWIEK						\$61.10
						\$62.05
						\$63.00
			\$7.70			\$64.00
e "Apprentice- LABORER"	12/01/2019	\$42.55	\$7.70	\$14.75	\$0.00	\$65.00
	12/01/2017	\$20 10	\$7.70	\$14 75	\$0.00	\$60.85
						\$61.80
						\$62.75
						\$63.75 \$64.75
e	"Apprentice- LABORER" CUTTER/SAWYER "Apprentice- LABORER" ER OPERATOR	"Apprentice- LABORER" CUTTER/SAWYER 12/01/2017 06/01/2018 12/01/2018 06/01/2019 12/01/2019 "Apprentice- LABORER" TER OPERATOR 12/01/2017 06/01/2018 12/01/2018 12/01/2019	"Apprentice- LABORER" CUTTER/SAWYER 12/01/2017 \$38.65 06/01/2018 \$39.60 12/01/2018 \$40.55 06/01/2019 \$41.55 12/01/2019 \$42.55 "Apprentice- LABORER" \$42.55	"Apprentice- LABORER" CUTTER/SAWYER 12/01/2017 \$38.65 \$7.70 06/01/2018 \$39.60 \$7.70 12/01/2018 \$40.55 \$7.70 06/01/2019 \$41.55 \$7.70 06/01/2019 \$41.55 \$7.70 12/01/2019 \$42.55 \$7.70 "Apprentice- LABORER" 12/01/2017 \$38.40 \$7.70 ER OPERATOR 12/01/2018 \$39.35 \$7.70 12/01/2018 \$40.30 \$7.70 06/01/2018 \$39.35 \$7.70 12/01/2018 \$40.30 \$7.70 06/01/2018 \$39.35 \$7.70 12/01/2018 \$40.30 \$7.70 06/01/2019 \$41.30 \$7.70	"Apprentice- LABORER" CUTTER/SAWYER 12/01/2017 \$38.65 \$7.70 \$14.75 06/01/2018 \$39.60 \$7.70 \$14.75 12/01/2018 \$40.55 \$7.70 \$14.75 06/01/2019 \$41.55 \$7.70 \$14.75 06/01/2019 \$41.55 \$7.70 \$14.75 12/01/2019 \$42.55 \$7.70 \$14.75 "Apprentice- LABORER" 12/01/2019 \$42.55 \$7.70 \$14.75 ER OPERATOR 12/01/2017 \$38.40 \$7.70 \$14.75 06/01/2018 \$39.35 \$7.70 \$14.75 12/01/2017 \$38.40 \$7.70 \$14.75 06/01/2018 \$39.35 \$7.70 \$14.75 06/01/2018 \$39.35 \$7.70 \$14.75 12/01/2018 \$40.30 \$7.70 \$14.75 06/01/2019 \$41.30 \$7.70 \$14.75 06/01/2019 \$41.30 \$7.70 \$14.75	"Apprentice- LABORER" CUTTER/SAWYER 12/01/2017 \$38.65 \$7.70 \$14.75 \$0.00 06/01/2018 \$39.60 \$7.70 \$14.75 \$0.00 12/01/2018 \$40.55 \$7.70 \$14.75 \$0.00 06/01/2019 \$41.55 \$7.70 \$14.75 \$0.00 06/01/2019 \$41.55 \$7.70 \$14.75 \$0.00 12/01/2019 \$42.55 \$7.70 \$14.75 \$0.00 ""Apprentice- LABORER" 12/01/2017 \$38.40 \$7.70 \$14.75 \$0.00 "Apprentice- LABORER" 12/01/2017 \$38.40 \$7.70 \$14.75 \$0.00 IER OPERATOR 12/01/2017 \$38.40 \$7.70 \$14.75 \$0.00 06/01/2018 \$39.35 \$7.70 \$14.75 \$0.00 12/01/2018 \$40.30 \$7.70 \$14.75 \$0.00 06/01/2019 \$41.30 \$7.70 \$14.75 \$0.00 06/01/2019 \$41.30 \$7.70 \$14.75 \$0.00

PAINTER Local 35 - BRIDGES/TANKS Annrentice

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
For apprentice rates see "Apprentice- LABORER"					· · · · · · · · · · · · · · · · · · ·	
DEMO: WRECKING LABORER	12/01/2017	\$37.65	\$7.70	\$14.75	\$0.00	\$60.10
LABORERS - ZONE 2	06/01/2018	\$38.60	\$7.70	\$14.75	\$0.00	\$61.05
	12/01/2018	\$39.55	\$7.70	\$14.75	\$0.00	\$62.00
	06/01/2019	\$40.55	\$7.70	\$14.75	\$0.00	\$63.00
	12/01/2019	\$41.55	\$7.70	\$14.75	\$0.00	\$64.00
For apprentice rates see "Apprentice- LABORER"						
DIRECTIONAL DRILL MACHINE OPERATOR OPERATING ENGINEERS LOCAL 4	12/01/2017	\$46.17	\$10.50	\$15.50	\$0.00	\$72.17
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
DIVER	08/01/2017	\$61.98	\$9.90	\$21.15	\$0.00	\$93.03
PILE DRIVER LOCAL 56 (ZONE 1)	08/01/2018	\$65.20	\$9.90	\$21.15	\$0.00	\$96.25
	08/01/2019	\$68.52	\$9.90	\$21.15	\$0.00	\$99.57
For apprentice rates see "Apprentice- PILE DRIVER"						
DIVER TENDER PILE DRIVER LOCAL 56 (ZONE 1)	08/01/2017	\$44.27	\$9.90	\$21.15	\$0.00	\$75.32
FILE DRIVER LOCAL 50 (ZONE 1)	08/01/2018	\$46.57	\$9.90	\$21.15	\$0.00	\$77.62
	08/01/2019	\$48.94	\$9.90	\$21.15	\$0.00	\$79.99
For apprentice rates see "Apprentice- PILE DRIVER"						
DIVER TENDER (EFFLUENT) PILE DRIVER LOCAL 56 (ZONE 1)	08/01/2017	\$66.41	\$9.90	\$21.15	\$0.00	\$97.46
	08/01/2018	\$69.86	\$9.90	\$21.15	\$0.00	\$100.91
For apprentice rates see "Apprentice- PILE DRIVER"	08/01/2019	\$73.41	\$9.90	\$21.15	\$0.00	\$104.46
DIVER/SLURRY (EFFLUENT)	08/01/2017	\$92.97	\$9.90	\$21.15	\$0.00	\$124.02
PILE DRIVER LOCAL 56 (ZONE 1)	08/01/2018	\$97.80	\$9.90	\$21.15	\$0.00	\$128.85
	08/01/2019	\$102.78	\$9.90	\$21.15	\$0.00	\$133.83
For apprentice rates see "Apprentice- PILE DRIVER"						
DRAWBRIDGE OPERATOR (Construction)	03/01/2018	\$50.15	\$13.00	\$17.85	\$0.00	\$81.00
ELECTRICIANS LOCAL 103	09/01/2018	\$51.34	\$13.00	\$17.89	\$0.00	\$82.23
	03/01/2019	\$52.53	\$13.00	\$17.93	\$0.00	\$83.46
For apprentice rates see "Apprentice- ELECTRICIAN"						
ELECTRICIAN	03/01/2018	\$50.15	\$13.00	\$17.85	\$0.00	\$81.00
ELECTRICIANS LOCAL 103	09/01/2018	\$51.34	\$13.00	\$17.89	\$0.00	\$82.23
	03/01/2019	\$52.53	\$13.00	\$17.93	\$0.00	\$83.46

Effect	ive Date -	03/01/2018				Supplemental	
Step	percent		Apprentice Base Wage	Health	Pension	Unemployment	Total Rate
1	40		\$20.06	\$13.00	\$0.60	\$0.00	\$33.66
2	40		\$20.06	\$13.00	\$0.60	\$0.00	\$33.66
3	45		\$22.57	\$13.00	\$13.61	\$0.00	\$49.18
4	45		\$22.57	\$13.00	\$13.61	\$0.00	\$49.18
5	50		\$25.08	\$13.00	\$13.99	\$0.00	\$52.07
6	55		\$27.58	\$13.00	\$14.38	\$0.00	\$54.96
7	60		\$30.09	\$13.00	\$14.76	\$0.00	\$57.85
8	65		\$32.60	\$13.00	\$15.15	\$0.00	\$60.75
9	70		\$35.11	\$13.00	\$15.53	\$0.00	\$63.64
10	75		\$37.61	\$13.00	\$15.93	\$0.00	\$66.54

Apprentice - ELECTRICIAN - Local 103

Effective Date - 0	9/01/2018
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Step	ve Date - 09/01/2018 percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	\$20.54	\$13.00	\$0.62	\$0.00	\$34.16
2	40	\$20.54	\$13.00	\$0.62	\$0.00	\$34.16
3	45	\$23.10	\$13.00	\$13.62	\$0.00	\$49.72
4	45	\$23.10	\$13.00	\$13.62	\$0.00	\$49.72
5	50	\$25.67	\$13.00	\$14.01	\$0.00	\$52.68
6	55	\$28.24	\$13.00	\$14.40	\$0.00	\$55.64
7	60	\$30.80	\$13.00	\$14.78	\$0.00	\$58.58
8	65	\$33.37	\$13.00	\$15.17	\$0.00	\$61.54
9	70	\$35.94	\$13.00	\$15.56	\$0.00	\$64.50
10	75	\$38.51	\$13.00	\$15.96	\$0.00	\$67.47
Notes:	:					
ĺ	App Prior 1/1/03; 30/35/	40/45/50/55/65/70/75/80				
Apprei	ntice to Journeyworker I	Ratio:2:3***				·
ATOR CONSTRU		01/01/2017	7 \$55	.86 \$15.28	\$15.71	\$0.00 \$86.

Effective Date - 01/01/2017	Loour /			Supplemental		
	Apprentice Base Wage	Health	Pension	Unemployment	Total Rat	te
1 50	\$27.93	\$15.28	\$0.00	\$0.00	\$43.2	1
2 55	\$30.72	\$15.28	\$15.71	\$0.00	\$61.7	1
3 65	\$36.31	\$15.28	\$15.71	\$0.00	\$67.3	0
4 70	\$39.10	\$15.28	\$15.71	\$0.00	\$70.0	9
5 80	\$44.69	\$15.28	\$15.71	\$0.00	\$75.6	8
Notes:	ar					
Apprentice to Journeyworker Ratio:1:1						
ELEVATOR CONSTRUCTOR HELPER ELEVATOR CONSTRUCTORS LOCAL 4	01/01/201	7 \$39.10	\$15.28	\$15.71	\$0.00	\$70.09
For apprentice rates see "Apprentice - ELEVATOR CONSTRUCTOR"						
FENCE & GUARD RAIL ERECTOR	12/01/201	7 \$33.08	\$7.70	\$13.60	\$0.00	\$54.38
LABORERS - ZONE 2	06/01/201	8 \$33.92	\$7.70	\$13.60	\$0.00	\$55.22
	12/01/201	8 \$34.76	\$7.70	\$13.60	\$0.00	\$56.06
	06/01/201	9 \$35.63	\$7.70	\$13.60	\$0.00	\$56.93
	12/01/201	9 \$36.49	\$7.70	\$13.60	\$0.00	\$57.79
	06/01/202	0 \$37.38	\$7.70	\$13.60	\$0.00	\$58.68
	12/01/202	0 \$38.27	\$7.70	\$13.60	\$0.00	\$59.57
	06/01/202	1 \$39.19	\$7.70	\$13.60	\$0.00	\$60.49
	12/01/202	1 \$40.10	\$7.70	\$13.60	\$0.00	\$61.40
For apprentice rates see "Apprentice- LABORER"						
FIELD ENG.INST.PERSON-BLDG,SITE,HVY/HWY OPERATING ENGINEERS LOCAL 4	11/01/201	7 \$42.88	\$10.00	\$15.25	\$0.00	\$68.13
	05/01/201	8 \$43.59	\$10.00	\$15.25	\$0.00	\$68.84
For apprentice rates see "Apprentice- OPERATING ENGINEERS" FIELD ENG.PARTY CHIEF-BLDG,SITE,HVY/HWY				<i></i>	** **	
OPERATING ENGINEERS LOCAL 4	11/01/201			\$15.25	\$0.00	\$69.59
For apprentice rates see "Apprentice- OPERATING ENGINEERS"	05/01/201	8 \$45.06	\$10.00	\$15.25	\$0.00	\$70.31
FIELD ENG.ROD PERSON-BLDG,SITE,HVY/HWY	11/01/201	7 \$22.83	\$10.00	\$15.25	\$0.00	\$48.08
OPERATING ENGINEERS LOCAL 4	05/01/201		\$10.00	\$15.25	\$0.00 \$0.00	\$48.51
For apprentice rates see "Apprentice- OPERATING ENGINEERS"	05/01/201	5 525.20	\$10.00	φ15.25	\$0.00	\$ 4 0.51
FIRE ALARM INSTALLER	03/01/201	8 \$50.15	\$13.00	\$17.85	\$0.00	\$81.00
ELECTRICIANS LOCAL 103	09/01/201			\$17.89	\$0.00	\$82.23
	03/01/201		\$13.00	\$17.93	\$0.00	\$83.46
For apprentice rates see "Apprentice- ELECTRICIAN"						
FIRE ALARM REPAIR / MAINTENANCE	03/01/201	8 \$37.61	\$13.00	\$15.93	\$0.00	\$66.54
/ COMMISSIONING <i>electricians</i>	09/01/201	8 \$38.51	\$13.00	\$15.96	\$0.00	\$67.47
	03/01/201	9 \$39.40	\$13.00	\$15.98	\$0.00	\$68.38
For apprentice rates see "Apprentice- TELECOMMUNICATIONS TECHNI	CIAN"					
FIREMAN (ASST. ENGINEER) OPERATING ENGINEERS LOCAL 4	12/01/201	7 \$38.57	\$10.50	\$15.50	\$0.00	\$64.57
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						

Apprentice -	ELEVATOR CONSTRUCTOR - Local 4

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
FLAGGER & SIGNALER	12/01/2017	\$21.50	\$7.70	\$13.60	\$0.00	\$42.80
LABORERS - ZONE 2	06/01/2018	\$21.50	\$7.70	\$13.60	\$0.00	\$42.80
	12/01/2018	\$22.50	\$7.70	\$13.60	\$0.00	\$43.80
	06/01/2019	\$22.50	\$7.70	\$13.60	\$0.00	\$43.80
	12/01/2019	\$23.50	\$7.70	\$13.60	\$0.00	\$44.80
	06/01/2020	\$23.50	\$7.70	\$13.60	\$0.00	\$44.80
	12/01/2020	\$24.50	\$7.70	\$13.60	\$0.00	\$45.80
	06/01/2021	\$24.50	\$7.70	\$13.60	\$0.00	\$45.80
For apprentice rates see "Apprentice- LABORER"	12/01/2021	\$24.50	\$7.70	\$13.60	\$0.00	\$45.80
FLOORCOVERER FLOORCOVERERS LOCAL 2168 ZONE I	03/01/2016	\$42.13	\$9.80	\$17.62	\$0.00	\$69.55

Effecti	ve Date - 03/01/2016				Supplemental		
Step	percent	Apprentice Base Wage	Health	Pension	Unemployment	Total Rate	
1	50	\$21.07	\$9.80	\$1.79	\$0.00	\$32.66	
2	55	\$23.17	\$9.80	\$1.79	\$0.00	\$34.76	
3	60	\$25.28	\$9.80	\$12.25	\$0.00	\$47.33	
4	65	\$27.38	\$9.80	\$12.25	\$0.00	\$49.43	
5	70	\$29.49	\$9.80	\$14.04	\$0.00	\$53.33	
6	75	\$31.60	\$9.80	\$14.04	\$0.00	\$55.44	
7	80	\$33.70	\$9.80	\$15.83	\$0.00	\$59.33	
8	85	\$35.81	\$9.80	\$15.83	\$0.00	\$61.44	
	Steps are 750 hrs. % After 09/1/17; 45/45/55/55/70/ Step 1&2 \$30.55/ 3&4 \$36.49/ 50 ntice to Journeyworker Ratio:1:1	& 6 \$ 53.33/ 7 & 8 \$ 59.33				 	
FORK LIFT/CHERRY OPERATING ENGINEERS LO		12/01/2017	7 \$46.63	\$10.50	\$15.50	\$0.00	\$72.63
For apprentice rates see '	Apprentice- OPERATING ENGINEERS"						
GENERATOR/LIGHT	ING PLANT/HEATERS DCAL 4	12/01/2017	7 \$31.80	\$10.50	\$15.50	\$0.00	\$57.80
For apprentice rates see '	'Apprentice- OPERATING ENGINEERS"						
GLAZIER (GLASS PL SYSTEMS) GLAZIERS LOCAL 35 (ZONE	ANK/AIR BARRIER/INTERIOR	01/01/2017	7 \$40.91	\$7.85	\$16.10	\$0.00	\$64.86

Apprentice - FLOORCOVERER - Local 2168 Zone I

		ive Date - 01/01/2017		TT 141	D	Supplemental	T. (1 D. ()
	Step	percent	Apprentice Base Wage	Health	Pension	Unemployment	Total Rate
	1	50	\$20.46	\$7.85	\$0.00	\$0.00	\$28.31
	2	55	\$22.50	\$7.85	\$3.66	\$0.00	\$34.01
	3	60	\$24.55	\$7.85	\$3.99	\$0.00	\$36.39
	4	65	\$26.59	\$7.85	\$4.32	\$0.00	\$38.76
	5	70	\$28.64	\$7.85	\$14.11	\$0.00	\$50.60
	6	75	\$30.68	\$7.85	\$14.44	\$0.00	\$52.97
	7	80	\$32.73	\$7.85	\$14.77	\$0.00	\$55.35
	8	90	\$36.82	\$7.85	\$15.44	\$0.00	\$60.11
	Notes:						
		Steps are 750 hrs.					
	Appre	ntice to Journeyworker Ratio:1:1					
DISTING EN		R/CRANES/GRADALLS	12/01/2017	\$46.63	3 \$10.50	\$15.50 \$0.	00 \$72.63

Apprentice -	GLAZIER - Local 35 Zone 2
	01/01/2017

Apprentice - OPERATING ENGINEERS - Local 4

Effective l	Date - 12/01/2017				Supplemental		
Step pe	ercent	Apprentice Base Wage	Health	Pension	Unemployment	Total Rate	
1 5	5	\$25.65	\$10.50	\$0.00	\$0.00	\$36.15	
2 6	0	\$27.98	\$10.50	\$15.50	\$0.00	\$53.98	
3 6	5	\$30.31	\$10.50	\$15.50	\$0.00	\$56.31	
4 7	0	\$32.64	\$10.50	\$15.50	\$0.00	\$58.64	
5 7	75	\$34.97	\$10.50	\$15.50	\$0.00	\$60.97	
6 8	0	\$37.30	\$10.50	\$15.50	\$0.00	\$63.30	
7 8	35	\$39.64	\$10.50	\$15.50	\$0.00	\$65.64	
8 9	0	\$41.97	\$10.50	\$15.50	\$0.00	\$67.97	
Notes:							
Apprentic	ce to Journeyworker Ratio:1:6						
HVAC (DUCTWORK) SHEETMETAL WORKERS LOCAI	L 17 - A	02/01/2018	8 \$44.11	\$12.20	\$24.12	\$2.41	\$82.84
For apprentice rates see "App	prentice- SHEET METAL WORKER"						
HVAC (ELECTRICAL CO	ONTROLS)	03/01/2018	8 \$50.15	\$13.00	\$17.85	\$0.00	\$81.00
ELECTRICIANS LOCAL 103		09/01/2018	8 \$51.34	\$13.00	\$17.89	\$0.00	\$82.23
For apprentice rates see "App	orentice- ELECTRICIAN"	03/01/2019	9 \$52.53	\$13.00	\$17.93	\$0.00	\$83.46
HVAC (TESTING AND B. SHEETMETAL WORKERS LOCA	,	02/01/2018	8 \$44.11	\$12.20	\$24.12	\$2.41	\$82.84
For apprentice rates see "App	orentice- SHEET METAL WORKER"						

Issue Date: 03/07/2018

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Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
HVAC (TESTING AND BALANCING -WATER) PIPEFITTERS LOCAL 537	03/01/2017	\$51.19	\$9.70	\$18.14	\$0.00	\$79.03
For apprentice rates see "Apprentice- PIPEFITTER" or "PLUMBER/PIPEFITTER"						
HVAC MECHANIC PIPEFITTERS LOCAL 537	03/01/2017	\$51.19	\$9.70	\$18.14	\$0.00	\$79.03
For apprentice rates see "Apprentice- PIPEFITTER" or "PLUMBER/PIPEFITTER"						
HYDRAULIC DRILLS	12/01/2017	\$33.58	\$7.70	\$13.60	\$0.00	\$54.88
LABORERS - ZONE 2	06/01/2018	\$34.42	\$7.70	\$13.60	\$0.00	\$55.72
	12/01/2018	\$35.26	\$7.70	\$13.60	\$0.00	\$56.56
	06/01/2019	\$36.13	\$7.70	\$13.60	\$0.00	\$57.43
	12/01/2019	\$36.99	\$7.70	\$13.60	\$0.00	\$58.29
	06/01/2020	\$37.88	\$7.70	\$13.60	\$0.00	\$59.18
	12/01/2020	\$38.77	\$7.70	\$13.60	\$0.00	\$60.07
	06/01/2021	\$39.69	\$7.70	\$13.60	\$0.00	\$60.99
	12/01/2021	\$40.60	\$7.70	\$13.60	\$0.00	\$61.90
For apprentice rates see "Apprentice- LABORER"						
INSULATOR (PIPES & TANKS)	09/01/2017	\$47.09	\$11.75	\$14.20	\$0.00	\$73.04
HEAT & FROST INSULATORS LOCAL 6 (BOSTON)	09/01/2018	\$49.34	\$11.75	\$14.20	\$0.00	\$75.29
	09/01/2019	\$51.84	\$11.75	\$14.20	\$0.00	\$77.79

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

Effecti	ve Date -	09/01/2017				Supplemental		
Step	percent		Apprentice Base Wage	Health	Pension	Unemployment	Total Rate	
1	50		\$23.55	\$11.75	\$10.45	\$0.00	\$45.75	
2	60		\$28.25	\$11.75	\$11.20	\$0.00	\$51.20	
3	70		\$32.96	\$11.75	\$11.95	\$0.00	\$56.66	
4	80		\$37.67	\$11.75	\$12.70	\$0.00	\$62.12	

Effecti	ive Date - 09/01/2018				Supplemental	
Step	percent	Apprentice Base Wage	Health	Pension	Unemployment	Total Rate
1	50	\$24.67	\$11.75	\$10.45	\$0.00	\$46.87
2	60	\$29.60	\$11.75	\$11.20	\$0.00	\$52.55
3	70	\$34.54	\$11.75	\$11.95	\$0.00	\$58.24
4	80	\$39.47	\$11.75	\$12.70	\$0.00	\$63.92
Notes:	Steps are 1 year					
Appre	ntice to Journeyworker Ratio:1:4					
IRONWORKER/WELI IRONWORKERS LOCAL 7 (B		03/16/2017	7 \$44.6	5 \$7.80	\$20.85	\$0.00 \$73.30

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1	Effecti	ive Date - 03/16/2017				Supplemental		
	Step	percent	Apprentice Base Wage	Health	Pension	Unemployment	Total Rate	
-	1	60	\$26.79	\$7.80	\$20.85	\$0.00	\$55.44	
	2	70	\$31.26	\$7.80	\$20.85	\$0.00	\$59.91	
	3	75	\$33.49	\$7.80	\$20.85	\$0.00	\$62.14	
	4	80	\$35.72	\$7.80	\$20.85	\$0.00	\$64.37	
	5	85	\$37.95	\$7.80	\$20.85	\$0.00	\$66.60	
	6	90	\$40.19	\$7.80	\$20.85	\$0.00	\$68.84	
[]	Notes:					·		
		** Structural 1:6; Ornamental 1:4					ĺ	
4	Appre	entice to Journeyworker Ratio:**						
		VING BREAKER OPERATOR	12/01/2017	\$33.0	8 \$7.70	\$13.60	\$0.00	\$54.38
BORERS - ZONE 2			06/01/2018	\$33.9	2 \$7.70	\$13.60	\$0.00	\$55.22
			12/01/2018	\$34.7	6 \$7.70	\$13.60	\$0.00	\$56.06
			06/01/2019	\$35.6	3 \$7.70	\$13.60	\$0.00	\$56.93
			12/01/2019	\$36.4	9 \$7.70	\$13.60	\$0.00	\$57.79
			06/01/2020	\$37.3	8 \$7.70	\$13.60	\$0.00	\$58.68
			12/01/2020	\$38.2	7 \$7.70	\$13.60	\$0.00	\$59.57
			06/01/2021	\$39.1	9 \$7.70	\$13.60	\$0.00	\$60.49
The second se			12/01/2021	\$40.1	0 \$7.70	\$13.60	\$0.00	\$61.40
ABORER	ites see	"Apprentice- LABORER"	10/01/2015		2 0 0 0 0	\$13.60	¢0.00	054.10
BORERS - ZONE 2	2		12/01/2017			\$13.60	\$0.00 \$0.00	\$54.13
			06/01/2018			\$13.60	\$0.00 \$0.00	\$54.97
			12/01/2018 06/01/2019			\$13.60	\$0.00 \$0.00	\$55.81 \$56.68
			12/01/2019			\$13.60	\$0.00	\$50.08 \$57.54
			06/01/2019			\$13.60	\$0.00	\$57.54
			12/01/2020			\$13.60	\$0.00	\$58.45 \$59.32
			06/01/2021			\$13.60	\$0.00	\$59.52 \$60.24
			12/01/2021			\$13.60	\$0.00	\$61.15
			12/01/2021	φ.9.9.0	5 \$1.10	ψ15.00	ψ0.00	φ01.15

Apprentice -	IRONWORKER - Local 7 Boston
Effective Date	- 03/16/2017

		ntice - <i>LABORER - Zone 2</i> ve Date - 12/01/2017						
	Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate	
	1	60	\$19.70	\$7.70	\$13.60	\$0.00	\$41.00	
	2	70	\$22.98	\$7.70	\$13.60	\$0.00	\$44.28	
	3	80	\$26.26	\$7.70	\$13.60	\$0.00	\$47.56	
	4	90	\$29.55	\$7.70	\$13.60	\$0.00	\$50.85	
	Effecti	ve Date - 06/01/2018				Supplemental		
	Step	percent	Apprentice Base Wage	Health	Pension	Unemployment	Total Rate	
	1	60	\$20.20	\$7.70	\$13.60	\$0.00	\$41.50	
	2	70	\$23.57	\$7.70	\$13.60	\$0.00	\$44.87	
	3	80	\$26.94	\$7.70	\$13.60	\$0.00	\$48.24	
	4	90	\$30.30	\$7.70	\$13.60	\$0.00	\$51.60	
	Notes:							
	<u>Annre</u>	ntice to Journeyworker Ratio:1:5						
ABORER		TER TENDER	12/01/2017	\$32.83	\$7.70	\$13.60	\$0.00	\$54.13
BORERS - ZON			06/01/2018		\$7.70 \$7.70	\$13.60	\$0.00 \$0.00	\$54.15
			12/01/2018		\$7.70 \$7.70	\$13.60	\$0.00	\$55.81
			06/01/2019			\$13.60	\$0.00	\$56.68
			12/01/2019			\$13.60	\$0.00	\$50.00 \$57.54
			06/01/2020			\$13.60	\$0.00	\$58.43
			12/01/2020			\$13.60	\$0.00	\$59.32
			06/01/2021			\$13.60	\$0.00	\$60.24
			12/01/2021			\$13.60	\$0.00	\$61.15
For apprentic	e rates see '	Apprentice- LABORER"	12/01/2021	\$39.03	\$7.70	\$15.00	\$0.00	\$01.15
ABORER: C	EMENT	FINISHER TENDER	12/01/2017	\$32.83	\$7.70	\$13.60	\$0.00	\$54.13
BORERS - ZON	IE 2		06/01/2018		\$7.70	\$13.60	\$0.00	\$54.97
			12/01/2018	\$34.51	\$7.70	\$13.60	\$0.00	\$55.81
			06/01/2019	\$35.38	\$7.70	\$13.60	\$0.00	\$56.68
			12/01/2019	\$36.24	\$7.70	\$13.60	\$0.00	\$57.54
			06/01/2020	\$37.13	\$7.70	\$13.60	\$0.00	\$58.43
			12/01/2020			\$13.60	\$0.00	\$59.32
			06/01/2021			\$13.60	\$0.00	\$60.24
			12/01/2021	\$39.85	\$7.70	\$13.60	\$0.00	\$61.15
For apprentic	e rates see '	Apprentice- LABORER"						
ABORER: H BORERS - ZON		OUS WASTE/ASBESTOS REMO	VER 12/01/2017	\$33.03	\$7.70	\$13.55	\$0.00	\$54.28
DUKERS - ZUN	15 2		06/01/2018	\$33.87	\$7.70	\$13.55	\$0.00	\$55.12
			12/01/2018	\$34.71	\$7.70	\$13.55	\$0.00	\$55.96
			06/01/2019	\$35.58	\$7.70	\$13.55	\$0.00	\$56.83

Issue Date: 03/07/2018

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Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
LABORER: MASON TENDER	12/01/2017	\$33.08	\$7.70	\$13.60	\$0.00	\$54.38
LABORERS - ZONE 2	06/01/2018	\$33.92	\$7.70	\$13.60	\$0.00	\$55.22
	12/01/2018	\$34.76	\$7.70	\$13.60	\$0.00	\$56.06
	06/01/2019	\$35.63	\$7.70	\$13.60	\$0.00	\$56.93
	12/01/2019	\$36.49	\$7.70	\$13.60	\$0.00	\$57.79
	06/01/2020	\$37.38	\$7.70	\$13.60	\$0.00	\$58.68
	12/01/2020	\$38.27	\$7.70	\$13.60	\$0.00	\$59.57
	06/01/2021	\$39.19	\$7.70	\$13.60	\$0.00	\$60.49
	12/01/2021	\$40.10	\$7.70	\$13.60	\$0.00	\$61.40
For apprentice rates see "Apprentice- LABORER"						
LABORER: MULTI-TRADE TENDER LABORERS - ZONE 2	12/01/2017	\$32.83	\$7.70	\$13.60	\$0.00	\$54.13
LADURERS - LUNE 2	06/01/2018	\$33.67	\$7.70	\$13.60	\$0.00	\$54.97
	12/01/2018	\$34.51	\$7.70	\$13.60	\$0.00	\$55.81
	06/01/2019	\$35.38	\$7.70	\$13.60	\$0.00	\$56.68
	12/01/2019	\$36.24	\$7.70	\$13.60	\$0.00	\$57.54
	06/01/2020	\$37.13	\$7.70	\$13.60	\$0.00	\$58.43
	12/01/2020	\$38.02	\$7.70	\$13.60	\$0.00	\$59.32
	06/01/2021	\$38.94	\$7.70	\$13.60	\$0.00	\$60.24
For apprentice rates see "Apprentice- LABORER"	12/01/2021	\$39.85	\$7.70	\$13.60	\$0.00	\$61.15
LABORER: TREE REMOVER	12/01/2017	\$32.83	\$7.70	\$13.60	\$0.00	\$54.13
LABORERS - ZONE 2	06/01/2018	\$33.67	\$7.70	\$13.60	\$0.00	\$54.97
	12/01/2018	\$34.51	\$7.70	\$13.60	\$0.00	\$55.81
	06/01/2019	\$35.38	\$7.70	\$13.60	\$0.00	\$56.68
	12/01/2019	\$36.24	\$7.70	\$13.60	\$0.00	\$57.54
	06/01/2020	\$37.13	\$7.70	\$13.60	\$0.00	\$58.43
	12/01/2020	\$38.02	\$7.70	\$13.60	\$0.00	\$59.32
	06/01/2021	\$38.94	\$7.70	\$13.60	\$0.00	\$60.24
This classification applies to all tree work associated with the removal of standing trees	12/01/2021 s, and trimming and ren	\$39.85 noval of branches	\$7.70 s and limbs w	\$13.60 hen the work is	\$0.00 s not done for	\$61.15
a utility company for the purpose of operation, maintenance or repair of utility company						
LASER BEAM OPERATOR LABORERS - ZONE 2	12/01/2017	\$33.08	\$7.70	\$13.60	\$0.00	\$54.38
	06/01/2018	\$33.92	\$7.70	\$13.60	\$0.00	\$55.22
	12/01/2018	\$34.76	\$7.70	\$13.60	\$0.00	\$56.06
	06/01/2019	\$35.63	\$7.70	\$13.60	\$0.00	\$56.93
	12/01/2019	\$36.49	\$7.70	\$13.60	\$0.00	\$57.79
	06/01/2020	\$37.38	\$7.70	\$13.60	\$0.00	\$58.68
	12/01/2020	\$38.27	\$7.70	\$13.60	\$0.00	\$59.57
	06/01/2021	\$39.19	\$7.70	\$13.60	\$0.00	\$60.49
For apprentice rates see "Apprentice- LABORER"	12/01/2021	\$40.10	\$7.70	\$13.60	\$0.00	\$61.40

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
MARBLE & TILE FINISHERS	02/01/2018	\$39.82	\$10.75	\$18.34	\$0.00	\$68.91
BRICKLAYERS LOCAL 3 - MARBLE & TILE	08/01/2018	\$40.90	\$10.75	\$18.47	\$0.00	\$70.12
	02/01/2019	\$41.41	\$10.75	\$18.47	\$0.00	\$70.63
	08/01/2019	\$42.49	\$10.75	\$18.61	\$0.00	\$71.85
	02/01/2020	\$43.00	\$10.75	\$18.61	\$0.00	\$72.36
	08/01/2020	\$44.08	\$10.75	\$18.76	\$0.00	\$73.59
	02/01/2021	\$44.59	\$10.75	\$18.76	\$0.00	\$74.10
	08/01/2021	\$45.71	\$10.75	\$18.92	\$0.00	\$75.38
	02/01/2022	\$46.18	\$10.75	\$18.92	\$0.00	\$75.85

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

Effecti	ive Date -	02/01/2018				Supplemental		
Step	percent		Apprentice Base Wage	Health	Pension	Unemployment	Total Rate	
1	50		\$19.91	\$10.75	\$18.34	\$0.00	\$49.00	
2	60		\$23.89	\$10.75	\$18.34	\$0.00	\$52.98	
3	70		\$27.87	\$10.75	\$18.34	\$0.00	\$56.96	
4	80		\$31.86	\$10.75	\$18.34	\$0.00	\$60.95	
5	90		\$35.84	\$10.75	\$18.34	\$0.00	\$64.93	

Effective Date -	08/01/2018
Encluse Date -	00/01/2010

	ve Date - 08/01/20	Apprentice Base Wage	Uaalth	Pension	Supplemental Unemployment	Total Rate
Step	percent	Applentice base wage	пеани	relision	Onempioyment	Total Kate
1	50	\$20.45	\$10.75	\$18.47	\$0.00	\$49.67
2	60	\$24.54	\$10.75	\$18.47	\$0.00	\$53.76
3	70	\$28.63	\$10.75	\$18.47	\$0.00	\$57.85
4	80	\$32.72	\$10.75	\$18.47	\$0.00	\$61.94
5	90	\$36.81	\$10.75	\$18.47	\$0.00	\$66.03

Apprentice to Journeyworker Ratio:1:3

MARBLE MASONS, TILELAYERS & TERRAZZO MECH BRICKLAYERS LOCAL 3 - MARBLE & TILE

02/01/2018	\$52.10	\$10.75	\$20.03	\$0.00	\$82.88
08/01/2018	\$53.45	\$10.75	\$20.16	\$0.00	\$84.36
02/01/2019	\$54.07	\$10.75	\$20.16	\$0.00	\$84.98
08/01/2019	\$55.42	\$10.75	\$20.30	\$0.00	\$86.47
02/01/2020	\$56.05	\$10.75	\$20.30	\$0.00	\$87.10
08/01/2020	\$57.40	\$10.75	\$20.45	\$0.00	\$88.60
02/01/2021	\$58.04	\$10.75	\$20.45	\$0.00	\$89.24
08/01/2021	\$59.44	\$10.75	\$20.61	\$0.00	\$90.80
02/01/2022	\$60.01	\$10.75	\$20.61	\$0.00	\$91.37

	Effecti	ve Date -	02/01/2018				Supplemental		
	Step	percent		Apprentice Base Wage	Health	Pension	Unemployment	Total Rate	2
	1	50		\$26.05	\$10.75	\$20.03	\$0.00	\$56.83	1
	2	60		\$31.26	\$10.75	\$20.03	\$0.00	\$62.04	Ļ
	3	70		\$36.47	\$10.75	\$20.03	\$0.00	\$67.25	j
	4	80		\$41.68	\$10.75	\$20.03	\$0.00	\$72.46	Ď
	5	90		\$46.89	\$10.75	\$20.03	\$0.00	\$77.67	,
	Effecti	ve Date -	08/01/2018				Supplemental		
	Step	percent		Apprentice Base Wage	Health	Pension	Unemployment	Total Rate	;
	1	50		\$26.73	\$10.75	\$20.16	\$0.00	\$57.64	ļ
	2	60		\$32.07	\$10.75	\$20.16	\$0.00	\$62.98	3
	3	70		\$37.42	\$10.75	\$20.16	\$0.00	\$68.33	
	4	80		\$42.76	\$10.75	\$20.16	\$0.00	\$73.67	1
	5	90		\$48.11	\$10.75	\$20.16	\$0.00	\$79.02	2
	Notes:								
	Appre	ntice to Joi	urneyworker Ratio:1:5						
MECH. SWEEI OPERATING ENGI			ON CONST. SITES)	12/01/2017	7 \$46.	17 \$10.50	\$15.50	\$0.00	\$72.17
For apprentice	rates see "	Apprentice- C	PERATING ENGINEERS"						
MECHANICS I OPERATING ENGL				12/01/2017	7 \$46.	17 \$10.50	\$15.50	\$0.00	\$72.17
For apprentice	rates see "	Apprentice- C	PERATING ENGINEERS"						
MILLWRIGHT				10/01/2017	7 \$36.	32 \$9.90	\$18.50	\$0.00	\$64.72
MILLWRIGHTS LO	CAL 1121	- Zone 2		04/01/2018	\$ \$37.	17 \$9.90	\$18.50	\$0.00	\$65.57
				10/01/2018	\$38.	.02 \$9.90	\$18.50	\$0.00	\$66.42
				04/01/2019	\$38.	87 \$9.90	\$18.50	\$0.00	\$67.27

Apprentice -	MARBLE-TILE-TERRAZZO MECHANIC - Local 3 Marble & Tile
Effective Date	- 02/01/2018

		10/01/2017						
	Step	ive Date - 10/01/2017 percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate	
	1	55	\$19.98	\$9.90	\$5.31	\$0.00	\$35.19	
	2	65	\$23.61	\$9.90	\$15.13	\$0.00	\$48.64	
	3	75	\$27.24	\$9.90	\$16.10	\$0.00	\$53.24	
	4	85	\$30.87	\$9.90	\$17.06	\$0.00	\$57.83	
	Effect	ive Date - 04/01/2018				Supplemental		
	Step	percent	Apprentice Base Wage	Health	Pension	Unemployment	Total Rate	
	1	55	\$20.44	\$9.90	\$5.31	\$0.00	\$35.65	
	2	65	\$24.16	\$9.90	\$15.13	\$0.00	\$49.19	
	3	75	\$27.88	\$9.90	\$16.10	\$0.00	\$53.88	
	4	85	\$31.59	\$9.90	\$17.06	\$0.00	\$58.55	
	Notes:							
		Steps are 2,000 hours					i	
	Appre	ntice to Journeyworker Ratio:1:5						
MORTAR MI	XER		12/01/2017	\$33.08	\$7.70	\$13.60	\$0.00	\$54.38
LABORERS - ZON	VE 2		06/01/2018		\$7.70	\$13.60	\$0.00	\$55.22
			12/01/2018	\$34.76	\$7.70	\$13.60	\$0.00	\$56.06
			06/01/2019	\$35.63	\$7.70	\$13.60	\$0.00	\$56.93
			12/01/2019	\$36.49	\$7.70	\$13.60	\$0.00	\$57.79
			06/01/2020	\$37.38	\$7.70	\$13.60	\$0.00	\$58.68
			12/01/2020	\$38.27	\$7.70	\$13.60	\$0.00	\$59.57
			06/01/2021	\$39.19	\$7.70	\$13.60	\$0.00	\$60.49
			12/01/2021	\$40.10	\$7.70	\$13.60	\$0.00	\$61.40
		"Apprentice- LABORER"						
OILER (OTHI OPERATING ENC		N TRUCK CRANES,GRADALLS) 0CAL 4	12/01/2017	\$23.24	\$10.50	\$15.50	\$0.00	\$49.24
For apprentic	e rates see	"Apprentice- OPERATING ENGINEERS"						
OILER (TRUC OPERATING ENC		NES, GRADALLS) <i>ocal 4</i>	12/01/2017	\$27.40	\$10.50	\$15.50	\$0.00	\$53.40
For apprentic	e rates see	"Apprentice- OPERATING ENGINEERS"						
OTHER POW OPERATING ENC		/EN EQUIPMENT - CLASS II 0CAL 4	12/01/2017	\$46.17	\$10.50	\$15.50	\$0.00	\$72.17
For apprentic	e rates see	"Apprentice- OPERATING ENGINEERS"						
PAINTER (BF			01/01/2017	\$51.41	\$7.85	\$16.10	\$0.00	\$75.36

Apprentice - MILLWRIGHT - Local 1121 Zone 2

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Effect	ive Date - 01/01/2017				Supplemental	
Step	percent	Apprentice Base Wage	Health	Pension	Unemployment	Total Rate
1	50	\$25.71	\$7.85	\$0.00	\$0.00	\$33.56
2	55	\$28.28	\$7.85	\$3.66	\$0.00	\$39.79
3	60	\$30.85	\$7.85	\$3.99	\$0.00	\$42.69
4	65	\$33.42	\$7.85	\$4.32	\$0.00	\$45.59
5	70	\$35.99	\$7.85	\$14.11	\$0.00	\$57.95
6	75	\$38.56	\$7.85	\$14.44	\$0.00	\$60.85
7	80	\$41.13	\$7.85	\$14.77	\$0.00	\$63.75
8	90	\$46.27	\$7.85	\$15.44	\$0.00	\$69.56
Notes:						
	Steps are 750 hrs.					
Appre	entice to Journeyworker Ratio:1:	1				
· ·	R SANDBLAST, NEW) * rfaces to be painted are new constr	01/01/2017	\$42.3	1 \$7.85	\$16.10	\$0.00 \$66.26

Apprentice -	PAINTER Local 35	- BRIDGES/TANKS

* If 30% or more of surfaces to be painted are new construct NEW paint rate shall be used.*PAINTERS LOCAL 35 - ZONE 2*

Apprentice -	PAINTER Local 35 Zone 2 - Spray/Sandblast - New
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Effective Date -	01/01/2017						
Step percent		Apprentice Base Wage	Health	Pension	Unemployment	Total Rate	
1 50		\$21.16	\$7.85	\$0.00	\$0.00	\$29.01	
2 55		\$23.27	\$7.85	\$3.66	\$0.00	\$34.78	
3 60		\$25.39	\$7.85	\$3.99	\$0.00	\$37.23	
4 65		\$27.50	\$7.85	\$4.32	\$0.00	\$39.67	
5 70		\$29.62	\$7.85	\$14.11	\$0.00	\$51.58	
6 75		\$31.73	\$7.85	\$14.44	\$0.00	\$54.02	
7 80		\$33.85	\$7.85	\$14.77	\$0.00	\$56.47	
8 90		\$38.08	\$7.85	\$15.44	\$0.00	\$61.37	
Notes: Steps ar	e 750 hrs.						
Apprentice to J	ourneyworker Ratio:1:1						
PAINTER (SPRAY OR SANDB PAINTERS LOCAL 35 - ZONE 2	LAST, REPAINT)	01/01/2017	\$40.37	\$7.85	\$16.10 \$	0.00	\$64.32

Issue Date: 03/07/2018

	Effect	ive Date - 01/01/2017						
	Step	percent	Apprentice Base Wage	Health	Pension	Unemployment	Total Rate	;
	1	50	\$20.19	\$7.85	\$0.00	\$0.00	\$28.04	
	2	55	\$22.20	\$7.85	\$3.66	\$0.00	\$33.71	
	3	60	\$24.22	\$7.85	\$3.99	\$0.00	\$36.06	I
	4	65	\$26.24	\$7.85	\$4.32	\$0.00	\$38.41	
	5	70	\$28.26	\$7.85	\$14.11	\$0.00	\$50.22	
	6	75	\$30.28	\$7.85	\$14.44	\$0.00	\$52.57	(
	7	80	\$32.30	\$7.85	\$14.77	\$0.00	\$54.92	1 7
	8	90	\$36.33	\$7.85	\$15.44	\$0.00	\$59.62	×
	Notes							
		Steps are 750 hrs.						
	Appre	entice to Journeyworker Ratio:1:						
PAINTER (TR.		MARKINGS)	12/01/2017	\$32.83	\$7.70	\$13.60	\$0.00	\$54.13
LABORERS - ZONE	2		06/01/2018	\$33.67	\$7.70	\$13.60	\$0.00	\$54.97
			12/01/2018	\$34.51	\$7.70	\$13.60	\$0.00	\$55.81
			06/01/2019	\$35.38	\$7.70	\$13.60	\$0.00	\$56.68
			12/01/2019	\$36.24	\$7.70	\$13.60	\$0.00	\$57.54
			06/01/2020	\$37.13	\$7.70	\$13.60	\$0.00	\$58.43
			12/01/2020	\$38.02	\$7.70	\$13.60	\$0.00	\$59.32
			06/01/2021	\$38.94	\$7.70	\$13.60	\$0.00	\$60.24
			12/01/2021	\$39.85	\$7.70	\$13.60	\$0.00	\$61.15
		"Apprentice- LABORER"						
		RUSH, NEW) *	01/01/2017	\$40.91	\$7.85	\$16.10	\$0.00	\$64.86
* If 30% or mo	e of sur	faces to be painted are new constr	uction,					

Apprentice -	PAINTER Local 35 Zone 2 - Spray/Sandblast - Repaint
Effective Date	- 01/01/2017

NEW paint rate shall be used. PAINTERS LOCAL 35 - ZONE 2

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Effectiv	ve Date - 01/01/2017				Supplemental		
Step	percent	Apprentice Base Wage	Health	Pension	Unemployment	Total Rate	
1	50	\$20.46	\$7.85	\$0.00	\$0.00	\$28.31	
2	55	\$22.50	\$7.85	\$3.66	\$0.00	\$34.01	
3	60	\$24.55	\$7.85	\$3.99	\$0.00	\$36.39	
4	65	\$26.59	\$7.85	\$4.32	\$0.00	\$38.76	
5	70	\$28.64	\$7.85	\$14.11	\$0.00	\$50.60	
6	75	\$30.68	\$7.85	\$14.44	\$0.00	\$52.97	
7	80	\$32.73	\$7.85	\$14.77	\$0.00	\$55.35	
8	90	\$36.82	\$7.85	\$15.44	\$0.00	\$60.11	
Notes:							
	Steps are 750 hrs.						
Apprei	ntice to Journeyworker Ratio:1:	1					
PAINTER / TAPER (BE PAINTERS LOCAL 35 - ZONE		01/01/2017	7 \$38	.97 \$7.85	\$16.10	\$0.00 \$62.92	

Apprentice -	PAINTER - Local 35 Zone 2 - BRUSH NEW
Effective Date	01/01/2017

Apprentice - PAINTER Local 35 Zone 2 - BRUSH REPAINT 01/01/2017

Ε	ffectiv	ve Date - 01/01/2017				Supplemental		
S	tep	percent	Apprentice Base Wage	Health	Pension	Unemployment	Total Rate	;
1		50	\$19.49	\$7.85	\$0.00	\$0.00	\$27.34	
2	2	55	\$21.43	\$7.85	\$3.66	\$0.00	\$32.94	
3	3	60	\$23.38	\$7.85	\$3.99	\$0.00	\$35.22	
4	ļ	65	\$25.33	\$7.85	\$4.32	\$0.00	\$37.50)
5	5	70	\$27.28	\$7.85	\$14.11	\$0.00	\$49.24	
6	ō	75	\$29.23	\$7.85	\$14.44	\$0.00	\$51.52	
7	7	80	\$31.18	\$7.85	\$14.77	\$0.00	\$53.80)
8	3	90	\$35.07	\$7.85	\$15.44	\$0.00	\$58.36	
N	otes:							
		Steps are 750 hrs.						
A	pprer	ntice to Journeyworker Ratio:1:1						
PANEL & PICKU			12/01/2012	2 \$30.28	\$9.07	\$8.00	\$0.00	\$47.35
	CON	STRUCTOR (UNDERPINNING AN	D 08/01/2017	7 \$44.27	\$9.90	\$21.15	\$0.00	\$75.32
DECK) PILE DRIVER LOCAL	56 (ZO)	NE I)	08/01/2018	8 \$46.57	\$9.90	\$21.15	\$0.00	\$77.62
		Apprentice- PILE DRIVER"	08/01/2019	9 \$48.94	\$9.90	\$21.15	\$0.00	\$79.99
PILE DRIVER	56 /70		08/01/2017	7 \$44.27	\$9.90	\$21.15	\$0.00	\$75.32
PILE DRIVER LOCAL	36 (ZOI	NE 1)	08/01/2018	8 \$46.57	\$9.90	\$21.15	\$0.00	\$77.62
			08/01/2019	9 \$48.94	\$9.90	\$21.15	\$0.00	\$79.99

TICC 4	· • •	08/01/2017						
Enect	ive Date -	08/01/2017				Supplemental		
Step	percent		Apprentice Base Wage	e Health	Pension	Unemployment	Total Rate	
1	50		\$22.14	\$9.90	\$21.15	\$0.00	\$53.19	
2	60		\$26.56	\$9.90	\$21.15	\$0.00	\$57.61	
3	70		\$30.99	\$9.90	\$21.15	\$0.00	\$62.04	
4	75		\$33.20	\$9.90	\$21.15	\$0.00	\$64.25	
5	80		\$35.42	\$9.90	\$21.15	\$0.00	\$66.47	
6	80		\$35.42	\$9.90	\$21.15	\$0.00	\$66.47	
7	90		\$39.84	\$9.90	\$21.15	\$0.00	\$70.89	
8	90		\$39.84	\$9.90	\$21.15	\$0.00	\$70.89	

Apprentice - PILE DRIVER - Local 56 Zone 1

Effective Date - 08/01/2018

	fective Date		Apprentice Base Wage	Uaalth	Pension	Supplemental Unemployment	Total Rate	
Ste	ep percer	l	Apprentice base wage	nealth	relision	Onemployment	Total Kate	
1	50		\$23.29	\$9.90	\$21.15	\$0.00	\$54.34	
2	60		\$27.94	\$9.90	\$21.15	\$0.00	\$58.99	
3	70		\$32.60	\$9.90	\$21.15	\$0.00	\$63.65	
4	75		\$34.93	\$9.90	\$21.15	\$0.00	\$65.98	
5	80		\$37.26	\$9.90	\$21.15	\$0.00	\$68.31	
6	80		\$37.26	\$9.90	\$21.15	\$0.00	\$68.31	
7	90		\$41.91	\$9.90	\$21.15	\$0.00	\$72.96	
8	90		\$41.91	\$9.90	\$21.15	\$0.00	\$72.96	
N o	otes:							
Ар	oprentice to	Journeyworker Ratio:1:5					'	
PIPEFITTER & ST PIPEFITTERS LOCAL 5		R	03/01/2017	7 \$51.19	\$9.70	\$18.14	\$0.00	\$79.03

Apprentice - PIPEFITTER - Local 537

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	\$20.48	\$9.70	\$7.50	\$0.00	\$37.68
2	45	\$23.04	\$9.70	\$18.14	\$0.00	\$50.88
3	60	\$30.71	\$9.70	\$18.14	\$0.00	\$58.55
4	70	\$35.83	\$9.70	\$18.14	\$0.00	\$63.67
5	80	\$40.95	\$9.70	\$18.14	\$0.00	\$68.79

Apprentice to Journeyworker Ratio:**

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
PIPELAYER	12/01/2017	\$33.08	\$7.70	\$13.60	\$0.00	\$54.38
LABORERS - ZONE 2	06/01/2018	\$33.92	\$7.70	\$13.60	\$0.00	\$55.22
	12/01/2018	\$34.76	\$7.70	\$13.60	\$0.00	\$56.06
	06/01/2019	\$35.63	\$7.70	\$13.60	\$0.00	\$56.93
	12/01/2019	\$36.49	\$7.70	\$13.60	\$0.00	\$57.79
	06/01/2020	\$37.38	\$7.70	\$13.60	\$0.00	\$58.68
	12/01/2020	\$38.27	\$7.70	\$13.60	\$0.00	\$59.57
	06/01/2021	\$39.19	\$7.70	\$13.60	\$0.00	\$60.49
	12/01/2021	\$40.10	\$7.70	\$13.60	\$0.00	\$61.40
For apprentice rates see "Apprentice- LABORER"						
PLUMBERS & GASFITTERS	03/01/2018	\$54.69	\$11.57	\$15.76	\$0.00	\$82.02
PLUMBERS & GASFITTERS LOCAL 12	09/01/2018	\$56.19	\$11.57	\$15.76	\$0.00	\$83.52
	03/01/2019	\$57.69	\$11.57	\$15.76	\$0.00	\$85.02
	09/01/2019	\$59.19	\$11.57	\$15.76	\$0.00	\$86.52
	03/01/2020	\$60.69	\$11.57	\$15.76	\$0.00	\$88.02
	09/01/2020	\$62.19	\$11.57	\$15.76	\$0.00	\$89.52
	03/01/2021	\$63.69	\$11.57	\$15.76	\$0.00	\$91.02

Apprentice - PLUMBER/GASFITTER - Local 12

Effecti	ive Date -	03/01/2018				Supplemental		
Step	percent		Apprentice Base Wage	Health	Pension	Unemployment	Total Rate	
1	35		\$19.14	\$11.57	\$5.72	\$0.00	\$36.43	
2	40		\$21.88	\$11.57	\$6.49	\$0.00	\$39.94	
3	55		\$30.08	\$11.57	\$8.81	\$0.00	\$50.46	
4	65		\$35.55	\$11.57	\$10.36	\$0.00	\$57.48	
5	75		\$41.02	\$11.57	\$11.90	\$0.00	\$64.49	

Effecti	ive Date - 09/01/2018				Supplemental	
Step	percent	Apprentice Base Wage	Health	Pension	Unemployment	Total Rate
1	35	\$19.67	\$11.57	\$5.72	\$0.00	\$36.96
2	40	\$22.48	\$11.57	\$6.49	\$0.00	\$40.54
3	55	\$30.90	\$11.57	\$8.82	\$0.00	\$51.29
4	65	\$36.52	\$11.57	\$10.36	\$0.00	\$58.45
5	75	\$42.14	\$11.57	\$11.90	\$0.00	\$65.61
Notes:						
	** 1:2; 2:6; 3:10; 4:14; 5:19/Steps are Step4 with lic\$61.00, Step5 with lic\$6	•				
Appre	entice to Journeyworker Ratio:**					
PNEUMATIC CONTR PIPEFITTERS LOCAL 537	OLS (TEMP.)	03/01/2017	\$51.1	9 \$9.70	\$18.14	\$0.00 \$79.03

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

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rat
NEUMATIC DRILL/TOOL OPERATOR	12/01/2017	\$33.08	\$7.70	\$13.60	\$0.00	\$54.38
ABORERS - ZONE 2	06/01/2018	\$33.92	\$7.70	\$13.60	\$0.00	\$55.22
	12/01/2018	\$34.76	\$7.70	\$13.60	\$0.00	\$56.06
	06/01/2019	\$35.63	\$7.70	\$13.60	\$0.00	\$56.93
	12/01/2019	\$36.49	\$7.70	\$13.60	\$0.00	\$57.79
	06/01/2020	\$37.38	\$7.70	\$13.60	\$0.00	\$58.68
	12/01/2020	\$38.27	\$7.70	\$13.60	\$0.00	\$59.57
	06/01/2021	\$39.19	\$7.70	\$13.60	\$0.00	\$60.49
	12/01/2021	\$40.10	\$7.70	\$13.60	\$0.00	\$61.40
For apprentice rates see "Apprentice- LABORER"						
OWDERMAN & BLASTER 4BORERS - ZONE 2	12/01/2017	\$33.83	\$7.70	\$13.60	\$0.00	\$55.13
	06/01/2018	\$34.67	\$7.70	\$13.60	\$0.00	\$55.97
	12/01/2018	\$35.51	\$7.70	\$13.60	\$0.00	\$56.81
	06/01/2019	\$36.38	\$7.70	\$13.60	\$0.00	\$57.68
	12/01/2019	\$37.24	\$7.70	\$13.60	\$0.00	\$58.54
	06/01/2020	\$38.13	\$7.70	\$13.60	\$0.00	\$59.43
	12/01/2020	\$39.02	\$7.70	\$13.60	\$0.00	\$60.32
	06/01/2021	\$39.94	\$7.70	\$13.60	\$0.00	\$61.24
	12/01/2021	\$40.85	\$7.70	\$13.60	\$0.00	\$62.15
For apprentice rates see "Apprentice- LABORER" OWER SHOVEL/DERRICK/TRENCHING MACHINE PERATING ENGINEERS LOCAL 4	12/01/2017	\$46.63	\$10.50	\$15.50	\$0.00	\$72.63
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
UMP OPERATOR (CONCRETE) PERATING ENGINEERS LOCAL 4	12/01/2017	\$46.63	\$10.50	\$15.50	\$0.00	\$72.63
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
UMP OPERATOR (DEWATERING, OTHER) PERATING ENGINEERS LOCAL 4	12/01/2017	\$31.80	\$10.50	\$15.50	\$0.00	\$57.80
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
EADY MIX CONCRETE DRIVERS after 4/30/10 Drivers Hired After 4/30/2010) <i>TEAMSTERS LOCAL 25c</i>	07/01/2017	\$28.18	\$8.48	\$9.72	\$0.00	\$46.38
EADY-MIX CONCRETE DRIVER EAMSTERS LOCAL 25c	07/01/2017	\$29.48	\$8.48	\$9.72	\$0.00	\$47.68
ECLAIMERS PERATING ENGINEERS LOCAL 4	12/01/2017	\$46.17	\$10.50	\$15.50	\$0.00	\$72.17
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
DE-ON MOTORIZED BUGGY OPERATOR BORERS - ZONE 2	12/01/2017	\$33.08	\$7.70	\$13.60	\$0.00	\$54.38
LOILIN - LOIL 2	06/01/2018	\$33.92	\$7.70	\$13.60	\$0.00	\$55.22
	12/01/2018	\$34.76	\$7.70	\$13.60	\$0.00	\$56.06
	06/01/2019	\$35.63	\$7.70	\$13.60	\$0.00	\$56.93
	12/01/2019	\$36.49	\$7.70	\$13.60	\$0.00	\$57.79
	06/01/2020	\$37.38	\$7.70	\$13.60	\$0.00	\$58.68
	12/01/2020	\$38.27	\$7.70	\$13.60	\$0.00	\$59.57
	06/01/2021	\$39.19	\$7.70	\$13.60	\$0.00	\$60.49
	12/01/2021	\$40.10	\$7.70	\$13.60	\$0.00	\$61.40
For apprentice rates see "Apprentice- LABORER"						
OLLER/SPREADER/MULCHING MACHINE PERATING ENGINEERS LOCAL 4	12/01/2017	\$46.17	\$10.50	\$15.50	\$0.00	\$72.17
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
ROOFER (Inc.Roofer Waterproofng &Roofer Damproofg)	02/01/2018	\$42.36	\$11.35	\$14.80	\$0.00	\$68.51
ROOFERS LOCAL 33	08/01/2018	\$43.46	\$11.35	\$14.80	\$0.00	\$69.61
	02/01/2019	\$44.61	\$11.35	\$14.80	\$0.00	\$70.76

	Effecti	ve Date -	02/01/2018				Supplemental		
	Step	percent	Apprent	ice Base Wage	Health	Pension	Unemployment	Total Rate	
	1	50		\$21.18	\$11.35	\$3.44	\$0.00	\$35.97	
	2	60		\$25.42	\$11.35	\$14.80	\$0.00	\$51.57	
	3	65		\$27.53	\$11.35	\$14.80	\$0.00	\$53.68	
	4	75		\$31.77	\$11.35	\$14.80	\$0.00	\$57.92	
	5	85		\$36.01	\$11.35	\$14.80	\$0.00	\$62.16	
	Effecti	ve Date -	08/01/2018				Supplemental		
	Step	percent	Apprent	ice Base Wage	Health	Pension	Unemployment	Total Rate	
	1	50		\$21.73	\$11.35	\$3.44	\$0.00	\$36.52	
	2	60		\$26.08	\$11.35	\$14.80	\$0.00	\$52.23	
	3	65		\$28.25	\$11.35	\$14.80	\$0.00	\$54.40	
	4	75		\$32.60	\$11.35	\$14.80	\$0.00	\$58.75	
	5	85		\$36.94	\$11.35	\$14.80	\$0.00	\$63.09	
	Notes:	** 1:5, 2:6	-10, the 1:10; Reroofing: 1:4, then 1:	1					
			2000 hrs.; Steps 2-5 are 1000 hrs. Mechanics' receive \$1.00 hr. above	ROOFER)					
	Appre	ntice to Jo	ırneyworker Ratio:**						
		E / PRECA	ST CONCRETE	02/01/2018	8 \$42.61	\$11.35	\$14.80	\$0.00	\$68.76
OFERS LOCAL	55			08/01/2018	\$43.71	\$11.35	\$14.80	\$0.00	\$69.86
E		A	OOFED!	02/01/2019	9 \$44.86	\$11.35	\$14.80	\$0.00	\$71.01
For apprentice	rates see '	Apprentice- R	OUFER						

Effect Step	ive Date - 02/01/2018 percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	\$17.64	\$12.20	\$5.61	\$0.00	\$35.45
2	40	\$17.64	\$12.20	\$5.61	\$0.00	\$35.45
3	45	\$19.85	\$12.20	\$10.85	\$1.29	\$44.19
4	45	\$19.85	\$12.20	\$10.85	\$1.29	\$44.19
5	50	\$22.06	\$12.20	\$11.80	\$1.38	\$47.44
6	50	\$22.06	\$12.20	\$12.05	\$1.39	\$47.70
7	60	\$26.47	\$12.20	\$13.70	\$1.57	\$53.94
8	65	\$28.67	\$12.20	\$14.65	\$1.67	\$57.19
9	75	\$33.08	\$12.20	\$16.56	\$1.86	\$63.70
10	85	\$37.49	\$12.20	\$17.96	\$2.03	\$69.68
Notes						·
	Steps are 6 mos.					
Appre	entice to Journeyworker Rati	io:1:4				
CTOR		06/01/2013	3 \$25.3	81 \$7.07	\$7.05	\$0.00 \$39

Apprentice - SHEET METAL WORKER - Local 17-A

Apprentice - SIGN ERECTOR - Local 35 Zone 2

Effecti	ive Date - 06/01/2013				Supplemental		
Step	percent	Apprentice Base Wage	Health	Pension	Unemployment	Total R	ate
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:							-
i	Steps are 4 mos.						
Appre	ntice to Journeyworker Ratio:1:1						
SPECIALIZED EARTH TEAMSTERS JOINT COUNC	H MOVING EQUIP < 35 TONS IL NO. 10 ZONE B	12/01/2010	5 \$32.44	\$10.91	\$10.89	\$0.00	\$54.24
SPECIALIZED EARTH TEAMSTERS JOINT COUNC	H MOVING EQUIP > 35 TONS IL NO. 10 ZONE B	12/01/2010	5 \$32.73	\$10.91	\$10.89	\$0.00	\$54.53

Classification

SPRINKLER FITTER SPRINKLER FITTERS LOCAL 550 - (Section A) Zone 1

Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
03/01/2018	\$57.78	\$9.12	\$18.15	\$0.00	\$85.05
10/01/2018	\$59.28	\$9.12	\$18.15	\$0.00	\$86.55
01/01/2019	\$59.28	\$9.47	\$18.35	\$0.00	\$87.10
03/01/2019	\$60.78	\$9.47	\$18.35	\$0.00	\$88.60
10/01/2019	\$62.28	\$9.47	\$18.35	\$0.00	\$90.10
03/01/2020	\$63.78	\$9.47	\$18.35	\$0.00	\$91.60
10/01/2020	\$65.28	\$9.47	\$18.35	\$0.00	\$93.10
03/01/2021	\$66.78	\$9.47	\$18.35	\$0.00	\$94.60

Apprentice - SPRINKLER FITTER - Local 550 (Section A) Zone 1 Effective Date 03/01/2018

Effecti	ive Date -	03/01/2018				Supplemental		
Step	percent		Apprentice Base Wage	Health	Pension	Unemployment	Total Rate	
1	35		\$20.22	\$9.12	\$8.90	\$0.00	\$38.24	
2	40		\$23.11	\$9.12	\$8.90	\$0.00	\$41.13	
3	45		\$26.00	\$9.12	\$8.90	\$0.00	\$44.02	
4	50		\$28.89	\$9.12	\$8.90	\$0.00	\$46.91	
5	55		\$31.78	\$9.12	\$8.90	\$0.00	\$49.80	
6	60		\$34.67	\$9.12	\$10.40	\$0.00	\$54.19	
7	65		\$37.56	\$9.12	\$10.40	\$0.00	\$57.08	
8	70		\$40.45	\$9.12	\$10.40	\$0.00	\$59.97	
9	75		\$43.34	\$9.12	\$10.40	\$0.00	\$62.86	
10	80		\$46.22	\$9.12	\$10.40	\$0.00	\$65.74	

Effe	ective Date -	10/01/2018				Supplemental		
Step	p percent		Apprentice Base Wage	Health	Pension	Unemployment	Total Ra	ite
1	35		\$20.75	\$9.12	\$8.90	\$0.00	\$38.	77
2	40		\$23.71	\$9.12	\$8.90	\$0.00	\$41.	73
3	45		\$26.68	\$9.12	\$8.90	\$0.00	\$44.	70
4	50		\$29.64	\$9.12	\$8.90	\$0.00	\$47.	66
5	55		\$32.60	\$9.12	\$8.90	\$0.00	\$50.	62
6	60		\$35.57	\$9.12	\$10.40	\$0.00	\$55.	09
7	65		\$38.53	\$9.12	\$10.40	\$0.00	\$58.	05
8	70		\$41.50	\$9.12	\$10.40	\$0.00	\$61.	02
9	75		\$44.46	\$9.12	\$10.40	\$0.00	\$63.	98
10	80		\$47.42	\$9.12	\$10.40	\$0.00	\$66.	94
Not	**	e entered prior 9/30/10:						¬
		55/60/65/70/75/80/85 850 hours						
		urneyworker Ratio:1:3						-
TEAM BOILER O	PERATOR		12/01/2017	7 \$46.17	\$10.50	\$15.50	\$0.00	\$72.17
For apprentice rates s	see "Apprentice- (PPERATING ENGINEERS"						
AMPERS, SELF-P PERATING ENGINEER		OR TRACTOR DRAWN	12/01/2017	7 \$46.17	\$10.50	\$15.50	\$0.00	\$72.17
For apprentice rates s	see "Apprentice- (PERATING ENGINEERS"						

Issue Date: 03/07/2018

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
TELECOMMUNICATION TECHNICIAN	03/01/2018	\$37.61	\$13.00	\$15.93	\$0.00	\$66.54
ELECTRICIANS LOCAL 103	09/01/2018	\$38.51	\$13.00	\$15.96	\$0.00	\$67.47
	03/01/2019	\$39.40	\$13.00	\$15.98	\$0.00	\$68.38

Effecti	ive Date -	03/01/2018				Supplemental	
Step	percent		Apprentice Base Wage	Health	Pension	Unemployment	Total Rate
1	40		\$15.04	\$13.00	\$0.45	\$0.00	\$28.49
2	40		\$15.04	\$13.00	\$0.45	\$0.00	\$28.49
3	45		\$16.92	\$13.00	\$12.74	\$0.00	\$42.66
4	45		\$16.92	\$13.00	\$12.74	\$0.00	\$42.66
5	50		\$18.81	\$13.00	\$13.03	\$0.00	\$44.84
6	55		\$20.69	\$13.00	\$13.32	\$0.00	\$47.01
7	60		\$22.57	\$13.00	\$13.61	\$0.00	\$49.18
8	65		\$24.45	\$13.00	\$13.90	\$0.00	\$51.35
9	70		\$26.33	\$13.00	\$14.19	\$0.00	\$53.52
10	75		\$28.21	\$13.00	\$14.48	\$0.00	\$55.69

Apprentice - TELECOMMUNICATION TECHNICIAN - Local 103

Effect	ive Date -	09/01/2018				Supplemental			
Step	percent		Apprentice Base Wage	Health	Pension	Unemployment	То	tal Rate	
1	40		\$15.40	\$13.00	\$0.46	\$0.00		\$28.86	
2	40		\$15.40	\$13.00	\$0.46	\$0.00		\$28.86	
3	45		\$17.33	\$13.00	\$12.75	\$0.00		\$43.08	
4	45		\$17.33	\$13.00	\$12.75	\$0.00		\$43.08	
5	50		\$19.26	\$13.00	\$13.05	\$0.00		\$45.31	
6	55		\$21.18	\$13.00	\$13.34	\$0.00		\$47.52	
7	60		\$23.11	\$13.00	\$13.62	\$0.00		\$49.73	
8	65		\$25.03	\$13.00	\$13.92	\$0.00		\$51.95	
9	70		\$26.96	\$13.00	\$14.21	\$0.00		\$54.17	
10	75		\$28.88	\$13.00	\$14.50	\$0.00		\$56.38	
Notes									
Appre	entice to Jou	rneyworker Ratio:1:1							
TERRAZZO FINISHE	. –	_	02/01/2018	8 \$51.00	\$10.75	\$20.03	\$0.00		\$81.78
BRICKLAYERS LOCAL 3 - M	<i>1ARBLE & TIL</i>	E	08/01/2018	8 \$52.35	\$10.75	\$20.16	\$0.00		\$83.26
			02/01/2019	9 \$52.99	\$10.75	\$20.16	\$0.00		\$83.90
			08/01/2019	\$54.34	\$10.75	\$20.30	\$0.00		\$85.39
			02/01/2020	\$54.98	\$10.75	\$20.30	\$0.00		\$86.03
			08/01/2020	\$56.33	\$10.75	\$20.45	\$0.00		\$87.53

02/01/2021

08/01/2021

02/01/2022

\$56.97

\$58.37

\$58.96

\$10.75

\$10.75

\$10.75

\$20.45

\$20.61

\$20.61

\$88.17

\$89.73

\$90.32

\$0.00

\$0.00

\$0.00

		ive Date - 02/01/2018						
	Step	percent	Apprentice Base Wage	Health	Pension	Unemployment	Total Rate	2
	1	50	\$25.50	\$10.75	\$20.03	\$0.00	\$56.28	5
	2	60	\$30.60	\$10.75	\$20.03	\$0.00	\$61.38	5
	3	70	\$35.70	\$10.75	\$20.03	\$0.00	\$66.48	;
	4	80	\$40.80	\$10.75	\$20.03	\$0.00	\$71.58	;
	5	90	\$45.90	\$10.75	\$20.03	\$0.00	\$76.68	;
	Notes							
	Appro	entice to Journeyworker Ratio:1:3						
EST BORING	DRILI	LER	12/01/2017	7 \$38.85	\$7.70	\$14.95	\$0.00	\$61.50
ABORERS - FOUN	NDATION	I AND MARINE	06/01/2018			\$14.95	\$0.00	\$62.45
			12/01/2018			\$14.95	\$0.00	\$63.40
			06/01/2019			\$14.95	\$0.00	\$64.40
			12/01/2019			\$14.95	\$0.00	\$65.40
			06/01/2020			\$14.95	\$0.00	\$66.39
			12/01/2020			\$14.95	\$0.00	\$67.37
			06/01/202			\$14.95	\$0.00	\$68.39
			12/01/202			\$14.95	\$0.00	\$69.40
For apprentice EST BORING		"Apprentice- LABORER"				¢14.05	#0.00	
ABORERS - FOUN			12/01/2017			\$14.95	\$0.00	\$60.22
			06/01/2018			\$14.95	\$0.00	\$61.17
			12/01/2018			\$14.95	\$0.00	\$62.12
			06/01/2019			\$14.95	\$0.00	\$63.12
			12/01/2019			\$14.95	\$0.00	\$64.12
			06/01/2020			\$14.95	\$0.00	\$65.11
			12/01/2020			\$14.95	\$0.00	\$66.09
			06/01/202			\$14.95	\$0.00	\$67.11
For apprentice	rates see	"Apprentice- LABORER"	12/01/202	1 \$45.47	\$7.70	\$14.95	\$0.00	\$68.12
EST BORING			12/01/2017	7 \$37.45	\$7.70	\$14.95	\$0.00	\$60.10
ABORERS - FOUN	VDATION	I AND MARINE	06/01/2018			\$14.95	\$0.00	\$61.05
			12/01/2018	8 \$39.35	\$7.70	\$14.95	\$0.00	\$62.00
			06/01/2019	9 \$40.35	\$7.70	\$14.95	\$0.00	\$63.00
			12/01/2019	9 \$41.35	\$7.70	\$14.95	\$0.00	\$64.00
			06/01/2020			\$14.95	\$0.00	\$64.99
			12/01/2020	0 \$43.32	\$7.70	\$14.95	\$0.00	\$65.97
			06/01/202	1 \$44.34	\$7.70	\$14.95	\$0.00	\$66.99
			12/01/202			\$14.95	\$0.00	\$68.00
For apprentice	rates see	"Apprentice- LABORER"						
RACTORS/PO		BLE STEAM GENERATORS OCAL 4	12/01/2017	7 \$46.17	\$10.50	\$15.50	\$0.00	\$72.17

Apprentice - TERRAZZO FINISHER - Local 3 Marble & Tile

Issue Date: 03/07/2018

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Classification For apprentice rates see "Apprentice- OPERATING ENGINEERS"	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
TRAILERS FOR EARTH MOVING EQUIPMENT TEAMSTERS JOINT COUNCIL NO. 10 ZONE B	12/01/2016	\$33.02	\$10.91	\$10.89	\$0.00	\$54.82
TUNNEL WORK - COMPRESSED AIR	12/01/2017	\$49.73	\$7.70	\$15.35	\$0.00	\$72.78
LABORERS (COMPRESSED AIR)	06/01/2018	\$50.68	\$7.70	\$15.35	\$0.00	\$73.73
	12/01/2018	\$51.63	\$7.70	\$15.35	\$0.00	\$74.68
	06/01/2019	\$52.63	\$7.70	\$15.35	\$0.00	\$75.68
	12/01/2019	\$53.63	\$7.70	\$15.35	\$0.00	\$76.68
	06/01/2020	\$54.62	\$7.70	\$15.35	\$0.00	\$77.67
	12/01/2020	\$55.60	\$7.70	\$15.35	\$0.00	\$78.65
	06/01/2021	\$56.62	\$7.70	\$15.35	\$0.00	\$79.67
For apprentice rates see "Apprentice- LABORER"	12/01/2021	\$57.63	\$7.70	\$15.35	\$0.00	\$80.68
FUNNEL WORK - COMPRESSED AIR (HAZ. WASTE)	12/01/2017	\$51.73	\$7.70	\$15.35	\$0.00	\$74.78
LABORERS (COMPRESSED AIR)	06/01/2018	\$52.68	\$7.70	\$15.35	\$0.00	\$75.73
	12/01/2018	\$53.63	\$7.70	\$15.35	\$0.00	\$76.68
	06/01/2019	\$54.63	\$7.70	\$15.35	\$0.00	\$77.68
	12/01/2019	\$55.63	\$7.70	\$15.35	\$0.00	\$78.68
	06/01/2020	\$56.62	\$7.70	\$15.35	\$0.00	\$79.67
	12/01/2020	\$57.60	\$7.70	\$15.35	\$0.00	\$80.65
	06/01/2021	\$58.62	\$7.70	\$15.35	\$0.00	\$81.67
	12/01/2021	\$59.63	\$7.70	\$15.35	\$0.00	\$82.68
For apprentice rates see "Apprentice- LABORER"						
ΓUNNEL WORK - FREE AIR LABORERS (FREE AIR TUNNEL)	12/01/2017	\$41.80	\$7.70	\$15.35	\$0.00	\$64.85
	06/01/2018	\$42.75	\$7.70	\$15.35	\$0.00	\$65.80
	12/01/2018	\$43.70	\$7.70	\$15.35	\$0.00	\$66.75
	06/01/2019	\$44.70	\$7.70	\$15.35	\$0.00	\$67.75
	12/01/2019	\$45.70	\$7.70	\$15.35	\$0.00	\$68.75
	06/01/2020	\$46.69	\$7.70	\$15.35	\$0.00	\$69.74
	12/01/2020	\$47.67	\$7.70	\$15.35	\$0.00	\$70.72
	06/01/2021	\$48.69	\$7.70	\$15.35	\$0.00	\$71.74
For apprentice rates see "Apprentice- LABORER"	12/01/2021	\$49.70	\$7.70	\$15.35	\$0.00	\$72.75
TUNNEL WORK - FREE AIR (HAZ. WASTE)	12/01/2017	\$43.80	\$7.70	\$15.35	\$0.00	\$66.85
ABORERS (FREE AIR TUNNEL)	06/01/2018	\$44.75	\$7.70	\$15.35	\$0.00	\$67.80
	12/01/2018	\$44.73 \$45.70	\$7.70 \$7.70	\$15.35	\$0.00	\$68.75
	06/01/2019	\$46.70	\$7.70	\$15.35	\$0.00	\$69.75
	12/01/2019	\$40.70 \$47.70	\$7.70 \$7.70	\$15.35	\$0.00	\$09.75 \$70.75
	06/01/2020	\$48.69	\$7.70	\$15.35	\$0.00	\$70.73 \$71.74
	12/01/2020	\$49.67	\$7.70	\$15.35	\$0.00	\$72.72
	06/01/2021	\$50.69	\$7.70	\$15.35	\$0.00	\$73.74
	12/01/2021	\$50.09 \$51.70	\$7.70	\$15.35	\$0.00	\$73.7 4 \$74.75
For apprentice rates see "Apprentice- LABORER"	12,01,2021	<i>\$</i> 01.70	<i><i><i><i>ϕ</i>ιιι<i>ϕ</i></i></i></i>			\$. 1.75
VAC-HAUL Teamsters joint council no. 10 zone b	12/01/2016	\$32.44	\$10.91	\$10.89	\$0.00	\$54.24

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
WAGON DRILL OPERATOR	12/01/2017	\$33.08	\$7.70	\$13.60	\$0.00	\$54.38
LABORERS - ZONE 2	06/01/2018	\$33.92	\$7.70	\$13.60	\$0.00	\$55.22
	12/01/2018	\$34.76	\$7.70	\$13.60	\$0.00	\$56.06
	06/01/2019	\$35.63	\$7.70	\$13.60	\$0.00	\$56.93
	12/01/2019	\$36.49	\$7.70	\$13.60	\$0.00	\$57.79
	06/01/2020	\$37.38	\$7.70	\$13.60	\$0.00	\$58.68
	12/01/2020	\$38.27	\$7.70	\$13.60	\$0.00	\$59.57
	06/01/2021	\$39.19	\$7.70	\$13.60	\$0.00	\$60.49
	12/01/2021	\$40.10	\$7.70	\$13.60	\$0.00	\$61.40
For apprentice rates see "Apprentice- LABORER"						
WASTE WATER PUMP OPERATOR OPERATING ENGINEERS LOCAL 4	12/01/2017	\$46.63	\$10.50	\$15.50	\$0.00	\$72.63
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
WATER METER INSTALLER Plumbers & Gasfitters local 12	03/01/2018	\$54.69	\$11.57	\$15.76	\$0.00	\$82.02
	09/01/2018	\$56.19	\$11.57	\$15.76	\$0.00	\$83.52
	03/01/2019	\$57.69	\$11.57	\$15.76	\$0.00	\$85.02
	09/01/2019	\$59.19	\$11.57	\$15.76	\$0.00	\$86.52
	03/01/2020	\$60.69	\$11.57	\$15.76	\$0.00	\$88.02
	09/01/2020	\$62.19	\$11.57	\$15.76	\$0.00	\$89.52
	03/01/2021	\$63.69	\$11.57	\$15.76	\$0.00	\$91.02
For apprentice rates see "Apprentice- PLUMBER/PIPEFITTER" or "PLUMBER/GA: Outside Electrical - East	SFILLER					
CABLE TECHNICIAN (Power Zone)	09/03/2017	\$27.14	\$7.75	\$1.81	\$0.00	\$36.70
OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104	09/05/2017	\$27.14	\$1.15	φ1.01	\$0.00	\$30.70
For apprentice rates see "Apprentice- LINEMAN"						
CABLEMAN (Underground Ducts & Cables) DUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104	09/03/2017	\$38.45	\$7.75	\$9.53	\$0.00	\$55.73
For apprentice rates see "Apprentice- LINEMAN"						
DRIVER / GROUNDMAN CDL DUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104	09/03/2017	\$31.66	\$7.75	\$9.44	\$0.00	\$48.85
For apprentice rates see "Apprentice- LINEMAN"						
DRIVER / GROUNDMAN -Inexperienced (<2000 Hrs) DUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104	09/03/2017	\$24.88	\$7.75	\$1.75	\$0.00	\$34.38
For apprentice rates see "Apprentice- LINEMAN"						
EQUIPMENT OPERATOR (Class A CDL) DUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104	09/03/2017	\$38.45	\$7.75	\$13.61	\$0.00	\$59.81
For apprentice rates see "Apprentice- LINEMAN"						
EQUIPMENT OPERATOR (Class B CDL) DUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104	09/03/2017	\$33.92	\$7.75	\$10.21	\$0.00	\$51.88
For apprentice rates see "Apprentice- LINEMAN"						
GROUNDMAN DUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104	09/03/2017	\$24.88	\$7.75	\$1.75	\$0.00	\$34.38
For apprentice rates see "Apprentice- LINEMAN"						
GROUNDMAN -Inexperienced (<2000 Hrs.) OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104	09/03/2017	\$20.35	\$7.75	\$1.61	\$0.00	\$29.71
For apprentice rates see "Apprentice- LINEMAN"						
JOURNEYMAN LINEMAN		\$45.23	\$7.75	\$16.61	\$0.00	\$69.59

		e Date - 09/03/2017		TT. 1/1	Density	Supplemental	T. (.1 D	
	•	percent	Apprentice Base Wage		Pension	Unemployment	Total Ra	
1		60	\$27.14	\$7.75	\$3.31	\$0.00	\$38.	20
2	2	65	\$29.40	\$7.75	\$3.38	\$0.00	\$40.	53
3	5	70	\$31.66	\$7.75	\$3.45	\$0.00	\$42.	86
4	ŀ	75	\$33.92	\$7.75	\$5.02	\$0.00	\$46.	69
5	5	80	\$36.18	\$7.75	\$5.09	\$0.00	\$49.	02
6	5	85	\$38.45	\$7.75	\$5.15	\$0.00	\$51.	35
7	1	90	\$40.71	\$7.75	\$7.22	\$0.00	\$55.	68
N	otes:							1
A	ppren	tice to Journeyworker Ratio:1:2						
TELEDATA CAB		LICER KERS - EAST LOCAL 104	01/01/2016	5 \$28.9	8 \$4.25	\$3.12	\$0.00	\$36.35
		/EQUIPMENT OPERATOR KERS - EAST LOCAL 104	01/01/2016	5 \$27.3	1 \$4.25	\$3.07	\$0.00	\$34.63
		I/INSTALLER/TECHNICIAN Kers - EAST LOCAL 104	01/01/2016	5 \$27.3	1 \$4.25	\$3.07	\$0.00	\$34.63
TREE TRIMMER		KERS - EAST LOCAL 104	01/31/2016	5 \$18.5	1 \$3.55	\$0.00	\$0.00	\$22.06
operating, maintain	ning, or	only to tree work done: (a) for a utility comprepairing the utility company's equipment, a apply to wholesale tree removal.				· · ·		
TREE TRIMMER		JNDMAN Kers - East Local 104	01/31/2016	5 \$16.3	2 \$3.55	\$0.00	\$0.00	\$19.87
This classification	applies	only to tree work done: (a) for a utility comp	any, R.E.A. cooperative, or railroad	d or coal mining	g company, and (b) for the purpose of	f	

Apprentice -	LINEMAN (Outside Electrical) - East Local 104
	00/02/2017

This classification applies only to tree work done: (a) for a utility company, R.E.A. cooperative, or railroad or coal mining company, and (b) for the purpose of operating, maintaining, or repairing the utility company's equipment, and (c) by a person who is using hand or mechanical cutting methods and is on the ground. This classification does not apply to wholesale tree removal.

Additional Apprentice Information:

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

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

All steps are six months (1000 hours.)

Ratios are expressed in allowable number of apprentices to journeymen or fraction thereof, unless otherwise specified.

** Multiple ratios are listed in the comment field.

*** APP to JM; 1:1, 2:2, 2:3, 3:4, 4:4, 4:5, 4:6, 5:7, 6:7, 6:8, 6:9, 7:10, 8:10, 8:11, 8:12, 9:13, 10:13, 10:14, etc.

**** APP to JM; 1:1, 1:2, 2:3, 2:4, 3:5, 4:6, 4:7, 5:8, 6:9, 6:10, 7:11, 8:12, 8:13, 9:14, 10:15, 10:16, etc.

SUMMARY OF WORK

11.1 GENERAL SCOPE OF WORK

A. The work under the Contract consists of:

- **1.** Rehabilitation of existing summer camp (seasonal) structure.
 - a. Interior Finishes, including rehab of existing concrete floor.
 - b. Exterior Roofing and Siding
 - c. Entrance Canopy
 - d. Cabinets
 - e. Accessories
 - f. MEP
 - g. Storm Water recharge
 - h. Site Paving Bituminous Concrete walkway
 - i. Erosion / Sedimentation control during construction.
- **2.** All Work either shown on the drawings or included in the specifications unless specifically indicated as not to be done.
- **3.** A "Phase 1" demolition project has been conducted at the site, which removed the bulk of fire damaged materials and equipment. Minor selective demo remains, including floor slab removal for sub-slab plumbing.

B. In addition, the Work under the Contract includes:

- **1.** Work outside the project site as called for in the Contract Documents and as required for the performance of the Work.
- **2.** The restoration of any items damaged or destroyed by encroaching upon areas outside of the project site.
- **3.** Providing and restoring, where appropriate, all temporary facilities.

C. Additional Selection Criteria:

- **1.** General Bidders must meet the additional selection criteria stated in of the Instructions to Bidders / RFP package.
- 2. If the Awarding Authority (Owner) cannot verify compliance with the additional selection criteria from the apparent low bidder's Update Statement, the Awarding Authority (Owner) or its Architect may request the bidder provide additional documentation demonstrating compliance with the Contract requirement. This may occur after the general bid opening, but prior to the Contract Award.

11.2 TIME OF COMPLETION

In accordance with Article 9 of the General Conditions, the Work shall start as stated in the Notice to Proceed and shall be complete within **60** consecutive calendar days.

11.3 NOTICE TO PROCEED

A. Upon the Owner's Validation of the Owner Contractor Agreement the Owner shall Issue the Notice to

Proceed for Construction. The Notice to Proceed shall include:

- **1.** The starting date and Construction Completion date for construction.
- **2.** The names of the Owner's contract Officer and Alternate Contract Officer.
- **B.** The Owner shall send three copies of the Notice to Proceed to the Contractor.
- **C.** The Contractor shall sign two originals and then;
 - **1.** return one to the Owner, and
 - **2.** keep one copy for its own records.

11.4 WORK UNDER SEPARATE CONTRACT

A. Coordination by Owner:

- **1.** As provided in the General Conditions, the following items shall be provided by others under a separate agreement with the Owner for which the Owner has coordinating responsibility.
 - a. Water Meter supplied by town.

B. Coordination by the Contractor:

- **1.** The following items shall be provided to the Contractor by other persons under a separate agreement with the Owner for which the Contractor has coordinating responsibility.
 - a. Water Meter installation.

11.5 ITEMS FURNISHED BY THE OWNER

- **A.** The following items will be furnished and delivered f.o.b. to the Project Ste by others at no expense to the Contractor: (N/A)
- **B.** The Contractor shall include in the Contract Sum the Cost of Unloading, uncrating and permanently installing the above listed items and remove and properly recycle or dispose off the Project Site all crating and packing materials.

11.6 SAMPLE WORK

A. (not applicable)

11.7 COORDINATION WITH PROJECT OCCUPANTS

A. (not applicable – site will not be occupied)

11.8 Permitting

A. As the site is a state-owned property, the Building Permit application is done through the State Building Inspector, District 6. (Gene Novak, (617) 590-3943). Mr. Novak has pre-reviewed the documents. Requested changes have been made.

B. As the site is a state-owned property, the plumbing permit application is done through the State Plumbing Inspector. (Taylor Roth, (617) 727-6092). Resolution Architects has met with Mr. Roth. His requested modifications have been made.

C. The Electrical Permit application is administrated locally. The Town of Natick Chief Electrical Inspector is Scott Chavious, (508) 647-6450. There are no fees for the local permits. The documents have been reviewed by Mr. Chavious, and he will issue permit upon application.

D. Resolution Architects has met with the Natick Fire Department prior to the contractor's building permit application with the state inspector. VGNA has modified design according to the requests of the NFD.

E. Resolution Architects has prepared a code report, which is attached to this section.

F. The project has received approval of the Natick Conservation Commission.

END OF SECTION 01.11.00 SUMMARY OF WORK



Resolution Architects One South Avenue Natick, MA 01760 **P**: (508) 315-3666 ResolutionArchitects.com

April 10, 2018 April 20, 2018 (Rev 1) April 26, 2018 (Rev 2)

Camp Arrowhead Restoration Natick, MA

Code Analysis

Project

Restoration of a fire damaged seasonal-use camp structure.

Use Category

A-3

Assembly uses intended for worship, recreation or amusement and other assembly uses not classified elsewhere in Group A (Community Halls, for example)

Occupancy

100 (40 campers, 60 staff)

Type Of Construction

VB. (Un-rated) Allowable footprint: 6,000 SF Proposed / Existing enclosed space: 2,067 SF

Fire Suppression

903.2.1. In A-3, Needed for:

- 1. Greater than 5,000 SF
- 2. Occupant Load of 300 or more
- 3. Fire area is on a floor other than a level of exit discharge

Therefore, fire suppression is not needed.

Plumbing Fixtures

See Plumbing Chart

Energy Conservation

Although this is a seasonal use building, thermal properties included.

Walls – full depth of existing framing cavity Attic - U 0.027, as per 2015 IECC Table C402.1.4 (R37, Min; R38 Proposed where possible)

248 CMR: BOARD OF STATE EXAMINERS OF PLUMBERS AND GAS FITTERS

10.10: continued

Table 1: Minimum Facilities For Building Occupancy.

Building Clarification	Use	To	ilets	Urinals	Lavatories	Drinking Water	Bath/	Other	Pertinent Regulations.
	Group	Females	Males	Males	Each Sex	Station with drain	Show.	Fixtures	248 CMR 10.10(19)
Theaters	A-1	1 per 30	1 per 60	50%	1 per 100	1 per 1000		1 service sink per floor	(b), (i)1., (m), (n), (p)
Nightclubs, Pubs	A-2	1 per 30	1 per 50	50%	1 per 75				(b), (m), (n), (p)
Restaurants	A-3	1 per 30	1 per 60	50%	1 per 200				(b), (m), (n), (p)
Hall, Museums, Libraries <i>etc</i> .	A-3	1 per 50	1 per 100	50%	1 per 200				(b), (i)1., (m), (n), (p)
Coliseums, Arenas	A-3	1 per 30	1 per 60	50%	1 per 150				(b), (i)1., (m), (n), (p)
House of Worship	1				1 per 200				(b), (c), (m), (n), (p)
Stadiums etc.					1 per 150				(i)1., (m), (n), (p)
Pool/Fitness Centers	А-Э	1 per 40	1 per 40	33%	1 per 60	At least one source	1 for every 40		 (i)1., (m), (n), (p). For pools, see 105 CMR for bather load.
Bathing (Public Beaches)		1 per 200	1 per 500	33%	1 per 1000		1 per 1000	1 Service Sink	(d), (m), (n), (p)
Day Care Facility (Child)	E-I-3	1 per 20	1 per 20		1 per 20			1 Service Sink	(e), (m), (n)
(Staff)	N/A	1 per 20	1 per 25	33%	1 per 40				(i), (m), (n), (p)
Detention Facility (Detainee)	I-3	1 per 6	1 per 8	33%	1 per 6		1 per 8		(f), (m), (p)
(Staff)	N/A	1 per 20	1 per 25	33%	1 per 40				(i), (m), (n), (p)
Dwellings (Single)	R	One Bath	room Grou	up and On	e Kitchen Sir	ık			(o), (q)
(Multiple)	R	One Bath	room Grou	up and On	e Kitchen Sir	nk per Unit			(o), (q)
(Hotel/Motel)	R	One Bath	room Gro	up per Uni	t				(m), (q)
(Dormitories)	R-2	1 per 6	1 per 8	33%	1 per 8		1 per 8	1 Service Sink per Floor	(g), (m), (n), (p)
Educational (Kindergarten)	Е	1 per 20	1 per 20		1 per 20	1 per 75			(h), (i), (m), (n), (p)
(Elementary)	Е	1 per 30	1 per 60	1 per 60	1 per 60	1 per 75		1 Service	~ /
(Secondary)	Е	1 per 30	1 per 90	1 per 90	1 per 90	1 per 75		Sink Per	
(Post Secondary)	Е	1 per 90	-	-	1 per 180	1 per 75		Floor	
Staff)	Е	1 per 20	-	33%	1 per 40			1	
Employee (Non-industrial)*		1 per 20	1 per 25	33%	1 per 40			1 Service Sink per Floor	(i), (m), (n), (p)

2015 IEBC Review

Project is a fire restoration. The project has space planning changes, which normally would trigger compliance with Chapter 8, Level 2. However, all space planning changes relate to compliance with the accessibility requirements of Section 705.2. Therefore, as part of the Exception to 801.1, the project shall be permitted to comply with Chapter 7.

Fire Protection remains as-is (no system).

704 Means of Egress. Reduction of one exit for a total of three. Proposed configuration meets requirements of the IBC:

a. 1007.1.1 - Remoteness of exit

b. Max Travel Distance is less than 200'

c. Common path of travel is less than 75'.

Accessibility. Proposed design meets applicable requirements.

Reroofing shall be done as per requirements of the IBC.

707 Structural. Existing structure shall be maintained. Canopy is designed so as to not increase roof loads. Fire damaged components replaced either in-kind or with supplemental framing.



Camp Arrowhead

SECTION 01 25 00

SUBSTITUTIONS

1. SCOPE / GENERAL REQUIREMENTS

- A. This section Supplements the General Conditions and other sections of Division 1 and supersedes any provisions regarding material substitutions/Or equals found in any of the technical sections of the specifications.
- B. The requirements of this section are in addition to any provisions of all other sections of these specifications.
- C. Definition-When ever a specification section names one or more brands for a given item, and the Contractor wishes to submit, for consideration, another brand, the submission shall be considered an "or-equal" or a "material substitution". For the purposes of this Contract, the terms "or-equal" and "material substitution" shall be considered synonymous
- D. In no case may an item be furnished on the Work other than the item named or described, unless the Architect, with the Owner's written concurrence, shall consider the item equal to the Item so named or described.
- E. The equality of items offered as "equal" to items named or described shall be proved to the satisfaction of the Architect at the expense of the Contractor submitting the substitution.
- F. The Architect and/or the Owner may require that full size samples of both the specified and proposed products be submitted for review and evaluation. The Contractor shall bear full cost for providing, delivering, and disposal of all such samples.
- G. The Contractor shall assume full responsibility for the performance of any item submitted as an "Or- Equal" and assume the costs of any changes in any Work that may be caused by such substitution.

2. **RELATED SECTIONS**

A. 01 33 00 SUBMITTALS

3. OR EQUAL APPROVAL PROCESS

A. On the form attached to this section, attached to the submission, the Contractor shall direct attention to any deviations, including minor limitations and variations, from the Contract Documents.

(1) On the attached form, The Contractor shall submit to the Architect for consideration of any or-equal substitution a written point-by-point comparison containing the name and full particulars of the proposed product and the product named or described in the Contract Documents.

(2) Such submittal shall in no event be made later than 90 calendar days after the Award of the Contract or 120 calendar days prior to the incorporation of the item into the Work. In any case in which the time period specified in the Contract

Substitutions – Section 01 25 00 Page - 1 Documents from the Notice to Proceed to Substantial Completion is less than 120 days, this requirement can be modified by the Architect.

(3) The Contractor shall be completely responsible for the timely submission of supporting documentation.

(4) Upon receipt of a written request for approval of an or-equal substitution, the Architect shall investigate whether the proposed item shall be considered equal to the item named or described in the Contract Documents.

(5) Upon conclusion of the investigation, the Architect shall promptly advise the Owner with written notice that the item is, or is not, considered acceptable as on Or-Equal substitution with documentation to support the determination.

(6) Should the Architect determine that the submitted product substitution is not equal to the specified standard the Architect shall send written notice of this to the Contractor.

(7) Proceeding with work using the submitted item without the concurrence of the Architect may result in rejection of the work and removal and replacement at the expense of the Contractor.

SUBSTITUTION REQUEST FORM

No substitutions will be considered without this completed for and supporting documentation Substitutions made without the completion of this form will be considered defective work as stated in AIA A201

Date		Number
Project	t	
To: Re:	Resolution Architects Request for Substitution	I
The co	ntractor proposes the follo	owing substitution in accordance with the requirements of the Contract Documents:
Scope (of Substitution	
Specifi	cation Reference	
Drawir	ng Reference	
Reason Substit	t for Proposed ution	
Benefit	to Owner	
Impact	t on Project Cost	
Impact	t on Project Schedule	
	t on Guarantees /arranties	

Coordination and Compatibility Required with Adjacent Materials and Systems	
List Deviations from Specified Requirements	
- -	

Attachments: Attach supporting documentation sufficient for Architect to evaluate substitution. Substitution Request Forms submitted without adequate documentation will be returned without review.

Attachments

Attachments: Attach supporting documentation sufficient for Architect to evaluate substitution. Substitution Request Forms submitted without adequate documentation will be returned without review.

Response Date: . List date by which response by Architect is requested to maintain project schedule and allow sufficient time for inclusion of proposed substitution.

Response Date

Submitted By:

Firm and Address

Signature below signifies acceptance of responsibility for accuracy and completeness of information included in this Substitutions Request Form

Authorized Signature

ARCHITECT RESPONSE

Notations listed below shall have the same meaning as on Architect's submittal approval stamp. Clarifications or changes in the project schedule or time shall be processed using standard project forms

Architect's Response	 Substitution Accepted
	 Accepted as Corrected
	 Revise and resubmit
	 Rejected
	 Returned Without review
Remarks	
Date	
Signed	
End of Form	

SECTION 01 31 00 PROJECT MANAGEMENT AND COORDINATION

31.1 GENERAL PROVISIONS

The Conditions of the Contract and other Sections of Division I, General Requirements apply to this section.

31.2 RELATED SECTIONS

- **A.** Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.
- **B.** Related Specification Sections include the following:
 - (1.) Section 01.45.00 Quality Control
 - (2.) Section 01.50.00 Temporary Facilities and Controls
 - (3.) Section 01.74.19 Construction Waste and Demolition Management

31.3 PROJECT MANAGEMENT

- **A.** The Contractor's attention is directed to the General Conditions.
- B. Project Superintendent.
 - (1.) The Contractor shall employ a Superintendent and necessary assistants who shall be in attendance at the Project site during performance of the Work. The Superintendent shall represent the Contractor, and communications given to the Superintendent shall be as binding as if given to the Contractor. Important communications shall be confirmed in writing. Other communications shall be similarly confirmed on written request in each case.
 - (2.) The Superintendent shall be a competent and responsible employee, satisfactory to the Owner, who is regularly employed by the Contractor and is designated by the Contractor as its representative to be in full time attendance at the Project site throughout the construction of the Work.
 - (3.) The Superintendent shall be responsible for coordinating all the Work of the Contractor and the Subcontractors. The Superintendent shall be licensed consistent with the Massachusetts Building Code.
 - (4.) The Superintendent's resume shall be submitted to the Owner prior to commencement of construction and must demonstrate to the Owner's reasonable satisfaction that the Superintendent has performed the same duties on previous construction projects similar to the Project
 - (5.) The Superintendent shall attend each job meeting.
- **C.** The Contractor must supply to the Owner the home telephone number of a responsible person who may be contacted during non-work-hours for emergencies on the Project.

- D. Project Meetings
 - (1.) Prior to commencement of the Work, the Contractor shall meet in conference with representatives of the Owner, Department, and Architect to discuss and develop mutual understandings relative to administration of the quality assurance program, safety program, labor provisions, the schedule of work, and other Contract procedures.
 - (2.) The Architect will regularly conduct job meetings, and keep the Owner informed of the progress and quality of the Work, and will endeavor to guard the Owner against defects and deficiencies in the Work. The Architect's minutes of meetings shall be the official minutes kept on the Project. The Architect shall provide copies of the meeting minutes to the Contractor and Owner.

31.4 COORDINATION

A. The Contractor is responsible for the security of partially completed work until the project is accepted by the Owner.

31.5 LABOR

- A. The Contractor shall enforce strict discipline and good order among the Contractor's employees and other persons carrying out the Work. The Contractor shall not permit employment of unfit persons or persons not skilled in tasks assigned to them, and whenever the Owner shall notify the Contractor, in writing, that any worker is, in its opinion, incompetent, unfaithful, disorderly, or otherwise unsatisfactory, such employee shall be discharged from the Work and shall not again be employed on the Project except with the consent of the Owner.
- **B.** Workers shall refrain from smoking while performing work inside the building, including basement areas. The Contractor shall remove from the project workers who consistently violate this provision

31.6 SHUTDOWN OF SERVICES. (not applicable)

31.7 COORDINATION

- **A.** The Contractor shall submit for approval to the Owner a detailed operational plan showing the sequence of operations prior to commencement of any work at the site. The Owner must approve any changes to this operational plan.
- **B.** The work must be completed in a continuous uninterrupted operation. The Contractor must use sufficient personnel and adequate equipment to complete all the necessary work requirements within a minimum period of time.
- **C.** Unless specifically authorized by the Owner, in writing, the work must be conducted between the hours of 7:00 a.m. and 4:30 p.m. on Monday through Friday. Saturday work is permitted, subject to Owner approval. No work is to be done on holidays, or Sundays other than for emergencies.

31.8 OWNER'S COOPERATION

A. The Owner shall assist the Contractor to perform the Work in accordance with the approved operational plan by removing obstructions that may be in the Contractor's way, upon proper notice from the Contractor.

END OF SECTION 01.31.00

SECTION 01.33.00 SUBMITTALS - SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES

1. RELATED DOCUMENTS

- A. This Section supplements the General Conditions.
- **B.** Consult the individual sections of the specifications for the specific submittals required under those sections and for further details and descriptions of the requirements.
- **C.** Section 01.25.00 OR Equals Product Substitution Procedures

2. GENERAL PROCEDURES FOR SUBMITTALS

- A. Timeliness The Contractor shall transmit each submittal to the Architect sufficiently in advance of performing related Work or other applicable activities so that the installation is not delayed by processing times, including disapproval and resubmittal (if required), coordination with other submittals, testing, purchasing, fabrication, delivery, and similar sequenced activities. No extension of time will be authorized because of the Contractor's failure to transmit submittals to the Architect in advance of the Work.
- **B.** Sequence The Contractor shall transmit each submittal in a sequence which will not result in the Architect's approval having to be later modified or rescinded by reason of subsequent submittals which should have been processed earlier or concurrently for coordination.
- C. Contractor's Review and Approval Only submittals received from and bearing the stamp of approval of the Contractor will be considered for review by the Architect. Submittals shall be accompanied by a transmittal notice stating name of Project, date of submittal, "To", "From" (Contractor, Subcontractor, Installer, Manufacturer, Supplier), Specification Section, or Drawing No. to which the submittal refers, purpose (first submittal, resubmittal), description, remarks, distribution record, and signature of transmitter.
- **D.** Architect's Action The Architect will review the Contractor's submittals and return them with one of the following actions recorded thereon by appropriate markings:
 - (1) Final Unrestricted Release: Where marked "Approved" the Work covered by the submittal may proceed provided it complies with the requirements of the Contract Documents.
 - (2) Final-But-Restricted Release: When marked "Approved as Noted" the Work may proceed provided it complies with the Architect's notations or corrections on the submittal and complies with the requirements of the Contract Documents. Acceptance of the Work will depend on these compliances.
 - (3) Returned for Resubmittal: When marked "Revise and Resubmit" or "Disapproved" the Work covered by the submittal (such as purchasing, fabrication, delivery, or other activity) should not proceed. The submittal should be revised or a new submittal resubmitted without delay, in accordance with the Architect's notations stating the reasons for returning the submittal.
- E. Processing All costs for printing, preparing, packaging, submitting, resubmitting, and mailing, or delivering submittals required by this contract shall be included in the Contract Sum.

3. OR EQUALS

- A. Definition Whenever a specification section names one or more brands for a given item, and the Contractor wishes to submit, for consideration, another brand, the submission shall be considered an "or-equal" or a "material substitution". For the purposes of this Contract, the terms "or-equal" and "material substitution" shall be considered synonymous.
- **B.** In no case may an item be furnished on the Work other than the item named or described, unless the Architect, with the Administrator's written concurrence, shall consider the item equal to the Item so named or described, as provided by M.G.L. c.30 § 39M.
- **C.** The equality of items offered as "equal" to items named or described shall be proved to the satisfaction of the Architect at the expense of the Contractor submitting the substitution in accordance with the process described in Section 01.25.00 of these specifications.

4. SUBMISSION OF PRODUCT DATA

- A. The Contractor shall submit 7 copies of Product Data to the Architect. All such data shall be specific and identification of material or equipment submitted shall be clearly marked in ink. Data of general nature will not be accepted.
- **B.** Product Data shall be accompanied by a transmittal notice. The Contractor's stamp of approval shall appear on the printed information itself, in a location which will not impair legibility.
- **C.** Product Data returned by the Architect as "Disapproved" shall be resubmitted in 7 copies until the Architects approval is obtained.
- **D.** When the Product Data are acceptable, the Architect will stamp them "Approved" or "Approved as Corrected", retain 3 copies, and return 4 copies to the Contractor. The Contractor shall provide and distribute additional copies as may be required to complete the Work.
- **E.** The Contractor shall maintain one full set of approved, original, Product Data at the site.

5. SUBMISSION OF SHOP DRAWINGS

- A. Shop Drawings shall be complete, giving all information necessary or requested in the individual section of the specifications. They shall also show adjoining Work and details of connection thereto.
- **B.** Shop Drawings shall be for whole systems. Partial submissions will not be accepted.
- **C.** The Architect reserves the right to review and approve shop drawings only after approval of related product data and samples.
- **D.** Shop drawings shall be properly identified and contain the name of the project, name of the firm submitting the shop drawings, shop drawing number, date of shop drawings and revisions, Contractor's stamp of approval, and sufficient spaces near the title block for the Architect's stamp.
- **E.** The Contractor shall submit to the Architect seven (7) black line prints of each shop drawing. Prints shall be mailed or delivered in roll form. Each submittal shall be accompanied by a transmittal notice bearing the Contractor's approval stamp.
- **F.** In addition to the hard copies described above, the Architect and Contractor may utilize a mutually acceptable electronic system to expedite the submittal process. This electronic system shall not be used as a substitute for the hard copy process.
- **G.** When the Architect returns a marked submittal with the stamp "Revise and Resubmit" or "Disapproved", the Contractor shall correct the original drawing or prepare a new drawing and

resubmit seven prints thereof to the Architect for approval. This procedure shall be repeated until the Architect's approval is obtained.

- **H.** When the Architect returns submittal with the stamp "Approved" or "Approved as Corrected", the Contractor shall provide and distribute the prints for all Contractor and Subcontractors use, and in addition submit, within 10 calendar days after approval, 4 prints to the Architect.
- I. The Contractor shall maintain one full set of approved shop drawings at the site.

6. SUBMISSION OF SAMPLES

- **A.** Unless otherwise specified in the individual section, the Contractor shall submit two specimens of each sample.
- **B.** A transmittal notice with the Contractors stamp of approval shall be included with all sample submittals.
- **C.** Samples shall be of adequate size to permit proper evaluation of materials. Where variations in color or in other characteristics are to be expected, samples shall show the maximum range of variation. Materials exceeding the variation of approved samples will not be approved on the Work.
- **D.** Samples of items of interior finishes shall be submitted all at once to permit a coordinated selection of colors and finishes.
- **E.** Samples that can be conveniently mailed shall be sent directly to the Architect, accompanied by a transmittal notice. All transmittals shall be stamped with the Contractor's approval stamp of the material submitted.
- **F.** All other samples shall be delivered at the field office of the Project Representative with sample identification tag attached and properly filled in.
- **G.** Transmittal notice of samples so delivered with the Contractor's stamp of approval shall be mailed to the Architect.
- **H.** If a sample is rejected by the Architect, a new sample shall be resubmitted in the specified manner. This procedure shall be repeated until the Architect approves the sample
- I. Samples will not be returned unless return is requested at the time of submission. The right is reserved to require submission of samples whether or not particular mention is made in the specifications, at no additional cost to the Owner.

END OF SECTION 01.33.00

SUBMITTALS

SECTION 01.45.00 QUALITY CONTROL

45.1 GENERAL SCOPE OF THE WORK

- **A** General Contractor's quality control and control of installation.
- B Tolerances.
- **C** References.
- **D** Mock up requirements.
- **E** Testing and Inspection Services.
- F Manufacturers' field services.
- **G** Examination.

45.2 RELATED DOCUMENTS

- A This section supplements the General Conditions, Supplementary Conditions, the Drawings, and all other parts of the Contract Documents.
- **B** Consult the individual sections of the specifications for specific items required under those sections.

45.3 QUALITY CONTROL AND CONTROL OF INSTALLATION

- A The General Contractor shall provide inspections, tests, and quality control services specified herein and in individual specification sections and required by governing authorities having jurisdiction, except where they are specifically required under a filed subbid section of the specification. In those cases they will be the responsibility of the filed subcontractor. Monitor quality control over suppliers, manufacturers, products, services, site conditions, and workmanship, to produce Work of specified quality.
- **B** Comply with manufacturer's instructions, including each step in sequence.
- **C** When manufacturer's instructions conflict with the Contract Documents, request clarification from the Architect before proceeding.
- **D** Comply with specified standards as minimum quality of Work except where more stringent tolerances, codes, or specific requirements indicate higher standards or workmanship.
- **E** Perform the Work using persons qualified to produce the required and specified quality.
- **F** Verify field measurements are as indicated on Shop Drawings or as instructed by the manufacturer.
- **G** Secure products in place with appropriate positive anchorage devices designed and sized to withstand stresses, vibration, physical distortion, or disfigurement.

45.4 TOLERANCES

- A Monitor fabrication and installation tolerance control of products to produce acceptable Work. Do not allow tolerances to accumulate.
- **B** Comply with manufacturer's tolerances. When manufacturers' tolerances conflict with Contract Documents, request clarification from the Architect before proceeding.
- **C** Adjust products to appropriate dimensions; position before securing products into place.

45.5 <u>REFERENCES</u>

- A For products or workwomanship specified by associations, trade or other consensus standards, comply with requirements of standard, except when more rigid requirements are specified or are required by applicable codes.
- **B** Conform to reference standard by date of issue current on the date of Bid Opening. Except where specific date is established by applicable code.
- **C** Obtain copies of standards where required by product specification sections.
- **D** When specified reference standards conflict with Contract Documents, request clarification from the Architect before proceeding.
- **E** Neither contractual relationships, duties, nor responsibilities of parties, nor those of the Architect shall be altered from the Contract Documents by mention or inference otherwise in reference documents.
- **45.6** <u>MOCK UP REQUIREMENTS</u> Tests will be performed under provisions identified in this section and identified in respective product specifications.
 - **B** Assemble and erection specified items with specified attachment and anchorage devices, flashings, seals and finishes.
 - **C** Accepted mock-ups shall be the comparison standard for remaining Work.
 - **D** Where mock-up has been accepted by the Architect and is specified in product specification sections to be removed; remove mock-up and clear area when directed to do so by the Architect.

45.7 TESTING AND INSPECTION SERVICES

- **A** The Owner may employ and pay for specified services of an independent firm to perform testing and inspection.
- **B** Reports will be submitted by the independent firm to the Architect and Contractor indicating observations and results of tests.
- **C** The Contractor and all Subcontractors shall cooperate with the independent firm, furnish sample materials, design mixes, equipment, tools, storage, safe access, and assistance by incidental labor as requested.
 - (1.) Notify the Architect 24 hours prior to expected time for operations requiring services.
 - (2.) The Architect will make the final decision as to when services or testing will or will not be performed.
 - (3.) Make arrangements with the independent firm and pay for additional samples and tests for the Contractor's use.

- **D** Testing and employment of testing agency or laboratory shall not relieve the Contractor of the obligation to perform work in accordance with the requirements of the Contract Documents.
- **E** Re-testing or re-inspection required because of non-conformance to specified requirements shall be performed by the same independent firm on instructions by the Architect. Payment for re-testing or re-inspection will be charged to the Contractor by deducting testing charges from the Contract Sum.
- **F** Testing Agency responsibilities:
 - (1.) Test samples of mixes submitted by the Contractor.
 - (2.) Provide qualified personnel at the site. Cooperate with the Architect and Contractor in performance of services.
 - (3.) Perform specified sampling and testing of products in accordance with specified standards.
 - (4.) Promptly notify the Architect and Contractor of observed irregularities or nonconformance of Work or products.
 - (5.) Perform additional tests required by the Architect.
 - (6.) Attend progress meetings if requested by the Architect.
- **G** Testing Agency Reports: After each test, promptly submit two copies of the report to the Architect and to the Contractor. Provide interpretation of the results when requested by the Architect. All test reports shall include:
 - (1.) Date issued.
 - (2.) Project title and number.
 - (3.) Name of inspector.
 - (4.) Date and time of sampling or inspection.
 - (5.) Identification of product and specification section(s).
 - (6.) Test location.
 - (7.) Type of inspection or test.
 - (8.) Date of test.
 - (9.) Results of tests or inspection.
 - (10.) Conformance with Contract Documents.
- **H** Limits of Testing Agency Authority
 - (1.) Testing Agency may not release, revoke, alter, or enlarge on requirements of Contract Documents.
 - (2.) Testing Agency may not approve or accept any portion of the Work.
 - (3.) Testing Agency may not assume duties of the Contractor.
 - (4.) Resting Agency has no authority to stop Work.

45.8 <u>Manufacturers' Field Services</u>

- A When individual specification section(s), require material or product suppliers or manufacturers to provide qualified staff personnel to observe site conditions, conditions of surfaces to receive work, and installation quality of workmanship, start-up of equipment, test, adjust, and balance equipment as applicable and to initiate instructions when necessary these services shall be provided at no additional cost to the Owner.
- **B** Submit the qualifications of any observers to the Architect and Owner prior to of required observations. Observers are subject to the approval of the Owner based on the observer's credentials. This submission shall be made allowing adequate time for the Architect to review the observer's credentials. This approval does not relieve the Contractor of any obligation to complete the Work in accordance with the Contract Documents.
- **C** Report to the Architect, observations and site decisions or instruction given to applicators or installers that are supplemental or contrary to manufacturers' written instructions.

45.9 EXAMINATION

- A The Contractor shall verify existing site conditions and substrate surfaces are acceptable for subsequent Work. Beginning new Work means acceptance of existing conditions.
- **B** The Contractor shall verify existing substrate is capable of structural support or attachment of new Work being applied or attached.
- **C** The Contractor shall examine and verify specific conditions described in individual specification sections.
- **D** The Contractor shall verify utility services are available, of correct characteristics, and in correct locations.

END OF SECTION 01.45.00 QUALITY CONTROL

SECTION 01.50.00 TEMPORARY FACILITIES AND CONTROLS

50.00 GENERAL REQUIREMENTS

- A. The Contractor shall be responsible for providing and maintaining all temporary facilities until Substantial Completion. Removal of such prior to Substantial Completion must be with the concurrence of the Architect. The Contractor bears full responsibility for re-providing any facility removed prior to Substantial Completion.
- **B.** Removal of all temporary facilities shall be a condition precedent to Substantial Completion unless directed otherwise by the Architect or specifically noted in the specifications.
- C. The Contractor must comply with all safety laws and regulations of the Commonwealth of Massachusetts, the United States Government, and local government agencies applicable to Work under this contract. The Contractor's attention is directed to the Commonwealth of Massachusetts, Department of Labor, and Division of Occupational Safety Regulations.

50.01 TEMPORARY ELECTRICITY

- **A.** Temporary service and lighting shall be provided by a licensed electrician selected and paid for by the Contractor. This work shall be performed under the direct supervision of at least one master electrician, who will be present on the project at all times when such work is being performed. This service shall include coordination with the local utility and other authorities having jurisdiction.
- **B.** The Contractor may make use of the electricity available at the site, metered and paid for by the Owner.
- **C.** Where heavy duty electric equipment drawing current in excess of 15 amperes is involved, the trade requiring such excessive amperage shall provide temporary service to supply the power.
- **D.** All temporary work shall be provided in conformity with the National Electric Code, State laws, and requirements of the power company. Particular attention is called to Commonwealth of Massachusetts, Department of Labor Division of Occupational Safety Regulations.
- E. Temporary Electric Service and Lighting shall include but not be limited to:
 - **1.** All labor, materials, and equipment necessary to supply temporary power of adequate capacity for the project.
 - **2.** Transformers and meters, when required by the power company, furnished by the power company and paid for by the Contractor.
 - **3.** Temporary work of a special nature, not otherwise specified hereunder, shall be provided, maintained, and paid for by the trade requiring same.
 - 4. The Contractor shall furnish, install, and maintain lamps in operating condition.
 - **5.** The Contractor, and each Subcontractor, shall furnish their own extension cords and additional lamps as may be required for their work.
 - **6.** All lamps installed in permanent lighting fixtures and used as temporary lights during the construction period shall be removed and replaced shortly before Substantial Completion by the appropriate set of lamps required to be provided under the Electrical section of the specifications.
 - 7. The temporary electrical facilities shall be dismantled and completely removed from the project

site. This removal shall occur when the permanent electrical system is operational and accepted by the Architect. Removal shall be done by a properly licensed electrician.

50.02 TEMPORARY FIRE PROTECTION

- **A.** The Contractor shall take necessary precautions to insure against fire during construction. The Contractor shall be responsible to insure that the area within contract limits is kept orderly and clean and that combustible rubbish and construction debris is promptly removed from the site.
- B. Installation of equipment suitable for fire protection shall be done as soon as possible after commencement of the Work. The Contractor's attention is directed to the requirements of the Commonwealth of Massachusetts, Department of Labor and Workforce Development Regulation 454 CMR.

50.03 TEMPORARY HEAT

- A. Providing temporary heating service and equipment in interior spaces:
 - **1.** The Contractor shall be completely responsible for providing all equipment and labor required to comply with this section.
 - **2.** The Contractor shall utilize the services of a qualified Heating subcontractor for providing Temporary Heat. These services shall be paid for by the Contractor.
- B. (reserved)
- **C.** The Contractor shall provide thermometers at places designated by the Architect in order to determine if specified temperatures are being maintained.
- **D.** Temporary heating system work shall be performed under the direct supervision of individuals properly licensed to perform the necessary work.
- **E.** All temporary work shall be provided in conformity with all applicable codes, State laws, and requirements of the utility company. Particular attention is called to Commonwealth of Massachusetts, Department of Labor Division of Occupational Safety Regulations.
- **F.** The Contractor shall pay the costs of all fuel and electricity required for temporary heating until Substantial Completion unless specified otherwise.
- **G.** Utilizing the Permanent Heating System for Temporary Heat:
 - 1. The Contractor may, with the approval of the Owner, elect to utilize the permanent heating system for temporary heat. This may be allowed if the building is enclosed and after the heating system has been tested and is ready to operate and providing the Contractor complies with all provisions stated elsewhere in the Contract Documents.
 - 2. If the permanent heating system cannot be utilized or if work requires a shutdown of the existing system the Contractor shall make arrangements, acceptable to the Owner, to comply with this requirement at no additional cost to the Owner.
 - **3.** The Contractor shall furnish and pay the costs of any materials and equipment which are not part of the permanent heating system and which may be required to operate the permanent heating system on a temporary basis.
 - **4.** The Contractor shall have a qualified heating mechanic check the heating system a minimum of twice daily, when no work is being performed at the site.
 - 5. It shall be the Contractor's responsibility to have all portions of the permanent heating system that are used for heating during construction thoroughly cleaned and restored to first class condition, to the satisfaction of the Owner.

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- 6. No parts of the air handling system shall be used until temporary filters have been installed satisfactory to the Architect. Such filters shall be kept clean and in efficient working condition, and at the time of Substantial Completion shall be replaced by the permanent filters at no cost to the Owner.
- **7.** The Owner's warranty for the permanent heating system shall begin on the date of Substantial Completion of the entire project
- **H.** Installation of weather protection and heating devices shall comply with all safety regulations including provisions for adequate ventilation and fire protection devices.
- I. Unit heaters, if used, shall be of the smokeless type and be installed and operated in such a way that finished work will not be damaged. "Salamanders" shall not be used.
- J. Providing temporary heating service and equipment for exterior work:
 - **1.** Temporary heat in outside areas shall be in compliance with MGL c149 §44G.
 - **2.** Installation of weather protection and heating devices shall comply with all safety regulations including provisions for adequate ventilation and fire protection devices.
 - **3.** Unit heaters, if used, shall be of the smokeless type and be installed and operated in such a way that finished work will not be damaged. "Salamanders" shall not be used.

50.04 TEMPORARY TELECOMMUNICATIONS & FIELD OFFICE

- **A.** The Contractor shall be available through mobile phone service at all times and shall provide a 24 hour phone number and contact in case of emergencies.
- **B.** Field office is not required. Use interior space for office function.

50.05 TEMPORARY WATER

- A. The Contractor may make use of the available water supply at the site for construction purposes, provided the permission of the Owner is obtained beforehand, water is verified at the source and only as long as the water is not used wastefully. Coordinate with town water department for activation of the water service.
- **B.** The Contractor shall provide all necessary piping and hoses to utilize the available sources of water.
- **C.** The Contractor shall provide an adequate supply of cool potable drinking water with individual drinking cups for personnel on the job.

50.06 TEMPORARY STRUCTURES AND MATERIAL HANDLING

- **A.** The Contractor shall provide such storage sheds, temporary buildings, or trailers as required for the performance of the Contract. Subcontractors shall provide their own temporary buildings and trailers. Storage shall be located where directed by the Owner.
- **B.** Materials shall be handled, stored, installed, cleaned, and protected in accordance with the best practice in the industry and, except where otherwise specified in the Contract Documents, in accordance with manufacturer's specifications and directions.
- **C.** The Contractor must obtain the permission of the Owner for the use of any storage facilities available on site, but the Owner assumes no responsibility for articles stored.
- **D.** Lawns, paving or other surfaces within areas used by the Contractor shall be restored to original condition when temporary structures are removed.

50.07 SANITARY FACILITIES

A. The Contractor shall provide and service an adequate number of toilet booths with chemical type toilets.

B. The toilets shall be erected in a location approved by the Architect and shall be maintained by the Contractor in a clean and orderly condition in compliance with all local and state health requirements.

50.08 TEMPORARY USE OF ELEVATOR (N/A)

50.09 HOISTING FACILITIES

A. Except as otherwise specified, the Contractor shall provide, operate, and remove material hoists, cranes, and other hoisting as required for the performance of the Work by all trades. All such hoisting service shall be without cost to the Subcontractors.

50.10 TEMPORARY STAGING, STAIRS, CHUTES

- **A.** Except as otherwise specified, the Contractor shall furnish, install, maintain in safe condition, and remove all scaffolds, staging, and planking over 8 ft. in height, as required for the use of all trades for proper execution of the Work.
- **B.** The Contractor shall furnish, install, maintain in safe condition, and remove all temporary ramps, stairs, ladders, and similar items as required for the use of all trades for the proper execution of the Work.
- **C.** Permanent stairs shall be erected as soon as possible, for which the Contractor shall provide temporary protective treads, risers, handrails, and shaft protection.
- **D.** The Contractor shall furnish, install, maintain, and remove covered chutes from openings in the exterior walls of upper floors. Such shall be in convenient locations and permit disposal of rubbish directly into trucks or disposal units.
- **E.** Debris shall not be allowed to fall freely from upper levels of the building. Materials shall not be dropped from open windows.

50.11 TEMPORARY PARKING

A. Use available space on site.

50.12 TEMPORARY TRAFFIC CONTROL (N/A)

50.13 TEMPORARY PROTECTION

- **A.** All dwelling units will be occupied during construction. The Contractor shall take all necessary precautions to ensure the public safety and convenience of the occupants during construction.
- **B.** Any damage to buildings, roads, (public and private), bituminous concrete areas, fences, lawn areas, trees, shrubbery, poles, underground utilities, etc. shall be made good by and at the Contractor's own expense, all to the satisfaction of the Owner.
- **C.** The Contractor shall patch, repair and/or replace all adjacent materials and surfaces damaged after the installation of new work at no expense to the Owner. All repair and replacement work shall match the existing in kind and appearance.

50.15 NOISE AND DUST CONTROL

- **A.** The Contractor shall take special measures to protect the residents, neighbors, and general public from noise, dust, and other disturbances by:
 - 1. Keeping common pedestrian and vehicular circulation areas clean and unobstructed;
 - 2. Insulating work area from occupied portions as far as possible; and
 - **3.** Sealing dust and fumes from contaminating occupied spaces.

- **A.** The Contractor shall:
 - In addition to the weather protection during the months of November to March specified elsewhere, provide temporary watertight enclosures for openings in exterior walls and in roof decks when and as required to protect the Work from damage by inclement weather. Temporary enclosures shall be provided with adequate means of ventilation to prevent accumulation of moisture in the buildings.
 - **2.** Provide temporary wood doors for exterior entrances and elsewhere as required. Permanent door enclosures shall not be used as temporary enclosures.
 - **3.** Protect sills, jambs, and heads of openings through which materials are handled.
 - **4.** Protect decks and slabs to receive work by other trades from any soiling which will prevent proper adhesion of subsequent Work. Decks and slabs shall be left clean and free of blemishes at the time other trades begin the application of their work.
 - 5. Protect concrete slabs to remain exposed and finished floors against mechanical damage, plaster droppings, oil, grease, paint, or other material which will stain the floor finish. Install and maintain adequate strips of building paper or other protection on finished floors in rooms where other trades will do future Work.
 - 6. Protect all surfaces to receive work by other trades from any soiling which will prevent proper execution of subsequent work
 - **7.** Protect other areas, furniture, and private property of the residents and the Owner. Any areas damaged by the Contractor shall be restored to the original condition or compensated at the Contractor's expense.
- **B.** Roof surfaces and waterproofed surfaces shall not be subjected to traffic nor shall they be used for storage of materials. Where some activity must take place in order to carry out the Work, adequate protection must be provided.
- **C.** After the installation of any Work is completed, the Contractor shall be responsible for its protection and for repairing, replacing, or cleaning any such Work which has been damaged by other trades or by any other cause, so that all Work is in first class condition at the time of Substantial Completion.

50.17 TEMPORARY PROTECTIVE WALKWAYS (not applicable)

50.18 TEMPORARY CONSTRUCTION FENCE (not applicable)

50.19 SECURITY

- **A.** The Contractor shall be responsible for providing all security precautions necessary to protect the Contractor's and Owner's interests.
- **B.** Where excavation is involved, the Contractor shall be responsible for providing continuous watchmen service as necessary, to insure adequate protection of the general public.

50.20 TEMPORARY STORM WATER POLLUTION CONTROL

A. Protect excavations, trenches, buildings, and materials at all times from rain water, ground water, backing-up, or leakage of sewers, drains, or other piping, or from water damage of any origin. Provide all pumps, piping, coverings, and other materials and equipment as required by job conditions to accomplish this requirement

B. Adhere to the erosion / sedimentation control measures indictated on the drawings.

50.21 WEATHER PROTECTION

- A. The Contractor shall provide temporary enclosures and heat to permit work to be carried on during the months of November through March in compliance with MGL c.149 §44G (d). These specifications are not to be construed as requiring enclosures or heat for operations that are not economically feasible in the opinion of the Owner. Without limitation this includes such items as excavation, pile driving, steel erection, erection of certain exterior wall panels, roofing, and similar operations.
- B. "Weather Protection" means 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 Owner and consistent with the construction schedule to permit the continuous progress of all Work necessary to maintain an orderly and efficient sequence of construction operations. The Contractor shall furnish and install "Weather Protection" material and be responsible for all costs, including heating required to maintain a minimum 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 conditions set forth in the Contract Documents with added regard to performance obligations of the Contractor.
- **C.** Within 30 calendar days after award of the Contract, the Contractor shall submit in writing, to the Architect for approval, three (3) copies of the proposed methods for "Weather Protection".
- **D.** The Contractor shall assume the entire responsibility for weather protection during construction (until Substantial Completion), and shall be liable for any damage to any Work caused by failure to supply proper weather protection and proper ventilation.
- **E.** Work damaged by frost shall be removed and replaced by and at the Contractor's expense and as directed by the Architect.
- **F.** It is to be specifically understood that the Contractor shall do no work under any conditions deemed unsuitable by the Contractor to the execution of the Work. This provision shall not constitute any waiver, release, or lessening of the Contractor's obligation to bring the Work to Substantial Completion within the period of time set forth in the Contract Documents.

50.22 WIND PROTECTION

A. Should high wind warnings be issued by the U.S. Weather Bureau, the Contractor shall take every precaution to minimize danger to persons, to the Work, and to the adjacent property.

50.23 CONSERVATION REQUIREMENTS

- A. No vehicle refueling shall occur within 100' of Lake Cochituate.
- B. Maintain "spill kit" on site.

END OF SECTION 01.50.00

SECTION 01.73.29 CUTTING AND PATCHING

1 GENERAL SCOPE OF THE WORK

- **A** Unless specified elsewhere, the Contractor shall be responsible for:
 - (1.) All cutting and patching required for the project construction.
 - (2.) Products and installation for patching and extending Work.
 - (3.) Transition and adjustments.
 - (4.) Repair of damaged surfaces, finishes, and cleaning.
 - (5.) Coordination of any cutting and patching required by subtrades.
- **B** Cut existing construction to provide for installation of other components or performance of other construction activities and the subsequent fitting and patching required to restore surfaces to their original condition
- **C** The Contractor must comply with all safety laws and regulations of the Commonwealth of Massachusetts, the United States Government, and local government agencies applicable to Work under this contract. The Contractor's attention is directed to the Commonwealth of Massachusetts, Department of Labor, Division of Occupational Safety Regulations.

2 RELATED SECTIONS

- A This section supplements the General Conditions.
- **B** Consult the individual sections of the specifications for specific items required under those sections.
- **C** Section 01.74.13 Progress Cleaning and Final Cleaning

3 EXAMINATION

- A Examine surfaces to be cut and patched and conditions under which cutting and patching is to be performed before cutting, including elements subject to damage or movement during cutting and patching. If unsafe or unsatisfactory conditions are encountered, take corrective action before proceeding.
- **B** Do not cut and patch construction exposed on the exterior or in occupied spaces in a manner that would, in the Architect's opinion, reduce the building's aesthetic qualities. Do not cut and patch construction in a manner that would result in visual evidence of cutting and patching. Remove and replace visually unacceptable areas of cutting and patching at no additional cost to the Owner.
- **C** Avoid interference with use of adjoining areas or interruption of free passage to adjoining areas.
- **D** Beginning of cutting or patching means acceptance of existing conditions.
- **E** After uncovering existing Work, assess conditions affecting performance of work.

4 PREPARATION

- A Employ skilled workmen to perform cutting and patching. Proceed with cutting and patching at the earliest feasible time and complete without delay.
- **B** Before proceeding, meet at the Project Site with parties involved in cutting and patching, including mechanical and electrical trades. Review areas of potential interference and conflict. Coordinate procedures and resolve potential conflicts before proceeding.
- **C** Provide temporary supports to ensure structural integrity of the Work. Provide devices and methods to protect other portions of Project from damage.
- **D** Close openings in exterior surfaces to protect existing work [and salvage items] from weather and extremes of temperature and humidity. Insulate duct work and piping to prevent condensation in exposed areas.
- **E** Cut, move, or remove items as necessary for access to alterations and renovation Work. Replace and restore at completion.
- **F** Remove unsuitable material not marked for salvage, such as rotted wood, corroded metals, and deteriorated masonry and concrete. Replace materials as specified for finished Work.
- **G** Remove debris and abandoned items from area and from concealed spaces.
- **H** Prepare surface and remove surface finishes to provide for proper installation of new work and finishes.

5 CUTTING

- A Execute all cutting and fitting necessary to complete the Work.
- **B** Where services are required to be remove, relocated, or abandoned, by-pass utility services, such as pipe or conduit, before cutting. Cut-off pipe or conduit in walls or partitions scheduled to be removed. Cap, valve, or plug and seal the remaining portion of pipe or conduit to prevent entrance of moisture or other foreign matter after by-passing and cutting.
- **C** Uncover work to install improperly sequenced work.
- D Remove and replace defective or non-conforming work.
- **E** Provide openings in the Work for penetration of mechanical and electrical work. Cut holes and slots as small as possible, nearly to size required, and with minimum disturbance of adjacent surfaces. Temporarily cover opening when not in use.
- **F** Employ skilled and experienced workers to perform cutting for weather exposed and moisture resistant elements, and sight exposed surfaces.
- **G** Cut rigid materials using power saw or core drill. Cut through concrete and masonry using a cutting machine, such as a carborundum saw or a diamond-core drill. Pneumatic tools shall not be allowed without prior approval.
- **H** Cut existing construction using methods least likely to damage elements retained or adjoining construction. Where possible, review proposed procedures with the original Installer; comply with the original Installer's recommendations.
- I To avoid marring existing finished surfaces, cut or drill from the exposed or finished side into concealed surfaces.
- J Comply with requirements of applicable Specification Sections where cutting and patching requires excavating and backfilling or patching of pavement or concrete.

- **K** Do not cut structural elements in a manner that would change their load-carrying capacity or load-deflection ratio.
- L Do not cut operating elements or related components in a manner that would result in reducing their capacity to perform as intended. Do not cut operating elements or related components in a manner that would result in increased maintenance or decreased operational life or safety.
- M Perform cutting in a fashion that does not denigrate the energy performance of the building(s).

6 PATCHING

- A Execute patching to complement adjacent, undisturbed finishes.
- **B** Fit products together to integrate with other Work.
- **C** Execute work by methods to avoid damage to other Work, and which will provide appropriate surfaces to receive patching and finishing.
- **D** Perform patching in a fashion that does not denigrate the energy performance of the building(s).
- **E** Restore work with new products in accordance with requirements of Contract Documents.
- **F** Fit work tight to pipes, sleeves, ducts, conduit, and other penetrations through surfaces.
- **G** At penetrations of fire rated walls, partitions, ceiling, or floor construction, completely seal voids with appropriate material to full thickness of the penetrated element as necessary to maintain the required rating.
- **H** Where new work abuts or aligns with existing, perform a smooth and even transition. Patch work to match existing adjacent work in texture and appearance. Refinish surfaces to match adjacent finish. For continuous surfaces, refinish to nearest intersection or natural break. For an assembly, refinish entire unit.
- I Use materials identical to existing materials. For exposed surfaces, use materials that visually match existing adjacent surfaces to the fullest extent possible if identical materials are unavailable or cannot be used. Use materials whose installed performance will equal or surpass that of existing materials.
- J Patch with durable seams that are as invisible as possible. Comply with specified tolerances.
- **K** Where feasible, inspect and test patched areas to demonstrate integrity of the installation.
- L Restore exposed finishes of patched areas and extend finish restoration into retained adjoining construction in a manner that will eliminate evidence of patching and refinishing.
- **M** Where walls or partitions are to be removed, patch and repair voids left in floor, wall and ceiling surfaces where the existing construction is removed. Provide an even surface of uniform color and appearance. Remove existing floor and wall coverings and replace with new materials, if necessary, to achieve uniform color and appearance.
- **N** Where patching occurs in a smooth painted surface, extend final paint coat over entire unbroken surface containing the patch after the area has received primer and second coat.
- **O** Patch, repair, or re-hang existing ceilings as necessary to provide an even-plane surface of uniform appearance.
- **P** Where cutting and patching involves plaster refer to applicable Sections for plastering requirements. In lieu of specific requirements, comply with the following:

Cutting and Patching 01.73.29 3 of 4

- (1.) Comply with ASTM C 842
- (2.) Comply with manufacturer's instructions and install thickness and coats as indicated.
- (3.) Unless otherwise indicated, provide 3-coat work.
- (4.) Base Coat: Ready-mixed, sand aggregate gypsum plaster base.
- (5.) Finish Coat: Ready-mixed gypsum finish plaster.
- (6.) Finish gypsum plaster to match existing adjacent surfaces. Sand lightly to remove trowel marks and arises.

7 CLEANING

- A In addition to cleaning specified in Section 01.74.13, clean all areas affected by the work of this Section including personal belongings affected by this work.
- **B** Completely inappropriate remove paint, mortar, oils, putty, and similar items.
- **C** Thoroughly clean piping, conduit, and similar features before applying paint or other finishing materials. Restore damaged pipe covering to its original condition.
- **D** When cutting and patching in occupied units clean affected areas daily and or immediately after completion of the cutting and/or patching work.

END OF SECTION 01.73.29 CUTTING AND PATCHING

SECTION 01 74 13 PROGRESS CLEANING FINAL CLEANING

1. SCOPE

- **A.** This section specifies the requirements for maintaining a clean and orderly work site during and at the completion of the Work.
- **B.** Pay special attention to work areas that affect occupied residents' spaces and public areas.

2. RELATED DOCUMENTS

- **A.** This section supplements the General Conditions.
- **B.** Consult the individual sections of the specifications for cleaning of Work installed under those sections.
- **C.** Section 01.73.29 Cutting and Patching.

3. CLEANING DURING CONSTRUCTION

- **A.** Conduct all cleaning and disposal operations to comply with all federal, state, and local laws, regulations, codes, ordinances and by-laws.
 - (1) Do not burn or bury rubbish and waste materials on the site.
 - (2) Do not dispose of volatile wastes such as mineral spirits, oil, or paint thinner in storm or sanitary drains.
 - (3) Do not dispose of wastes into streams or waterways.
- **B.** Wet down dry materials and rubbish to lay dust and prevent blowing dust.
- **C.** Do not allow materials and rubbish to drop free or be thrown from upper floors, but remove by use of a material hoist or rubbish chutes.
- **D.** Maintain the Site free from accumulations of waste, debris, and rubbish.
- E. Do not leave debris in occupied units.
- F. Provide on-site containers for collection of waste materials and rubbish.
- **G.** At the end of each day, remove and legally dispose waste materials and rubbish from site.
- **H.** Vacuum clean interior building areas when ready to receive finish painting, and continue vacuum cleaning on an as-needed basis until Substantial Completion.
- I. Schedule cleaning operations so that dust and other contaminants resulting from cleaning process will not fall on wet, newly painted surfaces.
- **J.** Disposal of materials shall be in compliance with all applicable laws, regulations, ordinances, codes, and by-laws.

4. FINAL CLEANING

- A. Prior to submitting a request to the Architect to certify Substantial Completion of the Work, the Contractor shall inspect all interior and exterior spaces and verify that all waste materials, rubbish, tools, equipment, machinery, and surplus materials have been removed, and that all sight-exposed surfaces are clean. Leave the Project clean and ready for occupancy.
- **B.** Unless otherwise specified under other sections of the Specifications, the Contractor shall perform final cleaning operations as herein specified prior to final inspection.
- **C.** Cleaning shall include all surfaces, interior and exterior, which the Contractor has had access to, whether new or existing.
- D. Employ experienced workmen or professional cleaners for final cleaning.
- E. Use only cleaning materials recommended by the manufacturer of the surface to be cleaned.
- **F.** Use cleaning materials which will not create a hazard to health or property and which will not damage surfaces.
- **G.** All broken or defective glass caused by the Contractor's Work shall be replaced at the expense of the Contractor.
- **H.** Remove grease, mastic, adhesive, dust, dirt, stains, labels, fingerprints, and other foreign materials from sight-exposed interior and exterior surfaces. This includes cleaning of the Work of all finishing trades where needed, whether or not cleaning by such trades is included in their respective specifications.
- I. Clean and polish all new and existing glass and plastic glazing (if any) throughout the building(s), on both sides. Clean plastic glazing in accordance with the manufacturer's directions. This cleaning shall be completed by qualified window cleaners at the expense of the Contractor just prior to acceptance of the Work.
- J. Wash and polish all mirrors.
- **K.** Repair, patch, and touch up marred surfaces to the specified finish, to match adjacent surfaces.
- L. Polish glossy surfaces to a clear shine.
- **M.** Do the final cleaning of resilient floors and wood floors as specified under the respective sections of the Specifications.
- **N.** Leave all architectural metals, hardware, and fixtures in undamaged, polished conditions.
- **O.** Leave pipe and duct spaces, plenums, furred spaces and the like clean of debris and decayable materials.
- P. In cleaning items with manufacturer's finish or items previously finished by a Subcontractor, care shall be taken not to damage such manufacturer's or Subcontractor's finish. In cleaning glass and finish surfaces, care shall be taken not to use detergents or other cleaning agents which may stain adjoining finish surfaces. Any damage to finishes caused by cleaning operations shall be repaired at the Contractor's expense.

- **Q.** Broom clean exposed concrete surfaces and paved surfaces. Rake clean other surfaces of grounds.
- **R.** Ventilating systems Replace filters and clean ducts, blowers, and coils if units were operated during construction.
- **S.** Owner's responsibility for cleaning commences at Substantial Completion.

END OF SECTION 01.74.13 Progress Cleaning and Final Cleaning

SECTION 01.78.39 PROJECT RECORD DRAWINGS

1. GENERAL REQUIREMENTS

- **A.** This section specifies the requirements for maintaining and preparing Projects Record Drawings during and at the completion of the Work.
- **B.** .Record Drawings shall consist of all the Contract Drawings.

2. RELATED DOCUMENTS

- A. This section supplements the General Conditions.
- **B.** Consult the individual sections of the specifications for cleaning of Work installed under those sections.

3. PROCEDURES DURING CONSTRUCTION

- **A.** From the sets of drawings furnished by the Owner, the Contractor shall reserve one set for record purposes. From this set, the Contractor shall detach and furnish, at no charge to the Mechanical and Electrical Subcontractors the drawings of their portion of the Work for the same purpose.
- **B.** The Contractor and the above Subcontractors shall keep their marked up As Built set on the site at all times and note on it in colored ink or pencil, neatly and accurately, at the end of each working day, the exact location of their work as actually installed. This shall include:
 - (1) The location and dimensions of underground and concealed Work, and any architectural, mechanical, or electrical variations from the Contract Drawings.
 - (2) All changes, including those issued by Addendum, Change Order, or instructions by the Architect shall be recorded.
- **C.** Marked up As Built drawings shall be prepared for the entire project and include all Work, including but not limited to:
 - (1) The location of all underground utilities and appurtenances referenced to permanent surface improvements, both horizontally and vertically at ten (10) foot intervals and at all changes of direction.
 - (2) The location of all internal utilities and appurtunces, concealed by finish materials, including but not limited to valves, coils, dampers, vents, cleanouts, strainers, pipes, junction boxes, turning vanes, variable and constant volume boxes, ducts, traps, and maintenance devices.
 - (3) The location of these, items shall be shown by offsets to structure and drawing grid lines.
- **D.** The tolerance for the actual location of these items on the marked up As Built Drawings shall be plus or minus two (2) inches.
- E. Each item shall be referenced by showing a tag number, areas served, and function on the marked up As Built drawing

F. The Architect may periodically inspect the marked up As Built drawings at the site. The proper and current maintenance of the information required on these drawings shall be a condition precedent to approval of the monthly applications for payment.

4. PROCEDURES AT COMPLETION

- **A.** At Substantial Completion the Contractor shall submit the complete set of marked up As Built drawings to the Architect. The Contractor shall check all marked up As Builts prepared by subcontractors and certify in writing on the title sheet of the drawings that they are complete and correct, prior to submission to the Architect.
- **B.** The Architect shall review the marked up As Built drawings and verify by letter to the Owner that the Work is complete. The Architect shall incorporate all changes onto to original drawings.
- **C.** The Contractor may make a written request for copies of the completed Record Drawings. The Contractor shall reimburse the Owner directly for the cost of printing of any requested Record Drawings.
- **D.** Submission of accurate marked up As Built drawings and their approval by the Architect shall be a condition precedent to final payment.

END OF SECTION 01 78.39

PROJECT RECORD DRAWINGS

SECTION 02 20 00

ASSESSMENTS

1. GENERAL PROVISIONS

A. The Conditions of the Contract and other Sections of Division I, General Requirements apply to this section.

2. EXISTING CONDITIONS

- Before submitting a bid, the Contractor shall make a thorough examination of the conditions at the site, checking the requirements of the Plans and Specifications with the existing conditions. Α.
- B. No claim for extra compensation or extension of time will be allowed on account of the Contractor's failure to estimate properly the quantities, locations, and measurements of all items required to complete the work which could be discerned from visiting the site.
- C. The Contractor shall report any discrepancies to the Architect and request an interpretation.

BUILDING DOCUMENTATION 3.

- A. Drawing for the existing building are based on limited site observations and measurements. A preliminary demolition contract has removed finishes and exposed structure. Contractor shall make all necessary field measurements and assessments regarding the existing construction.
- B. The contractor shall make no assumptions about existing conditions being plumb or level, and shall take all required steps to verify these conditions.

HAZARDOUS MATERIALS 4.

- A. A limited hazmat survey has been conducted for the Town of Natick by UEC. This document in included as an attachment to this section. **1.** As noted in the report, no asbestos containing materials were located.

 - As noted in the report, no assestos containing materials were rocated. As noted in the report, Lead based paint was encountered in any test samples. The GC shall conform to all applicable regulations regarding renovation activities, and comply with OSHA 29 CFR 1926.62 "Lead" when performing any construction or demolition activities. See report for the category of each LBP+ surface. 2.

END OF SECTION

July 19, 2017

Mr. Bryan LeBlanc, Procurement Officer Town of Natick C/o Natick DPW 75 West Street Natick, MA 01760

Reference: <u>Asbestos Containing Materials and Lead Based Paint Sampling Services</u> Camp Arrowhead, Natick, MA

Dear Mr. LeBlanc:

Thank you for the opportunity for Universal Environmental Consultants (UEC) to provide professional services.

UEC was contracted to perform a determination inspection for accessible Asbestos Containing Materials (ACM) and Lead Based Paint LBP) at Camp Arrowhead, Natick, MA. Inspection was performed on Wednesday, July 12, 2017.

Bulk samples analyses for asbestos were performed using the standard Polarized Light Microscopy (PLM) in accordance with Environmental Protection Agency (EPA) standard. Bulk samples were collected by a Massachusetts licensed asbestos inspector Mr. Leonard J. Busa (AI-030673) and analyzed by a Massachusetts licensed laboratory ProScience, Woburn, MA. Bulk sample is determined to contain asbestos if the sample was found to contain more than 1-% asbestos.

Bulk samples analyses for lead based paint were performed by a Massachusetts licensed laboratory ProScience, Woburn, MA using SW846-7420/3051 method.

Samples results are attached.

Asbestos Sampling:

Thirty five (35) bulk samples were collected and analyzed for asbestos from various materials suspected to contain asbestos. Samples results indicated that asbestos was not found in any of the samples collected.

Lead Based Paint (LBP) Sampling:

Three (3) bulk samples were collected and analyzed for lead from various painted surfaces suspected to contain lead. Samples results indicated that lead was found on all painted surfaces.

All LBP activities performed should be in accordance with applicable Federal, State, or local laws, ordinances, codes or regulations governing evaluation and hazard reduction. In the event of discrepancies, the most protective requirements prevail. These requirements can be found in OSHA 29 CFR 1926-Construction

Mr. Bryan LeBlanc, Procurement Officer July 19, 2017 Page 2

Industry Standards, 29 CFR 1926.62-Construction Industry Lead Standards, 29 CFR 1910.1200 Hazard Communication, 40 CFR 261-EPA Regulations.

Ballasts in light fixtures were assumed to contain Polychlorinated Biphenyls (PCB's). Tubes in light fixtures, in exit signs and in thermostats were assumed to contain mercury.

Please do not hesitate to call me at (508) 628-5486 if you have questions about our services.

Very truly yours,

Universal Environmental Consultants

Ammar M. Dieb President

UEC:\217 194.00\Report.DOC

Enclosure



July 13, 2017

Ammar Dieb Universal Environmental Consultants 12 Brewster Rd. Framingham, MA 01702

Dear Ammar Dieb,

The enclosed analytical results have been obtained by using EPA 600/R-93/116 or EPA 600/M4-82-020. Calibrated Visual Estimate (CVE) is used by ProScience for the determination of the percentage of asbestos and other components in the sample. Point Counting is recommended when the sample contains less than 10% asbestos by CVE. Friable materials found to be less than 1% by CVE are automatically point counted (400 points) at no additional charge. ProScience recommends further analysis by a gravimetric method for non-friable materials that are less than 1% by CVE.

The Quality Control data related to the samples analyzed is available upon client's written request. ProScience Analytical Services Inc., assumes no responsibility for potential sample contamination that may have occurred during the sample collection process or erroneous data provided by the client.

The enclosed results may not be used under any circumstances as product endorsement by any US government agency including NIST/NVLAP.

All Laboratory records are retained for at least three years unless otherwise directed in writing by the client. The actual samples are retained for a period of two months and written request is necessary in order to be retained for a longer period of time. All analytical results and records are considered strictly confidential and will not be released under any circumstances to anyone except the actual client. The analytical results included in this report apply only to the items tested.

If you have any questions please contact the Laboratory Manager or the Laboratory Director.

Sincerely,

Patrice Weakley

Patricia Weakley, Optical Asbestos Manager Aimee Cormier, Laboratory Director

Enclosure: Version 2 LAB BATCH ID: B 105676 CLIENT PROJECT ID: N/A Client Ref: Camp Arrowhead, Natick, MA CT ID# PH-0209; MA ID# AA000156; ME ID# LB-055; ME ID# LA-056; NVLAP Lab Code 200090-0; RI ID # AAL-093; VT ID# AL016876

22 Cummings Park • Woburn, Massachusetts • 01801 • Phone (781)935-3212 • Fax (781)932-4857

Date Sampled: PO #: N/A Client Project #: N/A Client Reference: Camp Arrowhead, Natick, MA Date Analyzed: Date Of Report:													7/ 7/	05676 N/A 12/2017 12/2017 13/2017
				Asbes	tos %	s v ji se				Non	Asbesto	s %		
Sample ID	Color	CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	отн	NON
1	Pink	0	0	0	0	0	0	0	0	0	0	0	0	100
Description: VT-I (12" Pink) Location: Main Bldg., Main Floor Comments: Is asbestos present? No. Analyzed: Yes													Yes	
[274 (a.)	Asbes	tos %					Non	Asbesto			
Sample ID	Color	CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
2	Multi	0	0	0	0	0	0	0	0	<1	0	0	0	100
Description: Mastic #1 Location: Main Bldg., Main Comments:	Floor								ls asbes	stos pre	sent? No	. A	nalyzed	: Yes
				Asbes	tos %						-Asbest			
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3	Pink	0	0	0	0	0	0	0	0	0	0	0	0	1.100
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4	Black	0	0	0	0	0	0	0	0	<1	0	0	0	100
Description: Mastic #3 Location: Main Bldg., Kitch Comments:	en								ls asbe	stos pre	sent? No). A	nalyzed	: Yes
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Sample ID	Color	CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	ОТН	NON
5	White	0	0	0	0	0	0	0	0	0	0	0	0	100
Description: VT-II (12" White) Location: Main Bldg., Bath Comments:									ls asbe	stos pre	esent? N	р. А	nalyzec	l: Yes
				Asbe	stos %			2		Noi	1-Asbest	os %		
Sample ID	Color	CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
6	Yellow	0	0	0	0	0	0	0	0	<1	0	0	0	100
Description: Mastic #5 Location: Main Bldg., Bath Comments:	ıroom - İ							<u></u>	ls asbe	estos pro	esent? N	o. A	Analyzed	d: Yes

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	Sample ID	Color	CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
	7	White	0	0	0	0	0	0	0	0	0	0	0	0	100
Description: VT-II Location: Main Bldg., Bathroom - II Comments: Is asbestos present? No. Analyzed:												Yes			
ſ					Asbes	tos %					Non	-Asbesto			
	Sample ID	Color	CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
	8	Black	0	0	0	0	0	0	0	0	<1	0	0	0	100
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Description: Location: Comments:	Joint Compound (JC) Main Bldg., Clg Kitchen									Is asbe	stos pre	sent? No	о. А	nalyzed	: Yes
r					Asbe	stos %					Non	-Asbest	os %		
	Sample ID	Color	CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	отн	NON
	10	Gray	0	0	0	0	0	0	<1	0	3	0	0	0	97
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1					Asbe	stos %					Nor	-Asbest	os %		
	Sample ID	Color	CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
	11	White	0	0	0	0	0	0	0	0	0	0	0	0	100
Description: Location: Comments:	Joint Compound (JC) Main Bldg., Clg Main Fl	oor								ls asbe	stos pre	esent? No	р. А	nalyzed	: Yes
				Sector Sector	Acho	stos %	2				Nor	n-Asbest	os %		
	Sample ID	Color	CHR	AMO		ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	ОТН	NON
	12	Gray	0	0	0	0	0	0	0	0	3	0	0	0	97
Description: Location: Comments:	Main Bldg., Clg Main Fl	oor				- <u> </u>				ls asbe	stos pre	esent? No	р. А	nalyzed	: Yes

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r					Asbes	tos %					Non	Asbest	os %		
	Sample ID	Color	CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
	13	White	0	0	0	0	0	0	0	0	0	0	0	0	100
Description: Joint Compound (JC) Location: Main Bidg., Wall - Boiler Room Comments: Is asbestos present											sent? No	ь. А	nalyzed	Yes	
					Asbes	tos %					Non	-Asbest	os %		
	Sample ID	Color	CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
	14	White	0	0	0	0	0	0	0	0	0	0	0	0	100
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:	Sample ID	Color	CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	отн	NON
	15	White	0	0	0	0	0	0	0	0	0	0	0	0	100
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	Sample ID	Color	CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
	16	Brown	0	0	0	0	0	0	0	0	95	0	0	0	5
	Pressed Wood Clg. above Main Bldg., Bathroom I	Gypsum	/				/			ls asbea	stos pre	sent? No	р. А	nalyzed	: Yes
Y					Acho	stos %		e nazvere	1		Non	-Asbest	08 %		
	Sample ID	Color	CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	отн	NON
	17	Brown	0	0	0	0	0	0	0	0	90	0	0	0	10
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	18	Multi		0	0	0	0	0	0	0	95	0	0		5
Description: Location: Comments:	Black in Clg. Batt. Main Bldg., Main Floor			<u></u>	L		1	<u> </u>	1	.		sent? No	I <u></u>	nalyzed	

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Sample ID	Color	CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	ОТН	NON
19	Brown	0	0	0	0	0	0	0	0	95	0	0	0	5
Description: Black in Wall Batt. Location: Main Bldg., Main Floor Comments:									Is asbes	stos pre	sent? No). A	nalyzed	Yes
				Asbes	stos %					Non	-Asbest	os %		
Sample ID	Color	CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
20	Black	0	0	0	0	0	0	0	0	60	0	0	0	40
Description: Black Paper behind Wood Location: Main Bldg., Exterior by Pa Comments:	-		7.						ls asbes	stos pre	sent? No). A	nalyzed	Yes
		and the strain because and		Asbes	stos %					Non	-Asbest	os %		
Sample ID	Color	CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
21	Black	0	0	0	0	0	0	0	0	80	0	0	0	20
Description: Black Paper behind Wood Location: Main Bldg., Exterior by Bo Comments:	-								Is asbes	stos pre	sent? No). A	nalyzed	Yes
	······			Asbes	stos %					Non	-Asbest	os %		
Sample ID	Color	CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
22	Black	0	0	0	0	0	0	20	0	<1	0	0	0	80
Description: Roof Shingle Location: Main Bldg., Exterior by Bo Comments:	biler Room			19					ls asbes	stos pre	sent? No). A	nalyzed	Yes
				Asbes	stos %					Non	-Asbest	os %		
Sample ID	Color	CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	отн	NON
23	Black	0	0	0	0	0	0	0	0	<1	0	0	0	100
Description: Adhesive #22 Location: Main Bidg., Exterior by Boiler Room Comments: Is asbestos present? No.											Yes			
r			1999-942-74	Ashe	stos %			I		Non	Asbest	os %		
Sample ID	Color	CHR		CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	ОТН	NON
24	Black	0	0	0	0	0	0	20	0	<1	0	0	0	80
Description: Roof Shingle Location: Main Bldg., Exterior by Bo Comments:	,I	1	.	I	1		L		Is asbe	L <u>, .</u>	sent? No	<u></u> ,	nalyzed	1

Client Name:Universal EnvironmentalPO #:N/AClient Project #:N/AClient Reference:Camp Arrowhead, NatickMethod:EPA/600/R-93/116		nts									Batch Date Sa Date Re Date An Date of	mpled: ceived: alyzed:	7/ [.] 7/ [.]	05676 N/A 12/2017 12/2017 13/2017
F				Asbes	tos %					Non	Asbest	os %		
Sample ID	Color	CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
25	Black	0	0	0	0	0	0	0	0	<1	0	0	0	100
Description: Adhesive #24 Location: Main Bldg., Exterior by Boiler Room Comments: Is asbestos present? No. Analyzed: Yes Asbestos % Non-Asbestos %													Yes	
				Asbes	tos %					Non	Asbest	os %		
Sample ID	Color	CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
26	White	0	0	0	0	0	0	0	0	<1	0	0	0	100
Description: Joint Compound (JC) Location: Bathhouse - Clg Bathroo Comments:	ocation: Bathhouse - Clg Bathroom adj. to Nurse comments: Is asbestos present? No. Analyzed: Yes												: Yes	
			in an	1.1111201-0.1202-0	tos %						-Asbest			
Sample ID	Color	CHR	AMO	CRO	ACT	TRE	ANT 0	FBG 0	MNW	CEL	HAR 0	SYN 0	ОТН 0	NON 100
27	White	0	0	0	0	0	0	0	0				0	100
Description: Joint Compound (JC) Location: Bathhouse - Wall - Bathro Comments:	om - 2			-10-0100				<u></u>	ls asbe	stos pre	sent? No	р. А	nalyzed	: Yes
				Aspes	stos %					Non	-Asbest	os %		
Sample ID	Color	CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	ОТН	NON
28	Pink	0	0	0	0	0	0	0	0	0	0	0	0	100
Description: Pink Cove Base Location: Bathhouse - Wall - Bathro Comments:	om - 2								ls asbe	stos pre	sent? No	o, A	nalyzed	: Yes
				Asbe	stos %						-Asbest			
Sample ID	Color	CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	ОТН	NON
29	Yellow	0	0	0	0	0	0	0	0	<1	0	0	0	100
Description: Adhesive #28 Location: Bathhouse - Wall - Bathro Comments:	oom - 2								ls asbe	stos pre	sent? N	o. A	nalyzed	: Yes
·				Asbe	stos %					Nor	-Asbest	os %		
Sample ID	Color	CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	ОТН	NON
30	Pink	0	0	0	0	0	0	0	0	0	0	0	0	100
Description: Pink Cove base Location: Bathhouse - Wall - Bathro Comments:	oom - 2								Is asbe	estos pre	esent? N	o. A	nalyzed	l: Yes

<u></u>					Asbes	itos.%					Non	-Asbest	os %		
	Sample ID	Color	CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	отн	NON
	31	Yellow	0	0	0	0	0	0	0	0	<1	0	0	0	100
Description: Location: Comments:	Adhesive #30 Bathhouse - Wall - Bathr	room - 2								ls asbes	stos pre	sent? No	b. A	nalyzed	Yes
			HOMAN STATE		Δshes	itos %					Non	-Asbest	05 %		
	Sample ID	Color	CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	ОТН	NON
	32	Black	0	0	0	0	0	0	20	0	<1	0	0	0	80
Description: Location: Comments:	Roof Shingle Bathhouse Exterior									Is asbes	stos pre	sent? No	ь. А	nalyzed:	Yes
					Asbes	tos %					Non	-Asbest	os %		
	Sample ID 33	Color Black	CHR 0	AMO 0	CRO 0	ACT 0	TRE	ANT 0	FBG 0	MNW 0	CEL <1	HAR 0	SYN 0	<u>отн</u>	NON 100
	Adhesive #32														
Description: Location: Comments:	Bathhouse Exterior									Is asbes	stos pre	sent? No	b. A	nalyzed	Yes
Location:	Bathhouse Exterior				Asbes	itos %				ls asbes		sent? No -Asbest		nalyzed	Yes
Location:	Bathhouse Exterior	Color	CHR	AMO	Asbee	tos % ACT	TRE	ANT	FBG	ls asbes				nalyzed OTH	
Location:		Color Black	102 2544226 - 7 40276	AMO 0	a contraction of the contraction	and a state of the second second	TRE 0		FBG 20		Non	-Asbest	os %		
Location:	Sample ID 34 Roof Shingle Bathhouse Exterior		CHR		CRO	ACT		ANT		MNW 0	Non CEL <1	-Asbest	os % SYN 0	отн	NON 80
Location: Comments: Description: Location:	Sample ID 34 Roof Shingle Bathhouse Exterior		CHR 0		CRO 0	ACT		ANT		MNW 0	Non CEL <1	-Asbest HAR 0	os % SYN 0	ОТН 0	NON 80
Location: Comments: Description: Location:	Sample ID 34 Roof Shingle Bathhouse Exterior Sample ID		CHR 0 CHR	0 AMO	CRO 0 Asbes CRO	ACT 0 stos % ACT	0 TRE	ANT 0 ANT	20 FBG	MNW 0 Is asbes MNW	Non CEL <1 stos pre Non CEL	-Asbest HAR 0 sent? No -Asbest HAR	os % SYN 0 o. A os % SYN	OTH 0 nalyzed	NON 80 Yes
Location: Comments: Description: Location:	Sample ID 34 Roof Shingle Bathhouse Exterior	Black	CHR 0	0	CRO 0 Asbes	ACT 0	0	ANT 0	20	MNW 0 Is asbes	Non CEL <1 stos pre	-Asbest HAR 0 sent? No	os % SYN 0 . A	OTH 0 nalyzed	NON 80
Location: Comments: Description: Location:	Sample ID 34 Roof Shingle Bathhouse Exterior Sample ID 35 Adhesive #34 Bathhouse Exterior	Black	CHR 0 CHR	0 AMO	CRO 0 Asbes CRO	ACT 0 stos % ACT	0 TRE	ANT 0 ANT	20 FBG	MNW 0 ls asbes MNW 0	Non CEL <1 stos pre Non CEL <1	-Asbest HAR 0 sent? No -Asbest HAR	os % SYN 0 os % SYN 0	OTH 0 nalyzed	NON 80 Yes NON 100

BID5676 CHAIN OF CUSTODY

Universal Environmental Consultants 12 Brewster Road Framingham, MA 01702 Tel: (\$08) 628-5486 - Fax: (508) 628-5488 adieb@uec-env.com

#1 2 # 25 = main blog #262 # 35 = Bathouse

102

Sample	Result	Description of Material	Sample Location
1	_	VT-I (12" PINK)	main floor mainbldg
2		mastics #1	ee 11
3		VT-T	Kitched
2ý		MASTIC # 3	11 y
5		VT-II (13" white)	Bothim - T
6		mASTICS # 5	20 de
7		VT-TT.	Bathim - II
8		mASTIC #7	·· · · ·
9		Joint Compound (JC)	ela- Kitchen
10		ASSOC GUD	In a
11		JC	cla-main floor
12		ASSOC 940	an in the settle
13		J. L. The second s	usll - Boiler in
14		JC	wall - Norse
15		JC	cly - AS debis on main floor
16		pressed wood and anove o	d
17		pressed was d cha prove &	ip Bathom - IT
18	1	BLACK in clo Born VU	mains floor
19		Black in ISAIL BATT	main floor
20		Black paper behind wood	siding by prillion Exterior
	11	Black paper behind wood	Due Date:
Received	ву: <u> </u>	lo feer uttlele Date: ~7/121	17 2:30

CHAIN OF CUSTODY B105676

Universal Environmental Consultants 12 Brewster Road Framingham, MA 01702 Tel: (508) 628-5486 - Fax: (508) 628-5488 adieb@uec-env.com

#1 2 #28 = main Bildy #26 2 9#35 = Bathouse

202

Town/City: _____ Building Name Camp Accounters

main Blog -	Sample Location	Description of Material	Result	Sample
Exteria-		Black paper behind woo		21
- CIEIIOI		root shingle		22
\rightarrow 7		Adhesive # 22		23
		nost shingle		24
* *		13 dh. # 24		25
1: to Sathas	cle - bathem A	JC.		24
2	Wall - Bathron -	SC		27
	Bothem - 2	Cove base		28
		ndh # 28		29
		cour base		30
/	-	adh # 30		31
35	Exter	rootspingle		32
	· · · ·	Adh. # 32		33
		roof sh.		.34
4	· · · · · · · · · · · · · · · · · · ·	Adh # 34		35
ate: 24-hr		Date'	3v:	Reported F
-		Date:	Т. <u>А</u>	



Project # N/A P.O.# N/A Project Site: Camp Arrowhead Natick, MA

ProScience Analytical Services, Inc. 22 Cummings Park, Woburn, MA 01801

Telephone: 781-935-3212 Facsimile: 781-932-4857 Email: <u>chemistry@proscience.net</u>

Laboratory Report

Contact:Ammar DiebClient:Universal Environmental ConsultantsAddress:12 Brewster RoadFramingham, MA 01702

Batch #: C 292340 Date received: 7/12/2017 Date analyzed: 7/13/2017 Date of report: 7/13/2017

AIHA-LAP, LLC Lab ID 102754

Lead Analysis In Paint Using SOP Based on SW846-7420/3051 Results in weight percent on an "as received" weight basis

		Sample			Reporting	
Lab ID	Client ID	date	Description	Result	Limit	Comments
			Tan Paint on Wood Siding - Main Bldg.			
C 577243	1	7/12/17	Exterior	2.8	0.027	
		1	Tan Paint on Wood Siding - Main Bldg.			
C 577244	2	7/12/17	Exterior	3.0	0.026	
			White Paint on Wood Sill - Main Bldg.			
C 577245	3	7/12/17	Exterior	0.058	0.029	

Simona Peavey, Tech. Manager Chemistry

Aimee Cormier, Lab Director

Page 1 of

1

Unless otherwise indicated, all samples were received in acceptable condition.All result apply only to the samples as received and are accurate to no more than two significant figures.Unless otherwise indicated, all the quality control criteria for the method above have been met.RL-Reporting Limit(%by weight)Note on units:mg/Kg is the same as ppm by weight.

						40
			CHAIN	OF CL	ISTODY	C292339p/c
	Univers	al Environi	nental Consultants		and the second second second second second second second second second second second second second second second	
	12 Brew	ster Road			1-08	Cend
		ham, MA 0	1702 - Fax: (508) 628-5488		all and a second second second second second second second second second second second second second second se	Standard and a standard and a standard and a standard and a standard and a standard and a standard and a standa
		uec-env.co				
Jub in	Town/City	<u>, Nai</u>	<u>ick, m.1</u>	uilding Name	<u>Anna Anna</u>	sauhend
	Sample	Result	Description of Material		Sample Location	
5772435	. 1	57735	Law paint o	n wood		anistell - aral
he	Z	36	LAN pAinst on		siding	nsin blog - ExTERIOR
45	3	87		N wood	sill	
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\vdash						
	Reported E	34.	- Contractor	Date:7/1	2/17	Due Date: 48 hr
	Received E	3y:				

SECTION 02 41 00 SELECTIVE DEMOLITION

PART 1 - GENERAL

1.01 GENERAL

A. Attention is directed to general provisions of the CONTRACT, including GENERAL and SUPPLEMENTARY CONDITIONS, and all sections within DIVISION 1 - GENERAL REQUIREMENTS, which are hereby made a part of this Section of the Specifications as if fully repeated herein.

- 1.02 FILING OF SUB-BIDS (Not Applicable)
- 1.03 SCOPE OF WORK
- A. Work of this section includes:
 - 0. Coordination of demolition work with hazardous materials abatement work, as needed. See UEC July 19, 2017 Asbestos and Lead report, which is attached to this Section.
 - 1. Selective demolition and removal from the site of existing construction, materials, equipment, fixtures and systems as defined on the drawings and listed herein, including, but not limited to:
 - a. Windows and Security Shutters
 - b. Exterior Doors
 - c. Wall Framing, as noted on the drawings
 - d. Slab Demo as required for sub slab waste plumbing
 - e. Partition framing
 - f. Siding and roof trim.
 - 2. Temporary protection of adjacent existing construction not indicated to be demolished, or indicated for removal and salvage and potential re-use for this project.
 - 3. Removal from the site of all demolition debris, and dispose of such materials in a lawful manner.

1.04 RELATED WORK SPECIFIED ELSEWHERE

- A. Temporary Electrical: DIV 01
- B. Temporary Water: DIV 01
- 1.05 INTENT

A. Upon completion of the work of this Section, all spaces and surfaces shall be ready and suitable for the installation of work of other Trades.

- 1. All surfaces shall be broom clean.
- 2. All nails, wires, hangers and other items shall be removed down to the bare substrate.
- 3. All flooring surfaces shall be level, and free from gaps resulting from partition removal.

1.06 PROJECT CONDITIONS

A. Condition of Structures: The owner and architect assume no responsibility nor make any claim as to the actual condition or structural adequacy of any existing construction to be demolished. The contractor shall investigate and assure himself of the condition of the work to be demolished and shall take all precautions to ensure safety of persons and property.

B. Salvage: Owner has no desire for any salvage.

C. Traffic: Conduct operations and removal of debris to ensure minimum interference with the normal use of public ways and other adjacent facilities. Do not close or obstruct traffic ways, corridors, streets, walks or other used facilities without the written permission of the owner and authorities having jurisdiction.

D. Occupancy: The site will be unoccupied throughout construction.

E. Protection: Ensure the safe passage of persons in and around the building during demolition. Prevent injury to persons and damage to property. Provide shoring and bracing. Immediately repair damaged property to its condition prior to being damaged. Take effective measures to control dust and noise.

F. Utilities: Maintain all utilities except those requiring removal or relocation. Keep utilities in service and protect from damage. This includes controls and wiring of the existing sewage pumping station.

1.07 RECYLCLING OF DEMO WASTE

A. Demolition waste shall be recycled to the maximum extent possible.

PART 2 - PRODUCTS AND MATERIALS

(Not used)

PART 3 - EXECUTION

3.01 INSPECTION / JOB CONDITIONS

A. Defective Structure: Identify and remove all existing structure which is damaged or unsuitable for reuse. Notify architect immediately upon discovery of unsuitable existing structure and remove structural members only after obtaining architect's written permission.

B. Hazardous Materials: Notify owner and architect immediately upon the discovery of hazardous materials not otherwise indicated in the contract documents.

1 As noted in the hazmat report, exterior painted components, have lead paint contamination. The contractor shall handle such material in a manner consistent with all applicable regulations, in protection of both workers and the environment. Minimum procedures include the requirement that all debris related to painted exterior surfaces shall be carefully collected, and taken off site, without the spreading of paint debris onto the property or public ways.

3.02 DEMOLITION

- A. General:
 - 0. Verify that all required "Make Safe" work has been accomplished.
 - 1. Demolish safely, completely and with limitations of governing authorities.
 - 2. Proceed with demolition in a systematic manner.
 - 3. Demolish in sections and avoid overloading structure.
 - 4. Remove all debris from site and dispose legally.
 - 5. No on-site burning is permitted.

B. Floors:

- 1. Saw Cut, in coordination with the plumbing layout.
- C. Wall Framing:
 - 1. Remove all fasteners.
 - 2. Provide temporary support of ceiling framing.
- D. Ceilings / Attic:
 - 1. Remove in accordance with the proposed attic access design

End of Section 02070

SECTION 03 30 00 CONCRETE

PART 1 - GENERAL

1.01 GENERAL

A. Attention is directed to general provisions of the CONTRACT, including
GENERAL and SUPPLEMENTARY CONDITIONS, and all sections within DIVISION
1 - GENERAL REQUIREMENTS, which are hereby made a part of this Section of the
Specifications as if fully repeated herein.

B. Coordinate work with that of all other trades affecting, or affected by the work of this Section. Cooperate with such trades to assure the steady progress of all work under the Contract.

- 1.02 FILING OF SUB-BIDS (Not Applicable)
- 1.03 SCOPE OF WORK

A. This Section includes the general scope of work to furnish the administration, facilities, materials, labor and equipment for the following:

- 1. Concrete footings for entrance canopy structure
- 2. Slab on Grade Patching and Finishing
- 1.04 RELATED WORK SPECIFIED ELSEWHERE

A. The following related work or materials shall be provided under the designated Sections and coordinated by the Contractor:

- 1. DIV 02, Selective slab demo for plumbing
- 2. DIV 32, Portland Cement Concrete Paving (exterior)
- 3. SS 09 96 56, Epoxy Coatings
- 1.05 ALTERNATES (N.A.)
- 1.06 SUBMITTALS

A. Attention is directed to Section 01 30 00 regarding required procedures for Submittals.

B. Submittals are required for the following: (SD = Shop Drawing)

(FS = Field Sample) (OS = Samples) (PD = Printed Data)		
1.	Laboratory Test Reports	PD
2.	Reinforcement	SD, PD
3.	Concrete mix	PD
4.	Rigid Insulation	PD
5.	Vapor Barrier	PD
6.	Sealing Coating	PD, OS

C. On installation shop drawing, indicate reinforcement sizes, spacings, locations and quantities of reinforcing steel, bending and cutting schedules, splicing and supporting and spacing devices.

D. Laboratory Test Reports: Submit copies of reports for concrete materials and mix design specified.

1.07 QUALITY ASSURANCE

A. Design Criteria:

- 1. Design, construct, erect, support, brace, maintain, and remove forms to comply with ACI 318 Parts 1, 2, and 3 inclusive.
- 2. Comply with ACI 347 for loads, lateral pressures, and allowable stresses, and include wind load parameters.
- 3. Construct formwork so concrete surfaces comply with ACI 301 Chapter 4 and ACI 347 Chapter 2.
- 4. Maximum allowable deflection of forming surfaces from concrete pressure is length/360 between supports.
- B. Owner shall perform field testing of concrete. Contractor shall fully cooperate.
 - 1. Three concrete test cylinders will be taken for every 50 or less CY placed in one day.
 - 2. One slump test will be taken for each of the test cylinders taken.
- C. Environmental Precautions:
 - 1. Cold weather placement shall conform to requirements to ACI 306R.
 - 2. Hot weather placement shall conform to requirements of ACI 305R.

1.08 REFERENCE STANDARDS

A. The quality standards of the following agencies and organizations are used in references in this specification.

1. ASTM: American Society of Testing and Materials.

2. ACI: American Concrete Institute.

1.09 DELIVERY

A. Conform to requirements of ACI 304, "Recommended Practice for Measuring, Mixing, Transporting and Placing Concrete".

PART 2 - PRODUCTS AND MATERIALS

- 2.01 FORMWORK
- A. Formwork:
 - 1. Not required
- 2.01 REINFORCEMENT

A. Reinforcing Steel:

- 1. Welded Wire Fabric: ASTM A185, 6x6 6/6 welded wire fabric, steel, in flat sheets. (at slab patching)
- 3. Drawn Wire: ASTM A82.
- 4. Bar Supports: Comply with CRSI "Manual of Standard Practice."
 - a. Interior Concealed Areas: Class A "Bright Basic."
 - b. Interior Exposed Areas: Class C "Plastic Protected."
 - c. Exterior Painted or Concealed: Class D "Stainless Steel Protected."
 - d. Exterior Unpainted or Exposed: Class E "Special Stainless Steel Protected."

2.02 CONCRETE MATERIALS

- A. Conform to ASTM C94 general requirements for Ready-Mix Concrete.
 - 1. Mix shall have 3000 psi (28 day) compressive strength, with four inch maximum slump.
 - 2. Add air entraining agent to all concrete, as per ASTM C 260.
 - 3. Water-reducing agent shall conform to ASTM C 494, Type A. Water-reducing agent shall be compatible with air-entraining agent.
 - 4. Superplasticizer shall conform to ASTM C494, Type F or Type G. Superplastizer shall be compatable with the other admixtures.
 - 5 Calcium Chloride or admixtures containing more than 0.1% Chloride ions are not permitted.
- B. Cement: ASTM C150, Normal, type 1 or II Portland Cement, grey color. Fly Ash: ASTM C 618 Class F.

- C. Coarse and Fine Aggregates:
 - 1. Conform to ASTM C33.
 - 2. Sand shall fine, natural or manufactured, or combination thereof.
 - 3. Coarse aggregate shall have maximum size of 1/2 inch for floor slabs, 1-1/2 inch at footings, and 3/4 inch at other applications.

Coarse aggregate shall meet the following additional requirements:Size: 67Fineness Modulus: (+/- 0.20) 6.70 and 5.5 respectivelyOrganic:Plate 1 maximum.Silt:1.0 % maximumSoundness:5% - 8% maximum loss, magnesium sulfate, five cycles.

Fine aggregate shall meet the following additional requirements:

Sieve	Retained Percent
#4	0-5
#16	25-40
#50	70-87
#100	93-97

Fineness Modulus: 2.8 (+/- 0.20)Organic:Plate 2 maximumSilt:2.0% maximumSoundness:5% - 10% maximum loss, magnesium sulfate, five cycles.

D. Water shall be clean and not detrimental to concrete.

2.03 CONCRETE MIXES

A. Strength, cement and water requirements:

Design	Min. Cement		Ceme	Max. Water	
Compr.	Factor*			Cement Ratio	
<u>Strength, f'c</u>	<u>Sacks/yd3 lbs/yd3</u>			Gal/sack Gal by wt.	
Footings/F'dn Walls: 3000	5.5	517	6.5	0.57	
Slab on Grade: 4000	6.5	611	5.5	0.49	

*Fly Ash may be used in all concrete except exterior walks and site walls. Amount may be up to approximately 20% of the total cement content.

B. All concrete shall be proportioned in accordance with ACI Standard 211.1, "Standard Practice for Selecting Proportions for Normal, Heavyweight and Mass Concrete" and comply with the requirements of ACI 301 "Specifications for Structural Concrete" Section 4, Method 1 (trial mixtures) or 2 (field test data).

- D. Total air entrained in freshly mixed interior concrete shall be 4.0% plus or minus 1.0% of volume of concrete with required strengths maintained, except that all interior slabs subject to abrasion shall have a maximum air content of 3% and all exterior concrete subjected to freezing and thawing shall have an air content of 5% plus or minus 1%.
- E. Water-Cement Ratio All concrete subjected to freezing and thawing shall have a maximum water-cement ratio of 0.49 (fc = 4000 psi minimum). All concrete required to be watertight and/or subjected to de-icers shall have a maximum water-cement ratio of 0.45 (fc = 4500 psi minimum). This is a total water in mix at time of placement, including free water of aggregates and liquid admixtures.
- F. Slump of concrete shall be 4" (+/-1"). If a superplasticizer is used, the slump shall be 3" (+/-1") prior to adding the superplasticizer and 8" (+/-1") after adding the superplasticizer.
- G. Premix admixtures in solution form and dispense as recommended by the manufacturer. Include the water in the solution in the design water content of the mixtures.

2.03 ACCESSORIES

A. Vapor Barrier: ASTM D2103, cross laminated, high tensile strength, high density, 10 mil minimum thickness.

- 1. Vapor Barrier permeance shall be 0.06 gm per square per 24 hr. period.
- 2. Acceptable manufacturers:
 - a. Reef Industries, Model Griffolyn T-85.
 - b. Equal by Raven Industries,
 - c. Equal by Sto-Cote Products
- 3. Seam tape shall be as approved by manufacturer of vapor barrier.

B. Grout shall be non-shrink, premixed compound consisting of non-metallic aggregate, cement, water reducing and plasticizing agents and capable of developing minimum compressive strength of 2400 psi in 28 days.

- C. Curing materials:
 - 1. Water shall be clean and potable.
 - 2. Impervious sheeting shall conform to ASTM C171.

D. Concrete sealer: As approved by architect and compatible with flooring materials.

1. Sealed concrete product shall be Concrete Sealer Enviroseal DurasealZero or approved low VOC (<100 g/L) or no VOC alternate.

2.04 Pre-Cast Concrete Piers

A. As manufactured by Diversified Pre-Cast, or by other Pre-cast company producing comparable products.

- 1. 8 inch by 8 inch top.
- 2. 23 inch by 23 inch ground bearing
- 3. 5 foot height.

PART 3 - EXECUTION

3.01 INSPECTION / JOB CONDITIONS

A. Verify that base materials have been properly prepared and compacted.

B. Coordinate work with other Sections in forming and setting openings, slots, recesses, chases, sleeves, bolts. anchors and other inserts.

3.02 PREPARATION

A. Notify Architect and owner minimum 24 hours prior to commencement of concreting operations.

B. Place, support and secure reinforcement against displacement.

3.03 INSTALLATION / FIELD QUALITY CONTROL

- A. Pre-cast piers:
 - 1. Install Piers as per manufacturer's instructions.
 - 2. Top of concrete shall uniform at each pier, as the piers will be exposed above grade.

B. Reinforcement:

- 1. Tolerances:
 - a. Maintain surface clearance dimensions shown, +/- 1/4 in.
 - b. Secure reinforcement with accessories and tie wire to prevent displacement before and during concreting.

- c. Do not place concrete if bars are not properly and securely placed with adequate supports.
- 2. Dowels: Secure in position prior to placing concrete.
- 3. Splices: Lap-splice all bars up to 11 gage to ACI 318, unless otherwise shown.
- 4. Remove and replace damaged bars as directed.
- C. Compaction:
 - 1. Compact each layer of concrete by internal concrete vibrators supplemented by hand spading, rodding, and tamping.
 - 2. Do not permit tamping or other external vibration of forms for compaction or transport concrete inside forms.
 - 3. Maintain internal vibrators submerged in concrete at min. frequency of 8,000 vibrations per minute, with vibrating equipment to ACI 309.
- D. Vapor Barrier Placement:
 - 1. Cover subgrade under patch areas for slabs in building with vapor barrier.
 - 2. Lap edges min. 18 in. and seal with pressure sensitive tape, min. 2 in. wide, compatible with membrane.
 - 3. Patch all large penetrations and tears with compatible tape.
- E. Concrete Placement:
 - 1. Place concrete continuously to be monolithic in construction.
 - 2. Deliver concrete in a continuous manner in time interval specified without segregation or loss of ingredients.
 - 3. Place concrete in forms or excavation as close to final position, in uniform, approximately horizontal layers, max. 12 in. deep, unless otherwise directed.
 - 4. Do not allow concrete to drop freely more than 8 ft. in unexposed work nor more than 3 ft. in exposed work.
 - 5. Joints:
 - a. Isolation: Use at junctions with walls and slab with 1/2 in. wide premolded joints full depth of slab.
 - 6. Preformed Joints:
 - a. Use of plastic t-strip separators instead of saw cuts is approved for this Project.
 - b. Provide 1/2 in. premolded expansion joint material for slab on grade poured around vertical surfaces. See architectural details for thermal break design at exterior foundation walls

3.05 CURING

A. Protect pours from excessive heat or cold. Conform to ACI 301 recommendations for concrete curing.

3.06 FINISHES

- A. Finishing Slabs:
 - 1. General:
 - a. Finished Slabs: True plane surfaces with deviation max. 1/8 in. in 10 ft.
 - b. Pitch surface to drains as indicated.
 - 2. Typical Slab Finish at patch areas:
 - a. Machine trowel: After floating, begin first trowel-finish operation using a power driven trowel. Begin final troweling when surface produces a ringing sound as trowel is moved over surface. Consolidate concrete surface by final hand trowelling operation, free of trowel marks, uniform in texture and appearance, and finish surfaces to tolerances of F(F) (Floor flatness) 20 and F(L) 17 (Floor levelness) measured according to ASTME 1155. Grind smooth any surface defects that would telegraph through applied floor covering system.
- B. Finishing Surfaces Other Than Slabs:
 - 1. Not Applicable

3.07 SLAB SEALING (Storage Room)

- A. Install as per manufacturer's instructions.
 - 1. Verify that concrete moisture content is within the acceptable range.

END OF SECTION 03 30 00

SECTION 06 10 00

ROUGH CARPENTRY

PART 1 - GENERAL

1.01 GENERAL

A. Attention is directed to general provisions of the CONTRACT, including
GENERAL and SUPPLEMENTARY CONDITIONS, and all sections within DIVISION
1 - GENERAL REQUIREMENTS, which are hereby made a part of this Section of the
Specifications as if fully repeated herein.

B. Coordinate work with that of all other trades affecting, or affected by the work of this Section. Cooperate with such trades to assure the steady progress of all work under the Contract.

- 1.02 FILING OF SUB-BIDS (N.A)
- 1.03 SCOPE OF WORK
- A. In general, the work of this section includes, but is not limited to:
 - 1. Rough carpentry framing.
 - a. Fire damage repair at roof framing
 - b. Partition framing
 - c. Exterior wall infill
 - d. Exterior entrance canopy
 - 2. Blocking
 - a. Blocking at doors and windows, PT where indicated.
 - b. Blocking for wall mounted equipment and furnishings, including grab bars, toilet partitions, ceiling mounted equipment, cabinets and finish carpentry
 - c. Blocking for compliance to accessibility regulations.
 - 3. Galvanized framing accessories, bolts, anchors, nails, hangers, clips, ties and bridging to suit each span and bearing condition.
 - 4. Pressure treated wood sills and low pitch roof edge nailers.
 - 5. Building Paper and air barrier applications.
 - 6. Engineered lumber, including LVL lumber and exterior posts and beams.
 - 7. Labor, materials and equipment necessary to accomplish installation.
 - 9. Coordination with air and water (weather) sealing.

1.04 RELATED WORK SPECIFIED ELSEWHERE

A. The following related work or materials shall be provided under the designated Sections and coordinated by the Contractor:

- 1. Section 03 30 00, Concrete
- 3. Section 07 46 20. Vinyl Siding
- 4. Section 08 11 00, Metal Doors and Frames
- 5. Section 08 14 00, Wood Doors and Frames
- 6. Section 08 53 00, Vinyl Windows
- 1.05 ALTERNATES (N.A.)
- 1.06 SUBMITTALS

A. Attention is directed to Section 01 30 00 regarding required procedures for Submittals.

B. Submittals are required for the following:

(SD = Shop Drawing) (FS = Field Sample) (OS = Samples) (PD = Printed Data)

Grades and Dimensions of Lumber and panels	PD
Fasteners	PD, OS
Engineered Lumber	PD, SD
Bolts and Anchors	PD

1.07 QUALITY ASSURANCE

A. Carpentry items shall have a visible stamp of grade, or provide grade compliance certificate.

B. All Engineered Lumber /Trusses, accessories, connectors, hangers, etc., shall be subject to inspection in the field by an independent testing agency paid by the owner.

C. Inspection shall include, but not be limited to the following:

- 1. Size, type, installation of Engineered Lumber and Open Web joists.
- 2. Type, installation of accessories, hangers, connectors, etc.
- 3. Inspection shall be for conformance with approved shop drawings and submittals.

1.08 REFERENCE STANDARDS

A. The following agencies recommendations and quality standards are referenced in the specifications.

- 1. AWPA: American Wood Preserver's Association
- 2. NELMA: Northeastern Lumber Manufacturer's Association
- 3. APA: American Plywood Association.
- 4. ALSC: American Lumber Standards Committee (Board of Review)
- 5. ASTM: American Society for Testing and Materials.

1.09 DELIVERY AND STORAGE

A. Store wood materials in a controlled environment, under well ventilated conditions.

B. Should the contractor be required to quickly cover material temporarily, such as during an unanticipated rain shower, all materials shall be stored under a waterproof/fireproof cover on a raised platform. This is only temporary covering, as at the end of the day, materials shall be stored as per paragraph A, above.

C. Do not operate or situate material handling equipment such that it will hinder the smooth flow of vehicular or pedestrian traffic.

D. All application and handling equipment shall conform to and be operated in conformance with all safety requirements.

1. Specific attention is made to OSHA requirements.

1.10 SEQUENCING AND SCHEDULING

A. Conform to the requirements outlined in DIV 01 and the construction phasing schedule. It is noted that coordination is needed between the installation of the cold formed steel framing and this Section.

1.11 JOB CONDITIONS AND OPERATING PROCEDURES

- A. Environmental
 - 1. Materials shall be applied to properly prepared, dry areas. All materials shall be installed in a dry condition.
 - 2. If conditions are uncovered or created that would be detrimental to the work of this Section, contact the owner or architect.
 - 3. Contractor shall provide all necessary temporary protection and barriers to segregate work area(s).
 - 4. All construction materials and equipment shall be secured from wind damage or blow-off.

- B. Existing Conditions.
 - 1. Protect the building, all contents, and the surrounding area from damage and building occupants from injury during the work.

PART 2 - PRODUCTS AND MATERIALS

- 2.01 Wood Materials
- A. Lumber General
 - 1. Lumber shall be sound stock, straight, of consistent size, free of strains and mildew, and kiln-dried to a moisture content of not more than 19 percent.
 - 2. In the absence of drawing dimensions, lumber widths and thickness shall be construed to be nominal dimensions.
 - 3. Lumber shall be S4S
 - 4. Sill plates and all framing lumber in contact with concrete and porch structural framing shall be pressure treated.
- B. Dimensional Lumber
 - 1. Minimum Grade: #1 and # 2, SPF, graded according to ALSC National Grading Rule (NGR).
- C. Plywood Products
 - 1. Advantech
 - a. Roof: Nominal 5/8" 40/20 panel span rating
 - b. Walls: Nominal ¹/₂" Exposure 1
- D. Pressure Treatment shall be equal to AWPA C2 Standard, AWPB LP-2/3/5, kiln dried to 15% moisture content.
 - 1. Treatment:
 - a. Pressure treat in closed retort by vacuum pressure process.
 - b. AWPA C2 for lumber.
 - c. AWPA C9 for plywood.
- E. Engineered Lumber

1.

- Glulam exposed exterior framing (columns and beams) shall be "Power Beam" by Anthony Forest Products Company, or equal by Weyerhaeuser.
 - a. Preservative treatment shall be Hoover "Clear-Guard" at 0.055
 - Pounds per CF, suitable for above ground uses, with 25 year warranty.
- 2. LVL Framing, by Weyerhaeuser or equal.
- 3. Product width, depth to be as indicated on the drawings.

2.02 RELATED MATERIALS

A. Fasteners

- 1. All nails, fasteners and accessories shall be compatible with surrounding metals so as to prevent galvanic action.
 - a. Follow manufacturer's requirements for preservative treated Glulam fasteners.
- 2. Length of fasteners shall be sufficient to prevent backing out by vibration, shrinkage or swelling action though out the life of the application. Fastener penetration shall be a minimum of 1-1/2 inches.
- 3. Sill plate attachment bolts in concrete foundations shall be 5/8" anchor bolts.
- 4. Fasteners:
 - a. Provide fastening devices necessary and suited for each application.
 - b. Bolts, Screws, Nuts, and Washers: Square, round, and hex head to ANSI B18 and ASTM A307.
 - c. Wood Screws: Slotted head ANSI B18 and ASTM A549.
 - d. Nails: ASTM A510 and F547.
 - e. Finish: ASTM A153 hot-dip galvanize all rough hardware supplies under this section.
- 5. Bolts and Anchors:
 - a. Expansion bolts and adhesive anchors shall be by Hilti or equivalent, approved by architect.
- B. Miscellaneous Materials:
 - 1. Sill Sealer: Closed cell foam type, equal to 1/4" Dow Model "Ethafoam".
 - 2. Metal Hangers and Framing Anchors:
 - a. Use type and size suited for application, hot-dipped zinc coated.
 - b. Acceptable Manufacturer: Simpson Strong-Tie, Inc.

C. Adhesive: Construction Adhesive for plywood subfloor shall conform to APA specification AFG-01 or ASTM D3498.

D. Fasteners: All connectors, anchors, hangers, ties, straps, etc., shall be by Simpson Strong-Tie, Inc. or equivalent approved by Architect.

E. Air Barrier – TYVEK by DuPont, or equal.

- 2.03 POST BASES
- A. By Simpson, or equal By USP, a Mitek Company.1. As noted on drawings.
- 2.04 Concealed Beam Supports
- A. By Simpson, or equal By USP, a Mitek Company.
 - 1. As noted on drawings.

PART 3 - EXECUTION

3.01 INSPECTION / JOB CONDITIONS

A. The contractor shall determine all dimensions, quantities and site conditions. The plans are approximate only and shall not be relied upon in determining the exact work to be performed. Coordinate all installations with proposed MEP installations.

3.02 PREPARATION

A. Preparation shall provide a surface suitable to apply new materials. A substrate is suitable when application of new materials results in uniform and maximum contact between such materials and substrate.

3.03 INSTALLATION - GENERAL

A. Discard units of material with defects that might impair quality of work, and units which are too small to use in installing work with a minimum of joints, or optimum joint arrangement.

B. Set carpentry work to required level and lines, with members plumb and true to line.

C. Securely attach carpentry work to substrate by anchoring and fastening as shown and as required to recognized standards, or as specified herein.

D. Countersink nail, screw or bolt heads.

E. Install without splitting of wood; predrill as required.

F. Cut wood with tools and equipment to provide smooth, uniform cuts without irregularities.

G. All butt joints in woodwork shall be flush to provide a smooth, uniform line with no irregularities. Built-up blocking shall have butt joints staggered at a 4-feet minimum, layer to layer. Where multiple layers of woodwork meet at corners, they shall be woven to provide a rigid connection. The minimum length of any individual piece of woodwork shall be 3 feet. All lengths of woodwork shall have a minimum of two fasteners.

H. Plywood panels shall be installed as per recommendations of APA, as printed in the *APA Engineered Wood Construction Guide*.

I. Install rough carpentry in a manner to provide rough openings for doors and windows as indicated on drawings. Where dimensions are not indicated, coordinate installation with indicated trim sizes.

3.04 ERECTION

- A. General:
 - 1. Assemble rough carpentry to produce joints true, tight, and well nailed to comply with Drawings and pertinent codes and regulations.
 - 2. Select individual pieces so that knots and obvious defects do not interfere with placement of bolts or proper nailing.
 - 3. Cut out and discard defects which will render lumber unsuitable for intended use.
 - 4. Do not shim sills, joists, short studs, trimovers, headers, lintels, or other framing components.
 - 5. In addition to all framing operations normal to fabrication and erection indicated on Drawings, install all backing required for Work.
 - 6. Set all horizontal or sloped members with crown in up position.
 - 7. Do not notch, bore, or cut members for pipes, ducts, conduits, or other reasons except as indicated on Drawings or approved in advance.
 - 8. Alignment: For framing members to receive finished walls or ceiling, do not vary more than 1/8 in. from plane of surface of adjacent framing and furring members.
- B. Plywood Sheathing:
 - 1. Place all panels with face grain perpendicular to supports and continuously over min. 2 supports.
 - 2. Center joints accurately over supports.
 - 3. Stagger end joints of panels to achieve minimum joint continuity.
 - 4. Provide 1/8 in. gap at side edges and 1/4 in. gap at end edges, using panel clips for roof sheathing.
 - 5. Nailing:
 - a. Nail 6 in. o.c. along panel edge and 12 in. o.c. at intermediate supports.
 - b. Use min. nail sizes indicated in the Drawings.
- C. Bridging:
 - 1. Install metal cross bridging at joists where indicated on drawings.
- D. Stud Walls and Partitions:
 - 1. Make all studs single length, unspliced, and platform framed.
 - 2. Frame all corners with a minimum of three studs and provide all required blocking for wall finish.

- 3. Frame the exterior wall where interior partitions butt in to ensure full and continuous access to wall cavities to permit complete installation of insulation.
- E. Blocking:
 - 1. Provide blocking at locations scheduled to have wall hung items.
 - 2. Use 2 in. thick member of same width as wall or partition or continuous 3/4 in. plywood as shown on Drawings.
 - 3. Install solid blocking between joists at all points of support and wherever sheathing or flooring is discontinuous.
 - 4. Install solid wood "I" joist blocking between rim joist and wood "I" joist, where joists are parallel to exterior wall, as indicated on the drawings.
- F. Rafters and Ceiling Joist Framing (in areas of stick framed roofing):
 - 1. Ceiling Joists:
 - a. Provide of size and spacing indicated.
 - b. Lap framing from opposite sides min. 4 in. or securely tie opposing members together.
 - c. Face nail to ends of parallel rafters.
 - 2. Rafters:
 - a. Provide member of size and spacing indicated.
 - b. Notch to fit exterior wall plates and toe nail or use preformed metal framing anchors.
 - c. Double to form headers and trimmers at openings and support with metal hangers.
 - d. Provide hip and valley rafters twice as thick as regular rafter and 2 in. deeper or as shown on Drawings.
 - e. Bevel ends of jack rafters for full bearing against hip and valley rafter.
 - f. Provide special framing for eaves, overhangs, dormers, and similar conditions.
- G. Air Barrier: By siding installation.

3.05 ENGINEERED LUMBER

- A. Install in accordance with manufacturer's recommendations.
 - 1. Coordinate installation with concrete footings and post base installation.

3.06 ADJUSTING AND CLEANING

- A. Maintain premises in neat, safe, and orderly condition during execution of Work.
- B. Maintain free of accumulations of sawdust, cut ends, and debris.

END OF SECTION 06 10 00

SECTION 06 20 00

FINISH CARPENTRY

PART 1 - GENERAL

1.01 GENERAL

A. Attention is directed to general provisions of the CONTRACT, including GENERAL and SUPPLEMENTARY CONDITIONS, and all sections within DIVISION 1 - GENERAL REQUIREMENTS, which are hereby made a part of this Section of the Specifications as if fully repeated herein.

B. Coordinate work with that of all other trades affecting, or affected by the work of this Section. Cooperate with such trades to assure the steady progress of all work under the Contract.

1.02 FILING OF SUB-BIDS (not applicable)

1.03 SCOPE OF WORK

- A. Work of this Section includes, but is not limited to:
 - 1. Exterior trim boards and exterior door casing.
 - 2. Interior Standing and Running Trim
 - 3. Wood closet shelving
 - 4. Wire closet shelving.
 - 5. Misc. trim items, apron and stool at windows.
 - 6. Installation of Access Panels, supplied by others.
 - 7. Electrical panel backer boards
 - 8. Installation of Hardware
 - 9. Installation of Bath Accessories
 - 10. Installation of signage
 - 12. Installation of residential casework
 - 13. Misc. Architectural Casework
 - 14. Attic Hatch

B. Where materials are supplied by other sections, consult such sections for installation methods, where applicable.

1.04 RELATED WORK SPECIFIED ELSEWHERE

A. The following related work or materials shall be provided under the designated Sections and coordinated by the Contractor:

1. Section 06.10.00, Rough Carpentry: Blocking support for installations

- 2. Section 07.46.20, Vinyl Siding
- 3. Section 08.14.00, Wood Doors
- 4. Section 08.11.00, Metal doors and frames,
- 5. Section 08.70.00, Finish hardware,
- 6. Section 12.35.30 Residential Casework
- 7. Section 10.14.00 Signage

1.05 ALTERNATES

(Not applicable)

1.06 SUBMITTALS

A. Attention is directed to Section 01.30.00 regarding required procedures for Submittals.

- B. Submittals are required for the following:
 - (SD = Shop Drawing)
 - (FS = Field Sample)
 - (OS = Samples)

(PD = Printed Data)

1. Miscellaneous finish carpentry

- SD, OS, PD PD
- Closet Shelving PD
 Trim installation at exterior SD
 Exterior trim shop drawing shall show the coordination of soffits, siding, Windows and other elements of the exterior, laid out in a manner that Is consistent with the manufacturer's requirements.
- 4. Interior Trim

1.07 QUALITY ASSURANCE

A. Manufacturer: Provide millwork only from manufacturers complying with AWI standards, and those producing similar work for a minimum of five years.

B. Installer: Employ only experienced personnel for installation of the work of this Section.

C. Factory-mark each piece of lumber and plywood with type, grade, mill and grading agency identification, except omit marking from surfaces to receive transparant finish, and submit mill certificate that material has been inspected and graded in accordance with requirements if it cannot be marked on a concealed surface.

1.08 REFERENCE STANDARDS

A. Refer to AWI Quality standards for definition of millwork grade. If not so indentified, work shall conform to "Custom" grade.

B. AWI Fabrication / Installation Standards: Custom Grade

- C. Materials Standards:
 - 1. Softwood Lumber: Comply with PS 20, ANSI A199.1.
 - 2. Hardwood Plywood Comply with PS 51

1.09 DELIVERY AND STORAGE

A. Protect finish carpentry materials during transit, delivery, storage and handling to prevent damage, soiling and deterioration.

B. Do not delivery materials construction operations that could damage materials are completed. If, due to unforseen circumstances, finish carpentry materials must be stored in other than installation areas, store only in areas meeting requirements specified for installation areas.

1.10 JOB CONDITIONS

A. Conditioning: Installer shall advise Contractor of temperature and humidity requirements for finish carpentry installation areas. Do not install carpentry until required temperature and relative humidity have been stabilized and will be maintained in installation areas.

1. Maintain temperature and humidity in installation area as required to maintain moisture content of installed finish carpentry. The fabricator shall determine the optimum moisture content and required temperature, and acceptable tolerances.

PART 2 - PRODUCTS AND MATERIALS

2.01 WOOD MATERIALS

- A. Solid Lumber Stock:
 - 1. General:
 - a. Comply with AWI 100, plain sawn, S4S and work to shapes indicated, unless otherwise indicated.
 - b. Exposed Transparent Finish: Grade 1, red oak for hardwood, clear white pine or white wood for softwood, no finger joints.
 - c. Exposed Painted Finish: Grade II, birch for hardwood, white pine or white wood for softwood.
 - d. Coil Stock Covered Trim: Economy Grade, birch or pine.

- 2. Exterior Woodwork: Use decay-resistant lumber species, equal to cedar, cypress or redwood, or chemically treated softwoods to establish comparable level of decay resistance.
- B. Plywood:
 - 1. Comply with AWI 200, veneer core.
 - 2. Face Veneer:
 - a. Hardwood: Match adjacent lumber (Birch for painted)
 - b. Softwood: Douglas fir.
 - 3. Cut: Plain sliced, smooth.
- C. Fasteners:
 - 1. Wood Screws: ANSI B18, type, size, and material as required for condition of use.
 - 2. Bolts and Nuts: ANSI B18 and ASTM A307 type, size, and material as required.
 - 3. Exterior Fasteners: ASTM A153, hot-dip galvanize.

2.02 WOOD FABRICATION

- A. Standing and Running Trim:
 - 1. Lumber:
 - a. Transparent Finish: AWI 300, Premium Grade, using hardwood lumber.
 - b. Opaque Finish: AWI 300, Custom Grade, using softwood lumber.
 - 2. Exterior and Interior Plywood:
 - a. Transparent Finish: AWI 200, Grade I, using face veneer to match lumber.
 - b. Opaque Finish: AWI 200, Grade II, using softwood face veneer.
 - 3. Standing Trim: Items of fixed length to include but not be limited to:
 - a. Door and Window Casings.
 - b. Stops.
 - c. Stools or Sills.
 - d. Apron.
 - 4. Running Trim: Items of continuing length to include but not be limited to:
 - a. Chair Rail–1x4
 - 5. Acceptable Manufacturer: Brosco Model Ponderosa Pine Mouldings.
- B. Wood Shelving:
 - 1. Provide all wood shelving to AWI 600 series, Custom Grade.
 - 2. Material: Softwood plywood.

- 3. Exposed Edges: Solid lumber edge bands, 3/4" by 1-1/2"
- 4. Adjustable standards: Heavy Gauge Metal, with support brackets.

2.03 PVC TRIM AND PANELS

- A. Trim shall be "Azek", or approved equal, including Versatex Simulated Wood.
 - 1. Fastener head filler shall be as recommended by manufacturer for areas where the fastener hole is visible.
- 2.04 WIRE SHELVING
- A. Wire Shelf System and Utility Closet Shelf System:
 - 1. Type: Ventilated vinyl coated steel rod shelving with integral clothes rod constant slide design
 - 2. Size: 18 in. deep x length to span closet or area.
 - 3. Color: White.
 - 4. Provide anchors, end brackets, support brackets, and joiners required to mount shelf.
 - 5. Acceptable Manufacturer: Clairson Industries Model Closet Maid.

2.05 ATTIC HATCH

- A. $22.5 \times 30 \text{ RO}$ verify with with truss bottom chord spacing.
 - 1. E-Z Hatch by Battic Door, R42 Delux Model (Keyed Lock)

PART 3 - EXECUTION

3.01 INSPECTION / JOB CONDITIONS

A. Examine the areas and conditions under which finish carpentry work is to be performed. Do not proceed with the work until unsatisfactory conditions have been corrected.

3.02 PREPARATION

A. Condition wood materials to average prevailing humidity conditions in installations areas prior to installing.

B. Prior to fabrication, take field measurements of shop fabricated items to confirm dimensions.

3.03 FIELD QUALITY CONTROL

A. Pre-installation Meeting: Meet at project site prior to delivery, and review coordination and environmental controls required for proper installation and ambient conditioning in areas to receive work. Meeting shall include the Contractor, Architect and firms and persons responsible for continued operation of HVAC systems as required to maintain temperature and humidity conditions. Proceed with finish carpentry only when agreement is reached that required ambient conditions can be maintained.

3.04 INSTALLATION

- A. General:
 - 1. Set and secure items in place, rigid, plumb and level.
 - 2. Scribe installations against other building materials, leaving gaps of 1/32 inch, maximum. Do not use additional overlay trim for this purpose.
 - 3. Refinish cut surfaces or repair damaged areas.
 - 4. Verify dimensions before proceeding and obtain measurements at site for Work required to be accurately fitted to other construction.
 - 5. Coordinate Work with other trades affected by this installation.
 - 6. Give particular attention to work of supporting and attachment items so as not to delay progress.
 - 7. Condition wood materials to average prevailing humidity conditions before installing.
 - 8. Coordinate with backprime of lumber by Section 09900 for painted finish exposed on exterior or where high moisture and humidity exists in interior.
- C. Standing and Running Trim:
 - 1. Install with minimum number of joints, using full-length pieces.
 - 2. Stagger joints in adjacent or related members.
 - 3. Cope at returns, miter at corners for tight fitting joints to have full surface contact.
 - 4. Use butt joints for end-to-end joints.
 - 5. Make exterior joints water-resistant by tight fitting.
 - 6. Apply flat grain lumber with bark side exposed to weather.
 - 7. Backprime trim on exterior or in high moisture areas that is scheduled for paint or stain finish.
 - 8. Hall handrails and graspable support rail shall return to wall at end of run.
- D. Installation of items furnished under other sections:
 - 1. See individual section for installation instructions.
 - 2. Install all items noted to be furnished only under other sections including but not limited to:
 - a. Wood doors and frames, Section 08 14 00

- b. Finish hardware, Section 08 70 00
- c. Cabinetwork, Section 12 35 00

E. Attic Hatch shall be positioned with review of architect, to location relative to Truss members.

3.05 TOLERANCES

- A. Tolerances:
 - 1. Plumb and Level: 1/8 in. in 8 ft.
 - 2. Offset in Surface Alignment: Max. 1/16 in.
 - 3. Offset in Revealed Adjoining Surface: Max. 1/8 in.

3.06 ADJUSTMENT, CLEANING, FINISHING AND PROTECTION

A. Repair damaged and defective finish carpentry work wherever possible to eliminate defects functionally and visually; where not possible to repair properly, replace with new installation. Adjust joinery for uniform appearance.

B. Clean finish carpentry work on exposed and semi-exposed surfaces.

C. Refer to Painting Section for final finishing of finish carpentry work.

D. Protection: Protect and maintain conditions to ensure that work will be without damage or deterioration at time of acceptance.

3.07 Closet Shelving:

A. Install as per manufacturer's printed instructions regarding spacing of supports and wall attachment brackets.

3.08 Exterior Trim

A. Install trim, including cornerboard, panels and casing, with flashing at window and door heads in accordance with trim manufacturer's printed instructions regarding cutting and nailing.

- 1. Install with stainless steel Screws
- 2. Cover all fasteners with Cortex concealed fastening / plug system for PVC trim, with Stainless Steel screws.
- 3. Rabbet out slots for receiving Vinyl siding at door casing and corner boards.

End of Section 06 20 00

SECTION 07 21 00

THERMAL AND ACOUSTIC INSULATION

PART 1 - GENERAL

1.01 GENERAL

A. Attention is directed to general provisions of the CONTRACT, including GENERAL and SUPPLEMENTARY CONDITIONS, and all sections within DIVISION
1 - GENERAL REQUIREMENTS, which are hereby made a part of this Section of the Specifications as if fully repeated herein.

B. Coordinate work with that of all other trades affecting, or affected by the work of this Section. Cooperate with such trades to assure the steady progress of all work under the Contract.

- 1.02 FILING OF SUB-BIDS (not applicable)
- 1.03 SCOPE OF WORK
- A. Work shall include:
 - 1. Installation of thermal and acoustic insulation, floors and ceiling.
 - 2. Perimeter sealing at exterior doors and windows.
- B. Schedule of Thermal Insulation:
 - 1. Exterior Wood Wall Framing Cavity:
 - a. Dense pack blown cellulose in exterior wall construction, to Grade I installation per RESNET standards. Full depth of nominal 4 inch cavity. Netting included, if required for selected installation method.
 - 2. Vented Roof / Attic:
 - a. R38 fiberglass batts (two R19 batts)
 - 3. Acoustic and Fire Rated walls (FASB)
 - a. Mineral Wool batts, min 3"
 - 4. Window / door sealing:
 - a. Expanding foam
- C. General Design Intent
 - 1. Although building is for seasonal use, design intent is for air-tight structure, fully sealed.
 - a. Vapor barrier at ceiling, all penetrations sealed.
 - b. Walls will use gypsum board barrier, with all edges and penetrations sealed.

c. Gaps at sill framing shall be sealed.

1.04 RELATED WORK SPECIFIED ELSEWHERE

A. The following related work or materials shall be provided under the designated Sections and coordinated by the Contractor:

- 1. Section 07 90 00, Sealants general air sealing at exterior, including exposed framing.
- 2. Div 08 Windows: self-adhering flashing strips at window perimeter.

1.05 ALTERNATES

(not applicable)

1.06 SUBMITTALS

A. Attention is directed to Section 01 30 00 regarding required procedures for Submittals.

B. Submittals are required for the following: (SD = Shop Drawing) (FS = Field Sample) (OS = Samples) (PD = Printed Data)

1.	Fire, Acoustic and Thermal Batt Insulation	PD
2.	Expanding foam insulation	PD
3.	Spray Cellulose	PD

- C. Printed data for expanding foam insulation shall include the recommended rate of foam expansion for the particular installation requirements, and the requirement of thermal or ignition barriers.
- 1.07 REFERENCE STANDARDS
- A. Blanket Insulation: ASTM C665, FS HH-I-521
- B. Vapor Barrier: FS L-P-375
- C. Thermal resistance: ASTM C-518
- D. Water Vapor Transmission: ASTM E96

1.08 DELIVERY, STORAGE AND PROTECTION

- A. General Protection:
 - 1. Protect insulation materials from weather and construction processes.

- 2. Do not allow insulation to become wet or soiled.
- 3. Comply with precautions and recommendations of manufacturer.

B. Protection for Plastic Insulation:

- 1. Do not expose to sunlight, except to extent necessary for period of installation and concealment.
- 2. Protect against ignition at all times.
- 3. Do not deliver plastic insulating materials to Project site ahead of installation time.
- 4. Complete installation and concealment of plastic materials as rapidly as possible in each area of Work.

PART 2 - PRODUCTS AND MATERIALS

- 2.01 INSULATION MATERIALS
- A. Dense pack blown cellulose in exterior wall construction. Product by National Fiber or equal. Minimum R-3.5 per inch. Netting included, if required for selected installation method. Acceptable substitute products: Wood fiber GUTEX Thermofiber or equal; Dense pack mineral wool Knauf EcoFill Wx Blowing Insulation or equal.
- B. Acoustic Insulation. Flexible units fabricated from glass or semi-refractory slag fibres, manufactured by Certain-Teed, Manville, Owens-Corning, USG or equal.
 - 1. Floor Ceiling Cavities (where indicated)
 - a. 3.5" fiberglass, unfaced acoustic insulation.
 - 2. Acoustic and Fire Rated walls (FASB)
 - a. Mineral Wool batts, min 3"
- 2.03 ACCESSORIES:
- A. Adhesives: Use type suited for location and compatible with material to be adhered.
- B. Fasteners: Use type and size suited for application.
- C. Vapor Barrier: 6 Mil poly, taped seams.
- D. Air Seal Boot:
 - 1.. Type: PVC or EPDM premolded pipe and seal for penetrations at ceiling vapor barrier.
 - 2. Install at all pipe penetrations through ceilings.
 - 3. Acceptable Manufacturer: Carlisle Syntec.

- E. Gap Insulation:
 - 1. Foam-in-place for sealing around perimeter wall penetrations and electrical outlets and around all penetrations through wall and partition top plates.
 - 2. Acceptable Manufacturer: Insta-Foam Products Inc. Model Insta-Seal, W.R. Grace Model Poly- Cel.
 - 3.. At option of Contractor, use of appropriate foam backer rods sized to location and acoustical sealant may be substituted for foam-in-place gap insulation around window frames after receipt of written approval from Architect.
- F. Vent Baffles (Size as determined by rafter / truss spacing
 - 1. Raft-R-Mate, by Owens Corning
 - 2. ADO Products, Pro-vent
 - 3. PropaVent

PART 3 - EXECUTION

3.01 PREPARATION

- A. Substrate:
 - 1. Installer must examine substrates and conditions under which insulation work is to be performed and must notify Contractor in writing of unsatisfactory conditions.
 - 2. Do not proceed with insulation work until unsatisfactory conditions have been corrected in manner acceptable to Installer.
 - 3. Clean substrates of substances harmful to insulations or vapor barriers, including removal of projections which might puncture vapor barriers.

B. Utilities:

- 1. Insure completion of plumbing, mechanical, and electrical work is finished before start of insulation work and has been fully inspected and tested.
- 2. Place air-seal boot in place at all ceiling penetrations by piping or ducts.

3.02 INSTALLATION

- A. General:
 - 1. Extend insulation full thickness over entire area to be covered unless indicated otherwise.
 - 2. Cut and fit insulation, where required, tightly around all obstructions so no voids exist in insulation course.
 - 3. Comply with manufacturer's instructions for particular condition of use and type of insulation and accessory items.
 - 4. Consult manufacturer's representative for specific instructions if instructions are not applicable to conditions of use.
- B. Thermal and Acoustical Insulation:

- 1. Cut batt insulation for proper friction fit in length and width without gaps or voids.
- 2. Do not double over, compress, or overlap insulation.
- 3. Insulate voids at transverse walls before interior wall is framed.
- 4. Install where indicated on the drawings.
- C. Gap Insulation:
 - 1. Install around entire perimeter of windows, doors, electric boxes, ducts, fans, piping, and other exterior wall and ceiling penetrations after installation of gypsum board.
 - 2. Install along entire perimeter of wall sill on the exterior before sheathing is applied or on the interior before wallboard is applied.
 - 3. Foam Method:
 - a. Control flow of material to prevent buckling window jambs.
 - b. Use temporary blocking as necessary.
 - c. Excessively tight window sash will be cause for rejection if more than 15 lb. of operating pressure is required to open or close windows.
 - d. Perform remedial action required to loosen windows at no cost to Owner.
 - 3. Backer Rod and Sealant Method:
 - a. Use care in rod size selection and fit if rod is required.
 - b. Apply sealant to bridge entire gap.
 - c. Allow for movement due to expansion and contraction when insulating gaps around vent piping, electric conduit, and other penetrations occurring in ceiling or wall.
- D. Install as to preserve continuity of air barrier.
- E. Install as to provide un-impeded attic ventilation.

3.03 FIELD QUALITY CONTROL

- A. Tests:
 - 1. At completion of installation of insulation and air seals, and again at completion of construction, Owner may conduct Door Fan Testing and Infrared Scanning.
 - 2. Cooperate with this testing as required.
 - 3. Correct deficiencies as required and requested.
 - 4. Open finished walls and ceilings where insulation has been omitted or improperly installed.
 - 5. Return to site where Infrared Scanning is delayed until first heating season.

End of Section 07 21 00

SECTION 07 31 00

ASPHALT SHINGLE ROOFING

PART 1 GENERAL

1.01 GENERAL

A. Attention is directed to general provisions of the CONTRACT, including
GENERAL and SUPPLEMENTARY CONDITIONS, and all sections within DIVISION
1 - GENERAL REQUIREMENTS, which are hereby made a part of this Section of the
Specifications as if fully repeated herein.

B. Coordinate work with that of all other trades affecting, or affected by the work of this Section. Cooperate with such trades to assure the steady progress of all work under the Contract.

1.02 FILING OF SUB-BIDS

(not applicable)

1.03 SUMMARY OF WORK

- A. Section Includes:
 - 1. Three Tab, 30 yr asphalt shingle roof.
 - 2. Roofing felt
 - 3. Fasteners.
 - 4. Membrane Flashing
 - 5. Ice and Water Shield.
 - 6. Drip Edge.
 - 7. Aluminum gutters and downspouts
- B. Conformance to construction phasing schedule.

1.04 RELATED WORK SPECIFIED ELSEWHERE

A. The following related work or materials shall be provided under the designated Sections and coordinated by the Contractor:

- 0. Section 06 10 00, Sheathing repair and replacement
- 1. Section 06 20 00, Finish Carpentry: roof trim

2. Section 07 62 00, Flashing and Sheet Metal: Misc Flashing

1.05 ALTERNATES (not applicable)

1.06 SUBMITTALS

A. Provide submittals to form defined in Section 01300, Submittals.

B.	Submittals are required for the following:
	(SD = Shop Drawing)
	(FS = Field Sample)
	(OS = Samples)
	(PD = Printed Data)

1.	Asphalt Shingles	PD, OS
2.	Membrane materials	PD, OS
3.	Roof Edge	PD, OS
4.	Roof Cement	PD
5.	Fasteners	PD, OS
6.	Roof Caps	PD/ OS
7.	Alum. Gutters & downspouts	PD / OS
7.	Warranty Information	PD

C. Shingle and alum. samples shall include full color range.

D. Submit written, certified evidence that all conditions of the manufacturer's material and installation warranty are met by the proposed installation. <u>Full warranty must be available for products installed over unventilated roof decks.</u>

PART 2 PRODUCTS

2.01 MATERIALS

1.

A. Shingles – Granule surfaced self-sealing asphalt shingle with fiberglass reinforced core and a mineral granular surfacing. Traditional 3-tab styling.

Description: ASTM D 3462, Class H ASTM D3018, Type 1 UL 790 Class A Fire resistance UL 997 Wind uplift label. ASTM D3161, Type 1 Class F Wind Resistance AC438 compliant CSA 123.5-98

- 2. Color: As selected from manufacturer's standard colors for Northeast region.
- 3. Warranty:
 - a. 30 Year for this project application
 - 8 year 100% labor and material
 - b. 10 Year algae / stain resistance
 - c. 10 Year 110 mph wind resistance warranty
- 10. Acceptable Manufacturers: Certainteed – "Marquis" WeatherMax Equal by GAF or Tamko.
- B. Flashing:
 - 1. Ice and Water membrane (Certainteed WinterGuard or equal)
 - 2. Drip Edge: 0.027 in. x 6 in. wide, Dark gray finish.
 - 3. Valley Flashing Ice and Water Membrane and Roll Roofing
- C. Ridge Vent:
 - 1. Cobra Ridge Runner by GAF
- E. Roofing Felt:

3.

1. Application: Layer of No. 15 asphalt felt, or as required by manufacturer to achieve system warranty.

- 2. No. 15 Asphalt Felt:
 - a. UL 55A, Type 15, plain.
 - b. Size: 36 in. wide.
 - c. Meeting ASTM D226, ASTM D4869, ASTM D6757
 - Certainteed DiamondDeck Synthetic Underlayment
- F. Gutters and Downspouts Aluminum:
 - 1. Material: 3005-H25 aluminum, 0.032 in. ga. for gutters and 0.027 in. ga. for downspouts.
 - 2. Provide gutters complete with strainers, outlet tubes, gutter ends, expansion joints, screens, and baffles.
 - 3. Provide rectangular corrugated downspouts complete with elbows.
 - 4. Color: As selected by architect from manufacturer's full standard range.
 - 5. Acceptable Manufacturer: Alcoa, System Six (6" nominal size, with 3" x 4" downspout) or equal by Standard Metal Products, Modern Materials Corp., Hunter Douglas, Hastings Aluminum Products.
 - 6. Hangers: Concealed type, equal to Alcoa #144160.
 - 7. At Transition to subsurface PVC, provide connector with overflow.

G. Fasteners: Hot-dipped galvanized steel, 10-1/2 to 12 ga. roofing nails having 3/8 in. dia. heads, min. 1-1/4 in. long. Use shorter nails at roof deck areas exposed to exterior view.

- 1. Use of power activated fasteners is permitted, American made, and collated. <u>Staples not permitted</u>.
- H. Cement: ASTM D2822, fibrated asphalt cement.
- I. Flashing Membranes:
 - 1. For use at eave, rake , ridge and dormer side walls, as specified herein.
 - 2. Cold applied self-adhering preformed membrane.
 - 3. Size: 36 in. wide with end laps min. 2-1/2 in.
 - 4. Acceptable Manufacturer: W.R. Grace Model Bituthene Ice and Water Shield, Certainteed Corp. Model WinterGuard, Owens Corning Model Deck-Dri.
- J. Drip Edge:
 - 1. Drip Edge: 0.027 in. x 6 in. wide aluminum white or brown finish.
 - 2. Provide at all roof edges.
- K. Splash Blocks:
 - 1. Not Applicable
- L. Ridge Cap shingles:
 - 1. Seal-A Ridge by GAF match field color

PART 3 EXECUTION

3.00 PREPARATION

- A. Remove all existing roofing materials down to the deck.
 - 1. Alert owner and architect of any problematic sheathing areas.
 - 2. Coordinate work with siding and trim installations at eaves and rakes.
 - 3. Protect existing pavilion roofing.
 - 4. Where pavilion roof edge meets main building, remove trim as needed to Provide flashing at the roof intersections.

3.01 INSTALLATION

A. Roofing underlayment:

- 1. Comply with recommended specifications of ARMA.
- 2. Lap each sheet 2 in. over preceeding sheet and turn up vertical surface 4 in.
- B. Flashing Membranes:
 - 1. Apply membrane to manufacturer's instructions at eave, rake, ridge and valleys. Apply full width over any roof framing in direct contact with occupied space, and 2 feet above. This pertains to the sloped portions visible in the interior of the building.
 - 2. Roll entire membrane and apply second course with min. 2-1/2 in. overlap.
 - 3. Cover all valleys with initial min. 18 in. wide strip centered on axis of valley and lay full width membrane (36") over initial strip.
 - 4. Apply double layer around penetrations occurring in membrane min. 6 in. in all directions and seal.
- C. Flashing:
 - 1. Eaves and Rakes: Install "Ice and Water" membrane to point 24 in. inside wall line and beyond any exposed sloped areas visible from the interior.and lay additional felt over membrane area.
 - a. Sandwich metal roof edge between bottom course of "Ice and Water" membrane and 9 inch flashing strip of "Ice and Water" membrane placed over roof edge.
 - 2. Valley: Lay 36 in. wide valley liner of Ice and Water membrane. Overlap as per manufacturer's recommendation.
- D. Shingles:
 - 1. Apply with max. min. 4 nails per strip in nailing pattern recommended by manufacturer.
 - 2. Set shingles at eaves and rakes in solid coating of plastic cement 8 in. from all edges.
 - 3. Apply hip and ridge shingles to match field shingles.
 - 4. At valleys, comply with manufacturer's recommended installation approach, over valley liner.
- E. Gutters and Downspouts Aluminum:
 - 1. Use slip joint connectors to connect gutter sections, end joints, or miter corners together.
 - 2. Fill joints with sealant and connect together.
 - 3. Apply bead of sealant inside gutter along edge of connector.
 - 4. Attach gutter sections to building using strap hangers every other rafter, on each side of any miter course, and on each end section. Use strap hangers and roof apron flashing coordinated with gutter size, in longest lengths possible. Provide for expansion and contraction and isolation from other metals as per manufacturer's instructions and recommendations.

- 5. Drill holes for pop rivets in end cap and gutter section and bed end cap in sealant before pop riveting.
- 6. Connect downspout and elbows to gutter using pop rivets.
- 7. Make all connections in direction of water flow.
- 8. Fasten downspout to wall with concealed hangers, min. 2 per length of downspout.
- 9. Install drip edge under shingles to prevent water reaching roof.
- 10. Wash system with detergent and touch up scratches and chips.
- 11. Apply touch up paint to all damaged areas, if area of damage is deemed small enough by Architect.
- 12. Connect to subsurface collection system with PVC boot with integral overflow.

- END OF SECTION -

SECTION 07 46 00

CEMENT BASED SIDING

PART 1 - GENERAL

1.01 GENERAL

A. Attention is directed to general provisions of the CONTRACT, including
GENERAL and SUPPLEMENTARY CONDITIONS, and all sections within DIVISION
1 - GENERAL REQUIREMENTS, which are hereby made a part of this Section of the
Specifications as if fully repeated herein.

B. Coordinate work with that of all other trades affecting, or affected by the work of this Section. Cooperate with such trades to assure the steady progress of all work under the Contract.

1.02 FILING OF SUB-BIDS (not applicable)

1.03 SCOPE OF WORK

A. Work of this Section includes, but is not limited to:
 1. Bead Board Soffit

B. Where materials are supplied by other sections, consult such sections for installation methods, where applicable.

1.04 RELATED WORK SPECIFIED ELSEWHERE

A. The following related work or materials shall be provided under the designated Sections and coordinated by the Contractor:

- 1. Section 06 10 00, Rough Carpentry: Blocking support for installations
- 2. Section 06 20 00, Finish Carpenty: exterior trim, Block outs for lighting, Vents, hose bibs, etc.
- 3. Section 07 62 00, Flashing and Sheet Metal

1.05 ALTERNATES (Not applicable)

1.06 SUBMITTALS

A. Attention is directed to Section 01 30 00 regarding required procedures for Submittals.

- B. Submittals are required for the following: (SD = Shop Drawing) (FS = Field Sample) (OS = Samples) (PD = Printed Data)
 - 1.PanelsSD, OS, PD2.PanelsOS, PD
 - 2. Reglets

OS, PD,

Office sample shall be 12" long section of product, one per style or Configuration.

Field Sample shall demonstrate the coordination of soffits, siding, Windows, weather barriers, sealants and other elements of the exterior, installed in a manner that is consistent with the manufacturer's requirements. Review coursing of siding with architect prior to installation on the field sample.

Field sample may be incorporated into the project, if satisfactory.

1.07 QUALITY ASSURANCE

A. Installer: Employ only experienced personnel for installation of the work of this Section.

1.08 REFERENCE STANDARDS

A. Refer to AWI Quality standards for definition of millwork grade. If not so identified, work shall conform to "Custom" grade.

B. AWI Fabrication / Installation Standards: Custom Grade

- C. Materials Standards:
 - 1. Softwood Lumber: Comply with PS 20, ANSI A199.1.
 - 2. Hardwood Plywood Comply with PS 51

1.09 DELIVERY AND STORAGE

A. Protect finish carpentry materials during transit, delivery, storage and handling to prevent damage, soiling and deterioration.

B. Do not delivery materials construction operations that could damage materials are completed. If, due to unforeseen circumstances, finish carpentry materials must be stored in other than installation areas, store only in areas meeting requirements specified for installation areas.

1.10 JOB CONDITIONS

A. Proceed with installation only when existing and forecasted weather permit work to be performed, as per manufacturer's requirements.

1.11 WARRANTY

A. Special warranty for Cement Based Siding:

1. Manufacturer's standard form, signed by manufacturer, installer and contractor, in which manufacturer agrees to repair or replace siding that fails in materials or workmanship within specified warranty period. Failures included, but are not limited to deformation or deterioration beyond normal weathering. a. Warranty period for material: 50 years from date of substantial

completion.

b. Warranty period for factory finish: 15 years from date of substantial completion.

PART 2 - PRODUCTS AND MATERIALS

- 2.01 FIBER CEMENT LAP SIDING
- A. (not applicable)

2.02 PANELS AND BATTENS

A. James Hardie HardiePanel.

- a. Smooth finish.
- b. 5/16" thickness.
- c. Length as needed to avoid horizontal seams
- 2.03 SOFFITS

- A. James Hardie HardieSoffit panel.
 - a. Beadboard, max size to minimize field joints.
 - b. $\frac{1}{4}$ " thickness.
 - c. Submit layout for approval

2.04 WEATHER BARRIER

- A. "House Wrap"
 - a. HardieWrap by James Hardi, with seam tape
 - b. Tyvek by Dupont, with seam tape

PART 3 - EXECUTION

3.01 INSPECTION / JOB CONDITIONS

A. Examine the areas and conditions under which siding is to be performed. Do not proceed with the work until unsatisfactory conditions have been corrected.

3.02 PREPARATION

A. Clean all substrates of projections or substances detrimental to application.

B. Cut materials to required size, and prime cut ends. Comply with the requirements in DIV 09.

3.03 FIELD QUALITY CONTROL

A. Pre-installation Meeting: Meet at project site prior to delivery, and review coordination required for proper installation and ambient conditioning in areas to receive work. Meeting shall include the Contractor, Architect and firms and persons responsible for wall penetrations, including HVAC and electrical. Proceed with siding only after location of all penetrations is determined,

3.04 INSTALLATION

- A. General:
 - 1. Set and secure items in place, rigid, plumb and level. Do not use materials that are unsound, warped, improperly finished or too small for proper installation.

- 2. Scribe installations against other building materials, leaving gaps as prescribed by the manufacturer. Do not use additional overlay trim for this purpose.
- 3. Refinish cut surfaces or repair damaged areas.
- 4. Verify dimensions before proceeding and obtain measurements at site for Work required to be accurately fitted to other construction.
- 5. Coordinate Work with other trades affected by this installation.
- 6. Give particular attention to work of supporting and attachment items so as not to delay progress.

3.05 WEATHER BARRIER

- A. Comply with manufacturers installation instructions including methods for windows and wall penetrations.
 - 1. Tape all seams.

3.06 SIDING AND SOFFIT INSTALLATION

A. General: Comply with siding and soffit manufacturer's written installation instructions applicable to products and applications indicated unless more stringent requirements apply.

1. Do not install damaged components.

2. Center nails in elongated nailing slots without binding siding to allow for thermal movement.

B. Install fiber-cement siding and soffit and related accessories.

1. Install fasteners no more than 24 inches o.c. or as recommended by the manufacturer, whichever is stricter. Install fasteners into supporting structure so as to avoid any sag in soffits.

2. Touch up all cut ends of siding with manufacturer's standard touch up kit, regardless of installed location.

3. Blind nail or screw all siding.

4. Seal as per manufacturer's instructions.

C. Coordinate soffit layout with the perimeter reglet installations. Reglets shall be correct depth to receive material.

3.06 ADJUSTMENT, CLEANING, FINISHING AND PROTECTION

A. Repair damaged and defective siding work wherever possible to eliminate defects functionally and visually; where not possible to repair properly, replace with new installation. Adjust joinery for uniform appearance.

B. Clean finish siding work on exposed and semi-exposed surfaces.

C. Refer to Painting Section for any required touch up of siding work.

D. Protection: Protect and maintain conditions to ensure that work will be without damage or deterioration at time of acceptance.

End of Section 07 46 00

SECTION 07462

VINYL SIDING

PART 1 - GENERAL

1.01 GENERAL

A. Attention is directed to general provisions of the CONTRACT, including GENERAL and SUPPLEMENTARY CONDITIONS, and all sections within DIVISION 1 - GENERAL REQUIREMENTS, which are hereby made a part of this Section of the Specifications as if fully repeated herein.

B. Coordinate work with that of all other trades affecting, or affected by the work of this Section. Cooperate with such trades to assure the steady progress of all work under the Contract.

- 1.02 FILING OF SUB-BIDS (not applicable)
- 1.03 SCOPE OF WORK

A. Work of this Section includes, but is not limited to:

- 1. Vinyl siding. Applied over mineral wool insulation.
- 2. Extra Stock for Owner maintenance use.
- 3. Air barrier installation.
- 4. All required trim and accessories for a complete application, including starter strips, undersill trim and all receiving channels.
- 5. Blockout sections for attachment of lights, hosebibs, receptacles, etc.

B. Where materials are supplied by other sections, consult such sections for installation methods, where applicable.

C. Design intent is for no visible "J" trim. Design intent is for trim to receive ends of vinyl sections.

1.04 RELATED WORK SPECIFIED ELSEWHERE

A. The following related work or materials shall be provided under the designated Sections and coordinated by the Contractor:

- 1. Section 06 20 00, Finish Carpentry: solid PVC trim at doors
- 2. Fiber Cement Panels Section 07 46 00
- 1.05 ALTERNATES

A. (not applicable)

- 1.06 SUBMITTALS
- A. Attention is directed to Section 01 30 00 regarding required procedures for Submittals.
- B. Submittals are required for the following:

(SD = Shop Drawing)
(FS = Field Sample)
(OS = Samples)
(PD = Printed Data)

1.	Vinyl materials	SD, OS, PD
2.	Fasteners	OS, PD
3.	Warranty	PD

C. Submit manufacturer's limited lifetime warranty, with verification that warranty is applicable to multi-family rental housing.

1.07 QUALITY ASSURANCE

A. Provide standard manufacturer's warranty covering full cost of material and labor for designated period. 1

Equal to Certainteed Corporation Lifetime Limited Warranty

B. Solid vinyl siding shall comply with the provisions set forth in ASTM standard specification for Rigid Polyvinyl Chloride siding, #D3679, Class 2.

All procedures, operations and product specifications shall meet or exceed ASTM С D3679, D696, D1042, D4224 and PS55-72.

Weathering shall be according to requirements of ASTMD1435, and free of any visual D. surface defects, such as peeling, chipping, cracking, flaking or crazing due to manufacturing conditions.

Ε. Chalking shall not exceed ASTM D659 Number 6 rating caused by manufacturing defects within 5 years in a vertical exposure.

- F. Color shall be uniform on the surface and throughout the panel.
- G. Manufacturer shall be VSI certified.
- H. Fire Properties
 - Products shall meet Class 1 flame spread requirements, as per ASTM E84. 1.
 - 2. Products shall have self ignition temp no less than 813 deg F, as per ASTM D 1929.
 - 3. Material is self-extinguishing with no measurable extent of burn when tested under ASTM D 635.
 - 4. Products meet Radiant Heat Test, as per NFPA 268.
- I. Installer shall have previous experience in applications over Rock Wool insulation.
- 1.08 REFERENCE STANDARDS
- A. Rigid Vinyl Siding Application Instructions – Vinyl Siding Institute
- B. ASTM D4756, Standard Practice for installation of vinyl siding
- 1.09 DELIVERY AND STORAGE
- Α. Deliver and store in accordance with manufacturer's instructions.
- 1.10 EXTRA STOCK
- At the completion of the project, leave with the Owner extra stock equal to two percent A. (1%) of the area of vinyl siding used on the project, divided proportionally between each color and profile.

Α. PART 2 - PRODUCTS AND MATERIALS

- 2.01 Products and Materials
- Vinyl Α. 1
 - Siding, General:
 - Type: Formed solid polyvinylchloride panels, min. 0.042 in. thick nominal. a.
 - 4" profile, b.
 - Texture: Grain pattern. C.
 - Color: As selected from full range of standard colors. d.
 - Acceptable Manufacturer: Certainteed Mainstreet. e.
- B. Accessories and trim:

- 1. Nails:
 - a. Non-staining rustproof siding, box, or casing nails suited to application.
 - b. Use stainless steel fasteners for plastic siding.
 - c. Note that siding installation is through 1.5" mineral wool insulation.

PART 3 - EXECUTION

3.01 INSPECTION / JOB CONDITIONS

A. Examine the areas and conditions under which vinyl siding work is to be performed. Do not proceed with the work until unsatisfactory conditions have been corrected.

- Verify that existing sills are level and walls are plumb. Make all necessary adjustments to layout in the event of existing conditions that are out of level or plumb.
- 3.02 PREPARATION

1.

A. Verify that surfaces are ready to receive vinyl installation.

1. Coordinate work with Sections 07 21 00, Insulation and Air Sealing and 06 20 00 Finish Carpentry.

- 3.03 FIELD QUALITY CONTROL
- A. Verify vinyl materials ability to produce design intent prior to commencing installations.
- 3.04 INSTALLATION
- A. Plastic Siding:
 - 1. General:
 - a. Use siding nails to penetrate 1 1/2 in. into stud or combination of stud and solid sheathing, 8 to 10 in. o.c.
 - b. Drive nails so head is only lightly flush to siding materials.
 - c. Do not drive nails to bind siding materials especially important over the mineral wool insulation.
 - d. Nail in center of slots and do not face nail. Panels must move freely side to side.
 - e. Leave min. 1/4 in. clearance at channels and corner posts to allow expansion and contraction of siding. When installing with temperatures below 32 deg. F., increase clearances to 3/8"
 - f. Do not stretch siding or force panels up or down when fastening. Allow panels to hand without strain.
 - g. Cut siding panels with sharp knife, snips or power saw.
 - h. Do not caulk panels where they meet the receiver of inside corners, outside corners or J trim. Do not caulk overlap joints.
 - 2. Horizontal Siding:
 - a. Run chalk line for starter strip around structure.
 - b. Install starter strip, nail max 8 in o.c. and double nail at ends.
 - c. Apply siding panels securely locked at bottom edge to starter strip or previous siding panel and nail top max. 16 in. o.c.
 - d. For cut areas of siding fitted below openings, use undersill trim and punch perforations a 4 in. intervals to lock siding into trim.
 - e. At wall penetrations and electrical equipment, install block-outs, etc.
 - to provide suitable surface for wall mounted equipment and devices.
 - f. Allow sufficient expansion room for long panels.

3.05 ADJUSTMENT, CLEANING, FINISHING AND PROTECTION

- A. Remove all debris from site.
- B. Clean vinyl materials. Remove and replace all damaged materials.

C. Leave Extra Stock with owner, and provide Architect with written record of receipt.

End of Section 07462

SECTION 07 62 00

FLASHING AND SHEET METAL

PART 1 - GENERAL

1.01 GENERAL

A. Attention is directed to general provisions of the CONTRACT, including GENERAL and SUPPLEMENTARY CONDITIONS, and all sections within DIVISION 1 - GENERAL REQUIREMENTS, which are hereby made a part of this Section of the Specifications as if fully repeated herein.

B. Coordinate work with that of all other trades affecting, or affected by the work of this Section. Cooperate with such trades to assure the steady progress of all work under the Contract.

- 1.02 FILING OF SUB-BIDS (not applicable)
- 1.03 SCOPE OF WORK
- A. This Section includes the Following:1. Misc. Exterior flashing,

1.04 RELATED WORK SPECIFIED ELSEWHERE

A. The following related work or materials shall be provided under the designated Sections and coordinated by the Contractor:

- 1. Section 07 46 20, Siding
- 2. Section 07 31 00, Shingle Roofing gutters and downspouts
- 1.05 ALTERNATES (not applicable)
- 1.06 SUBMITTALS
- A. Provide submittals to form defined in Section 01 30 00, Submittals.
- B. Submittals are required for the following: (SD = Shop Drawing)

Section 07 62 00 – FLASHING AND SHEET METAL Page - 1

(OS =	Field Sample) = Samples) Printed Data)	
	Metal Roofing Misc flashing	OS, SD, PD OS, SD
1. 2.	Product Data: For each type of product specified.OS for Initial Selection: Proposed profile.a. All hangers, straps, etc.	

- 3. SD shall indicate:
 - a. Fabrication details, showing hangers, etc.
- 4. Submit full range of color choices for alum coil stock.

1.07 QUALITY ASSURANCE AND REFERENCE STANDARDS

A. Metal flashing shall be fabricated and installed by experienced mechanics, in accordance with the publication entitled SMACNA details for thermal and moisture protection.

1.08 PROJECT CONDITIONS

A. Field Measurements: Verify substrates by field measurements before fabrication and indicate measurements on Shop Drawings. Coordinate fabrication schedule with construction progress to avoid delaying the Work.

PART 2 - PRODUCTS AND MATERIALS

- 2.01 MISC FLASHING
- A. Alum .035, coated. Coil stock, polyester coated.

PART 3 - EXECUTION

- 3.01 INSPECTION / JOB CONDITIONS
- D. Report any damaged or unsuitable areas to the Architect and/or owner.
- 3.02 INSTALLATION

3.03 INSTALLATION OF NON-PREFABRICATED FLASHINGS

A. General: Fabricate and install flashings and other sheet metal work in accordance with referenced standards. The architect shall review each field sample prior to full fabrication of the component.

B. All installations shall be conducted to allow for thermal expansion, and such provisions shall be indicated on the required shop drawings.

C. Verify that substrate is ready to receive flashing and fastenings. Request correction from the General Contractor when substrates are not adequately prepared.

D. Generally, flashing and sheet metal work shall be in lengths not exceeding 8 feet and shall be free from longitudinal joints. Coat all flashing in contact with dissimilar meal with asphalt paint. Form expansion joints in running flashing work by joining ends of sheets together with a 3 inch loose lock, filled with plastic cement, and install expansion joints every 24 feet in straight runs.

3.03 CLEANING AND PROTECTING

A. Before final inspection, clean exposed surfaces with water and a mild soap or detergent not harmful to finishes. Thoroughly rinse surfaces and dry.

End of Section 07 62 00

SECTION 07 92 00

SEALANTS

PART 1 - GENERAL

1.01 GENERAL

A. Attention is directed to general provisions of the CONTRACT, including
GENERAL and SUPPLEMENTARY CONDITIONS, and all sections within DIVISION
1 - GENERAL REQUIREMENTS, which are hereby made a part of this Section of the
Specifications as if fully repeated herein.

B. Coordinate work with that of all other trades affecting, or affected by the work of this Section. Cooperate with such trades to assure the steady progress of all work under the Contract.

1.02 FILING OF SUB-BIDS (not applicable)

1.03 SCOPE OF WORK

A. Furnish and install interior and exterior sealants, including backing materials, primers, and related work. Provide joint sealers that have been produced and installed to establish and maintain watertight and airtight continuous seals. Locations include:

- 1. Door frame perimeters.
- 2. Window Perimeters.
- 2. Joints between dissimilar materials, including bathroom fixtures.
- •

1.04 RELATED WORK SPECIFIED ELSEWHERE

A. The following related work or materials shall be provided under the designated Sections and coordinated by the Contractor:

- 1. Roofing and roof flashing sealants by Section 07 30 00.
- 2. Sealants at perimeter joints of gypsum drywall to provide sound transmission reduction shall be by Section 09 26 00, Gypsum Board Systems.
- 1.05 ALTERNATES (not applicable)
- 1.06 SUBMITTALS

A. Attention is directed to Section 01300 regarding required procedures for Submittals.

- B. Submittals are required for the following: (SD = Shop Drawing) (FS = Field Sample) (OS = Samples) (PD = Printed Data)
 - 1. Sealants OS, PD

1.07 QUALITY ASSURANCE

A. Single Source responsibility for Joint Sealer Materials: Obtain joint sealer materials from a single manufacturer for each different product required.

1.08 REFERENCE STANDARDS

A. Comply with ASTM C920 (elastomeric joint sealers) and ASTM C834 (acrylic emulsion sealants) requirements, including those referenced for Type, Grade, Class and Uses.

1.09 DELIVERY AND STORAGE

A. Deliver materials to project site in original unopened containers or bundles with labels informing about manufacturer, product name and designation, color, expiration period for use, pot life, curing time and mixing instructions for multi-component materials.

B. Store and handle materials in compliance with manufacturer's recommendations to prevent their deterioration or damage due to moisture, high or low temperatures, contaminants or other causes.

1.10 PRODUCT CONDITIONS

A. Do not proceed with installations of joint sealers under the following conditions:

- 1. When ambient and substrate temperature conditions are outside the limits permitted by joint sealer manufacturer or below 40 degrees F.
- 2. When joint substrates are wet due to rain, frost, condensation or other causes.

B. Do not proceed with installation of joint sealers where joint widths are less than allowed by joint sealer manufacturer for application indicated.

C. Do not proceed with installation of joint sealers until contaminants capable of interfering with their adhesion are removed from joint substrates.

PART 2 - PRODUCTS AND MATERIALS

2.01 GENERAL

A. Compatibility: Provide joint sealers, joint fillers and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by testing and field experience.

B. Use self-leveling compounds for horizontal joints and non-sag compounds for all other areas except as indicated or specified.

C. Primer for all sealants shall be as recommended by the sealant manufacturer.

D. Compounds shall contain no acids or ingredients that will stain or corrode substrates, or have injurious effects on paint.

2.02 COLOR

A. Concealed Joints: Use sealant with manufacturer's custom color having best overall performance qualities for indicated applications.

B. Exposed Joints: Use sealant as selected form manufacturer's custom colors, unless special colors are shown or specified.

C. Colors shall be as selected by architect.

2.03 ELASTOMERIC JOINT SEALANTS

A. Provide manufacturer's standard chemically curing, elastomeric sealant of base polymer indicated which complies with ASTM C920 requirements.

- B. One-Part Mildew-Resistant Silicone Sealant:
 - 1. Type S (one-part prepackaged), Grade NS (vertical non-sag), Class 25 (min. +/- 25 percent movement capability), Uses NT (non-traffic locations) and as applicable to non-porous joint substrates; formulated with fungicide; intended for sealing interior joints in vertical surfaces of rooms with plumbing fixtures, and around perimeter of plumbing fixtures to adjacent surfaces. Intended for vinyl window installation. Product:

- a. Model Dow Corning 786 by Dow Corning Corp.
- b. Model SCS 1702 by General Electric Co.
- c. Model Proglaze White, by Tremco, Inc.
- C. One-Part Non-Sag Urethane Sealant:
 - Type S (one-part prepackaged), Grade NS (vertical non-sag), Class 25 (min. +/- 25 percent movement capability), Uses NT (non-traffic locations) and as applicable to joint substrates for joints at exterior doors and other exterior locations. Product:
 - a. Model Chem-Calk 900, by Bostik Construction Products Division.
 - b. Model Dynatrol I by Pecora Corp.
 - c. Model Sikaflex 1A NS, by Sika Corp.
 - d. Model Dynomic, by Tremco Inc.

2.04 LATEX JOINT SEALANTS

- A. Latex Joint Sealants:
 - 1. Manufacturer's standard, one part, non-sag, mildew resistant, acrylicemulsion sealant complying with ASTM C834, formulated to be paintable and recommended for use at interior vertical joints. Product:
 - a. Model Chem-Calk 600, by Bostik Construction Products Division.
 - b. Model AC-20, by Pecora Corp.
 - c. Model Acrylic Latix 834, by Tremco Inc.

2.05 MULTICOMPONENT POURABLE URETHANE SEALANT (not Applicable)

2.06 BACKING MATERIALS

A. General: Provide sealant backings of material and type which are nonstaining; are compatible with joint substrates, sealants, primers and other joint fillers; and are approved for applications indicated by sealant manufacturers based on field experience and laboratory testing.

B. Plastic Foam Joint Fillers: Preformed, compressible, resilient, non-waxing, nonextruding strips of flexible, non-gassing plastic foam of material indicated below; nonabsorbent to water and gas, and of size, shape and density to control sealant depth and otherwise contribute to producing optimum sealant performance.

- 1. Closed cell, round, polyehthylene foam, subject to approval of sealant manufacturer, for cold applied sealants only.
- 2. Conform to ASTM D1565.

A. Bond Breaker Tape: Polyehtylene tape or other plastic tape as recommended by sealant manufacturer for preventing sealant from adhering to rigid, inflexible joint filler

materials or joint surfaces at back of joint where adhesion would result in sealant failure. Provide self adhesive tape where applicable.

2.06 MISCELLANEOUS MATERIAL

A. Cleaners for non-porous surfaces: Provide nonstaining, chemical cleaners of type which are acceptable to manufacturer of sealants and sealant backing materials, which are not harmful to substrates and adjacent nonporous materials, and which do not leave oily residues or otherwise have a detrimental effect on sealant adhesion or in-service performance.

B. Masking Tape: Provide non-staining, non-absorbent type compatible with joint sealants and to surfaces adjacent to joints.

PART 3 - EXECUTION

3.01 INSPECTION / JOB CONDITIONS

A. Examine joints indicated to receive joint sealers, with installer present, for compliance with requirements for joint configuration, installation tolerances, and other conditions affecting joint sealer performance. Do not proceed with installation of joint sealers until unsatisfactory conditions have been corrected.

3.02 PREPARATION

A. Surface cleaning of joints: Clean out joints immediately before installing joint sealers to comply with recommendation of joint sealer manufacturers and the following requirements:

- 1. Remove all foreign material from joint substrates which could interfere with adhesion of joint sealer, including dust, paints (except for permanent protective coatings tested and approved for sealant adhesion and compatibility by sealant manufacturer), old joint sealers, oil grease, waterproofing, water repellents, water, surface dirt and frost.
- Clean concrete, masonry, unglazed surfaces of ceramic tile and similar porous joint substrates by brushing, grinding, blast cleaning, mechanical abrading or a combination of these methods to produce a clean, sound substrate capable of developing optimum bond with joint sealants. Remove loose particles remaining from above operations by vacuuming or blowing out joints with oil free compressed air.
- 3. Remove laitance and form release agents from concrete.
- 4. Clean metal, glass, porcelain enamel, glazed surfaces of ceramic tile and other nonporous surfaces by chemical cleaners or other means which are

not harmful to substrates or leave residues capable of interfering with adhesion of joint surfaces.

B. Joint Priming: Prime joint substrates where indicated or where recommended by joint sealer manufacturer based on contractor conducted pre-construction joint sealer-substrate tests or prior experience. Apply primer to comply with joint sealer manufacturer's recommendations. Confine primers to areas of joint sealer bond, do not allow spillage or migration onto adjacent surfaces.

C. Masking Tape: Use masking tape where required to prevent contact of sealant with adjoining surfaces which otherwise would be permanently strained or damaged by such contact or by cleaning methods required to remove sealant smears. Remove tape immediately after tooling without disturbing joint seal.

3.03 INSTALLATION OF JOINT SEALERS

A. General: Comply with joint sealer manufacturer's printed installation instructions applicable to products and applications indicated, except where more stringent requirements apply. Conform to applicable ASTM recommendations for each application type.

B. Sealant backings: Install to comply with the following requriements:

- 1. Install joint fillers of type indicated to provide support of sealants during application and at position required to produce the cross sectional shapes and depths of installed sealants relative to joint widths which allow optimum sealant movement capability.
 - a. Do not leave gaps between ends of joint fillers.
 - b. Do not stretch, twist, puncture or tear joint fillers.
 - c. Remove absorbent joint fillers which have become wet prior to sealant and replace with dry material.
- 2. Install bond breaker tape between sealants and joint fillers, compression seals or back of joints where adhesion of sealant to surfaces at back of joints would result in sealant failure.

E. Installation of Sealants: Install sealants by proven techniques that result in sealants directly contacting and fully wetting joint substrates, completely filling recesses provided for each joint configuration and providing uniform, cross-sectional shapes and depths relative to joint widths which allow optimum sealant movement capability.

F. Tooling of Nonsag Sealants: Immediately after sealant application and prior to time skinning or current begins, tool sealants to form smooth, uniform beads of configuration indicated, to eliminate air pockets and to ensure contact and adhesion with sides of joint. Do not use tooling agents which discolor sealants or adjacent surfaces or are not approved by sealant manufacturer.

1. Provide concave joint configurations per Fig. 6A in ASTM C962, unless otherwise indicated.

3.04 CLEANING

A. Clean off excess sealants or sealant smears adjacent to joints as work progresses by methods and with cleaning materials approved by manufacturers of joint sealers and or products in which joints occur.

3.05 PROTECTION

A. Protect joint sealers during and after installation from contact with contaminating substances or from damage resulting from construction operations or other causes so that they are without deterioration or damage at time of Substantial Completion. If, despite such protection, damage or deteriorated joint occurs, immediately reseal joints with new materials to produce joint sealer installations with repaired areas indistinguishable from original work.

End of Section 07 92 00.

SECTION 08 11 00

METAL DOORS AND FRAMES

PART 1 - GENERAL

1.01 GENERAL

A. Attention is directed to general provisions of the CONTRACT, including
GENERAL and SUPPLEMENTARY CONDITIONS, and all sections within DIVISION
1 - GENERAL REQUIREMENTS, which are hereby made a part of this Section of the
Specifications as if fully repeated herein.

B. Coordinate work with that of all other trades affecting, or affected by the work of this Section. Cooperate with such trades to assure the steady progress of all work under the Contract.

- 1.02 FILING OF SUB-BIDS (Not Applicable)
- 1.03 SCOPE OF WORK
- A. Work consists of:
 - 1. Exterior insulated steel doors and welded frames.
 - 2. Interior Knock Down Steel Frames.
 - 3. Frame size to meet wall type requirements.

1.04 RELATED WORK SPECIFIED ELSEWHERE

A. The following related work or materials shall be provided under the designated Sections and coordinated by the Contractor:

- 1. Section 06 10 00 Rough Carpentry: Framing and blocking.
- 2. Section 07 92 00 Sealants: Sealing frame perimeters.
- 3. Section 08 70 00 Hardware
- 4. Section 09 90 00 Painting Painting doors and frames
- 5. Section 08 80 00 Glazing
- 1.05 ALTERNATES (not applicable)
- 1.06 SUBMITTALS
- A. Attention is directed to Section 01 30 00 regarding required procedures for Submittals.

- B. Submittals are required for the following: (SD = Shop Drawing) (FS = Field Sample) (OS = Samples) (PD = Printed Data)
 - 1. Steel Doors and Frames: SD, PD

C. Submit SD information in accordance with requirements outlined in ANSI / SDI 100.

1.07 QUALITY ASSURANCE

A. Comply with ANSI/SDI 100, Recommended Specifications for Standard Steel Doors and Frames.

1. Maintain copy of all referenced ANSI/SDI standards on site.

B. Door and Frame manufacturer shall be a member of the Steel Door Institute.

C. Door and Frame Installer shall have documented experience in the successful installation of steel frames under similar conditions.

- 1. Documentation shall consist of references for projects installed by same personnel as proposed for this project.
- 2. Documentation shall be submitted within one week of preconstruction meeting.
- 3. Architect will review said documentation, and determine adequacy of proposed installation personnel.
- D. Exterior doors shall comply with 780 CMR 34.07 regarding thermal and infiltration performance of new door installations. All exterior glazing shall be thermal insulated glazing units.
- E. Labeled doors shall have the label displayed on door and frame.

1.08 REFERENCE STANDARDS

- A. Performance Standards
- 1. Thermal Rated assemblies at exterior applications: ASTM C 236 or ASTM C 976.
- B. Material Reference Standards
 - 1. Cold rolled steel sheets: ASTM A 366
 - 2. Hot rolled steel sheets: ASTM A 569
 - 3. Hot dipped galvanized steel sheets: ASTM A 525 and A 526

Section 08 11 00 - Metal Doors and Frames Page - 2

- 4. Prime painting: ANSI A224.1
- 5. Fasteners: ASTM A 153
- 1.09 DELIVERY AND STORAGE

A. Store, protect and handle materials as per guidelines outlined in ANSI/SDI 100.

1.10 SEQUENCING AND SCHEDULING

A. Order and install in coordination with general construction scheduling and phasing requirements established in Division 01.

PART 2 - PRODUCTS AND MATERIALS

2.01 ACCEPTABLE MANUFACTURERS

A. Subject to compliance with requirements, provide products from one of the following manufacturers offering steel doors and frames.

- 1. Amweld
- 2. Ceco Corporation.
- 3. Curries Mfg., Inc.
- 4. Fenestra Corp.
- 5. Kewanee Corp.
- 6. Steelcraft
- 7. Republic Builders Products

2.02 MATERIALS

A. Hot-rolled steel sheets and strips: Commercial quality carbon steel, pickled and oiled, complying with ASTM A 569.

B. Cold-rolled steel sheets: Commercial quality carbon steel, complying with ASTM A 366.

C. Galvanized steel sheets: Zinc-coated carbon steel sheets of commercial quality, complying with ASTM A 526, with ASTM A 525, G60 zinc coating, mill phosphatized. Galvanized steel shall be treated to insure proper paint adhesion. All component parts used in galvanized doors and/or frames shall meet the galvanize specification.

D. Inserts, bolts and fasteners: Manufacturer's standard units, except hot-dip galvanized items when applied to exterior walls, complying with ASTM A 153, Class C or D as applicable.

E. Supports and Anchors: Fabricate of not less than 18 - gage galvanized sheet steel.

F. Primer: Rust inhibitive, zinc chromate type primer, suitable for substrate and specified finish paints, in accordance with ANSI A224.1, and performance requirements of FS TT-P-641, Type II.

a. Asphaltic Frame undercoating at exterior frames.

2.03 FABRICATION

A. GENERAL

- 1. Fabricate steel door and frames units to be rigid, neat in appearance, and free from defects, warp or buckle. Wherever practicable, fit and assemble units in manufacturer's plant. On submittals and components, clearly mark elements of work that cannot be pre-assembled, to assure proper assembly at project site. Comply with SDI requirements.
- 2. Doors shall have beveled (1/8"[3mm] in 2"[51mm]) hinge and lock edges.

B. DOOR FABRICATION

1. Exterior Insulated Doors:

Grade II, Heavy Duty, 1-3/4" thickness. Equal to Curries 777 Series - Trio a. Model 4, Seamless Composite Construction, insulated, galvanized faces and edges, minimum 14 gage sheet steel. Provide door style as indicated on door type elevations. Reinforce "Full Glass" style with steel stiffened grid, or supply stile and rail fabrication (Model 5).

- b. Insulating Fiberglass Between Stiffeners R11
- 3. Glazing: Non-removable stops shall be installed on the outside of exterior doors, as per SDI standards. Glass trim for doors with cutouts shall be 24[.6mm] gage steel conforming to ASTM A 924 hot dipped galvanized steel with a zinc coating of 0.06 ounces per square foot [183g per square meter] (A60)]. The trim shall be installed into the door as a four sided welded assembly. The trim shall fit into a formed area of the door face, shall not extend beyond the door face and shall interlock into the recessed area. The corners of the assembly shall be mitered, all be reinforced and welded. The trim shall be the same on both sides of the door. Exposed fasteners shall not be permitted. Label and non-label doors shall use the same trim.

C. FRAME FABRICATION

1. Interior Frames in drywall: Knockdown, pre-primed . 16 gage, minimum. Frames shall be "DRYWALL TYPE", formed with double return backbends to prevent cutting into drywall surface. Frames shall be

> Section 08 11 00 - Metal Doors and Frames Page - 4

knocked down, designed to be securely installed in the rough opening after wall board is applied. Mitered corners shall be reinforced with a wedge lock corner clip to provide a firm interlock of jambs to head.

- 2. Exterior frames: Welded, galvanized, pre-finished,14 gage minimum, arcwelded and ground smooth. Miters of frames shall be back welded. Weld shall penetrate the outside face. Faces shall be dressed smooth. Filler materials are not permitted.
 - a. Provide frame glazing beads steel panels. Prepare frames for the type of glazing bead required to receive the glass and gaskets. Miter or butt joint heads at corners.
- 3. Hardware reinforcement and preparation shall as per SDI 100 requirements. Drilling and tapping for surface applied hardware may be done at project site.

D. FASTENERS

1. Exposed: unless otherwise indicated, provide countersunk flat Phillips heads for exposed screws and bolts. All hardware fasteners for closers, hold-open devices shall be "thru-bolted".

E. HARDWARE

- 1. Prepare doors and frames to receive mortised and concealed finish hardware in accordance with final approved finish hardware submission, and templates provided by the hardware supplier.
- 2. Comply with applicable requirements of SDI 107.
- 3. Adhere to mounting heights required by Commonwealth of Massachusetts Architectural Access Board.

F. ACCESSORIES

- 1. Rubber silencers at door frame of interior frames only that do not have sound or smoke gaskets.
- G. FINISHES SHOP APPLIED PRIMER
 - 1. Apply primer immediately after cleaning and pretreatment.
 - 2. Air dry primer / system. Doors and frames shall be cleaned, phosphatized and finished with baked-on rust inhibiting paint capable of passing a 200-hour salt spray and 500-hour humidity test in accordance with ASTM test method B117 and D1735.

PART 3 - EXECUTION

3.01 INSPECTION / JOB CONDITIONS

A. Openings

1. Confirm critical dimensions. All necessary anchors for jambs, heads and sills of assemblies shall be provided. When verification of field dimensions are necessary, they shall be made by the contractor. Frame fabrication shall not begin until these dimensions have been submitted.

3.02 INSTALLATION

A. Frames

1. Install at least 3 anchors per jamb, adjacent to hinge locations, on hinge jamb, and at corresponding heights on strike jamb. Provide floor anchors at the base of each jamb, minimum 18 gage.

B. Doors

1. Install as per SDI and manufacturer's recommendations.

- C. Pre-finished paint Touch-up
 - 1. Immediately after erection, sand smooth any rusted or damaged areas of primer coat and apply touch-up of manufacturer supplied matching paint.

End of Section 08 10 00

SECTION 08 14 00

WOOD AND PLASTIC DOORS

PART 1 - GENERAL

1.01 GENERAL

A. Attention is directed to general provisions of the CONTRACT, including GENERAL and SUPPLEMENTARY CONDITIONS, and all sections within DIVISION
1 - GENERAL REQUIREMENTS, which are hereby made a part of this Section of the Specifications as if fully repeated herein.

B. Coordinate work with that of all other trades affecting, or affected by the work of this Section. Cooperate with such trades to assure the steady progress of all work under the Contract.

- 1.02 FILING OF SUB-BIDS (Not Applicable)
- 1.03 SCOPE OF WORK
- A. Work consists of :
 - 1. Supply wood PREHUNG doors and frames
 - 2. NON PREHUNG solid core wood doors, pocket door installation
 - 3. a. Hardboard faced interior solid core doors, primed.
 - b. Blocking for hardware and attachments.

1.04 RELATED WORK SPECIFIED ELSEWHERE

A. The following related work or materials shall be provided under the designated Sections and coordinated by the Contractor:

- 1. Section 06 20 00 Finish Carpentry: Installation of wood doors and hardware.
- 2. Section 08 70 00 Hardware
- 3. Section 09 90 00 Painting
- 1.05 ALTERNATES

N/A

1.06 SUBMITTALS

- A. Attention is directed to Section 01300 regarding required procedures for Submittals.
- B. Submittals are required for the following: (SD = Shop Drawing) (FS = Field Sample) (OS = Samples) (PD = Printed Data)
 - 1. Wood Doors: SD, PD
- C. PD information shall pertinent data of fabrication, cutouts, etc.
- D. SD information shall refer to Door Schedule door identification system.

1.07 QUALITY ASSURANCE

- A. Quality Standards: Comply with the following standards:
 - 1. NWWDA Quality Standard: I.S.I. "Industry Standard for Wood Flush Doors" of National Wood Window and Door Association.
 - 2. AWI Quality Standards for Panel Door Construction.
- B. Mark each door with stamp certifying compliance with specified standards.

1.08 PROJECT CONDITIONS

A. Do not deliver or install doors until conditions for temperature and relative humidity have been stabilized and will be maintained in storage and installation areas during remainder of construction period.

1. Refer to AWI quality standard including Section 100-S-3 "Moisture Content".

1.09 DELIVERY AND STORAGE

A. Protect doors during transit, storage and handling to prevent damage, soiling and deterioration. Comply with the requirements of referenced standards and recommendations of NWWDA pamphlet, "How to Store, Handle, Finish, Install and Maintain Wood Doors", as well as with manufacturer's instructions. Store, protect and handle materials as per guidelines outlined in ANSI/SDI 100.

1.10 SEQUENCING AND SCHEDULING

A. Order and install in coordination with general construction scheduling and phasing requirements established in Division 01.

1.11 WARRANTY

A. Extended two year warranty shall cover replacement of defective doors which have warped, telegraphing of core construction, or do not conform to tolerances of referenced standards.

1. Warranty shall commence at the time of substantial completion.

B. Contractor shall replace or refinish doors where contractor's work contributed to rejection or to voiding of manufacturer's warranty.

PART 2 - PRODUCTS AND MATERIALS

2.01 ACCEPTABLE MANUFACTURERS

A. Subject to compliance with requirements, provide products from one of the following manufacturers offering wood doors.

Flush Hardboard Construction

- 1. Masonite / Mohawk Corp. or equal.
- 2.02 Doors
- A. $1-\frac{3}{4}$ " Thick doors
 - 1. Faces: Hardboard; white primer.
 - 2. Edge: Machinable kiln-dried pine, primed to match face. Rails suitable to accommodate glazing and hardware installation.
 - 3. Core: Wood Stave
 - 4. Hardware by others.

2.03 FABRICATION

A. Fabricate wood doors to produce doors complying with the following requirements.

- 1. Factory prefit and premachine doors.
 - a. Comply with tolerance requirements of AWI for pre-fitting.
 - b. Comply with final hardware schedule and with hardware templates.

- c. Coordinate measurements of hardware mortises in metal frames to verify dimensions and alignment before proceeding with factory pre-machining.
- B, Shop Priming
 - 1. For Opaque finish doors, shop prime, as per requirements of Section 09 90 00.
- C. Frame Fabrication (prehung products) 1. Comply with AWI rating for door
- D. Prehung Hardware
 - 1. As specified in Section 08 70 00 (supplied by Section 08 14 00)

PART 3 - EXECUTION

- 3.01 INSPECTION / JOB CONDITIONS
- A. Openings
 - 1. Examine installed frames and rough openings prior to hanging door.
 - 2. Reject doors with defects.

3.02 INSTALLATION

- A. Hardware
- 1. See Section 08 70 00.

B. Install wood doors to comply with manufacturer's instructions and with referenced AWI standards. Modify doors to fit exiting frames. If width adjustment is needed, trim equal amounts from each jamb.

C. Adjust to provide free swing and operation.

D. Protect doors to assure that wood doors will be without damage or deterioration at time of Substantial Completion.

End of Section 08 14 00

SECTION 08 53 00

VINYL WINDOWS

PART 1 - GENERAL

1.01 GENERAL

A. Attention is directed to general provisions of the CONTRACT, including
GENERAL and SUPPLEMENTARY CONDITIONS, and all sections within DIVISION
1 - GENERAL REQUIREMENTS, which are hereby made a part of this Section of the
Specifications as if fully repeated herein.

B. Coordinate work with that of all other trades affecting, or affected by the work of this Section. Cooperate with such trades to assure the steady progress of all work under the Contract.

1.02 FILING OF SUB-BIDS (not applicable)

1.03 SCOPE OF WORK

A. Perform all work required to complete the work of this Section as indicated on the drawings and/or as specified herein. All window products shall be Energy Star certified.

B. The work of this Section consists of all windows and related items, including, but not limited to, the following:

- Field measurement and verification of all window sizes and window types.
 a. Shop drawings of installation; schedules.
- 2. Furnish and install windows, with all required trim, exterior cladding, accessories, locks, screens and necessary adjustment. This shall include all head and sill extensions required for fit into openings. Coordinate installation with the continuity of the building weather barrier.
- 3. Work includes, but is not limited to, the installation of new products at all existing window and louver opening at the project site. Included in this work is:

a. Single-hung (SH), Projected and Fixed solid vinyl new construction windows, AAMA rated at R-40, min.

- b. Tempered glazing at selected openings where required by code.
- c. Aluminum mesh screens at all operable windows (1/2 Screen at Single Hung Windows)
- 4. Furnish and install complete all new windows as shown on the Drawings. Windows shall be fabricated in sizes, configurations and profiles shown. Windows shall include all trim, flashing, locks and accessories required for a complete installation.
- 5. Installation shall include:

- a. Shop Drawings
- b. Factory Mulled connections at windows ganged together, with metal reinforcing at connections.
- c. Expanding foam insulation, between window frames and adjacent construction, and in the interior cavities of head expanders.
- d. Sealing of all perimeter joints, at interior and exterior surfaces.
- e. Field coordination with other trades.
- f. Preparation of window opening, involving the patching of areas with gaps that would not permit sealing of vinyl wood joint.
- 6. Provide four additional balances.
- 7. Provide 2 additional sash locks for SH units.
- C. Performance Requirements.
 - 1. Energy Star rated products are required, including Energy Star 6.0 glazing.
 - 2. Meet applicable Energy Code requirements.
 - 3. Impact resistant glazing
 - 4. Upper sash of single hung windows shall have "tilt-in" feature for cleaning.
 - 5. All windows shall be from a single manufacturer.

1.04 RELATED WORK SPECIFIED ELSEWHERE

A. The following related work or materials shall be provided under the designated Sections and coordinated by the Contractor:

- 1. Section 06 10 00, Carpentry:
 - a. Blocking
 - b. Framing of openings
- 3. Section 06 20 00, Finish Carpentry
 - a. Exterior Trim at window locations.
 - b. Installation of window treatment
- 4. Section 07 92 00, Joint Sealers
 - a. Specification of perimeter sealants (installation by Section 08 53 00)
- 1.05 ALTERNATES (not applicable)

1.06 SUBMITTALS

A. Attention is directed to Section 01 30 00, Submittals, regarding required procedures for Submittals.

B. Submittals are required for the following:

(SD = Shop Drawing) (FS = Field Sample) (OS = Samples) (PD = Printed Data)				
1.	Windows	PD, OS		
2.	Schedule	SD		
3.	Finish / Hardware	OS		
4.	Installation details	SD, FS		

- C. Specific Requirements:
 - 1. Product Data: Include certified test reports as necessary to show compliance to specification requirements. Include information regarding sealed glass units. Show recommended installation methods.
 - 2. Shop Drawings: Show full-size details of installation methods, including location of fasteners and anchors, positions of head and sill extenders.
 - 3. Office samples shall be full-unit, showing fabrication and operation of all components.
 - a. Office sample shall include mulling detail
 - 4. Field sample shall be in location selected by architect, and shall be used to verify suitability of installation methods.

1.07 APPLICABLE PUBLICATIONS

A APPLICABLE PUBLICATIONS: The publications listed below form a part of this specification to the extent referenced. The publications are referred to in text by basic designation only.

1	Federal Specification SS-G-45-1D	ons: Glass, Float or Plate, Sheet	
2	American Architectural Manufacturers Association (AAMA); AAMA 101 IS2/A440-05		
	Voluntary Sp Glass Doors	ecification for Aluminum, PVC, and Wood Windows and	

Test method for rate of Air Leakage through Exterior windows, Curtain walls and doors (ASTM E283)

Test method for Structural Performance of Exterior Windows, Curtain

walls and doors (ASTM E330)

Test method for Water Penetration of Exterior windows, Curtain walls and doors by Uniform Static Air Pressure Difference (ASTM E547)

Specifications for Sealed Insulating Glass Units (ASTM E774)

AAMA 1503-98

Voluntary test method for Condensation Resistance of Windows, Doors, and Glazed wall sections

AAMA 615-02

Voluntary Specification, Performance Requirements, and Test Procedures for Superior Performing Organic Coatings on Plastic Profiles

NFRC 100-2004

Procedure for Determining Fenestration Product U-factors NFRC 200-2004

> Procedure for Determining Fenestration Product Solar Heat Gain Coefficients

NFRC 400-2004

Procedure for Determining Fenestration Product Air Leakage

1.08 QUALITY ASSURANCE

A. The Contractor shall provide copies of the independent laboratory tests which certify that the proposed window product meets or exceeds the specified American Architectural Manufacturers Association (AAMA) window rating, as determined by compliance to requirements of AAMA 101- IS2/A440-05, the National Fenestration Rating Council (NFRC) 100-204 standards and applicable American Society for Testing Materials (ASTM) standards.

1. Where required by the Massachusetts Building Code, window products shall have labels affixed to verify compliance to NFRC requirements.

B. Except as otherwise indicated, comply with air infiltration tests, water resistance tests and applicable load test specified in ANSI/AAMA 101 for type and classification of window units. Except as otherwise indicated, comply with thermal properties as specified by NFRC 100-2004 testing.

C. Material Uniformity:

1. All windows shall be the product of one manufacturer for the entire project.

D. Additional Testing: The owner reserves the right to test window products in laboratory or field settings to verify performance. The contractor shall correct all non-conforming installations.

- E. Specific Performance Requirements
 - 1. Air Infiltration Test:

With the sash in a closed and locked position, the window shall be subjected to an air infiltration test in accordance with ASTM E383-91. Air infiltration shall not exceed 0.34 cubic feet per minute per foot of crack length when tested at a pressure of 25 mph.

- 2. Operating Force: The sash shall have been adjusted to operate in either direction with a force not exceeding 35 pounds after the sash is in motion.
- 3. Water Resistance Test:
 - The glazed unit shall be mounted in its vertical position continuously supported around the perimeter, and the sash placed in the fully closed and locked position. The window unit shall be subjected to a water resistance test in accordance with ASTM E331. When a static pressure of 9.00 pounds per square foot has been stabilized, five gallons of water per square foot of window area shall be applied to the exterior face of the unit for a period of 15 minutes. No water shall pass the interior face of the window frame, and there shall be no leakage as defined in the test method.
- 4. Uniform Structural Load Test: A minimum exterior and interior uniform load of 75 pounds per square foot shall be applied to the entire outside surface of the test unit. This test load shall be applied to the entire outside surface of the test unit. This test load shall be maintained for a period of 10 seconds. At the conclusion of tests, there shall be no glass breakage, permanent damage of fasteners, hardware parts, support arms, actuating mechanisms, nor any damage causing the window to be inoperable. There shall be no permanent deformation of any frame in excess of 0.4 percent of its span.
- Condensation Resistance Factor: The window unit shall be tested in accordance with AAMA 1502 standards and tests of thermal performance, and shall have a condensation resistance factor of no less than 44.
- 6. Energy Rating Factor: The window unit shall be tested in accordance with NFRC 100-91 for nonsolar heat flow through the window assembly, and shall have a unit Ufactor of less than 0.30
- 7. Sealed Insulating Glass Units: The window unit shall be tested in accordance with ASTM E773 and

ASTM E774 for unit construction, and shall have a Class CBA rating.

a. All sealed glass units shall be certification stamped.

b. Glazing shall be Impact Resistant Glazing

- 1" IGU, or $\frac{3}{4}$ " as to fit window

- Glazing Configuration: Dual-pane.

- Tint: None

- Seal and Spacer Type: Dual sealed insulating glass units with - polyisobutylene primary seal, silicone secondary seal and stainless steel spacers.

- Glass Type: ¼" Laminated exterior; annealed glass ASTM C1036 interior)

- Opacity: None.

F. Installing mechanics shall have documented experience in the installation of vinyl window products, of not less than one year.

1.09 DELIVERY AND STORAGE

A. Store and handle windows, mullions, panels, hardware, louvers and all appurtenant items in strict compliance with manufacturer's instructions.

B. Protect units adequately against damage from the elements, construction activities, and other hazards before, during and after installation.

1.10 SEQUENCING AND SCHEDULING

A. Coordinate delivery and installation with Contractor's schedule.

1.11 RECORD DRAWINGS

A. Supply updated window schedule, at end of project, that gives record of all window unit, sash and balance sizes used in the project. This information shall be bound into the operation and maintenance manual.

1.12 OPERATION AND MAINTENANCE / WARRANTY MANUALS

A. Supply three copies of manufacturer's operation and maintenance information, including final version of shop drawings, maintenance information spare parts information and warranty information.

1.13 INSTRUCTION OF OWNER'S PERSONNEL

A. Provide, at a scheduled project meeting, instruction regarding the operation and maintenance of the window products.

1.14 SPECIAL PROJECT WARRANTIES

A. Windows shall be fully warranted against any defects in material or workmanship under normal use and service for a period of 20 years from date of acceptance on this projects. 5 years factory labor included.

B. PVC finish shall be warranted against chipping, peeling, cracking, or blistering for a period of 20 years from date of acceptance.

C. Insulated Glass Units shall be fully warranted against visual obstruction resulting from film formation or moisture collection between the interior glass surface, excluding breakage, for a period of 20 years from date of acceptance on this project. 5 years factory labor included.

D. Contractor shall provide a written service warranty that clearly spells out how requests for service shall be handled, by whom, under whose responsibility and shall include the time frame for handling these service requests. A labor warranty providing service on the windows shall cover a period of not less than 10 years, and shall be provided in writing. A copy of the product and labor warranty must accompany other applicable warranties and be presented with bid.

1.15 REGULATORY REQUIREMENTS

- A. Conform to all applicable codes regarding glazing and egress requirements.
- 1.16 ATTIC STOCK
- A. Not required.

PART 2 - PRODUCTS AND MATERIALS

2.01 ACCEPTABLE MANUFACTURERS

A. The following manufacturers and series are acceptable manufacturers of window

products. The identified manufacturers are intended to illustrate an acceptable level of quality, and not to exclude products from other manufacturers.

Design is based on Paradigm Windows (Portland, Maine), 8300 Series, Low E, Argon.

Provide optional color finish

No Grilles.

Provide integral casing with vinyl siding receptors.

Provide Interior "receiver trim" for dry wall returns.

Single Hung Windows - with tilt-in sash operation for both sashes.

Sizes to fit existing openings.

Equal by other manufacturers is acceptable, if of comparable quality and available in equivalent sizes and factory mulling configurations.

2.02 MATERIALS

A. All vinyl extrusions shall be 100% virgin polyvinyl chloride (PVC) and shall have a minimum nominal wall thickness of 0.065 inches.

B. Fasteners shall be aluminum, stainless steel or other materials as warranted by manufacturer to be non-corrosive and compatible with window members, trim, hardware, anchors and other components of window units. Window units shall not have exposed fasteners except where unavoidable for application of hardware.

2.03 FABRICATION AND ACCESSORIES

A. General: Provide manufacturer's standard fabrication and accessories which comply with specifications indicated and as tested, except to extent more specific or more stringent requirements are indicated. Include complete system for assembly of components and anchorage of window units. Provide factory glazed units.

B. Window Members:

- 1. All members shall be 100% virgin PVC.
- 2. Extruded PVC components produced from commercial quality virgin PVC (unplasticised polyvinyl chloride), conforms to AAMA 303 from sections in one piece, straight, true and smooth. Provide multi-chambered PVC extruded frames and sash in accordance with the manufacturers standard

practice. Make fusion welded frame joints strong enough to develop full strength of members, with an external wall thickness of .070 ". Head and jamb members shall have integral screen stops. Make interior horizontal top surfaces of both meeting rails flat and in the same plane. Meeting rails have an integral interlock with two lines of pile weatherstrip provided. Upper and lower sash shall have the same glass size. Sash shall have fusion welded mitered corners with an external wall thickness of .070".

- 3. Color:
 - a. From full range of optional colors.
- 4. Windows shall be "Sloped Sill" construction. "Box Sill" construction is not an acceptable fabrication design.

C. Hardware, including cam locks and tilt latches, shall have component parts of aluminum, stainless steel or other non-corrosive materials compatible with aluminum. Cadmium, or zinc-plated steel, where used, must be in accordance with ASTM Specification A165 or A164. Provide two locks at DH meeting rail if window unit is wider than 30 inches. Provide two tilt latches in the top of each sash for tilting in sash for cleaning. The tilt latches shall be integrally mortised into the sash top rails for a clean appearance.

D. Balance Mechanism (DH / SH): Provide two 3/4" stainless steel, silicone pretreated, constant force coil spring balances for each sash. Enclose balance springs in rustproof cases, with jamb liner covers, from the top of the bottom sash to the head of the window unit. Balance covers shall be finished to match window frame finish and easily removable for field service. Balances shall also have an interlocking pivot bar, for integral frame alignment with sash for keeping window frames straight and true during installation.

- E. Glazing: Impact resistant thermal glazing.
- F. Weather Protection:
 - 1. Provide means of drainage in the form of weeps for water and condensation which may accumulate in members of window units.
 - 2. Weather stripping: Provide sliding and compression type weather stripping for hung sash, and compression type for projected windows. All sash units shall be triple weather-stripped where the sash meet the jamb using silicone treated pile with a mylar center fin bonded to backing. Provide for ventilating sections of all windows to insure a weathertight seal meeting the infiltration tests specified herein. Use easily replaceable factory applied weather-stripping of manufacturer's stock type, as specified above. Use EPDM covered open cell foam weatherstrip for compression contact between the sill and the sash. For sliding surfaces, use silicone treated pile, with a mylar center fin bonded to a plastic-backing strip.

G. Screens shall be supplied for all operating windows. Provide half screens for hung windows. Screen frames are to extruded aluminum sections with corners mitered and crimped with corner gussets. Screening fabric shall be aluminum mesh, charcoal colored, retained in frames with vinyl splines that permit replacement. Frame color shall match color of vinyl window.

- H. Drips and Weep Holes: Provided as required to return water to the outside.
- I. Fasteners: All fasteners are to be stainless steel type, corrosion resistance. Use flathead, cross-recessed type, exposed head screws with standard threads on windows, trim, and accessories. Screw heads shall finish flush with adjoining surfaces. Self-tapping sheet metal screws are not acceptable for material more than 1/16 inch in thickness. All sheetmetal screw fasteners shall penetrate into a screw boss consisting of at least three layers of PVC profile for secure fastening and reduce pull out.
- J. Factory Mulls: Factory mulls to be fully reinforced with extruded aluminum I-beam reinforcement of 6005-T5 alloy and assembled utilizing interior and exterior "U" channels and proprietary sealant application patterns. Reinforcement to be further attached to window frames with .080" x 1.375" x 12" stainless steel straps and appropriate stainless steel fasteners.
- K. Use nailing fin attachment for windows in new construction.
- L. Accessories: Provide windows complete with necessary hardware, fastenings, clips, fins, anchors, glazing beads, and other appurtenances necessary for complete installation and proper operation.
- M. Aluminum Coil Stock
 1. 0.019 aluminum, site fabricated, white polyester finish.

PART 3 - EXECUTION

3.01 GENERAL

A. Inspect opening prior to commencing installation for plumbness of blocking, and fit of window into opening.

B. Perform all other operations as necessary to provide proper installation and operation of window units.

3.02 DISPOSAL

A. Remove all associated debris from the site.

3.03 INSTALLATION

A. Comply with manufacturer's specifications and recommendations for installation of window components, and as modified by shop drawings. Install self adhering flashing membrane to make complete, air tight, water shedding installation.

B. Set units plumb, level and true to line, without warp or crack of frames or sash. Anchor securely in place.

C. Foam seal window perimeter with low expansion foam. Review with Energy Star program representative.

D. Seal units to provide weather tight system, using materials and methods specified in Section 07 92 00, Joint Sealers, and as detailed on the Drawings.

3.04 ADJUST AND CLEAN

A. Adjust operating sash and hardware to provide tight fit at contact points and at weatherstripping, for smooth operation and weather tight closure. Verify that operating force complies with specified limits.

B. Clean vinyl surfaces promptly after installation of windows, exercising care to avoid damage to finish. Remove excess glazing and sealant components, dirt, and other substances. Lubricate hardware and other moving parts.

C. Clean glass promptly after the installation of windows. Remove glazing and sealant compounds, dirt and other contaminants.

D. Initiate all protection and other precautions to ensure that window units will be without damage or deterioration (other than normal weathering) at time of acceptance.

End of Section 08 53 00

SECTION 08 70 00

FINISH HARDWARE

PART 1 - GENERAL

1.01 GENERAL

A. Attention is directed to general provisions of the CONTRACT, including GENERAL and SUPPLEMENTARY CONDITIONS, and all sections within DIVISION
1 - GENERAL REQUIREMENTS, which are hereby made a part of this Section of the Specifications as if fully repeated herein.

B. Coordinate work with that of all other trades affecting, or affected by the work of this Section. Cooperate with such trades to assure the steady progress of all work under the Contract.

- 1.02 FILING OF SUB-BIDS (not applicable)
- 1.03 SCOPE OF WORK
- A. Scope includes
 - 1. Hardware Finishes
 - 2. Fasteners
 - 3. Hardware Items Supply
 - 4. Mounting Heights
 - 5. Thresholds and Weather stripping at exterior metal doors
 - 6. Panic Hardware
 - 7. Accessible Mounting Heights
 - 8. Keying

1.04 RELATED WORK SPECIFIED ELSEWHERE

A. The following related work or materials shall be provided under the designated Sections and coordinated by the Contractor:

- 1. Section 06 20 00, Finish Carpentry: Installation of Hardware
- 2. Section 09 91 00, Painting of doors and frames
- 3. Section 08 11 00, Metal Doors and Frames
- 4. Section 08 14 00, Wood and Plastic Doors
- B. This Section 08 70 00 establishes the level of quality for the pre-hung hardware supplied by Section 08 11 00.

1.05 ALTERNATES (not applicable)

1.06 SUBMITTALS

A. Attention is directed to Section 01300, regarding required procedures for Submittals.

B. Submittals are required for the following: (SD = Shop Drawing) (FS = Field Sample) (OS = Samples) (PD = Printed Data)

1.	Templates	SD
2.	Hardware	PD, OS
3.	Finish	OS
4.	Schedules	PD
5.	Weather stripping,	OS, PD
6.	Thresholds	OS, PD, SD

- C. Supply full SD scale details of threshold installation, showing substrate conditions.
- D. Coordinate submittals with door operator and door release systems provided and installed by others.

1.07 QUALITY ASSURANCE

A. Supplier of hardware shall be, or shall have in his employ, a qualified hardware consultant with experience of not less than 5 years. The correct scheduling of all hardware, including the degree of swing of doors with closers and other code and safety issues, shall be the responsibility of this individual.

B. Supplier of hardware shall be required to have an established place of business offering "builder's hardware", with telephone service and regular working hours, as well as a reasonable supply of replacement parts for the specified hardware.

C. The hardware supplier shall agree to provide adequate service to the scheduling of corrective work during installation and adjustment during the guarantee period.

- D. Special Requirements:
 - 1. Hardware supplier shall determine conditions and materials of all doors and frames for proper application of hardware. Supplier shall verify

compatibility of all doorway components to allow full operation as per design intent.

- 2. Hardware supplier (or consultant thereto) shall visit site prior to and during the application of the hardware, and confirm with superintendent regarding proper installation, location, adjustment, special tools and instruction. Costs of such visits and service shall be in the Contract Price.
- 3. Contractor shall have supplier inspect and approve in writing the hardware installation. All rejected installations shall be repaired or replaced.
- E. Material Uniformity:
 - 1. All locksets and lockset trim shall be the product of one manufacturer for the entire project.
 - 2. All butts shall be the product of one manufacturer for the entire project.

1.08 REFERENCE STANDARDS

- A. Material shall conform to the following quality standards:
 - 1. ANSI 156.1 Butts and hinges
 - 2. ANSI 156.2 Locks and lock trim
 - 3. ANSI 156.3 Mortise locks and exit devices
 - 4. ANSI 156.7 Template hinges
 - 5. ANSI 156.8 Door controls (overhead holders)
- B. Underwriters Laboratories (UL) testing, for fire rating standards.

1.09 DELIVERY AND STORAGE

A. All packages shall be legibly labeled, indicating manufacturer's numbers, types, sizes and hardware schedule reference number.

B. All hardware shall be wrapped in paper and shall be packed in the same package as all screws, bolts and fastenings necessary for proper installation.

1.10 SEQUENCING AND SCHEDULING

- A. Coordinate delivery and installation with Contractor's schedule.
- 1.11 RECORD DRAWINGS (not applicable)

1.12 OPERATION AND MAINTENANCE / WARRANTY MANUALS

A. Refer to Section 01 78 23 for the Operating and Maintenance Manual requirements for this Contract.

- 1. Delivery of the Manuals and items listed below shall be a condition precedent to final payment.
 - a. Manufacturer's part list and maintenance instructions for each type of hardware supplied
 - b. One copy of the final hardware schedule.
 - c. Tools and wrenchs required for proper maintenance and operation of hardware.

1.13 INSTRUCTION OF OWNER'S PERSONNEL

A. Panic Hardware equipment shall be included in the overall instruction of owner's personnel.

1.14 GUARANTEE AND SERVICE

A. All changes made in conjunction with the replacement of defective hardware shall be borne by the hardware supplier, in accordance with the one year guarantee period.

1.15 REGULATORY REQUIREMENTS

A. Conform to all applicable codes. Provide all throws, projections, coatings, knurling, opening and closing forces and other special functions as required by State and Local building codes, and in conformance to applicable handicap accessibility regulations.

B. Conform to fire rating requirement for entire door assembly, as defined on the schedule.

PART 2 - PRODUCTS AND MATERIALS

2.01 ACCEPTABLE MANUFACTURERS

A. The following manufacturers and series are acceptable for the various hardware types. Where model numbers hare not given, conform to standards defined by model numbers give.

- 1. Exterior Butt Hinges (4.5 inch x 4.5 inch, full mortise; NRP)
 - a. Stanley FBB 191 (five knuckle)
 - b. Hager

- c. McKinney
- 2. Interior Butt Hinges, wood or metal doors (4 x 4, full mortise)
 - a. Stanley 1960 series (three knuckle)
 - b. Hager
 - c. McKinney
- 3. Interior Butt Hinges Prehung Doors equal to Stanley RD741FP
- 4. Locksets mechanical / storage / kitchen
 - a. Schlage "D" series, "Rhodes" lever handle, brushed chrome finish;
 Extra Heavy Duty Residential quality, equal to ANSI A156.2,
 - 1989, Series 4000, Grade 1.
 - b. Equal by Best, Corbin, Russwin or Sargent
- 5. Panic Devices
 - a. von Duprin Series 55
 - b. 5575 Mortise Lock Device for Active Leaf 5575 NL / 550DT Exterior Trim at Active Leaf
 - c. 5547 Concealed Vertical Rod Exist Device at Inactive Leaf No Exterior Trim
 - d. Supply Mortise cylinder at exterior doors locking doors Schlage 20-001)
 - e. Provide strikes for all devices, including concealed rods.
 - f. Finish: US 26.
- 6. Locksets Interior doors
 - a. Mortise style lock, Shlage "L" series, with 06 lever handle, L standard cylinder escutheon

7. Pocket Door – with privacy function

Comply with accessibility requirements for "no pinch" / "no grasp"

- Accurate 9100SDL, Class Room Dead lock function (Stamford CT). 2-1/2" backset to maximize clear opening.
 Fixed lever at outside, operable lever at inside releases dead
- 8. Door stops (wall or floor)

a.	Glynn-Johnson	WB 50XT or FB 13X
b.	Ives	407-1/2 or 436B
c.	Rockwood	409 or 440

- 9 Kick Plates 10" x (Door width minus 2 inches), 16 ga. metal, countersunk mounting holes.
 - a. Glynn-Johnson

- b. Ives
- c. Rockwood
- 10. Weatherstripping (at metal exterior doors heads and jambs)
 - a. Reese Enterprises 755DUR; mount closer and strike on weather strip.
 - b. National Guard 700NDkB
 - c. Equal by Pemko
 - d. Equal by Zero

11. Door Bottoms (Sweeps) at metal exterior doors.

- a. Hager 8015 (Nylon Fiber sweep types) (Match other hardware finish.)
- b. Equal by Reese
- c. Equal by Pemko
- d. Equal by Zero
- 11. Lock Cylinders and Keying
 - a. Manufacturer's 5 pin tumbler cylinder, with construction master key feature. Comply with owner's instructions for master keying. If not otherwise indicated, supply two change keys for locks not designated to be keyed alike with a group of related locks.
- 12. Thresholds

Type "A" – Entrance Doors, accessible Hager 448S (accessible), with non-slip abrasive coating. Supply countersunk mounting holes. Equal by Reese or Pemko Width 10", or as indicated on details

- 13. Closers (none)
- Pocket Door Track 42" door Johnson Hardware, 1500 Series, for 1-3/4" thick door.
- Astragal at paired exterior door Pemko 303 Silicone Split Astragal Seal Set, Dark Bronze Equal by Ives or CR Laurence.
- 16. Door Holder Ives WS44526D – Aluminum (supply one additional rubber tip)

2.02 FINISH

A. All locks, closers, bolts, hinges, knobs, roses, pulls, stops shall be satin chrome, US26D.

B. Kick Plates, push plates shall be satin chrome.

PART 3 - EXECUTION

3.01 GENERAL

A. If the hardware for any particular location is not described herein, it shall be furnished in comparable quality and function to that specified for similar locations so far as is practicable.

B. Where the finished shape or size of member taking hardware is such as to preclude or render unsuitable the use of the exact types specified, suitable types shall be provided having nearly as practicable, the same operation and quality as the types specified.

C. All sizes shall be ample for the service indicated.

3.02 INSTALLATION

A. Install in accordance with manufacturer's recommendations and applicable standards.

1. Install thresholds in bed of sealant, over prepared substrate. Use fasteners supplied by manufacturer, to match pre-drilled holes and countersunk profile. Scribe threshold to match frame profile.

3.03 HARDWARE SETS

A. The following listing of hardware sets indicates hardware required for typical conditions. It shall not be construed as a complete listing of all hardware required.

HARDWARE Group Schedule

- 1A. <u>Exterior Entrance Door Paired</u>
 - 3 Pair Butts
 - 2 Panic Devices

- 2 Door Hold Opens
- 1 Perimeter Weather Stripping
- 1 Door Bottom Sweep
- 1 Threshold (Full width)
- 1 Astragal
- 2 Kick Plates
- 2 Door Holders

1B. <u>Exterior Entrance Door</u>

- 1.5 Pair Butts
 - 1 Panic Devices
 - 1 Door Hold Open
- 1 Perimeter Weather Stripping
- 1 Door Bottom Sweep
- 1 Threshold
- 1 Kick Plate
- 1 Door Holders
- 2. <u>Nurse Room</u>
 - 1.5 Pair butt hinge
 - 1 Mortise Lockset , Lever handle,
- 3 <u>Kitchen</u>
 - 1 Pocket Door Track 42" door
 - 1 Mortise lock for Pocket Door; strike plate
- 4 <u>Mechanical / Janitor</u>
 - 1.5 Pair hinges
 - 1 Mortise lock with knurled lever handle F07 function
- 5 <u>Restroom</u>
 - 1.5 Pair Butts
 - 1 Mortise Lockset, lever handle
 - 1 Kick Plate
- 6 <u>Storage</u>
 - 1.5 Pair Butts
 - 1 Mortise Lockset, Office function, Lever Handle Storeroom Function (interior unlocked)
 - 1 Kick Plate

NOTE: SUPPLY DOOR STOPS AT ALL INTERIOR DOORS NOT EQUIPPED WITH DOOR CLOSERS

End of Section 08 70 00

SECTION 08 80 00

GLAZING

PART 1 - GENERAL

1.01 GENERAL

A. Attention is directed to general provisions of the CONTRACT, including GENERAL and SUPPLEMENTARY CONDITIONS, and all sections within DIVISION
1 - GENERAL REQUIREMENTS, which are hereby made a part of this Section of the Specifications as if fully repeated herein.

B. Coordinate work with that of all other trades affecting, or affected by the work of this Section. Cooperate with such trades to assure the steady progress of all work under the Contract.

- 1.02 FILING OF SUB-BIDS (Not Applicable)
- 1.03 SCOPE OF WORK
- A. Work consists of:
 - 1. Supply and install glazing at HM doors and sidelights.
 - 2. Field measurements.
 - 3. Compliance with energy requirements for door / glass assemblies.

1.04 RELATED WORK SPECIFIED ELSEWHERE

A. The following related work or materials shall be provided under the designated Sections and coordinated by the Contractor:

- 1. Section 08 11 00 Metal Doors and Frames
- 2. Section 08 14 00 Wood Doors
- 3. Section 09 90 00 Painting of doors prior to glazing installation.
- 1.05 ALTERNATES (not applicable)
- 1.06 SUBMITTALS
- A. Attention is directed to Section 01 30 00 regarding required procedures for Submittals.
- B. Submittals are required for the following: (SD = Shop Drawing)

(FS = Field Sample) (OS = Samples) (PD = Printed Data)

- 1. Glazing: SD, PD, OS
- C. SD information shall indicate full size details of construction and installation.

D. OS shall be minimum 8" x 8" sample of sealed insulated glass unit and wired glass.

1.07 QUALITY ASSURANCE

A. Quality Standards: Comply with the following standards:

1. ANSI Z97.1 - Safety Performance Specifications and Methods of Test for Safety Glazing Used in Buildings.

- 2. ASTM C669 Glazing Compounds for Back Bedding and Face Glazing of Metal Sash.
- 3. ASTM C804 Use of Solvent-Release Type Sealants.
- 4. ASTM C864 Dense Elastomeric Compression Seal Gaskets, Setting Blocks, and Spacers.
- 5. ASTM C920 Elastomeric Joint Sealants.
- 6. ASTM C1036 Flat Glass.
- 7. ASTM C1048 Heat-Treated Flat Glass Kind HS, Kind FT Coated and Uncoated Glass.
- 8. ASTM C1172 Laminated Architectural Safety Glass.
- 9. ASTM E283 Test Method For Rate of Air Leakage Through Exterior Windows, Curtain Walls and Doors.
- 10 ASTM E330 Structural Performance of Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure Difference.
- 11. ASTM E546 Test Method For Frost Point of Sealed Insulating Glass Units.
- 12. ASTM E576 Test Method For Dew/Frost Point of Sealed Insulating Glass Units in Vertical Position.

- 13. ASTM E773 Test Method for Seal Durability of Sealed Insulating Glass Units.
- 14. ASTM E774 Sealed Insulating Glass Units.
- 15. FGMA Glazing Manual.
- 16. FGMA Sealant Manual.
- 17. Laminators Safety Glass Association Standards Manual.
- 18. SIGMA Sealed Insulated Glass Manufacturers Association.

B. Perform Work in accordance with FGMA Glazing Manual, FGMA Sealant Manual, SIGMA and Laminators Safety Glass Association - Standards Manual for glazing installation methods. Glazing units shall bear the name of the manufacturer and the SIGMA membership seal.

C. Installer Qualifications: Company specializing in performing the work of this section with minimum 3 years documented experience.

1.08 PROJECT CONDITIONS

A. Do not deliver or install glazing until conditions for temperature and relative humidity have been stabilized and will be maintained in storage and installation areas during remainder of construction period.

3 Refer to SIGMA quality standards.

1.09 DELIVERY AND STORAGE

A. Protect glazing materials during transit, storage and handling to prevent damage, soiling and deterioration.

1.10 SEQUENCING AND SCHEDULING

A. Order and install in coordination with general construction scheduling and phasing requirements established in Division 01.

1.11 WARRANTIES

A. Provide a ten (10) year warranty to include coverage for sealed glass units from seal failure, interpane dusting or misting, and replacement of same.

B. Provide a ten (10) year warranty to include coverage for delamination of laminated glass and replacement of same.

PART 2 - PRODUCTS AND MATERIALS

3.5 ACCEPTABLE MANUFACTURERS

A. Glazing unit manufacturer shall be a Member of SIGMA.

3.5 GLASS FABRICATION

A. Safety Glass (Type FG-B): Clear laminated with plastic interlayer to ASTM C1172, thickness as determined by code requirements for door way applications.

3.5 INSULATED GLASS UNITS

A. Insulated Glass Units (Type SG-A): ASTM E774 and E773; double pane of clear laminated safety glass with "WARM EDGE" glazing technology edge seal. Unit thickness: 1 inch (glass at ¹/₄ inch, with ¹/₂ inch air space).

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Coordination and Meetings: Verification of existing conditions before starting work
- B. Verify that openings for glazing are correctly sized and within tolerance.
- C. Verify that surfaces of glazing channels or recesses are clean, free of obstructions that may impede moisture movement, weeps are clear, and ready to receive glazing.
- 3.02 PREPARATION
 - A. Clean contact surfaces with solvent and wipe dry.
 - B. Seal porous glazing channels or recesses with substrate compatible primer or sealer.
 - C. Prime surfaces scheduled to receive sealant.

- D. Perform installation in accordance with ASTM C804 for solvent release sealants.
- 3.03 INSTALLATION EXTERIOR DRY METHOD (TAPE AND GASKET SPLINE GLAZING)
 - A. Cut glazing tape or spline to length; install on glazing unit. Seal corners by butting tape and sealing junctions with butyl sealant (sealant shall be compatible with insulated glazing units.
 - B. Place setting blocks at 1/4 points with edge block no more than 2 inches from corners
 - C. Rest glazing on setting blocks and push against fixed stop with sufficient pressure to attain full contact.
 - D. Install removable stops without displacing glazing spline. Exert pressure for full continuous contact.
 - **E.** Trim protruding tape edge.

3.04 CLEANING

- A. Section 01700 Contract Closeout: Cleaning installed work.
- B. Remove glazing materials from finish surfaces.
- C. Remove labels after Work is complete.
- D. Clean glass and adjacent surfaces.
- 3.5 PROTECTION OF FINISHED WORK
 - A. Section 01 70 00 Contract Closeout: Protecting installed work.
- 3.06 SCHEDULE
 - A. Exterior Entrances: Laminted Safety glass in SG-A insulated units, exterior tape / spline method.

End of Section 08 80 00

SECTION 09 20 00

GYPSUM BOARD ASSEMBLIES

PART 1 - GENERAL

1.01 GENERAL

A. Attention is directed to general provisions of the CONTRACT, including
GENERAL and SUPPLEMENTARY CONDITIONS, and all sections within DIVISION
1 - GENERAL REQUIREMENTS, which are hereby made a part of this Section of the
Specifications as if fully repeated herein.

B. Coordinate work with that of all other trades affecting, or affected by the work of this Section. Cooperate with such trades to assure the steady progress of all work under the Contract.

1.02 SCOPE OF WORK

A. This Section includes the following:

- 1. Abuse resistant Gypsum Board
- 2. Normal Gypsum board assemblies attached to wood framing.
- 3. Coordination with the installations of other trades.
- 4. Sound Walls

1.03 RELATED WORK SPECIFIED ELSEWHERE

A. The following related work or materials shall be provided under the designated Sections and coordinated by the Contractor:

- 1. Section 07 20 00 acoustic insulation.
- 2. Section 06 10 00 Wood Framing, including engineered lumber coordinate gypsum assemblies with the wood framing products.
- 1.04 ALTERNATES (not applicable)
- 1.05 DEFINITIONS
- A. Gypsum Board Construction Terminology: Refer to ASTM C 11 and GA-505 for definitions of terms related to gypsum board assemblies not defined in this Section or in other referenced standards.

1.06 ASSEMBLY PERFORMANCE REQUIREMENTS

A. Sound Transmission Characteristics: For gypsum board assemblies indicated to have STC ratings, provide materials and construction identical to those of assemblies whose STC ratings were determined per ASTM E 90 and classified per ASTM E 413 by a qualified independent testing agency.

1.07 SUBMITTALS

A. Provide submittals to form defined in Section 01 30 00, Submittals.

B. Submittals are required for the following:

- (SD = Shop Drawing)
- (FS = Field Sample)
- (OS = Samples)
- (PD = Printed Data)
- PD All materials
- 1. Product Data for each type of product specified.
- 2. Product certificates signed by manufacturer of gypsum board assembly components, certifying that their products comply with specified requirements.
- 3. Provide verification of system performance, relative to required fire and sound design.

1.09 QUALITY ASSURANCE AND REFERENCE STANDARDS

- A. Fire-Test-Response Characteristics: Where fire-rated gypsum board assemblies are indicated, provide materials and construction identical to those of assemblies tested for fire resistance per ASTM E 119 by an independent testing and inspecting agency acceptable to authorities having jurisdiction.
 - 1. Fire Resistance Ratings: As indicated by reference to design designations in UL "Fire Resistance Directory" or in the listing of another testing and inspecting agency acceptable to authorities having jurisdiction.
 - 2. Note: Building is un-rated construction.
- B. Single-Source Responsibility for Finishing Materials: Obtain finishing materials from either the same manufacturer that supplies gypsum and other panel products or from a manufacturer acceptable to gypsum board manufacturer.
- C. Field Samples: On actual gypsum board assemblies, prepare field samples of at least 100 sq. ft. in surface area for the following applications. Simulate finished lighting conditions for review of in-place unit of Work.
 - 1. Wall surfaces indicated to receive paint finishes.
 - a. Include both normal and abuse resistant.
 - 2. Ceiling surfaces indicated to receive paint finishes.

1.08 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials in original packages, containers, or bundles bearing brand name and identification of manufacturer or supplier.
- B. Store materials inside under cover and keep them dry and protected against damage from weather, direct sunlight, surface contamination, corrosion, construction traffic, and other causes. Neatly stack gypsum panels flat to prevent sagging.
- C. Handle gypsum board to prevent damage to edges, ends, and surfaces. Do not bend or otherwise damage metal corner beads and trim.

1.09 PROJECT CONDITIONS

- A. Environmental Conditions, General: Establish and maintain environmental conditions for applying and finishing gypsum board to comply with ASTM C 840 and with gypsum board manufacturer's recommendations.
- B. Room Temperatures: For non-adhesive attachment of gypsum board to framing, maintain not less than 40 deg F (4 deg C.) For adhesive attachment and finishing of gypsum board, maintain not less than 50 deg F (10 deg C) for 48 hours prior to application and continuously after until dry. Do not exceed 95 deg F (35 deg C) when using temporary heat sources.
- C. Ventilation: Ventilate building spaces, as required, for drying joint treatment materials. Avoid drafts during hot dry weather to prevent finishing materials from drying too rapidly.

PART 2 - PRODUCTS AND MATERIALS

2.01 MANUFACTURERS

A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated in the Work include, but are not limited to, the following:

B. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

- 1. Steel Framing and Furring:
 - a. Clack Steel Framing.
 - b. Consolidated Systems, Inc.
 - c. Dale Industries, Inc.

Section 09 20 00 - GYPSUM BOARD ASSEMBLIES Page - 3

- d. Dietrich Industries, Inc.
- e. Marino Industries Corp.
- f. Gold Bond Building Products Div., National Gypsum Co.
- g. Unimast Inc.
- 2. Grid Suspension Assemblies:
 - a. Chicago Metallic Corp.
 - b. National Rolling Mills Co.
 - c. USG Interiors, Inc.
- 3. Gypsum Board and Related Products:
 - a. Domtar Gypsum.
 - b. Georgia-Pacific Corp.
 - c. Gold Bond Building Products Div., National Gypsum Co.
 - d. United States Gypsum Co.

2.02 STEEL FRAMING COMPONENTS

A. General: Provide components of sizes indicated but not less than that required to comply with ASTM C 754 for conditions indicated.

B. "Z" channels: Basis-of-Design Product: Subject to compliance with requirements, provide ClarkDietrich Building Systems; Z-Furring Channel or a comparable product from one of the members of the SFIA:

1. Nonslotted web, face flange of 1-1/4 inches (32 mm), wall attachment flange of 3/4 inch (19 mm), minimum uncoated-steel thickness of 0.0179 inch (0.45 mm), and depth required to fit detail as indicated.

E. Steel Resilient Furring Channels: Manufacturer's standard product designed to reduce sound transmission, fabricated from steel sheet complying with ASTM A 525 or ASTM A 568 to form 1/2 –inch-deep channel of the following configuration:

- 1. Single-Leg Configuration (Resilient Channel, RC-1) : Asymmetricshaped channel with face connected to a single flange by a single slotted leg (web).
- 2. Double-Leg Configuration: Hat-shaped channel, with 1-1/2-inch-wide face connected to flanges by double slotted or expanded metal legs (webs).
- 3. Configuration: As shown on drawings or as required by specific rated assembly.

2.03 GYPSUM BOARD PRODUCTS

A. General: Provide gypsum board of types indicated in maximum lengths available to minimize end-to-end butt joints.

- 1. Thickness: Provide gypsum board in thicknesses indicated, or, if not otherwise indicated, 1/2-inch thicknesses to comply with ASTM C 840 for application system and support spacing indicated.
- B. Gypsum Wallboard: ASTM C 36 and as follows:
 - 1. Type: Regular for vertical surfaces, unless otherwise indicated.
 - 2. Type: Type X or C where required for fire-resistive-rated assemblies.
 - 3. Type: Sag-resistant type for ceiling surfaces.
 - 4. Type: Propriety type as required for specific fire-resistive-rated assemblies.
 - 5. Edges: Tapered.
 - 6. Thickness: $\frac{1}{2}$ -inch unless otherwise indicated.
 - 7. Available products: Subject to compliance with requirements, products that may be incorporated in the Work where proprietary gypsum wallboard in indicated include, but are not limited to the following:
 - a. Gyprock Fireguard C Gypsum Board, Domtar Gypsum.
 - b. Firestop Type C, Georgia-Pacific Corp.
 - c. Fire-Shield G, Gold Bond Building Products Div., NationalGypsum Co.
 - d. SHEETROCK Brand Gypsum Panels, FIRECODE C Core, United States Gypsum Co.
- C. Gypsum Board for single layer applications: ASTM C 840, with manufacturer's standard edges of type and thickness indicated below:
 - 1. Type: Regular, unless otherwise indicated.
 - 2. Type: Type X where required for fire-resistive-rated assemblies.
 - 3. Edges: Tapered.
 - 4. Thickness: as indicated
- D. Abuse Resistant Gypsum Board
 - 1. USG FIBEROCK Brand AR interior panels, 1/2" thick.

2.05 TRIM ACCESSORIES

- A. Accessories for Interior Installation: Corner beads, edge trim, and control joints complying with ASTM C 1047 and requirements indicated below:
 - 1. Material: Formed metal, plastic, or metal combined with paper, with metal complying with the following requirement:
 - a. Sheet steel coated with zinc by hot-dip or electrolytic processes, or with aluminum or rolled zinc.
 - 2. Shapes indicated below by reference to Fig. 1 designations in ASTM C 1047:
 - a. Conrnerbead on outside corners, unless otherwise indicated.

- b. LC-bead with both face and back flanges; face flange formed to receive joint compound. Use LC-beads for edge unless otherwise indicated.
- c. L-bead with face flange only; face flange formed to receive joint compound. Use L-bead where indicated.
- d. One-piece control joint formed with V-shaped slot, with removable strip covering slot opening.

2.06 JOINT TREATMENT MATERIALS

A. General: Provide joint treatment materials complying with ASTM C 475 and the recommendations of both the manufacturers of sheet products and of joint treatment materials for each application indicated.

- B. Joint Tape for Gypsum Board: Paper reinforcing tape, unless other indicated.
 - 1. Use pressure-sensitive or staple-attached open-weave glass-fiber reinforcing tape with compatible joint compound where recommended by manufacturer of gypsum board and joint treatment materials for application indicated.

C. Joint Tape for Cementitious Backer Units: Polymer-coated, open glass-fiber mesh. (Not applicable to this project)

D. Setting-Type Joint Compounds for Gypsum Board: Factory-packaged, jobmixed, chemical-hardening powder products formulated for uses indicated.

- 1. Where setting-type joint compounds are indicated as a taping compound only or for taping and filling only, use formulation that is compatible with other joint compounds applied over it.
- 2. For prefilling gypsum board joints, use formulation recommended by gypsum board manufacturer for this purpose.
- 3. For topping compound, use sandable formulation.
- 4. DO NOT fill joints or fastener heads in cement tile backer board. All treatment shall be with thin set cement under Section 09 30 00 "TILE".

E. Drying-Type Joint Compounds for Gypsum Board: Factory-packaged vinylbased products complying with the following requirements for formulation and intended use:

- 1. Read-Mixed Formulation: Factory-mixed product.
- 2. Taping compound formulated for embedding tape and for first coat over fasteners and face flanges of trim accessories.
- 3. Topping compound formulated for fill (second) and finish (third) coats.
- 4. All-purpose compound formulated for both taping and topping compounds.

2.07 ACOUSTICAL SEALANT

- A. Acoustical Sealant for Exposed and Concealed Joints: Manufacturer's standard nonsag, paintable, nonstaining latex sealant complying with ASTM C 834 and the following requirements:
 - 1. Product is effective in reducing airborne sound transmission through perimeter joints and openings in building construction as demonstrated by testing representative assemblies per ASTM E 90.
 - 2. Product has flame-spread and smoke-developed ratings of less then 25 per ASTM E 84.

B. Acoustical Sealant for Concealed Joints: Manufacturer's standard nondrying, nonhardening, nonskinning, nonstaining, gunnable, synthetic rubber sealant recommended for sealing interior concealed joints to reduce transmission of airborne sound.

C. Available Products: Subject to compliance with requirements, acoustical sealants may be incorporated in the Work include, but are not limited to, the following:

- D. Products: Subject to compliance with requirements, provide one of the following:
 1. Acoustical Sealant:
 - a. AC-20 FTR Acoustical and Insulation Sealant, Pecora Corp.
 - b. SHEETROCK Acoustical Sealant, United States Gypsum Co.

2.08 MISCELLANEOUS MATERIALS

A. General: Provide auxiliary materials for gypsum board construction that comply with referenced standards and recommendations of gypsum board manufacturer.

B. Laminating Adhesive: Special adhesive or joint compound recommended for laminating gypsum panels.

C. Spot Grout: ASTM C 475, setting-type joint compound recommended for spot grouting hollow metal door frames.

D. Steel drill screws complying with ASTM C 1002 for the following applications:

- 1. Fastening gypsum board to steel members less than 0.03 inch thick.
- 2. Fastening gypsum board to gypsum board.

E. Steel drill screws complying with ASTM C 954 for fastening gypsum board to steel members from 0.033 to 0.112 inch thick

F. Corrosion-resistant-coated steel drill screws of size and type recommended by board manufacturer for fastening cementitious backer units.

G. Sound Attenuation Blankets: Unfaced glass fiber blanket insulation, fabricated for friction fit between steel studs, thickness as indicated on the drawings.

H. Polyethylene Vapor Retarder: ASTM D 4397, thickness and maximum permeance rating as follows

1. 4.0 mils, 0.19 perms.

I. Vapor Retarder Tape: Pressure-sensitive tape of type recommended by vapor retarder manufacturer for sealing joints and penetrations in vapor retarder.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Examine substrates to which gypsum board assemblies attach or abut, installed hollow metal frames, cast-in-anchors, and structural framing with Installer present for compliance with requirements for installation tolerances and other conditions affecting performance of assemblies specified in this Section. Do not proceed with installation until unsatisfactory conditions have been corrected.

3.02 GYPSUM BOARD APPLICATION METHODS

A. Single-Layer Application: Install gypsum wallboard panels as follows:

- 1. On ceilings, apply gypsum panels prior to wall/partition board application to the greatest extent possible and at right angles to framing, unless otherwise indicated.
- 2. On partitions/walls, apply gypsum panels vertically (parallel to framing), unless otherwise indicated, and provide panel lengths that will minimize end joints.
- B. Double-Layer Application: Install gypsum backing board for base layers and gypsum wallboard for face layers.
 - 1. On partitions/walls, apply base layers and face layers vertically (parallel to framing) with joints of base layers located over stud or furring members and face layer joints offset at least one stud or furring member with base layer joints. Stagger joints on opposite sides of partitions.
 - 2. On ceilings, comply with requirements of fire rated assembly.
- C. Single-Layer Fastening Methods: Apply gypsum panels to supports as follows:
 - 1. Fasten with screws.

- D. Double-layer Fastening Methods: Apply base layer of gypsum panels and face layer to base layer as follows:
 - 1. Fasten both base layers and face layers separately to supports with screws.

E. Exterior Soffits and Ceilings: Apply exterior gypsum soffit board panels perpendicular to supports, with end joints staggered over supports. Install with ¹/₄-inch open space where panels abut other construction or structural penetrations.

- 1. Fasten with corrosion-resistant screws.
- F. Sound Walls: At walls on the floor plan indicated with acoustic insulation, apply a double layer of gypsum board on one side of the wall.

3.07 INSTALLING TRIM ACCESSORIES

A. General: For trim accessories with back flanges, fasten to framing with the same fasteners used to fasten gypsum board. Otherwise, fasten trim accessories according to accessory manufacturer's directions for type, length, and spacing of fasteners.

B. Install corner beads at external corners with screws, crimping of bead not acceptable.

C. Install edge trim where edge of gypsum panes would otherwise be exposed or semi-exposed. Provide edge trim type with face flange formed to receive joint compound except where other types are indicated.

- 1. Install LC-bead where gypsum panels are tightly abutted to other construction and back flange can be attached to framing or supporting substrate.
- 2. Install L-bead where edge trims can only be installed after gypsum panels are installed.

D. Install control joints at locations indicated, and where not indicated according to ASTM C 840, and in locations approved by Architect for visual effect.

3.08 FINISHING GYPSUM BOARD ASSEMBLIES

A. General: Apply joint treatment at gypsum board joints (both directions); flanges of corner bead, edge trim, and control joints; penetrations; fastener heads, surface defects, and elsewhere as required to prepare gypsum board surfaces for decoration and levels of gypsum board finish indicated.

B. Pre-fill open joints, rounded or beveled edges, and damaged areas using setting-type joints compound.

C. Apply joint tape over gypsum board joints except those with trim accessories having concealed face flanges not requiring taping to prevent cracks from developing in joint treatment at flange edges.

D. Apply joint tape over gypsum board joints and to trim accessories with concealed face flanges as recommended by trim accessory manufacturer and as required to prevent cracks from developing in joint compound at flange edges.

E. Levels of Gypsum Board Finish: Provide the following levels of gypsum board finish per GA-214.

- 1. Level 1 for ceiling plenum areas, concealed areas, mechanical rooms and where indicated, unless a higher level of finish is required for fire-resistive-rated assemblies and sound-rated assemblies.
- 2. Level 2 where water-resistant gypsum backing board panels for substrates for tile, and where indicated.
- 3. Level 4 for exposed gypsum board surfaces, typical.
- 4. Level 5 for Abuse Resistant gyp applications.

F. Where level 5 gypsum board finish is indicated, apply joint compound combination specified for level 4 plus a thin, uniform skim coat of joint compound over entire surface. Use joint compound specified for the finish (third coat) or a product specially formulated for this purpose and acceptable to gypsum board manufacturer. Produce surfaces free of tool marks and ridges ready for decoration of type indicated.

G. Where level 2 gypsum board finish is indicated, apply joint specified for first coat in addition to embedding coat.

H. Where level 1 gypsum board finish is indicated, apply joint compound specified for embedding coat.

I. Finish exterior gypsum soffit board using setting-type joint compounds to prefill joints and embed tape, and for first, fill (second) and finish (third) coats, with the last coat being a sandable product. Smooth each coat before joint compound hardens to minimize need for sanding. Sand between coats and after finish coat.

1. Painting exterior gypsum soffit board after finish coat has dried is specified in Division 9 Section "Painting."

J. Provide no finish at cementitious backer units, expect where it abuts gypsum board, then comply with unit manufacturer's directions.

K. Install acoustic sealant at all sound rated walls and at all walls where there is a sound wall. (Bathroom walls).

3.09 CLEANING AND PROTECTION

A. Promptly remove any residual joint compound from adjacent surfaces.

B. Provide final protection and maintain conditions, in a manner suitable to Installer, that ensures gypsum board assemblies remain with damage or deterioration at time of Substantial Completion.

C. Report any damaged or unsuitable areas to the Architect and/or owner.

End of Section 09 20 00

SECTION 09 65 00

RESILIENT FLOORING

PART 1 - GENERAL

1.01 GENERAL

A. Attention is directed to general provisions of the CONTRACT, including
GENERAL and SUPPLEMENTARY CONDITIONS, and all sections within DIVISION
1 - GENERAL REQUIREMENTS, which are hereby made a part of this Section of the
Specifications as if fully repeated herein.

B. Coordinate work with that of all other trades affecting, or affected by the work of this Section. Cooperate with such trades to assure the steady progress of all work under the Contract.

- 1.02 FILING OF SUB-BIDS (not applicable)
- 1.03 SCOPE OF WORK
- A. Furnish and install the following items:1. Rubber Base
- B. Compliance with low VOC requirement.

1.04 RELATED WORK SPECIFIED ELSEWHERE

A. The following related work or materials shall be provided under the designated Sections and coordinated by the Contractor:

- 1. SS 99 96 56, High Performance Epoxy Coatings
- 1.05 ALTERNATES N/A

1.06 SUBMITTALS

A. Attention is directed to Section 01 30 00 regarding required procedures for Submittals.

B. Submittals are required for the following:

(SD = Shop Drawing) (FS = Field Sample) (OS = Samples) (PD = Printed Data) Base for color selection OS

OS (two sets), PD

- 1.07 QUALITY ASSURANCE
- A. Installer shall be approved by manufacturer.
- 1.08 DELIVERY AND STORAGE
- A. Deliver all materials to job in unopened containers with manufacturer's brand name clearly marked thereon.
- B. Store all materials to protect them from moisture and extremes of heat and cold.

1.09 OPERATION AND MAINTENANCE / WARRANTY MANUALS

A. Refer to Section 01 70 00 for the Operating and Maintenance Manual requirements for this Contract.

- 1. Delivery of the Manuals listed below shall be a condition precedent to final payment.
- B. Provide four sets of cleaning and care instructions for each type of resilient tile.

PART 2 - PRODUCTS AND MATERIALS

2.01 RUBBER BASE

- A. Rubber base by Roppe. Typical 4" or 6" 700 series, normal toe; or equal by:
 - 1. Armstrong
 - 2 Kentile
 - 3. Johnson Rubber

B. Use preformed internal and external corners; field formed are permissible only if installer demonstrates sufficient competence in fabrication and installation, in comparison to preformed products.

2.2 ADHESIVES AND MASTICS

A. Adhesives shall be type and brand recommended by the manufacturer for each type of the various conditions and flooring materials. Where the manufacturer lists more than one recommended adhesive, the manufacturer's "preferred choice" shall be used. Low VOC products shall be used.

B. Mastic underlayments for use at wood floors shall be latex type recommended by flooring manufacturer, such as:

1. Armstrong "S-105"

- 2. Flintkote "Latex Underlayment"
- 3. Allied "Lev-L-Lastic"

2.03 MAINTENANCE SUPPLY

A. Furnish to the owner additional cartons equal to 5% of each different color type and pattern of tile, bases, feature strips and reducing strips used on the project. At completion of work, deliver to site and place in storage areas designated by the owner, in properly labeled cartons, receipt of which shall be acknowledged in writing by an authorized representative of the owner.

PART 3 - EXECUTION

3.01 INSPECTION / JOB CONDITIONS

A. Do not begin installation work until work of other trades, including painting, has been substantially completed.

B. Allow slabs and underlayment to dry adequately before applying materials. At the direction of the Architect, perform simple calcium chloride treatment to insure concrete surfaces are free of contained moisture.

1. Perform moisture testing to confirm concrete curing.

3.04 INSTALLATION

A. Bases, included formed internal and external corners, shall be firmly cemented to the vertical surfaces and finished with fill, providing continuous and firm contact with the floor surfacing. Minimum length of base shall be 6 inches. Joints greater than 1/32 inch shall be rejected. If field forming of corners is approved by architect, form in the following manner:

- 1. Use 24 inch length.
- 2. Apply heat.
- 3. Bend at mid point, immerse in cold water.
- 4. Clip cove lip at internal corners bend point.

B. Install base at wet areas (restrooms, Janitor, Mechanical) in accordance with manufacturer's instructions. Set bottom of cove base in silicon sealant for water containment.

3.06 ATTIC STOCK

A. Provide Rubber Base in quantities equal to no less than 5% of each type installed.

End of Section 09 65 00

SECTION 09 90 00

PAINTING

PART 1 - GENERAL

1.01 GENERAL

A. Attention is directed to general provisions of the CONTRACT, including
GENERAL and SUPPLEMENTARY CONDITIONS, and all sections within DIVISION
1 - GENERAL REQUIREMENTS, which are hereby made a part of this Section of the
Specifications as if fully repeated herein.

B. Coordinate work with that of all other trades affecting, or affected by the work of this Section. Cooperate with such trades to assure the steady progress of all work under the Contract.

1.02 FILING OF SUB-BIDS (not applicable)

1.03 SCOPE OF WORK

- A. Scope of this Section includes the following:
 - 1. Prepare surfaces which are to receive paint.
 - 2. Paint surfaces as indicated on the finish schedule. In general, all new and existing exposed interior surfaces shall receive paint by this section, unless otherwise excluded or indicated as pre-finished.
 - 3. Exterior PVC Trim where indicated as painted.
 - 4. Adherence to low / no VOC requirement.

1.04 RELATED WORK SPECIFIED ELSEWHERE

- A. The following related work or materials shall be provided under the designated Sections and coordinated by the Contractor:
 - 1. Gypsum Board Finishes Section 09 20 00
 - 2. Floor Coating Section 09 96 56
 - 3. Metal Doors Section 08 11 00
 - 4. Wood and Plastic Doors Section 08 14 00
 - 5. Finish Carpentry Section 06 20 00 (PVC Trim to remain white)
 - 6. Cement Fiber Siding / soffits / Panels Section 07 46 00 (Prefinished)
 - 7. Prefinished wood windows (interior exposed wood is pre-painted)

- B. The following substrates do not require painting:
 - 1. Non-ferrous metals.
 - 2. Flooring (epoxy coating by other spec section)
 - 3. Windows and integral exterior casing.
 - 4. Exterior exposed wood columns and beams.
 - 5. Vinyl siding.
- 1.05 ALTERNATES (not applicable)
- 1.06 SUBMITTALS

A. Attention is directed to Section 01 30 00 regarding required procedures for Submittals.

B. Submittals are required for the following:

(SD = Shop Drawing) (FS = Field Sample) (OS = Samples) (PD = Printed Data)

Paint materialsPDPreliminary Color selectionsOSArchitect color selectionsOS, 12 inch by 12 inch; FS

1.07 ENVIRONMENTAL REQUIREMENTS

A. Measure moisture content of surfaces using an electronic moisture meter, Do not apply finished unless moisture contents of surfaces are below following maximums:

- 1. Plaster and gypsum wall board: 12 %
- 3. Interior Wood: 15%
- 4. Exterior Wood: 15%

B. Ensure that surface temperatures and the surrounding air temperature is above 40 degrees F before applying finishes. Minimum application temperatures of latex paints for interior work is 45 degrees F. Minimum application temperature for varnish finishes is 65 degrees F.

C. Provide adequate continuous ventilation.

D. Provide lighting for minimum 25 foot candles of lighting on surfaces to be painted.

E. All materials and applications shall apply with applicable EPA regulations regarding VOC emissions.

F. Supply and post MSDS information for all materials.

1.08 DELIVERY AND STORAGE

A. Deliver paint materials under provisions of Division 01, in sealed original labeled containers, bearing manufacturer's name, type of paint, brand name, color designation and instructions for mixing or reducing.

B. Provide adequate storage facilities. Store paint materials at minimum ambient temperature of 45 degrees F in well ventilated area.

C. Take precautionary measures to prevent fire hazards and spontaneous combustion.

1.09 EXTRA STOCK

A. Leave on premises, not less than one gallon of each type of paint used. Containers shall be tightly sealed, and clearly labeled for identification.

1.10 SCAFFOLDING

A. As per Division 01 of these specifications, furnish, erect, maintain and remove all scaffolds, rigging and staging up to 8 feet in height, in compliance with all applicable codes and regulations. Scaffolding, rigging and staging over 8 feet in height will be provided by the Contractor.

1.11 COLORS AND PAINT COMPATIBILITY

- A. Primer and body coats shall be of a lighter time than the finish coat.
 - 1. For deep tone finish colors, use Deep Base Primers recommended by manufacturer for surface.
 - 2. Dry Mil Thickness:
 - a. Comply with manufacturer's specifications.
 - b. If thinning of materials is performed, apply additional coats to achieve full film thickness of coats specified.
- B. Color Selections:
 - 1. Architect shall have unlimited choice of colors, without extra cost.
 - 2. Color Selections:

- a. If color is not listed for any specific area or item, it does not relieve Contractor of responsibility for providing colors to be selected.
- b. Color selection made by Architect is to determine basic color required for surface.
- c. Colors with same designation but produced from two or more sources shall match when viewed from distance of 24 in. or more.
- d. Final application of colors shall match prepared samples approved by Architect.
- 3. Main assembly room ceilings will be two color design; all other ceilings shall be the same single color.
- 4. No more than 3 colors will be selected for walls.

C. Painter shall determine all issues of compatibility regarding the specified finishes and substrates, and bring all potential conflicts to the attention of the architect. Failure to do so shall be construed as acceptance of the substrate, and the painter shall correct at his own expense any defects in the work resulting from the use of incompatible materials.

1.12 QUALITY ASSURANCE

A. To allow inspection by owner, paint coats must not be applied more than one coat per day in any particular location.

PART 2 - PRODUCTS AND MATERIALS

2.01 ACCEPTABLE MANUFACTURERS

- A. The following are acceptable paint manufacturers for this project:
 - 1. California
 - 2. PPG Industries
 - 3. Devoe and Reynolds
 - 4. Glidden Coatings and Resins
 - 5. Sherwin Williams
 - 6. Pratt and Lambert
 - 7. Benjamin Moore

B. For purpose of designating type and quality of Work, Specifications are based on products of Benjamin Moore.

 Low VOC paint shall be less than 150 gpl of VOC for non-flat finishes, and 50 or less gpl for flat finishes. Allowable manufacturers and products: Benjamin Moore Eco Spec Pittsburgh Paints Pure Performance Sherwin Williams Harmony

2.02 SCHEDULE

A. Exterior Surfaces:

- 1 Metal Gloss:
 - a. Primer: 1 coat, IronClad Retardo Rust Inhibitive Paint.
 - b. Finish: 2 coats, Impervo Enamel.
- 2. Metal Galvanized:
 - a. Primer: 1 coat, Iron Clad Retardo Rust Inhibitive Paint.
 - b. Finish: 2 coats, Impervo Enamel.
- 3. Metal Aluminum:
 - a. Primer: 1 coat, Iron Clad Retardo Rust Inhibitive Paint.
 - b. Finish: 1 coat, Impervo Enamel.
- 4. Siding panels
 - a. Finish: 2 coats, Moore's Acrylic Latex House Paint.
- C. Interior Surfaces:
 - 1. Gypsum Board and Plaster Satin:
 - a. Primer: 1 coat, Latex Quick Dry Prime Seal (tinted).
 - b. Finish: 1 coat, Regal Aquaglo.
 - 2. Wood Painted, Semi-Gloss:
 - a. Primer: 1 coat, Moore's Alkyd Enamel Underbody (tinted).
 - b. Finish: 1 coats, Alkyd Dulamel.
 - 4. Interior Surfaces Restroom, Bathrooms and Kitchens:
 - a. Primer: 1 coat, Latex Quick Dry Prime Seal (tinted).
 - b. Finish: 1 coats, Semigloss Impervo.
 - 5. Metal Gloss:
 - a. Primer: 1 coat, Iron Clad Retardo Rust Inhibitive Primer for ferrous metal and 1 coat, Iron Clad Galvanized Metal Primer.
 - b. Finish: 2 coats, Impervo Enamel.

PART 3 - EXECUTION

3.01 INSPECTION / JOB CONDITIONS

A. Thoroughly examine surfaces scheduled to be painted prior to commencement of work. Report in writing to architect and contractor any condition that may potentially affect proper application. Do not commence until such defects have been corrected.

B. Correct defects and deficiencies in surfaces which may adversely affect work of this section.

3.02 PREPARATION – GENERAL

A. Conduct typical preparation work at existing surfaces, according to good painting practices.

- 1. Remove all dirt, grease, oil, wax, rust and other foreign matter.
- 2. Glossy surfaces must be dulled with sandpaper or steel wool.
- 3. Fill all nail holes, etc., prior to application of primer or base coat.

3.02 PREPARATION – SPECIAL CONDITIONS

A. Remove mildew by scrubbing with solution of tri-sodium phosphate and bleach. Rinse with clean water and allow surface to dry completely.

B. Remove surface contamination from aluminum surfaces requiring a paint finish by steam, high pressure water, or solvent washing. Apply etching primer or acid etch. Apply paint immediately if acid etching.

C. Remove dirt, powdery residue, and foreign matter from piping, etc. Paint immediately, both sides when applicable.

D. Remove dirt, grease, and oil form canvas and cotton insulated coverings.

E. Remove surface contamination from gypsum board surfaces and prime to show defects, if any. Paint after defects have been remedied.

F. Remove surface contamination from galvanized surfaces and wash with solvent. Apply coat of acid etching type primer.

G. Remove dirt, loose mortar, scale, powder, and other foreign matter from concrete and concrete block surfaces which are to be painted or sealed. Remove oil and grease with a solution of tri-sodium phosphate, rinse well and allow to thoroughly dry.

H. Remove stains from masonry caused by weathering of corroding metals with a solution of sodium metasilicate after being thoroughly wetted with water. Allow to thoroughly dry.

I. Remove grease, rust, scale, dirt and dust from steel and iron surfaces. Where heavy coatings of scale are evident, remove by wire brushing, sandblasting or any other necessary method. Ensure that steel surfaces are satisfactory before paint finishing. Use SSPC-SP 2, hand tool cleaning or SSPC SP 3, power tool cleaning.

J. Clean unprimed steel surfaces by washing with solvent. Apply a treatment of phosphoric acid solution, ensuring weld joints, bolts and nuts are similarly cleaned. Prime surfaces to indicate defects, if any. Paint after defects have been remedied.

K. Sand and scrape shop primed to remove loose primer and rust. Feather out edges to make touch up patches inconspicuous. Clean surfaces with solvent. Prime bare steel surfaces.

L. Wipe off dust and grit form miscellaneous wood items and millwork prior to priming. Spot coat knots, pitch streaks, and sappy sections with sealer. Fill nail holes and cracks after primer has dried and sand between coats. Back prime interior woodwork in wet areas.

3.03 PROTECTION

A. Adequately protect other surfaces from paint and damage. Repair damage as a result of inadequate or unsuitable protection.

B. Furnish sufficient drop cloths, shields and protective equipment to prevent spray or droppings from fouling surfaces not being painted and in particular, surfaces within storage and preparation area.

C. Place cotton waste, cloths, and material with may constitute a fire hazard in closed metal containers and remove daily from site.

D. Remove electrical plates, surface hardware, fittings, fastenings prior to painting operations. These items are to be carefully stored, cleaned and replaced on completion of work in each area. Do not use solvent to clean hardware that may remove permanent lacquer finish.

End of Section 09 90 00

SECTION 09 96 56 HIGH PERFORMANCE EPOXY COATINGS

PART 1 - GENERAL

1.01 GENERAL

A. Attention is directed to general provisions of the CONTRACT, including GENERAL and SUPPLEMENTARY CONDITIONS, and all sections within DIVISION
1 - GENERAL REQUIREMENTS, which are hereby made a part of this Section of the Specifications as if fully repeated herein.

B. Coordinate work with that of all other trades affecting, or affected by the work of this Section. Cooperate with such trades to assure the steady progress of all work under the Contract.

1.02 FILING OF SUB-BIDS (Not Applicable)

1.03 SCOPE OF WORK

A. This Section includes the general scope of work to furnish the administration, facilities, materials, labor and equipment for the following:

- 1. Preparation of the existing flooring for Epoxy Floor finish.
- 2. Low VOC Epoxy Floor Finish with decorative "chip" color.
- 3. Slip resistance 0.65 wet, 0.95 dry.

1.04 RELATED WORK SPECIFIED ELSEWHERE

A. The following related work or materials shall be provided under the designated Sections and coordinated by the Contractor:

- 1. DIV 03, Concrete Floor Patching
- 1.05 ALTERNATES
 - 1. Not Applicable

1.06 SUBMITTALS

A. Attention is directed to Section 01 30 00 regarding required procedures for Submittals.

B. Submittals are required for the following:

(FS (OS	= Shop Drawing) = Field Sample) = Samples) = Printed Data)	
1.	Epoxy Coatings	PD
2.	Color samples	PD, OS

C. Samples for Initial Selection: Manufacturer's color charts showing full range of colors available.

1.07 QUALITY ASSURANCE

A. Manufacturer Qualifications: Manufacturer with experience in the production of specified products.

B. Installer Qualifications: An installer with five years experience with work of similar scope and quality.

C. Obtain each specified material from same source and maintain high degree of consistency in workmanship throughout Project.

- D. Notification of manufacturer's authorized representative shall be given at least 1week before start of Work.
- E. Certified Applicators:
 - 1. Consult Manufacturer for a list of Certified Applicators in the project area.
- F. Pre-installation Conference: Conduct conference at project site to review procedures and coordination requirements.
- G. Installer/Applicator shall be certified by chemical manufacturer and shall provide adequate number of skilled workmen who are thoroughly trained and experienced in the necessary craft.
- H. Manufacturer's Certification: Provide a letter of acknowledgement from both the equipment and chemical manufacturer stating that the installer is a trained applicator and is familiar with proper procedures and installation requirements recommended by the manufacturer.
- I. Epoxy mockup or field sample not required due to schedule constraints.
- J. Environmental Limitations:

1. Comply with manufacturer's written instructions for substrate temperature and moisture content, ambient temperature and humidity, ventilation and other conditions affecting chemical performance.

2. Finish concrete area shall be closed to traffic during finish floor application and after application for the time as recommended by the manufacturer.

1.08 REFERENCE STANDARDS

A. American Society for Testing and Materials (ASTM):

- 1. ASTM C309 "Liquid Membrane-Forming Compounds for Curing Concrete."
- 2. ASTM C494 "Standard Specification for Chemical Admixtures for Concrete."

1.09 DELIVERY

A. All chemicals: Comply with manufacturer's instructions. Deliver in original, unopened packaging. Store in dry conditions.

1.10 PRE-JOB CONFERENCE

A. One week prior to placement of concrete a meeting will be held to discuss the Project and application materials.

B. Architect, General Contractor, Owner's rep Subcontractor, and a Manufacturer's Representative shall be present.

1.11 SEQUENCING

A. Ensure that products of this section are supplied to affected trades in time to prevent interruption of construction progress.

1. Coatings shall be applied prior to cabinet installation and toilet partition installation.

PART 2 - PRODUCTS AND MATERIALS

2.01 ACCEPTABLE MANUFACTURER

- A. Laticrete Company, Manufacturer of "Spartacote" is the basis of design.
 1. Equal products by Surecrete, or MAPEI.
- 2.02 MATERIALS
- A. Spartacote Chip Pure, VOC-Free Solid Flooring System, with Chip Coloring
 - 1. Pigmented Base Coat
 - 2. Decorative Chip Broadcast
 - 3, Clear Top Coat
- B. Drytek Moisture vapor Barrier used as primer and moisture mitigation.
- C. Top Coat shall be Spartacote Flex SB Clear, with Spartacote Grip Traction Additive.
- D. System Characteristics.
 - 1. Textured for slip resistance.
 - 2. Color and pattern as selected by Architect from manufacturer's full range.

E. Patching and Fill Material: SPARTACOTE FAST-FIX or resinous product of or approved by resinous flooring manufacturer and recommended by manufacturer for application indicated.

F. Joint Filler L&M JOINT-TITE 750 flexible polyurea joint filler or similar product.

PART 3 - EXECUTION

3.01 PREPARATION

A. Prepare floor to the level required for application of primer, including crack repair, filling of depressions. Prepare and clean substrates according to resinous flooring manufacturer's written instructions for substrate indicated. Provide clean, dry substrate for resinous flooring application.

1. Test moisture content of existing slabs.

B. Concrete Substrates: Provide sound concrete surfaces free of laitance, glaze, efflorescence, curing compounds, form-release agents, dust, dirt, grease, oil, and other contaminants incompatible with resinous flooring.

- 1. Roughen concrete substrates as follows:
 - a. Mechanically profile surfaces with an apparatus that abrades the concrete surface to a profile as specified by system application guide.
 - b. Comply with ICRI Technical Guideline No. 310.2R Selecting and Specifying Concrete Surface Preparation for Sealers, Coatings, Polymer Overlays, and Concrete Repair.
- 2. Repair damaged and deteriorated concrete according to resinous flooring manufacturers written instructions.
- 3. Perform all moisture testing as required or recommended by manufacturer to assure suitability of concrete floor for primer or coating application.

C. Resinous Materials: Mix components and prepare materials according to resinous flooring manufacturer's written instructions.

D. Use patching and fill material to fill holes and depressions in substrates according to manufacturer's written instructions.

E. Treat control joints and other nonmoving substrate cracks to prevent cracks from reflecting through resinous flooring according to manufacturer's written instructions.

3.02 APPLICATION

- A. General: Apply components of resinous flooring system according to manufacturer's written instructions to produce a uniform, monolithic wearing surface of thickness indicated.
 - 1. Coordinate application of components to provide optimum adhesion of resinous flooring system to substrate, and optimum inter-coat adhesion.
 - 2. Cure resinous flooring components according to manufacturer's written instructions. Prevent contamination during application and curing processes.
 - 3. At substrate expansion and isolation joints, comply with resinous flooring manufacturers written instructions.
 - B. Apply waterproofing membrane, where indicated, in manufacturer's recommended thickness.
 - C. Integral Cove Base: (not required base shall be vinyl cove)
- D. Apply primer and body coats in thickness indicated for flooring system.

E. Apply topcoats and abrasive chips in number indicated for flooring system and at spreading rates recommended in writing by manufacturer.

3.03 FIELD QUALITY CONTROL

A. Core Sampling: (not done)

B. Material Sampling: Owner may at any time and any number of times during resinous flooring application require material samples for testing for compliance with requirements.

3.04 PROTECTION

A. Protect resinous flooring from damage and wear during the remainder of construction period. Use protective methods and materials, including temporary covering, recommended in writing by resinous flooring manufacturer.

- 3.05 OPERATION AND MAINTENCE
- A. Instruction owner on maintenance procedures.
- B. Include maintenance information in the O&M manual.

END OF SECTION 09 96 56

SECTION 10 11 16

MARKER BOARDS

PART 1 - GENERAL

1.01 GENERAL

A. Attention is directed to general provisions of the CONTRACT, including GENERAL and SUPPLEMENTARY CONDITIONS, and all sections within DIVISION 01 - GENERAL REQUIREMENTS, which are hereby made a part of this Section of the Specifications as if fully repeated herein.

B. Coordinate work with that of all other trades affecting, or affected by the work of this Section. Cooperate with such trades to assure the steady progress of all work under the Contract.

- 1.02 FILING OF SUB-BIDS (Not Applicable)
- 1.03 SCOPE OF WORK
- A. Section Includes:1. White Board for Projection Surface and Dry-Erase
- 1.04 RELATED WORK SPECIFIED ELSEWHERE
- A. The following trades supplied related work, requiring coordination:
 1. Section 06 20 00, Finish Carpentry; Installation
- 1.05 ALTERNATES (not applicable)
- 1.06 SUBMITTALS
- A. Attention is directed to Section 01 30 00 regarding procedures for submittals.
- B. Submittals are required for the following: (SD = Shop Drawing) (FS = Field Sample) (OS = Samples) (PD = Printed Data)
 - 1. White Board PD

- C. Requirements 1. Provide installation details
- 1.07 QUALITY ASSURANCE

PART 2 - PRODUCTS AND MATERIALS

2.01 ACCEPTABLE MANUFACTURERS AND PRODUCTS

- A. Basis of Design: Epson Model V12H83100, 54.6" h x 86.6" w.
 - 1. Equal by Elite Screens "White Board Screen" Series
 - 2. Equal by Draper Scribe Write-on Fixed Projection Screen

B. Include all mounting hardware, bracket board, four white board markers and cleaning cloth

2.03 WARRANTY

A. Minimum of three years,

A. **PART 3 - EXECUTION**

- 3.01 INSTALLATION
- A. By DIV 06.

3.02 ADJUSTMENT

A. Adjust and clean.

End of Section 10 11 16

SECTION 10 14 00

SIGNS AND IDENTIFICATION DEVICES

PART 1 - GENERAL

1.01 GENERAL

A. Attention is directed to general provisions of the CONTRACT, including GENERAL and SUPPLEMENTARY CONDITIONS, and all sections within DIVISION 01 - GENERAL REQUIREMENTS, which are hereby made a part of this Section of the Specifications as if fully repeated herein.

B. Coordinate work with that of all other trades affecting, or affected by the work of this Section. Cooperate with such trades to assure the steady progress of all work under the Contract.

- 1.02 FILING OF SUB-BIDS (Not Applicable)
- 1.03 SCOPE OF WORK
- A. Section Includes:
 - 1. Furnish and install room identification signs
 - 2. Field Measurements.
 - 3. Coordination with manufacturer regarding installation procedures.
 - 4. Conformance to ADA / Mass AAB regulations for signage
 - 5. Life Safety Signage

1.04 RELATED WORK SPECIFIED ELSEWHERE A. (not applicable)

- 1.05 ALTERNATES (not applicable)
- 1.06 SUBMITTALS
- A. Attention is directed to Section 01300 regarding procedures for submittals.
- B. Submittals are required for the following: (SD = Shop Drawing)
 - (SD Shop Drawnig)(FS = Field Sample) (OS = Samples)
 - (PD = Printed Data)

.

1.	Signs:	PD, SD
2.	Color Samples:	OS

PART 2 - PRODUCTS AND MATERIALS

- 2.01 ACCEPTABLE MANUFACTURERS
- A. Signs: ASI Sign systems, 508 581-8936
- 2.02 PRODUCTS
- A. Signs: ASI "In-touch" plaque with raised copy, symbols and braille.

PART 3 - EXECUTION

3.01 INSTALLATION

A. Install in accordance with manufacturer's instructions. Coordinate installation with input of other trades.

B. Sign Schedule:

Location	Text / Description	Size (wxh in inches)
Kitchen	KITCHEN 3/4" Text + Braille	6x3
Nurse Office	NURSE 3/4" Text + Braille	6x3
Restroom - M	Men bath Access Pictograph 3/4" Text + Braille	6x8
Restroom – F	W'Men bath Access Pictograph 3/4" Text + Braille	6x8

Janitor	CUSTODIAN 3/4" Text + Braille	6x3
Storage	Storage 3/4" Text + Braille	6x3
Mechanical	Mechanical 3/4" Text + Braille	6x3

C. Life Safety Signage

1. As required by Fire Department, in locations determined by NFD.

End of Section 10 14 00

SECTION 10 21 13

TOILET COMPARTMENTS

PART 1 - GENERAL

1.01 GENERAL

A. Attention is directed to general provisions of the CONTRACT, including GENERAL and SUPPLEMENTARY CONDITIONS, and all sections within DIVISION 1 - GENERAL REQUIREMENTS, which are hereby made a part of this Section of the Specifications as if fully repeated herein.

B. Coordinate work with that of all other trades affecting, or affected by the work of this Section. Cooperate with such trades to assure the steady progress of all work under the Contract.

1.02 FILING OF SUB-BIDS (not applicable)

1.03 SCOPE OF WORK

A. This section includes solid plastic polymer resin to be used for toilet compartments at the project restrooms.

1. Coordination with other trades, including floor coatings.

1.04 RELATED WORK SPECIFIED ELSEWHERE

A. The following related work or materials shall be provided under the designated Sections and coordinated by the Contractor:

- 1. Section 06 10 00- Rough Carpentry
- 2. Section 10 28 00- Toilet and Bath Accessories: for toilet paper holders, grab bars, and similar accessories.
- 1.05 ALTERNATES N/A
- 1.06 SUBMITTALS
- A. Provide submittals to form defined in Section 01300, Submittals.
- B. Submittals are required for the following: (SD = Shop Drawing)

Section 10 21 13– TOILET COMPARTMENTS Page - 1 (FS = Field Sample) (OS = Samples) (PD = Printed Data)

- 1. Product Data: For each type and style compartment and screen specified. Include details of construction relative to materials, fabrication, and installation. Include details of anchors, hardware, and fastenings.
- 2. SD (see below.)
- 3. OS for Initial Selection: Manufacturer's color charts consisting of sections of actual units showing the full range of colors, textures, and patterns available for each type of compartment or screen indicated.
- 4. OS for Verification: Of each compartment or screen color and finish required, 6-inch-square samples of same thickness and material indicated for Work.
- C. Shop drawings shall indicate:
 - 1. For fabrication and installation of toilet compartment and screen assemblies. Include plans, elevations, sections, details, and attachments to other work.

a. Show locations of cutouts for compartment-mounted toilet accessories.

1.07 PROJECT CONDITIONS

A. Field Measurements: Verify dimensions in areas of installation by field measurements before fabrication and indicate measurements on Shop Drawings. Coordinate fabrication schedule with construction progress to avoid delaying the Work.

PART 2 - PRODUCTS AND MATERIALS

2.01 MANUFACTURERS

A. Available Manufacturers: Subject to compliance with requirements,

manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

- 1. Capital Partitions, Inc.
- 2. Compression Polymers Group; Comtec Industries.
- 3. Santana Products, Inc.
- 4. Misco Partitions Corp

2.02 MATERIALS

A. General: Provide materials that have been selected for surface flatness and smoothness. Exposed surfaces that exhibit pitting, seam marks, stains, discolorations, or other imperfections on finished units are unacceptable.

B. Solid-Plastic, Polymer Resin: High-density polyethylene (HDPE) with homogenous color throughout. Provide material not less than 1 inch thick with seamless construction and eased edges in color and pattern as follows:

1. Color and Pattern: One color and pattern in each room as selected by Architect from manufacturer's full range of colors and patterns.

C. Pilaster Shoes and Sleeves (Caps): ASTM A 666, Type 302 or 304 stainless steel, not less than 0.0312 inch thick and 3 inches high, finished to match hardware.

D. Full-Height (Continuous) Brackets: Manufacturer's standard design for attaching panels and screens to walls and pilasters of the following material:

1. Material: Clear-anodized aluminum.

E. Hardware and Accessories: Manufacturer's standard design, heavy-duty operating hardware and accessories of the following material:

1. Material: Chrome-plated, nonferrous, cast zinc alloy (zamac) or clearanodized aluminum.

F. Overhead Bracing: Manufacturer's standard continuous, extruded-aluminum head rail with antigrip profile in manufacturer's standard finish.

G. Heat-Sink Strip: Manufacturer's standard continuous, extruded-aluminum strip in manufacturer's standard finish.

H. Anchorages and Fasteners: Manufacturer's standard exposed fasteners of stainless steel of chrome-plated steel of brass, finished to march hardware, with theft-resistant-type heads. Provide sex-type bolts for through-bolt applications. For concealed anchors, use hot-dip galvanized or other rust-resistant, protective-coated steel.

2.03 FABRICATION

A. General: Provide standard doors, panels, screens, and pilasters fabricated for compartment system. Provide units with cutouts and drilled holes to receive compartment-mounted hardware, accessories, and grab bars, as indicated.

1. Comply with wall heights as per ANSI / ADA requirements for restrooms for children.

B. Solid-Plastic, Polymer-Resin Compartments and Screens: Provide aluminum heat-sink strips at exposed bottom edges of HDPE units to prevent burning.

C. Overhead-Braced-and-Floor-Anchored Compartments: Provide manufacturer's standard corrosion-resistant supports, leveling mechanism, fasteners, and anchors at pilasters to suit floor conditions. Make provisions for setting and securing continuous head rail at top of each pilaster. Provide shoes at pilasters to conceal supports and leveling mechanism.

D. Overhead-Braced-and-Floor-Anchored Screens: Provide pilasters and panels of same construction and finish as toilet compartments. Provide manufacturer's standard corrosion-resistant anchoring assemblies complete with threaded rods, lock washers, and leveling adjustment nuts at pilasters for structural connection to floor. Make provisions for setting securing continuous head rail at top of each pilaster. Provide shoes at pilasters to conceal anchorage.

E. Doors: Unless otherwise indicated, provide 24-inch-wide in-swinging doors for standard toilet compartments and 36-inch-wide out-swinging doors with a minimum 32-inch-wide clear opening for compartments indicated to be handicapped accessible.

- 1. Hinges: Manufacturer's standard self-closing type that can be adjuster to hold door open at any angle up to 90 degrees.
- 2. Latch and Keeper: Manufacturer's standard surface-mounted latch unit with combination rubber-faced door strike and keeper designed for emergency access. Provide units that comply with accessibility requirements of authorities having jurisdiction at compartments indicated to be handicap accessible.
- 3. Coat Hook: Manufacturer's standard combination hook and rubber-tipped bumper, sized to prevent door from hitting compartment-mounted accessories.
- 4. Door Bumper: Manufacturer's standard rubber-tipped bumpers at outswinging doors or entrance screen doors.
- 5. Door Pull: Manufacturer's standard unit that complies with accessibility requirements of authorities having jurisdiction at out-swinging doors. Provide units on both sides of doors at compartment indicated to be handicapped accessible.

PART 3 - EXECUTION

3.01 INSPECTION / JOB CONDITIONS

A. Report any damaged or unsuitable areas to the Architect and/or owner.

3.02 INSTALLATION

A. General: Comply with manufacturer's written installation instructions. Install units rigid, straight, plumb, and level. Provide clearances of not more than ½ inch between pilasters and panels and not more than 1 inch between panels and walls. Secure units in positions with manufacturer's recommended anchoring devices.

1. Secure panels to walls and panels with full height continuous brackets. Locate holes for wall anchors to occur in masonry or tile joints. B. Overhead-Braced-and-Floor-Anchored Compartments: Secure pilaster to floor and level, plumb, tighten. Secure continuous head rail to each pilaster with not less than two fasteners. Hang doors and adjust so tops of doors are parallel with overhead brace when doors are in closed position.

C. Screens: Attach with anchoring devices according to manufacturer's written instructions and to suit supporting structure. Set units level and plumb and to resist lateral impact.

3.02 ADJUSTING AND CLEANING

A. Hardware Adjustment: Adjust and lubricate hardware according to manufacturer's written instructions for proper operation. Set hinges on in-swinging doors to hold open approximately 30 degrees from closed position when unlatched. Set hinges on out- swinging doors and swing doors in entrance screens to return to fully closed positions

B. Provide final protection and maintain conditions that ensure toiler compartments, changing compartments and screens are without damage or deterioration at the time of Substantial Completion.

End of Section 10 21 13

SECTION 10 28 00

TOILET AND BATH ACCESSORIES

PART 1 - GENERAL

1.01 GENERAL

A. Attention is directed to general provisions of the CONTRACT, including GENERAL and SUPPLEMENTARY CONDITIONS, and all sections within DIVISION
1 - GENERAL REQUIREMENTS, which are hereby made a part of this Section of the Specifications as if fully repeated herein.

B. Coordinate work with that of all other trades affecting, or affected by the work of this Section. Cooperate with such trades to assure the steady progress of all work under the Contract.

- 1.02 FILING OF SUB-BIDS (not applicable)
- 1.03 SCOPE OF WORK
- A. Section Includes the furnishing of the following:
 - 1. Restroom Accessories.
 - 2. Grab Bars at public restrooms
 - 3. Mounting heights in accordance with applicable codes.
- B. Work shall conform to applicable accessibility codes.
- 1.04 RELATED WORK SPECIFIED ELSEWHERE
- A. The following related work or materials shall be provided under the designated Sections and coordinated by the Contractor:
 - 1. DIV 22, Plumbing.
 - 2. Section 06 10 00, Rough Carpentry (blocking)
- 1.05 ALTERNATES (not applicable)
- 1.06 SUBMITTALS

A. Attention is directed to Section 01 30 00 regarding required procedures for Submittals.

B. Submittals are required for the following:

(SD = Shop Drawing)	
(FS = Field Sample)	
(OS = Samples)	
(PD = Printed Data)	
	22
Accessories	PD
Grab Bars	PD
Shower Doors	PD
Schedule	PD
Certificates: (Grab bar strength)	PD (by independent laboratory)

1.07 DELIVERY AND STORAGE

- A. Deliver items in manufacturer's original unopened protective packaging.
- B. Store materials in original protective packaging to prevent damage or wetting.
- C. Maintain protective covers on all units until installation is complete. Remove covers at final clean up of installation.

1.08 OPERATION AND MAINTENANCE / WARRANTY MANUALS

A. Refer to Section 01 70 00 for the Operating and Maintenance Manual requirements for this Contract.

- 1. Delivery of the Manuals listed below shall be a condition precedent to final payment.
- B. Maintenance data, operating instructions and keys for each type of equipment.

PART 2 - PRODUCTS AND MATERIALS

2.01 MATERIALS

- A. General:
 - 1. For purposes of designating type and quality of Work, Specifications, unless otherwise indicated, are based on products of Bobrick or Bradley.
 - 2. Products of other manufacturers shall fully match type and quality of product specified.
 - 3. Alternate Acceptable Manufacturer: A&J Washroom, American Dispenser.
- B. Toilet Room Accessories:
 - 1. Robe Hook: Bobrick B-671 (two at bath and Nurse door)

- 2. Toilet Paper Dispener: Bradley 508 (one per stall)
- 3. Paper Towel Dispenser: Bradley 9532, stainless finish. (one per restroom)

D. Grab Bars: 1-1/4 in. dia., peened, max. 1-1/2 in. from wall, concealed mounting:

Bobrick B-5806. Size as per Mass Code requirements.

- E. Restroom Mirror: Bobrick B-290
 - Size as indicated on drawings.
- F. Janitor Room Mop holder and shelf: Bobrick B-239 x 24

PART 3 - EXECUTION

3.01 INSTALLATION

A. Install toilet accessories only after completion of contiguous work as part of Work of DIV 22, Plumbing.

B. Fasten securely with concealed fasteners to manufacturer's recommendations.

END OF SECTION 10 28 00

SECTION 10 44 00

FIRE SPECIALTIES

PART 1 - GENERAL

1.01 GENERAL

A. Attention is directed to general provisions of the CONTRACT, including GENERAL and SUPPLEMENTARY CONDITIONS, and all sections within DIVISION 01 - GENERAL REQUIREMENTS, which are hereby made a part of this Section of the Specifications as if fully repeated herein.

B. Coordinate work with that of all other trades affecting, or affected by the work of this Section. Cooperate with such trades to assure the steady progress of all work under the Contract.

- 1.02 FILING OF SUB-BIDS (Not Applicable)
- 1.03 SCOPE OF WORK
- A. Section Includes:
 - 1. Furnish and Install Fire Specialties
 - a. Knox Box.
 - b. Fire Extinguisher Cabinets.
 - c. Fire Extinguishers.
 - 2. Field Measurements.
 - 3. Coordination with manufacturer regarding installation procedures.
 - 4. Coordination with local fire department.
 - 5. Conformance to ADA and Mass AAB regulations regarding mounting height and projection.

1.04 RELATED WORK SPECIFIED ELSEWHERE

- A. The following trades supplied related work, requiring coordination:
 - 1. Section 09 20 00, Gypsum Board Systems:
 - 2. Section 06 10 00, Carpentry blocking
- 1.05 ALTERNATES (not applicable)
- 1.06 SUBMITTALS
- A. Attention is directed to Section 01 30 00 regarding procedures for submittals.

- B. Submittals are required for the following: (SD = Shop Drawing) (FS = Field Sample) (OS = Samples) (PD = Printed Data)
 - 1. Knox Box: PD
 - 2. Fire Extinguisher Cabinets: PD
 - 3. Fire Extinguishers PD
- C. Provide copies for fire department review.

PART 2 - PRODUCTS AND MATERIALS

2.01 ACCEPTABLE MANUFACTURERS

A. Extinguishers / Cabinets: Larsen's Manufacturing Company, or equal by J. L. Industries or Samson Metal Products.

- B. Knox Box Knox Company
- 2.02 PRODUCTS
- A. Cabinets: Larsen Architectural Series:
 - 1. Solid Steel Door white finish.
 - 2. No glazing.
 - 3. Vertical lettering.
 - 4. 3.5" projection, with recessed handle.
 - 5. Rolled edge trim
 - 6. Non-fire rated.
- B. Extinguisher: MP Series extinguisher and coordinated bracket.
- C. Knox Box Model 3200; recessed installation One Location

A. **PART 3 - EXECUTION**

3.01 INSTALLATION

A. Install in accordance with manufacturer's instructions. Coordinate installation with input of Fire department.

B.	<u>Schedule</u> : Fire extinguisher and cabinet:	Near Main Entrance
	Fire extinguisher and bracket mount:	Kitchen Area
	Knox Box	Main Entrance

End of Section 10 44 00

SECTION 10 51 13

METAL LOCKERS

PART 1 - GENERAL

1.01 GENERAL

A. Attention is directed to general provisions of the CONTRACT, including
GENERAL and SUPPLEMENTARY CONDITIONS, and all sections within DIVISION
1 - GENERAL REQUIREMENTS, which are hereby made a part of this Section of the
Specifications as if fully repeated herein.

B. Coordinate work with that of all other trades affecting, or affected by the work of this Section. Cooperate with such trades to assure the steady progress of all work under the Contract.

- 1.02 FILING OF SUB-BIDS (not applicable)
- 1.03 SCOPE OF WORK
- A. Work of this section includes the furnishing of the following:
 - 1. Prefinished Metal Lockers, as indicated on drawings.
 - 2. Sloped tops and base enclosure accessories.

1.04 RELATED WORK SPECIFIED ELSEWHERE

A. The following related work or materials shall be provided under the designated Sections and coordinated by the Contractor:

- 1. Installation by Finish Carpentry, Section 06 20 00
- 1.05 ALTERNATES (not applicable)

1.06 SUBMITTALS

- A. Attention is directed to Section 01 30 00 regarding required procedures for Submittals.
- B. Submittals are required for the following:

(SD = Shop Drawing) (FS = Field Sample) (OS = Samples) (PD = Printed Data)

Lockers SD, PD

Include actual color sample chips with the PD

SD shall indicate dimensions, plans, elevations and sections, as well as specific information for the "rough opening" dimensions.

PD shall include certification regarding VOC content of finish.

1.07 DELIVERY AND STORAGE

A. Package separately labeled as to item enclosed. Store products in manufacturer's unopened packaging until ready for installation to protect the locker finish and adjacent surfaces. Include all necessary items for installation, including instructions.

1.08 REFERENCES

A. ADAAG – Americans with Disabilities Act Accessibility Guidelines

B. Mass 521 CMR

PART 2 - PRODUCTS AND MATERIALS

- 2.01 PRODUCTS
 - A. General:
 - 1. For purposes of designating types sizes and quality of Work, Specifications are based on products of Penco Products, Inc.
 - 2. Products of other manufacturers shall fully match type, size, accessibility features and quality of product specified. Only American fabricated lockers will be acceptable.
 - 3. Alternative Manufacturers:
 - a. Hallowell
 - b. Lyon
 - 3. Lockers shall be GREENGUARD Gold Certified.
- 2.02 MATERIALS

- A. Lockers shall be constructed with prime grade mild cold rolled steel, free from surface imperfection meeting ASTM A1008, and capable or taking a high grade enamel powder coat finish.
- B. Forged steel coat hooks with balled ends, zinc coated.
- C. Truss Fin head bolts and hex nuts, zinc coated.
- 2.03 LOCKER FABRICATION

A. Lockers shall be "knock down", with tops, bottoms, backs, sides and shelves fabricated from 24 gauge sheet steel. Locker doors less than 12" shall be 18 Gauge, all others shall be 16 gauge.

- 1. Provide 6" legs.
- 2. Provide sloped hood and front base enclosure pieces.
- 3. Provide number plates, number sequentially.

B. Door Frame shall be channel shape, not less than 16 gauge steel. Provide vertical door frame members with additional 3/8 inch flange as a continuous door strike. Provide intermediate cross members, as standard per number of tiers.

- 1. For "Box Lockers", one piece sheet steel with channel formations on lock and hinge side, right angle flanges on top and bottom; pre-punch doors for padlock latch and friction catch.
 - a. 18 gauge combination door pull, staple and lock hole cover plate with integral friction catch.
- C. Ventilation shall be by louvers in doors in manufacturer's standard pattern.

D. Hinges shall be two inch high, double spun, full loop, tight pin, projection welded to door frame and securely fastened to the door with steel rivets. Provide three 2-inch five knuckle hinges on doors over 48" high and two 2-inch high five knuckle hinges on all other doors.

2.03 LOCKERS

- A. 6 Tier, Model Vanguard 6367V, 12" wide, 15" deep, 72" tall. Box Locker with Friction Catch Pull Handles.
 - 1. Note integration of accessible 24" tall units at three "hybrid" units.
 - a. Accessible units have accessible locking hardware.

2.04 FABRICATION

A. Fabrication shall be on the unit principle, each locker with individual door and frame, individual top, bottom, back and shelves, with common intermediate divisions separating components.

2.04 FINISH

A. Finish shall be high quality powder coat paint applied in strict adherence to paint manufacturer's specifications to provide optimum appearance and performance.

- 1. Finishes releasing VOC's are not permitted.
- 2. 1 mil DFT minimum.
- 3. Color as selected from full range of manufacturer's colors.
- 4. All locker body components shall match color of door and frame.

PART 3 - EXECUTION

3.01 PREPARATION AND EXAMINATION

A. Do not begin installation until substrates and bases have been property prepared, including wall and floor finishes. Notify Architect of unsatisfactory conditions needing correction.

3.02 INSTALLATION

A. Install lockers and accessories at locations shown in accordance with manufacturer's instructions. <u>Coordinate with Rough Carpentry partition layout to assure adequate clear dimensions.</u>

- B. Install lockers plumb, level and square.
- C. Anchor lockers to floor and wall at intervals recommended by the manufacturer.
- D. Bolt adjoining locker units together to provide rigid installation.
- 3.03 ADJUSTING
- A. Adjust doors and latches to operate without binding.
- B. Verify that latches are operating satisfacdtorly.

C. Adjust built-in locks to prevent binding of dial or key and ensure smooth operation prior to substantial completion.

D. Touch up with factory supplied paint and replace of repair damaged components.

3.04 PROTECTION

A. Protect installed products until acceptance of project.

End of Section 10 51 13

SECTION 11 45 00

RESIDENTIAL EQUIPMENT

PART 1 - GENERAL

1.01 GENERAL

A. Attention is directed to general provisions of the CONTRACT, including
GENERAL and SUPPLEMENTARY CONDITIONS, and all sections within DIVISION
1 - GENERAL REQUIREMENTS, which are hereby made a part of this Section of the
Specifications as if fully repeated herein.

B. Coordinate work with that of all other trades affecting, or affected by the work of this Section. Cooperate with such trades to assure the steady progress of all work under the Contract.

- 1.02 FILING OF SUB-BIDS (not applicable)
- 1.03 SCOPE OF WORK
- A. Work of this section includes the furnishing of the following:
 - 1. (reserved)
 - 2. Electric Cook Tops
 - 3. Hood Microwave Combination.
- B. Energy Star compliance for refrigerators and freezers
- C. Compliance with regulatory requirements
 - 1. NFPA all appliances shall be listed and labeled.
 - 2. UL and NEMA Provide electrical components that are listed and labeled by UL and and that comply with the applicable NEMA standards.
 - 3. NAECA: Comply with NAECA standards.
 - 5. WILLER. Comply with WILLER su
- D. Accessibility Requirements:

1. Controls shall be within the zone of accessible reach, and not require tight grasping, pinching or twisting of the wrist and that operate with a force of not more than 5 lb.

2. Cook Top shall not require reaching across burners.

1.04 RELATED WORK SPECIFIED ELSEWHERE

A. The following related work or materials shall be provided under the designated Sections and coordinated by the Contractor:

- 1. Electrical power by Div 26.
- 2. Cabinets and countertops, Section 12 35 30
- B. Coordinate appliance sizes with Section 12 35 30, Cabinets, for layout. Note that critical accessibility dimensions are affected by appliance size.
- 1.05 ALTERNATES (not applicable)
- 1.06 SUBMITTALS
- A. Attention is directed to Section 01 30 00 regarding required procedures for Submittals.
- B. Submittals are required for the following: (SD = Shop Drawing) (FS = Field Sample) (OS = Samples) (PD = Printed Data)

Residential Equipment SD, PD

1.07 DELIVERY AND STORAGE

A. Package separately labeled as to item enclosed. Include all necessary items for installation, including instructions.

PART 2 - PRODUCTS AND MATERIALS

- 2.01 PRODUCTS
 - A. General:
 - 1. For purposes of designating types sizes and quality of Work, Specifications are based on products of GE
 - 2. Products of other manufacturers shall fully match type, size, accessibility features and quality of product specified.

3. Alternate Acceptable Manufacturers: Whirlpool, Kitchenaid, Frigidaire

B. All appliances shall have Energy Star compliance except undercounter refrigerator,

2.02 REFRIGERATORS / FREEZERS – For reference only – NOT IN CONTRACT

A. Freezer shall be Frigidaire Model "Gallery" 19 CF, FGFU19F6QF. With ice maker.

H: 71-3/8" W:32" D: 26-1/2" (28-1/4 with handles)

B. Refrigerator shall be Frigidaire Model FGRU19F6QF – 19 CF H: 71-3/8" W:32" D: 26-1/2"

C. Under Counter refrigerator shall be: 4.5 CF Under counter, Frigidaire Model FFPE4522QM - Size to fit under 36" counter.

W: 21-1/4" H: 33-7/8" D: 23"

2.03 MICROWAVE / HOOD COMBO

A. Over the range Microwave shall be Frigidaire Model FPBM307NTF with 36" Filler Panel Kit (stainless steel) Item # MWFILKTSS

W: 29-7/8" H: 17-9/16" D: 16-1/16"

2.04 COOK TOP

B. CookTop Two Burner – Black GE #JP201CBSS W: 21-1/4" H: 3" D: 16-15/8"

PART 3 - EXECUTION

3.01 PREPARATION

- A. Inspect adjoining surface and insure that all work has been completed before placement of equipment.
- B. Insure that rough-in work meets requirements identified as part of shop drawings.

3.02 INSTALLATION

- A. Comply with manufacturer's instructions and recommendations.
- B. Coordinate final hook up to electrical and mechanical fittings and equipment.
- C. Install all cook-tops so as to preclude contact with hot surfaces in any open knee space below the cook-tops.

3.03 FIELD QUALITY CONTROL

- A. Test all equipment in presence of Owner's Representative before final acceptance to demonstrate proper operation of equipment.
- B. Replace or repair any malfunctioning or damaged equipment.

3.04 ADJUSTING AND CLEANING

A. Clean all surfaces at time of installation and before final acceptance by Owner.

End of Section 11 45 00

SECTION 12 20 00

WINDOW TREATMENTS

PART 1 - GENERAL

1.01 GENERAL

A. Attention is directed to general provisions of the CONTRACT, including GENERAL and SUPPLEMENTARY CONDITIONS, and all sections within DIVISION 01 - GENERAL REQUIREMENTS, which are hereby made a part of this Section of the Specifications as if fully repeated herein.

B. Coordinate work with that of all other trades affecting, or affected by the work of this Section. Cooperate with such trades to assure the steady progress of all work under the Contract.

- 1.02 FILING OF SUB-BIDS (Not Applicable)
- 1.03 SCOPE OF WORK
- A. Section Includes:
 - 1. Furnish and install Horizontal Louver Blinds at all windows in Meeting Room and Nurse Room.
 - 2. Field Measurements.
 - 3. All mounting hardware.

1.04 RELATED WORK SPECIFIED ELSEWHERE

A. The following related work or materials shall be provided under the designated Sections and coordinated by the Contractor:

- 1. Section 08 52 13, Windows
- 1.05 ALTERNATES (not applicable)
- 1.06 SUBMITTALS
- A. Attention is directed to Section 01 30 00 regarding procedures for submittals.
- B. Submittals are required for the following: (SD = Shop Drawing) (FS = Field Sample)

(OS	= Samples)	
(PD	= Printed Data)	
1.	Blinds:	OS, PD, FS, SD
2.	Mounting Hardware:	OS, PD

- C. Shop drawings shall show mounting approach.
- D. Install field sample for review of each type of blind.

1.07 QUALITY ASSURANCE

- A. Install mock-up at sample window installation.
 - 1. Adjust, remove or re-install as required to obtain architect's approval.
 - 2. Approved sample shall remain as standard for installation of entire project.

PART 2 - PRODUCTS AND MATERIALS

2.01 ACCEPTABLE MANUFACTURERS

A. Subject to compliance with requirements, provide products from one of the following manufacturers.

- 1. Levelor Contract
- 2. Hunter Douglas Window Fashions
- 3. Bali

2.02 Louver Blinds

A. Horizontal Products shall be based on Levelor "Riviera" contract model

- 1. Slats:
 - a. $\frac{1}{2}$ " aluminum
 - b. Standard color range
- 2. Head:
 - a. Painted galvanized steel.
- 3. Brackets:
 - a. Painted galvanized steel
- 4. Fasteners shall be 18-8 stainless steel.

PART 3 - EXECUTION

3.01 INSPECTION / JOB CONDITIONS

- A. Existing Openings
 - 1. Verify dimensions. Request correction of all conditions that will compromise proper operation of shades.

3.02 INSTALLATION

A. General

- 1. Install equipment to manufacturer's instructions, after painting of area by Section 09 90 00.
- 2. Demonstrate operation of louvers to be smooth and faultless.
- 3. Clean all materials after installation.
- 4. Remove all related debris from site.

End of Section 12 20 00

SECTION 12 33 30

CASEWORK AND COUNTERTOPS

PART 1 - GENERAL

1.01 GENERAL

A. Attention is directed to general provisions of the CONTRACT, including
GENERAL and SUPPLEMENTARY CONDITIONS, and all sections within DIVISION
1 - GENERAL REQUIREMENTS, which are hereby made a part of this Section of the
Specifications as if fully repeated herein.

B. Coordinate work with that of all other trades affecting, or affected by the work of this Section. Cooperate with such trades to assure the steady progress of all work under the Contract.

- 1.02 FILING OF SUB-BIDS (not applicable)
- 1.03 SCOPE OF WORK

A. Field measurement, fabrication, delivery to site and installation of kitchen, cabinets and countetops; Bathroom countertops and splash. In the event of need of non-standard cabinet sizes, cabinet manufacturer will supply custom sizes.

- 1. Includes P.LAM countertops at restroom lav counters and kitchen countertops.
- B. Kitchen design intent is for contrasting finish at base and wall cabinets.
- 1.04 RELATED WORK SPECIFIED ELSEWHERE

A. The following related work or materials shall be provided under the designated Sections and coordinated by the Contractor:

- 1. Plumbing, DIV 22
 - a. Including installation of restroom Lavs and kitchen sinks
- 2. Electrical, DIV 26
- 3. Appliances, Section 11 45 00
- B. Coordination is required with the installation of new appliances.

1.05 ALTERNATES (not applicable)

1.06 SUBMITTALS

A. Attention is directed to Section 01 30 00 regarding required procedures for Submittals.

B. Submittals are required for the following:

(SD = Shop Drawing) (FS = Field Sample) (OS = Samples)

(PD = Printed Data)	
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Layout	SD
Cabinets	PD, OS
Countertops	PD, OS

- 1. Product Data: Submit manufacturer's technical product data and installation instructions indicating materials, hardware, and finishes used in fabrication of kitchen cabinets.
- 2. Shop Drawings:
 - a. Submit shop drawings showing location and size of each type of cabinet and countertops, accessories, materials, finishes, hardware types and locations, fillers.
 - b. Include fully dimensioned plans and elevations and indicate details of anchorage to countertop and to walls.

3. Samples:

- a. Submit fully finished samples of following items required for kitchen cabinets:
- b. Solid Wood with Transparent Finish: 3 finished samples, 3/4 in. x 6 in. x 18 in., for each species.
- c. Veneered Plywood with Transparent Finish: 3 finished samples, 12 in. sq. square, for each species and cut.
- d. Plywood or Particleboard with laminated vinyl and melanine: 3 finished samples, 12 in. sq., for each type of finish and color.
- f. Hardware, including drawer and tray slides: One unit of each type and finish.
- g. Countertop color samples, and construction types.

1.07 QUALITY ASSURANCE

A. Cabinets shall be by a manufacturer of pre-manufactured cabinets that is a member of the Kitchen Cabinet Manufacturer's Association, certified to meet or exceed standards outlined in ANSI/KCMA A161.1 – 1995. Millwork shops that are certified members of the AWI are also eligible.

1.08 REFERENCE STANDARDS

A. Definitions:

- 1. Exposed Portions of Cabinets:
 - a. Include all surfaces including edges visible when doors and drawers are closed, including bottoms of wall cabinets.
 - b. Include visible surfaces and visible edges of shelves in open cabinets or behind glass doors and underside of bottoms of cabinets over 48 in. A.F.F.
 - c. Provide finished ends at end of cabinet facing refrigerator and range.
- 2. Semi-Exposed Portions:
 - a. Include surfaces behind opaque doors and drawer fronts including shelves, dividers, interior faces of cabinet ends, backs, tops and bottoms, drawer sides, backs and bottoms, and back face of doors.
- 3. Concealed Portions of Cabinets:
 - a. Include sleepers, web frames, dust panels and other surfaces not normally visible after installation.
 - b. Include underside of bottoms of cabinets max. 2 ft.0 in. above floor.

1.09 DELIVERY AND STORAGE

A. Protect wood cabinets and countertops during transit, delivery, storage and handling to prevent damage, soiling and deterioration.

- B. Handling:
 - 1. Do not deliver wood cabinets and countertops until painting, wet work, grinding and similar operations, which could be performed before installation of kitchen cabinets, have been completed in installation areas.
 - 2. Store kitchen cabinets and countertop in installation areas or, if impracticable, in areas with similar ambient conditions.

1.10 JOB CONDITIONS

A. Environmental Requirements:

- 1. Conditioning:
 - a. Comply with cabinet manufacturer's recommendations for temperature and humidity requirements in cabinet installation areas.
 - b. Do not install cabinets and countertops until required temperature and relative humidity have been stabilized and will be maintained in installation areas.
- 2. Maintain temperature and humidity in installation areas as required to maintain moisture content of installed cabinet work tolerance range of optimum moisture content acceptable to cabinet manufacturer, from date of installation through remainder of construction period.

1.11 ENVIRONMENTAL SAFETY

- A. Conform to HUD rules and ASTM E 1330-90 requirements regarding formaldehyde emission levels in residential applications.
- B. Conform to ANSI E 162.90 (Fire Resitance) requirements.

PART 2 - PRODUCTS AND MATERIALS

2.01 MATERIALS

- A. Countertop Substrate
 - 2. Substrate at P. Lam countertop shall be exterior grade (Marine) plywood.

C. Hardwood Plywood: PS 51, Grade 1 or better, of thickness, species, cut, and core construction indicated. All plywood shall be exterior grade.

D. Hardwood Lumber: Clear, dry, sound, and free of defects selected from First Grade lumber (NHLA), of species indicated.

- E. Hardboard: ANSI A135.4, Class 1, tempered.
- F. Particle Board: ANSI A208.2, industrial grade, of thickness and density indicated.
- G. Plastic Laminate:
 - 1. NEMA LD3, of thickness, type and grade designation indicated.
 - 2. Color, Pattern, and Finish: As selected from manufacturer's standard selections. Four laminate colors will be used in the project.

Residential Casework – Section 12 35 30

2.02 CABINETS ABD COUNTERTOPS

- A. Wood Kitchen Cabinets:
 - 1. Cabinets shall be "Extreme Series" by Advanta. Trevant Style door cabinetry, recessed shaker style panel. Wood finish at base, enamel painted at wall cabinets.
 - a. Provide PT toe board.
 - b. Provide "Soft Close: drawer and cabinet door hinges.
 - 2. Semi-Exposed Materials:
 - a. Solid Lumber: Dry, sound, selected to eliminate appearance defects, of any species of hardwood or softwood with color and grade to match.
- B. Cabinet Hardware:
 - 1. Kitchen:
 - a. Advanta "Contemporary"style, Satin Nickel, 1x6SN style Bar Pulls – 178SN Drawer Bar Pulla – 242SN ashingt door
 - Bar Pulls 242SN cabinet door
- C. Countertop Brackets
 - 1. Floating Surface Adjustable Bracket, by Steel Design Solutions.
 - a. Alternate CFLAT18 (2.0), by CounterBalance.

2.03 FABRICATION

- A. General:
 - 1. At accessible (Group 2A) units, provide pull out shelves at base cabinets.
- B. Shop Cut Openings:
 - 1. Use templates supplied by DIV 22.
 - 2. Smooth edges of cutouts and seal edges with water resistant coating suitable for exterior applications.
- D. Countertops and back splash High Density Plastic Laminate:
 - 1. Exposed Surfacing Material: High pressure plastic laminate, 0.050 in. thick, General Purpose Type GP50 on exposed face and all exposed edges.
 - 2. Substrate for Exposed Surfacing Material: Marine Plywood or high density particle board (exterior rated.).
 - Countertop Configuration: Square front edge and splash. Rounded outside Corners at eating tables – 2" radius

- 4. Countertop Thickness: Min. 1-1/2 in. front edge, unless otherwise indicated, with substrate min. 3/4 in. thick.
- 5. Laminate shall cover underside of all overhangs within 24" of sink or DW.

PART 3 - EXECUTION

3.01 INSTALLATION

A. General:

- 1. Install cabinets plumb, level, true and straight with no distortions.
- 2. Shim as required using concealed shims.
- 3. Where wood kitchen cabinets abut other work, scribe and cut for accurate fit.
- 4. Provide filler strips, scribe strips and moldings as indicated or required, and in finish to match cabinet face.
- 5. Fasten cabinets together with screws into predrilled pilot holes.
- 6. Drill holes for pipes and wires as small and tight as possible, and seal with plywood escutcheons and sealant.
- B. Attaching:
 - 1. Anchor cabinets securely in place with concealed fasteners.
 - 2. Anchor into structural support members of wall construction.
 - 3. Comply with manufacturer's instructions for support of units.
 - 4. Install Countertop overhang brackets 3" from end of overhang, and then 16" o.c.
- C. Countertops:
 - 1. Attach securely to base units.
 - 2. Fabricate joints and supports as per manufacturer's recommendations.
 - 3. Provide cutouts for fixtures and appliances as indicated.
 - 5. Ease all edges.
 - 6. Attach backsplash to countertop, as recommended by manufacturer in recessed joint; seal with sealant.
 - 7. Use silicone sanitary sealant to seal all joints and items set in countertop.
 - 8. Comply with manufacturer's recommendations.

D. Complete hardware installation and adjust doors and drawers for proper operation.

3.02 FIELD QUALITY CONTROL

A. Tolerances:

- 1. Plumb and Level: 1/8 in. in 8 ft.
- 2. Offset in Surface Alignment: Max. 1/16 in.
- 3. Offset in Revealed Adjoining Surfaces: Max. 1/8 in.
- 4. Joint at Backsplash and Wall: Max. 1/16 in.

3.03 CLEANING AND PROTECTION:

A. Cleaning:

- 1. Repair or remove and replace defective work as directed upon completion of installation.
- 2. Clean exposed and semiexposed surfaces, touch up finish as required.
- 3. Remove and refinish damage or soiled areas.

B. Protection:

- 1. Advise Contractor of final protection and maintained conditions necessary to ensure that work will be without damage or deterioration at time of acceptance.
- 2. Cover completed work with 4 mil polyethylene protective enclosure.
- 3. Applied in manner to allow easy removal without damaging cabinets or adjoining work.
- 4. Remove cover immediately before time of final acceptance.

END OF SECTION 12 35 30

SECTION 220001

PLUMBING

PART 1 – GENERAL

1.01 DESCRIPTION OF WORK

A Mechanical, civil, electrical and all other drawings as well as the specifications are a part of the contract documents. Drawings and specifications are to be considered as supplementing each other. Work specified but not shown, or shown but not specified, shall be performed or provided as though mentioned in both specifications and drawings.

Work Included: Provide labor, materials and equipment necessary to complete the work of this Section, including but not limited to the following:

- 1. Domestic cold water system connecting to each and every fixture and piece of equipment requiring domestic cold water in each unit.
- 2. Domestic hot water connecting to each and every fixture and piece of equipment requiring domestic hot water in each unit.
- 3. Plumbing Fixtures and Accessories.
- 4. Sanitary waste and vent system to each and every fixture and piece of equipment requiring sanitary drainage
- 5. Pressure Reducing Valve, Backflow preventer, Water meter.
- 6. Valves.
- 7. Floor drains.
- 8. Insulation.
- 9. Hangers, supports and attachments.
- 10. Cleaning and Disinfection of water piping. (total 18 tests)
- 11. Fire Stopping for plumbing pipe penetration in fire rated construction.
- 12. Coordination drawings and record drawings and similar requirements.
- 1.02 QUALITY ASSURANCE
 - A. Comply with rules, regulations of state, county, and city authorities having jurisdiction over the premises, including safety requirements of OSHA.
- 1.03 REFERENCES
 - A. Comply with applicable provisions of latest editions of following national standards: State Plumbing and Sanitary Code 248 CMR; NFPA; pressure piping and mechanical refrigeration systems and equipment; ASTM; American Welding Society Code; national pressure vessel code; national electric code; NFPA life safety code and standards.
- 1.04 SUBMITTALS
 - A. Prepare 5 copies of shop drawings and product data for equipment with adequate details and scales as necessary to clearly show construction.

1.05 LOCAL CONDITIONS

A. Visit site, become familiar with conditions affecting this work. No additional payment will be made on claims that arise from lack of knowledge of existing conditions.

PLUMBING

1.06 GUARANTEE AND WARRANTIES

- B. Warrant that equipment and all work is installed in accordance with good engineering practice and that all equipment will meet requirements specified. Any equipment failing to perform or function as specified shall be replaced with complying equipment, without cost to the owner.
- C. Guarantee against defects in workmanship and materials; make good, repair or replace any defective work, material or equipment within one year from date of acceptance.

PART 2 - PRODUCTS

2.00 <u>PIPE, FITTINGS AND JOINTS</u>

- A. General
 - 1. Pipe and fittings shall conform to the latest ANSI, ASTM, NFPA and AWWA Standards including latest amendments.
 - 2. Each length of pipe, each pipe fitting, trap, material and/or device used in the respective system shall have cast, stamped or indelibly marked on it, the maker's name or mark, weight and quality of the product when such marking is required by the approved standard that applies.
 - 3. Piping and fittings shall be factory coated.

2.01 PIPING, FITTING AND JOINTS

- A. Sanitary Drainage Piping Above Floor (Soil, Waste and Vent)
 - 1. Piping 2" and larger shall be no-hub service weight cast iron soil pipe except at urinals and cleanouts and joints just prior to exiting the building which shall be service weight hub and spigot with lead and oakum joints. The pipe shall be legibly marked on the barrel with the manufacturer's name and/or trademark.
 - 2. All cast iron soil pipe and fittings shall conform to the requirements of CISPI Standard 301, ASTM A 888 or ASTM A 74 for all pipe and fittings.Pipe and fittings shall be marked with the collective trademark of the CastIron Soil Pipe Institute or receive prior approval of the engineer. Latest issue of each standard shall apply.
 - 3. Sanitary piping 2" and smaller shall be type "L" copper.
 - 4. Couplings for joining no-hub cast iron soil pipe: Couplings shall have a shield constructed of corrugated 304 stainless steel and provide a shield thickness of 0.16 inches or greater. Shield shall be a minimum width of 3 inches for pipe sizes 1-1/2 inch through 4 inch, and a minimum width of 4 inches for pipe sizes 5 inch through 10 inches. Couplings with at least 4 sealing bands shall require 80 inch pounds of torque per band. Tightening screws shall be 3/8 inch hexagon head. Couplings with only 2 sealing bands on sizes 1-1/2 inch through 4 inches shall require 125 inch pound of torque per band. Gaskets shall be neoprene rubber conforming to ASTM C-564.

PLUMBING

- 5. Joints in copper tubing except as otherwise specified herein shall be made according to manufacturer's specifications using sweat fitting and lead free solder and non-corrosive flux.
- 6. Connections between earthenware of any fixture and flanges in soil and waste piping shall be made absolutely gas and watertight with closet setting compounds and gaskets which must be absolutely gas and fireproof, watertight, stain proof, containing neither oil nor asphaltum and which will not rot, harden or dry under any extreme climatic change, and must adhere on wet surfaces.
- B. Sanitary Drainage Piping Below Floor (Soil, Waste, Vent)
 - 1. Piping below floor shall be service weight cast iron hub and spigot.
 - 2. Joints in cast iron soil piping below ground shall be code approved compression type, made with rubber gaskets conforming to ASTM Specification C564. Joints in cast iron soil pipe and fittings using a double seal, compression type molded neoprene gasket shall be provided with a modified hub as required to provide a positive seal. No-hub pipe will not be allowed below ground. (Adhesive type lubricant shall be used with the resilient gaskets on pipes 5" and larger).
- C. Water Piping (For Domestic Cold and Hot water)
 - 1. Buried Water Piping
 - a. Under-building-slab and exterior buried piping shall be copper tube, Type K with wrought-copper solder-joint fittings; and brazed joints.
 - 2. Above Ground
 - a. 2-1/2 inches and smaller shall be hard drawn Type L copper with wrought or cast copper fittings.
 - b. Joints in copper tubing except as otherwise specified herein shall be made according to manufacturer's specifications using sweat fitting and <u>lead free</u> solder and non-corrosive flux.
 - c. Provide galvanized malleable iron unions, with bronze facings conforming to ANSI B16.39 for sizes 2 inch and smaller.
 - d. Provide copper flanges conforming to ANSI B16.5, standard or welding neck pattern.

2.02 VALVES AND SUNDRIES

- A. General
 - 1. Manufacturer: Subject to compliance with requirements, provide products from one of the manufacturers listed. Upnor, Nibco, Watts, Apollo or approved equal.

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- B. Valves in the interior domestic water piping systems (cold water, hot water) system:
 - a. Ball Valves, 1 Inch and Smaller: Rated for 400 psi WOG pressure; two piece construction; with bronze body conforming to ASTM B 62, standard (or regular(port, chrome-plated brass ball, replaceable "Teflon" or "TFE" seats and seals, blowout-proof stem, and vinyl covered steel handle. Provide solder ends for domestic hot and cold water service.

C. Sundries

- 1. Acceptable Manufacturers: Chicago Faucet, Watts, T & S Brass and Bronze Works, Inc., Speakman Co., Josam Manufacturing, Jay R. Smith, Precision Plumbing Products or approved equal.
- 2. Vacuum breakers shall be full size of line feed. All hose bibbs shall be supplied with vacuum breakers attached to hose thread portion of hose bibb unless they are integral to fixture.
- 3. Hose bibbs shall be Frost Proof Wall Recessed Hydrants equal to watts HY 725
- 4. Combined Pressure Temperature Relief Valves: Bronze body, test lever, thermostat, complying with ANSI Z21.22 listing requirements for temperature discharge capacity. Provide temperature relief at 210 deg F, and pressure relief at 150 psi.
- 5. Pressure Regulating Valves: Single seated, direct operated type; having bronze body with integral strainer, and complying with requirements of ASSE Standard 1003. Select proper size for maximum flow rate and inlet and outlet pressures indicated.
- 6. Relief Valves: Provide proper size for relief valve, in accordance with ASME Boiler and Pressure Vessel Codes, for indicated capacity of the appliance for which installed.

2.03 BACKFLOW PREVENTION DEVICES

- A. Acceptable Manufacturers
 - 1. All units shall be lead free and shall meet the approval of all Local and State Authorities and be approved by the Department of Environmental Protection. Provide product of Watts, Ames Co, or Febco Regulator.

2.04 FLOOR DRAINS

- A. General
 - 1. Floor shall be Jay R. Smith, Josam, MIFAB, or approved equal. Manufacturer's catalog numbers specified herein for drains are intended only as a guide for the type and quality to be furnished under this Section of the Specifications.
 - a. Floor Drain (FD1- Finished Areas) shall be equal to Jay R. Smith Figure #2005-A-P.

2.05 HANGERS AND ACCESSORIES

- A. General
 - 1. Provide pipe stands, supports, hangers and other supporting appliances as necessary to support work required by Contract Documents.

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2. Manufacturers: Subject to compliance with requirements, provide hangers and supports of Carpenter and Patterson, Inc, ITT Grinnel Corp., Elecen Metal Products or approved equal.

2.06 <u>PIPE COVERING (INSULATION)</u>

- A. General
 - 1. The pipe covering specified herein for piping system shall be provided to strict accordance with the manufacturer's printed instructions, the best practice of the trade and to the full intent of this Specification. Provide products of Johns Manville "<u>Micro-Lok HP</u>", Knauf Fiber-Glass, Owens Corning or approved equal.
 - 2. Flame/Smoke Ratings: Provide complete fibrous glass pipe insulation (insulation, jackets, coverings, sealers, mastics and adhesives) with flame spread index of 25 or less, and smoke developed index of 50 or less, as tested by ASTM E 84 (NFPA 255) method.
 - 3. Manufacturer: Subject to compliance with requirements, Insulation and vapor barrier on piping which passes through walls or partitions shall pass continuously through sleeve, except that piping between floors and through fire walls or smoke partitions shall have space allowed for application of approved packing between sleeves and ping, to provide fire stop as required by NFPA. Seal ends to provide continuous vapor barrier where insulation is interrupted.
- B. Interior Cold, and Hot Water Recirculation pipe insulation:
 - 1. 1" insulation for all pipe sizes.
 - a. ASTM E-547, Class I
 - 2. Fire retardant foil face jackets for ping insulation: ASTM C-921, Type I for piping with temperatures below ambient, Type II for piping with temperatures above ambient. Type I may be used for all piping at installation option.
 - 3. Encase piping fittings insulation with one piece premolded PVC fitting covers, fastened as per manufacturer's recommendations.
 - 4. Encase exterior piping insulation with aluminum jacket with weatherproof construction.
 - 5. Staples, Bands, Wires, and Cement: As recommended by insulation manufacturer for applications indicated.

2.07 <u>CLEANOUTS</u>

- A. Cleanouts shall be Jay R. Smith, Josam, MIFAB or approved equal.
- B. Floor cleanouts shall be as follows:
 - 1. General purpose flush finished floor cleanout with adjustable top shall be equal to Jay R. Smith Series 4026.

2.08 PLUMBING FIXTURES

A. Fixtures and Trim

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- 1. Acceptable Manufacturers: Submit manufacturers not listed below for review and approval as specified for substitutions in this Section.
 - a. Vitreous China: Eljer, American Standard, Crane, Kohler or equal.
 - b. Faucets: Chicago Faucet Co., Kohler or T & S Brass or equal.
 - c. Stainless Steel Sinks: Elkay, Just Manufacturing, Metcraft Inc or equal.
 - d. Mop Service Basins: Crane, Fiat, Stern Williams or equal.
 - e. Carriers and Supports: Jay R. Smith, Wade, or equal.
 - f. Thermostatic Mixing Valves: Leonard Valve Co., Powers Process Controls, Symmons or equal.
 - g. Pressure Regulating Mixing Valves: Lawler Manufacturing, Leonard Valve Co Symmons or equal.
 - h. Stops and Supplies: Chicago Faucet Co., Kohler or McGuire.
 - i. P-Traps: McGuire, Sanitary-Dash, or Jameco.
- 2. Fixture Trim and Accessories: Provide fixtures complete with floor mounted fixture carrier supports; faucets, flushometers; drain outlets, tailpieces, P-traps and stops and supplies.
 - a. Drain Outlets:
 - 1) Provide 1-1/4 inch tailpiece on lavatories.
 - 2) Provide 1-1/2 inch tailpiece on sinks.
 - 3) Provide offset drain outlets on handicapped use lavatories and sinks.
- 3. P-Traps: Cast brass adjustable P-trap with cleanout plug, ground joint and 17 gage minimum weight extension with escutcheon.
 - a. Provide McGuire No. 8090 1-1/4 inch by 1-1/2 inch on lavatories.
 - b. Provide McGuire No. 8089 1-1/2 inch by 1-1/2 inch on sinks.
- 4. Stops and Supplies: Provide stops and supplies of the same manufacturer as the fixture or faucet trim, or provide McGuire Model 170-LK loose key angle stop with 5 inch long 2 inch nominal copper sweat extension, bell escutcheon, and 3/8 inch O.D. by 12 inch flexible riser.
- B. Fixture Description
 - <u>P-1</u> Water Closet : The water closet shall be Vitreous china, floor mounted elongated front bowl, Two piece design with high profile tank with chrome trip lever, Dual Flush 1.28GPF / .9GPF. Toilet shall be equal to TOTO Motel CST494CEMFG. Provide open front with cover, elongated, injection molded solid plastic soft close toilet seat. Coordinate Rough in dimension in field.
 - 2. <u>P-2 Oval Lavatory</u>

The orbital design undermount equal to TOTO Dartmouth LT641. The bowl shall be ADA compliant with 4" center faucet hole. Faucet shall be Delta Model 525LF-MPU single handle deck faucet. Provide chrome plated grid strainer w/ $1 \frac{1}{4}$ outlet tube & flexible braided stainless steel hose connector.

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- 3. <u>P-3 Urinal</u>: Wall hung, 0.5 gpf vitreous china urinal with concealed integral trap, Top spud. Urinal equal to TOTO UT447E, Flush valve shall be self-powered hydroelectric, sensor activated, 0.5 gpf flush valve with over button. Equal to TOTO TEU1LA#CP. 3/4" I.P.S top spud inlet, Stainless Steel Urinal Drain Cover
- 4. <u>P-4 Sink:</u>

Stainless Steel Sink: Elkay Manufacturing Co. Model GECR221814, 22" x18" x 8.5" deep, top mounted, 20 gauge, type 304 18-8 stainless steel. Interior and top surfaces polished to polished finish, sound deadened with self-rimming feature. The sink drain shall be seamlessly welded for staimless steel collar and supplied with Rinsing basket LKRB1520 and LKERBSS. Provide sink faucet with soap dispenser. The faucet shall be high neck with pull out spray head equal to Delta Model 400-DST-L Coordinate sink holes with faucet and dispenser.

5. <u>P-5</u> Floor Service Sink: Mop Receptor Fiat precast terrazzo mop basin, 24" x 24" x 12" with 6" drop front, stainless steel threshold, flange on wall sides. Fiat Model TSB-3010. Chicago 897 wall mounted service sink faucet w/ vacuum breaker spout. Wall hook, 24" long mop hanger with 3 spring clips. Provide 6' stainless steel braded water supply hose with pressure bleeder device and duel wanted check value (ASSE1055P approved) for secondary heals flow preventer to be a secondary healy flow preventer to be a secondary healy flow preventer to be

dual vented check valve (ASSE1055B approved) for secondary back flow preventer to soap dispenser connection. Installation shall be as per the plumbing code requirement. Provide check valve in hot and cold water pipe near connection point.

6. <u>P-6 Sink:</u>

Stainless Steel Sink: Elkay Manufacturing Co. Model GECR25214, 25" x 21" x 5" deep, top mounted, 20 gauge, type 304 18-8 stainless steel. Interior and top surfaces polished to polished finish, sound deadened with self-rimming feature. The sink drain shall be seamlessly welded for staimless steel collar. Provide sink faucet two handle prep faucet 2171LF-WBHHDF

7. <u>P-6A Sink:</u>

Stainless Steel Sink: Elkay Manufacturing Co. Model GECR181614, 18" x 16" x 5" deep, top mounted, 20 gauge, type 304 18-8 stainless steel. Interior and top surfaces polished to polished finish, sound deadened with self-rimming feature. The sink drain shall be seamlessly welded for staimless steel collar. Provide sink faucet with soap dispenser. The faucet shall be two handle equal to Delta Model B28910LF.

8. <u>P-7 Water Cooler and Bottle Filler:</u> Barrier-free, wall mounted drinking water fountain with bottle filling station. The water station shall be equal to Halsey Taylor model HTHBWF-OVLEBP-I, with face mounted fountains and bottle filling station. The Drinking Fountain shall be 14 gauge type 304 high polished stainless steel finish. The fountain shall be 100% lead free waterways, push button operated stainless steel valves with front accessible cartridge and flow adjustment, polished chrome-plated brass vandal resistant bubbler heads with integral laminar anti-squirt flow, chrome plated brass vandal resistant waste strainers, vandal resistant bottom plates, high polished stainless steel finish back and access panels allowing for front access of P-trap and stop, in-wall mounting frame, high and low fountain mounting levels, and 1.25" O.D waste

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pipes. The water fountain shall be U.L listed and be certified to lead free compliance including NSF/ ANSI 61. Provide drain with 1 1/2 P-trap and mounting bracket. The bottle filling station shall be sensor activate, quick fill rate at 1.1 gpm and shall provide laminar flow for clean fill and minimal splash. The key plastic components shall be integrated with silver ion anti-microbial protection from mold and mildew growth. Refer to architectural drawings for mounting heights.

2.09 TRAP PRIMERS

- A. General
 - 1. The trap primer shall be as manufactured by Precision Plumbing Products, Inc., Jay R. Smith, MIFAB or approved equal.
- B. Furnish and install trap primer units to serve one or two drains. Provide trap primers to all floor drains as required by 248 CMR Plumbing code.

2.10 VALVE TAGS

A. Valve tags on plumbing systems may be engraved laminated plastic tags color-coded to match the pipe identification marks.

2.11 PIPING IDENTIFICATION

- A. Provide matching flow arrows to indicate direction of flow. Markers shall be equal to Seton Setmark.
 - 1. Color coding and size of legend letters shall comply with the standards of ANSI A13.1.

2.12 ELECTRIC WATER HEATER (EWH-1) :

- A. Water Heaters shall be as indicated on the drawing. The water heater shall comply with IECC 2012 for energy factor requirement.
- B. Water heater shall have UL seal of certification and be factory equipped with AGA/ASME rated temperature and pressure relief valve.
- C. Tank shall have double coating of high temperature porcelain enamel and furnished with magnesium anode rods rigidly supported. Water heater shall meet or exceed the standby loss requirements of ASHRAE.
- D.
- E Water heater shall be provided with internal power circuit fusing, control circuit fusing, magnetic c ontactors, 240 volt single phase, control circuit transformer and surface mounted thermostat with manual reset high limit control. 1.5" inlet and outlet connections will be provided.
 Water heater shall be covered by three year limited warranty against tank leaks.
- F Manufacturers to be Rheem-Ruud, A.O Smith, State or equal

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3.01 DISINFECTION, CLEANING AND ADJUSTING

A. Disinfection

- 1. Each potable water system (cold and hot water) shall be cleaned and disinfected by this Contractor. Cleaning and disinfection shall be performed after all pipes, valves, fixtures and other components of the systems are installed, tested and ready for operation.
- 2. All hot and cold water piping shall be thoroughly flushed with clean potable water, prior to disinfection, to remove dirt and other contaminants. Screens of faucets shall be removed before flushing and re-installed after completion of disinfection.
- 3. Provide chlorination total tests on six location and 3 test each. (total 18 tests)
- B. Cleaning and Adjusting
 - 1. At the completion of the work, all parts of the installation shall be thoroughly cleaned. All equipment, pipe, valves and fittings shall be cleaned of grease, metal cuttings and sludge which may have accumulated by operation of the system for testing.

3.02 <u>SYSTEMS</u>

- A. Sanitary Waste and Storm Drainage System
 - 1. The Plumbing subcontractor shall be responsible for checking each pipe for alignment, center line elevation and invert grade for underground installations.
 - 2. The sanitary (soil, waste and vent), storm drainage piping three inches and smaller in diameter shall pitch a minimum of 1/4 inch per foot. Piping four inches and larger in diameter shall pitch a minimum of 1/8 inch per foot.
 - 3. The soil, waste and vent stacks shall be connected as shown and extended through the roof a minimum of 18 inches.
 - 4. Every fixture shall be separately trapped and the traps must be vented unless an approved battery vented system is being installed. Floor drains shall be considered as a fixture.
 - 5. Cleanouts shall be provided in drainage piping at changes in directions, at foot of stacks or other required points accessible for cleaning or rodding out.
- B. Cold and Hot Water Piping
 - 1. Vacuum breakers shall be installed on supplies to each piece of equipment to prevent back-siphonage.
 - 2. Provide shock absorbers at special equipment, tops of the risers, at each individual or each group of fixtures.

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3. Water piping shall be run parallel and graded evenly to the drainage points. There shall be a 2 inch drain valve provided for each low point in the piping so that all parts of each water system can be drawn off.

3.03 <u>GENERAL INSTALLATION REQUIREMENTS</u>

- A. Pipe Covering Installation
 - 1. Before pipe covering is applied, all pressure tests shall have been performed and approved by the Local Plumbing Inspector.
 - 2. Pipe covering shall be applied over clean, dry surfaces.
 - 3. Pipe covering shall be continuous and shall be carefully fitted with side and end joints butted firmly and tightly together and finished as specified herein.
- B. Installation of Sleeves, Inserts and Escutcheons
 - 1. Escutcheons shall be installed around all exposed insulated or bare pipe, except water closet starts or bends passing through a finished floor, wall or ceiling. Escutcheons shall fit snugly around the bare pipe or insulated pipe.
- C. Floor Drain Installation
 - 1. Install floor drains in accordance with manufacturers written instructions and in locations indicated.
- D. Installation of Plumbing Fixtures
 - 1. General:
 - a. Refer to Architectural Drawings for locations and mounting heights of all plumbing fixtures, counter-sinks, water fountains and showers.
 - b. Provide with all plumbing fixtures, all trim, supports, fittings, connections and all incidentals necessary to make a complete installation in accordance with plumbing codes, manufacturers instruction and the Contract Documents.
 - c. All visible hanger nuts and all escutcheons shall likewise be chrome-plated over nickel plate.

3.04 INSPECTION AND TESTS

- A. Storm and Sanitary Piping Systems:
 - a. Before the installation of fixtures, equipment and insulation, each system including vents shall have all necessary openings plugged to permit the entire system to be tested in accordance with the State Plumbing Code..
- B. Cold and Hot Water Piping System:
 - a. Upon completion of the roughing-in and before setting fixtures and final connections to all equipment, all water piping systems shall be tested to a hydrostatic pressure of 150 pounds per square inch.
 - b. Each systems test shall be maintained for eight hours without a drop in pressure. These tests to be witnessed by Local Plumbing Inspector and Project Manager.

3.05 <u>ELECTROLYSIS CONTROL</u>

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A. Connections between ferrous and copper piping shall be with dielectric fittings.

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SECTION 230001

HEATING, VENTILATING AND AIR CONDITIONING

PART 1 - GENERAL

1.01 <u>GENERAL PROVISIONS</u>

A Part A and Division 1 of Part B are hereby made a part of this Specification Section.

B GENERAL PROVISIONS

- 1 Part A and Division 1 of Part B are hereby made a part of this Specification Section.
- 2 Examine all Drawings and all Sections of the Specifications and requirements and provisions affecting the work of this Section.

1.02 <u>SCOPE OF WORK</u>

- A The work under this Section shall include the furnishing of all materials, labor, equipment and supplies and the performance of all operations to provide complete working systems, in general, to include the following items:
 - 1. Piping and Fittings (all types)
 - 2. Refrigerant Piping
 - 3. Condensate Piping
 - 4. Sleeves
 - 5. Refrigerant Valves and Accessories
 - 6. Indoor Evaporator Units
 - 7. Outdoor Condensing Unit
 - 8. Electric Finned Tube
 - 9. Ductwork
 - 10. Exhaust Fans
 - 11. Temperature Control Systems
 - 12. Fire stopping of penetrations made by/for this contractor.
 - 13. Furnish and maintain safe and adequate conditions, all staging and scaffolding that is required for the work of this section.
 - 14. Testing and balancing
- B Provide any other component or related system (whether or not listed) which is part of the overall design and basic equipment and deemed necessary for its completion, thoroughness and readiness for operation in perfect condition.
- C. The HVAC Subcontractor shall, at all times, have a foreman or superintendent on the project authorized to make decisions and receive instructions as if the HVAC Subcontractor himself were present. The foreman or superintendent shall not be removed or replaced without the express approval of the Architect-Engineer after construction work begins. The HVAC Subcontractor shall employ only competent and experienced workmen at a regular schedule in harmony with the other tradesmen on the job. The HVAC Subcontractor shall also exercise care and supervision of his employees in regard to proper and expeditious layout of his work.

1.03 <u>RELATED WORK</u>

- A. Examine all other sections of the Specifications and all drawings for the relationship of the work under this Section and the work of other trades. Cooperate with all trades and coordinate all work under this section therewith.
- B. The following related items are included under sections listed below:
 - 1. Concrete bases housekeeping pads and filling inertia pads for HVAC equipment. SECTION 03.30.00 CAST IN PLACE CONCRETE.
 - 2. Section 07 92 00- Joint Sealer.
 - 3. Except as specified herein, cutting shall be the responsibility of the General Contractor and patching shall be performed by the respective trades. Refer to the respective sections.
 - 4. In general, all wiring required for equipment provided by the HVAC Contractor that requires Automatic Controls and all interlock wiring for this HVAC equipment that is not shown or indicated on the Electrical Drawings of SECTION 260001 ELECTRICAL, shall be provided under SECTION 230001, HVAC.

1.04 PRODUCTS FURNISHED, BUT NOT INSTALLED UNDER THIS SECTION

A. Furnish pipe sleeves for placement into formwork by the General Contractor.

1.05 PRODUCTS INSTALLED, BUT NOT FURNISHED UNDER THIS SECTION

A. None

1.06 <u>REFERENCES</u>

- A. For products or workmanship specified by association, trade, or federal standards, comply with the requirements of the standard, except when more rigid requirements are herein specified or are required by applicable codes.
- 1.07 <u>DEFINITIONS</u>
 - A. As used in this Section, the following terms shall be understood to have the following meaning:
 - 1. Work: all labor, materials, equipment, apparatus, controls, accessories and all other items required for a proper and complete installation.
 - 2. "Furnish" shall mean purchase and deliver to the project site, complete with every necessary appearance and support.
 - 3. "Install" shall mean unload at the delivery point at the site and perform all work necessary to establish secure mounting, proper location and operation in the project.
 - 4. "Provide" shall mean furnish and install.
 - 5. "Coordinate" shall mean all work provided under this Section of the specification shall be in compliance with work of other trades.
 - 6. "ATC" shall mean Automatic Temperature Controls, and shall be interchangeable with HVAC Control Systems.

1.08 <u>CODES, ORDINANCES AND PERMITS</u>

- A. Unless otherwise specified or indicated, materials, workmanship and equipment performance shall conform with the latest governing edition of the following standards, codes, specifications, requirements, and regulations, but not limited to:
 - 1. All Applicable NFPA Standards
 - 2. State and Local Building Mechanical and Energy Codes
 - 3. Occupational Safety and Health Administration
- B. Any other local codes or authorities having jurisdiction including any other standards specifically indicated in other paragraphs of this specification.
- C. All equipment shall meet the more efficient requirement:
 - 1. As shown on bid documents, or
 - 2. Minimum efficiencies stated in the Massachusetts 780 CMR 13 energy code.
- D. This Contractor shall give all notices, file all plans, obtain all permits and licenses, and obtain all necessary approvals from authorities having jurisdiction. Deliver all certificates of inspection to the authorities having jurisdiction. No work shall be covered before examination and approval by Architect, inspectors, and authorities having jurisdiction.

1.09 <u>SUBMITTALS</u>

- A. Conform to the requirements of Section 013300-Submittals, for schedule and form of all submittals. Coordinate this submittal with submittals for all other finishes. Submit plans with location of pipe penetration in structural slabs.
- B. Product Data: Submit complete manufacturer's product description and technical information including:
 - 1. Piping and Fittings (all types)
 - a. Refrigerant Piping
 - b. Condensate Piping
 - 2. Refrigerant Valves and Accessories
 - 3. Electric Finned Tube
 - 4. Ductwork
 - 5. Duct AC Unit
 - 6. Exhaust Fans
 - 7. Insulation

1.10 OPERATION AND MAINTENANCE (O&M) DATA

- A. Refer to SECTION 01.78.00 PROJECT RECORD DRAWINGS
- B. Prepare and submit Operating and Maintenance manuals at least two (2) months prior to the date of Substantial Completion of the Project. Submit six complete sets of operation and maintenance data complete with at least the following.

1.11 MATERIAL AND EQUIPMENT STANDARD

- A. Where equipment or materials are specified with the name of a manufacturer, such specification shall be deemed to be used for the purpose of establishing a standard for that particular item. No equipment or material shall be used unless previously approved by the Architect.
- B. Substitutions may be offered for review provided the material, equipment or process offered for consideration is equal in every respect to that indicated or specified. The

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Request for each substitution must be accompanied by complete specifications together with drawings or samples to properly appraise the materials, equipment or process.

1.12 ELECTRICAL WORK

- A. All electrical apparatus and controls furnished as a part of the work of this Section, but which are not integral with the equipment served, will be mounted by the Electrical Subcontractor and all wiring will be done under SECTION 260001 ELECTRICAL.
- B. Except for electrical apparatus specifically called for as part of this Section, all switches and controllers required will be provided under Section 260001- Electrical.
- C. All electrical apparatus and controls furnished as a part of the HVAC work shall conform to applicable requirements under SECTION 260001-ELECTRICAL.

1.13 <u>RECORD DRAWINGS</u>

- A. SECTION 01.78.00 PROJECT CLOSEOUT.
- B. All costs for Record Drawings shall be borne by the HVAC Subcontractor.

1.14 WARRANTIES

A. Submit manufacturer's standard replacement warranties for material and equipment furnished under this Section. Such warranties shall be in addition to and not in lieu of all liabilities, which the manufacturer and the HVAC Subcontractor may have by law or by provisions of the Contract Documents. All refrigeration compressors such as Condensing unit shall have the manufacturer's extended replacement warranty for a total of five years.

1.15 <u>COORDINATION</u>

A. The work shall be so performed that the progress of the entire building construction, including all other trades, shall not be delayed nor interfered with. Materials and apparatus shall be installed as fast as conditions of the building will permit and must be installed promptly when and as required.

1.16 INTERPRETATION OF DRAWINGS AND SPECIFICATIONS

- A. It is the intention of the Specifications and Drawings to call for complete, finished work, tested and ready for continuous operation. Any apparatus, appliance, material or work not shown on the Drawings, but mentioned in the Specifications or vice versa, or any incidental accessories necessary to make the work complete in all respects and ready for operation, even if not particularly specified, shall be provided by the HVAC Subcontractor or his/her Sub-subcontractors, without additional expense to the Owner.
- B. The Drawings are generally diagrammatic. The locations of all items that are not definitely fixed by dimensions are approximate only. The exact locations must be determined at the site and shall have the approval of the Architect before being installed. The HVAC Subcontractor shall follow Drawings, including shop drawings, in laying out work and shall check the Drawings of other trades to verify spaces in which work will be installed. Maintain maximum headroom and space conditions. Where space conditions appear inadequate, notify the Architect before proceeding with the installation. The HVAC Subcontractor shall, without extra charge, make reasonable modifications in the layout as needed to prevent conflict with work of other trades or for proper execution of the work.

C. Refer to the Architectural, Structural, Plumbing and Electrical Drawings and coordinate location and requirements of all HVAC equipment.

1.17 DELIVERY, STORAGE AND HANDLING

A. Protect materials against dampness. Store off floors, under cover, and adequately protected from damage.

1.18 **PROTECTION OF WORK AND PROPERTY**

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

1.19 <u>SAFETY PRECAUTIONS</u>

- A. Life safety shall be a primary consideration. Provide all required and prudent material, labor and equipment to comply with applicable safety regulations. Further, Provide all material, labor and equipment to comply with reasonable or generally accepted safety precautions as directed by the Owner or the Architect.
- B. Comply with all of the safety requirements of OSHA throughout the entire construction period of the project.

1.20 <u>SCHEDULE</u>

A. Construct work in sequence under provisions of General Conditions.

1.21 <u>SEALING</u>

A. All penetrations through the structure shall be sealed air and water tight where required for acoustical reason or where penetrating a fire rated element must be firestopped. This contractor shall coordinate all penetrations of the floors and ceiling with G.C. Fire Stopping requirements is under section 078400.

1.22 SLEEVES, INSERTS AND ANCHOR BOLTS

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

1.23 <u>SUPPLEMENTARY STEEL, CHANNELS AND SUPPORTS</u>

A. Provide all supplementary steel, factory fabricated channels and supports required for proper installation, mounting and support of all equipment and systems provided under this Section of the specification.

- B. Supplementary steel and factory fabricated channels shall be firmly connected to building construction in a manner approved by the General Contractor, as shown on the drawings, or hereinafter specified.
- C. The type and size of the supporting channels and supplementary steel provided under this Section of the specifications shall accommodate all deflections in conformance with the manufacturer's requirements for the specific loading on the system installed therein.

PART 2 - PART 2 PRODUCTS

2.01 INSULATION

- A. Materials shall be compatible and shall not contribute to corrosion, soften, or otherwise attack surfaces to which applied in either the wet or dry state. Materials to be used on stainless steel surfaces shall meet ASTM C 795 requirements. Materials shall be asbestos free and conform to the following:
 - 1. General: The fire hazard rating of all insulation related materials shall not exceed 25 for flame spread and 50 for fuel contributed and smoke developed as determined by UL723 "Test for surface burning characteristics of building materials", NFPA 225 or ASTM E84.
- B. Pipe Insulation
 - 1. Refrigerant vapor (suction, and evaporating liquid) piping shall be insulated with .375" thick closed cell pipe insulation as manufactured by Armorcell or equal with seams and joints cemented vapor tight. All insulation exposed to the exterior of the building shall be painted with 2 coats of U.V. resistant paint as supplied by the insulation manufacturer.

2.02 <u>PIPING AND FITTINGS</u>

- A. General
 - 1. Refrigerant Piping
 - a. Dimensions and material requirements for pipe, pipe fittings and components shall conform to ASHRAE 15 and ASME/ANSI B31.5 and shall be compatible with fluids used and capable of withstanding the pressures and temperatures of the service. Pipe, tubing, and components used for refrigerant service shall be cleaned, sealed, capped, or plugged prior to shipment from the manufacturer's plant.
 - b. Copper Pipe and Fittings: Seamless copper tubing, hard drawn, Type K for underground or unexposed use, Type L for exposed aboveground use, ASTM B 88M (ASTM B 88). Fittings for copper tubing shall be wrought copper, brazing, or solder-joint type, ASME/ANSI B16.22. Flared, soft copper tubing shall be annealed ASTM B 280 and may be used only in nominal sizes smaller than one-inch for connection to equipment and no larger than 1-3/8-inches outside diameter for other connections. Flanges shall be of bronze, ANSI B16.24.

2.03 <u>PIPE HANGERS AND SUPPORTS</u>

- A. Horizontal copper tubing shall have a maximum hanger spacing of 5' for tubing up to $1-1/4^{1}/4''$ and 10' for $1^{1}/2''$ and larger.
- B. At all copper piping, provide pipe supports with copper finish to eliminate the possibility of galvanic action.
- C. Furnish additional hangers or supports at vertical or horizontal changes of direction and at locations of concentrated loads due to valves, fittings, strainers, and accessories.
- D. Hangers and supports shall provide for 2" of vertical adjustments.
- E. Hanger rods shall be steel, threaded and furnished with two removable nuts at each end of positioning rod and hanger and locking each in place.

2.04 SLEEVES

- A. Piping sleeves shall be according to the following:
 - 1. Through interior non-masonry walls, use 18-gauge rolled and tack welded galvanized steel sleeves, set flush with finished surfaces on both sides.
 - 2. Through interior masonry walls, exterior walls above grade and roofs, use machine cut and reamed standard weight steel piping, set flush with finished surfaces on inside and to suit flashing on outside.
 - 3. Cover pipe sleeves in walls and ceilings of finished areas other than equipment rooms with satin finish stainless steel, or satin finish chrome or nickel-plated brass escutcheons, with non-ferrous setscrews. Do not use stamped steel split plates. Split cast plates with screw locks may be used.
 - 4. In non-rated walls, escutcheon plates shall be of adequate size to allow for piping with full insulation to pass through the wall uninterrupted. The interior diameter of the plate shall fit snugly around the outside diameter of the insulation.
- B. Cover exposed duct sleeves in finished areas with 18-gauge galvanized steel plates in the form of duct collars. Fix in position with non-ferrous metal screws.

2.05 <u>ELECTRIC BASEBOARD</u>

- A. Provide electric fintube radiation having the capacities as scheduled on the drawings.
- B. Assembly shall UL listed and labelled with terminal box and cover, and built-in controls.
- C. Heating Elements shall be in enclosed copper tube, aluminum finned element of coiled nickel-chrome resistance wire centered in tubes and embedded in refractory material.
- D. Enclosure shall be minimum 20 gauge steel with back and top of one piece; front panel, end panel, end caps, corners, and joiner pieces to snap together, and front panel easily removable. Provide full length damper.
- E. Control shall be Built-in bi-metal heating thermostat, factory wired.

2.06 <u>DUCTWORK</u>

A. Metal Ductwork

All aspects of metal ductwork construction, including all fittings and components, shall comply with THE SMACNA HVAC DUCT CONSTRUCTION STANDARDS, 2ND ED., 1995 unless otherwise specified. Rectangular ductwork schedules:

Duct	0.0" to +10.0" WG Galvanized				
Diameter (inches)			Galvanized		
(inches)	Ductwork	Fittings	Ductwork	Fittings	Ductwork
3-8	26	22	24	20	24
9-14	26	22	22	18	22

2.07 SPLIT SYSTEM DIRECT EXPANSION AIR CONDITIONING

- A. Provide complete DX system for split type air conditioning units of types, sizes and capacities shown on schedules. System shall consist of indoor fan evaporating unit, matching air cooled condensing units, compressors, piping, suction riser, controls, wiring and other accessories and appurtenances necessary to provide fully automatically functioning system.
- B. The indoor unit shall be wall mounted as shown on the schedule. It shall be fully factory assembled, wired and run tested prior to shipment. Contained within the indoor unit shall be all factory wiring, piping, control circuit board, fan, and fan motor.
- C. The indoor unit coil shall be of nonferrous construction with smooth plate fins on copper tubing. The refrigerant tubing shall have inner groves for high efficiency heat exchange. All tube joints shall be brazed with phoscopper or silver alloy. A condensate pan and drain shall be provided under the coil. Provide condensate pump if gravity drain is not achievable.
- D. Outdoor condenser coil shall be aluminum plate fins, mechanically bonded to seamless copper tubes. Provide propeller fans arranged for vertical discharge. Condenser fan motors shall have inherent protection and shall be permanently-lubricated and resiliently-mounted. Fans shall have safety guards. Provide controls for cycling fans.
- E. Provide factory-wired controls in separate enclosure. Safety devices shall consist of high and low pressure switching and compressor overload devices. Wiring shall incorporate positive acting timer to prevent short cycling of compressor if power is interrupted. Time shall prevent compressor from restarting for approximately 5 minutes after shutoff. Units shall have transformer control circuit.

2.08 EXHAUST FANS

A. Ceiling Exhaust Fans: Low Noise, suspended cabinet-type ceiling exhaust fans shall be energy star rated and certified by UL safety standard. Motor / Blower shall be totally enclosed DC brushless motor type with thermal cut-off fuse control. Fan shall be variable speed with efficiency rating of no less than 12 cfm/watt. The DC motor

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shall allow fan to run continuously at a pre-set lower level and elevates to maximum level of operation when the motion sensor is activated. Fan shall be Integral with backdraft damper and shall be provided with mounting flange for hanging unit from above. Fans shall be UL listed.

2.09 <u>AUTOMATIC CONDENSATE REMOVAL UNITS</u>

- A. Furnish and install automatic condensation removal units where shown and scheduled on the plans and as detailed herein. Units shall be UL and CSA listed. Units to be similar or equal in all respects to Little Giant Pump Company.
- B. Wire safety switches to shut down air-handling units in the event of a failure of the condensation removal unit.

2.10 <u>AUTOMATIC TEMPERATURE CONTROL SYSTEM</u>

- A. Furnish and install all control components necessary to obtain a fully functional control system as described herein. The contractor is responsible for providing all controls, relays, etc. necessary to accomplish the Sequence of Operations and performance specified, whether or not the items are specifically identified herein. Contractor shall hire the project electrician to provide additional power supplies to support the control devices as required.
 - 1. Thermostats
 - a. Electronic Room Thermostats: Low voltage with electronic programmable controller, wall mounted with integral sensor with setback/setup temperature control for heating.
 - 2. Voltage Transformers.
 - a. AC voltage transformers shall be UL/CSA recognized, 600 Vac rated, and shall have built-in fuse protection.
 - b. Transformers shall be suitable for ambient temperatures of 4°C-55°C (40°F-010°F) and shall provide ±0.5% accuracy at 24 Vac and 5 VA load.
 - c. Windings (except for terminals) shall be completely enclosed with metal or plastic.

PART 3 - EXECUTION

3.00 <u>GENERAL</u>

A. Install all items specified under PART 2 - PRODUCTS, according to the applicable manufacturer's recommendations and shop drawings, the details shown on the drawings and as specified under this Section. Provide all required hangers and supports.

3.01 MISCELLANEOUS

A. Unload materials and equipment delivered to site. Pay costs for rigging, hoisting, lowering and moving electrical equipment on and around site, in building or on roof.

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3.02 ACCESS AND ACCESS PANELS

A. Access panels are generally not shown on the drawings, but they are required to be provided by this Contractor.

3.03 <u>INSULATION.</u>

A. All refrigerant and condensate piping systems shall be carefully insulated throughout for thermal control and to prevent condensation. All insulated equipment which requires servicing shall be insulated with removable sections.

3.04 SHEET METAL WORK

A. All of the sheet metal work shall be done by contractors regularly engaged in this type of work.

3.05 AUTOMATIC TEMPERATRE CONTROL

- A. <u>General Workmanship</u>
- 1. Install equipment in readily accessible locations as defined by National Electrical Code (NEC) Verify wiring integrity to ensure continuity and freedom from shorts and ground faults.
- 2. Equipment, installation, and wiring shall comply with industry specifications and standards and local codes for performance, reliability, and compatibility.
- 3. Wire and program thermostat according to the manufacturer's instruction.

B. <u>Wiring</u>

- 1. Control and interlock wiring and installation shall comply with national and local electrical codes, Division 26, and manufacturer's recommendations. Where the requirements of Section 23 00 01 differ from Division 26, Section 25 00 01 shall take precedence.
- 2. NEC Class 1 (line voltage) wiring shall be UL listed in approved raceway as specified by NEC and Division 26.
- 3. Low-voltage wiring shall meet NEC Class 2 requirements. Subfuse low-voltage power circuits as required to meet Class 2 current limit.
- 4. NEC Class 2 (current-limited) wires not in raceway but in concealed and accessible locations such as return air plenums shall be UL listed for the intended application.
- 5. Install wiring in raceway where subject to mechanical damage and at levels below 3 m (10ft) in mechanical, electrical, or service rooms.

3.06 <u>TRAINING</u>

A. Conduct a training course for the maintenance and operating staff. The training period of 4 hours normal working time shall start after the system is functionally complete but before final acceptance tests.

END OF SECTION 230001

SECTION 260000 – ELECTRICAL

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. All of the Contract Documents, including General Conditions, Modifications, and Division 1 General Requirements, apply to the work of this section.
- 1.2 SCOPE OF WORK
 - A. The scope of work consists of the installation of all materials to be furnished under this Section, and without limiting the generality thereof, includes all equipment, labor, and services required for the furnishing, delivering, and installing the principal items of work hereinafter and all items incidental thereto as specified herein and as shown on the drawings.
 - B. The itemization of work hereinafter specified does not in any way limit the responsibility to perform all work and furnish all the equipment, labor, and materials necessary for completion and satisfaction of operation of the installations described in the Specifications and shown on the Contract Drawings. In addition to the principal and miscellaneous items of work specifically mentioned and/or indicated, to be responsible for furnishing and installing all incidental and collateral materials such as supporting hardware for panelboards, conduit hangers, fastening devices, insulating tape and the like, which constitute essential components of the grade of Electrical Trade Practices and Workmanship acceptable to the Architect.
 - 1. Grounding.
 - 2. Emergency batteries and lighting fixtures.
 - 3. Distribution feeders and panelboards
 - 4. Raceways.
 - 5. Branch circuit wiring.
 - 6. Lighting fixture.
 - 7. Motor wiring.
 - 8. Wiring and connection of electrical equipment supplied by Owner and other Subcontractors.
 - 9. Building telephone/data system outlet boxes, extension rings, and associated strings.
 - 10. Fire alarm system and communicator.
 - 11. Installation and wiring of electric heaters.
 - 12. Fireproof seals.
 - 13. Core drilling and cutting.
 - 14. Wiring devices.
 - 15. Nameplates.
 - 16. Cutting and patching.
 - 17. Outlet boxes.
 - 18. Junction boxes and pull boxes.
 - 19. Backcharges by Natick Fire Department.
 - 20. Temporary lighting during construction.
 - 21. Lighting contactors.
 - 22. Nameplates and labels.
 - 23. Disconnect switches.

1.3 RELATED WORK

- A. The following work is not included in this Section and is to be performed under the designated Sections:
 - 1. All temperature control wiring shall be furnished and installed by the HVAC Contractor.
 - 2. Charges for current consumed by the temporary light and power system for construction will be paid by the General Contractor.
 - 3. Painting (except for factory finished items) specified under Section "Painting".

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- 4. Access panels, where required, are furnished under this Section, but shall be installed under the related trades of the surface in which they are installed.
- 5. Mechanical system starters furnished by the mechanical and plumbing contractor, installed, and wired by the Electrical Contractor.
- 6. Backcharges by Verizon shall be paid by the Owner.
- 7. Electric heaters shall be furnished by the HVAC Contractor.

1.4 BREAKDOWN

- A. This Subcontractor must submit a breakdown of his contract price to aid the Architect in determining the value of work installed as the job progresses.
- B. No requisition will be paid to this Subcontractor until after the breakdown is delivered to the Architect.
- C. Breakdown shall consist of, not less than the following items. The figure for each item shall include costs of material, labor, markup, and all other costs applicable to the item.
 - 1. Panelboards.
 - 2. Branch circuit wiring.
 - 3. Lighting fixtures.
 - 4. Wiring devices.
 - 5. Backcharges by the Natick Fire Department.
 - 6. Building telephone/data outlet systems.
 - 7. Fire alarm system and communicator.
 - 8. Temporary light and power.
 - 9. Cutting, patching, and fireproof seals.
 - 10. Nameplates.
 - 11. Feeders.
 - 12. Panelboards.

1.5 PRODUCT DATA SHEETS

- A. Prepare and submit five (5) copies of product data sheets of all equipment, labels, tags, and nameplates supplied under this Section of the Specifications to the General Contractor for approval, as specified under General Conditions and Supplementary Conditions. No work shall be done until product data sheets have been approved.
- B. Shop drawings shall show plans, details, layouts and job conditions and relationship to other work.

1.6 RECORD DRAWINGS

- A. This Contractor shall furnish and keep on the job at all times, two, (2) complete and separate sets of blackline prints of the electrical work on which shall be clearly, neatly and accurately noted, promptly as the work progresses, all changes, revisions and additions to the work. Wherever work is installed otherwise than as shown on the Contract Drawings, such changes shall be noted.
- B. Indicate daily progress on these prints by coloring in the various conduits, fixtures, apparatus, and associated appurtenances as they are erected.
- C. No approval of requisition for payment for work installed will be given unless supported by record prints as required above.
- D. At the conclusion of work, prepare Record Drawings in accordance with the requirements of the GENERAL CONDITIONS.
- 1.7 OPERATING INSTRUCTIONS AND MAINTENANCE MANUALS
 - A. This Subcontractor shall instruct to the Owner's satisfaction, such persons as the Owner designates in the proper operation and maintenance of the systems and their parts.

- B. Furnish in accordance with provisions under "Special Conditions" operating and maintenance manuals and forward same to the Architect. The Subcontractor shall provide three (3) sets of Maintenance Manuals.
- C. The operating instructions shall be specific for each system and shall include copies of posted specific instructions.
- D. For maintenance purposes, provide shop drawings, parts lists, specifications, and manufacturer's maintenance bulletins for each piece of equipment. Provide name, address, and telephone number of the manufacturer's representative and service company, for each piece of equipment so that service or spare parts can be readily obtained.

1.8 SAMPLES

- A. Submit samples as requested by the Architect of all materials specified herein in accordance with General Condition and Supplementary Conditions, and before ordering materials obtain approval from the Architect.
- 1.9 LAWS, ORDINANCES, CODES, AND PERMITS
 - A. The Electrical Subcontractor shall give all necessary notices, obtain all permits, and pay all taxes, fees, and other costs in connection with his work; file all necessary plans, prepare all necessary documents and obtain all necessary approvals of state authorities, all local, town, city, or county departments having jurisdiction; obtain all required certificates of inspection for his work.
 - B. The Electrical Subcontractor shall include in the work, without extra cost to the Owner, any labor, materials, services, apparatus, drawings in addition to Contract Drawings and Documents, in order to comply with all applicable laws, ordinances, rules and regulations whether or not shown on the drawings and/or specified.
 - C. All materials furnished and all work installed shall comply with the rules and recommendations of the National Electrical Code as amended by the Massachusetts Electrical Code, the National Board of Fire Underwriters', all requirements of the local utility company, recommendations from the fire insurance rating organizations having jurisdiction, and with the requirements of all state, local, town, city, or county departments having jurisdiction.

1.10 DEFINITIONS

- A. "This Contractor" or "This Subcontractor" means specifically the Electrical Subcontractor working under this Section of the Specifications.
- B. "Furnish and Install or "Provide" means to supply, erect, install and connect up, complete for regular operation, the particular work referred to unless otherwise specified. "Piping" includes in addition to pipe, all fittings, boxes, hangers and other accessories relating to such piping. "Concealed" means hidden from sight as in trenches, chases, furred spaces, shafts, hung ceilings, embedded into construction, ground or concealed as defined above.
- 1.11 INSPECTION AND TEST
 - A. All work will be subject to the inspection of the Architect and such other inspections are may have jurisdiction.
 - B. As the various part of the works are installed and/or revised, insulation resistance test shall be made to insure that the new systems are free from short circuits and grounds and that all connections, switches, controls and equipment are in proper operating condition.
 - C. The installation resistance between conductors and between conductors and grounds, for the distribution systems shall be not less than the requirements of the National Electrical Code.
 - D. All testing equipment necessary shall be provided. The tests shall incur no additional expense to the Owner.

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E. Failure or defects in workmanship or materials revealed by tests shall be corrected promptly and retested. Defective materials furnished under this contract shall be replaced at no additional expense to the Owner.

1.12 REFERENCES

- A. Installation shall comply in all details with the National Electrical Code with its latest revisions and all prevailing local, Federal, and State regulations.
- B. Material and equipment shall be Underwriters' laboratories, Inc., listed, where a standard has been established.
- C. Manufacturers' names and nomenclature facilitates descriptions of certain materials and equipment and are used to establish type, quality, and function.
- D. Unless otherwise specified, all work shall be manufactured, tested and installed in accordance with the latest editions of applicable publications and standards of the following organizations:
 - 1. American Society for Testing and Material (ASTM).
 - 2. Underwriters' Laboratories, Inc. (U.L.)
 - 3. Insulated Power Cable Engineers Association (IPCEA).
 - 4. National Electrical Manufacturers Association (NEMA).
 - 5. Institute of Electrical and Electronic Engineers (IEEE).
 - 6. American National Standards Institute (ANSI).
 - 7. National Fire Protection Association (NFPA).
 - 8. National Electrical Code (NEC).
- E. Should specifications, Architects' instructions, laws, ordinances, or public authority require any special tests or approvals, arrange for these and give the Architect timely notice. If the inspection is by another authority other than the Architect, notify the Architect of the dates fixed for such inspection.
- F. Make all reasonable tests required by the Architect to provide the integrity of the electrical installation and leave the entire installation properly adjusted and in operating condition. After connections are made test the insulation resistance of all parts of the electrical work except that which is not furnished under this Specification. All wiring shall be so installed that when completed the system will be free from short circuits and from unintentional grounds.
- G. Where reference is made to Codes and Standards these shall be interpreted as minimum requirements. Requirements in excess of these codes and Standards may be indicated on the Drawings or in the Specifications and shall be so included in the contract work. Compliance with such code requirements only shall not be construed as fulfillment of the contract work, where the plans and/or Specifications indicate additional work which may exceed such code standards.
- H. Copies of NEMA, NFPA, and NEC shall be made available by the Electrical Subcontractor at the job site.

1.13 EXAMINATION OF SITE AND CONTRACT DOCUMENTS

- A. Before submitting prices or beginning work, thoroughly make an examination of the site and the Contract Documents.
- B. No claim for extra compensation will be recognized if difficulties are encountered which an examination of site conditions and Contract Documents prior to executing contract would have revealed.
- C. The drawings showing layout of the electrical systems indicate the approximate location of outlets, apparatus, and equipment. The runs of feeders and branch circuits as shown on the drawings are schematic only, and are not intended to show the exact routing of the wire; the final determination as to the routing of the wire shall be governed by structural conditions and other obstructions. This shall not be construed to mean that the design of the system may change; it merely refers to the exact run of a raceway between given points.
- D. The right to make any reasonable change in the location of outlets, apparatus, and equipment up to the

time of roughing-in is reserved by the Owner without involving any additional expense to the Owner.

- E. The Drawings and these specifications are complementary with one another, any labor, or materials called for by either, whether or not by both, or necessary for the successful operation of any of the particular types of equipment furnished under this contact, shall be furnished and installed.
- F. Before installing any work, see that it does not interfere with the clearance required for finished columns, pilasters, partitions or walls, as shown on the contract Architectural drawings and details.
- G. Be responsible for all materials delivered to the site in connection with the work and pay all charges for cartage, scaffolds, planking, rigging, and erecting. Take every precaution necessary to protect equipment and installation in addition to plugging and protecting open ends of all pipes, outlet boxes, panelboxes, and junction boxes. All equipment must be stored in a clean dry place to preserve the quality of materials being used. Equipment and/or materials damaged during the construction period shall be replaced at no additional cost to the Owner.
- H. All materials and equipment required by this Electrical Specification shall be new, clean, and free of defects at the time of installation. The manufacturer's and Underwriter's label shall be on all materials and equipment unless otherwise approved, in writing, by the Architect.

1.14 SUBSTITUTION OF MATERIALS OR EQUIPMENT

- A. If the Electrical Subcontractor wishes to use materials or equipment other than those specifically designated herein, as being equal to those so specifically designated; BEFORE PURCHASING AND/OR FABRICATION, he shall submit the proposed substitution in accordance with the requirements of the GENERAL CONDITIONS, supported by sufficient proof of equality, the successful subcontractor will be required to furnish the specifically named items designated under the base bid.
- B. If the apparatus or materials substituted for those specified necessitate changes or additional connections, piping supports, or construction: same shall be provided and the Electrical Subcontractor shall assume the cost and the entire responsibility thereto.
- C. The Architect's permission to make such substitutions shall not relieve the Electrical Subcontractor from full responsibility for the work.

1.15 DAMAGE TO OTHER WORK

- A. This Contractor shall be held responsible for and shall pay for all damage to other work caused by his work or workmen.
- B. Repairing of such damage shall be done by the General Contractor or Subcontractor who installed the work, and so directed by the Architect.

1.16 COORDINATION OF TRADES

A. This Contractor shall give cooperation to other trades and shall furnish (in writing, with copies to the Architect) any information necessary to permit the work of all trades to be installed satisfactorily and with the least possible interference or delay. Where the work of this Subcontractor will be installed in close proximity to work of other trade, or where there is evidence that the work of this Subcontractor will interfere with work of other trades, he shall assist in working our space conditions to make a satisfactory adjustment. If so directed by the Architect, this Subcontractor shall prepare composite working drawings and sections, in conjunction with other trades at a suitable scale not less than 1/4" - 1"-0", clearly showing the installation of his work in relation to the work of other trades. If this Subcontractor installs his work before coordinating with other trades, or so as to cause interference with work of other trades, he shall make necessary changes in his work to correct the conditions without extra charge. All cutting, patching, excavation, and backfilling, except for primary electrical service, shall be done by the General Contractor. This Subcontractor shall inform the General Contractor well in advance as to his requirements, and if, in the Architect's judgment, he is negligent in this respect, this Subcontractor shall bear all expenses flowing from his negligence with respect thereof.

1.17 PROCEDURE

- A. This Subcontractor shall provide all labor and materials necessary for the complete and substantial execution of the work, including all transportation, scaffolding, apparatus, utensils, tools, etc., requisite for the faithful performance of the work to the true intent and meaning of the Specifications, Drawings, and Instructions. All workmanship and materials shall be of the best of their respective kinds.
- B. This Subcontractor shall store his material and equipment prior to installation only where designated by the Owner. He shall be responsible for all his property stored on the premises and shall hold the Owner free from liability for loss by theft or carelessness of employees of the Owner, or of other Contractors. This Subcontractor must take particular care to protect any finished work from injury caused thereto by his operations. After completion of the work, this Subcontractor shall remove all waste, rubbish and other materials left as a result of his operations and leave the premises in clean condition.

1.18 FIELD MEASUREMENTS

A. This Subcontractor shall verify in the field all measurements necessary for his work and shall assume responsibility for their accuracy.

1.19 CLEANING AND PROTECTION

- A. All materials and equipment shall be carefully protected during shipment and protected during installation and properly handled and stored at the job site so as to prevent damage. This Subcontractor shall assume full responsibility for protection of work until its completion and final acceptance.
- B. Upon completion of this work, this Subcontractor shall clean all fixtures and equipment and replace damaged parts. Upon failure of this Subcontractor to fulfill his obligation, this work will be taken care of at his expense.

1.20 GUARANTEE

A. All materials, items of equipment and workmanship furnished under this Section shall carry the standard warranty against all defects in materials and workmanship for a period of not less than one (1) year from the date of final acceptance of the work.

1.21 CLEANING UP

- A. The Electrical Contractor shall, at the completion of the work, clean, polish and/or wash all exposed items of material, equipment, and fixtures in his contract so as to leave such items bright and clean. Special attention being given to interiors and exteriors of all panels, electrical equipment, and enclosures.
- B. All painted metal surfaces which have been scratched, dented or marred shall be re-painted by the Electrical Contractor.
- C. At the end of each work day, the Electrical Contractor shall remove all waste, rubbish and other materials left as a result of his operation and leave the premises in clean condition.
- 1.22 CONFLICT BETWEEN PLANS AND SPECIFICATIONS
 - A. In case of a conflict between contract plans and the specification the Architect will decide which takes precedence.
- 1.23 SUPERINTENDENCE OF WORK
 - A. This Subcontractor shall give his personal superintendence to the work and shall retain at the job site during the period of construction, a competent foreman, satisfactory to the Architect, who shall be in full charge or the work under this Section.
- 1.24 SITE VISITATION

A. The Electrical Contractor shall be required to visit the site and to have examined the existing conditions which may affect his work under this Contract. Failure to do so shall be his responsibility and no claims for extra compensation or extension of time shall be allowed because of lack of compliance herewith.

1.25 COOPERATION AND WORK PROGRESS

- A. The electrical wiring shall be carried on under the usual construction conditions, in conjunction with all other work at the site. The Electrical Contractor shall cooperate with the Architect and all contractors and equipment suppliers working on the site, coordinate the work, and proceed in a manner so as not to delay the progress the project.
- B. The Electrical Contractor shall coordinate his work with the progress of the building and other trades so that he shall complete his work as soon as conditions permit. Any overtime hours worked or additional costs incurred due to lack of or improper coordination with other trades of the Owner by the Electrical Contractor shall be assumed by the Electrical Contractor without any additional cost to the Owner.
- C. The Electrical Contractor has a responsibility to coordinate the exact mounting arrangement and location of equipment indicated on the Drawings to allow for proper space requirements for equipment access, operation and maintenance. Particular attention shall be given in the field to such group installations. If it is questionable that insufficient space or conflict with the work of other contractors, or Architectural or structural obstructions will result in an arrangement which will prevent proper access, operation or maintenance of the indicated equipment, the Electrical Contractor shall immediately notify the Architect and not proceed with this part of the contract work until definite instructions have been given to him by the Architect.
- D. It shall be the responsibility of the Electrical Contractor to coordinate the delivery of electrical equipment to the project prior to the time installation of equipment will be required; but he also shall make sure such equipment is not delivered too far in advance of such required installation, to assure that possible damage and deterioration of such equipment will not occur. Such equipment stored for an excessively long period of time (as determined in the opinion of the Architect) on the project site prior to installation may be subject to rejection by the Architect.

PART 2 - PRODUCTS

2.1 RIGID STEEL CONDUIT:

- A. All rigid steel conduit shall be standard IPS, galvanized or sheradized, threaded conduit equal to Pittsburgh Standard, J & L or Youngstown.
- B. Changes in direction of conduit, where concealed, shall be made by means of standard radius bends, and where exposed, or by means of galvanized, or sheradized threaded condulets as manufactured by Crouse-Hinds or equal.
- C. Conduits shall be continuous from outlet, and from outlets to cabinets, junction or pull boxes and shall enter and be secured to all boxes in such a manner that each system shall be electrically continuous from service to all outlets. Terminals of all conduits shall be furnished with double lock nuts and grounding bushings.

2.2 ELECTRICAL METALLIC TUBING

- A. Electrical metallic tubing may be used for main feeders to light and power panels.
- B. Tubing shall be continuous between outlets, making a continuous electrical system for bonding.
- C. Connector and couplings shall be set screw type.
- 2.3 FLEXIBLE METALLIC CONDUIT

A. Flexible metallic conduit may be used for short connections to recessed fixtures and motors, except in wet areas. In wet areas liquid tight flexible metallic conduit shall be used.

2.4 WIRES AND CABLES

- A. All conductor wire and cable shall consist of thoroughly tinned 98% conductivity copper, with 600 volt insulation, manufactured in strict accordance with the requirements of the Board of Underwriters' and AIEE.
- B. No wires smaller than No. 12 shall be used for any branch circuit unless noted on plans for special system circuits. Larger sizes shall be used where so indicated on the Drawings.
- C. All 600 volt wire and cables shall be single conductor suitable for use in wet areas and dry locations; shall have an insulation that is moisture and heat resistant cross linked thermosetting polyethylene without an outer jacket, shall be type "THHN" as manufactured by General Electric, Okonite, or Rome Cable. Wire sized No. 12 and No. 10 AWG shall be solid. Sizes 8 and larger shall be stranded.

2.5 ARMORED CABLE (Type "MC")

A. For all armored cable branch circuits as called for elsewhere in these specifications and noted on the plans, furnish and install the indicated sizes with copper conductors, with green insulated grounding conductor as manufactured by the Boston Insulated Wire Company or approved equal as manufactured by American or Collyer. Armored cable shall be type "MC".

2.6 OUTLET BOXES

- A. Furnish and install all required outlet boxes as manufactured by Appleton, National, or Steel City.
- B. All outlet boxes for concealed work shall be galvanized, stamped steel; those for fixtures, furnished with a fixture stud.
- C. Outlet boxes shall be of size and type to accommodate (1) structural conditions, (2) size and number of raceways, conductors, or cables entering, and (3) devices or fixtures for which required.
- D. Wall outlets shall be 4" sq. x 1-1/2" deep with plaster covers to suit, or Standard "new work" wall case boxes. Wall boxes shall be designed for rigid metallic conduit and shall be the best type for the wall construction involved.
- E. Install blank plates on all outlet boxes, in which no apparatus is installed, which do not integrally provide a cover for the box.
- F. Special care shall be taken to set all boxes correctly square and true with the building finish. As far as possible, all wall and switch outlets shall be erected in advance of furring and fireproofing, and shall be secured to the building structure or steel by adjustable strap iron supports, which shall be buried in.
- G. The exact location of all outlets and switches in finished rooms shall be obtained from the Architect and from the Scale Drawings of interior details and finish. Final correct readjustment shall be made to the outlets if necessary to give proper centering.
- H. In centering of outlets and location of outlet boxes, allow for overhead pipes, and thickness of fireproofing and plastering; also for window trim, paneling, hung ceilings, and the like. Any inaccuracy resulting from failure to do so must be corrected under this Section of the Specifications without expense to the Owner. Confer with the Architect and other Subcontractors and find out where hung ceilings occur and piping and ductwork run before signing the Contract and include in proposal what ever costs of the electrical work these conditions necessitate.
- I. The locations given or designated on the Drawings for the outlets are subject to modification. In the case of local wall switches established by the swing of the door. In all cases, the switch shall be on the side of the door opposite the hinges.
- 2.7 JUNCTION AND PULL BOXES

- A. Junction or pull boxes shall be furnished and installed under this Section of the Specifications where indicated on the Drawings and wherever else such a box may be deemed necessary to facilitate the pulling or splicing of wires or cables.
- B. All such boxes must be made accessible and shall be built only from approved detail Working Drawings. Conduits shall enter these boxes through tight fitting clearance holes.
- C. The covers of the boxes shall be designed for quick removal. Where junction boxes are required for a splicing box for special recessed fixtures, consult the Architect before installing boxes for these fixtures and determine the exact location of the boxes.
- D. Each feeder passing through a pull box shall be tagged or designated in some other approved manner. If tags are used, they shall be of fireproof material.
- E. Locations of junction boxes and pull boxes shall meet the approval of the Architect. Generally, junction boxes and pull boxes shall not be exposed in finished spaces; where necessary re-route conduits or make other arrangements to meet the approval of the Architect.

2.8 LIGHTING FIXTURES

- A. This Subcontractor shall furnish and install the lighting fixtures, complete for each and every light outlet in the type, quality, and size of fixture indicated on the Drawings in the fixture schedule unless called specifically to be omitted herein. It shall be the responsibility of this Subcontractor to check the Drawings with the schedule for completeness, as the schedule is made up for the convenience of the bidders. In the schedule, catalog numbers are used and size of fixture that will be required.
- B. This Subcontractor shall include all fixtures, wiring, hanging, uncrating, connecting up and making ready for operation. This Subcontractor shall include the cost of furnishing and installing all lamps for all fixtures under this Contract throughout. All lamps for all fixtures shall be furnished in Type A, PS, PAS, and B, or silvered as specified. All tubes for rapid-start fixtures shall be Phillips or equal as manufactured by Osram or General Electric, as called for under each fixture type. All fluorescent lamps to be warm white energy savings type. All fluorescent ballasts shall be as described under paragraph "Fluorescent Ballast".
- C. This Subcontractor shall check structural and architectural details of all locations where fixtures are to be installed so that he can properly provide for installation of the fixture.

2.9 LIGHT SWITCHES

- A. All local wall switches shall be of the flush tumbler type, single-pole, double-pole, 3-way, or 4-way as required, as manufactured by Hubbell, P & S, or Bryant.
- B. Local switches shall be installed in such a position that they shall bear evenly and true and be secured on the axis of the supporting members.
- C. Under no circumstances are wooden wedges, shims, or blocks to be used in truing up local switches. Should the outlet box, in any case, come too far back of the finished surface, recess boxes and screws of the proper length to reach the box shall be used of such a size as to form a shoulder at exactly the proper point to retain the switch in position.
- D. Single-pole switches shall be Hubbell #1221WH or equal as manufactured by Arrow Hart, P & S, or Bryant.
- E. Three-way switches shall be Hubbell #1223WH and 4-way switches shall be Hubbell #1224WH.
- F. Switch and pilot shall be 1221-PL.

2.10 RECEPTACLES

A. All convenience outlets shall be of the single or duplex type, back, or side-wired. T-slot or polarized slot type, grounded as required, as manufactured by Hubbell, Arrow Hart, or Leviton.

- B. In general, convenience outlet circuits shall be independent of light circuits and shall not be controlled by light circuit breaker switches or light switches.
- C. Duplex receptacles shall be equal to Hubbell 5252-WH.
- D. Single receptacles rated at 20A-250V shall be Hubbell 5451-WH.
- E. Single receptacles rated at 30A-250V 1 phase shall be Hubbell 2620A.
- F. Single receptacles rated at 50A-250V 1 phase shall be Hubbell CS8269.
- G. Single receptacles rated at 20A-250V 3 phase shall be Hubbell 2420A.
- H. Single receptacles rated at 30A-250V 3 phase shall be Hubbell 272
- I. Single receptacles rated at 50A-250V 3 phase shall be Hubbell 3769.
- J. Single receptacles rated at 20A-125/250V 1 phase shall be Hubbell 7310B.
- K. Single receptacles rated at 30A-125/250V 1 phase shall be Arrow Hart 5744.
- L. Single receptacles rated at 50A-125/250V 1 phase shall be Arrow Hart 5754.
- M. Floor outlets shall be Steel City AFM-4GRY with mounting flange and divider accessories.
- N. Isolated ground receptacles rated at 20A 125V 1 phase shall be Hubbell IG8310.
- O. Ground fault receptacles shall be Leviton 8899WH

2.11 DEVICE PLATES

- A. All plates used on switch and plug receptacles in finished spaces where wiring is concealed shall be .030 stainless steel.
- B. Gang plates shall be used where multiple switches and/or receptacles occur at one location.
- C. Plates shall be of the same manufacturer as the wiring devices.
- 2.12 PANELBOARDS (120/208 Volt)
 - A. Panels shall be type "NQOD" bolted as manufactured by Siemens, Square "D", Cutler Hammer, or General Electric.
 - B. The panelboard schedule indicates the details as to size, voltage, capacity, and number of circuits necessary, including spares.
 - C. The panelboard shall conform to the requirements of the Underwriters label.
 - D. The panelboard shall be designed for operation at 120/208 volts 3 phase 4 wire.
 - E. Circuit breakers 1, 2, and 3-pole for 120/208 volts application shall be type "QOB" switch rated with interrupting capacity as indicated on drawings. Circuit breakers shall be bolt-on type.
 - F. Furnish 10 circuit breaker locks for branch circuit locking control.
 - G. All locks of all panels shall be operated by a common master key.
 - H. Furnish and install on the inside cover of all light and power panels, a neatly typed index, giving the circuit number; and opposite each number the area of equipment which that particular circuit serves or controls.
 - I. In connecting branch circuits to panels, care shall be taken to insure balance; and circuit numbering shown on plans shall be changed to prevent same circuits on same phase being connected to a common neutral.
 - J. Panelboards shall be furnished with hinged trim with door and door covers to provide easy access to the panelboard interior, without removing the panelboard cover.

K. Panelboard bussing shall be copper and shall meet the requirements of the Owner.

2.13 NAMEPLATES

- A. Nameplates consisting of black mica with white center, lettering to be 1/4" high engraved through to white layer and properly fastened with brass screws shall be provided for the following equipment:
 - 1. Panelboards.
 - 2. Contactors.
 - 3. Disconnect switches.
- B. Receptacle plate identification shall be as follows:
 - 1. Panel/circuit/voltage and shall be engraved on each receptacle plate. (See details on the electrical drawings).
- C. Fire alarm control panel.
- D. Junction boxes.
- E. Electrical Contractor shall note branch circuit number terminated at each disconnect switch servicing mechanical system terminal box.

2.14 DISCONNECT SWITCH

- A. Furnish and install safety switches as required by plans and specifications. All safety switches shall be NEMA Heavy Duty Type HD and Underwriters' Laboratories listed. Square D Class 3110 or approved equal as manufactured by Siemens or General Electric.
- B. All switches shall have switch blades which are fully visible in the OFF position with the door open. All current-carrying parts shall be plated through electrolytic processes to resist corrosion and promote cool operation.
- C. Switches shall be quick-make and quick-break such that, during normal operation of the switch, the operation of the contacts shall be not capable of being restrained by the operating handle after the closing or opening action of the contacts has started. The handle and mechanism shall be an integral part of the box, not the cover, with positive padlocking provisions in the OFF position.
- D. Switches shall be furnished in NEMA 1 general purpose enclosures unless NEMA 3R (raintight) in indicated on the plans. Enclosures shall be of code gauge (UL 98) sheet steel (NEMA 1) or code gauge (UL 98) galvanized steel (NEMA 3R) with a rust-inhibiting phosphate treatment and gray baked enamel finish.
- E. Switches shall be horsepower rated for 600 volts ac.

2.15 SLEEVES, INSERTS, AND SUPPORTS

- A. The Electrical Subcontractor shall lay-out and install his work in advance of the pouring of concrete floors.
- B. Furnish and install all inserts, conduit hangers, anchors, and steel supports necessary for the support and installation of all electrical equipment.
- C. Where openings are required in walls and floors for the passing of raceways the Electrical Subcontractor shall furnish the General Contractor with the necessary information regarding dimensions and locations so that he may install suitable concrete stops to provide these openings. Such openings shall be by the General Contractor in such a manner so as not to interfere with the fireproof integrity of the building.
- D. This Subcontractor will be held responsible for the location of and maintaining in proper position, sleeves, inserts, and anchor bolts supplied and/or set in place by him. In the event that failure to do such required cutting and patching of finished work, such work shall be done at this Subcontractor's expense

by the General Contractor.

2.16 ACCESS PANELS

- A. Furnish for installation by the appropriate trades, all metal access panels, if required, for access to services provided under this Section.
- B. Panels shall be of the type described under section "Miscellaneous Specialties".
- C. The exact locations and sizes of all access panels shall be coordinated with the General Contractor.

2.17 FIRE ALARM SYSTEM

- A. The Contractor shall furnish and install an addressable fire alarm system for each building as indicated on the drawings and as herein described. The equipment and installation shall comply with the current applicable provisions of the following standards:
 - 1. NFPA 70 National Electrical Code
 - 2. NFPA 71 Central Station Signaling Systems-Protected Premises Unit.
 - 3. NFPA 72 National Fire Alarm Code
 - 4. State building codes.
 - 5. All requirements of the Local Authority Having Jurisdiction.
 - 6. Underwriters Laboratories, Inc.
- B. The system and all components shall be listed by Underwriters Laboratories, Inc. for use in Fire Protective Signaling Systems under the following standards as applicable:
 - 1. UL864 Control Units for Fire Protective Signaling Systems.
 - 2. UL268 Smoke Detectors for Fire Protective Signaling Systems.
 - 3. UL 268A Smoke Detectors for Duct Applications.
 - 4. UL 217 Smoke Detectors, Single and Multiple Station.
 - 5. UL 521 Heat Detectors for Fire Protective Signaling Systems.
 - 6. UL 228 Door Closers-Holders for Fire Protective Signaling Systems.
 - 7. UL 464 Audible Signaling Appliances.
 - 8. UL 1638 Visual Signaling Appliances.
 - 9. UL 38 Manually Actuated Signaling Boxes.
 - 10. UL 1481 Power supplies for Fire Protective Signaling Systems.
 - 11. Town of Natick Fire Alarm Regulations.
- C. General Requirements
 - 1. Submittals
 - a. The contractor shall submit complete documentation for the Fire Alarm/Life Safety System showing the Model Number, type, rating, size, style, Manufacturer's Names, and Manufacturer's Catalog Data Sheets for all items to ensure compliance with these specifications.
 - b. Upon Contract Bid approval, and prior to the start of system installation, the Contractor shall submit a complete riser diagram and layout of the entire Fire Alarm/Life Safety System, showing all interconnect wiring and equipment. The riser diagram shall be project specific with actual wiring indicated for fire alarm equipment to be utilized on this project. General wiring diagrams shall not be considered for approval.
 - c. All substitute equipment proposed as equal to the equipment specified herein, shall meet or

exceed the fire alarm equipment standards. For equipment other than that specified, the contractor shall supply proof that such substitute equipment does in fact equal or exceed the features, functions, performance, and quality of the specified equipment. The Contractor must submit this information for approval by the engineer at least ten (10) days prior to bid.

- 2. Equipment Manufacturers
 - a. All references to manufacturer or supplier's model numbers and other pertinent information herein is intended to establish minimum standards of performance, function and quality. Equipment from other manufactures listed must meet all of the operating characteristics required herein.
 - b. The model numbers used are those of Firelite and constitute the quality and performance of the equipment and system to be furnished.
- 3. All equipment and components shall be new, and the manufacturer's current model. The materials, appliances, equipment and devices shall be tested and listed by a nationally recognized approvals agency for use as part of a protective signaling system, meeting the National Fire Alarm Code.
- 4. All equipment and components shall be installed in strict compliance with manufacturers' recommendations. Consult the manufacturer's installation manuals for all wiring diagrams, schematics, physical equipment sizes, etc., before beginning system installation.
- 5. All Equipment shall be attached to walls and ceiling/floor assemblies and shall be held firmly in place (e.g., detectors shall not be supported solely by suspended ceilings). Fasteners and supports shall be adequate to support the required load.
- D. Main Fire Alarm Control Panel:
- 1. The FACP shall be Fire-Lite Alarms Model MS-9200 and shall contain a microprocessor based Central Processing Unit (CPU). The CPU shall communicate with and control the following types of equipment used to make up the system: intelligent detectors, addressable modules, printer, annunciators, and other system controlled devices.
- 2. System Capacity and General Operation
 - a. The control panel shall provide, or be capable of expansion to 198 intelligent/addressable devices.
 - b. The system shall include Form-C alarm, Form-C trouble, and Form-A supervisory relays rated at a minimum of 2.0 amps @ 30 VDC. It shall also include four Class B (NFPA Style Y) programmable Notification Appliance Circuits.
 - c. The Fire Alarm Control Panel shall include a full featured operator interface control and annunciation panel that shall include a backlit Liquid Crystal Display, individual, color coded system status LEDs, and an alphanumeric keypad for the field programming and control of the fire alarm system.
 - d. All programming or editing of the existing program in the system shall be achieved without special equipment and without interrupting the alarm monitoring functions of the Fire Alarm Control Panel.
 - e. The FACP shall provide the following features:
 - 1. Maintenance Alert to warn of excessive smoke detector dirt or dust accumulation.
 - 2. System Status Reports to display or printer.
 - 3. Alarm Verification.
 - 4. Rapid Manual Station Reporting (under 2 seconds).
 - 5. Periodic Detector Test, conducted automatically by software.
 - 6. Pre-alarm for advanced fire warning.
 - 7. Walk Test.
 - f. The FACP shall be capable of coding Notification circuits in March Time (120 PPM), Temporal, and California Code.

- 3. Central Microprocessor
 - a. The Microprocessor shall communicate with, monitor, and control all external interfaces with the control panel. It shall include EPROM for system program storage, non-volatile memory for building-specific program storage, and a "watch dog" timer circuit to detect and report microprocessor failure.
 - b. The Microprocessor shall contain and execute all programming for specific action to be taken if an alarm condition is detected by the system. Such programming shall be held in non-volatile programmable memory and shall not be lost if both the system primary and secondary power failure occurs.
 - c. The Microprocessor Unit shall also provide a Real- Time Clock for time annotation of system displays, printer, and history file.
- 4. Display
 - a. The Display shall provide all the controls and indicators used by the system operator and may also be used to program all system operational parameters.
 - b. The Display shall include status information and custom alphanumeric labels for all Addressable Detectors, Addressable Modules and Software zones.
 - c. The display shall provide an 40-character back-lit alphanumeric Liquid Crystal Display (LCD). It shall also provide 5 Light-Emitting-Diodes (LEDs), that will indicate the status of the following system parameters: AC POWER, FIRE ALARM, SYSTEM TROUBLE, ALARM SILENCED, SUPERVISORY, and PRE-ALARM.
 - d. The Display shall provide a 21-key touch key-pad with control capability to command all system functions, entry of alphabetic or numeric information, and field programming. Two different password levels shall be provided to prevent unauthorized system control or programming.
 - e. The Display shall include the following operator functions: ALARM SILENCE, RESET, DRILL, and ACKNOWLEDGE.
- 5. Signaling Line Circuit (SLC)
 - a. The SLC interface shall provide power to and communicate with up to 99 addressable detectors (Ionization, Photoelectric, or Thermal) and 99 addressable modules (monitor or control) for a system capacity of 198 devices. This shall be accomplished over a single SLC loop and shall be capable of NFPA 72 Style 4, Style 6, or Style 7 wiring.
- 6. Serial Interfaces
 - a. An EIA-232 interface between the Fire Alarm Control Panel and UL Listed Electronic Data Processing (EDP) peripherals shall be provided.
 - b. The EIA-232 interface shall allow the use of printers, CRT monitors, and PC compatible computers.
 - c. An EIA-485 interface shall be available for the serial connection of remote annunciators and LCD displays.
- 7. Enclosures:
 - a. The control panel shall be housed in a UL listed cabinet suitable for surface or semi-flush mounting. Cabinet and front shall be corrosion protected, given a rust-resistant prime coat, and manufacturer's standard finish.
 - b. The door shall provide a key lock and shall include a glass or other transparent opening for viewing of all indicators.
- 8. All interfaces and associated equipment are to be protected so that they will not be affected by voltage surges or line transients, consistent with UL standard 864.
- 9. Optional plug-in modules shall be provided for by NFPA 72-1993 for Auxiliary and Remote Station requirements.
- 10. Digital Alarm Communicator Transmitter (DACT). The DACT is an interface for communicating digital information between a fire alarm control panel and a UL-Listed central station.
 - a. The DACT shall be compact in size, mounting in a standard module position of the fire alarm control cabinet. Optionally, the UDACT shall have the ability for remote mounting, up to 6,000 feet (1828.8 m) from the fire alarm control panel. The wire connections between the UDACT and the control panel shall be supervised with one pair for power and one pair for multiplexed communication of overall system status. Systems that utilize relay contact closures are not acceptable.

- b. The DACT shall include connections for dual telephone lines (with voltage detect), per UL/NFPA/FCC requirements. It shall include the ability for split reporting of panel events up to three different telephone numbers.
- c. The DACT shall be completely field programmable from a built-in keypad and 4 character red, seven segment display.
- d. The DACT shall be capable of transmitting events in at least 15 different formats. This ensures compatibility with existing and future transmission formats.
- e. Communication shall include vital system status such as:
 - Independent Zone (Alarm, trouble, non-alarm, supervisory)
 - Independent Addressable Device Status
 - AC (Mains) Power Loss
 - Low Battery and Earth Fault
 - System Off Normal
 - 12 and 24 Hour Test Signal
 - Abnormal Test Signal (per UL requirements)
 - EIA-485 Communications Failure
 - Phone Line Failure
- f. The DACT shall support independent zone/point reporting when used in the Contact ID format. In this format the UDACT shall support transmission of up to 2,040 points. This enables the central station to have exact details concerning the origin of the fire or response emergency.

11. Power Supply:

- a. The Power Supply shall operate on 120 VAC, 60 Hz, and shall provide all necessary power for the FACP.
- b. It shall provide 3.0 amps of usable Notification appliance power, using a switching 24 VDC regulator. A 3.0 amp Notification expansion power supply shall be available for the demanding requirements of UL 1971 and ADA devices, for a total system capacity of 6 amps.
- c. It shall provide a battery charger capable of charging batteries up to 17 amp hours.
- d. It shall provide a very low frequency sweep earth detect circuit, capable of detecting earth faults.
- e. It shall be power-limited per 1995 UL864 standards.
- 12. Field Charging Power Supply: The FCPS is a device designed for use as either a remote 24 volt power supply or used to power Notification Appliances.
 - a. The FCPS shall offer up to 6.0 amps (4.0 amps continuous) of regulated 24 volt power. It shall include an integral charger designed to charge 7.0 amp hour batteries and to support 60 hour standby.
 - b. The Field Charging Power Supply shall have two input triggers. The input trigger shall be a Notification Appliance Circuit (from the fire alarm control panel) or a relay. Four outputs (two Style Y or Z and two style Y) shall be available for connection to the Notification devices.
 - c. The FCPS shall include an attractive surface mount backbox.
 - d. The Field Charging Power Supply shall include the ability to delay the AC fail delay per 1993 NFPA requirements.
 - e. The FCPS include power limited circuitry, per 1995 UL standards.
- 13. Field Wiring Terminal Blocks
- Terminal blocks shall have sufficient capacity for 18 to 12 AWG wire.
- 14. Operators Controls
 - a. Acknowledge Switch:
 - 1. Activation of the control panel Acknowledge switch in response to new alarms and/or troubles shall silence the local panel piezo electric signal and change the alarm and trouble LEDs from flashing mode to steady-ON mode. If multiple alarm or trouble conditions exist, depression of this switch shall advance the 40-character LCD display to the next alarm or trouble condition.
 - 2. Depression of the Acknowledge switch shall also silence all remote annunciator piezo sounders.
 - b. Alarm Silence Switch: Activation of the Signal silence switch shall cause all programmed alarm notification appliances and relays to return to the normal condition after an alarm condition. The selection of notification circuits and relays that are silenceable by this switch shall be fully field programmable within the

confines of all applicable standards. The FACP software shall include silence inhibit and autosilence timers.

c. System Reset Switch:

The system reset switch shall cause all electronically-latched initiating devices, appliances or software zones, as well as all associated output devices and circuits, to return to their normal condition.

Holding the system RESET switch shall perform a lamp test function.

- d. Drill (Evacuate) Switch: The drill switch shall activate all notification appliance circuits. The drill function shall latch until the panel is silenced or reset.
- 15. Field Programming
 - a. The system shall be programmable, configurable and expandable in the field without the need for special tools or electronic equipment and shall not require field replacement of electronic integrated circuits.
 - b. All programming may be accomplished through the standard FACP keypad.
 - c. All field defined programs shall be stored in non-volatile memory.
 - d. The programming function shall be enabled with a password that may be defined specifically for the system when it is installed. Two levels of password protection shall be provided in addition to a key-lock cabinet. One level is used for status level changes such as zone disable or manual on/off commands. A second (higher-level) is used for actual change of program information.
 - e. A special program check function shall be provided to detect common operator errors.
 - f. An Auto-Program (self-learn) function shall be provided to quickly install initial functions and make the system operational.
 - g. For flexibility, an off-line programming function, with batch upload/download, shall also be available.
- 16. Specific System Operations
 - a. Alarm Verification: Each intelligent addressable smoke detector in the system shall be independently selected and enabled to be alarm verified. The alarm verification delay shall be programmable from 5 to 30 seconds. The FACP shall keep a count of the number of times that each detector has entered the verification cycle. These counters may be displayed and reset by the proper operator commands.
 - b. Point Disable: Any device in the system may be enabled or disabled through the system keypad.
 - c. Read Status: The system shall be able to display the following status functions:
 - a. Device status.
 - b. Zone status.
 - c. Notification appliance circuit status.
 - d. System parameters.
 - d. System Status Reports: Upon command from an operator of the system, a status report will be generated and printed, listing system status.
 - e. System History Recording and Reporting: The Fire Alarm Control Panel shall contain a History Buffer that will be capable of storing up to 500 system alarms/troubles/operator actions. Each of these activations will be stored and time and date stamped with the actual time of the activation.
 - f. Automatic Detector Maintenance Alert: The Fire Alarm Control Panel shall automatically interrogate each intelligent smoke detector and shall analyze the detector responses over a period of time.
 - g. Software Zones: The FACP shall provide 56 software zones. All addressable devices may be field programmed to be grouped into software zones for control activation and annunciation purposes.
- E. System Components:
 - 1. Programmable Electronic Sounders:
 - a. Electronic sounders shall operate on 24 VDC nominal.
 - b. Electronic sounders shall be field programmable without the use of special tools, to provide slow whoop, continuous, or interrupted tones with an output sound level of at least 90 dBA measured at 10 feet from the device.
 - c. Shall be flush or surface mounted as show on plans.

- 2. Strobe lights shall meet the requirements of the ADA, UL Standard 1971 and shall meet the following criteria:
 - a. The maximum pulse duration shall be 2/10 of one second.
 - b. Strobe intensity shall meet the requirements of UL 1971.
 - c. The flash rate shall meet the requirements of UL 1971.
- 3. Audible/Visual Combination Devices:
 - a. Shall meet the applicable requirements of Section A listed above for audibility.
 - b. Shall meet the requirements of Section B listed above for visibility.
- 4. Manual Fire Alarm Stations
 - a. Manual fire alarm stations shall be non-code, non-break glass type, equipped with key lock so that they may be tested without operating the handle.
 - b. Stations must be designed such that after an actual activation, they cannot be restored to normal except by key reset.
 - c. An operated station shall automatically condition itself so as to be visually detected, as operated, at a minimum distance of 100 feet (30.5 m) front or side.
 - d. Manual stations shall be constructed of high impact Lexan, with operating instructions provided on the cover. The word FIRE shall appear on the manual station in letters one half inch (12.7 mm) in size or larger.
- 5. Conventional Photoelectric Area Smoke Detectors
 - a. Photoelectric smoke detectors shall be a 24 VDC, two wire, ceiling-mounted, light scattering type using an LED light source.
 - b. Each detector shall contain a remote LED output and a built-in test switch.
 - c. It shall be possible to perform a calibrated sensitivity and performance test on the detector without the need for the generation of smoke. The test method shall test all detector circuits.
 - d. A visual indication of an alarm shall be provided by latching Light Emitting Diodes (LEDs). These LEDs shall flash every 10 seconds, indicating that power is applied to the detector.
 - e. The detector shall not go into alarm when exposed to air velocities of up to 3000 feet (914.4 m) per minute.
- 6. Conventional Ionization Type Area Smoke Detectors
 - a. Ionization type smoke detectors shall be a two wire, 24 VDC type using a dual unipolar chamber.
 - b. Each detector shall contain a remote LED output and a built-in test switch.
 - c. It shall be possible to perform a calibration sensitivity and performance test on the detector without the need for the generation of smoke.
 - d. A visual indication of an alarm shall be provided latching Light Emitting Diodes (LEDs). This LED shall flash every 10 seconds, indicating that power is applied to the detector.
 - e. The detector shall not alarm when exposed to air velocities of up to 1,200 feet (365.76 m) per minute. The detector screen and cover assembly shall be easily removable for field cleaning of the detector chamber.
- 7. Duct Smoke Detectors
 - a. Duct smoke detectors shall be a 24 VDC type with visual alarm and power indicators, and a reset switch. Each detector shall be installed upon the composite supply/return air ducts(s), with properly sized air sampling tubes.
- 8. Automatic Conventional Heat Detectors
 - Automatic heat detectors shall have a combination rate of rise and fixed temperature rated at 135 degrees Fahrenheit (57.2 Celsius) for areas where ambient temperatures do not exceed 100 degrees (37.7 Celsius), and 200 degrees (93.33 Celsius) for areas where the temperature does not exceed 150 degrees (65.5 Celsius).
 - b. Automatic heat detectors shall be a low profile, ceiling mount type with positive indication of activation.
 - c. The rate of rise element shall consist of an air chamber, a flexible metal diaphragm, and a factory calibrated, moisture-proof, trouble free vent, and shall operate when the rate of temperature rise exceeds 15 degrees F(9.4 degrees C) per minute.
 - d. The fixed temperature element shall consist of a fusible alloy retainer and actuator shaft.
 - e. Automatic heat detectors shall have a smooth ceiling rating of 2500 square feet (762 square meters).

- 9. Addressable Devices General
 - a. Addressable Devices shall use simple to install and maintain decade (numbered 0 to 9) type address switches. Devices which use a binary address setting method, such as a dip switch, are not an allowable substitute.
- 10. Addressable Pull Box (manual station)
 - a. Addressable pull boxes shall, on command from the control panel, send data to the panel representing the state of the manual switch and the addressable communication module status. They shall use a key operated test reset lock, and shall be designed so that after actual emergency operation, they cannot be restored to normal use except by the use of a key.
 - b. All operated stations shall have a positive, visual indication of operation and utilize a key type reset.
 - c. Manual stations shall be constructed of Lexan with clearly visible operating instructions provided on the cover. The word FIRE shall appear on the front of the stations in raised letters, 1.75 inches (44 mm) or larger.
- 11. Addressable Photoelectric Smoke Detector
 - a. The detectors shall use the photoelectric (light-scattering) principal to measure smoke density and shall, on command from the control panel, send data to the panel representing the analog level of smoke density.
- 12. Addressable Ionization Smoke Detector
 - a. The detectors shall use the dual-chamber ionization principal to measure products of combustion and shall, on command from the control panel, send data to the panel representing the analog level of products of combustion.
- 13. Intelligent Thermal Detectors
 - a. Thermal detectors shall be intelligent addressable devices rated at 135 degrees Fahrenheit (58 degrees Celsius) and have a rate-of-rise element rated at 15 degrees F (9.4 degrees C) per minute. It shall connect via two wires to the fire alarm control panel signaling line circuit.
- 14. Intelligent Duct Smoke Detector
 - a. The in-duct smoke detector housing shall accommodate either an intelligent ionization detector or an intelligent photoelectric detector, of that provides continuous analog monitoring and alarm verification from the panel.
 - b. When sufficient smoke is sensed, an alarm signal is initiated at the FACP, and appropriate action taken to change over air handling systems to help prevent the rapid distribution of toxic smoke and fire gases throughout the areas served by the duct system.
- 15. Addressable Dry Contact Monitor Module
 - a. Addressable monitor modules shall be provided to connect one supervised IDC zone of conventional alarm initiating devices (any N.O. dry contact device) to one of the fire alarm control panel SLCs.
 - b. The monitor module shall mount in a 4-inch square (101.6 mm square), 2-1/8 inch (54 mm) deep electrical box.
 - c. The IDC zone shall be suitable for Style D or Style B operation. An LED shall be provided that shall flash under normal conditions, indicating that the monitor module is operational and in regular communication with the control panel.
 - d. For difficult to reach areas, the monitor module shall be available in a miniature package and shall be no larger than 2-3/4 inch (70 mm) x 1-1/4 inch (31.7 mm) x 1/2 inch (12.7 mm). This version need not include Style D or an LED.
- 16. Two Wire Detector Monitor Module
 - a. Addressable monitor modules shall be provided to connect one supervised IDC zone of conventional 2-wire smoke detectors or alarm initiating devices (any N.O. dry contact device).
 - b. The two-wire monitor module shall mount in a 4-inch square (101.6 mm square), 2-1/8 inch (54 mm) deep electrical box or with an optional surface backbox.
 - c. The IDC zone may be wired for Class A or B (Style D or Style B) operation. An LED shall be provided that shall flash under normal conditions, indicating that the monitor module is operational and in regular communication with the control panel.
- 17. Addressable Control Module

- a. Addressable control modules shall be provided to supervise and control the operation of one conventional NACs of compatible, 24 VDC powered, polarized audio/visual notification appliances. For fan shutdown and other auxiliary control functions, the control module may be set to operate as a dry contract relay.
- b. The control module shall mount in a standard 4-inch square (101.6 mm square), 2-1/8 inch (54 mm) deep electrical box, or to a surface mounted backbox.
- c. The control module NAC may be wired for Style Z or Style Y (Class A/B) with up to 1 amp of inductive A/V signal, or 2 amps of resistive A/V signal operation, or as a dry contact (Form-C) relay. The relay coil shall be magnetically latched to reduce wiring connection requirements, and to insure that 100% of all auxiliary relay or NACs may be energized at the same time on the same pair of wires.
- d. Audio/visual power shall be provided by a separate supervised power circuit from the main fire alarm control panel or from a supervised, UL listed remote power supply.
- e. The control module shall be suitable for pilot duty applications and rated for a minimum of 0.6 amps at 30 VDC.
- 18. Isolator Module
 - a. Isolator modules shall be provided to automatically isolate wire-to-wire short circuits on an SLC Class A or Class B branch. The isolator module shall limit the number of modules or detectors that may be rendered inoperative by a short circuit fault on the SLC loop segment or branch. At least one isolator module shall be provided for each floor or protected zone of the building.
 - b. If a wire-to-wire short occurs, the isolator module shall automatically open-circuit (disconnect) the SLC. When the short circuit condition is corrected, the isolator module shall automatically reconnect the isolated section.
 - c. The isolator module shall not require any address-setting, and its operations shall be totally automatic. It shall not be necessary to replace or reset an isolator module after its normal operation.
 - d. The isolator module shall mount in a standard 4-inch (101.6 mm) deep electrical box or in a surface mounted backbox. It shall provide a single LED that shall flash to indicate that the isolator is operational and shall illuminate steadily to indicate that a short circuit condition has been detected and isolated.
- F. Batteries:
 - 1. Shall be 12 volt, Gell-Cell type (two required).
 - 2. Battery shall have sufficient capacity to power the fire alarm system for not less than twenty-four hours plus 5 minutes of alarm upon a normal AC power failure.
 - 3. The batteries are to be completely maintenance free.
- G. Installation:
 - 1. Installation shall be in accordance with the NEC, NFPA 72, local and state codes, as shown on the drawings, and as recommended by the major equipment manufacturer.
 - 2. All conduit, junction boxes, conduit supports and hangers shall be concealed in finished areas and may be exposed in unfinished areas. Smoke detectors shall not be installed prior to the system programming and test period. If construction is ongoing during this period, measures shall be taken to protect smoke detectors from contamination and physical damage.
 - 3. All fire detection and alarm system devices, control panels and remote annunciators shall be flush mounted when located in finished areas and may be surface mounted when located in unfinished areas.
- H. Test:
 - 1. Provide the service of a competent, factory-trained engineer or technician authorized by the manufacturer of the fire alarm equipment to technically supervise and participate during all of the adjustments and tests for the system. All testing shall be in accordance with NFPA 72, Chapter 7.
 - a. Before energizing the cables and wires, check for correct connections and test for short circuits, ground faults, continuity, and insulation.
 - b. Close each sprinkler system flow valve and verify proper supervisory alarm at the FACP.

- c. Verify activation of all flow switches.
- d. Open initiating device circuits and verify that the trouble signal actuates.
- e. Open and short signaling line circuits and verify that the trouble signal actuates.
- f. Open and short Notification Appliance Circuits and verify that trouble signal actuates.
- g. Ground all circuits and verify response of trouble signals.
- h. Check presence and audibility of tone at all alarm notification devices.
- i. Check installation, supervision, and operation of all intelligent smoke detectors using the Walk Test.
- j. Each of the alarm conditions that the system is required to detect should be introduced on the system. Verify the proper receipt and the proper processing of the signal at the FACP and the correct activation of the control points.
- k. When the system is equipped with optional features, the manufacturer's manual should be consulted to determine the proper testing procedures. This is intended to address such items as verifying controls performed by individually addressed or grouped devices, sensitivity monitoring, verification functionality and similar.

I. Final Inspection:

1. At the final inspection a authorized representative of the manufacturer of the major equipment shall demonstrate that the systems function properly in every respect.

J. Instruction:

- 1. Provide instruction as required for operating the system. Hands-on demonstrations of the operation of all system components and the entire system including program changes and functions shall be provided.
- 2. The Contractor and/or the Systems Manufacturer's authorized representatives shall provide a typewritten "Sequence of Operation."

2.18 TELEPHONE/DATA SYSTEM:

- A. This Contractor shall furnish and install all telephone and data system outlet boxes and wiring.
- B. The Contractor shall furnish telephone/data conduits as indicated on the plans. Telephone/Data cables shall be Cat.5e.
- 2.19 LIGHTING CONTACTORS:
 - A. This Contractor shall furnish and install lighting contactors as herein described and indicated in the contactor schedule on the plans. Contactors shall be an Asco type 917 or approved equal as manufactured by Square D or General Electric.
 - B. 20 Ampere rating Asco 917
 - 1. The remote control switch shall be electrically operated by a dual-acting, single-solenoid mechanism that is inherently interlocked and mechanically held in both the open and closed positions. The main contact shall be power driven in both directions. Positive locking of contact positions shall not be dependent on gravity, hooks, latches or semi-permanent magnets.
 - 2. The remote control switch shall be capable of operating in any position. Provisions shall be incorporated for manual operation during inspection and maintenance.
 - 3. The remote control switch shall be Underwriters' Laboratories listed under U 508. Main contacts shall be double-break, continuous-duty rated 20 amperes to 600 volts, AC, 60 Hz (30 amperes to 600 volts ACm 60 Hz, for general-purpose loads), and be marked for ballast lighting (electric discharge lamps), tungsten and general-purpose loads. Lighting contactors requiring derating when used in an enclosure or with tungsten lamp loads shall not be acceptable.
 - 4. The remote control switches shall be provided with clamp-type, self-rising terminal plates for solderless connection of line, load and control conductors. Terminals shall accept a wire range of #18 AWG to #10 AWG CU.

- 5. The number of poles, up to a maximum of 12, on a single remote control lighting contactor shall be provided as indicated on the plans.
- 6. The remote control switches shall be U listed for the following short-circuit withstand current ratings when coordinated with a U-listed molded case circuit breaker rated 30 amperes:

22,000 amps rms symmetrical, 250 volts, 60 Hz

- 7. The operating coil and main contacts shall be replaceable from the front without major disassembly and visual indication shall be provided for each contact.
- 8. Provisions shall be included to permit remote pilot lamp-type visual indications without the necessity for auxiliary contacts or additional wiring.
- 9. Each remote control switch shall be furnished with an owner's manual providing installation and operation instruction.
- 10. Provide accessory No. 48 three wire control interface module. Interface module shall allow the building solid state energy management system to control contactors.

2.20 OCCUPANCY SENSOR (WALL)

- A. This Contactor shall furnish and install wall mounted infrared occupancy sensors (WS Series) as manufactured by Watt Stopper of approved equal.
- B. The wall mounted occupancy sensors shall meet the following requirements:
 - 1. Coverage of 180 degrees, maximum 900 sq. ft.; 300 sq. ft. for desktop activity.
 - 2. Dual 120/277 voltage.
 - 3. The Watt Stopper's ASIC technology reduces components and enhances reliability.
 - 4. Pulse count processing eliminates false offs without reducing sensitivity.
 - 5. Detection Signature Analysis eliminates false triggers; provides immunity to RFI and EMI.
 - 6. Utilizes the Watt Stopper's exclusive Zero Crossing Circuitry Patented.
 - 7. Digital time delay adjustable from 30 seconds up to 30 minutes.
 - 8. Adjustable unit sensitivity from 20% to 100%.
 - 9. Integrated light level sensor works from 2 to 200 footcandles.
 - 10. LED for sensitivity calibration.
 - 11. Small size: 2.7: x 1.8: x 2.2: (60mm x 45mm x 56mm) L x W x D.
 - 12. Compatible with all electronic ballasts and PL amp ballasts.
 - 13. Voltage drop protection Patented.
 - 14. For safety, there is no leakage to load in off mode; Sensor is safety grounded for UL and CUL listed Five year warranty.
 - 15. Single relay types shall be Watt Stopper Model DW100.
 - 16. Dual relay types shall be Watt Stopper Model DW200.

2.21 OCCUPANCY SENSORS (CEILING)

- A. This Contractor shall furnish and install ceiling mounted infrared occupancy sensor (CI-200 Series) as manufactured by Watt Stopper or approved equal.
- B. The system shall be complete with power packs and slave power packs as indicated on the drawings.
- C. Ceiling Mounted Occupancy Sensors
 - 1. The ultrasonic occupancy sensors shall be capable of detecting presence in the floor area to be controlled by detecting doppler shifts in transmitted ultrasound.
 - 2. Ultrasonic sensing shall be volumetric in coverage with a frequency of 32.768 kHz at ∀0.002%. They shall utilize Advanced Signal Processing which automatically adjusts the detection threshold dynamically to compensate for constantly changing levels of activity and air flow throughout controlled areas.
 - 3. Sensors of varying frequencies shall not be allowed so as to prevent sensors from interfering with

each other and to assure compatibility in the event more sensors are added.

- 4. Sensors shall have temperature and humidity resistant, 32 kHz tuned ultrasonic receivers. Receivers shall have less than a 6dB shift in the humidity range of 10% to 90% and less than a 10dB shift in the temperature range of -20° to 60° C.
- 5. Detection shall be maintained when a person of average size and weight moves only within or a maximum distance of twelve inches either in a horizontal or vertical manner at the approximate speed of 12 inches per second. The sum of this distance, volume and speed represent the average condition ultrasonic sensors must meet in order for the lights to not go off when a person is reading or writing while seated at a desk.
- 6. Sensors shall have a DIP switch override-ON function for use in the event of failure. The LED is maintained ON so as to be visible from the floor as a constant reminder that the automatic function has been by-passed.
- 7. Sensors shall incorporate an output disable feature for easy troubleshooting.
- 8. Sensors shall be ceiling mounted and shall not protrude more than 1.50 inches to blend in aesthetically with the ceiling. The sensors shall offer two mounting options.
- 9. The WT-600, WT-1100, and WT-2200 shall have an additional single-pole, double-throw isolated relay with normally open, normally closed, and common outputs rated at 1 Amp for 24 VDC. The isolated relay is available for use with HVAC control, data logging, and other control options.
- 10. For accuracy, sensors shall have a DIP switch controlled, digital time delay that shall be adjustable from 15 seconds to 30 minutes.
- 11. Sensors shall have user-adjustable sensitivity setting.
- 12. Sensors shall cover 360° and up to 600 square feet for WT-605 and WT-600, 1100 square feet for WT-1005 and WT-1100, and 2200 square feet for WT-2200.
- 13. Sensitivity and timer controls shall be accessible from the front of the sensor and shall be concealed by a hinged cover.
- 14. To ensure quality and reliability, sensor shall be manufactured by an ISO 9002 certified manufacturing facility and shall have a defect rate of less than 1/3 of 1%.
- 15. Ultrasonic occupancy sensors shall be UL and CUL listed.
- 16. Sensors shall have a standard 5 year warranty.
- D. Power and Slave Packs
 - 1. Power pack shall be a self contained transformer and relay module measuring 1.75" x 2.75" x 1.5".
 - 2. For ease and speed of installation, power and slave pack shall have 1/2" snap-in nipple for 1/2" knockouts and mounting on outside of enclosure
 - 3. Power and slave packs shall have dry contacts capable of switching 20 amp ballast load, 13 amp incandescent, 1 hp @ 120 VAC, 60Hz; 20 amp ballast @ 277 VAC, 60 Hz; 15 amp ballast @ 347 VAC, 60Hz; 15 amp ballast, 1 hp @ 220-240 VAC, 60 Hz; and 20 amp ballast, 13 amp incandescent, 1 hp @ 220-240 VAC, 50 Hz.
 - 4. Power packs shall provide a 24 VDC, 150 mA output.
 - 5. Power packs shall be capable of parallel wiring without regard to AC phases on primary.
 - 6. Slave packs shall be identical in physical size of power packs and contain no transformer power supply and shall switch 120VAC, 277 VAC, 347 VAC or low voltage.
 - 7. Power pack can be used as a stand alone, low voltage switch, or can be wired to sensor for auto control.
 - 8. Power and slave packs shall have low voltage teflon coated leads, rated for 300 volts, suitable for use in plenum applications.
 - 9. To ensure quality and reliability, power and slave packs shall be manufactured by an ISO 9002 certified manufacturing facility and shall have a defect rate of less than 1/3 of 1%.
 - 10. Power and slave packs shall have a 5 year warranty.
 - 11. Power and slave packs shall be UL and CUL listed.
- E. Acceptable Manufacturers
 - 1. The Watt Stopper, or Pre-Approved Equal: For pre-approval, provide all the information listed

- under section 1.04A and 1.04D a minimum of ten (10) working days prior to initial bid date.
- 2. The listing of any manufacturer as "acceptable" does not imply automatic approval. It is the sole responsibility of the electrical contractor to ensure that any price quotations received and submittals made are for sensors which meet or exceed the specifications included herein.

PART 3 - EXECUTION

3.1 DRAWINGS

- A. The drawings are generally diagrammatic and are intended to convey the scope of work and indicate general arrangements of equipment, ducts, conduits and fixtures. The locations of all items shown on the drawings or called for in the Specifications that are not definitely fixed by dimensions are approximate only. The exact location necessary to secure the best conditions and results must be determined at the project and shall have the approval of the Architect before being installed. This Subcontractor shall follow drawings in laying out work and checking drawings of other trades to verify spaces in laying out work to be installed.
- B. Maintain maximum headroom and space conditions are all points. Where headroom or space conditions appear inadequate, Architect shall be notified before proceeding with the installation. If directed by the Architect, this Subcontractor shall, without extra charge, make reasonable modifications in the layout as needed to prevent conflict with work of other trades or for proper execution of the work. The Architect shall be the sole judge of what a "reasonable modification" in the layout is.

3.2 WORKMANSHIP

A. The entire work provided in this Specification shall be constructed and finished in every respect in a workmanlike and substantial manner. It is not intended that the drawings shall show every pipe, fitting and appliance, but Subcontractor shall furnish and install all such parts as may be necessary to complete the systems in accordance with the best trade practice and satisfaction of the Architect.

3.3 INSTALLATION OF WIRING AND CONDUIT

- A. In general, all conduits shall be run concealed unless otherwise indicated to be run exposed.
- B. Exposed conduits shall be run parallel to, or at right angles to, the walls of the building, and all bends shall be made with standard conduit ells or conduits bent to, not less than, the same radius. Horizontal runs of exposed conduits shall be close to ceiling beams, passing over water or other piping where possible and shall be supported by pipe straps or by other approved means, not more than 5' apart. Installation of exposed conduits in finished areas of the building shall be checked with the Architect for layout before installation to conform to the pattern of the structural members, and when completed, is to present the most unobtrusive appearance possible. No exposed conduits will be permitted on walls or partitions in public areas.
- C. In no place shall a conduit be run within 3" of hot water pipes, or appliances, except where crossing is unavoidable and, in that case, the conduit shall be kept at least 1" from covering or pipe crossed.
- D. Conduits shall be supported on approved type if galvanized wall brackets, ceiling trapeze, strap hangers or pipe straps, secured by means of toggle bolts on hollow masonry units or expansion bolts in concrete or brick, matching screws on metal surfaces and wood screws on wood construction. No nails shall be used as a means of fastening boxes or conduits.
- E. In general, no splices or joints will be permitted in either feeder or branches except at outlets or accessible junction boxes.
- F. All splices in wire #8 AWG and smaller shall be standard pigtail, made mechanically tight, soldered and insulated with proper thickness of insulating tape. Wire splicing nuts as manufactured by Minnesota Mining Company (Scotch Lock) or Ideal wire nuts may be used, subject to the local wire inspector.
- G. Wire #6 and larger shall be connected to panels and apparatus by means of approved lugs or connectors.

Connectors shall be solderless type, sufficiently large to enclosure all strands of the conductors and securely fastened.

- 3.4 CUTTING, PATCHING AND DRILLING
 - A. It shall be the duty of the General Contractor to provide all cutting, patching, and drilling necessary for the electrical installation.

3.5 GROUNDING

A. This Subcontractor shall furnish all fittings, clamps, conduits and wire of proper size to make ground connections between all apparatus and conduit and the water piping as required by the latest edition of the National Electrical Code and as indicated on the Drawings. Any ground wires shall be run in conduit of size required by the National Electrical Code.

3.6 QUIET OPERATION

A. All equipment and material furnished by this Subcontractor shall operate under all conditions of load without objectionable noises or vibrations, which, in the opinion of the Architect, is objectionable. Where sound or vibration conditions arise which are considered objectionable by the Architect, this Subcontractor shall eliminate same in a manner approved by the Architect.

3.7 TESTS

- A. Furnish all labor, material, instruments, supplies, and services and bear all costs for the accomplishment of tests herein specified. Correct all defects appearing under test, and repeat the tests until no defects are disclosed. Leave the equipment clean and ready for use.
- 3.8 FINAL INSPECTION AND TEST
 - A. Prior to test, feeders and branches shall be continuous from service contact point to each outlet; all panels, feeders and devices connected and fuses in place. Test system free from short circuits and grounds with insulation resistances not less than outlined in the National Electrical Code. Provide testing equipment necessary and conduct test in presence of the Owner's authorized representative.

3.9 GUARANTEE

A. All materials, items of equipment and workmanship furnished under this Section shall carry the standard warranty against all defects in materials and workmanship for a period of not less than one (1) year from the date of final acceptance of the work.

3.10 SLEEVES AND OPENINGS

A. Sleeves and openings for piping through walls, floors and other parts of the structure shall be provided at all points shown on the Contract Drawings and where indicated by the Architect. The conduit shall go through the sleeve consisting of the next size conduit that will provide clearance. Sleeve ends shall be flush with surfaces.

3.11 WIRING METHODS

- A. Secondary electric service (telephone service and cable television system service) shall be installed overhead and in rigid steel conduit to associated equipment.
- B. Electrical metallic tubing may be utilized for branch circuit wiring where branch circuit wiring is installed exposed.
- C. Armored cable type "MC" may be used for branch circuit wiring in hung ceilings and partitions of the building unless otherwise herein described or indicated on the plans.
- D. Fire alarm system wiring shall be installed in electrical metallic tubing.

E. Telephone system wiring shall be installed in electrical metallic tubing.

3.12 SUPERINTENDENCE OF WORK

A. The Electrical Subcontractor shall give his personnel superintendence to the work and shall retain at the job tie during the period of construction, a competent foreman, satisfactory to the Architect, who shall be in full charge of the work under this Section.

3.13 PROTECTION

A. The Electrical Subcontractor shall be responsible for his work and equipment until finally inspected, tested and accepted; careful storage of materials and equipment which are not immediately installed after delivery to site; and closure of open ends of work with temporary covers or plugs during construction to prevent entry of obstructing material.

3.14 SPECIAL COORDINATION INSTRUCTIONS:

- A. Coordination with the work of other trades is referred to within various parts of this Section of the Specifications. The following special instructions shall also be carefully noted:
 - 1. This Subcontractor shall obtain from the Heating, ventilating and Air Conditioning Contractor copies of all shop drawing prints showing the ductwork installation as it will be put in place on the project. These drawings shall be thoroughly checked by this Subcontractor, and the routing of all conduits and installation of all outlets and electrical equipment shall be coordinated with the ductwork so as to prevent any installation conflict. Such coordination shall be done prior to roughing-in conduits, outlets and electrical equipment.
 - 2. Locations of all wall outlets shall be verified with the Architect prior to roughing-in conduits or cables. Refer to details and wall elevations on the architectural drawings; mounting heights indicated on these architectural drawings and/or specific dimensional information given to this Subcontractor by the Architect shall take precedence over such information indicated on the electrical drawings.
 - 3. Refer to all other drawings associated with this project. Locations of lighting fixtures shall conform to the architectural reflected ceiling plans where applicable.
 - 4. If any discrepancy is found to exist between the electrical plans and any other drawings associated with the project, notify the Architect at once and have location verified before work is installed. Any reasonable change in location of outlets and equipment prior to installation shall not involve additional expense to the Owner. The term "reasonable" shall be interpreted at moving outlets or equipment locations a maximum of ten (10) feet in any direction from the location indicated on the Drawings.
 - 5. All feeder, branch circuit or auxiliary system wiring passing through pull boxes and/or being made up in panelboards shall be properly grouped, bound and tied together in a neat and orderly manner, in keeping with the highest standards of the trade, with plastic cable ties. Loose ends of the cable ties shall be properly trimmed after making up same. Cable ties shall be TY-Raps as manufactured by Thomas & Betts, or Holub Industries, Inc., Quick-Wrap, or Burndy Unirap, or equal.
 - 6. Branch circuits and auxiliary system wiring shall be peeled out of the wiring gutters of the terminal cabinets and panels at 90 degrees to circuit breakers and terminal lugs for connecting to same.
 - 7. All duplex convenience and power receptacles shall be mounted vertically with the grounding post to the bottom as the outlet is viewed from the front.
 - 8. Reflected ceiling plans for any and all areas prepared by the Architect showing the location of lighting fixtures shall take precedence over the locations of same shown on the lighting plans of this contract set of Drawings. The Electrical Subcontractor shall install the lighting fixtures in any given area to agree with the Architect's reflected ceiling plans.
 - 9. At all points where steel support channels are cut and the unprotected steel is epoxed, two (2)

coats of any approved rust preventative paint shall be applied to the bare surfaces, after proper cleaning. This requirement shall also apply to exposed job-cut threads of rigid steel conduit.

- 10. Color and type of rust preventative paint shall be as directed by the Architect. In general, the paint for metals which are galvanized shall be aluminum paint and others will be of a zinc chromate type, or as otherwise approved.
- 11. All miscellaneous hardware and support accessories, including support rods, nuts, bolts, screws, and other such items, shall be of a galvanized or cadmium plated finish, or of other approved rust-inhibiting coatings. Care should be taken that fixtures shall not be installed on both sides of existing or new building expansion joints.
- 12. The Electrical Contractor shall provide all materials, equipment and workmanship to provide for adequate protection of all electrical equipment during the course of construction of the project. This shall also include protection from moisture and all foreign matter. The Subcontractor shall also be responsible for damage which he causes to be done to the work of other trades and shall remedy any such injury at his own expense.
- 13. The Electrical Subcontractor shall furnish and install approved insulation at terminal connection points for all electrical conducting materials, such as transformer terminals, terminal studs, and at any other special locations as directed by the Architect. The determination of whether or not such special live parts shall be insulated shall rest exclusively with the Architect.
- 14. Specific reference is made to Article 380-8 of the National Electrical Code, relating to accessibility and mounting heights of switches and circuit breakers used as switches. It shall be herein understood that this article shall also apply to the mounting heights of switches and/or circuit breakers in panelboards. Switches and/or circuit breakers in panelboards shall be located so that they may be operated from a readily accessible place and shall be so installed that the center of the grip of the operating handle of the switch or circuit breaker, when in its highest position, will not be more than 6-1/2 (six and one-half) feet above the finished floor or working platform. It shall also be herein understood that this requirement shall take precedence over any contradictory notes, dimensions or details which may be indicated on the Contract Drawings. All panelboards shall be mounted at a height to conform to this requirement.

3.15 SECONDARY ELECTRICAL SERVICE:

- A. The existing building utilization voltage is 120/240 volts, 1-phase, 3-wire, originating at as new pad mounted transformer.
- B. Eversource will furnish and install meters, current transformers, and test switches for installation by this Contractor.
- C. The Contractor shall make final connection at the pad mounted transformer.
- D. Contractor shall pay all backcharges assessed by the utility company.

3.16 AS BUILT DRAWINGS

- A. Operating and instruction manuals shall be submitted prior to testing of the system, four (4) complete sets of operating and instruction manuals shall be delivered to the Owner upon completion.
- B. A complete set of reproducible Mylar as-builts, showing installed wiring and color coding and wire tag notations, exact locations of all installed equipment, specific interconnections between all equipment and internal wiring of the equipment shall be delivered to the Owner upon completion of the system.
- C. Complete, simple comprehensive, step-by-step, testing instructions giving recommended and required testing frequency of all equipment, methods for testing each individual piece of equipment, and a complete trouble shooting manual explaining what might be wrong if a certain malfunction occurs and explaining how to tests the primary internal part of each piece of equipment, shall be delivered to the Owner upon completion of the system.
- D. Maintenance instructions shall be complete, easy to read, understandable, and shall provide the following information:

- 1.
- Instruction on replacing any components of the system, including internal parts. Instructions on periodic cleaning and adjustment of equipment with a schedule of these functions. 2.
- 3. A complete list of all equipment and components with information as to the address and phone number of both the manufacturer and local supplier of each item.

END OF SECTION



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April 4, 2018

Electrical Supplemental Specification Restoration of Camp Arrowhead Natick, MA

ITEM 1 Bath House Electrical

The Bath House, shown on Drawing G1, is powered off of the Main 200A Panel in the building. The scope of this project shall include the reconnection of the Bath House circuit to the new 200A panel, re-using existing conductors and conduit. Bidders shall assume that no other upgrades are required for the existing electrical systems in the existing Bath House.

ITEM 2 Septic Pump Station Power and Controls

In Specification Section 26 00 00, Insert the following subsection:

3.17 Septic Pump Station Power and Controls

A. The existing Pump Control Box, located on the east wall of the existing mechanical room will be preserved by the demo contractor (separate contract) for re-use in this project.

B. Due to space planning modifications, the location of the existing Pump Control Box (indicated on Drawing Sheet X-1) will be modified.

C. Bidders shall assume that the Pump Control Box is in full working condition. The existing Pump Control Box shall be relocated and re-used, wall mounted over sufficient blocking, in Storage 106 in an area close to the existing location.

D. The Electrician shall connect a new power circuit to the Pump Control Box, and reconnect all control wiring, alarm circuits, etc. to establish a fully functioning system. Extend existing wiring as needed by the new location. Verify that all system components, including grounding, are functioning.

Page 1 of 1

SECTION 31 33 00 EARTHWORK FOR BUILIDNG

PART 1 - GENERAL

1.01 GENERAL

A. Attention is directed to general provisions of the CONTRACT, including
GENERAL and SUPPLEMENTARY CONDITIONS, and all sections within DIVISION
1 - GENERAL REQUIREMENTS, which are hereby made a part of this Section of the
Specifications as if fully repeated herein.

B. Coordinate work with that of all other trades affecting, or affected by the work of this Section. Cooperate with such trades to assure the steady progress of all work under the Contract.

- 1.02 FILING OF SUB-BIDS (Not Applicable)
- 1.03 SCOPE OF WORK

A. This Section includes the general scope of work to furnish the administration, facilities, materials, labor and equipment for the following:

- 1. Earthwork at footings for entrance canopy structure
- 2. Earthwork at concrete Slab on Grade Patching

1.04 RELATED WORK SPECIFIED ELSEWHERE

A. The following related work or materials shall be provided under the designated Sections and coordinated by the Contractor:

- 1. Section 03 30 00, Cast in place concrete
- 2. DIV 32, Portland Cement Concrete Paving (exterior)
- 1.05 ALTERNATES (N.A.)
- 1.06 SUBMITTALS

A. Attention is directed to Section 01 30 00 regarding required procedures for Submittals.

B. Submittals are required for the following: (SD = Shop Drawing) (FS = Field Sample) (OS = Samples)
(PD = Printed Data)1.Laboratory Test ReportsPD

C. Submit sieve analysis and moisture density curve for each material and each source to be used.

PART 2 - PRODUCTS AND MATERIALS

- 2.01 MATERIALS
- A. General Fill Material: Soil materials free of clay, rock or gravel larger than 3 inches in any dimension, debris, waste, frozen materials, vegetation and other deleterious matter.
- B. Structure Backfill: Sand and Gravel which are sound, durable and free of organic and other deleterious materials conforming to the following limits of gradation:
- C. Subbase Material: Sand and gravel which are sound, durable and free of organic and other deleterious materials conforming to the following limits of gradation:
- D. D. Suitable Native Soil: On site sand or gravel reasonably free of loam, silt, clay or organic matter. Maximum 15% by weight passing No. 200 sieve.

PART 3 - EXECUTION

3.01 INSPECTION / JOB CONDITIONS

A. Notify Architect/Engineer of unexpected subsurface conditions and discontinue affected work in area until notified to resume work.

3.02 EXCAVATION

A. Remove groundwater by pumping to keep excavations dry.

B. Excavate subsoil required for building foundations. Hand Trim Excavations. Remove loose material.

C. Notify Engineer a minimum of 48 hours prior to excavating to schedule a review of native soil conditions. Footings have been designed for a minimum soil bearing capacity of {xxxx} psf.

D. Compact disturbed load bearing soil in direct contact with footings to original bearing capacity.

E. Place a minimum of 6" of crushed stone beneath footings if standing water or clay soils are encountered in excavations.

F. Correct unauthorized excavation at no cost to Owner.

G. Fill over-excavated areas under structure bearing surfaces with suitable welldrained material, approved by Engineer, in 6" lifts. Compact to 98% standard proctor.

3.03 BACKFILLING AND COMPACTION

A. Coordinate placement of Vapor Retarder with Architect, Geotechnical Engineer and Division 7 Specifications.

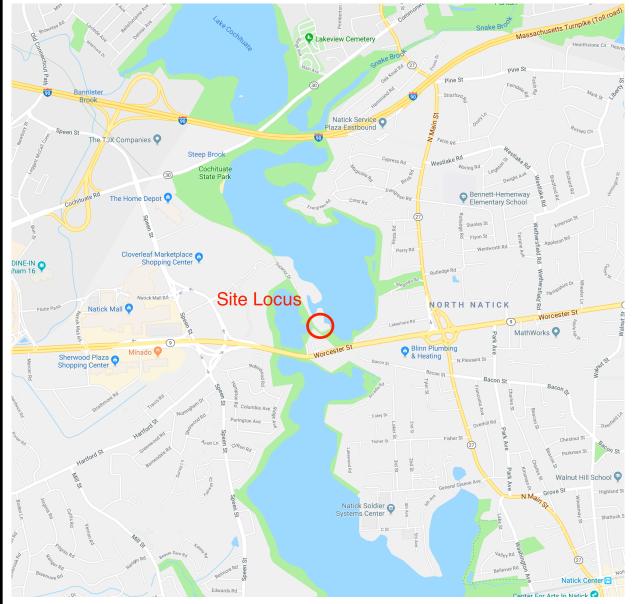
B. Do not place fill materials on surfaces that are muddy, frozen or contain frost or ice.

- C. Use unfrozen and unsaturated materials.
- E. Backfill systematically, as early as possible, to allow maximum time for natural settlement.
- F. Place fill material in equal continuous layers not exceeding 8" of compacted depth for hand held compaction equipment and a maximum of 12" compacted depth for vibratory rollers. Compact in accordance with Backfill Requirements and Testing at the end of this section.
- G. Employ placement method so not to disturb or damage foundations or foundation perimeter drain.
- H. Maintain optimum moisture content of backfill materials to attain required compaction density.
- I. Backfill against supported foundation walls. Do not backfill walls with fill on one side only until concrete has achieved a minimum of 70 percent of its design strength.
- J. Backfill simultaneously on each side of foundation walls not designed for retainage of soil on one side.
- K. Perform laboratory material test in accordance with ASTM D1557.
- L. Perform in place compaction tests in accordance with ASTM D2922.

3.03 BACKFILL REQUIREMENTS

- A. Fill within building envelope:
 - 1. Material: Structure Backfill
 - 2. Compaction: 95% Modified Proctor
 - 3. Testing: Every other lift, every 1000 square feet.
- B. Backfill along exterior of building at frost walls:
 - 1. Material: Suitable Native Soil
 - 2. Compaction: 90% Modified Proctor
- C. Backfill behind retaining and/or basement walls, outside of building envelope:
 - 1. Material: Structure Backfill
 - 2. Compaction: 90% Modified Proctor
 - 3. Testing: Every other lift, every 1000 square feet.
- D. Gravel below slabs:
- 1. Material: Structure Backfill, Crushed Gravel
- 2. Compaction: 95% Modified Proctor
- 3. Testing: Every 1000 square feet.

END OF SECTION 31 33 00



LOCUS PLAN

Code Summary

Use Classification: A-3 Construction Type VB

Occupancy - 100 (40 Campers and 60 Staff)

Existing Enclosed Area: 2,067 SF Proposed Enclosed Area: 2,067 SF

Existing Height: 17' +/-Proposed Height: 17' +/-

Note: Structure is for "seasonal use".

Camp Arrowhead Restoration

Town of Natick 13 East Central Street Natick, MA 01760

FA3 Fire Alarm Legend

List of Drawings

G1	Cover	M
C1 C2	Site Site Details	A 44
X1 XS1	Existing Floor Plan Existing Structural Section and Details	B
A1 A2 A3	Proposed Floor Plan Enlarged Plan Proposed Building Sections	(5
A4 A5 A6 A7 A8	Proposed Elevations Windows Reflected Ceiling Plan Interior Elevations Doors	<u>S</u> M 23 W
S1 S2	Structural Framing and Details Framing and Details	(2
P0.1 P1.0 P1.1 P2.0	Plumbing Schedule Under Slab Plumbing Above Ground Plumbing Plumbing Riser Diagram	<u>E</u>
	HVAC Plan HVAC Schedule	V 54 S
E1 E2 E3 FA1 FA2	Electrical Lighting Plan Electrical Power Plan Legend and Schedules Fire Alarm Plan Attic Fire Alarm Plan	(7

B C N M Camp Arrowhead Restoration Town of Natick



Consultants

lechanical:

KAL Engineering, Inc. 4 Central Street Berlin, MA 01503

508) 869-0403

tructural:

12 Structural Engineering PC 3 Thornbury Way VIndham, ME 04062

207) 892-0983

lectrical:

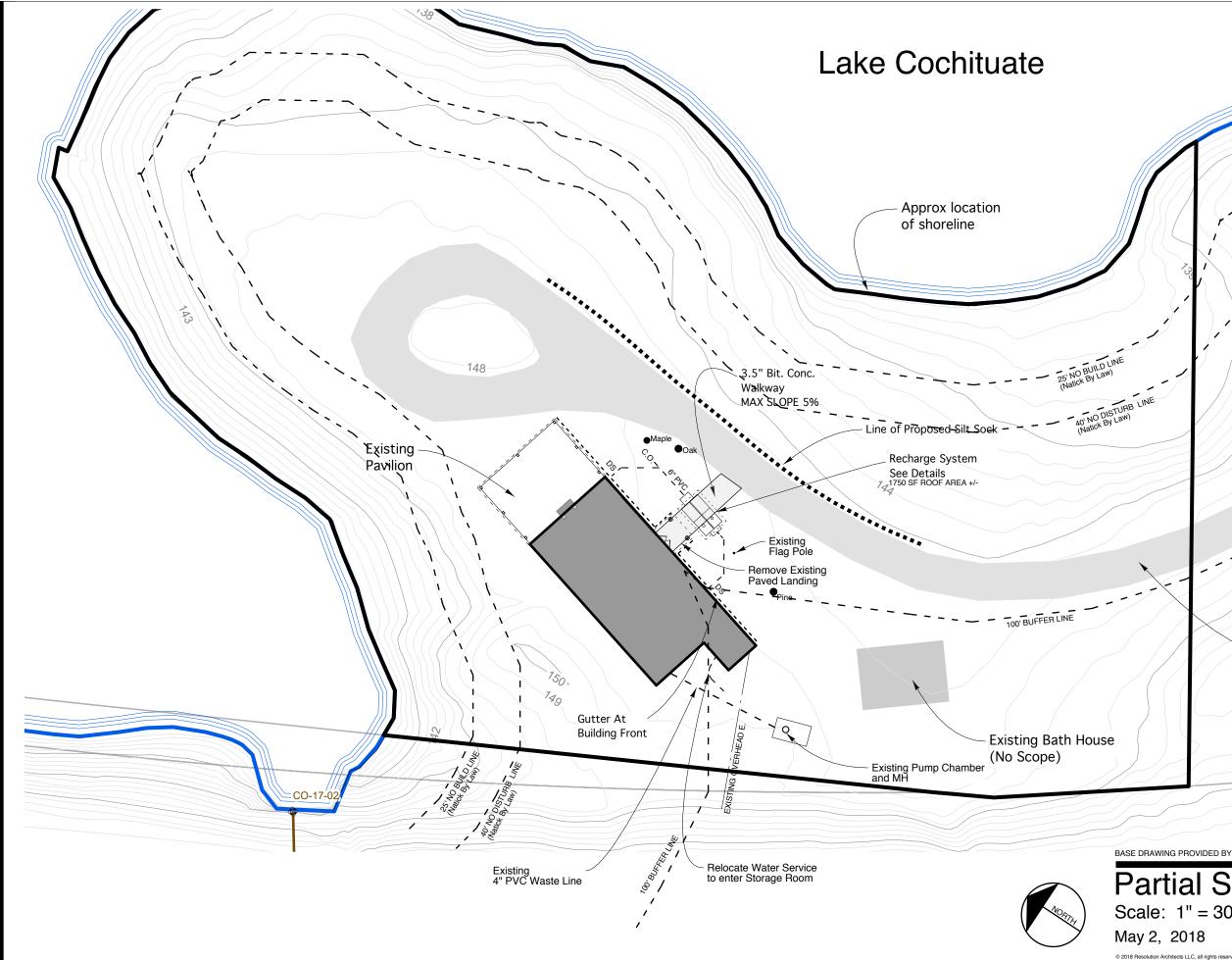
GNA Inc. 41 Main Street #420 South Weymouth, MA 02190

781) 335-4200

BID SET

Cover No Scale May 2, 2018 Line prints at 4" for 100% Rep





Camp Arrowhead Restoration Town of Natick **RESOLUTION** A R C H I T E C T S DO SOUTH AVENUE NATIVE (508) 315-566 A To Route 9 **Existing Paved Access** Drive BASE DRAWING PROVIDED BY NATICK DPW, GIS DIVISION Line prints at 4" for 100% Rep Partial Site Plan Scale: 1" = 30'



CULTEC RECHARGER 280HD CHAMBER SYSTEM

INSPECTION PORT DETAIL

NOT TO SCALE

24"

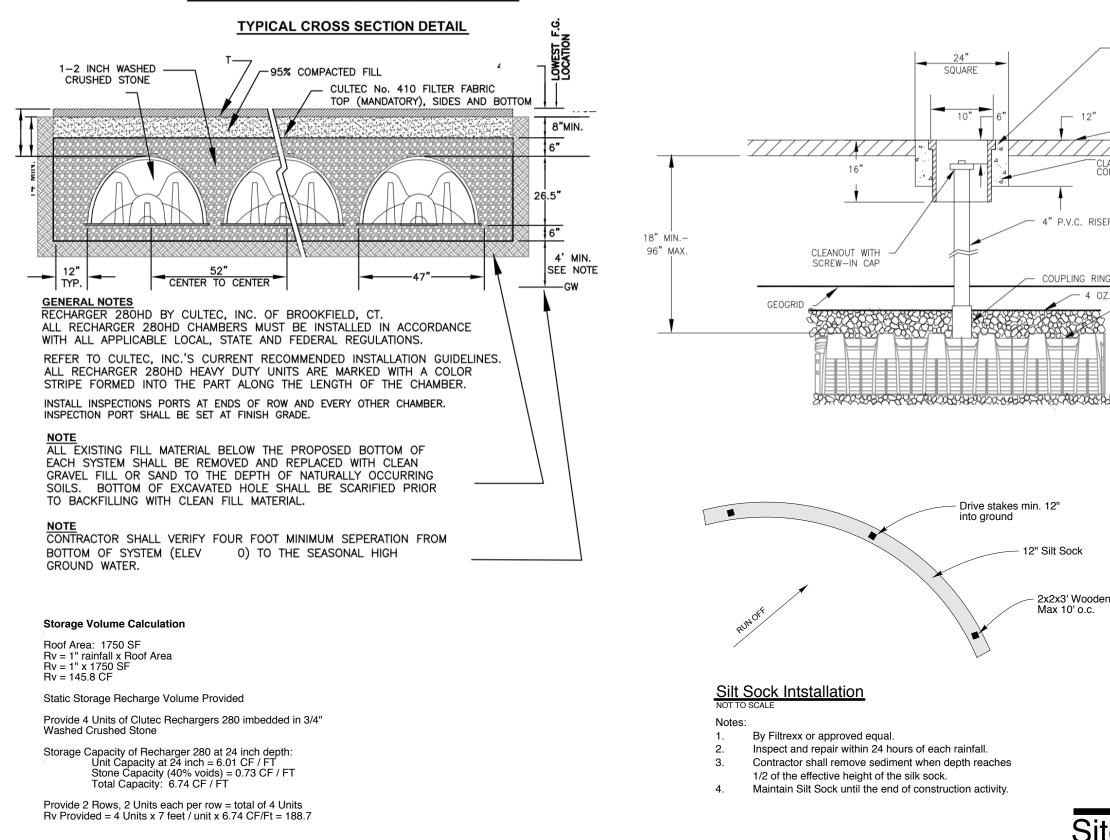
SQUARE

10"

Drive stakes min. 12"

12" Silt Sock

into ground





Camp Arrowhead Restoration Town of Natick

FLOOR BOX FRAME AND LID NEENAH R-7506 OR EQUAL W/S.S. CAP SCREW LID CLOSURE

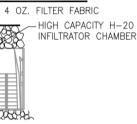


12"

-PAVEMENT CLASS "C

4" P.V.C. RISER

COUPLING RING



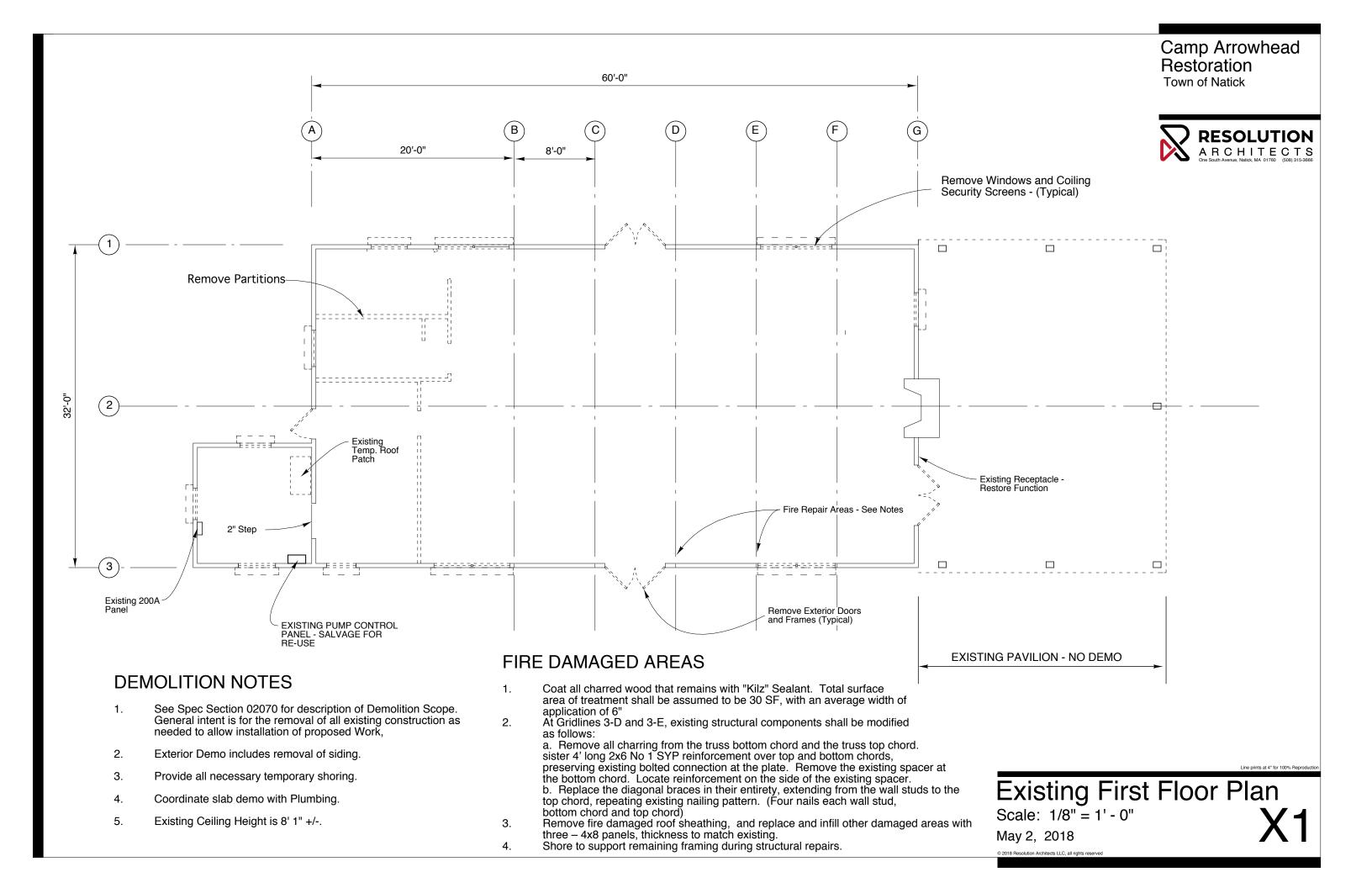
2x2x3' Wooden Stake Max 10' o.c.

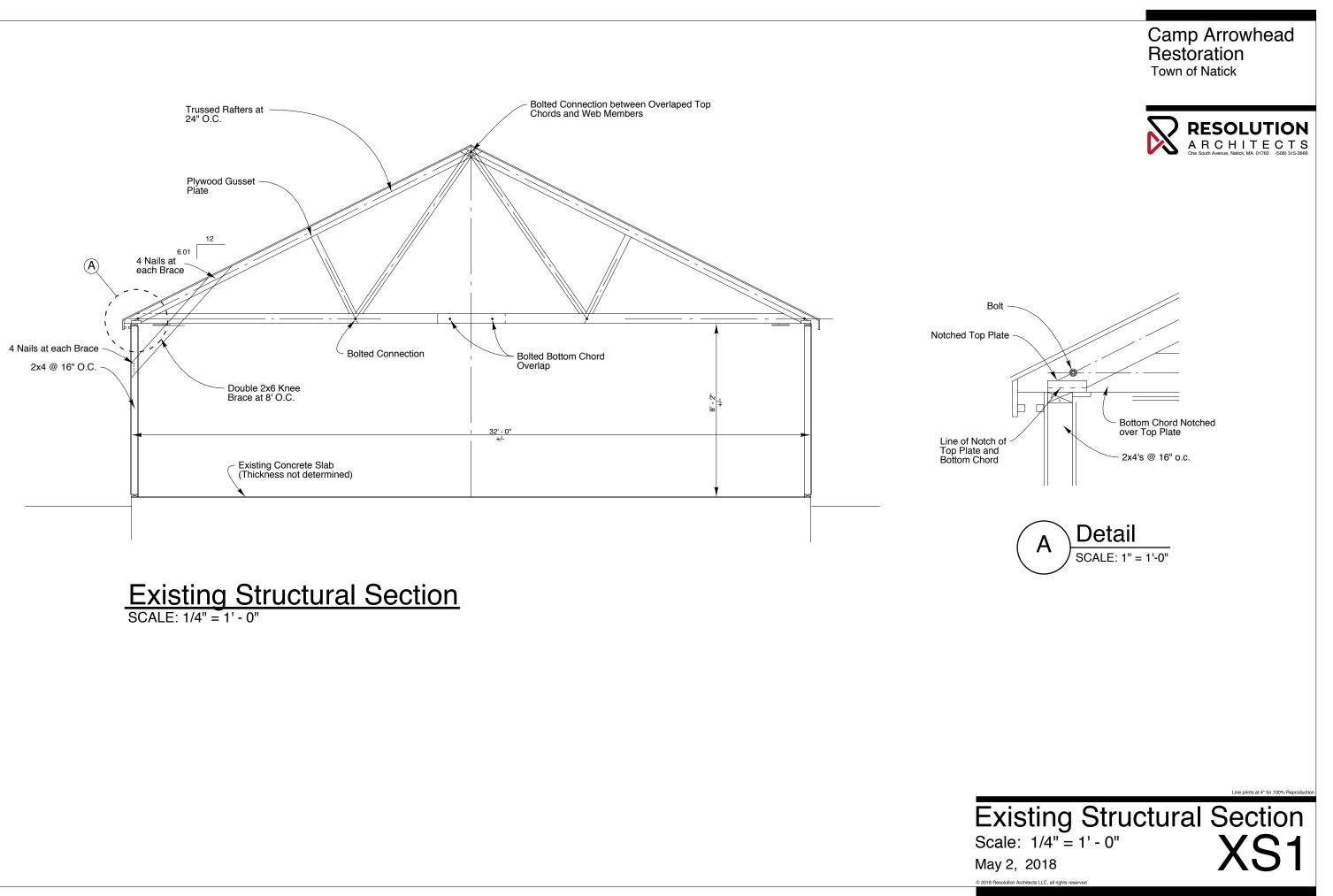
> Site Details Scale: None May 2, 2018

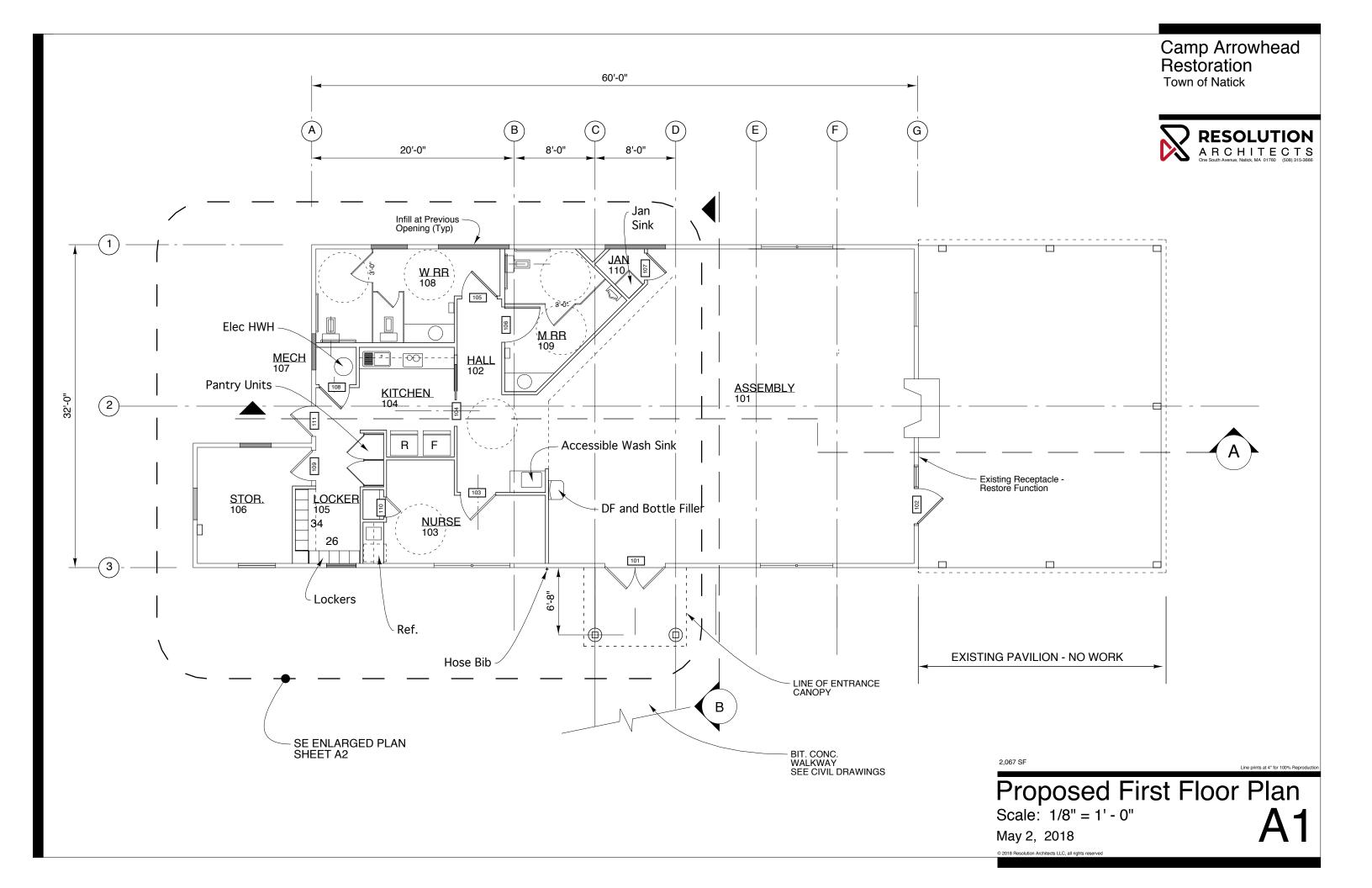
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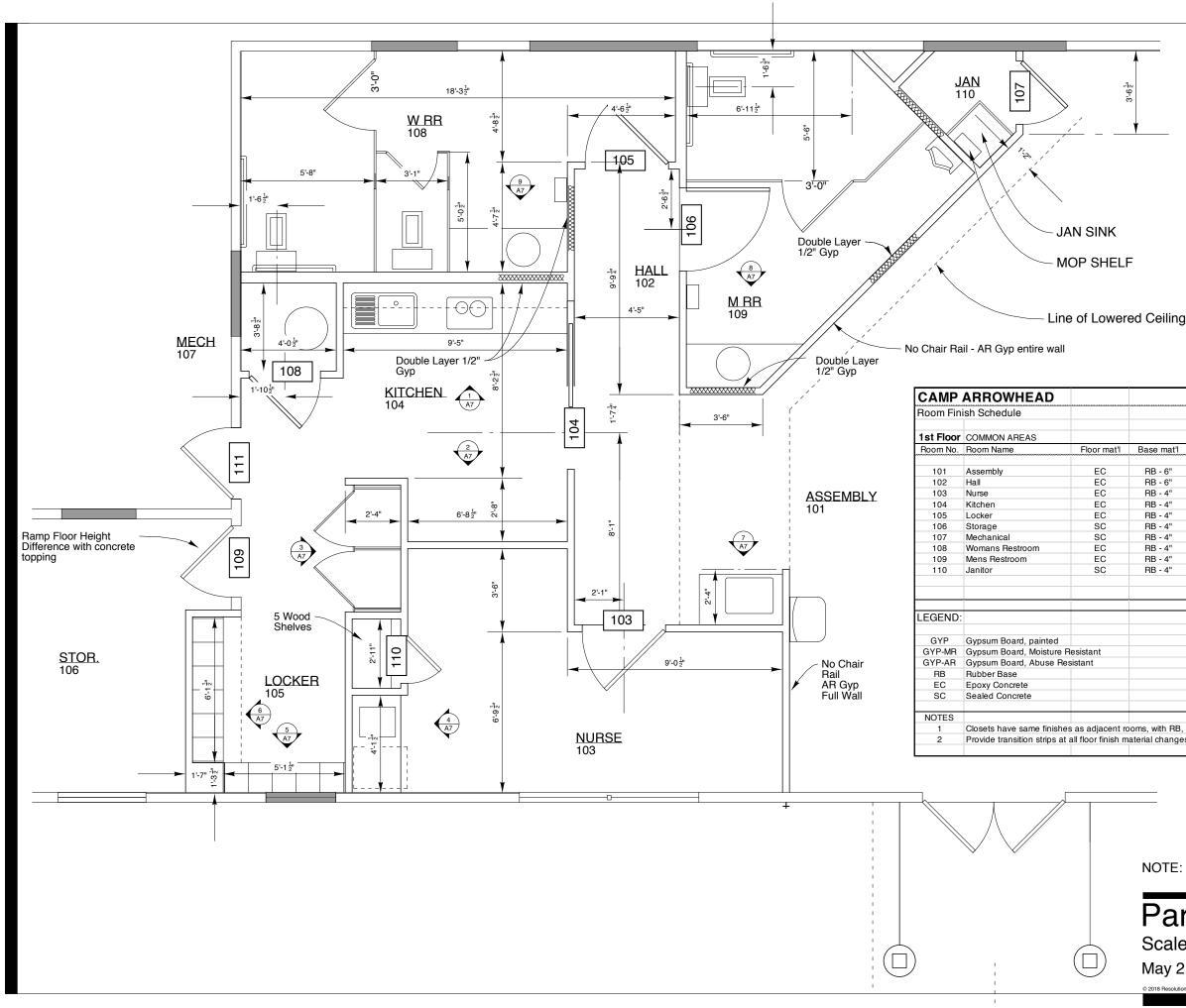
Line prints at 4" for 100% Reproc











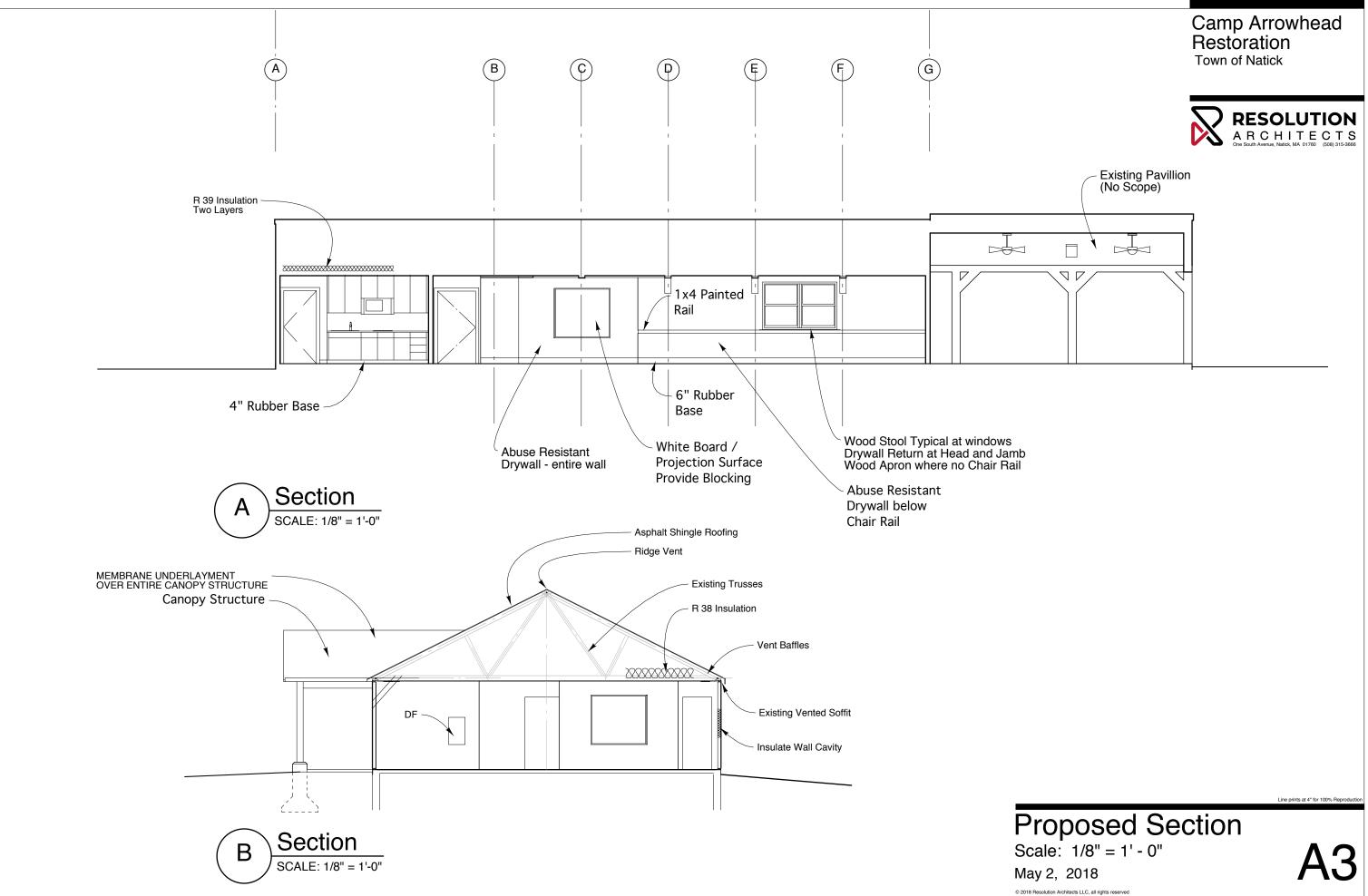
Camp Arrowhead Restoration Town of Natick

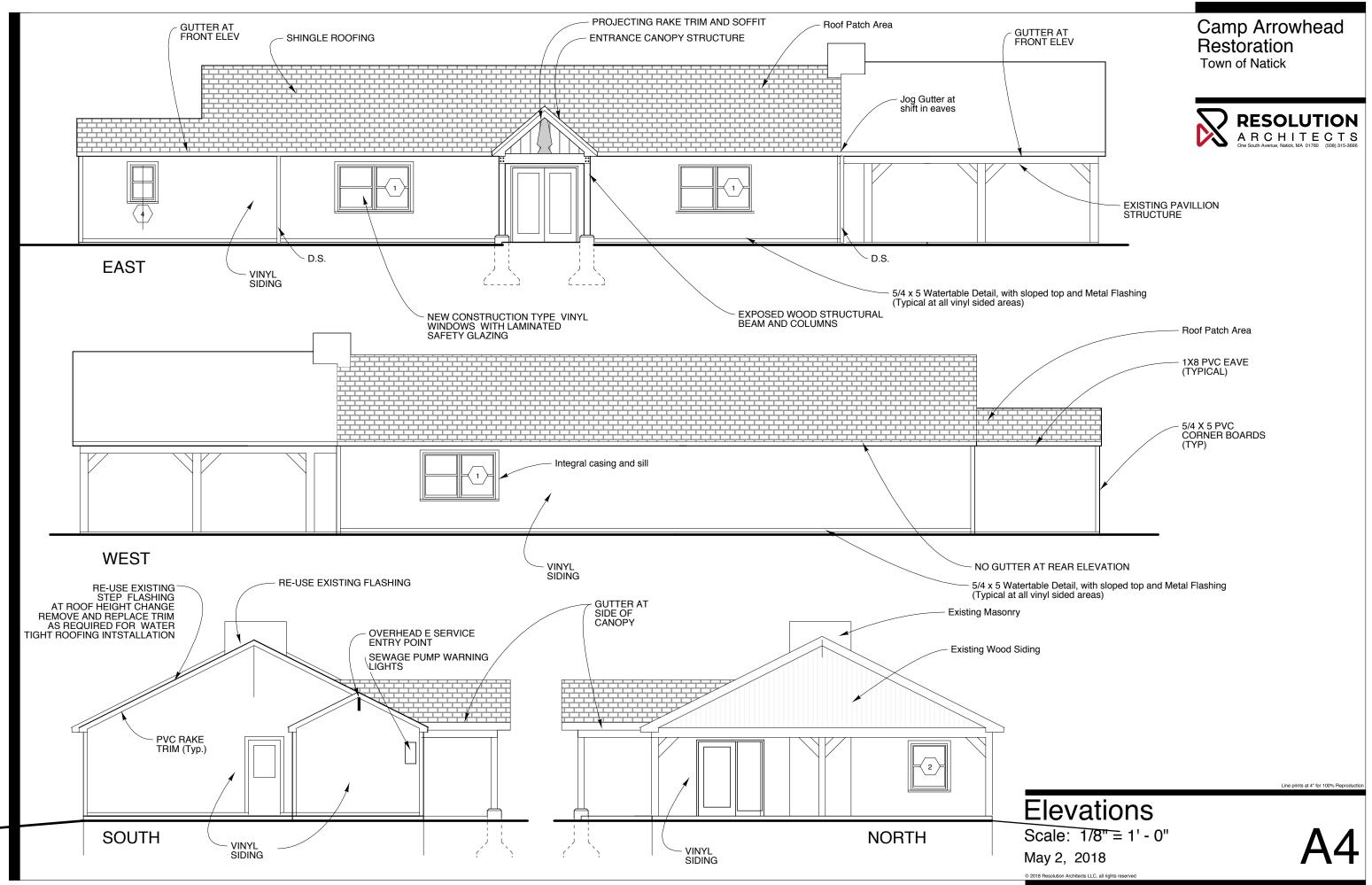


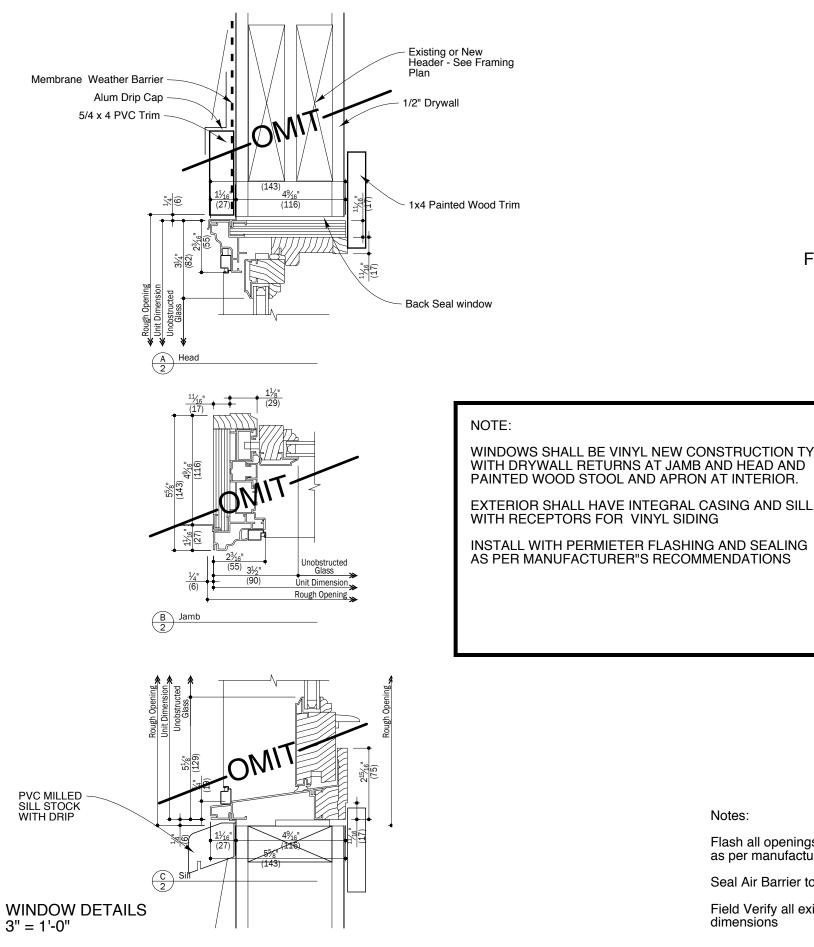
			Î		
******	**********	***************************************			
e mat'l	Wall mat'l	Ceiling mat'l	Remarks		
3 - 6"	GYP / GYP AR	GYP	Partial Chair Rail / See RCP for Ceiling Layout		
3 - 6"	GYP AR	GYP			
3 - 4"	GYP	GYP			
3 - 4"	GYP	GYP			
3 - 4"	GYP	GYP			
3 - 4"	GYP	GYP			
3 - 4"	GYP-MR	GYP			
3 - 4"	GYP AR	GYP-MR			
3 - 4"	GYP AR	GYP-MR			
3 - 4"	GYP-MR	GYP-MR			
with RB, except Unit Mech Closets, which have sealed cement underlayment					
changes, unless otherwise noted					
onungoo					

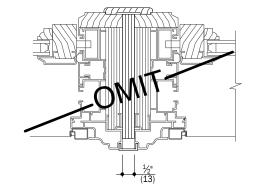
NOTE: ALL DIMENSIONS ARE TO FACE OF STUD

Partial Enlarged Floor Plan Scale: 1/4" = 1' - 0" May 2, 2018 May 2, 2018 © 2018 Resolution Architects LLC, all rights reserv









FACTORY MULLED DETAIL - 1/2" x 5-3/16" LVL JOIN

WINDOWS SHALL BE VINYL NEW CONSTRUCTION TYPE WITH DRYWALL RETURNS AT JAMB AND HEAD AND PAINTED WOOD STOOL AND APRON AT INTERIOR. EXTERIOR SHALL HAVE INTEGRAL CASING AND SILL, WITH RECEPTORS FOR VINYL SIDING

Factory Mull

Factory Mull

Notes:

Flash all openings with flexible membrane flashing, as per manufacturer'e recommendations.

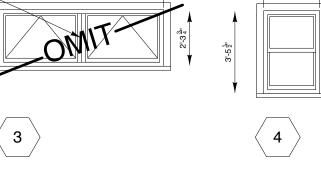
Seal Air Barrier to membrane flashing.

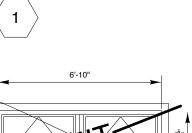
Field Verify all existing and new R.O. dimensions

Windows Scale: As Noted May 2, 2018 © 2018 Resolution Architects LLC, all rights reserve

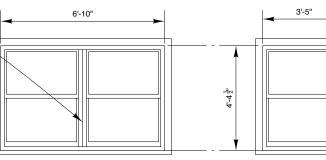
Line prints at 4" for 100% Reproc

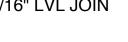
WINDOW TYPES 1/4" = 1'-0"







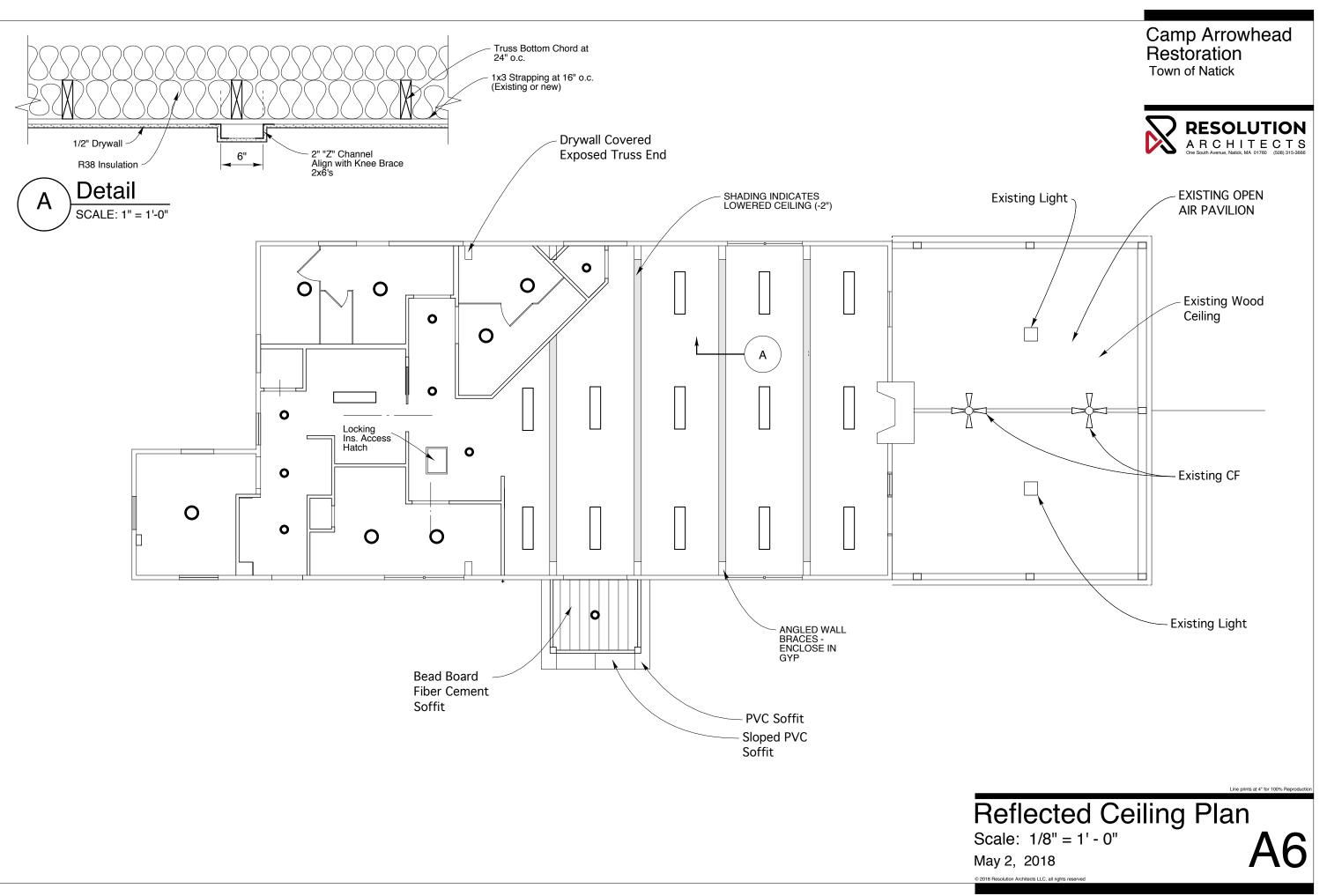


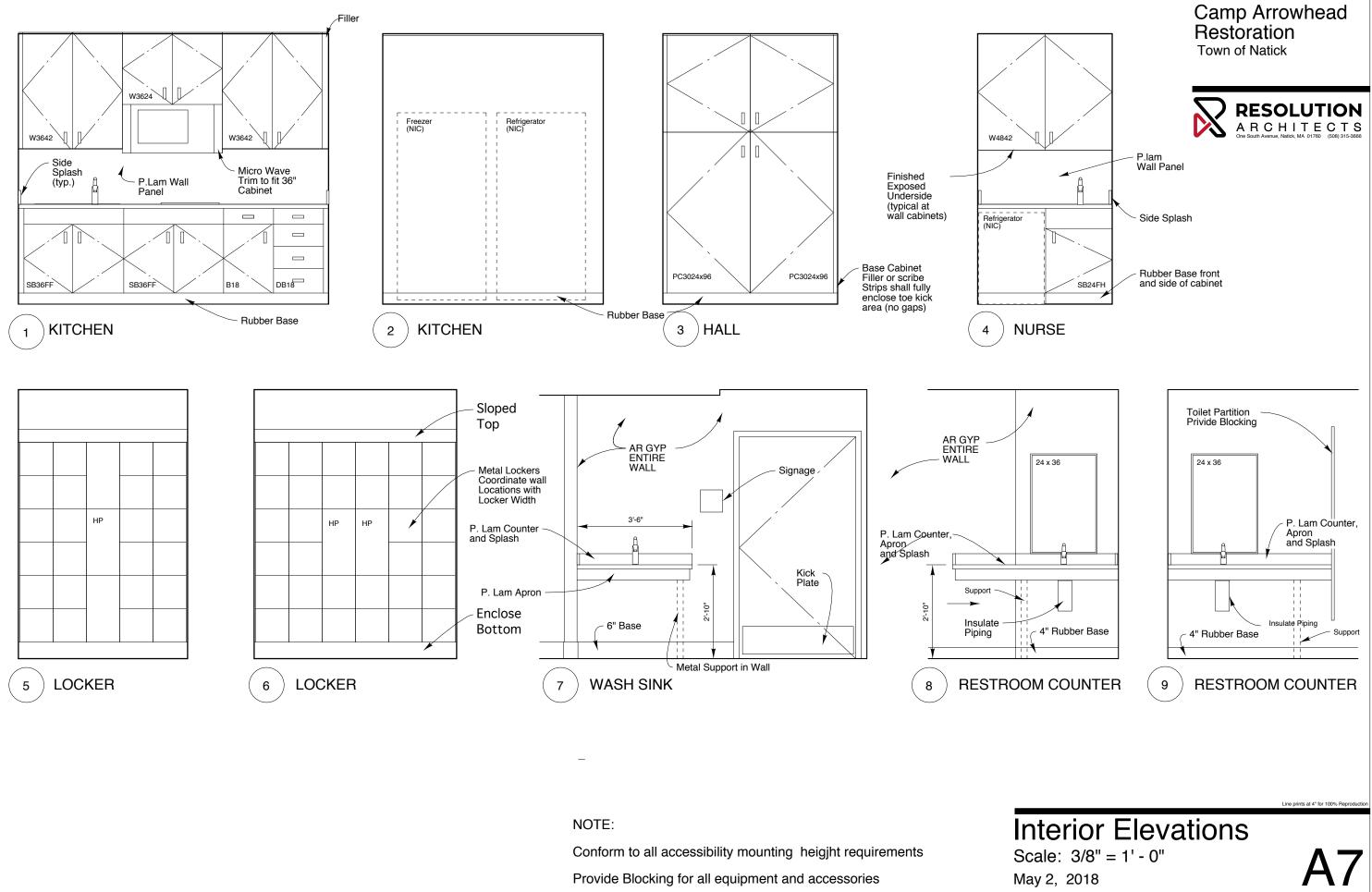




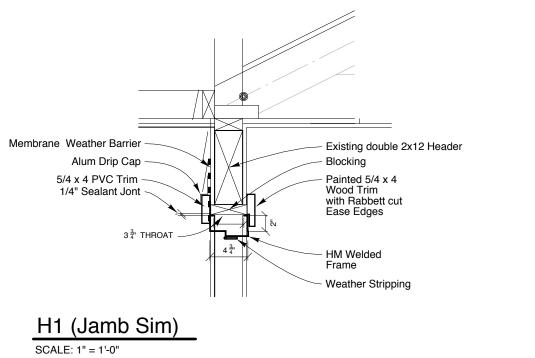
2

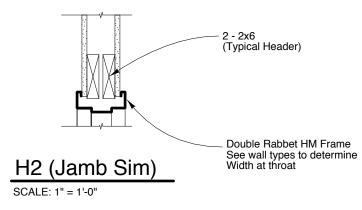
Camp Arrowhead Restoration Town of Natick

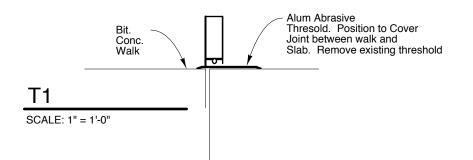




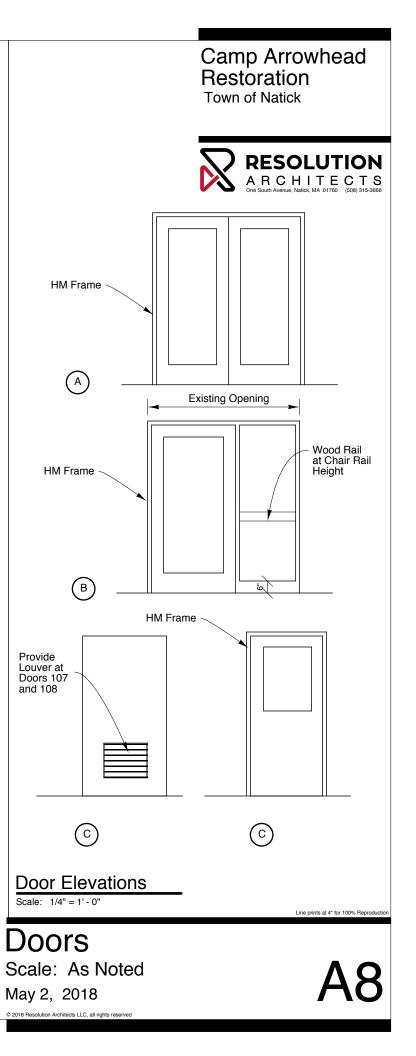
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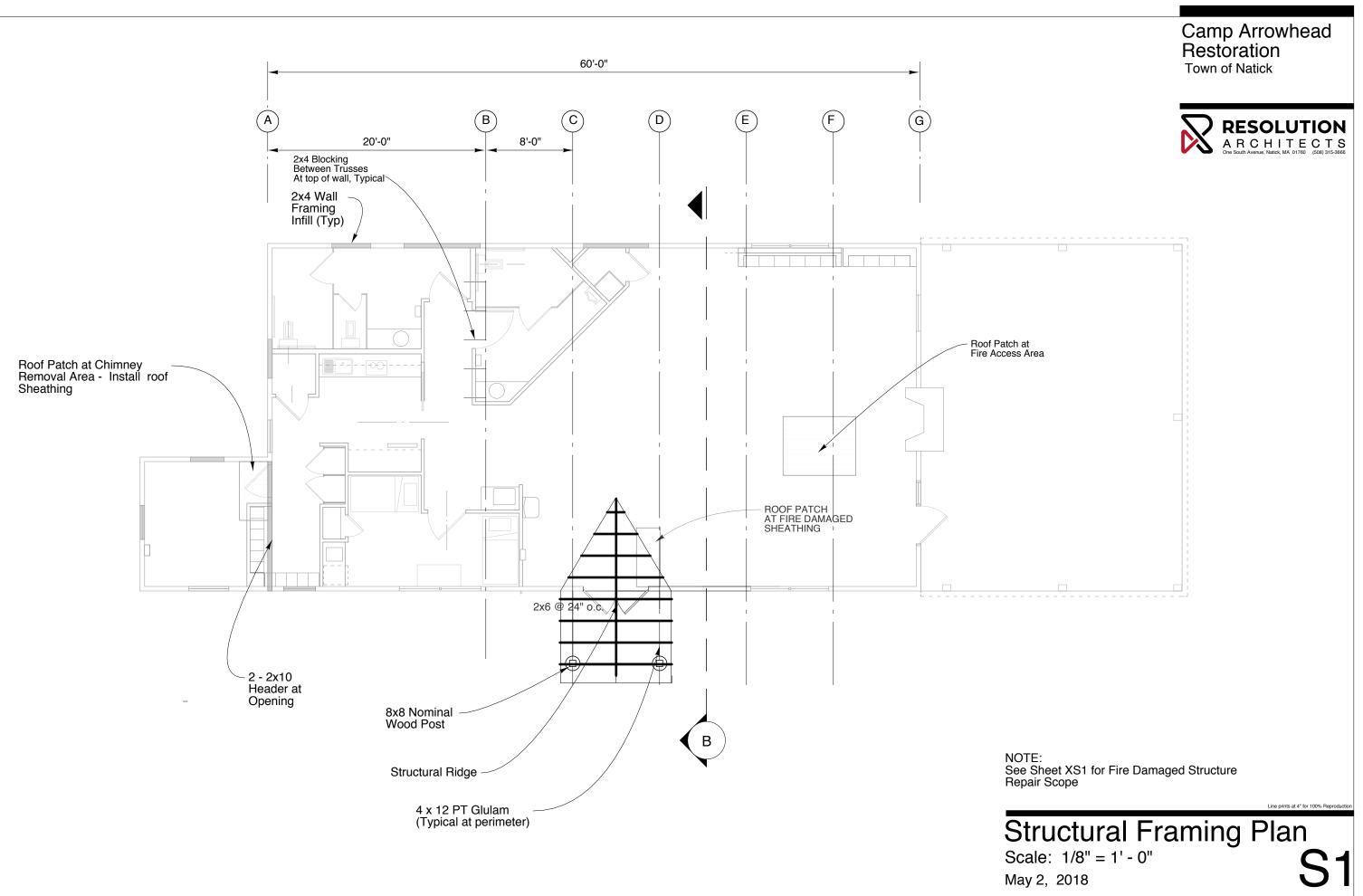




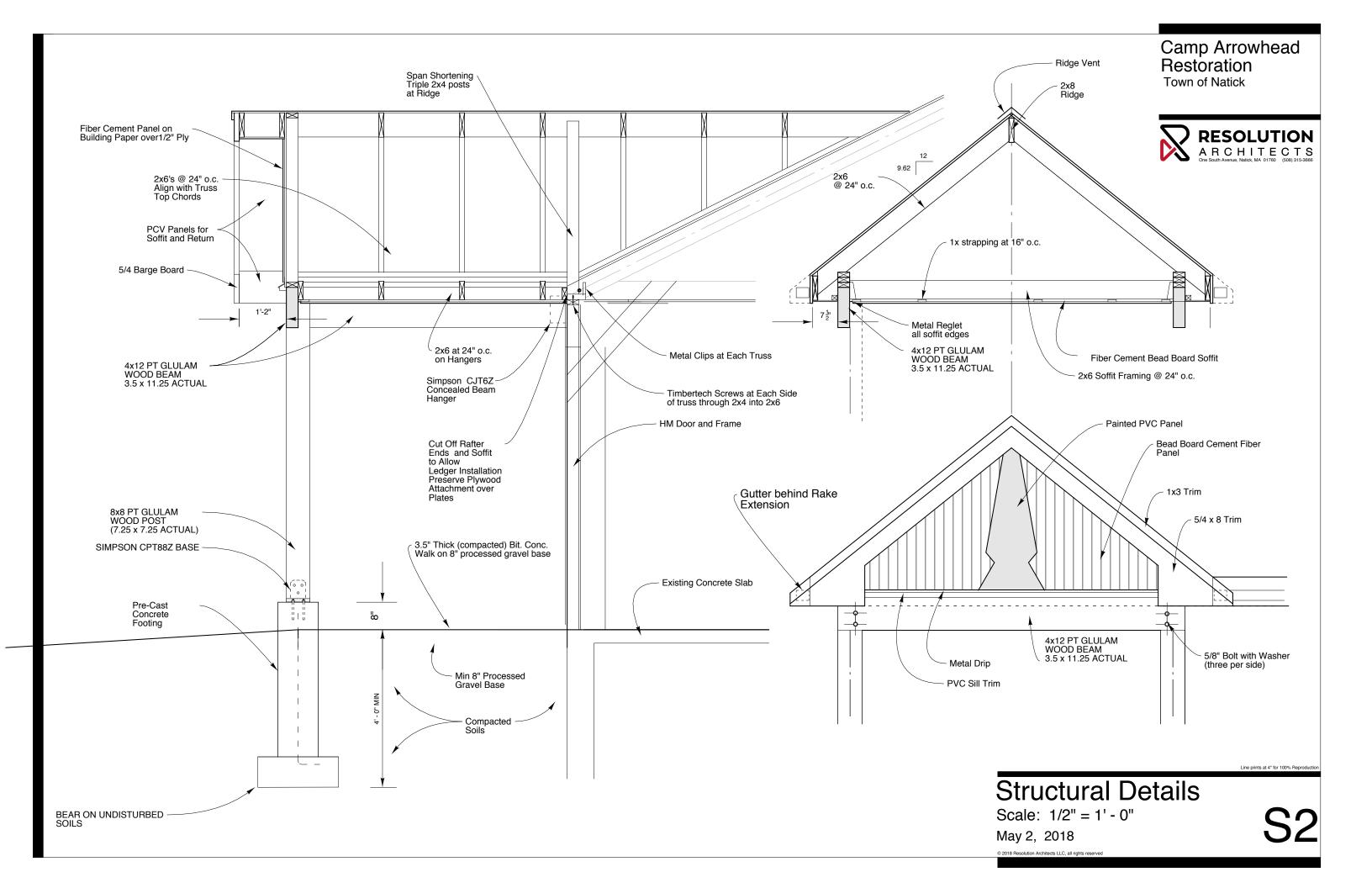


Door	Schedule																		
Door # Location / Type	C	oor Siz	ze			Materia	al					Details	Frame Type Hdv		dw.				
Door #	Location / Type	Width	Height	Thickness	Metal	Wood Panel	Solid-Core Wood Flush	Hollow-Core Flush Wood	Reserved	Label (Min)	Glazing	Elevation	Head, Jamb, Sill	Metal	Wood	Keying	Group #	Comments	
101	Main Entry - Paired	6'-0"	7'-0"	1-3/4"	Х						Х	Α	H1 / T1	Х			1A		
102	Side Entry	3'-6"	7'-0"	1-3/4"	Х						Х	В	H1 / T1	Х			1B		
103	Nurse	3'-6"	6'-8"	1-3/4"			Х					С	H2	Х			2		
104	Kitchen - Pocket	3'-6"	6'-8"	1-3/4"			Х					С	H2	Х			3	Pocket Door Frame with ADA compliant lockset	
105	Girls Restroom	3'-6"	6'-8"	1-3/4"			Х					С	H2	Х			5		
106	Boys Restroom	3'-6"	6'-8"	1-3/4"			Х					С	H2	Х			5		
107	Janitor	2'-8"	6'-8"	1-3/4"			Х					С	H2	Х			4	Knurled Lever Handle	
108	Mechanical	3'-0"	6'-8"	1-3/8"			Х					С	H2	Х			4	Knurled Lever Handle	
109	Storage	3'-0"	6'-8"	1-3/4"			Х					С	H2	Х			6	Knurled Lever Handle	
110	Closet	2'-6"	6'-8"	1-3/4"			Х					С	H2	Х			6		
111	Side Entrance	3'-0"	7'-0"	1-3/4"	Х						Х	D	H1 / T1	Х			1B		
		_												_					

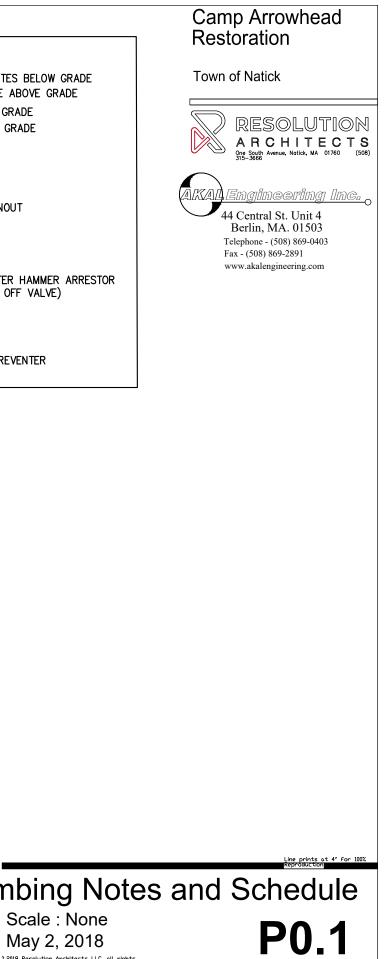




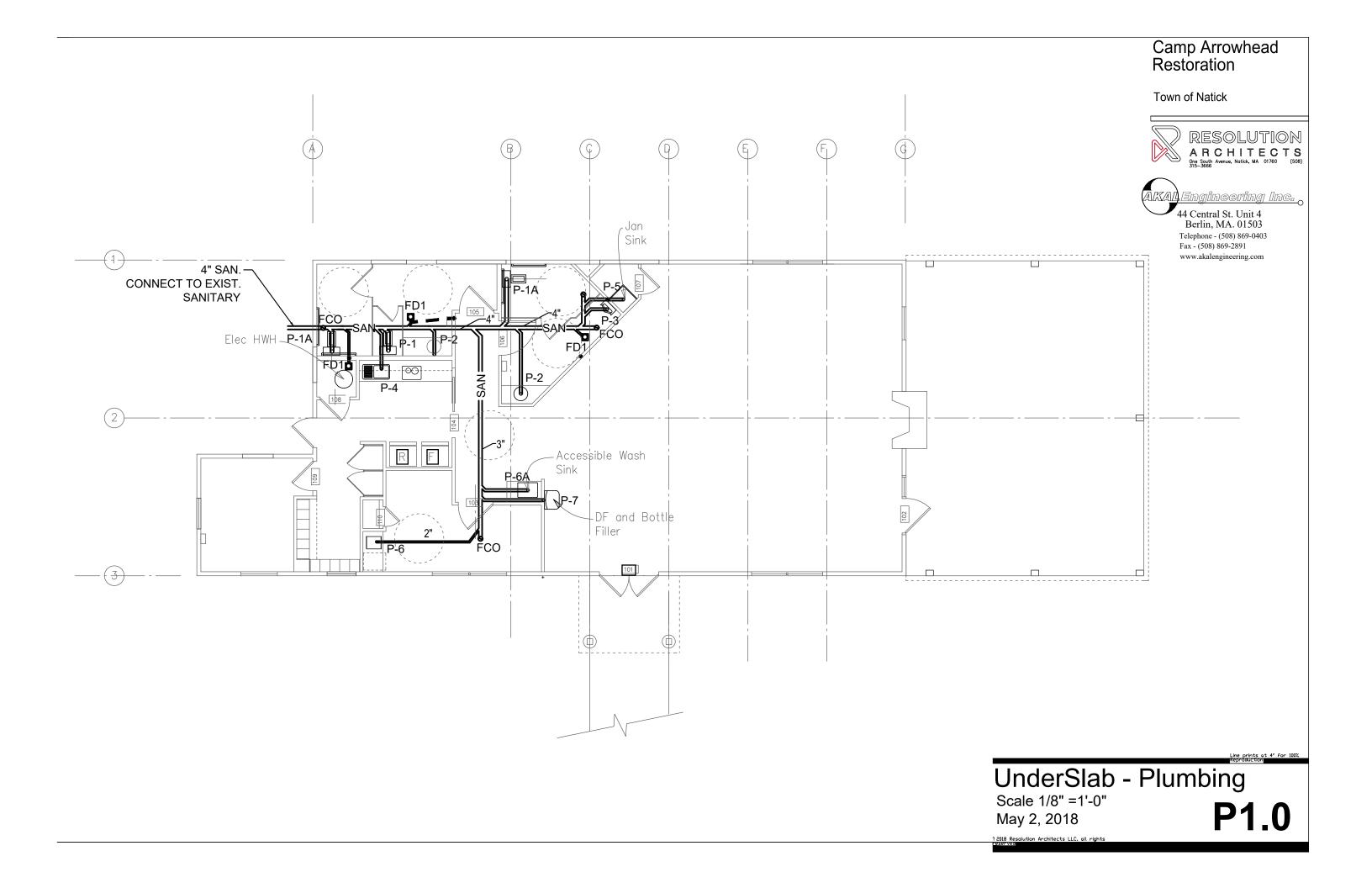
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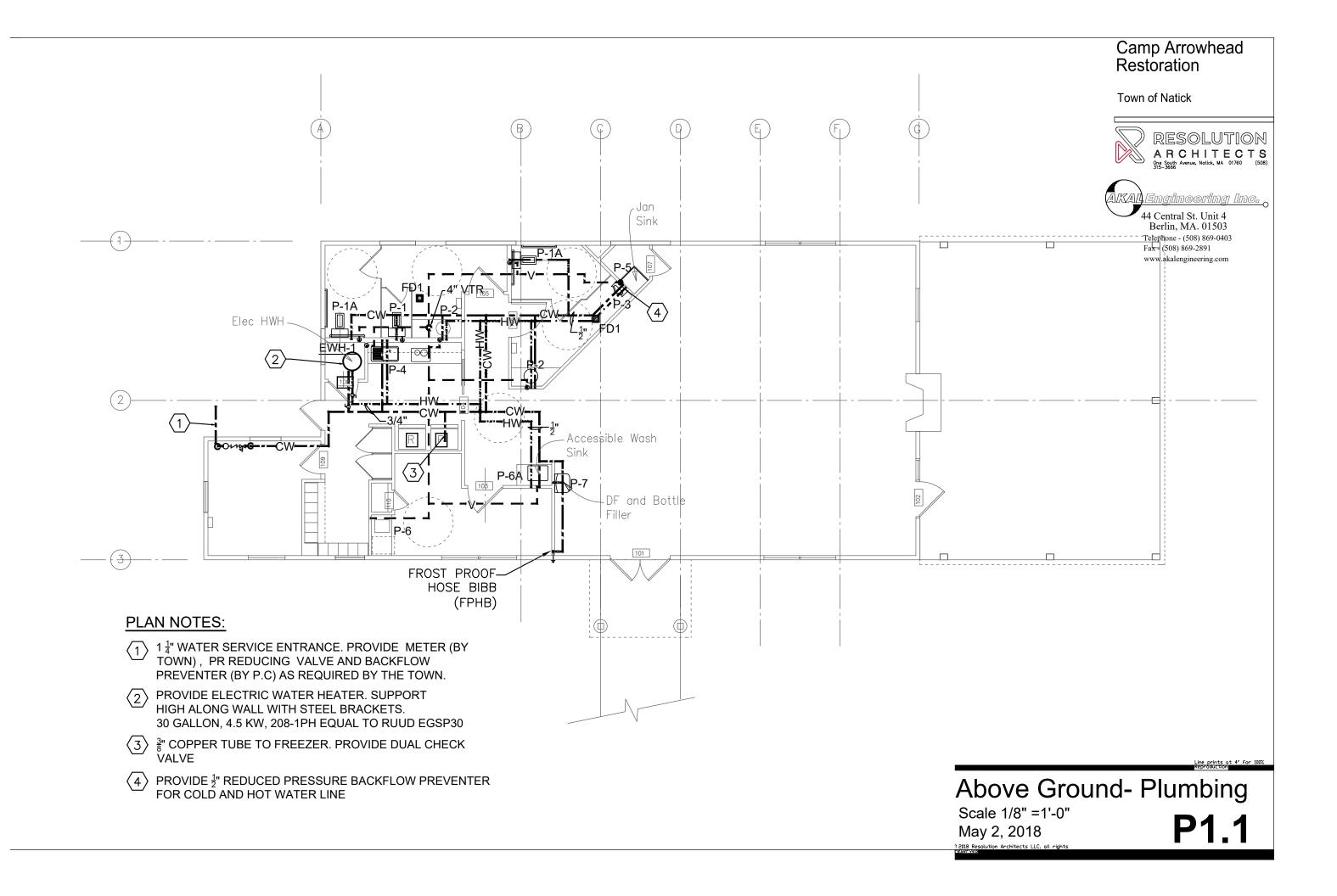


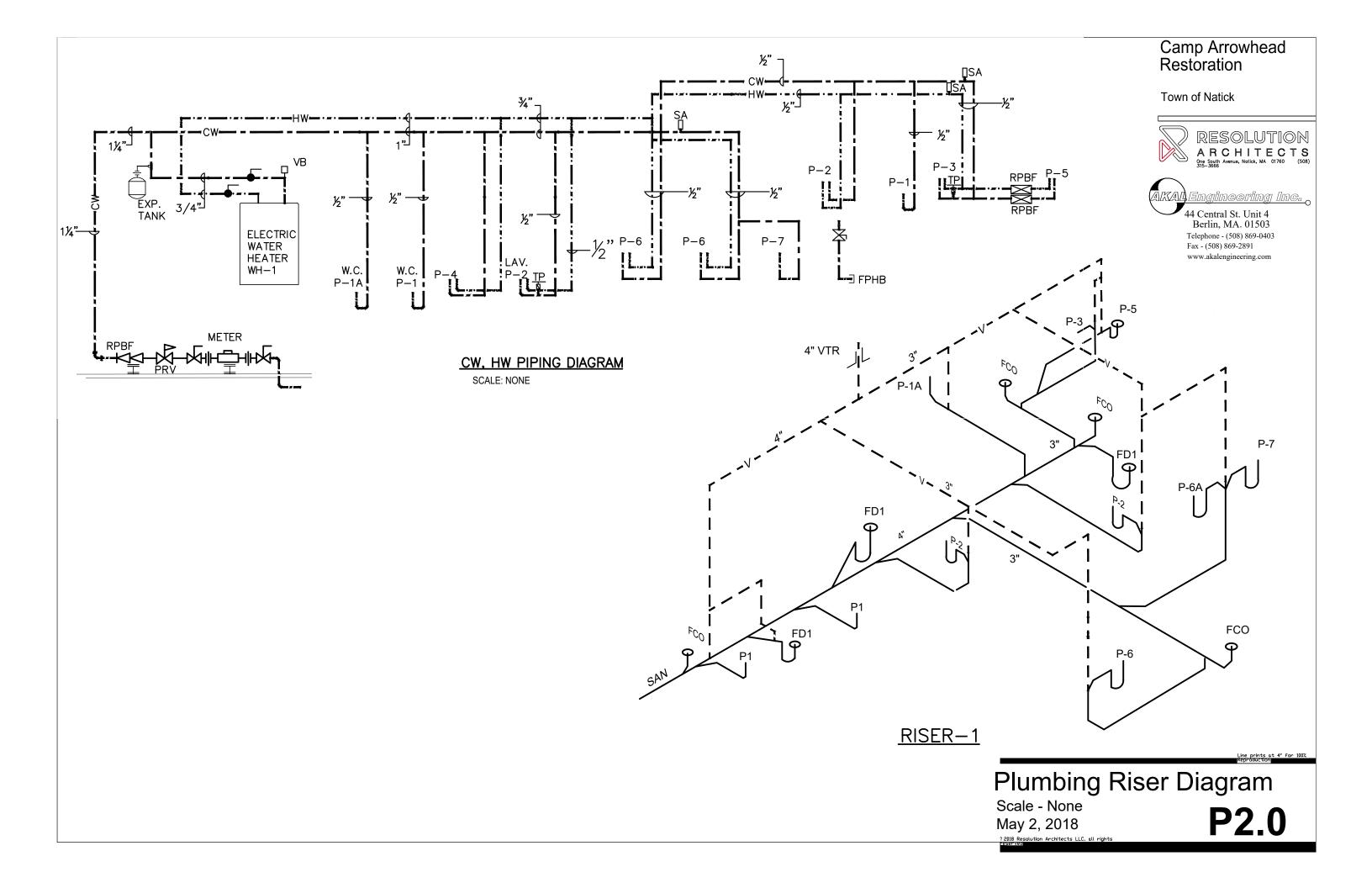
	PLU	JMBING FIXT	URE SC	HEDUL	E				2
FIXTURE NUMBER	SYMBOL		WASTE	VENT	COLD	HOT	REMARKS	- DOUBLE 	
P-1 P-1A	8	WATER CLOSET	4"	2"	1⁄2"		P-1 IS ADA COMPLIANT		PING ABOVE GRAD ATER
P-2	P	LAVATORY	4"	2"	1/2"	1/2"	P-2 IS ADA COMPLIANT		
P-3		URINAL	2"	1½"	3⁄4"		P-3 IS ADA COMPLIANT		
P-4 P-4A		SINK COUNTER TOP	1½"	1½"	1⁄2"	1⁄2"			ER
P-5	·	MOP SINK	3"	1½"	1/2"	1/2"			SORBER (WATER HA VALVE SHUT OFF \ \IN
P-6	•	COUNTERTOP SINK	2"	1½"	1/2"	1⁄2"		- SHUT-OFF	
P-7		DRINKING WATER COOLER	1½"	1½"	1/2"				BACKFLOW PREVEN
	. (GENERAL PLUMBIN	IG NOTES]
		ACTOR SHALL BE RES RAL CONTRACTOR.	PONSIBLE FOR	COORDINATIN	IG HIS		OF ALL FLOOR DRAINS SHALL BE SET FLOOR. ALL PIPING ABOVE GRADE SHAL		
		ECTURAL PLANS FOR WITH ALL OTHER COI			т.	SUPPORTE	D BY THE BUILDING STRUCTURE AND S G STRUCTURE OR COMPONENTS.		
4. GE1	NERAL NOTES,	ARCHITECT FOR PLUE SYMBOLS LIST AND D				INSTALLED	PLUMBING EQUIPMENT, PIPING, INSULAT IN HVAC PLENUM SPACES SHALL MEE ENTS FOR SMOKE AND COMBUSTIBILITY.	T CODE	
	AWINGS ARE DI	IAGRAMMATIC: THIS CO OF SYSTEMS AND COI			E EXACT	ALL SUPP BALL VALV	/IDE SHUTOFF VALVES ON ALL BRANCH LIES TO INDIVIDUAL FIXTURES AND EQU ES ON ALL WATER MAIN BRANCHES IN DICATED ON DRAWINGS.	IPMENT. PROVIDE	
PLUMBIN	G CODE AND A	ORK SHALL BE IN ACC ALL APPLICABLE LOCAL RICANS WITH DISABILIT	CODES. ALL W			15. PROV VALVES OF	/IDE BALANCING VALVES, BALL VALVES , N ALL HOT WATER RETURN BRANCHES, RETURN SYSTEM.		
		E SHALL BE BROUGH BE RESOLVED PRIOR				16. PRO\	VIDE CLAMPS, OFFSETS, EXPANSION JOI SARY TO PREVENT STRESS ON PIPING.	NTS, ANCHORS AND GUIDES	
ANY WOF SHALL BI	RK SHOWN ON E BROUGHT TO	BE INSTALLED IN VIOLA THE DRAWINGS WHICH THE ATTENTION OF T HE INSTALLATION OF T	I IS IN VIOLATIO	ON OF SUCH	I CODES	17. PROV	/IDE VENTS AT HIGH POINTS IN PIPING OINTS. INSTALL SUPPLY PIPING SO AS		
ESCUTCH	EONS AT THE	RATING CEILINGS AND PENETRATION. ALL PIP	PING PENETRATI	NG EXTERIOF	R WALLS		VIDE GAUGE FITTINGS AND THERMOMETE		
SEALED V	WEATHER TIGHT	FLASHED IN AN APPR T. MODEL NUMBERS ARE				20. RELC	CATE EXISTING WATER SERVICE ENTRY	POINT	
STANDAR	DS OF QUALITY	FOR PERFORMANCE	AND MATERIALS			CLEANED /	I POTABLE WATER SYSTEM (COLD AND AND DISINFECTED BY THIS CONTRACTOR , THREE TEST AT EACH LOCATION.(TOTA	R. PROVIDE TESTING AT 6	Plumb

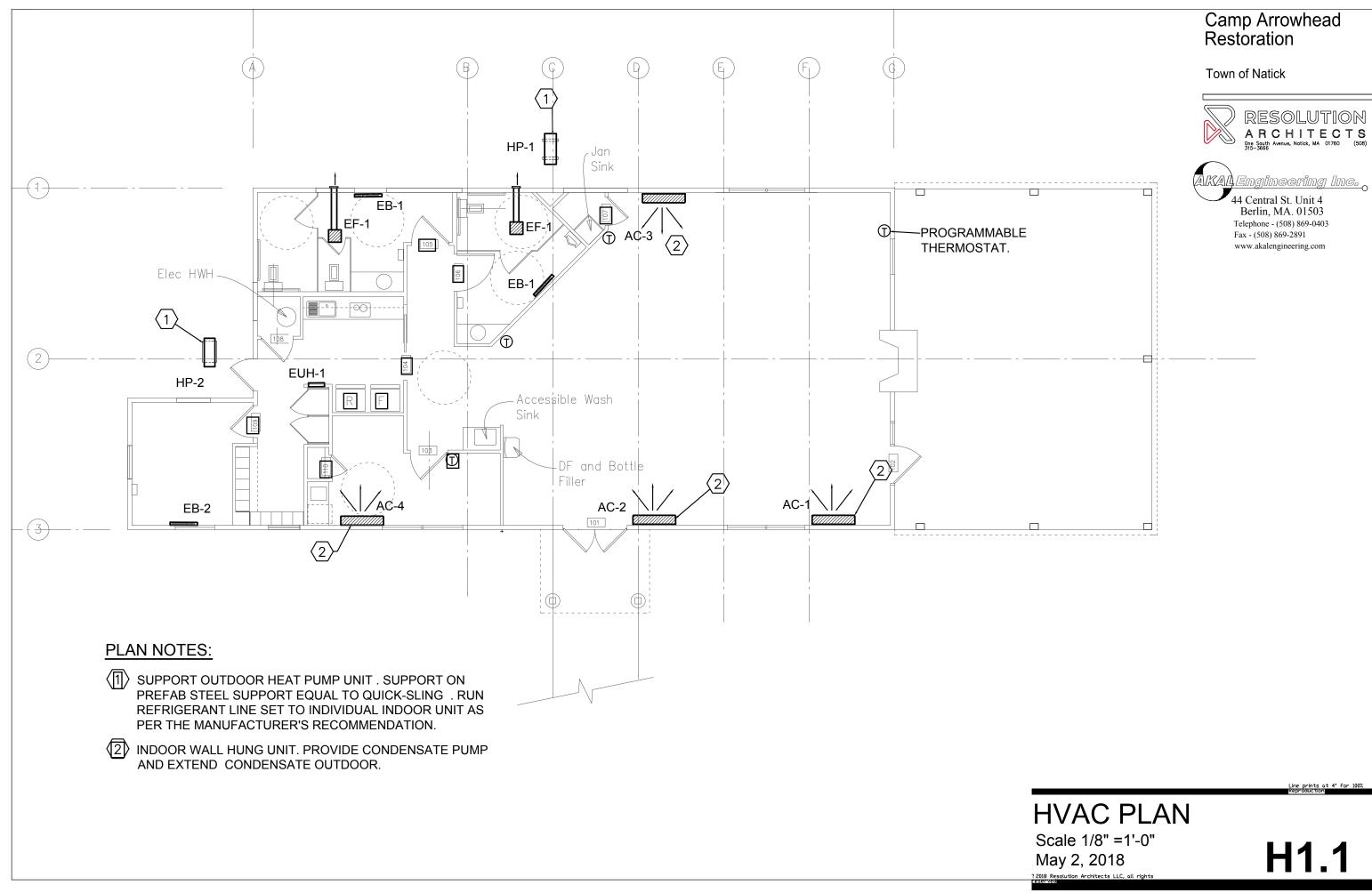


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	DUCTLESS A/C UNIT SCHEDULE													
INDOOR UNIT		# OF ZONES		HEATING	INDOOR	MANUFACTURER		ELECTRICAL		REMARKS				
(TAG)	(TAG)	ZUNES	(MBH)	(MBH)	TYPE	INDOOR	OUTDOOR	VOLTAGE	МСА					
						FUJITSU	FUJITSU							
AC-1			12		WALL MTD	ASU12RLF1		208V-1PH		1				
AC-2	HP-1	3	12		WALL MTD	ASU12RLF1	AOU36RLF	208V-1PH	30	1				
AC-3			12		WALL MTD	ASU12RLF1		208V-1PH		1				
AC-4	HP-2	1	12		WALL MTD	ASU12RL2	AOU12RL2	208V-1PH	9	1				

(1)PROVIDE WIRED REMOTE THERMOSTAT CONTROLLER.

<u>NOTE</u>:

CONTRACTOR SHALL INSTALL AND PRESSURE TEST REFRIGERANT PIPING AS PER THE MANUFACTURERS INSTRUCTION. PROVIDE CONNECTION JOINT FOR TWO UNIT CONNECTION. PROVIDE REFRIGERANT LINESET AS REQUIRED. PROVIDE CONDENSATE PUMP AND EXTEND DRAIN TO OUTDOOR.

OTHER ACCEPTABLE	MANUFACTURER	ARF	DAIKIN	PANASONIC	OR	FOUAL
UTTER ACCEL TABLE			DAIININ,			

EXH,	AUST FAN	SCHE	EDULE					
MARK	SERVING	C.F.M.	S.P. (INCHES)	MOTOR POWER	V-PH-HZ	MANUFACTURER	MODEL	NOTES
EF-1 EF-2	BATHROOM FAN	190	0.150	45 WATTS	120-1-60	PANASONIC WHISPER GREEN	FV-20VQ3	12

NOTES: (1) INTERLOCK WITH LIGHT SWITCH AND DELAY TIMER

(2) PROVIDE EXTERIOR WALL CAP

OTHER ACCEPTABLE MANUFACTURER ARE GREENHECK, COOK OR EQUAL

ELEC	ELECTRIC BASEBOARD HEATER											
MARK	LENGTH	WATTS	BTU	V-PH-HZ	AMPS	MANUFACTURER	MODEL	NOTES				
EB-1	34"	750	2560	208-1-60	3.6	MARLEY	CBD 758	1				
EB-2	28"	500	1700	208-1-60	2.4	MARLEY	CBD 500	1				

	ELECT	RIC U	NIT	HEATE	2
MARK	TYPE	WATTS	BTU	V-PH-HZ	AMPS
EUH-1	WALL HEATER	2000	6800	208-1-60	9.6

1 UNIT MOUNT THERMOSTAT ASSEMBLY

OTHER ACCEPTABLE MANUFACTURER ARE Q'MARK, CADET OR EQUAL

1 UNIT MOUNT THERMOSTAT ASSEMBLY

OTHER ACCEPTABLE MANUFACTURER ARE Q'MARK, CADET OR EQUAL

Camp Arrowhead Restoration

Town of Natick



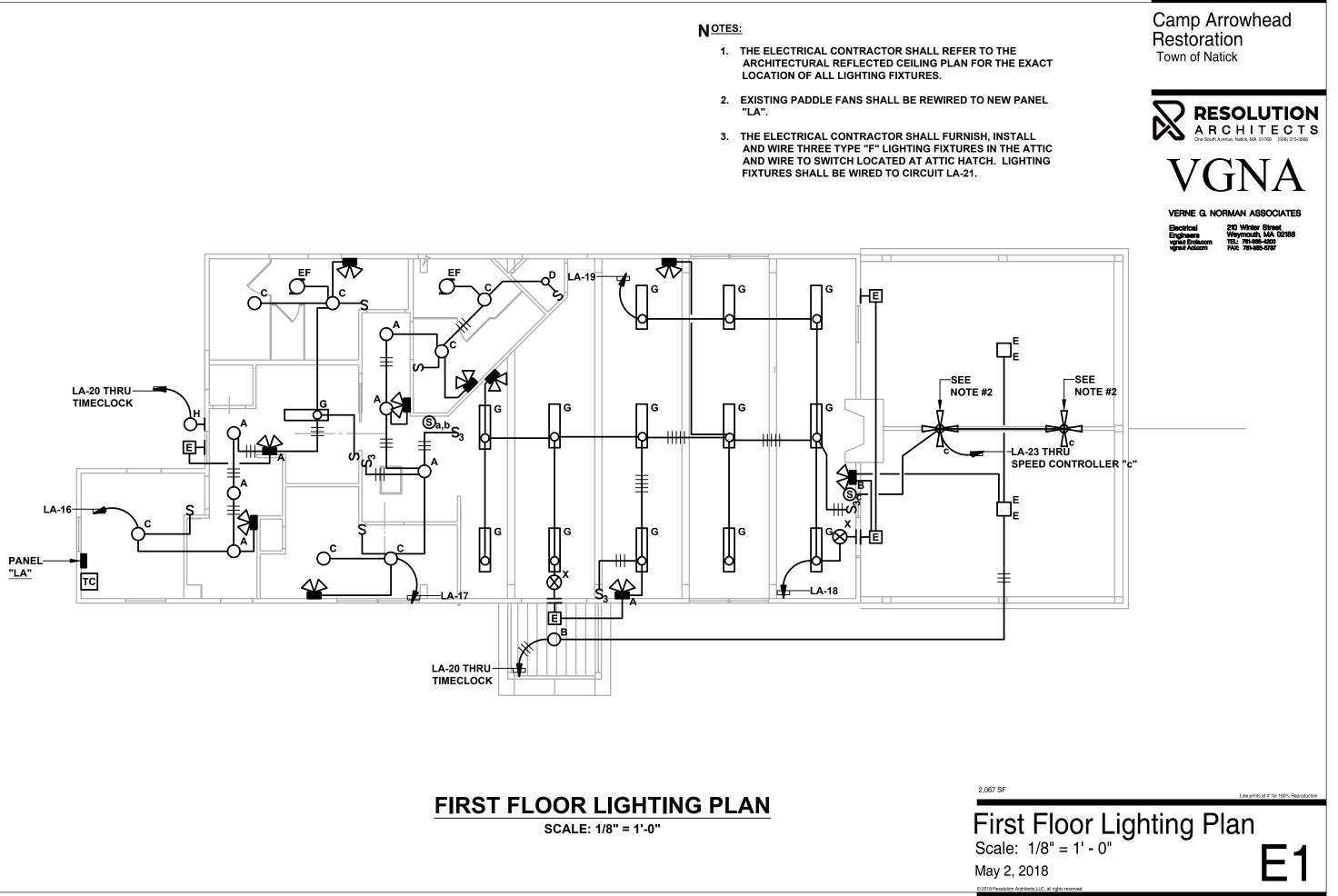
HVAC SCHEDULE Scale : None H1.2

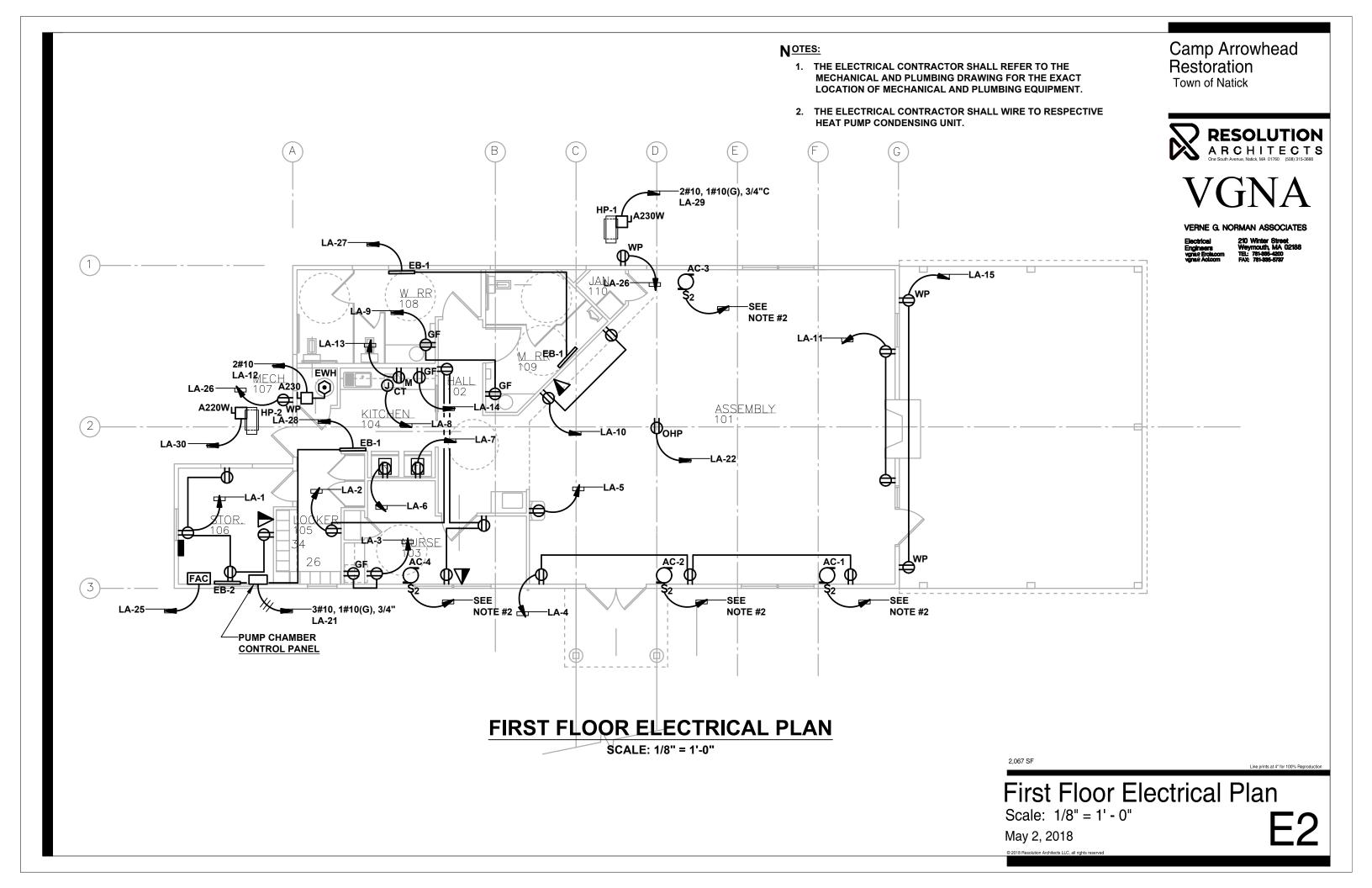
Line prints at 4' for 100% Reproduction

May 2, 2018

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- LOCATION OF ALL LIGHTING FIXTURES.
- "LA".
- FIXTURES SHALL BE WIRED TO CIRCUIT LA-21.





	LE
	HOMERUN. ARROWS DENOTES THE NUMBER OF CIRCUITS AND SLASH MARKS DENOTE THE NUMBER OF #12 CONDUCTORS IN RACEWAY OR CABLE ASSEMBLY.
	RACEWAY OR CABLE ASSEMBLY INSTALLED CONCEALED.
	RACEWAY INSTALLED EXPOSED.
J2 O b	FLUORESCENT LIGHTING FIXTURE. "A" DENOTES LIGHTING FIXTURE TYPE. SUBSCRIPT "b" DENOTES SWITCH CONTROL LIGHTING FIXTURE. NUMERAL DENOTES CIRCUIT NUMBERS. (TYPICAL ALL LIGHTING FIXTURES).
0	SURFACE OR PENDANT MOUNTED DOWNLIGHT.
Ю	WALL MOUNTED LIGHTING FIXTURE.
O	RECESSED DOWNLIGHT.
♦	CEILING OR PENDANT MOUNTED EXIT SIGN. ARROW DENOTES DIRECTION OF TRAVEL.
H⊗	WALL OR END MOUNTED EXIT SIGN.
HE	EXTEROR EMERGENCY LIGHTING FIXTURE.
	EMERGENCY BATTERY WITH LIGHTING FIXTURES EMERGILITE MODEL JSC25-210MAD.
	EMERGENCY BATTERY WITH LIGHTING FIXTURES EMERGILITE MODEL JSM36-210MAD.
₩ _B	EMERGENCY BATTERY WITH LIGHTING FIXTURES EMERGILITE MODEL 12JSM54-210MAD.
S	SINGLE POLE SWITCH MOUNTED 4'-0" A.F.F.
S_3	THREE WAY SWITCH MOUNTED 4'-0" A.F.F.
S_4	FOUR WAY SWITCH MOUNTED 4'-0" A.F.F.
S _p	SINGLE POLE SWITCH WITH PILOT LIGHT MOUNTED 4'-0" A.F.F.
C	DUPLEX RECEPTACLE (125 VOLT-1Ø3W RECEPTACLE. MOUNTED 18" A.F.F.
₽	DOUBLE DUPLEX RECEPTACLE (QUADPLEX) MOUNTED 18" A.F.F.
œ ^{₩₽}	WEATHERPROOF DUPLEX RECEPTACLE WITH GROUND FAULT PROTECTION MOUNTED 18" A.F.F.
GF	GROUND FAULT RECEPTACLE MOUNTED 4'-0" A.F.F.
ф <u>г</u>	GARBAGE DISPOSAL OUTLET MOUNTED 18" A.F.F.
	MICROWAVE OVEN.
	F-1
	F-3 🖾

POWER RISER DIAGRAM

NOT TO SCALE

PNL. LA

GEN	D				
œ	wc	ELECTRIC WATE	R COOLER MOU	JNTED 18" A.F.F.	
V		TELEPHONE/DAT	A OUTLET.		
1		MOTOR (NUMERA	L DENOTES H	DRSEPOWER).	
\mathcal{O}^{ef}		EXHAUST FAN			
۵n	1	UNIT HEATER.			
J		JUNCTION BOX.			
_ 0		JUNCTION BOX.			
О _{ст}		COOK TOP UNIT I		ONNECTION.	
		LIGHTING PANEL MOUNTED 6'-6" T	•	ACE MOUNTED).	
٢		DIRECT ELECTRIC CONTRACTOR TO EQUIPMENT REAI	PERMANENTL		
		LIGHTING PANEL MOUNTED 6'-6" TO		ACE MOUNTED).	
^۸ ت		DISCONNECT SW CHARACTERS DE POLES, AMPERE WEATHERPROOF SWITCH SCHEDU	NOTE SWITCH RATING OF FU: SWITCH. (SEE LE ON THIS SH	DESIGNATION, SE. "W" DENOTES DISCONNECT EET).	
	DESIGNATION	SWITCH AMPERE	DESIGNATION	SWITCH AMPERE	
	Α	RATING 30A	J	RATING 1200A	
	В	60A	ĸ	1200A 1600A	
	c	100A	L	2000A	
	D	200A	M	2500A	
	E	400A	N	3000A	
	F	600A	Р	4000A	
	G	800A			
	н	1000A			
© ↓		PADDLE FAN SPE PADDLE FAN.	ED CONTROLL	ER.	
ТС		TIMECLOCK TORI	K MODEL 72001		
	P	OVERHEAD PROJ	ECTOR RECEP		г.
	VLI		R HEATER.		
-					

			PAN	EL SCHEDULE	Camp Arrowhead Restoration
CIRCUIT NUMBER	I AMPS	BREAKER POLES	S AIC	EQUIPMENT SERVED	
ANEL "LA" 1	20/240V	1Ø3W 200) AMPERI	L E MAIN LUGS. SURFACE MOUNTED (SINGLE TUB PANEL)	
1-7	20	1	10,000	RECEPTACLES	
8	20	1	10,000	СООК ТОР	ARCHITECTS
9-11	20	1	10,000	RECEPTACLES	One South Avenue, Natick, MA 01760 (508) 315-3666
12	30	2	10,000	ELECTRC WATER HEATER	T T C N T A
13	20	1	10,000	KITCHEN EXHAUST HOOD	VGNA
14,15,26	20	1	10,000	RECEPTACLES	
16-22	20	1	10,000	LIGHTING	VERNE G. NORMAN ASSOCIATES
23	20	1	10,000	PADDLE FANS	Electrical 210 Winter Street Engineers Weymouth, MA 02188
24	30	2	10,000	PUMP CONTROLLER	vgnie Folizom TEL: 781-895-4200 vgnie folizom FAX: 781-885-5787
25	20	1	10,000	FIRE ALARM CONTROL PANEL	_
27,28	20	2	10,000	ELECTRIC BASEBOARD HEATERS	
29	30	2	10,000	HEAT PUMP HP-1]
30	20	2	10,000	HEAT PUMP HP-2]
31-42	20	1	10,000	SPARES	_

LIGHTING FIX

TYPE	MANUFACTURER	MOUNTING	LAN	MPS	FINISH	LOCATION	REMARKS
TTPE	MANOFACIURER	MOUNTING	WATTS	TYPE	FINISH	LUCATION	REMARNS
Α	PHILIPS S7R9035K10	SURFACE	14W	LED	BLACK	MAIN HALL CORRIDORS	
A1	PHILIPS S7R9035K10	SURFACE	14W	LED	BLACK	MAIN HALL	SLOP ADAPTER REQUIRED
В	PHILIPS S7R9035K10	RECESSED	14W	LED	BLACK	SOFFIT	
С	PHILIPS S7R9035K10	SURFACE	14W	LED	WHITE	BATHROOM KITCHEN	
D	PHILIPS S5R830K7.0	SURFACE	9W	LED	WHITE	BATHROOM KITCHEN	
Ε	EXISTING TO REMAIN EC TO RELAMP	RECESSED		LED	WHITE	AIR PAVILLION	
F	PHILIPS S7R9035K10	SURFACE	9W	LED	WHITE	ATTIC	
G	COLUMBIA LIGHTING CWP4-4035	SURFACE	36.9W	LED	WHITE	RECREATION	
Н	PRESCOLITE LD4SD1206L35KFL30BL	WALL	9W	LED	BLACK	EXTERIOR	
X	EMERGILITE WPREMSNXR-DN	UNIVERSAL	2.8W	LED	WHITE	PATH OF EGRESS	

	FEEDER SCHEDULE											
DESIGNATION	SIZE	GND	CONDUIT SIZE	QUANTITY	BRE SIZE AMPS	AKER POLE						
F-1	3#3/0	-	2 1/2"	1	-	-						
F-2	3#3/0	#6	2 1/2"	1	200	2						
F-3	-	#4	-	-	-	-						

P/

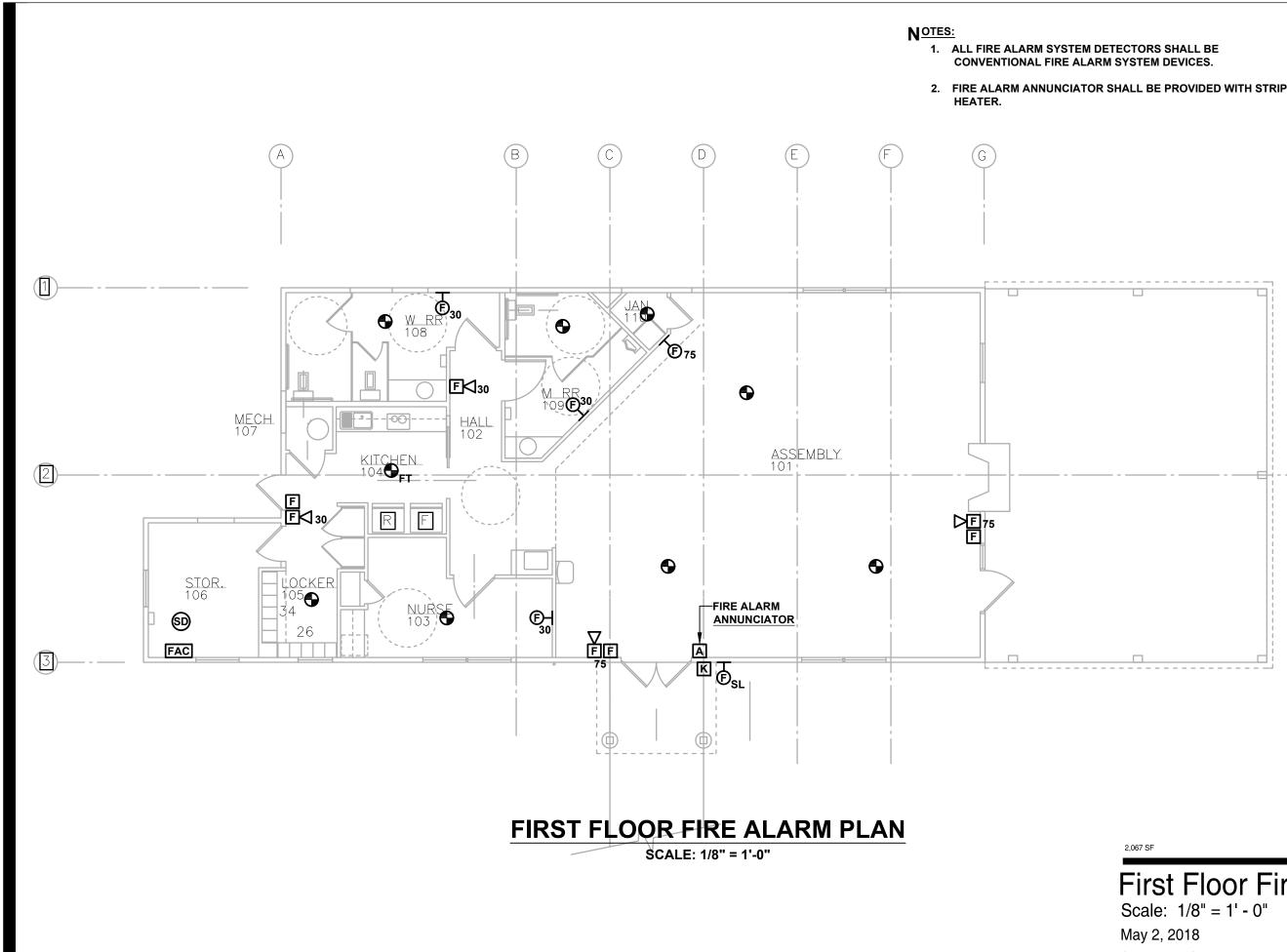
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	U	IVL	- 0				

2,067 SF

Legend & Schedules May 2, 2018

Line prints at 4" for 100% Rep

E3



Town of Natick **RESOLUTION** A R C H I T E C T S GNA VERNE G. NORMAN ASSOCIATES 210 Winter Street Weymouth, MA 02188 TEL: 761-395-4200 FAX: 781-335-5737 Engineers vgnae Erolao

Camp Arrowhead

Restoration

Line prints at 4" for 100% Reproc First Floor Fire Alarm Plan Scale: 1/8" = 1' - 0" FA1 May 2, 2018

NOTES: 1. THE ELECTRICAL CONTRACTOR SHALL REFER TO THE FIRE ALARM FLOOR PLANS FOR THE EXACT QUANTITY OF FIRE ALARM SYSTEM DEVICES. 2. THE ELECTRICAL CONTRACTOR SHALL FURNISH AND INSTALL TWO(2) CAT 5E CABLES BETWEEN THE FIRE ALARM SYSTEM CONTROL PANEL COMMUNICATIONS AND THE BUILDING TELEPHONE PLYWOOD BACKBOARD. EACH CAT 5E CABLE SHALL BE INSTALLED IN A 3/4" CONDUIT 3. THE EXACT LOCATION OF THE EXTERIOR FIRE ALARM SYSTEM STROBE LIGHT SHALL BE DETERMINED BY THE ARCHITECT, FIRE DEPARTMENT AND THE ELECTRICAL CONTRACTOR IN THE FIELD. TO — FAC F ZONE-1

ATTIC FIRE ALARM PLAN

SCALE: 1/8" = 1'-0"

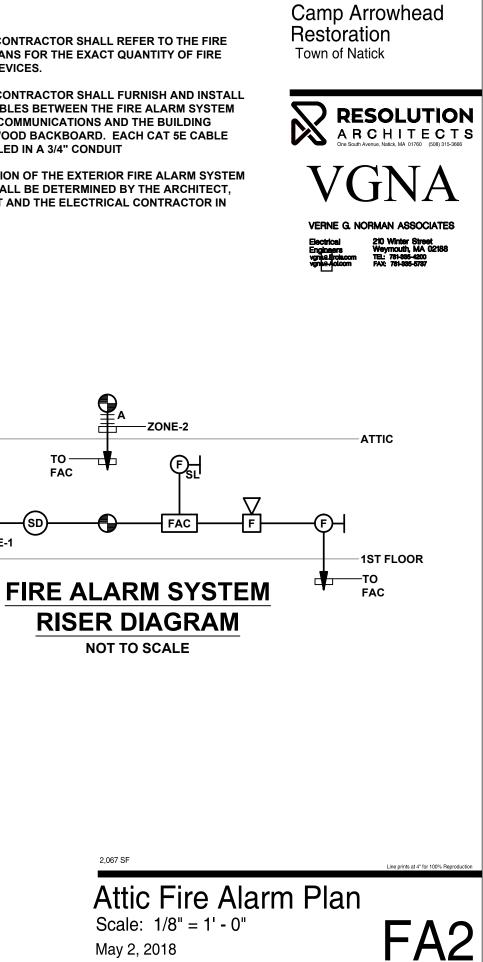
ZONE-2

E.

FAC

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FAC



Scale: 1/8" = 1' - 0"

2,067 SF

NOT TO SCALE

May 2, 2018

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									ROL UNI		NOTIFICATION
		*	TUNE OF	MMONALA MMONALA SCALE AL	Inter Contraction	ALAT PANE ALAT PANE INFORMATICAL	i sensori sensori sensori sensori sensori sensori sensori sensori sensori sensori sensori sensori sensori sensori	JEE MORE	ATOR DOESCOUP AND STRONG AND STRO	ION SEDENCES	NE COMPETATIONE SOME NE COMPETATIONE INCOMPETATIONE CONTONICE TROUBLE ON COMPETATIONE SOME COMPETATION SOME
	SYSTEM OUTPUTS	A	в	c	D	E	F	G	н	-	
1	SPRINKLER WATERFLOW										
2	SMOKE/HEAT DETECTOR (FACP)							•			
3	MANUAL STATION	•	•			•	•	•			
4											
5	DUCT SMOKE DETECTOR		•	•		•			•		
6	VALVE TAMPER		•			•					
7	FIRE ALARM SYSTEM AC POWER FAILURE		•		•	•					
8	FIRE ALARM SYSTEM LOW BATTERY		•		•	•					
9	OPEN CIRCUIT		•		•	•					
10	GROUND FAULT		•		•	•					
11	WIRE-TO-WIRE SHORT (SLC & NAC)		•		•	•					
12	WIRE-TO-WIRE SHORT (IDC)	•	•			•	•	•			
13	LOSS OF CARRIER		•		•	•					
14	SMOKE DETECTOR 1ST FLOOR ELEVATOR LOBBY	•	•			•	•	•			
15	SMOKE DETECTOR 2ND, 6TH FLOOR ELEVATOR LOBBY		•					•			

FIRE ALARM LEGEND \bullet FIXED TEMPERATURE FIRE ALARM DETECTOR. (135°). €_{FT} FIXED TEMPERATURE FIRE ALARM DETECTOR. (190°). **●**_A FIRE ALARM DETECTOR LOCATED IN ATTIC **190° FIXED TEMPERATURE.** SD FIRE ALARM SYSTEM SMOKE DETECTOR. MANUAL FIRE ALARM PULL STATION MOUNTED F 48" A.F.F. ₽< COMBINATION FIRE ALARM HORN & STROBE LIGHT MOUNTED 80". SUBSCRIPT "15" DENOTES THE CANDELA RATING OF THE FIRE ALARM STROBE. FIRE ALARM CONTROL PANEL MOUNTED 6'-6" FAC TO TOP WITH SUPPLEMENTED ELECTRIC HEATER. HE_{15} FIRE ALARM STROBE LIGHT. SUBSCRIPT "15" DENOTES THE CANDELA RATING. MOUNTED 80" A.F.F. HE_{sl} FIRE ALARM STROBE LIGHT (EXTERIOR). К KNOX BOX. Α FIRE ALARM ANNUNCIATOR.

NOTES:

1. ALL FIRE ALARM DEVICES SHALL BE CONVENTIONAL FIRE ALARM DEVICES.

FIRE ALARM SYSTEM **SEQUENCE OF OPERATION MATRIX**

Camp Arrowhead Restoration Town of Natick





VERNE G. NORMAN ASSOCIATES

210 Winter Street Weymouth, MA 02188 TEL: 781-385-4200 FAX: 781-385-5737

2,067 SF

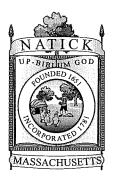
Line prints at 4" for 100% Reproduction

FA3

Fire Alarm Legend N.T.S. May 2, 2018

tects LLC, all rights reserv

TOWN OF NATICK MASSACHUSETTS



TO: Natick Board of Selectmen William D. Chenard, Acting Town Administrator Chief James Hicks, Chief, Natick Police Department

FROM: Bryan R. Le Blanc, Procurement Officer'

DATE: May 10, 2018

SUBJECT: CONTRACT AWARD EMERGENCY ALERT SYSTEM

The Town is in receipt of a quote from Lyme Computer Systems ("Lyme") for licensing of its RAVE emergency alert product. The total quote is \$28,000.00 (\$10,000 for year 1, and a total of \$9,000 each year for years 2 and 3) to provide such emergency alert services for a three (3)-year period, as stated in the quote.

Lyme is presently a vendor with an existing General Services Administration (GSA) contract. The contract number is GS-35F-465GA.

Pursuant to the Inspector General's recommendations, cities and towns of the Commonwealth of Massachusetts may purchase off of GSA contract schedules.

<u>https://www.mass.gov/files/documents/2016/08/tz/nljul15.pdf</u>. M.G.L. c. 30B, §1(f) provides: "(f) This chapter shall be deemed to have been complied with on all purchases made from a vendor pursuant to a General Services Administration federal supply schedule that is available for use by governmental bodies." The relevant contract schedule, GS-35F-465GA, is available to cities and towns in Massachusetts.

Lyme is a responsible vendor, as from our reference checks. Accordingly, we respectfully request that the Natick Board of Selectmen award a contract to Lyme, in the form of a purchase order and citing Lyme quote referring to GS-35F-465GA., for \$28,000.00.

Funding:

Emergency Management Line Item - Total \$19,000.00



Lyme Computer Systems PO Box 290, One Lyme Common

Lyme, NH 03768-0290

Quote

<u>www.lyme.com</u>

CHIEF JAMES HICKS	Quote # 132570-RL	Quote # 132570-RL							
TOWN OF NATICK ATTN: POLICE DEPARTMENT	Date : May 01, 2018	Terms : NET 30							
13 E. CENTRAL STREET	FOB : Destination	Delivery : 30 Days ARO							
NATICK, MA 01760	Acct Mgr : RANDALL LOWE								
	Email : RANDY@LYME								
E-mail : HICKS@NATICKPOLICE.COM	Phone : 603-676-3635	Fax : 603-676-3635							
Phone : 508-647-9511	DUNS# : 144763067								
Fax :	TIN : 02-0380993	CAGE : 1BS14							
	Business Size : Small, Certified HUBZone								

Customer Reference #	Contract Number	Quote Valid Until :
RAVE MOBILE SAFETY - YEAR	GS-35F-465GA Exp : May 30, 2022	June 01, 2018
ONE		

Line #	QTY	PART NUMBER	DESCRIPTION	MFR	UNIT PRICE	EXTENDED PRICE
1	33000	R911SPRA-1000 **GSA**	SMARTPREPARE WITH ALERT SMARTPREPARE WITH ALERT - PRICED PER PERSON YEAR ONE	RAVE MOBILE SAFETY	\$0.12	\$3,960.00
2	33000	R911SPRA-1001 **GSA**	SMARTPREPARE WITH ALERT - LOADED LAND LINES MUST PURCHASE SMARTPREPARE WITH ALERT; PRICED PER LAND LINE YEAR ONE	RAVE MOBILE SAFETY	\$0.12	\$3,960.00
3	10	R911SPRA-1002 **GSA**	SMARTPREPARE WITH ALERT – PROCUREMENT PER 1,000 PHONE NUMBERS MUST PURCHASE SMARTPREPARE WITH ALERT; PRICED PER UNIT (1 UNIT = 1,000 PHONE NUMBERS) YEAR ONE	RAVE MOBILE SAFETY	\$42.00	\$420.00
4	33000	R911SPRACAP-A-1 000 **GSA**	CAP INBOUND/OUTBOUND API FOR RAVE ALERT FOR PUBLIC SAFETY. REQUIRED FOR IPAWS - PRICED PER CITIZEN YEAR ONE	RAVE MOBILE SAFETY	\$0.00	\$0.00

Line #	QTY	PART NUMBER	DESCRIPTION	MFR	UNIT PRICE	EXTENDED PRICE
5	33000	R911SPRASM-A-10 00 **GSA**	RAVE ALERT FOR PUBLIC SAFETY SOCIAL MEDIA INTEGRATION - PRICED PER CITIZEN YEAR ONE	RAVE MOBILE SAFETY	\$0.00	\$0.00
6	33000	SMS-PS-A-1000 **GSA**	RAVE SMS TO OPT-IN FOR PUBLIC SAFETY. FOR STATE & LOCAL CLIENTS - PRICED AT \$0.05 PER CITIZEN FOR FIRST KEYWORD WITH EACH ADDITIONAL KEYWORD AT \$500/KEYWORD. MUST PURCHASE RAVE ALERT FOR PUBLIC SAFETY. MINIMUM PRICE \$500, EACH ADDITIONAL KEYWORD IS \$500 YEAR ONE	RAVE MOBILE SAFETY	\$0.02	\$660.00
7	33000	R911SPRAP-A-1000 **GSA**	PREMIUM SMS MESSAGING FOR RAVE ALERT FOR PUBLIC SAFETY THROUGHPUT - THIS UTILIZES SMPP GATEWAY BINDS INSTEAD OF WEB SERVICES. PRICED PER CITIZEN. REQUIRES R911SPRA-1000 YEAR ONE	RAVE MOBILE SAFETY	\$0.00	\$0.00
8	1	R911SPRA-S-1000 **GSA**	SMARTPREPARE WITH ALERT ONE-TIME SETUP REQUIRES PURCHASE OF SMARTPREPARE WITH ALERT. THIS IS A ONE TIME SETUP FEE YEAR ONE ONLY	RAVE MOBILE SAFETY	\$1,000.00	\$1,000.00
. 9	1	RACAP-S-1000 **GSA**	CAP INBOUND/OUTBOUND API INTEGRATION ONE-TIME SETUP FEE YEAR ONE ONLY	RAVE MOBILE SAFETY	\$0.00	\$0.00
10	1	RAP-S-1000 **GSA**	PREMIUM SMS MESSAGING ONE-TIME SETUP. REQUIRES RAP-A-1000 OR R911SPRAP-A-1000 YEAR ONE ONLY	RAVE MOBILE SAFETY	\$0.00	\$0.00
11	1	RASM-S-1000 **GSA**	RAVE ALERT SOCIAL MEDIA INTEGRATION SETUP YEAR ONE ONLY	RAVE MOBILE SAFETY	\$0.00	\$0.00

Line #	QTY	PART NUMBER		DESCRIPTION	MFR	UNIT PRICE	EXTENDED PRICE
					0/1070-110		610.000.00
F	Remit Via Mail	Remit Via EFT/ACH		Remit Via Wire Transfer	SUBTOTALS		\$10,000.00
	e Computer	Citizens Bank -		Citizens Bank	Freight TAX		\$0.00 \$0.00
Systems, Inc. PO Box 845172		875 Elm Street Manchester, NH 03101		1 Citizens Drive Riverside, RI 02915	TOTAL QUOTE :		\$10,000.00
	Boston, 02284-5172	ABA# 0114015 ACCT# 3300143		ABA# 011500120 ACCT# 3300143995		I	

Returned Merchandise Policy : Please review this document for accuracy and completeness.

A Returned Merchandise Authorization number (RMA) must be obtained prior to returning any product(s). Lyme Computer Systems will only accept unopened product(s) with the factory seal intact and the box in new, resalable condition. All return claims must be filed within 7 days after receipt of merchandise. RMA's are valid for 14 days and all returned merchandise must be received within 14 days of issuance of RMA.

Certification of Authenticity and Traceability: Lyme Computer Systems certifies that all material quoted is genuine, new and unused, unless otherwise identified. Lyme Computer Systems makes commercially reasonable efforts to ensure that all material is traceable to the point of manufacture and that the complete material pedigree is known and can be furnished upon request.

All prices are Open Market unless otherwise specified.



Quote Lyme Computer Systems

PO Box 290, One Lyme Common

Lyme, NH 03768-0290

www.lyme.com

CHIEF JAMES HICKS	Quote # 132588-RL
TOWN OF NATICK ATTN: POLICE DEPARTMENT	Date : May 01, 2018 Terms : NET 30
13 E. CENTRAL STREET	FOB : Destination Delivery : 30 Days ARO
NATICK, MA 01760	Acct Mgr : RANDALL LOWE
	Email : RANDY@LYME.COM
E-mail : HICKS@NATICKPOLICE.COM	Phone : 603-676-3635 Fax : 603-676-3635
Phone : 508-647-9511	DUNS# : 144763067
Fax :	TIN: 02-0380993 CAGE: 1BS14
	Business Size : Small, Certified HUBZone

Customer Reference #	Contract Number	Quote Valid Until :
RAVE MOBILE SAFETY - YEARS	GS-35F-465GA Exp : May 30, 2022	June 01, 2018
TWO & THREE		

Line #	QTY	PART NUMBER	DESCRIPTION	MFR	UNIT PRICE	EXTENDED PRICE
1	33000	R911SPRA-1000 **GSA**	SMARTPREPARE WITH ALERT SMARTPREPARE WITH ALERT - PRICED PER PERSON ANNUAL COST IN YEARS TWO & THREE	RAVE MOBILE SAFETY	\$0.12	\$3,960.00
2	33000	R911SPRA-1001 **GSA**	SMARTPREPARE WITH ALERT - LOADED LAND LINES MUST PURCHASE SMARTPREPARE WITH ALERT; PRICED PER LAND LINE ANNUAL COST IN YEARS TWO & THREE	RAVE MOBILE SAFETY	\$0.12	\$3,960.00
3	10	R911SPRA-1002 **GSA**	SMARTPREPARE WITH ALERT – PROCUREMENT PER 1,000 PHONE NUMBERS MUST PURCHASE SMARTPREPARE WITH ALERT; PRICED PER UNIT (1 UNIT = 1,000 PHONE NUMBERS) ANNUAL COST IN YEARS TWO & THREE	RAVE MOBILE SAFETY	\$42.00	\$420.00
4	33000	R911SPRACAP-A-1 000 **GSA**	CAP INBOUND/OUTBOUND API FOR RAVE ALERT FOR PUBLIC SAFETY. REQUIRED FOR IPAWS - PRICED PER CITIZEN	RAVE MOBILE SAFETY	\$0.00	\$0.00

Line #	QTY	PART NUMBER		DESCRIPTION	MFR	UNIT PRICE	EXTENDED PRICE
			ANNUA THREE	L COST IN YEARS TWO &			
5	33000	R911SPRASM-A-10 00 **GSA**	SAFET INTEG PER C	ALERT FOR PUBLIC I'Y SOCIAL MEDIA RATION - PRICED ITIZEN L COST IN YEARS TWO &	RAVE MOBILE SAFETY	\$0.00	\$0.00
6	33000	SMS-PS-A-1000 **GSA**	PUBLI STATE PRICE CITIZE KEYW ADDIT \$500/k PURC FOR F MINIM EACH KEYW	SMS TO OPT-IN FOR C SAFETY. FOR E & LOCAL CLIENTS - ED AT \$0.05 PER EN FOR FIRST ORD WITH EACH ONAL KEYWORD AT KEYWORD. MUST HASE RAVE ALERT PUBLIC SAFETY. IUM PRICE \$500, ADDITIONAL ORD IS \$500 L COST IN YEARS TWO &	RAVE MOBILE SAFETY	\$0.02	\$660.00
7	33000	R911SPRAP-A-1000 **GSA**	MESS ALER SAFE THIS U GATE OF WE PRICE REQU R911S	SPRA-1000 L COST IN YEARS TWO &	RAVE MOBILE SAFETY	\$0.00	\$0.00
R	lemit Via	Remit Via		Remit Via	SUBTOTALS		\$9,000.00
	Mail	EFT/ACH		Wire Transfer	Freight		\$0.00
-	e Computer stems, Inc.	Citizens Bank · 875 Elm Stre			TAX		\$0.00
PO Box 845172 Boston,		Manchester, NH ABA# 011401		Riverside, RI 02915 ABA# 011500120	TOTAL QUOTE :		\$9,000.00

Returned Merchandise Policy : Please review this document for accuracy and completeness.

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All prices are Open Market unless otherwise specified.



8/17/17

To Whom It May Concern:

Rave Mobile Safety hereby certifies that the following company is the sole GSA Scheduleholder of Rave Mobile Safety products:

> Lyme Computer Systems, Inc. 18 On the Common Lyme, New Hampshire 03768-0290

Please feel free to contact me directly by E-mail at <u>bodonnell@ravemobilesafety.com</u> if you require any additional information.

Respectfully,

Brian O'Donnell Director of Channel Sales

Deparl	November 2017) tment of the Treasury				r and Certifi						requester. Do n send to the IRS					ot
interna	al Revenue Service				uctions and the late		atic	on.								
1 Name (as shown on your income tax return). Name is required on this line; do not leave this line blank.																
	Lyme Computer Systems, Inc 2 Business name/disregarded entity name, if different from above															
		disregarded entit	y name, if different from	n above												
page 3.									certa	empt in ent	tities	, not	indiv			
e. ns on	5 Individual/sole proprietor or C Corporation S Corporation Partnership Trust/estate 2 single-member LLC									ıpt pa	yee o	code	(if an	y)		
Print or type. Specific Instructions on page	☐ Limited liability company. Enter the tax classification (C=C corporation, S=S corporation, P=Partnership) ► Note: Check the appropriate box in the line above for the tax classification of the single-member owner. Do not check LLC if the LLC is classified as a single-member LLC that is disregarded from the owner unless the owner of the LLC is another LLC that is not disregarded from the owner for U.S. federal tax purposes. Otherwise, a single-member LLC that is disregarded from the owner should check the appropriate box for the tax classification of its owner.									codo (if onu)						
eci	Other (see ins	structions) 🕨							(Applies to accounts maintained outside the U.S.)							5.)
e Sp	5 Address (numbe		. or suite no.) See instr	uctions.		Requeste	r's r	name	and address (optional)							
See	18 On the Com		ox 290			4										
	6 City, state, and 2															
	Lyme NH 0376 7 List account nun		onal)													
	. Lot abood it has		onay													
Pa	rt I Taxpa	yer Identific	cation Number	(TIN)												
					given on line 1 to av		Soc	ial se	curity	numb	per					_
resid	packup withholding. For individuals, this is generally your social security number (SSN). However, for a resident alien, sole proprietor, or disregarded entity, see the instructions for Part I, later. For other entities, it is your employer identification number (EIN). If you do not have a number, see <i>How to get a</i>								-			-				
TIN, I		,		ea ao not havo a ho		0	r									
								oloye	r identification number							
Numi	Number To Give the Requester for guidelines on whose number to enter.									3	8	0	9	9	3	

Request for Taxpaver

Part II Certification

\/_O

Under penalties of perjury, I certify that:

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

4. The FATCA code(s) entered on this form (if any) indicating that I am exempt from FATCA reporting is correct.

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

Sign Here	Signature of U.S. person ►	A	FNA	Date ► //	10	2015
	· /					

General Instructions

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

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

Purpose of Form

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

• Form 1099-INT (interest earned or paid)

Form 1099-DIV (dividends, including those from stocks or mutual funds)

 Form 1099-MISC (various types of income, prizes, awards, or gross proceeds)

- Form 1099-B (stock or mutual fund sales and certain other transactions by brokers)
- Form 1099-S (proceeds from real estate transactions)
- Form 1099-K (merchant card and third party network transactions)
- Form 1098 (home mortgage interest), 1098-E (student loan interest), 1098-T (tuition)
- Form 1099-C (canceled debt)
- Form 1099-A (acquisition or abandonment of secured property)

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

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



One Lyme Common • Lyme, NH 03768 • Tel: 603-795-4000 • Fax: 603-795-4800 • www.lyme.com

About GSA Schedules

GSA Schedules are fast, easy, and effective contracting vehicles for both customers and vendors. For GSA Schedules, GSA establishes long-term government wide contracts with commercial companies to provide access to millions of commercial products and services at volume discount pricing.

GSA Value for Customers

Customers contract with Lyme as a pre-approved vendor and benefit from "most-favored customer" pricing with our GSA Schedules (also referred to as Multiple Award Schedules (MAS) and Federal Supply Schedules (FSS).

Customers who order from our Schedules get:

- Savings;
- Flexibility and choice;
- Shorter lead time;
- Transparency;
- Control of the procurement;
- Lower administrative costs; and
- Reduced inventories.

State and Local Government Customers

By using the purchasing power of the federal government, GSA can help cities and towns meet their mission while reducing costs and maximizing efficiency. Multiple authorized programs allow state and local governments to use GSA Schedules for select goods and services.

Cooperative Purchasing

The Cooperative Purchasing Program allows state, local and tribal governments to benefit from pre-vetted industry partners on a variety of information technology products and services as well as security and law enforcement products and services offered through specific GSA Schedule contracts. This program allows eligible entities to purchase from Cooperative Purchasing approved industry partners like Lyme, at any time, for any reason, using any funds available.

GENERAL SERVICES ADMINISTRATION

AUTHORIZED FAS PRICELIST Solicitation FCIS-JB-980001-B

Lyme Computer Systems, Inc. P.O Box 290 One Lyme Common Lyme, NH 03768 Telephone: (603)795-4000; (800)370-1095 Fax: (603)795-4800 Internet: www.lyme.com e-mail: rickh@lyme.com

On-line access to contract ordering information, terms and conditions, up-to-date pricing, and the option to create an electronic delivery order are available through *GSA Advantage*!®, a menu-driven database system. The INTERNET address of *GSA Advantage*!® is: <u>https://www.gsaadvantage.gov</u>

Title: General Purpose Commercial Information Technology Equipment, Software and Services

Schedule 70 - Refresh Number: 45

Price List Updated Thru Lyme Computers Mod #A1519, GSA Mod 0042, March 30, 2018

Contract Term: May 31, 2017 to May 30, 2022

Lyme Computer Systems is a Small Business Certified HUBZone (Certificate #56897, Date 1/26/2017) NAICS: 423430 / 541519

The minimum dollar value of orders to be issued is <u>\$100.00</u>.

Prices shown or referred to herein are Net (discount deducted) and are available at https://www.gsaadvantage.gov and http://www.lyme.com

FAS GROUP CLASS 70: GENERAL PURPOSE COMMERCIAL INFORMATION TECHNOLOGY EQUIPMENT, SOFTWARE AND SERVICES

Special Item No. 132-8 Purchase of Equipment
Special Item No. 132-12 Maintenance, Repair Service and Repair Parts/Spare Parts
Special Item No. 132-32 Term Software Licenses
Special Item No. 132-33 Perpetual Software Licenses
Special Item No. 132-34 Maintenance of Software
Special Item No. 132-40 Cloud Computing (we hope to add a Cloud manufacturer in 2018)
Special Item No. 132-50 Training Courses

Note: All non-professional labor categories must be incidental to and used solely to support hardware, software and/or professional services, and cannot be purchased separately.

FSC Class/Product Codes: 5805, 5810, 5815, 6145, 7010, 7025, 7030, 7035, 7042, J058, J070, U012

Products and ordering information in this Authorized Information Technology Schedule Pricelist are also available on GSA Advantage! https://www.gsaadvantage.gov and http://www.lyme.com.

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TERMS AND CONDITIONS SIN 132-33	PAGE:	13
TERMS AND CONDITIONS SIN 132-34	PAGE:	13
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CUSTOMER INFORMATION

1a. Table of awarded special item number(s) with appropriate cross-reference to item descriptions and awarded price(s):

SIN	SIN Description	Awarded Prices
132-8	Purchase of Equipment	See GSA Advantage! website:
132-12	Maintenance, Repair Service and Repair Parts/Spare Parts	https://www.gsaadvantage.gov
132-32	Term Software Licenses	and
132-33	Perpetual Software Licenses	Lyme Computer Systems, Inc. website:
132-34	Maintenance of Software	http://www.lyme.com
132-40	Cloud Computing (pending for 2018)	
132-50	Training Courses	

1b. Identification of the lowest priced model number and lowest unit price for that model for each special item number awarded in the contract. This price is the Government price based on a unit of one, exclusive of any quantity/dollar volume, prompt payment, or any other concession affecting price. Those contracts that have unit prices based on the geographic location of the customer, should show the range of the lowest price, and cite the areas to which the prices apply:

SIN	Cost	Part #	Mfr/Description
132-8	\$0.70	210-AIFI	Dell/Wyse Cloud Client Manager Base System
132-12	\$0.82	951-2015	Dell/ProSupport Plus 87 Months Next Business Day On-site Service
132-32	\$0.11	RV-A-1003	RAVE/Inbound 800 Line for Messaging / Minutes Per minute cost for inbound 800 line
132-33	\$0.13	DR-7476- 0010	Ipswitch/Service Agreement - Technical support (renewal) - for WhatsUp Event Log Management Suite - 1 workstation - volume - 1000+ level - phone consulting - 1 month - 9x5
132-34	\$0.29	07-7474- 0010	lpswitch/WhatsUp ELM Gov/Edu Workstation Suite 101+ Wkstn Svc 30D
132-40	NA	NA	Pending for 2018, when we hope to add a Cloud manufacturer to our contract.
132-50	\$1,163.66	R911X-S- 2001	RAVE/Smart911 On-site Training Smart911 On-site Training - 4 hours. Must purchase Smart911 Basic

See GSA Advantage! website: <u>https://www.gsaadvantage.gov</u> and Lyme Computer Systems, Inc. website: <u>http://www.lyme.com</u>.

1c. If the Contractor is proposing hourly rates, a description of all corresponding commercial job titles, experience, functional responsibility and education for those types of employees or subcontractors who will perform services shall be provided. If hourly rates are not applicable, indicate "Not applicable" for this item: **Not applicable**

2. Maximum order (All dollar amounts are exclusive of any discount for prompt payment.):

a. The Maximum Order value for the following Special Item Numbers (SINs) is \$500,000:

Special Item Number 132-8 - Purchase of Equipment Special Item Number 132-12 – Maintenance of Equipment, Repair Service, Repair/Spare Parts Special Item Number 132-32 - Term Software Licenses Special Item Number 132-33 - Perpetual Software Licenses Special Item Number 132-34 – Maintenance of Software Special Item Number 132-40 – Cloud Computing (Pending for 2018)

b. The Maximum Order value for the following Special Item Numbers (SINs) is \$25,000:

Special Item Number 132-50 - Training Courses

3. Minimum order: The minimum dollar value of orders to be issued is <u>\$100.00</u>.

4. Geographic coverage (delivery area): domestic and overseas delivery

5. Points of production: **Products offered under this contract are manufactured in the following countries which** can be cross referenced at <u>https://www.gsaadvantage.gov</u> and <u>http://www.lyme.com</u>:

Australia	Germany	Japan	South Korea
Belgium	Hong Kong	Malta	Switzerland
Canada	Hungary	Mexico	Taiwan
Czech Republic	Ireland	Morocco	United Kingdom
Finland	Israel	Singapore	United States
France	Italy	Slovak Republic	Cambodia

6. Discount from list prices or statement of net price: **Prices shown herein are Net (discount deducted) and are** available at <u>https://www.gsaadvantage.gov</u> and <u>http://www.lyme.com</u>

7. Quantity discounts: Available on specific items. See https://www.gsaadvantage.gov and http://www.lyme.com

8. Prompt payment terms: NONE

9a. Government purchase cards are accepted at or below the micro-purchase threshold.

9b. Government purchase cards **are** accepted above the micro-purchase threshold.

10. Foreign items (list items by country of origin):

Products offered under this contract are manufactured in the following countries which can be cross referenced at <u>https://www.gsaadvantage.gov</u> and <u>http://www.lyme.com</u>:

Australia	Germany	Japan	South Korea
Belgium	Hong Kong	Malta	Switzerland
Canada	Hungary	Mexico	Taiwan
Czech Republic	Ireland	Morocco	United Kingdom
Finland	Israel	Singapore	United States
France	Italy	Slovak Republic	Cambodia

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11a. Time of delivery:

The Contractor shall deliver to destination within the number of calendar days after receipt of order (ARO), as set forth below:

132-8	10 Days
132-12	10 Days
132-32	10 Days
132-33	10 Days
132-34	10 Days
132-50	As agreed upon between the contractor and the ordering activity

11b. Expedited Delivery: Most products can be subjected to expedited delivery. The only charges for this service will be the actual shipping charges for the mode of transport specified by the customer.

11c. Overnight and 2-day delivery: Most products can be subjected to overnight and 2-day delivery. In addition to the actual shipping charges for the mode of transport specified by the customer, a handling fee may also be imposed.

11d. Urgent Requirements: When the Federal Acquisition Schedule contract delivery period does not meet the bona fide urgent delivery requirements of an ordering activity, ordering activities are encouraged, if time permits, to contact the Contractor for the purpose of obtaining accelerated delivery. The Contractor shall reply to the inquiry within 3 workdays after receipt. (Telephonic replies shall be confirmed by the Contractor in writing.) If the Contractor offers an accelerated delivery time acceptable to the ordering activity, any order(s) placed pursuant to the agreed upon accelerated delivery time frame shall be delivered within this shorter delivery time and in accordance with all other terms and conditions of the contract.

12. F.O.B. point(s): FOB Destination

13a. Ordering address:

Lyme Computer Systems, Inc. One Lyme Common Lyme, NH 03768-0290

13b. Ordering procedures: For supplies and services, the ordering procedures, information on Blanket Purchase Agreements (BPA's) are found in Federal Acquisition Regulation (FAR) 8.405-3.

14. Payment address:

Lyme Computer Systems, Inc. P.O. Box 845172 Boston, MA 02284-5172

15. Warranty provision:

- a. Unless stated otherwise in this contract, the manufacturers' commercial warranties as stated in their Commercial Pricelists will apply to this contract
- b. The Contractor warrants and implies that the items delivered hereunder are merchantable and fit for use for the particular purpose intended by the manufacturer
- c. Limitation of liability: except as otherwise provided by an express or implied warranty, the Contractor will not be liable to the Government for consequential damages resulting from any defect or deficiencies in accepted items
- d. If inspection and repair of defective equipment under this warranty will be performed at the Contractor's plant, the address is as follows: Lyme Computer Systems, Inc., One Lyme Common, Lyme NH 03768.
- 16. Export packing charges: NOT APPLICABLE

17. Terms and conditions of Government purchase card acceptance (any thresholds above the micro-purchase level): Ask Contractor

18. Terms and conditions of rental, maintenance, and repair (if applicable): See Critical Information Terms and Conditions relating to specific Special Item Numbers below

19. Terms and conditions of installation (if applicable): See Critical Information Terms and Conditions relating to specific Special Item Numbers below

20. Terms and conditions of repair parts indicating date of parts price lists and any discounts from list prices (if applicable): NOT APPLICABLE

20a. Terms and conditions for any other services (if applicable): NOT APPLICABLE

21. List of service and distribution points (if applicable): See Critical Information Terms and Conditions relating to specific Special Item Numbers below

22. List of participating dealers (if applicable): NOT APPLICABLE

23. Preventive maintenance (if applicable): NOT APPLICABLE

24a. Special attributes such as environmental attributes (e.g., recycled content, energy efficiency, and/or reduced pollutants): **NOT APPLICABLE**

24b. Section 508 compliance information is available on Electronic and Information Technology (EIT) supplies and services at: <u>www.Section508.gov/</u>. Contractor's Section 508 Compliance and Policy statements can be found on the Contractor's website: <u>http://www.lyme.com</u>

25. Data Universal Number System (DUNS) number: 14-476-3067

26. Lyme Computer Systems, Inc. is registered in the System Award Management (SAM) database.

Critical Information specific to Schedule 70 provided for instructional purposes to outline the Terms and Conditions requirements for each Special Item Number (SIN)

TERMS AND CONDITIONS APPLICABLE TO PURCHASE OF GENERAL PURPOSE COMMERCIAL INFORMATION TECHNOLOGY NEW EQUIPMENT (SPECIAL ITEM NUMBER 132-8)

1. MATERIAL AND WORKMANSHIP

All equipment furnished hereunder must satisfactorily perform the function for which it is intended.

2. ORDER

Written orders, EDI orders (GSA Advantage! and FACNET), credit card orders, and orders placed under blanket purchase agreements (BPA) agreements shall be the basis for purchase in accordance with the provisions of this contract. If time of delivery extends beyond the expiration date of the contract, the Contractor will be obligated to meet the delivery and installation date specified in the original order.

For credit card orders and BPAs, telephone orders are permissible.

3. TRANSPORTATION OF EQUIPMENT

FOB DESTINATION. Prices cover equipment delivery to destination, for any location within the geographic scope of this contract.

4. INSTALLATION AND TECHNICAL SERVICES

a. INSTALLATION. When the equipment provided under this contract is not normally self-installable, the Contractor's technical personnel shall be available to the ordering activity, at the ordering activity's location, to install the equipment and to train ordering activity personnel in the use and maintenance of the equipment. The charges, if any, for such services are listed below, or in the price schedule:

See price schedule

b. **INSTALLATION, DEINSTALLATION, REINSTALLATION.** The Davis-Bacon Act (40 U.S.C. 276a-276a-7) provides that contracts in excess of \$2,000 to which the United States or the District of Columbia is a party for

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Authorized FAS Pricelist

construction, alteration, or repair (including painting and decorating) of public buildings or public works with the United States, shall contain a clause that no laborer or mechanic employed directly upon the site of the work shall received less than the prevailing wage rates as determined by the Secretary of Labor. The requirements of the Davis-Bacon Act do not apply if the construction work is incidental to the furnishing of supplies, equipment, or services. For example, the requirements do not apply to simple installation or alteration of a public building or public work that is incidental to furnishing supplies or equipment under a supply contract. However, if the construction, alteration or repair is segregable and exceeds \$2,000, then the requirements of the Davis-Bacon Act applies.

The ordering activity issuing the task order against this contract will be responsible for proper administration and enforcement of the Federal labor standards covered by the Davis-Bacon Act. The proper Davis-Bacon wage determination will be issued by the ordering activity at the time a request for quotations is made for applicable construction classified installation, deinstallation, and reinstallation services under SIN 132-8.

c. OPERATING AND MAINTENANCE MANUALS. The Contractor shall furnish the ordering activity with one (1) copy of all operating and maintenance manuals which are normally provided with the equipment being purchased.

5. INSPECTION/ACCEPTANCE

The Contractor shall only tender for acceptance those items that conform to the requirements of this contract. The ordering activity reserves the right to inspect or test any equipment that has been tendered for acceptance. The ordering activity may require repair or replacement of nonconforming equipment at no increase in contract price. The ordering activity must exercise its postacceptance rights (1) within a reasonable time after the defect was discovered or should have been discovered; and (2) before any substantial change occurs in the condition of the item, unless the change is due to the defect in the item.

6. WARRANTY

a. Unless specified otherwise in this contract, the Contractor's standard commercial warranty as stated in the contract's commercial pricelist will apply to this contract.

b. The Contractor warrants and implies that the items delivered hereunder are merchantable and fit for use for the particular purpose described in this contract.

c. Limitation of Liability. Except as otherwise provided by an express or implied warranty, the Contractor will not be liable to the ordering activity for consequential damages resulting from any defect or deficiencies in accepted items.

d. If inspection and repair of defective equipment under this warranty will be performed at the Contractor's plant, the address is as follows: Lyme Computer Systems, 18 on The Common, Lyme NH 03768

e. Per the return policy of many of our manufacturers, unless the product is defective or is returned as the result of manufacturer error, we may charge a restocking fee of 10%. Other manufacturers do not accept returns of open, used, or special order items; in such cases, we will put forth our best efforts to facilitate the return of such products to mitigate the cost to the government.

7. PURCHASE PRICE FOR ORDERED EQUIPMENT

The purchase price that the ordering activity will be charged will be the ordering activity purchase price in effect at the time of order placement, or the ordering activity purchase price in effect on the installation date (or delivery date when installation is not applicable), whichever is less.

8. **RESPONSIBILITIES OF THE CONTRACTOR**

The Contractor shall comply with all laws, ordinances, and regulations (Federal, State, City or otherwise) covering work of this character, and shall include all costs, if any, of such compliance in the prices quoted in this offer.

9. TRADE-IN OF INFORMATION TECHNOLOGY EQUIPMENT

When an ordering activity determines that Information Technology equipment will be replaced, the ordering activity shall follow the contracting policies and procedures in the Federal Acquisition Regulation (FAR), the policies and procedures regarding disposition of information technology excess personal property in the Federal Property Management Regulations (FPMR) (41 CFR 101-43.6), and the policies and procedures on exchange/sale contained in the FPMR (41 CFR part 101-46).

TERMS AND CONDITIONS APPLICABLE TO MAINTENANCE, REPAIR SERVICE AND REPAIR PARTS/SPARE PARTS FOR GOVERNMENT-OWNED GENERAL PURPOSE COMMERCIAL INFORMATION TECHNOLOGY EQUIPMENT, RADIO/TELEPHONE EQUIPMENT, (AFTER EXPIRATION OF GUARANTEE/WARRANTY PROVISIONS) AND/OR WHEN REQUIRED SERVICE IS NOT COVERED BY GUARANTEE/WARRANTY PROVISIONS) AND FOR LEASED EQUIPMENT (SPECIAL ITEM NUMBER 132-12)

1. SERVICE AREAS

a. The maintenance and repair service rates listed herein are applicable to any ordering activity location within a <u>100</u> mile radius of the Contractor's service points. If any additional charge is to apply because of the greater distance from the Contractor's service locations, the mileage rate or other distance factor shall be negotiated at the Task Order level.

b. When repair services cannot be performed at the ordering activity installation site, the repair services will be performed at the Contractor's plant(s) listed below:

Lyme Computer Systems, One Lyme Common, Lyme NH 03768, or manufacturer's designated repair facility.

2. MAINTENANCE ORDER

a. Agencies may use written orders, EDI orders, credit card orders, or BPAs, for ordering maintenance under this contract. The Contractor shall confirm orders within fifteen (15) calendar days from the date of receipt, except that confirmation of orders shall be considered automatic for renewals for maintenance (Special Item Number 132-12). Automatic acceptance of order renewals for maintenance service shall apply for machines which may have been discontinued from use for temporary periods of time not longer than 120 calendar days. If the order is not confirmed by the Contractor as prescribed by this paragraph, the order shall be considered to be confirmed by the Contractor.

b. The Contractor shall honor orders for maintenance for the duration of the contract period or a lesser period of time, for the equipment shown in the pricelist. Maintenance service shall commence on a mutually agreed upon date, which will be written into the maintenance order. Maintenance orders shall not be made effective before the expiration of any applicable maintenance and parts guarantee/warranty period associated with the purchase of equipment. Orders for maintenance service shall not extend beyond the end of the contract period.

c. Maintenance may be discontinued by the ordering activity on thirty (30) calendar days written notice, or shorter notice when agreed to by the Contractor; such notice to become effective thirty (30) calendar days from the date on the notification. However, the ordering activity may extend the original discontinuance date upon written notice to the Contractor, provided that such notice is furnished at least ten (10) calendar days prior to the original discontinuance date.

d. Annual Funding. When annually appropriated funds are cited on a maintenance order, the period of maintenance shall automatically expire on September 30th of the contract period, or at the end of the contract period, whichever occurs first. Renewal of a maintenance order citing the new appropriation shall be required, if maintenance is to continue during any remainder of the contract period.

e. Cross-year Funding Within Contract Period. Where an ordering activity's specific appropriation authority provides for funds in excess of a 12 month, fiscal year period, the ordering activity may place an order under this schedule contract for a period up to the expiration of the contract period, notwithstanding the intervening fiscal years.

f. Ordering activities should notify the Contractor in writing thirty (30) calendar days prior to the expiration of maintenance service, if maintenance is to be terminated at that time. Orders for continued maintenance will be required if maintenance is to be continued during the subsequent period.

3. REPAIR SERVICE AND REPAIR PARTS/SPARE PARTS ORDERS

a. Agencies may use written orders, EDI orders, credit card orders, blanket purchase agreements (BPAs), or small order procedures for ordering repair service and/or repair parts/spare parts under this contract. Orders for repair service shall not extend beyond the end of the contract period.

b. When repair service is ordered, only one chargeable repairman shall be dispatched to perform repair service, unless the ordering activity agrees, in advance, that additional repair personnel are required to effect repairs.

4. LOSS OR DAMAGE

When the Contractor removes equipment to his establishment for repairs, the Contractor shall be responsible for any damage or loss, from the time the equipment is removed from the ordering activity installation, until the equipment is returned to such installation.

5. SCOPE

a. The Contractor shall provide maintenance for all equipment listed herein, as requested by the ordering activity during the contract term. Repair service and repair parts/spare parts shall apply exclusively to the equipment types/models within the scope of this Information Technology Schedule.

b. Equipment placed under maintenance service shall be in good operating condition.

(1) In order to determine that the equipment is in good operating condition, the equipment shall be subject to inspection by the Contractor, without charge to the ordering activity.

(2) Costs of any repairs performed for the purpose of placing the equipment in good operating condition shall be borne by the Contractor, if the equipment was under the Contractor's guarantee/warranty or maintenance responsibility prior to the effective date of the maintenance order.

(3) If the equipment was not under the Contractor's responsibility, the costs necessary to place the equipment in proper operating condition are to be borne by the ordering activity, in accordance with the provisions of Special Item Number 132-12 (or outside the scope of this contract).

6. **RESPONSIBILITIES OF THE ORDERING ACTIVITY**

a. Ordering activity personnel shall not perform maintenance or attempt repairs to equipment while such equipment is under the purview of a maintenance order, unless agreed to by the Contractor.

b. Subject to security regulations, the ordering activity shall permit access to the equipment which is to be maintained or repaired.

c. If the Ordering Activity desires a factory authorized/certified service personnel then this should be clearly stated in the task or delivery order.

7. **RESPONSIBILITIES OF THE CONTRACTOR**

a. For equipment not covered by a maintenance contract or warranty, the Contractor's repair service personnel shall complete repairs as soon as possible after notification by the ordering activity that service is required. Within the service areas, this repair service should normally be done within 4 hours after notification.

b. If the Ordering Activity task or delivery order specifies a factory authorized/certified service personnel then the Contractor is obligated to provide such a factory authorized/certified service personnel for the equipment to be repaired or serviced, unless otherwise agreed to in advance between the Agency and the Contractor.

8. MAINTENANCE RATE PROVISIONS

a. The Contractor shall bear all costs of maintenance, including labor, parts, and such other expenses as are necessary to keep the equipment in good operating condition, provided that the required repairs are not occasioned by fault or negligence of the ordering activity.

b. REGULAR HOURS

The basic monthly rate for each make and model of equipment shall entitle the ordering activity to maintenance service during a mutually agreed upon nine (9) hour principal period of maintenance, Monday through Friday, exclusive of holidays observed at the ordering activity location.

c. AFTER HOURS

Should the ordering activity require that maintenance be performed outside of Regular Hours, charges for such maintenance, if any, will be specified in the pricelist. Periods of less than one hour will be prorated to the nearest quarter hour.

d. TRAVEL AND TRANSPORTATION

If any charge is to apply, over and above the regular maintenance rates, because of the distance between the ordering activity location and the Contractor's service area, the charge will be negotiated at the Task Order level.

e. QUANTITY DISCOUNTS

Quantity discounts from listed maintenance service rates for multiple equipment owned and/or leased by an ordering activity are indicated below: <u>None.</u>

9. **REPAIR SERVICE RATE PROVISIONS**

a. CHARGES. Charges for repair service will include the labor charge, computed at the rates set forth below, for the time during which repairmen are actually engaged in work, and, when applicable, the charge for travel or transportation.

b. MULTIPLE MACHINES. When repairs are ordered by a ordering activity on two or more machines located in one or more buildings within walking distance of each other, the charges will be computed from the time the repairman commences work on the first machine, until the work is completed on the last machine. The time required to go from one machine to another, or from one building to another, will be considered actual work performance, and chargeable to the ordering activity, provided the time consumed in going between machines (or buildings) is reasonable.

c. TRAVEL OR TRANSPORTATION

(1) AT THE CONTRACTOR'S SHOP

(a) When equipment is returned to the Contractor's shop for adjustments or repairs which are not covered by the guarantee/warranty provision, the cost of transportation, packing, etc., from the ordering activity location to the Contractor's plant, and return to the ordering activity location, shall be borne by the ordering activity.

(b) The ordering activity should not return defective equipment to the Contractor for adjustments and repairs or replacement without his prior consultation and instruction.

(2) AT THE ORDERING ACTIVITY LOCATION (Within Established Service Areas)

When equipment is repaired at the ordering activity location, and repair service rates are established for service areas or zones, the listed rates are applicable to any ordering activity location within such service areas or zones. No extra charge, time, or expense will be allowed for travel or transportation of repairmen or machines to or from the ordering activity office; such overhead is included in the repair service rates listed.

(3) AT THE ORDERING ACTIVITY LOCATION (Outside Established Service Areas)

(a) If repairs are to be made at the ordering activity location, and the location is outside the service area as shown in paragraph 1.a, the repair service and mileage rates negotiated per subparagraphs 1.a and 8.d will apply.

(b) When the overall travel charge computed at the above mileage rate is unreasonable (considering the time required for travel, actual and necessary transportation costs, and the allowable ordering activity per diem rate for each night the repairman is required to remain overnight at the ordering activity location), the ordering activity shall have the option of reimbursing the Contractor for actual costs, provided that the actual costs are reasonable and allowable. The Contractor shall furnish the ordering activity with a report of travel performed and related expenses incurred. The report shall include departure and arrival dates, times, and the applicable mode of travel.

d. LABOR RATES

(1) REGULAR HOURS

The Regular Hours repair service rates listed herein shall entitle the ordering activity to repair service during the period 8:00 a.m. to 5:00 p.m., Monday through Friday, exclusive of holidays observed at the ordering activity location. There shall be no additional charge for repair service which was requested during Regular Hours, but performed outside the Regular Hours defined above, at the convenience of the Contractor.

(2) AFTER HOURS

When the ordering activity requires that repair service be performed outside the Regular Hours defined above, except Sundays and Holidays observed at the ordering activity location, the After Hours repair service rates listed herein shall apply. The Regular Hours rates defined above shall apply when repair service is requested during Regular Hours, but performed After Hours at the convenience of the Contractor.

(3) SUNDAYS AND HOLIDAYS

When the ordering activity requires that repair service be performed on Sundays and Holidays observed at the ordering activity location, the Sundays and Holidays repair service rates listed herein shall apply. When repair service is requested to be performed during Regular Hours and/or After Hours, but is performed at the convenience of the Contractor on Sundays or Holidays observed at the ordering activity location, the Regular Hours and/or After Hours repair service rates, as applicable, shall apply.

REPAIR SERVICE RATES:

LOCATION	MINIMUM CHARGE*	REGULAR HOURS PER HOUR**	AFTER HOURS PER HOUR**	SUNDAYS AND HOLIDAYS PER HOUR	
CONTRACTOR'S SHOP	<u>\$35.00</u>	<u>\$50.00</u>	<u>\$75.00</u>	<u>\$75.00</u>	
ORDERING ACTIVITY LOCAT (WITHIN ESTABLISHED SERVICE AREAS)	ION _ <u>\$50.00</u>	<u>\$75.00</u>	<u>\$75.00</u>	<u>\$100.00</u>	
ORDERING ACTIVITY LOCAT (OUTSIDE ESTABLISHED SERVICE AREAS)	ION <u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	
THE ADDRESS NOT THE 1 FULL HOUR ON THE IOB					

*MINIMUM CHARGES INCLUDE 1_ FULL HOUR ON THE JOB.

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**FRACTIONAL HOURS, AT THE END OF THE JOB, WILL BE PRORATED TO THE NEAREST QUARTER HOUR.

10. REPAIR PARTS/SPARE PARTS RATE PROVISIONS

All parts, furnished as spares or as repair parts in connection with the repair of equipment, unless otherwise indicated in this pricelist, shall be new, standard parts manufactured by the equipment manufacturer. All parts shall be furnished at prices indicated in the Contractor's commercial pricelist dated 12/18/2017, at a discount of 0% from such listed prices.

11. GUARANTEE/WARRANTY—REPAIR SERVICE AND REPAIR PARTS/SPARE PARTS

a. REPAIR SERVICE

All repair work will be guaranteed/warranted for a period of 30 days.

b. REPAIR PARTS/SPARE PARTS

All parts, furnished either as spares or repairs parts will be guaranteed/warranted for a period of 90 days.

12. INVOICES AND PAYMENTS

a. Maintenance Service

(1) Invoices for maintenance service shall be submitted by the Contractor on a quarterly or monthly basis, after the completion of such period. Maintenance charges must be paid in arrears (31 U.S.C. 3324). PROMPT PAYMENT DISCOUNT, IF APPLICABLE, SHALL BE SHOWN ON THE INVOICE.

(2) Payment for maintenance service of less than one month's duration shall be prorated at 1/30th of the monthly rate for each calendar day.

b. Repair Service and Repair Parts/Spare Parts.

Invoices for repair service and parts shall be submitted by the Contractor as soon as possible after completion of work. Payment under blanket purchase agreements will be made quarterly or monthly, except where cash payment procedures are used. Invoices shall be submitted separately to each ordering activity office ordering services under the contract. The cost of repair parts shall be shown as a separate item on the invoice, and shall be priced in accordance with paragraph #10, above. PROMPT PAYMENT DISCOUNT, IF APPLICABLE, SHALL BE SHOWN ON THE INVOICE.

TERMS AND CONDITIONS APPLICABLE TO TERM SOFTWARE LICENSES (SPECIAL ITEM NUMBER 132-32), PERPETUAL SOFTWARE LICENSES (SPECIAL ITEM NUMBER 132-33) AND MAINTENANCE AS A SERVICE (SPECIAL ITEM NUMBER 132-34) OF GENERAL PURPOSE COMMERCIAL INFORMATION TECHNOLOGY SOFTWARE

1. INSPECTION/ACCEPTANCE

The Contractor shall only tender for acceptance those items that conform to the requirements of this contract. The ordering activity reserves the right to inspect or test any software that has been tendered for acceptance. The ordering activity may require repair or replacement of nonconforming software at no increase in contract price. The ordering activity must exercise its postacceptance rights (1) within a reasonable time after the defect was discovered or should have been discovered; and (2) before any substantial change occurs in the condition of the software, unless the change is due to the defect in the software.

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2. ENTERPRISE USER LICENSE AGREEMENTS REQUIREMENTS (EULA)

The Contractor shall provide all Enterprise User License Agreements in an editable Microsoft Office (Word) format.

3. GUARANTEE/WARRANTY

a. Unless specified otherwise in this contract, the Contractor's standard commercial guarantee/warranty as stated in the contract's commercial pricelist will apply to this contract.

b. The Contractor warrants and implies that the items delivered hereunder are merchantable and fit for use for the particular purpose described in this contract.

c. Limitation of Liability. Except as otherwise provided by an express or implied warranty, the Contractor will not be liable to the ordering activity for consequential damages resulting from any defect or deficiencies in accepted items.

4. TECHNICAL SERVICES

The Contractor, without additional charge to the ordering activity, shall provide a hot line technical support number $\underline{603-795-4000}$ for the purpose of providing user assistance and guidance in the implementation of the software. The technical support number is available from $\underline{9:00}$ am Eastern Time to $\underline{5:00}$ pm Eastern Time.

5. SOFTWARE MAINTENANCE

a. Software maintenance as it is defined:

1. Software Maintenance as a Product (SIN 132-32 or SIN 132-33)

Software maintenance as a product includes the publishing of bug/defect fixes via patches and updates/upgrades in function and technology to maintain the operability and usability of the software product. It may also include other no charge support that are included in the purchase price of the product in the commercial marketplace. No charge support includes items such as user blogs, discussion forums, on-line help libraries and FAQs (Frequently Asked Questions), hosted chat rooms, and limited telephone, email and/or web-based general technical support for user's self diagnostics.

Software maintenance as a product does <u>NOT</u> include the creation, design, implementation, integration, etc. of a software package. These examples are considered software maintenance as a service.

Software Maintenance as a product is billed at the time of purchase.

2. Software Maintenance as a Service (SIN 132-34)

Software maintenance as a service creates, designs, implements, and/or integrates customized changes to software that solve one or more problems and is not included with the price of the software. Software maintenance as a service includes person-to-person communications regardless of the medium used to communicate: telephone support, on-line technical support, customized support, and/or technical expertise which are charged commercially. Software maintenance as a service is billed arrears in accordance with 31 U.S.C. 3324.

b. Invoices for maintenance service shall be submitted by the Contractor on a quarterly or monthly basis, after the completion of such period. Maintenance charges must be paid in arrears (31 U.S.C. 3324). PROMPT PAYMENT DISCOUNT, IF APPLICABLE, SHALL BE SHOWN ON THE INVOICE.

6. PERIODS OF TERM LICENSES (SIN 132-32) AND MAINTENANCE (SIN 132-34)

a. The Contractor shall honor orders for periods for the duration of the contract period or a lesser period of time.

b. Term licenses and/or maintenance may be discontinued by the ordering activity on thirty (30) calendar days written notice to the Contractor.

c. Annual Funding. When annually appropriated funds are cited on an order for term licenses and/or maintenance, the period of the term licenses and/or maintenance shall automatically expire on September 30 of the contract period, or at the end of the contract period, whichever occurs first. Renewal of the term licenses and/or maintenance orders citing the new appropriation shall be required, if the term licenses and/or maintenance is to be continued during any remainder of the contract period.

d. Cross-Year Funding Within Contract Period. Where an ordering activity's specific appropriation authority provides for funds in excess of a 12 month (fiscal year) period, the ordering activity may place an order under this schedule contract for a period up to the expiration of the contract period, notwithstanding the intervening fiscal years.

e. Ordering activities should notify the Contractor in writing thirty (30) calendar days prior to the expiration of an order, if the term licenses and/or maintenance is to be terminated at that time. Orders for the continuation of term licenses and/or maintenance will be required if the term licenses and/or maintenance is to be continued during the subsequent period.

7. CONVERSION FROM TERM LICENSE TO PERPETUAL LICENSE

a. The ordering activity may convert term licenses to perpetual licenses for any or all software at any time following acceptance of software. At the request of the ordering activity the Contractor shall furnish, within ten (10) calendar days, for each software product that is contemplated for conversion, the total amount of conversion credits which have accrued while the software was on a term license and the date of the last update or enhancement.

b. Conversion credits which are provided shall, within the limits specified, continue to accrue from one contract period to the next, provided the software remains on a term license within the ordering activity.

c. The term license for each software product shall be discontinued on the day immediately preceding the effective date of conversion from a term license to a perpetual license.

d. The price the ordering activity shall pay will be the perpetual license price that prevailed at the time such software was initially ordered under a term license, or the perpetual license price prevailing at the time of conversion from a term license to a perpetual license, whichever is the less, minus an amount equal to% of all term license payments during the period that the software was under a term license within the ordering activity.

8. TERM LICENSE CESSATION

a. After a software product has been on a continuous term license for a period of * months, a fully paid-up, non-exclusive, perpetual license for the software product shall automatically accrue to the ordering activity. The period of continuous term license for automatic accrual of a fully paid-up perpetual license does not have to be achieved during a particular fiscal year; it is a written Contractor commitment which continues to be available for software that is initially ordered under this contract, until a fully paid-up perpetual license accrues to the ordering activity. However, should the term license of the software be discontinued before the specified period of the continuous term license has been satisfied, the perpetual license accrual shall be forfeited.

b. The Contractor agrees to provide updates and maintenance service for the software after a perpetual license has accrued, at the prices and terms of Special Item Number 132-34, if the licensee elects to order such services. Title to the software shall remain with the Contractor.

9. UTILIZATION LIMITATIONS - (SIN 132-32, SIN 132-33, AND SIN 132-34)

a. Software acquisition is limited to commercial computer software defined in FAR Part 2.101.

b. When acquired by the ordering activity, commercial computer software and related documentation so legend shall be subject to the following:

- (1) Title to and ownership of the software and documentation shall remain with the Contractor, unless otherwise specified.
- (2) Software licenses are by site and by ordering activity. An ordering activity is defined as a cabinet level or independent ordering activity. The software may be used by any subdivision of the ordering activity (service, bureau, division, command, etc.) that has access to the site the software is placed at, even if the subdivision did not participate in the acquisition of the software. Further, the software may be used on a sharing basis where multiple agencies have joint projects that can be satisfied by the use of the software placed at one ordering activity's site. This would allow other agencies access to one ordering activity's database. For ordering activity public domain databases, user agencies and third parties may use the computer program to enter, retrieve, analyze and present data. The user ordering activity will take appropriate action by instruction, agreement, or otherwise, to protect the Contractor's proprietary property with any third parties that are permitted access to the computer programs and documentation in connection with the user ordering activity's permitted use of the computer programs and documentation. For purposes of this section, all such permitted third parties shall be deemed agents of the user ordering activity.
- (3) Except as is provided in paragraph 8.b(2) above, the ordering activity shall not provide or otherwise make available the software or documentation, or any portion thereof, in any form, to any third party without the prior written approval of the Contractor. Third parties do not include prime Contractors, subcontractors and agents of the ordering activity who have the ordering activity's permission to use the licensed software and documentation at the facility, and who have agreed to use the licensed software and documentation only in accordance with these restrictions. This provision does not limit the right of the ordering activity to use software, documentation, or information therein, which the ordering activity may already have or obtains without restrictions.
- (4) The ordering activity shall have the right to use the computer software and documentation with the computer for which it is acquired at any other facility to which that computer may be transferred, or in cases of Disaster Recovery, the ordering activity has the right to transfer the software to another site if the ordering activity site for which it is acquired is deemed to be unsafe for ordering activity personnel; to use the computer software and documentation with a backup computer when the primary computer is inoperative; to copy computer programs for safekeeping (archives) or backup purposes; to transfer a copy of the software to another site for purposes of benchmarking new hardware and/or software; and to modify

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the software and documentation or combine it with other software, provided that the unmodified portions shall remain subject to these restrictions.

(5) "Commercial Computer Software" may be marked with the Contractor's standard commercial restricted rights legend, but the schedule contract and schedule pricelist, including this clause, "Utilization Limitations" are the only governing terms and conditions, and shall take precedence and supersede any different or additional terms and conditions included in the standard commercial legend.

10. SOFTWARE CONVERSIONS - (SIN 132-32 AND SIN 132-33)

Full monetary credit will be allowed to the ordering activity when conversion from one version of the software to another is made as the result of a change in operating system, or from one computer system to another. Under a perpetual license (132-33), the purchase price of the new software shall be reduced by the amount that was paid to purchase the earlier version. Under a term license (132-32), conversion credits which accrued while the earlier version was under a term license shall carry forward and remain available as conversion credits which may be applied towards the perpetual license price of the new version.

11. DESCRIPTIONS AND EQUIPMENT COMPATIBILITY

The Contractor shall include, in the schedule pricelist, a complete description of each software product and a list of equipment on which the software can be used. Also, included shall be a brief, introductory explanation of the modules and documentation which are offered.

12. RIGHT-TO-COPY PRICING

The Right-to-copy license pricing is not available under the scope of this contract unless specifically specified in the pricelist. The Ordering Activity must contact the Manufacturer directly to discuss the applicability and associated costs of right-to-copy pricing.

TERMS AND CONDITIONS APPLICABLE TO PURCHASE OF
CLOUD COMPUTING SERVICES
(SPECIAL ITEM NUMBER 132 40)

1. SCOPE

The prices, terms and conditions stated under Special Item Number (SIN) 132-40 Cloud Computing Services apply exclusively to Cloud Computing Services within the scope of this Information Technology Schedule.

This SIN provides ordering activities with access to technical services that run in cloud environments and meet the NIST Definition of Cloud Computing Essential Characteristics. Services relating to or impinging on cloud that do not meet all NIST essential characteristics should be listed in other SINs.

The scope of this SIN is limited to cloud capabilities provided entirely as a service. Hardware, software and other artifacts supporting the physical construction of a private or other cloud are out of scope for this SIN. Currently, an Ordering Activity can procure the hardware and software needed to build on premise cloud functionality, through combining different services on other IT Schedule 70 SINs (e.g. 132-51).

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Sub-categories in scope for this SIN are the three NIST Service Models: Software as a Service (SaaS), Platform as a Service (PaaS), and Infrastructure as a Service (IaaS). Offerors may optionally select a single sub-category that best fits a proposed cloud service offering. Only one sub-category may be selected per each proposed cloud service offering. Offerors may elect to submit multiple cloud service offerings, each with its own single sub-category. The selection of one of three sub-categories does not prevent Offerors from competing for orders under the other two sub-categories.

See service model guidance for advice on sub-category selection.

Sub-category selection within this SIN is optional for any individual cloud service offering, and new cloud computing technologies that do not align with the aforementioned three sub-categories may be included without a sub-category selection so long as they comply with the essential characteristics of cloud computing as outlined by NIST.

See Table 1 for a representation of the scope and sub-categories.

Table 1: Cloud Computing Services SIN

SIN Description

• Commercially available cloud computing services

• Meets the National Institute for Standards and Technology (NIST) definition of Cloud Computing essential characteristics

 Open to all deployment models (private, public, community or hybrid), vendors specify deployment models

Sub-Categories

 Software as a Service (SaaS): Consumer uses provider's applications on cloud infrastructure. Does not manage/control platform or infrastructure. Limited application level configuration may be available.
 Platform as a Service (PaaS): Consumer deploys applications onto cloud platform service using provider-supplied tools. Has control over deployed applications and some limited platform configuration but does not manage the platform or infrastructure.
 Infrastructure as a Service (IaaS): Consumer provisions computing resources. Has control over

provisions computing resources. Has control over OS, storage, platform, deployed applications and some limited infrastructure configuration, but does not manage the infrastructure.

[Offerors may optionally select the single sub-category that best fits each cloud service offering, per Service Model Guidance, or select no sub-category if the offering does not fit an existing NIST service model.]

2. DESCRIPTION OF CLOUD COMPUTING SERVICES AND PRICING

a. Service Description Requirements for Listing Contractors

The description requirements below are in addition to the overall Schedule 70 evaluation criteria described in SCP-FSS-001-N Instructions Applicable to New Offerors (Alternate I – MAR 2016) or SCP-FSS-001-S Instructions Applicable to Successful FSS Program Contractors, as applicable, SCP-FSS-004 and other relevant publications.

Refer to overall Schedule 70 requirements for timelines related to description and other schedule updates, including but not limited to clauses 552.238-81 – section E and clause I-FSS-600.

Table 2 summarizes the additional Contractor-provided description requirements for services proposed under the Cloud Computing Services SIN. All mandatory description requirements must be complete, and adequate according to evaluation criteria.

In addition there is one "Optional" reporting descriptions which exists to provide convenient service selection by relevant criteria. Where provided, optional description requirements must be complete and adequate according to evaluation criteria:

• The NIST Service Model provides sub-categories for the Cloud SIN and is strongly encouraged, but not required. The Service Model based sub-categories provide this SIN with a structure to assist ordering activities in locating and comparing services of interest. Contractors may optionally select the single service model most closely corresponding to the specific service offering.

• If a sub-category is selected it will be evaluated with respect to the NIST Service Model definitions and guidelines in "Guidance for Contractors".

Table 2: Cloud Service Description Requirements

<u>#</u>	Description <u>Requirement</u>	Reporting Type	Instructions
1	Provide a brief written description of how the proposed cloud computing services satisfies each individual essential NIST Characteristic	Mandatory	The cloud service must be capable of satisfying each of the five NIST essential Characteristics as outlined in NIST Special Publication 800-145. See 'GUIDANCE FOR CONTRACTORS: NIST Essential Characteristics' below in this document for detailed overall direction, as well as guidance on inheriting essential characteristics.
2	Select NIST deployment models for the cloud computing service proposed.	Mandatory	Contractors must select at least one NIST deployment model as outlined in NIST Special Publication 800- 145 describing how the proposed cloud computing service is deployed. Select multiple deployment models if the service is offered in more than one deployment model. See 'GUIDANCE FOR CONTRACTORS: NIST Deployment Model' below in this document for detailed direction on how to best categorize a service for the NIST deployment models.

3	Optionally select the most appropriate NIST service model that will be the designated sub- category, or may select no sub-category.	Optional	Contractor may select a single NIST Service model to sub- categorize the service as outlined in NIST Special Publication 800- 145. Sub-category selection is optional but recommended. See 'GUIDANCE FOR CONTRACTORS: NIST Service Model' below in this document for detailed direction on how to best categorize a service for the NIST IaaS, PaaS, and SaaS service models.
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c. Pricing of Cloud Computing Services

Lyme Computer Systems, Inc.

All current pricing requirements for Schedule 70, including provision SCP-FSS-001-N (Section III Price Proposal), SCP-FSS-001-S, SCP-FSS-004 (Section III Price Proposal), and clause I-FSS-600 Contract Price Lists, apply. At the current time there is no provision for reducing or eliminating standard price list posting requirements to accommodate rapid cloud price fluctuations.

In addition to standard pricing requirements, all pricing models must have the core capability to meet the NIST Essential Cloud Characteristics, particularly with respect to on-demand self-service, while allowing alternate variations at the task order level at agency discretion, pursuant to the guidance on NIST Essential Characteristics.

3. RESPONSIBILITIES OF THE CONTRACTOR

The Contractor shall comply with all laws, ordinances, and regulations (Federal, State, City, or otherwise) covering work of this character.

a. Acceptance Testing

Any required Acceptance Test Plans and Procedures shall be negotiated by the Ordering Activity at task order level. The Contractor shall perform acceptance testing of the systems for Ordering Activity approval in accordance with the approved test procedures.

b. Training

If training is provided commercially the Contractor shall provide normal commercial installation, operation, maintenance, and engineering interface training on the system. Contractor is responsible for indicating if there are separate training charges.

c. Information Assurance/Security Requirements

The contractor shall meet information assurance/security requirements in accordance with the Ordering Activity requirements at the Task Order level.

d. Related Professional Services

The Contractor is responsible for working with the Ordering Activity to identify related professional services and any other services available on other SINs that may be associated with deploying a complete cloud

solution. Any additional substantial and ongoing professional services related to the offering such as integration, migration, and other cloud professional services are out of scope for this SIN.

e. Performance of Cloud Computing Services

The Contractor shall respond to Ordering Activity requirements at the Task Order level with proposed capabilities to Ordering Activity performance specifications or indicate that only standard specifications are offered. In all cases the Contractor shall clearly indicate standard service levels, performance and scale capabilities.

The Contractor shall provide appropriate cloud computing services on the date and to the extent and scope agreed to by the Contractor and the Ordering Activity.

f. Reporting

The Contractor shall respond to Ordering Activity requirements and specify general reporting capabilities available for the Ordering Activity to verify performance, cost and availability.

In accordance with commercial practices, the Contractor may furnish the Ordering Activity/user with a monthly summary Ordering Activity report.

4. RESPONSIBILITIES OF THE ORDERING ACTIVITY

The Ordering Activity is responsible for indicating the cloud computing services requirements unique to the Ordering Activity. Additional requirements should not contradict existing SIN or IT Schedule 70 Terms and Conditions. Ordering Activities should include (as applicable) Terms & Conditions to address Pricing, Security, Data Ownership, Geographic Restrictions, Privacy, SLAs, etc.

Cloud services typically operate under a shared responsibility model, with some responsibilities assigned to the Cloud Service Provider (CSP), some assigned to the Ordering Activity, and others shared between the two. The distribution of responsibilities will vary between providers and across service models. Ordering activities should engage with CSPs to fully understand and evaluate the shared responsibility model proposed. Federal Risk and Authorization Management Program (FedRAMP) documentation will be helpful regarding the security aspects of shared responsibilities, but operational aspects may require additional discussion with the provider.

a. Ordering Activity Information Assurance/Security Requirements Guidance

i. The Ordering Activity is responsible for ensuring to the maximum extent practicable that each requirement issued is in compliance with the Federal Information Security Management Act (FISMA) as applicable.

ii. The Ordering Activity shall assign a required impact level for confidentiality, integrity and availability (CIA) prior to issuing the initial statement of work [Per Federal Information Processing Standards Publication 199 & 200 (FIPS 199, "Standards for Security Categorization of Federal Information and Information Systems") (FIPS 200, "Minimum Security Requirements for Federal Information and Information Systems")]. The Contractor must be capable of meeting at least the minimum security requirements assigned against a low-impact information system in each CIA assessment area (per FIPS 200) and must detail the FISMA capabilities of the system in each of CIA assessment area.

iii. Agency level FISMA certification, accreditation, and evaluation activities are the responsibility of the Ordering Activity. The Ordering Activity reserves the right to

independently evaluate, audit, and verify the FISMA compliance for any proposed or awarded Cloud Computing Services.

iv. The Ordering Activity has final responsibility for assessing the FedRAMP status of the service, complying with and making a risk-based decision to grant an Authorization to Operate (ATO) for the cloud computing service, and continuous monitoring. A memorandum issued by the Office of Management and Budget (OMB) on Dec 8, 2011 outlines the responsibilities of Executive departments and agencies in the context of FedRAMP compliance. ³

v. Ordering activities are responsible for determining any additional information assurance and security related requirements based on the nature of the application and relevant mandates.

b. Deployment Model

If a particular deployment model (Private, Public, Community, or Hybrid) is desired, Ordering Activities are responsible for identifying the desired model(s). Alternately, Ordering Activities could identify requirements and assess Contractor responses to determine the most appropriate deployment model(s).

c. Delivery Schedule

The Ordering Activity shall specify the delivery schedule as part of the initial requirement. The Delivery Schedule options are found in Information for Ordering Activities Applicable to All Special Item Numbers.

d. Interoperability

Ordering Activities are responsible for identifying interoperability requirements. Ordering Activities should clearly delineate requirements for API implementation and standards conformance [MEMORANDUM FOR CHIEF INFORMATION OFFICERS: Security Authorization of Information Systems in Cloud Computing Environments. December 8, 2011].

e. Performance of Cloud Computing Services

The Ordering Activity should clearly indicate any custom minimum service levels, performance and scale requirements as part of the initial requirement.

f. Reporting

The Ordering Activity should clearly indicate any cost, performance or availability reporting as part of the initial requirement.

g. Privacy

The Ordering Activity should specify the privacy characteristics of their service and engage with the Contractor to determine if the cloud service is capable of meeting Ordering Activity requirements. For example, a requirement could be requiring assurance that the service is capable of safeguarding Personally Identifiable Information (PII), in accordance with NIST SP 800-122 [NIST SP 800-122, "Guide to Protecting the Confidentiality of Personally Identifiable Information (PII)"] and OMB memos M-06-16 [OMB memoM-06-16: Protection of Sensitive Agency Information ttp://www.whitehouse.gov/sites/default/files/omb/memoranda/fy2006/m06-16.pdf] and M-07-16 [OMB Memo M-07-16: Safeguarding Against and Responding to the Breach of Personally Identifiable Information http://www.whitehouse.gov/sites/default/files/omb/memoranda/fy2007/m07-16.pdf]. An

Ordering Activity will determine what data elements constitute PII according to OMB Policy, NIST Guidance and Ordering Activity policy.

h. Accessibility

The Ordering Activity should specify the accessibility characteristics of their service and engage with the Contractor to determine the cloud service is capable of meeting Ordering Activity requirements. For example, a requirement could require assurance that the service is capable of providing accessibility based on Section 508 of the Rehabilitation Act of 1973 (29 U.S.C. 794d).

i. Geographic Requirements

Ordering activities are responsible for specifying any geographic requirements and engaging with the Contractor to determine that the cloud services offered have the capabilities to meet geographic requirements for all anticipated task orders. Common geographic concerns could include whether service data, processes and related artifacts can be confined on request to the United States and its territories, or the continental United States (CONUS).

j. Data Ownership and Retrieval and Intellectual Property

Intellectual property rights are not typically transferred in a cloud model. In general, CSPs retain ownership of the Intellectual Property (IP) underlying their services and the customer retains ownership of its intellectual property. The CSP gives the customer a license to use the cloud services for the duration of the contract without transferring rights. The government retains ownership of the IP and data they bring to the customized use of the service as spelled out in the FAR and related materials.

General considerations of data ownership and retrieval are covered under the terms of Schedule 70 and the FAR and other laws, ordinances, and regulations (Federal, State, City, or otherwise). Because of considerations arising from cloud shared responsibility models, ordering activities should engage with the Contractor to develop more cloud-specific understandings of the boundaries between data owned by the government and that owned by the cloud service provider, and the specific terms of data retrieval.

In all cases, the Ordering Activity should enter into an agreement with a clear and enforceable understanding of the boundaries between government and cloud service provider data, and the form, format and mode of delivery for each kind of data belonging to the government.

The Ordering Activity should expect that the Contractor shall transfer data to the government at the government's request at any time, and in all cases when the service or order is terminated for any reason, by means, in formats and within a scope clearly understood at the initiation of the service. Example cases that might require clarification include status and mode of delivery for:

- Configuration information created by the government and affecting the government's use of the cloud provider's service.
- Virtual machine configurations created by the government but operating on the cloud provider's service.
- Profile, configuration and other metadata used to configure SaaS application services or PaaS platform services.

The key is to determine in advance the ownership of classes of data and the means by which Government owned data can be returned to the Government.

k. Service Location Distribution

The Ordering Activity should determine requirements for continuity of operations and performance and engage with the Contractor to ensure that cloud services have adequate service location distribution to meet anticipated requirements. Typical concerns include ensuring that:

- Physical locations underlying the cloud are numerous enough to provide continuity of operations and geographically separate enough to avoid an anticipated single point of failure within the scope of anticipated emergency events.
- Service endpoints for the cloud are able to meet anticipated performance requirements in terms of geographic proximity to service requestors.

Note that cloud providers may address concerns in the form of minimum distance between service locations, general regions where service locations are available, etc.

I. Related Professional Services

Ordering activities should engage with Contractors to discuss the availability of limited assistance with initial setup, training and access to the services that may be available through this SIN.

Any additional substantial and ongoing professional services related to the offering such as integration, migration, and other cloud professional services are out of scope for this SIN. Ordering activities should consult the appropriate GSA professional services schedule.

5. GUIDANCE FOR CONTRACTORS

This section offers guidance for interpreting the Contractor Description Requirements in Table 2, including the NIST essential cloud characteristics, service models and deployment models. This section is not a list of requirements.

Contractor-specific definitions of cloud computing characteristics and models or significant variances from the NIST essential characteristics or models are discouraged and will **not** be considered in the scope of this SIN or accepted in response to Factors for Evaluation. The only applicable cloud characteristics, service model/subcategories and deployment models for this SIN will be drawn from the NIST 800-145 special publication. Services qualifying for listing as cloud computing services under this SIN must substantially satisfy the essential characteristics of cloud computing as documented in the NIST Definition of Cloud Computing SP 800-145 [http://csrc.nist.gov/publications/nistpubs/800-145/SP800-145.pdf].

Contractors must select deployment models corresponding to each way the service can be deployed. Multiple deployment model designations for a single cloud service are permitted but at least one deployment model must be selected.

In addition, contractors submitting services for listing under this SIN are encouraged to select a sub- category for each service proposed under this SIN with respect to a single principal NIST cloud service model that most aptly characterizes the service. Service model categorization is optional.

Both service and deployment model designations must accord with NIST definitions. Guidance is offered in this document on making the most appropriate selection.

a. NIST Essential Characteristics

General Guidance

NIST's essential cloud characteristics provide a consistent metric for whether a service is eligible for inclusion in this SIN. It is understood that due to legislative, funding and other constraints that government entities cannot always leverage a cloud service to the extent that all NIST essential characteristics are commercially available. For the purposes of the Cloud SIN, meeting the NIST essential characteristics is determined by whether each essential capability of the commercial service is available for the service, whether or not the Ordering Activity actually requests or implements the capability. The guidance in Table 3 offers examples of how services might or might not be included based on the essential characteristics, and how the Contractor should interpret the characteristics in light of current government contracting processes.

Table 3: Guidance on Meeting NIST Essential Characteristics

Characteristic	Capability	Guidance
Access	are able to access services over standard agency networks • Service can be accessed and consumed using standard devices such as browsers, tablets and mobile phones	significant qualification and in relation to the deployment model and security domain of the service • Contractors must specify any ancillary activities, services or equipment required to access cloud services or integrate cloud with other cloud or non- cloud networks and services. For example a private cloud might require an Ordering Activity to purchase or provide a dedicated router, etc. which is acceptable but should be indicated by the Contractor.
Resource Pooling	 Pooling distinguishes cloud services from offsite hosting. Ordering activities draw resources from a common pool maintained by the Contractor Resources may have general characteristics such as regional location 	 The cloud service must draw from a pool of resources and provide an automated means for the Ordering Activity to dynamically allocate them. Manual allocation, e.g. manual operations at a physical server farm where Contractor staff configure servers in response to Ordering Activity requests, does not meet this requirement

		 Similar concerns apply to software and platform models; automated provisioning from a pool is required Ordering activities may request dedicated physical hardware, software or platform resources to access a private cloud deployment service. However the provisioned cloud resources must be drawn from a common pool and automatically allocated on request.
Rapid Elasticity	• Rapid provisioning and deprovisioning commensurate with demand	 Rapid elasticity is a specific demand-driven case of self-service Procurement guidance for ondemand self-service applies to rapid elasticity as well, i.e. rapid elasticity must be technically available but ordering activities and Contractors may mutually negotiate other contractual arrangements for procurement and payment. 'Rapid' should be understood as measured in minutes and hours, not days or weeks. Elastic capabilities by manual request, e.g. via a console operation or programming interface call, are required. Automated elasticity which is driven dynamically by system load, etc. is optional. Contractors must specify whether automated demand-driven elasticity is available and the general mechanisms that drive the capability.
Measured Service	• Measured service should be understood as a reporting requirement that enables an Ordering Activity to control their use in cooperation with self service	• Procurement guidance for on- demand self-service applies to measured service as well, i.e. rapid elasticity must be technically available but ordering activities and Contractors may mutually

designate other contractual arrangements.
Regardless of specific contractual arrangements, reporting must indicate actual usage, be continuously available to the Ordering Activity, and provide meaningful metrics appropriate to the service measured
Contractors must specify that measured service is available and the general sort of metrics and mechanisms available

Inheriting Essential Characteristics

Cloud services may depend on other cloud services, and cloud service models such as PaaS and SaaS are able to inherit essential characteristics from other cloud services that support them. For example a PaaS platform service can inherit the broad network access made available by the IaaS service it runs on, and in such a situation would be fully compliant with the broad network access essential characteristic. Services inheriting essential characteristics must make the inherited characteristic fully available at their level of delivery to claim the relevant characteristic by inheritance.

Inheriting characteristics does not require the inheriting provider to directly bundle or integrate the inherited service, but it does require a reasonable measure of support and identification. For example, the Ordering Activity may acquire an IaaS service from "Provider A" and a PaaS service from "Provider B". The PaaS service may inherit broad network access from "Provider A" but must identify and support the inherited service as an acceptable IaaS provider.

Assessing Broad Network Access

Typically broad network access for public deployment models implies high bandwidth access from the public internet for authorized users. In a private cloud deployment internet access might be considered broad access, as might be access through a dedicated shared high bandwidth network connection from the Ordering Activity, in accord with the private nature of the deployment model.

Resource Pooling and Private Cloud

All cloud resource pools are finite, and only give the appearance of infinite resources when sufficiently large, as is sometimes the case with a public cloud. The resource pool supporting a private cloud is typically smaller with more visible limits. A finite pool of resources purchased as a private cloud service qualifies as resource pooling so long as the resources within the pool can be dynamically allocated to the ultimate users of the resource, even though the pool itself appears finite to the Ordering Activity that procures access to the pool as a source of dynamic service allocation.

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b. NIST Service Model

The Contractor may optionally document the service model of cloud computing (e.g. IaaS, PaaS, SaaS, or a combination thereof, that most closely describes their offering, using the definitions in The NIST Definition of Cloud Computing SP 800-145. The following guidance is offered for the proper selection of service models.

NIST's service models provide this SIN with a set of consistent sub-categories to assist ordering activities in locating and comparing services of interest. Service model is primarily concerned with the nature of the service offered and the staff and activities most likely to interact with the service. Contractors should select a single service model most closely corresponding to their proposed service based on the guidance below. It is understood that cloud services can technically incorporate multiple service models and the intent is to provide the single best categorization of the service.

Contractors should take care to select the NIST service model most closely corresponding to each service offered. Contractors should not invent, proliferate or select multiple cloud service model sub-categories to distinguish their offerings, because ad-hoc categorization prevents consumers from comparing similar offerings. Instead vendors should make full use of the existing NIST categories to the fullest extent possible.

For example, in this SIN an offering commercially marketed by a Contractor as "Storage as a Service" would be properly characterized as Infrastructure as a Service (IaaS), storage being a subset of infrastructure. Services commercially marketed as "LAMP as a Service" or "Database as a Service" would be properly characterized under this SIN as Platform as a Service (PaaS), as they deliver two kinds of platform services. Services commercially marketed as "Travel Facilitation as a Service" or "Email as a Service" would be properly characterized as species of Software as a Service (SaaS) for this SIN.

However, Contractors can and should include appropriate descriptions (include commercial marketing terms) of the service in the full descriptions of the service's capabilities.

When choosing between equally plausible service model sub-categories, Contractors should consider several factors:

1) **Visibility to the Ordering Activity**. Service model sub-categories in this SIN exist to help Ordering Activities match their requirements with service characteristics. Contractors should select the most intuitive and appropriate service model from the point of view of an Ordering Activity.

2) **Primary Focus of the Service**. Services may offer a mix of capabilities that span service models in the strict technical sense. For example, a service may offer both IaaS capabilities for processing and storage, along with some PaaS capabilities for application deployment, or SaaS capabilities for specific applications. In a service mix situation the Contractor should select the service model that is their primary focus. Alternatively contractors may choose to submit multiple service offerings for the SIN, each optionally and separately subcategorized.

3) **Ordering Activity Role**. Contractors should consider the operational role of the Ordering Activity's primary actual consumer or operator of the service. For example services most often consumed by system managers are likely to fit best as IaaS; services most often consumed by application deployers or developers as PaaS, and services most often consumed by business users as SaaS.

4) **Lowest Level of Configurability.** Contractors can consider IaaS, PaaS and SaaS as an ascending hierarchy of complexity, and select the model with the lowest level of available Ordering Activity interaction. As an example, virtual machines are an IaaS service often bundled with a range of operating systems, which are PaaS services. The Ordering Activity usually has access to configure the lower level IaaS service, and the overall service should be considered IaaS. In cases where the Ordering Activity cannot configure the speed, memory, network configuration, or any other aspect of the IaaS component, consider categorizing as a PaaS service.

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Cloud management and cloud broker services should be categorized based on their own characteristics and not those of the other cloud services that are their targets. Management and broker services typically fit the SaaS service model, regardless of whether the services they manage are SaaS, PaaS or IaaS. Use Table 3 to determine which service model is appropriate for the cloud management or cloud broker services, or, alternately choose not to select a service model for the service.

The guidance in Table 3 offers examples of how services might be properly mapped to NIST service models and how a Contractor should interpret the service model sub-categories.

Table 3: Guidance on Mapping to NIST Service Models

Service Model	Guidance
Infrastructure as a Service (IaaS)	Select an IaaS model for service based equivalents of hardware appliances such as virtual machines, storage devices, routers and other physical devices.
	• IaaS services are typically consumed by system or device managers who would configure physical hardware in a non-cloud setting
	• The principal customer interaction with an IaaS service is provisioning then configuration, equivalent to procuring and then configuring a physical device.
	Examples of IaaS services include virtual machines, object storage, disk block storage, network routers and firewalls, software defined networks.
	Gray areas include services that emulate or act as dedicated appliances and are directly used by applications, such as search appliances, security appliances, etc. To the extent that these services or their emulated devices provide direct capability to an application they might be better classified as Platform services (PaaS). To the extent that they resemble raw hardware and are consumed by other platform services they are better classified as IaaS.

Platform as a Service (PaaS) Select a PaaS model for service based equivalents of complete or partial software platforms. For the purposes of this classification, consider a platform as a set of software services capable of deploying all or part of an application.

• A complete platform can deploy an entire application. Complete platforms can be proprietary or open source

• Partial platforms can deploy a component of an application which combined with other components make up the entire deployment

• PaaS services are typically consumed by application deployment staff whose responsibility is to take a completed agency application and cause it to run on the designated complete or partial platform service

• The principal customer interaction with a PaaS service is deployment, equivalent to deploying an application or portion of an application on a software platform service.

• A limited range of configuration options for the platform service may be available.

Examples of complete PaaS services include:

• A Linux/Apache/MySQL/PHP (LAMP) platform ready to deploy a customer PHP application,

• a Windows .Net platform ready to deploy a .Net application,

• A custom complete platform ready to develop and deploy an customer application in a proprietary language

• A multiple capability platform ready to deploy an arbitrary customer application on a range of underlying software services.

The essential characteristic of a complete PaaS is defined by the customer's ability to deploy a complete custom application directly on the platform.

PaaS includes partial services as well as complete platform services. Illustrative examples of individual platform enablers or components include:

• A database service ready to deploy a customer's tables, views and procedures,

• A queuing service ready to deploy a customer's message definitions

• A security service ready to deploy a customer's constraints and target applications for continuous monitoring

The essential characteristic of an individual PaaS component is the customer's ability to deploy their unique structures and/or data onto the component for a partial platform function. Note that both the partial and complete PaaS examples all have two things in common:

They are software services, which offer significant core functionality out of the box
They must be configured with customer data and structures to deliver results

As noted in IaaS, operating systems represent a grey area in that OS is definitely a platform service, but is typically bundled with IaaS infrastructure. If your service provides an OS but allows for interaction with infrastructure, please sub-categorize it as IaaS. If your service "hides" underlying infrastructure, consider it as PaaS. Software as a Service (SaaS)

Select a SaaS model for service based equivalents of software applications.

• SaaS services are typically consumed by business or subject-matter staff who would interact directly with the application in a noncloud setting

• The principal customer interaction with a SaaS service is actual operation and consumption of the application services the SaaS service provides.

Some minor configuration may be available, but the scope of the configuration is limited to the scope and then the permissions of the configuring user. For example an agency manager might be able to configure some aspects of the application for their agency but not all agencies. An agency user might be able to configure some aspects for themselves but not everyone in their agency. Typically only the Contractor would be permitted to configure aspects of the software for all users.

Examples of SaaS services include email systems, business systems of all sorts such as travel systems, inventory systems, etc., wiki's,

Software as a Service (SaaS)

websites or content management systems, management applications that allow a customer to manage other cloud or non-cloud services, and in general any system where customers interact directly for a business purpose.

Gray areas include services that customers use to configure other cloud services, such as cloud management software, cloud brokers, etc. In general these sorts of systems should be considered SaaS, per guidance in this document.

c. Deployment Model

Deployment models (e.g. private, public, community, or hybrid) are not restricted at the SIN level and any specifications for a deployment model are the responsibility of the Ordering Activity.

Multiple deployment model selection is permitted, but at least one model must be selected. The guidance in Table 4 offers examples of how services might be properly mapped to NIST deployment models and how the Contractor should interpret the deployment model characteristics. Contractors should take care to select the range of NIST deployment models most closely corresponding to each service offered.

Note that the scope of this SIN does not include hardware or software components used to construct a cloud, only cloud capabilities delivered as a service, as noted in the Scope section.

Table 4: Guidance for Selecting a Deployment Model

Deployment Model	Guidance	
Private Cloud	The service is provided exclusively for the benefit of a definable organization and its components; access from outside the organization is prohibited. The actual services may be provided by third parties, and may be physically located as required, but access is strictly defined by membership in the owning organization.	
Public Cloud	The service is provided for general public use and can be accessed by any entity or organization willing to contract for it.	
Community Cloud	The service is provided for the exclusive use of a community with a definable shared boundary such as a mission or interest. As with private cloud, the service may be in any suitable location and administered by a community member or a third party.	
Hybrid Cloud	The service is composed of one or more of the 32	

other models. Typically hybrid models include some aspect of transition between the models that make them up, for example a private and public cloud might be designed as a hybrid cloud where events like increased load permit certain specified services in the private cloud to run in a public cloud for extra capacity, e.g. bursting.

FACTORS FOR EVALUATION FOR IT SCHEDULE 70 CLOUD COMPUTING SERVICES SIN

The following technical evaluation factor applies in addition to the standard Schedule 70 evaluation factors outlined in CI-FSS-152-N Additional Evaluation Factors for New Offerors Under Schedule 70 or CI-FSS-152-S Additional Evaluation Factors for Successful FSS Program Contractors Under Schedule 70 and related documents and applies solely to the Cloud Computing Services SIN. A template will be provided at the time of solicitation refresh to complete the requested documentation.

FACTOR - Cloud Computing Services Adherence to Essential Cloud Characteristics

Within a two page limitation for each cloud service submitted, provide a description of how the cloud computing service meets each of the five essential cloud computing characteristics as defined in described in National Institute of Standards and Technology (NIST) Special Publication 800-145 and subsequent versions of this publication. This standard specifies the definition of cloud computing for the use by Federal agencies. The cloud service must be capable of satisfying each of the five NIST essential Characteristics as follows:

- On-demand self-service
- Broad network access
- Resource Pooling
- Rapid Elasticity
- Measured Service

Refer to the 'Guidance for Contractors' section of the Terms & Conditions for the Cloud Computing Services SIN for guidance on meeting the NIST characteristics. For the purposes of the Cloud Computing Services SIN, meeting the NIST essential characteristics is concerned primarily with whether the underlying capability of the commercial service is available, whether or not an Ordering Activity actually requests or implements the capability.

FACTOR – Cloud Computing Services Deployment Model

For each cloud service submitted, provide a written description of how the proposed service meets the NIST definition of a particular deployment model (Public, Private, Community, or Hybrid), within a one half (1/2) page limitation for each designated deployment model of each cloud service submitted. Multiple deployment model selection is permitted, but at least one model must be indicated.

Refer to the 'Guidance for Contractors' section of the Terms & Conditions for the Cloud Computing Services SIN for guidance on identifying the appropriate deployment model according to the NIST service model definitions.

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FACTOR - Cloud Computing Services Service Model

For each cloud computing service proposed to be categorized under a specific sub-category (IaaS, PaaS or SaaS), provide a written description of how the proposed service meets the NIST definition of that service model, within a half (1/2) page limitation for each cloud service submitted.

Refer to the 'Guidance for Contractors' section of the Terms & Conditions for the Cloud Computing Services SIN for guidance on categorizing the service into a sub-category according to the NIST service model definitions.

Note that it is not mandatory to select a sub-category, and therefore this factor for evaluation applies ONLY to cloud services proposed to fall under a specific sub-category. If no sub-category is selected, this factor does not need to be addressed. The two other factors ('Adherence to Essential Cloud Characteristics' and 'Cloud Computing Services Deployment Model') apply to all cloud services.

TERMS AND CONDITIONS APPLICABLE TO PURCHASE OF TRAINING COURSES FOR GENERAL PURPOSE COMMERCIAL INFORMATION TECHNOLOGY EQUIPMENT AND SOFTWARE (SPECIAL ITEM NUMBER 132-50)

1. SCOPE

a. The Contractor through the Manufacturer shall provide training courses normally available to commercial customers, which will permit Ordering Activity users to make full, efficient use of general purpose commercial IT products. Training is restricted to training courses for those products within the scope of this solicitation.

b. The Contractor shall provide training at the Contractor's or Manufacturer's facility and/or at the ordering activity's location, as agreed to by the Contractor and the Ordering Activity.

2. ORDER

Written orders, EDI orders (GSA Advantage! and FACNET), credit card orders, and orders placed under blanket purchase agreements (BPAs) shall be the basis for the purchase of training courses in accordance with the terms of this contract. Orders shall include student's name, course title, course date/time, and contracted dollar amount of the course.

3. TIME OF DELIVERY

The Contractor or its Manufacturer shall conduct training on the date (time, day, month, and year) agreed to by the Contractor and the ordering activity.

4. CANCELLATION AND RESCHEDULING

a. Terms and Conditions governing a Manufacturer's cancellation and rescheduling policies are as set forth in the price file description or, if provided, applicable Manufacturer's Training Catalog.

b. The Ordering Activity reserves the right to substitute one student for another up to the first day of class.

c. In the event the Contractor is unable to conduct training on the date agreed to by the Contractor and the Ordering Activity, Contractor must notify the Ordering Activity at least seventy-two (72) hours before the scheduled training date.

FOLLOW-UP SUPPORT 5.

Follow-up support to training courses is not available under the scope of this schedule contract unless expressly set forth in an applicable Manufacturer's Training Catalog and, in that case, follow-up support shall be provided as stated therein.

PRICE FOR TRAINING 6.

The price that the ordering activity will be charged will be the ordering activity training price in effect at the time of order placement, or the ordering activity price in effect at the time the training course is conducted, whichever is less.

INVOICES AND PAYMENT

Invoices for training shall be submitted by the Contractor after ordering activity completion of the training course. Charges for training must be paid in arrears (31 U.S.C. 3324). PROMPT PAYMENT DISCOUNT, IF APPLICABLE, SHALL BE SHOWN ON THE INVOICE.

FORMAT AND CONTENT OF TRAINING 8.

Contractor shall provide written materials (i.e., manuals, handbooks, texts, etc.) normally provided with course offerings. Such documentation will become the property of the student upon completion of the training class. a.

If applicable, for hands-on training courses, there must be a one-to-one assignment of IT equipment to b. students.

Contractor shall provide each student with a Certificate of Training at the completion of each training course. c.

Contractor shall provide the following information for each training course offered: d.

The course title and a brief description of the course content, to include the course format (e.g., (1)lecture, discussion, hands-on training);

- The length of the course; (2)
- Mandatory and desirable prerequisites for student enrollment; (3)
- The minimum and maximum number of students per class; (4)
- The locations where the course is offered; (5)
- Class schedules; and (6)
- Price (per student, per class (if applicable)). (7)

For those courses conducted at the ordering activity's location, instructor travel charges (if applicable), including mileage and daily living expenses (e.g., per diem charges) are governed by Pub. L. 99-234 and FAR Part 31.205-46, and are reimbursable by the ordering activity on orders placed under the Multiple Award Schedule, as applicable, in effect on the date(s) the travel is performed. Contractors cannot use GSA city pair contracts. The Industrial Funding Fee does NOT apply to travel and per diem charges.

For Online Training Courses, a copy of all training material must be available for electronic download by the f. students.

"NO CHARGE" TRAINING 9.

The Contractor shall describe any training provided with equipment and/or software provided under this contract, free of charge, in the space provided below.

None.

USA COMMITMENT TO PROMOTE SMALL BUSINESS PARTICIPATION PROCUREMENT PROGRAMS

PREAMBLE

Lyme Computer Systems, Inc. provides commercial products and services to ordering activities. We are committed to promoting participation of small, small disadvantaged and women-owned small businesses in our contracts. We pledge to provide opportunities to the small business community through reselling opportunities, mentor-protégé programs, joint ventures, teaming arrangements, and subcontracting.

COMMITMENT

To actively seek and partner with small businesses.

To identify, qualify, mentor and develop small, small disadvantaged and women-owned small businesses by purchasing from these businesses whenever practical.

To develop and promote company policy initiatives that demonstrate our support for awarding contracts and subcontracts to small business concerns.

To undertake significant efforts to determine the potential of small, small disadvantaged and women-owned small business to supply products and services to our company.

To insure procurement opportunities are designed to permit the maximum possible participation of small, small disadvantaged, and women-owned small businesses.

To attend business opportunity workshops, minority business enterprise seminars, trade fairs, procurement conferences, etc., to identify and increase small businesses with whom to partner.

To publicize in our marketing publications our interest in meeting small businesses that may be interested in subcontracting opportunities.

We signify our commitment to work in partnership with small, small disadvantaged and women-owned small businesses to promote and increase their participation in ordering activity contracts. To accelerate potential opportunities please contact:

Josh Longacre Vice President 603-676-3600 josh@lyme.com fax 603-795-4800.

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(Insert Customer Name)

In the spirit of the Federal Acquisition Streamlining Act (<u>ordering activity</u>) and (<u>Contractor</u>) enter into a cooperative agreement to further reduce the administrative costs of acquiring commercial items from the General Services Administration (GSA) Federal Acquisition Schedule Contract(s) _______.

Federal Acquisition Schedule contract BPAs eliminate contracting and open market costs such as: search for sources; the development of technical documents, solicitations and the evaluation of offers. Teaming Arrangements are permitted with Federal Acquisition Schedule Contractors in accordance with Federal Acquisition Regulation (FAR) 9.6.

This BPA will further decrease costs, reduce paperwork, and save time by eliminating the need for repetitive, individual purchases from the schedule contract. The end result is to create a purchasing mechanism for the ordering activity that works better and costs less.

Signatures

Ordering Activity

Date

Contractor

Date

BPA NUMBER_____

(CUSTOMER NAME) BLANKET PURCHASE AGREEMENT

Pursuant to GSA Federal Acquisition Schedule Contract Number(s)______, Blanket Purchase Agreements, the Contractor agrees to the following terms of a Blanket Purchase Agreement (BPA) EXCLUSIVELY WITH (ordering activity):

(1) The following contract items can be ordered under this BPA. All orders placed against this BPA are subject to the terms and conditions of the contract, except as noted below:

MODEL NUMBER/PART NUMBER

*SPECIAL BPA DISCOUNT/PRICE

(2) Delivery:

DESTINATION

DELIVERY SCHEDULES / DATES

Lyme Computer Systems, Inc.

- (3) The ordering activity estimates, but does not guarantee, that the volume of purchases through this agreement
- (4) This BPA does not obligate any funds.
- (5) This BPA expires on ______ or at the end of the contract period, whichever is earlier.
- (6) The following office(s) is hereby authorized to place orders under this BPA:

OFFICE POINT OF CONTACT

(7) Orders will be placed against this BPA via Electronic Data Interchange (EDI), FAX, or paper.

(8) Unless otherwise agreed to, all deliveries under this BPA must be accompanied by delivery tickets or sales slips that must contain the following information as a minimum:

- (a) Name of Contractor;
- (b) Contract Number;
- (c) BPA Number;
- (d) Model Number or National Stock Number (NSN);
- (e) Purchase Order Number;
- (f) Date of Purchase;

(g) Quantity, Unit Price, and Extension of Each Item (unit prices and extensions need not be shown when incompatible with the use of automated systems; provided, that the invoice is itemized to show the information); and

(h) Date of Shipment.

(9) The requirements of a proper invoice are specified in the Federal Acquisition Schedule contract. Invoices will be submitted to the address specified within the purchase order transmission issued against this BPA.

(10) The terms and conditions included in this BPA apply to all purchases made pursuant to it. In the event of an inconsistency between the provisions of this BPA and the Contractor's invoice, the provisions of this BPA will take precedence.

BASIC GUIDELINES FOR USING	
"CONTRACTOR TEAM ARRANGEMEN	

Federal Acquisition Schedule Contractors may use "Contractor Team Arrangements" (see FAR 9.6) to provide solutions when responding to an ordering activity requirements.

These Team Arrangements can be included under a Blanket Purchase Agreement (BPA). BPAs are permitted under all Federal Acquisition Schedule contracts.

Orders under a Team Arrangement are subject to terms and conditions or the Federal Acquisition Schedule Contract.

Participation in a Team Arrangement is limited to Federal Acquisition Schedule Contractors.

Customers should refer to FAR 9.6 for specific details on Team Arrangements.

Here is a general outline on how it works:

• The customer identifies their requirements.

- Federal Acquisition Schedule Contractors may individually meet the customer's needs, or -
- Federal Acquisition Schedule Contractors may individually submit a Schedules "Team Solution" to meet the customer's requirement.
- Customers make a best value selection.

GSA Products and Services Pricelist:

Please browse GSA Advantage! Via the Internet at https://www.gsaadvantage.gov

or

Visit our website at http://www.lyme.com and click on the GSA button.

HELP LINKS

For general questions regarding MAS IT Schedule 70 Contracting:

Customer Service

Phone: 1-877-446-IT70 (4870) Email: <u>IT.Center@gsa.gov</u>

For questions regarding eOffer submission or Certifications:

Vendor Support Center visit <u>www.gsa.gov/vsc</u> Phone: 1-877-495-4849

For general questions regarding HSPD 12:

Email: <u>hspd12@gsa.gov</u> Phone: 1-703-605-2727

For general questions regarding COMSATCOM:

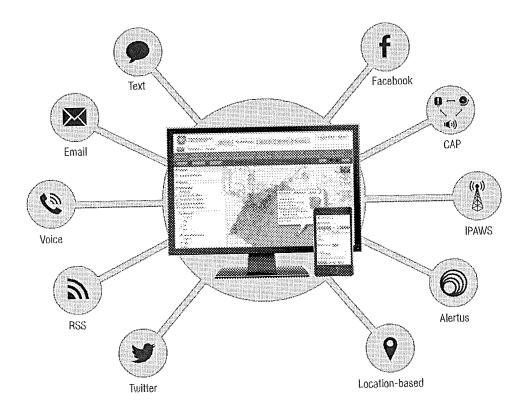
Email: <u>fasnetworkservice@gsa.gov</u> Phone: 1-877-387-2001

For general questions regarding FASt Lane Pilot, Health IT, Cyber Security SINs:

Email: fastlane@gsa.gov

Emergency Notification That Works. From Anywhere, to Anywhere.

Improve community safety before, during, and after emergencies.

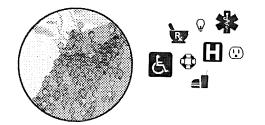


Fast, Easy, Complete Internal and External Emergency Alerting

- > Trusted by Thousands of Organizations education, state and local government, and enterprise rely on Rave Alert as their Emergency Notification System.
- Easy to Use 2-Click "SnapSend" from any computer, smartphone, or tablet sends alerts to all channels simultaneously.
- Multi-Modal send alerts using voice, SMS, Email, social media, IPAWS-OPEN, RSS, and CAP supported systems.

- Internal Alerts alert specific individuals or thousands of employees within seconds. Autoload and auto update contact lists to keep records up to date.
- > Most Reliable geo-redundant data centers connected to multiple carriers, carrier networks, and aggregators ensure delivery in every emergency scenario.

Individuals Provide Registry Data. You Have 24/7 Access.



With Rave Alert your residents and commuters provide up to date registry information using a secure, online system. They can include any information they wish to share for emergency planning, response, and recovery.

People can also identify when and how they are alerted and communicated with before, during, and after emergencies. In your branded Public Portal, you can customize questions and other data input fields.

Rave Alert stores this information in secure data centers where you can access it any time for analysis, planning, and emergencies through flexible, map-based query tools.

Collaborative National Database

Rave Alert shares registrations with Smart911, a national safety service of additional data for 9-1-1, in a secure national database. Citizens can opt-in to both, making their information available to 9-1-1 and emergency managers. The database's national scope facilitates local, regional, and national interoperability during larger emergencies.

Proven Emergency Notification

Used by thousands of institutions and agencies, Rave Alert sends millions of messages daily and performs flawlessly in all critical situations.

With Rave Alert's citizen provided data you can:

- Create and save interactive map-based queries to alert at-risk geographies or populations.
- > Use real-time data for resource planning and pre-emergency exercises.
- > Deliver the right message to the right person using their preferred communication method.
- > Collect citizen responses to alerts to adjust your on-going incident management.
- > Target messages to only affected recipients to help prevent "alert fatigue."

Emergency Internal Alerts

Rave Alert's scalable, efficient, and easy to use infrastructure lets you take control of your internal emergency communications.

You can segment your organization into unlimited groups. With role based access controls, you can authorize multiple users to send alerts from any internet connected device.

We make it easy to manage your data. We autoload your contact lists and automatically update them when changes occur.

"We would not have survived the tremendous demands on our communications office and the Judiciary in general during Superstorm Sandy without our Rave accounts. We kept the entire state, and especially the shore and the inland communities that were devastated by the storm, fully informed and updated all day, every day."

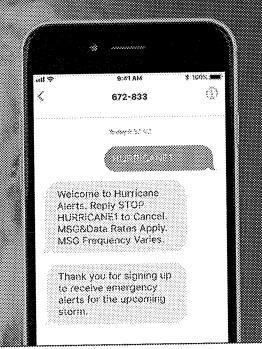


WINNIE COMFORT DIRECTOR COMMUNICATIONS & COMMUNITY RELATIONS NEW JERSEY COURTS



SMS Opt-In for Rave Alert™

Ensure Everyone is Protected With Rave Alert SMS Opt-in



Easy SMS Opt-in Expands Access to Your Alerts and Increases Communication Coverage



SMS Opt-in, a Rave Alert add-on, provides an easy way for people – residents, commuters or visitors – to sign up for temporary or long term inclusion in your alert database.

Members of your community opt-in to receive alerts using SMS and a keyword unique to your organization. You can use a keyword for multiple events and can have multiple keywords.

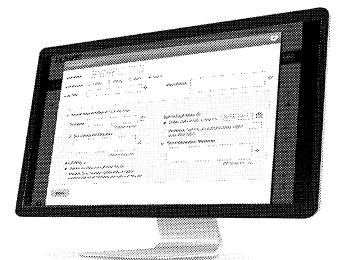


IMPROVES YOUR CRITICAL COMMUNICATION COVERAGE

- > Easy sign up process for residents to sign up when it's top of mind.
- > Highlights your commitment to preparedness and safety for residents, commuters, and visitors.
- Provides timely updates to a wider audience during a natural disaster or large scale event.
- Sends targeted updates to people requesting them such as road closures or traffic incidents.
- Automatic expiration for alerts needed only for a limited time window.

YOUR ALERTS REACH A WIDER AUDIENCE

- Severe weather notifications: citizens opt-in to receive important weather notifications.
- > Event or fair attendees: opt-in to receive event updates or cancellations.
- Send targeted messages to those who request specific information or updates.
- Visitors and tourists: temporarily opt-in for important local updates during their stay.



FLEXIBLE EASY SET UP AND MANAGEMENT

- > Customizable welcome message,
- Optional automatic expiration can be set to automatically expire SMS
- Opt-in subscriptions on a specific date or after a specific duration,
- Send custom expiration message when subscription expires.
- Public Lists allow anyone to opt-in. They'll only receive alerts when their specific list is targeted on an alert.
- Private Lists allow members of your organization to opt-in to specific alerts. Prevents people without an existing account from opting in.



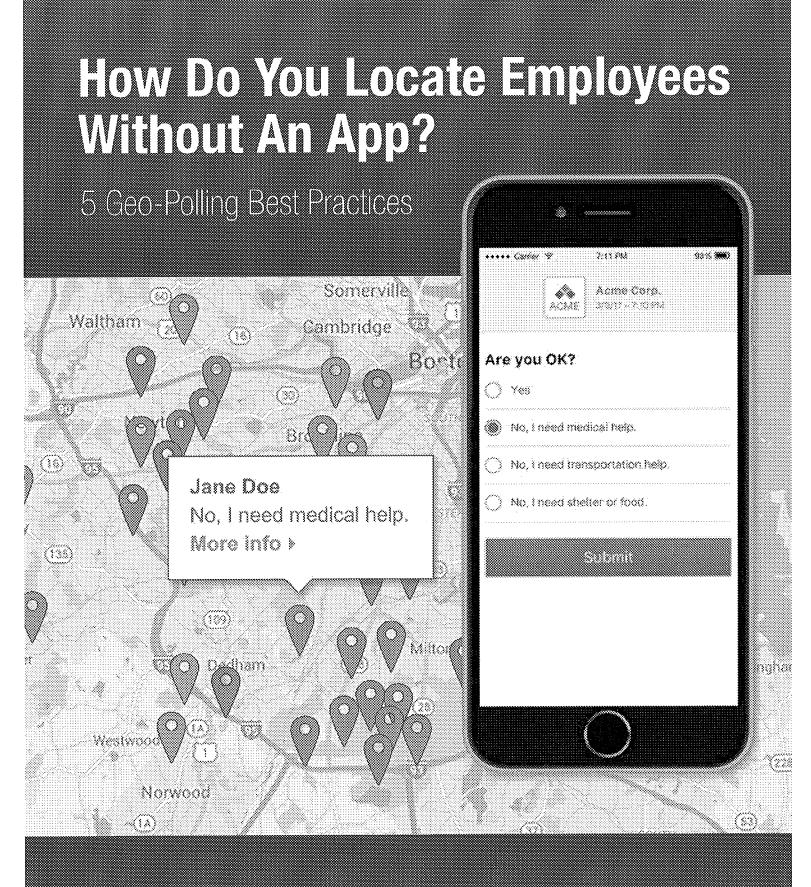




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INTRODUCTION: Dangers for Traveling Employees are Increasing



During Hurricane Harvey, Business Continuity Planners and Safety Directors across the globe struggled to determine the status of their teams in the southeast as the largest hurricane to make landfall in more than a decade impacted the Gulf Coast.

With over 100 mile winds and fast-moving flood waters, key personnel had to send multiple alerts, wait

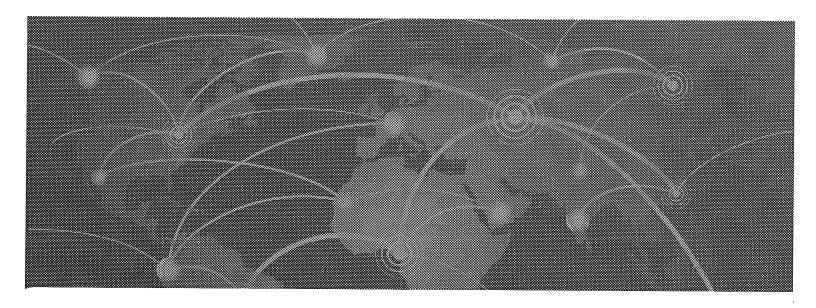
for responses, and manually sort through responses in order to locate employees and check on their wellbeing.

Not only were there discrepancies between the number of alerts sent and the number of responses received, but the time it took to manually sort through responses meant many employees in the affected area did not receive the assistance they needed nor instructions on how to remain safe.

Hurricane Harvey was not a unique event. Dangers for traveling employees are increasing¹, and not only due to more natural disasters occurring each year. Events such as terrorist attacks, transportation disasters, and civil unrest lead to concerns about who is at risk and where they are located.

According to a 2016 lpsos MORI survey², 72% of organizations acknowledge the increasing risk of danger for traveling employees. However, fewer than half have increased their investment in risk management to mitigate the dangers, or expect to do so in the future.





THE PROBLEM OF LOCATING A MOBILE WORKFORCE

Having procedures in place to account for all employees after an emergency is required by law for businesses with ten or more employees³, but compliance with the law is not straightforward for businesses with a large mobile workforce based in multiple locations or traveling the world.

As was witnessed during Hurricane Harvey, attempts to contact traveling employees can be difficult. Delayed responses, free-form responses, a lack of responses and non-geo specific responses can create more challenges than they solve. For large organizations, the resources required to locate employees and check on their wellbeing can be significant - and not always successful.

Being unable to contact an employee after a disaster situation constitutes a failure in the business's duty of care for employees; and, in addition to the legal risk, businesses also face reputational risk. A business's action before, during, and after an emergency will likely influence the relationship with its whole workforce and the greater public at large.



In order to accurately view employee's locations employers have to work off of their employees' fixed location. They can track that an employee works out of one office, or is badged into another office, and use that location to send targeted notifications. Unfortunately, these locations are not updated in real-time. They do not provide the employee's location in that moment and fail to account for the ever increasing mobile workforce.

In an attempt to view the current location of mobile, remote, and traveling employees, more and more organizations are adopting mobile apps. Mobile apps offer a variety of tools and services to employees and organizations, but they are not a comprehensive solution for locating employees during an incident. Many organizations struggle to get high adoption rates. Without greater participation, employers are left with few options for quickly obtaining employees location outside of a mobile app.

These location tracking gaps during a critical incident can lead to substantial losses to the business, and could potentially place employees and personnel at risk of physical injury or death. Whether the loss would be financial, or would cause harm to a business's reputation, the issue can be mitigated with a polling feature that enables organizations to collect the respondent's location with each poll response.





SOLICIT EMPLOYEE REAL-TIME LOCATION AND RESPONSE WITHOUT AN APP

Unlike previous attempts at location-tracking solutions, Rave Alert's geo-poll feature does not rely on mobile apps. You can solicit required information with simple poll questions via SMS, email and voice calls. You can collect and organize the answers in reports for easy analysis and action. When needed, you can request a recipient's location with their answer. As a result, every individual's status is in your hands and their location on the map.

If a similar natural disaster like Hurricane Harvey strikes again, key personnel at global organizations can locate and respond faster through the geo-polling functionality.

With news that a hurricane is making landfall, employees can send out targeted alerts to their employees to see if they are okay or need assistance. An employee can easily respond with their status and include their location. For anyone who needs assistance, key personnel can view who they are, where they are, and trigger two way communications to communicate and coordinate further.

If employees do not respond, you can send an automatic follow up alert to the individuals who didn't respond and require a response that they received the message. By requiring a response, you can ensure everyone is accounted for.



If the incident requires additional staff and resources to respond on the ground or into headquarters, you can send a poll to see who is available to work overtime and staff the necessary shifts. If you only need a certain number of respondents, you can automatically stop after a certain number of responses or certain time period. If someone responds after the poll is closed, they will receive a message that the shift has been filled so there is no confusion as to whether people need to come in and work or not.

If you require timely incident response, your staffing request poll can request location so you can see the locations of the respondents to determine who can respond most quickly and should be dispatched.

When coordinating with employees in harm's way, you can leverage geo-poll to receive real-time updates on their location to facilitate their safe return home.

With geo-polling, organizations can collect real-time information from recipients to make the right decisions for a rapid response.





HOW RAVE'S GEO-POLL FEATURE WORKS

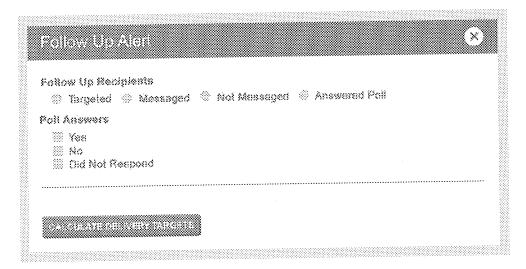
Rave Alert users can select "Polling" as an alert send option. Once the "Polling" option is selected, users can write a question and select whether the question should be responded to with a single answer, a multiple response answer, or a freeform answer. For example:

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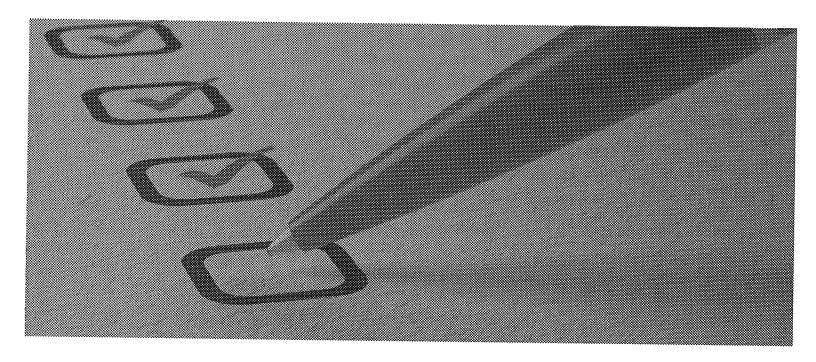
Geo-poll messages are delivered by SMS text, email and voice broadcast. Employees receiving a message by SMS text and email will have a link to click on in order to reply to the poll, while employees receiving the message by voice broadcast respond to the questions by selecting the appropriate numbers on their mobile device's keypad.

Responses to the geo-poll appear in an alert report, from which administrators can identify employees in need of help, what type of help they need, and employees who have not responded to the initial poll. Based on the responses, administrators can determine their next course of action or send a follow-up alert targeting employees who did not answer the poll, or those who chose a particular answer.



With the geo-poll location feature, the location of each responding employee is displayed on a map on the Rave Alert dashboard. The map provides the exact location of the employees for response teams. With this real-time location data, employees can have peace of mind that their organizations can locate them and send help wherever they are located.





5 BEST PRACTICES FOR LEVERAGING EMPLOYEE LOCATION WITHOUT AN APP

In order to maximize the effectiveness of geo-polling for the purpose of locating employees and checking on their wellbeing following a disaster situation, we recommend the following 5 best practices for leveraging employee location without an app.

1

(2)

Keep the answer options on your initial poll as clear and minimalistic as possible. In disaster situations, people react differently. Assume not all of your employees will have the clarity of thought to respond to a complex, multi-answer poll. Structure the initial poll for easy understanding and simple responses. More details can be sought once initial responses are received.

When subsequent polls are sent, make it clear they are follow-up polls and not a repeat of the initial poll. If your employees - who may be confused due to the disaster situation - believe the second poll is a repeat of the first, they may ignore it. Consequently, although you know where they are, you may not be able to organize the correct type of help for them.



Request that every poll is acknowledged, even when employees are safe and no assistance is required. By eliminating employees from your poll group who do not need help, you will be able to dedicate your resources to helping those that do, or to locating those who are yet to respond to your initial message.



(3)

Avoid using geo-polls when not necessary. Over-use of the system can result in "alert fatigue", resulting in employees ignoring the poll messages.

5

Due to the volume of "noise" that typically follows a disaster situation; we strongly recommend employees assign a unique ring tone to messages originating from the Rave Alert system. A practical demonstration of the geo-poll feature should be included as part of each employee's training in order for them to become familiar with how to respond to a poll message in an emergency.

Global threats put employees at risk and organizations need to be prepared for natural disasters, workplace violence, terrorist attacks, and civil unrest across the world. With geo-polling, every employee's status is in your hands and with their location on the map; you can protect and keep them safe.

Increasing Dangers for Traveling Employees Ipsos MORI - Business Travel Risks on the Rise SOSHA Emergency Action Plans (29 C.F.R. 1910.36)



RAVE ALERT'S NEW GEO-POLL FEATURE

Rave Alert's geo-poll feature gives business's the information they need to make more effective response decisions. Rave Alert has always supported two-way messaging to help administrators better manage emergency situations, but the new geo-poll feature organizes incoming responses in a way that makes patterns and location easier to identify, analyze and act on.

RAVE ALERT

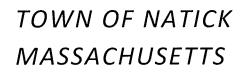
With Rave Alert, you can send unlimited messages, to unlimited recipients, with an easy to use interface accessible from any internet connected device. With two clicks, Rave Alert sends multi-modal messages via text, email, voice, WebEOC, digital signage and more. With on-going proactive freshness checks, Rave Alert sends the right message to the right user every time. With unmatched performance, Rave Alert sends 2,000 SMS messages per second and ½ billion messages a year.

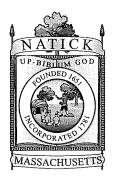
SEE A LIVE DEMO

www.ravemobilesafety.com/rave-alert-product/

Phone: 888.605.7164 Email: <u>sales@ravemobilesatety.com</u>







TO:Natick Board of SelectmenWilliam Chenard, Acting Town AdministratorJeremy Marsette, Director, Natick Public WorksAnthony Comeau, Supervisor, Water and Sewer Division, Natick Public Works

FROM: Bryan R. Le Blanc, Procurement Officer

DATE: May 10, 2018

SUBJECT: CONTRACT AWARD – W148 West Central and Route 30 Water Mains, Health Center Forcemain

On April 25, 2018, bids were received, pursuant to M.G.L. c. 30, §39M, for rehabilitation of the West Central and Route 30 water mains in Natick, and the Health Center forcemain in Natick, Massachusetts. Bids were received from four (4) bidders. (See attached.)

CN Corporation, of Assonet, Massachusetts ("CN"), is the lowest responsible and eligible bidder. We recommend that the Natick Board of Selectmen award the contract to CN for the complete main bid work, as provided for in the Town's Invitation for Bids. The amount of the award will be for \$2,337,027.83, as provided for in CN's bid. Mr. Gregory Eldridge (the Town's consultant from the on-call water/sewer engineering firm of Haley & Ward), Mr. Comeau, and I have reviewed the bids received and have checked the references and qualifications of CN.

Please advise if you have any questions or require additional information.

Bids Received:	04/25/18, rescheduled from 4/19/18
Newspaper Advertisement (<u>Metrowest Daily News</u>):	03/21/18
Website & Town Hall Postings:	03/16/18
Central Register:	03/28/18
COMMBUYS Posting:	03/16/18

 Funding:
 (Per Mr. Comeau):

 Acct#655113-584000 Rt 30 Water Loop FY2017 Fall ATM \$385,000.00

 Acct#655112-583000 West Central Water Main FY2017 Fall ATM \$1,008,000.00

 Acct#655314-584000 Rt 9 & Rt 27 Infrastructure FY2018 Spring ATM \$944,027.83

Total: \$2,337,027.83

		Certificate of Price Non-Debarment	1	V 260 2/01 - 264, 25	× 2×4029350	(\$ 53, 7027, 83			perform		
Town of Natick IFB Opening Form	General Bids - West Central and Route 30 Water Mains and Health Center Force Main 25 - 27 Matchine Date & Time: April 19, 2018, 11:00 A.M. EDST	Envelope Sealed Bid Security - 5% Certificate of Non-Collusion Tax Compliance Cert of Corporate Signature of Interest & Marked & Marked & Mon-Collusion Certification Bidder Addendar	Company Name	Revole Bulling M. C.	RFS Martal Mr V V V	over MA V V			Dugwelling 25 th dun if april wide penelly al	Witness Signature: Chr.g. Cur.	

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Civil and Environmental Engineers

May 8, 2018

<u>Via Email</u>

Mr. Anthony Comeau, Water and Sewer Supervisor Department of Public Works 75 West Street Natick, MA 01760

Re: Bid Results Contract No. W-148

Dear Mr. Comeau,

On April 18, 2018, four (4) bids were received for Contract W-148 entitled "West Central, Route 30 Water Mains and Health Center Forcemain". We are attaching a Canvass of Bids and have summarized the total bid amounts below:

		Bid
1.	CN Corporation	\$2,337,027.83
2.	RFS Corporation	\$2,840,293.50
3.	Revoli Construction	\$2,860,512.57
4.	N. Granese & Sons	\$4,167,364.25

We contacted three (3) project references for CN Corporation all three responses were generally positive responses with all indicating they would recommend CN Corporation for more work and did not identify any issues with them completing that would negatively impact this project. Additionally, CN Corporation completed a project previously in Natick that included the installation of a 20" water main under Route 9 for the Springvale Water Treatment plant.

The contract specifications included a relevant project experience requirement that included completion of pipe bursting. CN Corporation does not have experience in completing pipe bursting, however they indicated they will be sub-contracting with D'Allessandro Corporation to complete the pipe bursting portion of the project. D'Allessandro has extensive experience with pipe bursting and has completed several projects in Natick.

We feel; based on the positive results of the reference checks, completed projects list and subcontract with D'Allessandro Corporation that CN Corporation has the equipment, resources and experience to perform the work in accordance with the contract documents and within the specified time frame.

The low bid submitted by CN Corporation appears to be in order and is within available funding. We discussed the bid amount with CN Corporation, considering the large increase to the next bidder. CN Corporation reviewed their bid and they feel they can complete the work as bid.

> 63 Great Road, Suite 200, Maynard, MA 01754 Phone: (978) 648-6025 • Fax: (978) 648-6068 Email: hwi@haleyward.com • Web: www.haleyward.com

Mr. Comeau May 8, 2018 Page 2 of 2

The project includes work in three locations and funding from three appropriations; West Central Street water main, Route 30 water main loop and Health Center sewer forcemain replacement.

Please review the bid results and this letter, if the Town accepts the low bid of CN Corporation, please obtain the required signature on the attached Notice of Award form and return the form to our office. Once we receive the Award form, we will prepare the agreement documents for signing by the contractor.

If you have any question on the bids and/or this letter, please feel free to contact our office.

Yours very truly,

HALEY AND WARD, INC.

Gregory Eldridge Digitally signed by Gregory Eldridge Disc. and Gregory Eldridge Di

Cc: Jeremy Marsette via email Bryan LeBlanc via email

Enclosures: Canvass of Bids Notice of Award

J:\Natick\446 West Central Water Main Ct W-148\Letters\446-002 bid and award to Town.doc

Haley and Ward, Inc.

NATICK, MASSACHUSETTS BOARD OF SELECTMEN

CONTRACT NO. W-148

WEST CENTRAL, ROUTE 30 WATER MAINS AND HEALTH CENTER FORCEMAIN

THIS AGREEMENT made this ______ day of ______ in the year 2018, by and between the Town of Natick, Massachusetts, Natick Town Hall, 13 East Contral Street, Natick, MA 01760 (hereinafter called OWNER), by its Board of Selectmen, and

<u>CN Corporation</u>, having an address of <u>106 Richwond Rd</u>, doing business as a (Corporation, Partnership or Individual) hereinafter called "CONTRACTOR." assonet, MA02702

WITNESSETH: That for and in consideration of the payments and agreements hereinafter mentioned, OWNER and CONTRACTOR hereby agree as follows:

ARTICLE 1. WORK

CONTRACTOR shall commence the Work as specified or indicated in the Contract 1.1. Documents as defined in Article 8 herein. The Work is generally described as follows:

The West Central Street and Route 30 Work for this project consists of installing 1.2. approximately five thousand eight hundred and seventy-five (5,875) linear feet of eight-inch (8") diameter water main through combination of open cut, sliplining and pipe bursting. Work also includes open cut installation of approximately three hundred and thirty (330) linear feet of ten-inch (10") diameter water main. The Contractor shall supply all labor, materials and equipment necessary to complete the work shown on the Contract Drawings and hereinafter contained in the Specifications.

The Health Center forcemain Work for this project consists of installing approximately one 1.3. thousand six hundred and seventy-five (1,675) linear feet of twelve-inch (12") diameter sewer forcemain through combination of open cut, sliplining and pipe bursting. The Contractor shall supply all labor. materials and equipment necessary to complete the work shown on the Contract Drawings and hereinafter contained in the Specifications.

CONTRACTOR shall furnish all materials, supplies, tools, equipment, labor, and other 1.4. services necessary for the construction and completion of the Project described herein.

NAT-446/Contract No. W-148 N 03/24/2017

AGREEMENT 00510-1

ARTICLE 2. ENGINEER

2.1. The Project has been designed by Haley and Ward, Inc., who is hereinafter called ENGINEER and who shall act as OWNER'S representative, who shall assume all duties and responsibilities, and who and shall have the rights and authority assigned to ENGINEER in the Contract Documents in connection with completion of the Work in accordance with the Contract Documents.

ARTICLE 3. CONTRACT TIME

CONTRACTOR shall commence work when authorization by the OWNER or 3.1. ENGINEER with the provisions of the Notice to Proceed and Contract Documents. There are two separate work completion dates, one for West Central water main and one for Health Center Forcemain. Route 30 water main must be completed within the overall completion dates. You are to substantially complete the West Central work within one hundred and sixty (160) consecutive calendar days from Contract start date. You are to complete all West Central finish paving Work within three hundred and fifty (350) consecutive calendar days from the Contract start date. You are to substantially complete the Health Center forcemain Work within four hundred and twenty (420) consecutive calendar days from Contract start date. You are to complete all Health Center finish paving Work within five hundred and twenty (520) consecutive calendar days from the Contract start date. Therefore the date all work will be completed is _______, 20___.
 3.2. Liquidated Damages. OWNER and CONTRACTOR recognize that time is of the essence

of this Agreement. They also recognize the delays, expense and difficulties involved in proving in a legal or arbitration proceeding the actual loss suffered by OWNER if the Work is not completed on time. Accordingly, instead of requiring any such proof, OWNER and CONTRACTOR agree that as liquidated damages for delay (but not as a penalty) CONTRACTOR shall pay OWNER Four Hundred dollars (\$400.00) for each day that expires after each Substantial Completion date and Eight Hundred dollars (\$800.00) after each Final Completion date specified in paragraph 3.1 of this section for completion and readiness for final payment.

ARTICLE 4. CONTRACT PRICE

In consideration for performance of the work as required by the Contract Documents, the 4.1. OWNER shall pay CONTRACTOR for completion of the Work in accordance with the Contract Documents in current funds as follows:

Contractor's Bid is attached to this Agreement as an exhibit.

CONTRACT PRICES

L.S.

QUANTITY

1

ITEM
NO

DESCRIPTION NO.

1. Mobilization

(to be completed by Haley & Ward, by Haley & Ward, UNIT incorporates Col's PRICE <u>PRICE</u> \$ \$

NAT-446/Contract No. W-148 N 03/24/2017

AGREEMENT 00510-2

2. Below Grade Excavation	125	C.Y	\$	<u>\$</u>
3. Test Pit Excavation	215	C.Y.	\$	<u>\$</u>
4. Rock Excavation, No Explosives	65	C.Y.	\$	<u>\$</u>
5. Process Gravel	2,150	C.Y.	\$	<u>\$</u>
6. Ordinary Borrow	1,725	C.Y.	\$	\$
7. Select Borrow	1,850	C.Y.	\$	\$
8. Cast-In-Place Concrete	950	C.Y.	<u>\$</u>	\$
9. Temporary Trench Paving	450	TONS	\$	\$
10. Temporary Pit Paving	55	TONS	\$	\$
11. Permanent Trench Paving	2,290	TONS	\$	\$
12. Permanent Pit Paving	315	TONS	\$	\$
13. Dust Control	20	CWT	\$	\$
14. Bituminous Berm	875	L.F.	\$	\$
15. Granite Curb	750	L.F.	\$	\$
16. Bituminous Sidewalk	110	L.F	\$	<u>\$</u>
17. Loam and Seed	2,400	S.Y.	\$	\$
18. For 6 and 8 inch Gate Valves	23	EA.	\$	\$
19. For 10 and 12 inch Gate Valves	4	EA.	<u>\$</u>	\$
20. Solid Sleeves	53	EA.	<u>\$</u>	\$
21. Fittings	5,300	LBS	\$	\$
22. Temporary Water Service	1	L.S.	\$	<u>\$</u>
23. Trenchless Water Service 2"	180	L.F.	\$	\$
24. Open Cut Water Service 2"	460	L.F.	\$	<u>\$</u>

25. Open Cut Water Service 6"	270	L.F.	\$	\$
26. Small Service Valves	22	L.F.	\$	\$
27. Hydrant Assemblies WC North Side	e 3	EA.	<u>\$</u>	<u>\$</u>
28. Hydrant Ass. WC South & Frost	5	EA	<u>\$</u>	<u>\$</u>
29. Furnishing Hydrants	12	EA.	<u>\$</u>	<u>\$</u>
30. Bursting 6" & 10" pipe	4,790	L.F.	<u>\$</u>	<u>\$</u>
31. For 6" DI Pipe	50	L.F.	\$	<u>\$</u>
32. For 8" and 10" DI Pipe	250	L.F	<u>\$</u>	<u>\$</u>
33. For 12" DI Pipe	120	L.F.	<u>\$</u>	<u>\$</u>
34. For 8 inch Slipling Frost Street	345	L.F.	\$	\$
35. For 12 inch Slipling Frost Street	155	L.F.	<u>\$</u>	\$
36. For Inspection Pits	75	C.Y.	<u>\$</u>	\$
37. For Miscellaneous Pits	35	C.Y.	<u>\$</u>	<u>\$</u>
38. For Environmental Controls	1	L.S.	<u>\$</u>	\$
39. Open Cut 10" & 12" Pipe	1,290	L.F.	<u>\$</u>	\$
40. Open Cut 8" WC Water Mains	120	L.F.	<u>\$</u>	<u>\$</u>
41. Open Cut 8" Water Main Route 30	1,390	L.F.	<u>\$</u>	\$
42. Forcemain & Air Release SMH	1	L.S.	<u>\$</u>	\$
43. Forcemain Sewer Connections	2	EA.	\$	<u>\$</u>
44. For Sewer By-Pass	1	L.S.	\$	\$
45. For Drain Replacement	340	L.F.	\$	<u>\$</u>
46. For Electronic Message Board	90	Days	\$	\$
47. For Line Painting	2,800	L.F.	\$	<u>\$</u>
48. For Traffic Management	1	L.S.	\$	<u>\$</u>

49. Cold Plane West Central

\$

TOTAL CONTRACT AMOUNT

\$ 2,337,027,83.

\$

As permitted by law, specific items of this Contract may be eliminated, or reduced in quantity to keep within the limits of available funding, at the OWNER'S option.

ARTICLE 5. PAYMENT PROCEDURES

5.1. CONTRACTOR shall submit Applications for Payment in accordance with Article 14 of the General Conditions, as modified, if applicable, by the Supplementary Conditions. Applications for Payment will be processed by ENGINEER as provided in the General Conditions.

5.2. Progress Payments. OWNER shall make progress payments on account of the Contract Price on the basis of CONTRACTOR'S Applications for Payment as recommended by ENGINEER and as provided in Article 14 of the General Conditions, as modified, if applicable, by the Supplementary Conditions.

5.3. Final Payment. Upon final completion and acceptance of the Work in accordance with paragraph 14.13 of the General Conditions, as modified, if applicable, by the Supplementary Conditions, OWNER shall pay the remainder of the Contract Price as recommended by ENGINEER as provided in said paragraph 14.13.

ARTICLE 6. TERMS

6.1. Terms used in this Agreement, which are defined in Article 1 of the General Conditions, as modified, if applicable, by the Supplementary Conditions, will have the meanings indicated in the General Conditions, as modified, if applicable, by the Supplementary Conditions

ARTICLE 7. CONTRACTOR'S REPRESENTATIONS

In order to induce OWNER to enter into this Agreement CONTRACTOR makes the following representations:

7.1. CONTRACTOR has familiarized itself with the nature and extent of the Contract Documents, work, site, locality, and all local conditions and Laws and Regulations that in any manner may affect cost, progress, performance or furnishing of the Work.

7.2. CONTRACTOR has studied carefully all reports of explorations and tests of subsurface conditions and drawings of physical conditions which are identified in the Supplementary Conditions as provided in paragraph 4.2 of the General Conditions, and accepts the determination set forth in paragraph SC-4.2 of the Supplementary Conditions of the extent of the technical data contained in such reports and drawings upon which CONTRACTOR is entitled to rely.

7.3. CONTRACTOR has obtained and carefully studied (or assumes responsibility for obtaining and carefully studying) all such examinations, investigations, explorations, tests, reports and studies (in addition to or to supplement those referred to in paragraph 7.2 above) which pertain to the subsurface or physical conditions at or contiguous to the site or otherwise may affect the cost, progress, performance or furnishing of the Work as CONTRACTOR considers necessary for the performance or furnishing of the Contract Price, within the Contract Time and in accordance with the other terms and conditions of the Contract Documents, including specifically the provisions of paragraph 4.2 of the General Conditions, as modified, if applicable, by the Supplementary Conditions; and no additional examinations, investigations, explorations, tests, reports, studies or similar information or data are or will be required by CONTRACTOR for such purposes.

7.4. CONTRACTOR has reviewed and checked all information and data shown or indicated on the Contract Documents with respect to existing Underground Facilities at or contiguous to the site and assumes responsibility for the accurate location of said Underground Facilities. No additional examinations, investigations, explorations, tests, reports, studies or similar information or data in respect of said Underground Facilities are or will be required by CONTRACTOR in order to perform and furnish the Work at the Contract Price, within the Contract Time and in accordance with the other terms and conditions of the Contract Documents, including specifically the provisions of paragraph 4.3 of the General Conditions, as modified, if applicable, by the Supplementary Conditions.

7.5. CONTRACTOR has correlated the results of all such observations, examinations, investigations, explorations, tests, reports and studies with the terms and conditions of the Contract Documents.

7.6. CONTRACTOR has given ENGINEER written notice of all conflicts, errors or discrepancies that he has discovered in the Contract Documents and the written resolution thereof by ENGINEER is acceptable to CONTRACTOR.

ARTICLE 8. CONTRACT DOCUMENTS

The Contract Documents which comprise the entire agreement between OWNER and CONTRACTOR concerning the Work consist of the following:

- 8.1 Invitation for Bids
- 8.2 Instructions to Bidders
- 8.3 Contractor's Bid
- 8.4 This Agreement ("Agreement")
- 8.5. Exhibits to this Agreement
- 8.6. General Conditions

- 8.7 Supplementary Conditions
- 8.8 Contractor's Performance and Payment Bonds, and insurance certificates
- 8.9. Notice of Award
- 8.10 Notice to Proceed
- 8.11 Specifications contained in Divisions 1-3, as listed in table of contents
- 8.12 Construction Drawings generally entitled "West Central & RT 30 Water Mains & Health Center Forcemain": Drawing Numbers 1-21
- 8.13 Addenda numbers $\underline{/}$ to $\underline{3}$, inclusive.
- 8.14 Change Order

There are no Contract Documents other than those listed above in this Article 8. The Contract Documents may only be amended, modified or supplemented as provided in paragraphs 3.4 and 3.5 of the General Conditions.

ARTICLE 9. INDEMNIFICATION

To the fullest extent permitted by law, the CONTRACTOR shall indemnify, defend, and hold harmless the Town of Natick and all of its officers, employees, boards, commissions, committees, agents and representatives from and against all claims, causes of action, suits, costs, damages, and liability of any kind which arise out of the breach by the CONTRACTOR of its obligations under this Contract, or the act or omission of the CONTRACTOR, its Subcontractors, or their officers, employees, agents and representatives or anyone directly or indirectly employed by them, or anyone for whose acts or omissions they may be liable, regarding the work to be performed by the CONTRACTOR under the Contract, or which arise out of the violation of any Federal, Massachusetts or Town of Natick statute, by-law, rule, regulation, order or directive, or which relate to personal injury or property damage suffered by the CONTRACTOR or any of its officers or employees regarding the subject matter of the Contract.

ARTICLE 10: INSURANCE

10.1. The CONTRACTOR shall provide insurance that satisfies the categories and amounts specified in Article 5 of the General Conditions, as modified by Article 5 of the Supplementary Conditions.

10.2. Each certificate and policy of insurance required by this Agreement shall contain a cancellation provision as indicated below with no variations.

"Should any of the above described policies be canceled or materially amended before the expiration date thereof, the issuing insurer will mail within thirty (30) days written notice to the

certificate holder named to the left".

10.3. The Town of Natick and ENGINEER shall be named as an additional insured on each policy of insurance required by this agreement other than worker's compensation.

ARTICLE 11: MISCELLANEOUS PROVISIONS

11.1. No assignment by CONTRACTOR of any rights under or interests in the Contract Documents will be binding on OWNER without the written consent of OWNER; and specifically but without limitation moneys that may become due and moneys that are due may not be assigned without such consent, and unless specifically stated to the contrary in any written consent to an assignment no assignment will release or discharge the CONTRACTOR from any duty or responsibility under the Contract Documents.

11.2. This Agreement shall be binding upon the OWNER and CONTRACTOR, their respective heirs, executors, administrators, successors, or assigns and legal representative to the other party hereto, its partners, heirs, executors, successors, assigns and legal representatives in respect of all covenants, agreements and obligations contained in the Contract Documents.

11.3. If any provision of this Agreement shall be determined to be invalid or unenforceable by final judgment of a court of competent jurisdiction, the remaining provisions shall continue in effect to the extent permitted by law.

11.4. This Agreement may be amended only by a written instrument signed by the parties.

11.5. This Agreement shall be governed by and construed in accordance with the Massachusetts law, without respect to choice of law principles.

11.6. The CONTRACTOR shall provide to the satisfaction of the OWNER, adequate supervision of all work performed under this Agreement.

11.7. This Agreement shall be subject to the Natick Non-Discrimination in the Workforce provision included in Part I Supplementary Conditions.

11.8. The CONTRACTOR shall comply with all provisions of law applicable to his work including without limitation statutes, by-laws rules, regulations, orders and directives. This Contract shall be considered to include in their entirety all terms respecting workers' compensation insurance and other terms required to be included in it by Chapter 152 of the Massachusetts General Laws, as amended, and any other laws, as though such terms were set forth in their entirety herein. The CONTRACTOR shall comply with all applicable provisions of law and regulation as specified by the Williams-Steiger Occupational Safety and Health Act of 1970, as amended.

11.9. The CONTRACTOR has made this Contract in reliance on his own examinations and estimates as to the amount and character of his work, and conditions which may be encountered in the performance thereof, and shall assume all risks and bear all losses pertaining thereto.

11.10. The CONTRACTOR shall compensate the Town of Natick for all damages to the Town

property of any nature arising out of the CONTRACTOR'S work.

11.11. The Town of Natick may defer payment to the CONTRACTOR of such sums otherwise due him under this Contract for such period of time as the Director of Public Works may deem required by law or expedient for protection of the Town or others against his noncompliance with the provisions thereof; and the Town may reimburse itself, by deduction from the money so retained, for all expense and loss resulting to it from his noncompliance.

11.12. No payment by the Town of Natick to the CONTRACTOR shall be deemed to be a waiver of any right of the Town of Natick under this Contract or ratification by the Town of Natick any breach hereof by him.

11.13. The CONTRACTOR shall provide services under this Agreement as an independent CONTRACTOR with the town of Natick and the CONTRACTOR and its employees shall not be entitled to receive any benefits of employment with the Town of Natick, including without limitation salary, overtime, vacation pay, holiday pay, health insurance, life insurance, pension or deferred compensation.

11.14. If any assignment shall be made by the CONTRACTOR or by any guarantor of the CONTRACTOR for the benefit of creditors, or if a petition is filed by the CONTRACTOR or by any guarantor of the CONTRACTOR for adjudication as a bankrupt, or for reorganization or an arrangement under any provision of the Bankruptcy Act as then in force and effect, or if an involuntary petition under any of the provisions of the Bankruptcy Act is filed against the CONTRACTOR and such involuntary petition is not discharged within ninety (90) days thereafter, in any event the Town may terminate this Contract upon written notice to the CONTRACTOR.

11.15. The award of this Contract and the continued operation of this Contract are subject to appropriation by Natick Town Meeting of sufficient money to fund the Contract.

11.16. The Owner may terminate this Contract upon written notice to the CONTRACTOR if a source of money to fund the Contract is lost during any year of the Contract term. In the alternative, the parties may agree in writing to amend the Contract to provide for a Contract price which represents the reduced appropriation for a contract year.

11.17. In the event of termination, the CONTRACTOR shall be entitled to be paid for services rendered in accordance with this Contract prior to termination.

IN WITNESS WHEREOF, OWNER and CONTRACTOR have executed or caused to be executed by their duly authorized officials this Agreement in five (5) copies, each of which shall be deemed as an original on the date first above written. One Counterpart each has been delivered to OWNER, CONTRACTOR, ENGINEER, Town Counsel and Town Accountant.

OWNER:

Town of Natick, Massachusetts

The Natick Board of Selectmen

Jonathan-H. Freedman, Chairman Amy K. Mistrot

Susan G. Salamoff, Vice Chairman

Richard P. Jennett, Jr., Clerk

Michael J. Hickey, Jr. Michael J. Hickey, Jr. Jonathan H. Freedman

Amy K. Mistret P. Jennett, Ir. Richard P. Jennett, Ir. Dated:

CONTRACTOR: CNCORPORATION

Printed Name of CONTRACTOR

Signature

Printed Name

Printed Title

Dated:

[CORPORATE SEAL]

Owner Address for giving notices:

Board of Selectmen

Natick Town Hall

13 East Central Street

Natick, MA 01760

Attest

Contractor Address for giving notices:

President CNCorporation 106 RichmonDAve Assonet, MA02702

AGREEMENT 00510-10

NAT-446/Contract No. W-148 N 03/24/2017

CERTIFICATE OF APPROPRIATION

In accordance with the requirements of M.G.L. Chapter 44, Section 31C, this is to certify that an appropriation in the amount of this Agreement is available therefore, and that the Natick Board of Selectmen is authorized to execute this Agreement and to approve all requisitions and execute change orders.

Arti P. Mehta Comptroller, Town of Natick

Date

APPROVED AS TO FORM ONLY (AND NOT AS TO SUBSTANCE):

John P. Flynn, Esq.

Date

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		<u> TRACT NO. W-148</u>	
		L, ROUTE 30 WATER I	
		TH CENTER FORCEMA	
-		CORPORATE AUTHO	
I,	, Clerk of	, a	corporation organized office at
pursuant to	state law, which	ch maintains its principal	office at
		at at a meeting of the Boa	
	(the "Corporation") duly held on	,, at which
			st be earlier than Lease)
· ·	and voting throughout	, the following vote was	duly passed and is now in full force
and effect:		1	-1
<u>"VOTED: That</u>		be and her	
		to sign for Corporation	this Corporation to sign seal with
			ds and other obligations of the
			n of Natick, Massachusetts, 13 East
Central Street Natick	MA 01760: the execut	ion of any such contract.	lease, bond or obligation by such
Central Bireet, Patiex,	the chocat	ion of any such contract,	
(Name of Officer)	to be valid and bind	ling
upon this Corporation	for all purposes, and th	at a certificate of the Cle	rk of this Corporation setting forth
this vote shall be delive			
I further certify that			
	(Name of Officer)		
• • • • • • •		af agid (Comparation
is duly elected		of said C	Jorporation.
	(Title)		
Signed:			
Bigned.			
Printed Name:			
Printed Title: ((Clerk- Secretary)		
Date:	·		
D1 (D			
Place of Business:			· · · · · · · · · · · · · · · · · · ·
	AFFIX	CORPORATE SEAL	
	111123		
COUNTERSIGNATU	RE:		
	(Name d	and Title of Officer)	
Date			
Date:	ork or Secretary is the	same person as the Office	er authorized to sign that contract
			ersigned by another officer of the
Corporation.	<i>x</i> ,	,	
1			

NATICK, MASSACHUSETTS BOARD OF SELECTMEN

CONTRACT NO. W-148

WEST CENTRAL, ROUTE 30 WATER MAINS AND HEALTH CENTER FORCEMAIN Contractor's Certification

Name of Project

A contractor will not be eligible for award of a contract unless such contractor has submitted the following certification, which is deemed a part of the resulting contract:

CONTRACTOR'S CERTIFICATION

 certifies that
it intends to use the following listed construction trades in the work under the contract
; and
will comply with the minority manpower ratio and specific affirmative action steps contained herein; and
will obtain from each of its Subcontractors and submit to the contracting or administering agency prior to the award of any subcontract under this contract the Subcontractor certification required by these bid conditions.
 (Signature of authorized representative of Contractor)
Printed Name
 Printed Title

Date

NATICK, MASSACHUSETTS BOARD OF SELECTMEN

CONTRACT NO W-148

WEST CENTRAL, ROUTE 30 WATER MAINS AND HEALTH CENTER FORCEMAIN

Subcontractor's Certification

Name of Project _____

Prior to the award of any subcontract, regardless of tier, the prospective Subcontractor must execute and submit to the contractor the following certification, which is deemed a part of the resulting contract:

	certifies that		
1.	it intends to use the following listed construction trades in the work under the contract		
	; and		
2.	will comply with the minority manpower ratio and specific affirmative action steps contained herein; and		
3.	will obtain from each of its Subcontractors and submit to the contracting or administering agency prior to the award of any subcontract under this contract the Subcontractor certification required by these bid conditions.		
	(Signature of authorized representative of Subcontractor)		
	Printed Name		
	Printed Title		

Date

In order to ensure that the said Subcontractor's certification becomes a part of all subcontracts under the contract, no subcontract shall be executed until an authorized representative of the Town agency (or agencies) administering this project has determined, in writing, that the said certification has been incorporated in such subcontract, regardless of tier. Any subcontract executed without such written approval shall be void.

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Town of Natick Invitation for Bids Contract No. W-148 Bid

WEST CENTRAL, ROUTE 30 WATER MAINS AND HEALTH CENTER FORCEMAIN



SEALED BIDS will be received at the Procurement Office by:

Date:	<u>Thursday, April 19, 2018</u>	
Time:	11:00 A.M. Local Time	
Place:	DPW Building	
	75 West Street	
	Natick, MA 01760	

Haley and Ward, Inc.

Civil and Environmental Engineers 63 Great Road, Suite 200 Maynard, Massachusetts 01754 PHONE: (978) 648-6025 FAX: (978) 648-6068



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TOWN OF NATICK, MASSACHUSETTS BOARD OF SELECTMEN

CONTRACT NO. W-148

WEST CENTRAL, ROUTE 30 WATER MAINS AND HEALTH CENTER FORCEMAIN

INVITATION FOR BIDS

Pursuant to the provisions of Chapter 30, Section 39M of the General Laws of the Commonwealth of Massachusetts (M.G.L. c. 30, §39M), the Town of Natick, the Awarding Authority, (hereinafter referred to as "Owner"), by the Natick Board of Selectmen of the Town of Natick, Massachusetts, invites sealed Bids for the General Contract from responsible and eligible bidders for the West Central, Route 30 Water Mains and Health Center Forcemain project. Sealed Bids shall be received for the General Contract until <u>THURSDAY, APRIL 19, 2018, at 11:00 A.M.</u> local time, at the Natick DPW Building, 75 West Street, Natick, MA 01760, at which time and place they will be publicly opened, read and registered. No faxed or email, or conditional bids shall be accepted. If the Procurement Office within the DPW Building is closed due to weather or other emergency, the deadline for receipt of bids shall be extended until 11:00 A.M. local time on the next business day upon which the Procurement Office is open for business.

Each and every Bid shall be submitted on the Bid Form furnished with the Bidding Documents and shall be addressed to the Board of Selectmen. Each and every Bid shall be sealed in an envelope which is clearly marked in the lower left hand corner "<u>BID FOR CONTRACT NO. W-148 WEST CENTRAL,</u> <u>ROUTE 30 WATER MAINS AND HEALTH CENTER FORCEMAIN</u>."

The West Central Street and Route 30 Work for this project consists of installing approximately five thousand eight hundred and seventy-five (5,875) linear feet of eight-inch (8") diameter water main through combination of open cut, sliplining and pipe bursting. Work also includes open cut installation of approximately three hundred and thirty (330) linear feet of ten-inch (10") diameter water main. The Health Center forcemain Work for this project consists of installing approximately one thousand six hundred and seventy-five (1,675) linear feet of twelve-inch (12") diameter sewer forcemain through combination of open cut, sliplining and pipe bursting. The Contractor shall supply all labor, materials and equipment necessary to complete the work shown on the Contract Drawings and hereinafter contained in the Specifications.

Bidding documents are available in electronic PDF file format and hard copy format. Electronic file can be obtained by contacting Haley and Ward at (978) 648-6025 jschiavi@haleyward.com. Hard copy documents may be obtained from the office of Haley and Ward, Inc., 63 Great Road, Suite 200, Maynard, MA 01754-2097, 8:00 A.M. to 4:30 P.M. local time, Monday through Friday, and may be reviewed at the office of the Department of Public Works, 75 West Street, Natick, MA 01760, between the hours of 9:00 A.M. to 4:00 P.M. local time, Monday through Thursday, and 9:00 A.M. to 12:00 P.M. (noon) local time on Friday, beginning at 11:00 A.M. local time on <u>WEDNESDAY, MARCH 28, 2018.</u>

A complete set of the Bidding Documents may be obtained from the Engineer, Haley and Ward, Inc. for a deposit of Fifty Dollars (\$50.00) or Twenty Dollars (\$20.00) for plans only in cash or check, made payable to Haley and Ward, Inc. This deposit will be refunded to document holders of record who return the Bidding Documents to the Engineer in good condition within fourteen (14) days after the opening of Bids. All requests for mailing Bidding Documents shall be accompanied by a separate, nonrefundable handling and mailing fee in the amount of Twenty-Five Dollars (\$25.00) in cash or a separate check made payable to Haley and Ward, Inc. One (1) set of Bidding Documents will be furnished for the deposit and mailing fee stated.

Complete instructions for filing Bids are included in the Instructions to Bidders. Every Bid shall be submitted in full accordance with those Instructions to Bidders. Bids shall be valid only when accompanied by all of the following: (1) a fully completed and properly executed "Bid Form for General Bid"; (2) Bid security in the amount of five percent (5%) of the amount bid, in a form as described in the Instructions to Bidders and made payable to the "Town of Natick Board of Selectmen."

Attention of the Bidder is called to the requirements for minimum prevailing wage rates to be paid under this Contract and the reporting associated thereto. Minimum prevailing wage rates are required as per M.G.L, c, 149, §§ 26 to 27D, inclusive. Minimum prevailing wage rates determined by the Commissioner are as contained in the Supplementary Conditions section of the Contract Documents.

Bids for this Contract are subject to the provisions of M.G.L. c. 30, §39M. The successful Bidder will be required to furnish a Payment and Performance Bond, with a surety company which is acceptable to Owner, each in the amount of one hundred percent (100%) full amount of the Contract. Contract payment will be by the unit price and lump sum price method as indicated on the <u>Bid</u> Form. No Bidder may withdraw his Bid for a period of thirty (30) days after the date designated above for the opening. The Owner reserves the right to reject any or all Bids or to accept any Bid deemed by it to be in the best interest of the Town of Natick, and, to the extent permitted by law, to limit the extent of the work to keep within the limits of available funds. The award of any Contract pursuant to this Invitation for Bids is subject to appropriation by Natick Town Meeting.

Bidder's attention is directed to the Non-Discrimination in Employment and Affirmative Action Program requirements of this Contract. The requirements of these programs are explained in the Instructions to Bidders and in Part I of the Supplementary Conditions of the Contract. This Contract includes a price adjustment clause for gasoline and diesel fuel, Portland cement and liquid asphalt used on-site from start through the completion date, as contained in Section 01015 – Price Adjustments for Specific Materials.

TOWN OF NATICK <u>Board of Selectmen</u> Jonathan H. Freedman, Jr., Chairman Susan G. Salamoff, Vice Chairman Richard P. Jennett, Jr., Clerk Michael J. Hickey, Jr. Amy K. Mistrot Acting Town Administrator William D. Chenard Director of Public Works Jeremy Marsette, P.E. HALEY AND WARD, INC., ENGINEERS Maynard, MA 01754-2097

NATICK, MASSACHUSETTS BOARD OF SELECTMEN

<u>CONTRACT NO. W-148</u> WEST CENTRAL, ROUTE 30 WATER MAINS AND HEALTH CENTER FORCEMAIN

INSTRUCTIONS TO BIDDERS

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NATICK, MASSACHUSETTS BOARD OF SELECTMEN

CONTRACT NO. W-148

WEST CENTRAL, ROUTE 30 WATER MAINS AND HEALTH CENTER FORCEMAIN

INSTRUCTIONS TO BIDDERS

1. RECEIPT OF BIDS AND COPIES OF BID DOCUMENTS:

1.1 In accordance with Massachusetts General Laws, Chapter 30, Section 39M, and all other applicable laws, Bids will be received by the Board of Selectmen of the Town of Natick (hereinafter known as the OWNER) at the DPW Building, 75 West Street, Natick, MA 01760, until <u>Wednesday</u>, <u>April 19, 2018, at 11:00 A.M.</u>, local time, and then at said office be publicly opened and read aloud. The clock in the Procurement Office shall be considered official. No faxed, email, or conditional bids shall be accepted. If the Procurement Office within the DPW Building is closed due to weather or other emergency, the deadline for receipt of bids shall be extended until 11:00 A.M. local time on the next business day upon which the Procurement Office is open for business.

1.2 Each Bid shall be submitted in an opaque sealed envelope, addressed to the Board of Selectmen, and shall be delivered to the Procurement Office, DPW Building, 75 West Street, Natick, MA 01760. Each sealed envelope containing a Bid shall be plainly marked on the outside as "<u>Bid</u> for Contract No. W-148 WEST CENTRAL, ROUTE 30 WATER MAINS AND HEALTH CENTER FORCEMAIN" and also shall bear the name of the Bidder, his address, his contact telephone number, and also his license number, if applicable. If forwarded by mail, the sealed envelope containing the Bid shall be enclosed in another envelope addressed to the Procurement Office, DPW Building, 75 West Street, Natick, MA 01760. The Bid Security shall be attached to the signature page of the <u>Bid</u>.

1.3 Submission of a Bid shall be conclusive evidence that the Bidder has examined the Premises and the Bid Documents and is familiar with all the conditions of the proposed Contract. Upon finding any omissions or discrepancy in this Invitation for Bids, the Bidder shall notify the Procurement Officer immediately so that any necessary addenda may be issued. Failure of the Bidder to investigate completely the Premises and/or to be thoroughly familiar with the Bid Documents shall in no way relieve any such Bidder from any obligation with respect to the Bid.

1.4 The Bid Documents, including Specifications and Drawings, may be reviewed at the Office of the Natick Department of Public Works, 75 West Street, Natick. MA 01760, between the hours of 9:00 A.M. to 4:00 P.M. local time, Monday through Thursday, and 9:00 A.M. to 12:00 P.M. (noon) local time on Friday, beginning at 11:00 A.M. local time on March 28, <u>2018</u>.

1.5 Complete sets of the Bid Documents may be obtained from Haley and Ward, Inc., Consulting Engineers ("the Engineer" or "ENGINEER"), 63 Great Road, Suite 200, Maynard, MA during normal business hours, beginning on Wednesday, <u>March 28,</u> 2018 between 8:00 A.M. and 4:30 P.M. local time for the deposit sum stated in the Invitation for Bids. The deposit will be refunded to document holders of record who return the Bid Documents to the Engineer in good condition within fourteen (14) days after opening of Bids for work of the General Contract. One (1) set of the Bid Documents will be furnished for the deposit sum stated in the Invitation for Bids.

1.6 All requests for mailing of Bid Documents shall be accompanied by a separate <u>nonrefundable</u> mailing fee in the amount stated in the Invitation for Bids. The mailing fee shall be in cash or a separate check made payable to the Engineer. One (1) set of Bid Documents will be mailed for the mailing fee stated in the Invitation for Bids.

1.7 CONTRACTOR may request to download bid documents for free by contacting the Engineer

1.8 Complete sets of Bid Documents shall be used in preparing Bids; neither OWNER nor ENGINEER assumes any responsibility for errors or misinterpretations resulting from the use of incomplete sets of Bid Documents.

1.9 OWNER and ENGINEER, in making copies of Bid Documents available on the above terms, do so only for the purpose of obtaining Bids on the Work and do not confer a license or grant for any other use.

2. SCOPE OF WORK/LOCATION OF WORK:

- 2.1 The Work for this project consists of the following scope items.
 - a. Open cut installation of approximately nine hundred (900) linear feet of eight-inch (8") diameter ductile iron water main in Commonwealth Avenue (Route 30),
 - b. Open cut installation of four hundred and sixty (460) linear feet of eight-inch (8") diameter ductile iron water main in Frost Street
 - c. Sliplining approximately three hundred and forty (340) linear feet of eight-inch (8") diameter ductile iron water main under the Mass Pike (Route 90),
 - d. Pipe bursting four thousand seventy-five (4,075) linear feet of eight inch (8") ductile iron water main in West Central Street
 - e. Open cut installation of approximately one hundred (100) linear feet of eight-inch (8") diameter ductile iron water main in West Central Street.
 - f. Open cut installation of approximately three hundred and thirty (330) linear feet of ten-inch (10") diameter ductile iron water main in West Central Street.
 - g. Work also includes temporary water main and services.
 - h. Open cut, sliplining and pipe bursting approximately one thousand six hundred and seventy five (1,675) linear feet of ten-inch (10") diameter Health Center forcemain pipe, including temproayr by-pass pumping system and manholes.
 - i. Work also includes tree removal, service line installation and paving restoration.

j. The Contractor shall supply all labor, materials and equipment necessary to complete the work shown on the Contract Drawings and hereinafter contained in the Specifications.

2.2 The location of work of this project is in West Central Street, Frost Street, Commonwealth Avenue (Rt. 30) and North Main Street (Route 27) within the Town of Natick borders, and as indicated on the Contract Drawings.

2.3 The Work includes the furnishing of all labor, materials and equipment for completing the work as shown on the Contract Drawings and as herein specified or reasonably implied.

2.4 To the extent permitted by law, the OWNER reserves the right to eliminate certain sections of the Work as may be determined by it as a basis of award, to keep within the limits of available funds, or to add sections of the work previously eliminated.

3. SCHEDULING:

3.1 The Contract time will start on the date indicated on the Notice to Proceed and the Successful Bidder shall proceed on a continuous basis following Contract start date until all work is complete, unless directed differently by the OWNER.

3.2 Work on West Central Street can not start until after the Boston Marathon, which occurs on Monday April 16, 2018.

3.3 Work on North Main Street (Route 27) cannot start before July 4, due to fourth of July Parade.

4. FORM OF BID:

4.1 All Bids shall be made on the blank form included in Section 00300 which follows this notice, and each Bid shall state a price for each lump sum item. The total of the item prices when correctly calculated, shall be used in the comparison of Bids received. In the event there is a discrepancy in the Bid between the prices written in words and figures, the prices written in words shall govern.

4.2 The form of <u>Bid</u> shall not be changed, and it shall be signed by the Bidder with his business address and place of residence.

4.3 A conditional or qualified Bid shall not be accepted.

5. BID SECURITY:

5.1 Each Bid shall be accompanied by a Bid Bond written by a surety company qualified to do business in Massachusetts, or by Cash, or a Certified Check, or Treasurer's or Cashier's Check issued by a responsible bank or trust company, as Bid Security, in the amount of five (5%) percent of the total Bid, made payable to the Town of Natick.

5.2 The Bid Security of Bidders, except those of the three lowest responsible and eligible Bidders, shall be returned within five (5) days, Saturdays, Sundays and holidays excluded, after opening of Bids. The Bid Security of said three lowest Bidders shall be returned upon execution of the Contract.

5.3 In case the Successful Bidder shall fail or neglect to execute the Contract and furnish the satisfactory bonds within the time specified, the OWNER may determine that the Bidder has abandoned the Contract and thereupon the Bid Security accompanying the <u>Bid</u> shall be forfeited to the OWNER as liquidated damages for such failure or neglect, and to indemnify said OWNER for any loss which may be sustained by failure of the Bidder to execute the Contract and furnish the bonds as aforesaid, provided that, in case of death, disability, or other unforeseen circumstances affecting the Bidder, such Bid Security may be returned to him. After execution of the Contract and acceptance of the bonds by the OWNER, the Bid Security accompanying the <u>Bid</u> of the Successful Bidder will be returned.

6. WITHDRAWAL OF BIDS:

6.1 Once Bid is submitted and received by the OWNER for consideration and comparison with other Bids similarly submitted, the Bidder agrees that he may not and shall not withdraw said Bid within a period of thirty (30) days (Saturdays, Sundays and legal holidays excluded).

6.2 Upon proper request and identification, Bids may be withdrawn only as follows:

1. At any time prior to the designated time for the opening of Bids.

2. Provided the Bid has not theretofore been accepted by the OWNER, at any time subsequent to the expiration of the period during which the Bidder has agreed not to withdraw his Bid.

6.3 Unless a Bid is withdrawn as provided above, each Bidder shall agree that it shall be deemed open for acceptance until the Contract has been executed by both parties thereto, or until the OWNER notifies a Bidder in writing that his Bid is rejected, or that the OWNER does not intend to accept it, or returns his Bid deposit. Notice of acceptance of a Bid shall not constitute rejection of any other Bid.

7. EXPERIENCE OF BIDDER:

7.1 Only Bids from CONTRACTORS experienced in installation sewage pump stations and gravity and pressure sewage collection piping systems, or utilization of experienced subcontractors will be favorably considered by the OWNER, and each Bidder shall include in the space provided in the <u>Bid</u>, evidence of such experience with satisfactory references, and shall provide on request, information as to organization and equipment available to him for the performance of the work under this Contract.

7.2 For the purposes of this Contract, experienced Contractor shall mean the Contractor and their Subcontractors have a minimum of five (5) successful years of experience in installation of water main through open cut method and pipe bursting method.

7.3 No award will be made to any Bidder who cannot satisfy the OWNER that it has sufficient ability and experience in this class of work and sufficient capital and plant to enable it to prosecute and complete the work successfully within the time named. The OWNER'S decision of judgment on these matters shall be final, conclusive and binding.

8. QUESTIONS REGARDING DRAWINGS AND DOCUMENTS:

8.1 In general, no answer will be given to prospective Bidders in reply to an oral question if the question involves an interpretation of the intent or meaning of the Drawings or other Contract Documents, or the equality or use of products or methods other than those designated or described on the Drawings or in the Specifications. Any information given to Bidders other than by means of the Drawings and other Contract Documents, including Addenda, as described below, is given informally, for information and the convenience of the Bidder only and is not guaranteed. Each Bidder agrees that such information shall not be used as the basis of, nor shall the giving of any such information entitle the Bidder to assert, any claim or demand against the OWNER or the ENGINEER or account thereof.

8.2 To receive consideration, such questions shall be submitted in writing to the OWNER, with a copy to the ENGINEER, at least four (4) days before the established date for receipt of Bids. If the question involves the equality of use of products or methods, it shall be accompanied by Drawings, Specifications, or other data in sufficient detail to enable the ENGINEER to determine the equality or suitability of the product or method. In general, the ENGINEER will neither approve nor disapprove particular products prior to the opening of Bids. Such products will be considered when offered by the CONTRACTOR for incorporation into the work.

8.3 The ENGINEER will set forth as Addenda, which shall become part of the Contract Documents, such questions received as above provided as in his sole judgment are appropriate or necessary and his decision regarding each. At least two (2) days prior to the receipt of Bids, he will send a copy of these Addenda to those prospective Bidders known to have taken out sets of the Drawings and other Contract Documents.

8.4 Addenda notification will be distributed by email to all parties recorded by the Engineer as having received bidding documents. The prospective bidders will download addendums from the Engineer's website. Alternative methods of distributing addendum must be requested by the party recorded as receiving bidding documents. Each Bidder shall be responsible for determining that it has received all Addenda, which have been issued. If an Addendum notification is issued by email, ENGINEER will request a return email to verify receipt of the Addendum, however, failure by any Bidder or prospective Bidder to send a return email will not invalidate the delivery of the Addendum notification.

8.5 Each Bidder agrees to use the products and methods designated or described in the Specifications as amended by the Addenda.

8.6 It shall each Bidder's responsibility to confirm the existence of Addenda with the ENGINEER prior to submittal of Bid.

9. INFORMATION NOT GUARANTEED:

9.1 It is agreed and understood that no Bidder or CONTRACTOR shall use or be entitled to use, any of the information made available to him or obtained in any examination made by him in any manner as a basis of or ground for any claim or demand against the OWNER or the ENGINEER, arising from or by reason of any variance which may exist between the information made available and the actual subsurface or other conditions, natural phenomena, existing pipes, or other structures actually encountered during the construction work, except as may otherwise be expressly provided for in the Contract Documents.

9.2 All information given on the Drawings or in the other Contract Documents relating to subsurface and other conditions, natural phenomena, existing pipes, and other structures, is from the best sources at present available to the OWNER. All such information is furnished only for the information and convenience of Bidders and is not guaranteed.

9.3 It is further agreed and understood that OWNER does not warrant or guarantee that the subsurface or other conditions, natural phenomena, existing pipes, or other structures encountered during construction will be the same as those indicated on the Contract Drawings, or in the other Contract Documents.

10. BIDDER RESPONSIBILITY:

10.1 If a Bidder, after examining the site and Contract Documents, determines the presence of a discrepancy between the Contract Drawings and Contract Specifications, it is each Bidder's responsibility to notify the ENGINEER prior to the Bid opening. ENGINEER shall review and issue an Addendum if necessary. If a Bidder fails to notify ENGINEER of such discrepancy and is awarded the Contract, the CONTRACTOR shall not be entitled to a Contract price adjustment if OWNER or ENGINEER determines CONTRACTOR was aware of the discrepancy during the Bid period.

10.2 Each Bidder is responsible for inspecting the site and for reading and being thoroughly familiar with the Contract Documents. The failure or omission of any Bidder to do any of the foregoing shall in no way relieve any Bidder from any obligation in respect to his Bid.

10.3 The Contract Documents contain the provisions required for the construction of the project. Information obtained from an officer, agent, or employee of the OWNER or any other person shall not affect the risks or obligations assumed by each Bidder or relieve him from fulfilling any of the conditions of the Contract.

10.4 It is the CONTRACTOR'S responsibility to visit each known site in order to identify any limitations in access to each site. The OWNER will not be responsible for any claims for additional cost during construction that are related to access to each known site.

10.5 Each Bidder assumes all responsibility for the Bid arriving on time and at the designated location. The time of receipt of a Bid shall determine the acceptability of mailed Bids, regardless of postmark. It shall be the sole responsibility of the Bidder to assure that a Bid has arrived before the time for opening of Bids as specified in the Invitation for Bids and Instructions to Bidders. Bids received at the specified location and <u>after</u> the time specified will <u>not</u> be accepted.

11. COMPARISON OF BIDS:

11.1 All Bids will be compared on the basis of the estimate of quantities of work to be done, per unit price and/or lump sum items, as tabulated in the <u>Bid</u>. Estimated quantities are approximate only, being given for the uniform comparison of Bids. The OWNER does not expressly agree, or by implication agree, that the actual amount of work will correspond therewith, and the right is expressly reserved, to increase or diminish the amount of any class or portion of the work, or to omit construction in certain locations, as may be deemed necessary by the OWNER to keep within the limits of available funds, as permitted by applicable law.

12. RIGHTS RESERVED BY OWNER:

12.1 The OWNER reserves the right to reject any or all Bids, or to waive any informalities or minor defects, if deemed by it to be in the best interest of the Town of Natick.

12.2 The OWNER may make such investigations as it deems necessary to determine the ability of each Bidder to perform the work, and the Bidder shall furnish to the OWNER all such information and data for this purpose as the OWNER may request. The OWNER reserves the right to reject any Bid if the evidence submitted by, or investigation of such Bidder fails to satisfy the OWNER that such Bidder is properly qualified to carry out the obligations of the Agreement and to complete the work contemplated therein.

12.3 The low Bidder shall supply the names and addresses of suppliers and subcontractors when requested to do so by the OWNER.

12.4 The Town may terminate the Contract upon written notice to the CONTRACTOR if a source of money to fund the Contract is not available during any year of the Contract term. In the alternative, the parties may agree in writing to amend the Contract to provide for a Contract price which represents the reduced appropriation for a contract year.

13. AWARD OF CONTRACT:

13.1 Award of the Contract will be made to the lowest responsible and eligible Bidder. The term "lowest responsible and eligible bidder" shall mean the bidder: (1) whose bid is the lowest of those bidders possessing the skill, ability and integrity necessary for the faithful performance of the work; (2) who shall certify, that he is able to furnish labor that can work in harmony with all other elements of labor employed or to be employed in the work; (3) who shall certify that all employees to be employed at the worksite will have successfully completed a course in construction safety and health approved by the United States Occupational Safety and Health Administration that is at least ten (10) hours in duration at the time the employee begins work and who shall furnish documentation of successful completion of said course with the first certified payroll report for each employee; (4) who, where the provisions of section 8B of chapter 29 apply, shall have been determined to be qualified thereunder, and (5) who obtains within ten (10) days of the notification of contract award the security by bond required under section 29 of chapter 149; provided that for the purposes of this section the term "security by bond" shall mean the bond of a surety company qualified to do business under the laws of the commonwealth and satisfactory to the awarding authority; provided further that if there is more than one (1) surety company, the surety companies shall be jointly and severally liable. The party to whom the CONTRACT is awarded will be required to execute the Contract, obtain Payment and Performance Bonds, Insurance Certificates and Certification Form, and a Certificate of Vote of authorization of signature on Documents, within ten (10) calendar days from receipt of Notice of Award. The Notice of Award shall be accompanied by the necessary Agreement and Bid Forms. In case of failure of a Bidder to execute the Contract and provide the above mentioned Bonds, Certificates, etc., the OWNER may at its option, consider the Bidder in default, in which case the Bid security accompanying the Bid shall become property of the OWNER.

14. PAYMENT AND PERFORMANCE BONDS:

14.1 A Performance Bond and a Payment Bond, each in the amount of <u>one hundred percent</u> (100%) of the Contract price, with a corporate surety approved by the OWNER will be required for the faithful performance of the Contract.

14.2 Attorneys-in-fact who sign Bid Bonds or Payment Bond and Performance Bond, shall file with each Bond, a certified and effective dated copy of their Power of Attorney.

15. CONTRACT INSURANCE:

15.1 The Successful Bidder shall provide Commercial General Liability Insurance, Automotive Liability Insurance, Worker's Compensation and Employer's Liability Insurance, including other coverages such as indicated in the General Conditions and as amended in the Supplementary Conditions.

15.2 Each certificate and policy of insurance required by the Contract shall contain a cancellation provision as indicated below with no variations.

"Should any of the above described policies be cancelled or materially amended before the expiration date thereof, the issuing insurer will mail within thirty (30) days prior written notice to the certificate holder named to the left".

15.3 The Successful Bidder shall provide an endorsement or endorsements which indicate that the Town of Natick is named as an additional insured on the required policies of Commercial General Liability Insurance, Automobile Liability Insurance, and Excess Liability Insurance, Umbrella Form and maintain throughout the term of the Contract and any extension or renewal thereof.

15.4 The Successful Bidder shall provide separate Owner's Protective Liability Insurance, with the OWNER and ENGINEER only as insured. A rider clause to the Contractor's Liability Insurance shall not be acceptable.

<u>16.</u> INDEMNIFICATION:

16.1 The Successful Bidder shall assume the indemnification responsibilities set forth in the Contract which is included in the Bid Documents and is incorporated herein by reference.

17. CONTRACT SIGNING AND NOTICE TO PROCEED:

17.1 The Notice to Proceed shall be issued within thirty (30) days of the effective date of the Contract by the OWNER. Should there be reasons why the Notice to Proceed cannot be issued within such period, the time may be extended by mutual agreement between the OWNER and the Successful Bidder. If the Notice to Proceed has not been issued within the thirty (30) day period, or within the period mutually agreed upon, the Successful Bidder may terminate the Contract without further liability on the part of either party.

<u>18.</u> TIME OF STARTING:

18.1 The work shall start on the date to be placed on the Notice to Proceed, and proceed on a continuous basis until complete, except for winter shutdown or unless directed differently by OWNER.

18.3 If the Contractor chooses to complete the work over two construction seasons, the West Central water main must be completed in the first construction season.

19. TIME OF COMPLETION AND LIQUIDATED DAMAGES:

19.1 The project work may span two construction seasons unless the Contractor allocates multiple crews to facilitate completion of the work within one construction season. The time of completion is based on two construction seasons and winter shutdown is included in the allowable calendar days for completion.

19.2 The date for commencing Contract time will be the day to be indicated on the Notice to Proceed.

19.2 It is the intention of this Contract to complete the work, in operating condition as soon as practicable, but not later than five hundred and twenty (520) consecutive calendar days after the start date to be indicated on the Notice to Proceed.

19.3 Thera re two separate completion dates for the contract, West Central water main and Health Center forcemain. Route 20 water main can be completed within the total contract time.

19.4 WEST CENTRAL WATER MAINs: The Successful Bidder agrees to pay as liquidated damages, the sum of four hundred (\$400.00) per day for each calendar day beyond one hundred and sixty (160) calendar days (substantial completion) for which work in not substantially completed and eight hundred (\$800.00) per day for each calendar day beyond three hundred and fifty (350) calendar days, for which all work included in the Contract Documents is not substantially completed and agrees that this sum is not contingent upon any financial losses incurred by the OWNER due to the delay and is not to be considered as a penalty, but an agreed upon sum to be deducted from CONTRACTOR'S payment.

19.5 HEALTH CENTER FORCEMAIN: The Successful Bidder agrees to pay as liquidated damages, the sum of four hundred (\$400.00) per day for each calendar day beyond four hundred and twenty (420) calendar days (substantial completion) for which work in not substantially completed and eight hundred (\$800.00) per day for each calendar day beyond five hundred and twenty (520) calendar days, for which all work included in the Contract Documents is not substantially completed and agrees that this sum is not contingent upon any financial losses incurred by the OWNER due to the delay and is not to be considered as a penalty, but an agreed upon sum to be deducted from CONTRACTOR'S payment.

19.6 It is the intention of the Contract to require the CONTRACTOR to commence work and to continue working on a continuous basis until complete.

19.7 CONTRACTOR to schedule the work on West Central to start after Monday April 16, to avoid impact to the Boston Marathon race that utilizes West Central Street. Work on North Main Street (Route 27) cannot start before forth of July, due to parade.

19.8 For this project, substantially complete shall be considered when all water mains are online and all trenches are paved with temporary paving.

20. LAWS AND REGULATIONS:

20.1 Each Bidder's attention is directed to the fact that all applicable Local, State and Federal laws, municipal ordinances, and the rules and regulations of all authorities having jurisdiction over construction of the Project shall apply to the Contract throughout, and they will be deemed to be included in the Contract, the same as though herein written in full.

20.2 Not withstanding the foregoing, the Contract is subject to the applicable provisions of, but not limited to, M.G.L..c. 30, §39M, which is incorporated herein by reference.

20.3 Not withstanding the foregoing, the Contract is also subject to the dig-safe requirements of M.G.L. c. 82, § 40 and the applicable portions of 527 CMR 13, relating to Blasting.

21. CONTRACT DRAWINGS:

21.1 The construction project is as shown on the Contract Drawings entitled "West Central & Rt. 30 Water Mains and Health Center Forcemain".

22. UNBALANCED BIDS:

22.1 A Bidder shall not submit unbalanced prices for any of the Bid items on the <u>Bid</u>. All prices shall be reasonable for the Work entailed. The OWNER reserves the right to reject any Bid which contains unbalanced prices, considering such a Bid as non-responsive to the Instructions to Bidders, and to consider same as reason for rejecting a Bid.

22.2 Certain Bid items may have set minimum and/or maximum prices to provide uniformity in the comparison of Bids established by OWNER and indicated on the <u>Bid</u> form. Bids submitted not in compliance with these established amounts, may be rejected for non-compliance with the Instructions to Bidders.

23. SAFETY AND HEALTH REGULATIONS:

23.1 This project is subject to the Safety and Health Regulations of the U.S. Department of Labor set forth in Title 29 CFR Part 1926 and to all subsequent amendments, and to the Massachusetts Department of Labor and Workforce Development, Division of Industrial Safety "Rules and Regulations for the Prevention of Accidents in Construction Operations" (Chapter 454 CMR 10.00 et seq.). CONTRACTORS shall be familiar with the requirements of these regulations.

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

24. SALES TAX EXEMPTION:

24.1 The OWNER will provide a Massachusetts Sales Tax Blanket Exemption Certificate No. applicable to all materials to be furnished under this Contract.

24.2 Except as noted above, the Successful Bidder and Subcontractors shall pay all taxes levied by law on materials, labor or services furnished by them. Payments of such levies and sales taxes will be held to be included in Contract amounts.

25. PERMITS AND LICENSES:

25.1 All permits for work within the project limits shall be obtained. Town will waive the permit fees.

26. MINIMUM PREVAILING WAGE RATES:

26.1 Minimum Prevailing Wage Rates (Heavy Construction) as determined by the Commissioner of the Department of Labor and Workforce Development under the provisions of the Massachusetts General Laws, Chapter 149, Sections 26 to 27D, as amended, (the Prevailing Wage Act) apply to this project. It is the responsibility of the CONTRACTOR, before Bid opening, to request if necessary, any additional information on Minimum Prevailing Wage Rates for those tradespeople who are not covered by the following schedule of prevailing wage rates, but who may be employed for the proposed work under this Contract.

26.2 Minimum prevailing wage rates to be used for this Contract are contained in Part I of the Supplementary Conditions.

26.3 Regulations for the Prevailing Wage Act state that payment of compensation to workmen for work performed on public work on a lump sum basis, piece work system, or a price certain for the completion of a certain amount of work, or the production of a certain result shall be deemed a violation of the Act regardless of the average hourly earning resulting therefrom. This shall result in the disqualification of any Contractor employing these methods.

26.4 The CONTRACTOR shall submit weekly payrolls to the OWNER during the progress of this Contract for each day work is performed.

27. WARRANTIES:

27.1 The Successful Bidder, if selected as the CONTRACTOR, shall furnish all supplies, equipment, and labor necessary for the performance of the services and/or delivery of equipment required by this Contract and warrants that it has in its employ, and throughout the term of this Contract or any extension or renewal thereof, shall continue to have a sufficient number of persons experienced in performing services required by this Contract, such that the CONTRACTOR'S obligations under this Contract shall be carried out in a prompt, safe and professional manner.

27.2 The Successful Bidder, if selected as the CONTRACTOR, shall further warrant that it shall perform services under this Contract with the highest degree of professionalism and care. Any equipment delivered, unless otherwise agreed by the parties, shall be of generally merchantable quality and shall be fit for the purpose sought by the OWNER.

27.3 The Successful Bidder, if selected as the CONTRACTOR, shall warrant to the OWNER that the work to be performed under the Contract shall be free from defects in material and workmanship for twelve (12) months after acceptance of the work by the OWNER. If any defects in material or workmanship regarding the work occur within said twelve (12) month period, the CONTRACTOR shall have the option of repairing or replacing the defective component(s) involved in the work. If part of the work is accepted in accordance with that subsection of the Contract titled Partial Acceptance, the warranty for that part of the work shall be for a period of one (1) year from the date fixed for such acceptance.

28. NONDISCRIMINATION IN EMPLOYMENT:

28.1 Contracts for work under this <u>Bid</u> shall obligate the CONTRACTOR and subcontractors not to discriminate in employment practices.

28.2 Contracts for work under this project shall obligate the CONTRACTOR and Subcontractors not to discriminate in employment practices, and shall maintain not less than five percent (5%) ratio of minority employees man hours to total man hours.

28.3 In connection with the performance of work under this Contract, the CONTRACTOR shall not discriminate against any employees or applicant for employment because of race, color, religious creed, national origin, age, sex, gender identity, sexual orientation (which shall not include persons whose sexual orientation involves minor children as the sex object), genetic information, ancestry, children, marital status, veteran status or membership in the armed services, the receiving of public assistance, and handicap. The aforesaid provision shall include, but not be limited to the following: advertising; recruitment; hiring; rates of pay or other forms of compensation; terms, conditions or privileges of employment; employment upgrading; transfer; demotion; layoff; and termination. The CONTRACTOR shall post hereafter in conspicuous places, available for employees and applicants for employment notices to be provided by the applicable agent of the Commonwealth of Massachusetts setting forth the provisions of the Fair Employment Practices Law of the Commonwealth. The CONTRACTOR shall also undertake in good faith, affirmative action measures designed to eliminate any discriminatory barriers in the terms and conditions of employment on the grounds of race, color, religious creed, national origin, age, sex, gender identity, sexual orientation (which shall not include persons whose sexual orientation involves minor children as the sex object), genetic information, ancestry, children, marital status, veteran status or membership in the armed services, the receiving of public assistance, and handicap and to eliminate and remedy any effects of such discrimination in the past.

28.4 The Successful Bidder shall submit a Contractor's Certification Form and a Subcontractor's Certification Form concerning their employment practices and policies in order to maintain their eligibility to receive the Award of the Contract. These forms shall be submitted with the signed Contract Documents.

29. SUBSTITUTE OR "OR-EQUAL" ITEMS

29.1 The Contract, if awarded, will be on the basis of materials and equipment described in the Drawings or specified in the Specifications. Whenever it is indicated in the Drawings or specified in the Specifications that a substitute or "or equal" item of material or equipment may be furnished or used by CONTRACTOR if acceptable to ENGINEER, application for such acceptance will not be considered by ENGINEER until after the Effective Date of the Agreement; all consideration shall comply with M.G.L. c. 30, §39M(b).

30. PRICE ADJUSTMENTS FOR SPECIFIC MATERIALS

30.1 In accordance with the requirements of Chapter 30, Section 38A of the General Laws of Massachusetts, Municipal Contracts for water and sewer projects bid under Chapter 30 Section 39M shall include a price adjustment clause for each of the following: fuel, both diesel and gasoline; liquid asphalt; and Portland cement contained in cast-in-place concrete. Details and baseline prices are provided in Section 01015.

END OF SECTION

NATICK, MASSACHUSETTS BOARD OF SELECTMEN

CONTRACT NO. W-148

WEST CENTRAL, ROUTE 30 WATER MAINS AND HEALTH CENTER FORCEMAIN

BID

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NATICK, MASSACHUSETTS BOARD OF SELECTMEN

CONTRACT NO. W-148

WEST CENTRAL, ROUTE 30 WATER MAINS AND HEALTH CENTER FORCEMAIN

BID

The undersigned, as Bidder, declares that all persons or parties interested in this Bid as principals are named herein; that this Bid is bona fide, fair, and made without collusion or fraud with any person (As used in this section, the word "person" shall mean any natural person, business, joint ventures, partnership, corporation, union, committee, club, or other organization, entity or group of individuals.); that he has carefully examined the location of the proposed Work and has, read the Contract Documents; that he shall agree to contract with the Town of Natick, in the form of a Contract to be deposited with the Owner, to provide all necessary machinery, tools, apparatus and other means of construction, and to do all the work and furnish the materials and labor, specified in the Contract, in the manner and time therein prescribed, and according to the requirements of the OWNER, as therein set forth; and that he shall take in full payment therefor, the amounts resulting from the unit and/or lump sum prices which he bids in the following tabulation, when multiplied by the quantities of Work actually accomplished.

Bidder hereby agrees to commence Work under this Contract on or before the date to be indicated on the Notice to Proceed and will be substantially completed as soon as practicable, but no later than <u>four hundred and twenty (420) consecutive calendar days</u> thereafter, and will be fully completed within <u>five hundred and twenty (520) consecutive calendar days</u> unless an extension of time is granted. Bidder further agrees to pay as liquidated damages, the sum of Four Hundred Dollars (<u>\$400.00</u>) for each <u>consecutive calendar day thereafter</u> that work is not substantially completed, with the exception of final re-surfacing. Bidder further agrees to pay as liquidated damages the sum of Eight Hundred Dollars (\$800.00) for each consecutive day thereafter, that all is work is not completed as provided in the Information for Bidders Section of this Contract, and agrees that this sum is not contingent upon any financial losses incurred by the Owner due to the delay, and not to be considered as a penalty, but an agreed upon sum to be deducted from Contractor's payment. Bidder also agrees to the individual contract completion dates and liquidated damages outlined in the Instruction to Bidders.

Bidder acknowledges receipt of Addenda:

#1_____ #2_____ #3_____

For all Work presented in the Bid Documents, Bidder submits the following Bid:

NATICK, MASSACHUSETTS BOARD OF SELECTMEN

CONTRACT NO. W-148

WEST CENTRAL, ROUTE 30 WATER MAINS AND HEALTH CENTER FORCEMAIN

BID FORM

ITEM <u>NO.</u>	DESCRIPTION			<u>AMOUNT</u>
1.	For Mobilization, the total lump sum price of			
		=	:	\$
	(Lump Sum Price in Words)			
	(Maximum Allowable Bid Price for this Item is 59	% of the Total 1	Bid)	
2.	For Below Grade Excavation, the unit price of			
	(Unit Price in Words)			
	per cubic yards for an estimated quantity of			
	125 c.y. x \$(Unit Price in Figures)	=	:	\$
3.	For Test Pit Excavation, the unit price of			
	(Unit Price in Words)			
	per cubic yards for an estimated quantity of			
	<u>215 c.y. x \$</u>	=	:	\$
	(Unit Price in Figures)			
4.	For Rock And Boulder Removal, the unit price of			
	(Unit Price in Words)			
	per cubic yards for an estimated quantity of			
	<u>_65 c.y.</u> x \$	=	:	\$
	446/Contract No. W-148 24/2017			BID 00300-2

(Unit Price in Figures)

5. For Process Gravel, the unit price of

(Unit Price in Words)

per cubic yards for an estimated quantity of

2,150 c.y. x \$_____(Unit Price in Figures)

6. For Ordinary Borrow, the unit price of

(Unit Price in Words)

per cubic yard for an estimated quantity of

<u>1,725 c.y.</u> x \$_____(Unit Price in Figures) 7. For Select Borrow, the unit price of

(Unit Price in Words)

per cubic yard for an estimated quantity of

<u>1,850 c.y.</u> x \$_____ (Unit Price in Figures) 8. For Cast-in-Place Concrete Sidewalk, the unit price of

(Unit Price in Words)

per cubic yards or an estimated quantity of

950 c.y. x \$_____(Unit Price in Figures) For Temporary Trench Paving, the unit price of 9.

(Unit Price in Words)

per ton for an estimated quantity of

450 tons x \$_____(Unit Price in Figures)

\$

\$

\$

\$

\$

=

=

(Unit Price in Words)		
per ton for an estimated quantity of		
<u>55 tons</u> x \$	=	\$
For Permanent Trench Paving, the unit price of		
(Unit Price in Words)		
per ton for an estimated quantity of		
2,290 tons x \$ (Unit Price in Figures)	=	\$
For Permanent Pit Paving, the unit price of		
(Unit Price in Words)		
per ton for an estimated quantity of		
<u>315 tons.</u> x \$ (Unit Price in Figures)	=	\$
For Dust Control, the unit price of		
(Unit Price in Words)		
per cubic weight for an estimated quantity of		
20 cwt x \$(Unit Price in Figures)	=	\$
For Bituminous Berm/Curb, the unit price of		
(Unit Price in Words)		
per linear foot for an estimated quantity of		

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For Granite Curb, the unit price of 15.

(Unit Price in Words)

per linear foot for an estimated quantity of

16. For Bituminous Sidewalk, the unit price of

(Unit Price in Words)

per linear foot for an estimated quantity of

<u>110 l.f.</u> x \$_____(Unit Price in Figures)

For Loam and Seed, the unit price of 17.

(Unit Price in Words)

per square yard for an estimated quantity of

2,400 s.y. x \$_____(Unit Price in Figures)

18. For 6 and 8-Inch Gate Valves, the unit price of

(Unit Price in Words)

per each for an estimated quantity of

<u>23 ea</u> x \$____

(Unit Price in Figures)

19. For 10 and 12-Inch Gate Valves, the unit price of

(Unit Price in Words)

per each for an estimated quantity of

\$

\$

\$

\$_____

=

=

=

=

	=	\$ <u></u>
<u>4 ea.</u> x \$ (Unit Price in Figures) For Solid Sleeves, the unit price of		
(Unit Price in Words)		
per each for an estimated quantity of		
53 ea. x \$	=	\$
53 ea. x \$(Unit Price in Figures) For Fittings, the unit price of		
(Unit Price in Words)		
per pounds for an estimated quantity of		
5,300 lbs x \$	=	\$
5,300 lbs x \$(Unit Price in Figures)		
For Temporary Water Service, the lump sum price of		
	=	\$
(Unit Price in Words)		
(Unit Price in Words) For Trenchless Water Service 2-Inch & Smaller, the unit price of		
For Trenchless Water Service 2-Inch & Smaller, the unit price of		
For Trenchless Water Service 2-Inch & Smaller, the unit price of (Unit Price in Words) per linear foot for an estimated quantity of	=	\$
For Trenchless Water Service 2-Inch & Smaller, the unit price of (Unit Price in Words)	=	\$
For Trenchless Water Service 2-Inch & Smaller, the unit price of (Unit Price in Words) per linear foot for an estimated quantity of	=	\$
For Trenchless Water Service 2-Inch & Smaller, the unit price of (Unit Price in Words) per linear foot for an estimated quantity of <u>180 1.f. x \$</u> (Unit Price in Figures)	=	\$
For Trenchless Water Service 2-Inch & Smaller, the unit price of (Unit Price in Words) per linear foot for an estimated quantity of <u>180 1.f. x \$</u> (Unit Price in Figures) For Open Cut Water Service 2-Inch & Smaller, the unit price of	=	\$
For Trenchless Water Service 2-Inch & Smaller, the unit price of (Unit Price in Words) per linear foot for an estimated quantity of <u>180 1.f. x \$</u> (Unit Price in Figures) For Open Cut Water Service 2-Inch & Smaller, the unit price of (Unit Price in Words)	=	\$

(Unit Price in Words)

per linear foot for an estimated quantity of

	<u>270 l.f.</u> x \$		=	\$
	270 l.f. x \$(Unit Price in Figures)			
26.	For Small Service Valves, the unit price of			
	(Unit Price in Words)			
	per each for an estimated quantity of			
	<u>22 ea.</u> x \$(Unit Price in Figures)		=	\$
	(Unit Price in Figures)			
27.	For Hydrant Assemblies (WC North Side), the unit price of			
	(Unit Price in Words)			
	per each for an estimated quantity of			
	<u>3 ea.</u> x \$(Unit Price in Figures)		=	\$
	(Unit Price in Figures)			
28.	For Hydrant Assemblies (WC South Side & Frost Street), the	e unit price of		
	(Unit Price in Words)			
	per each for an estimated quantity of			
	<u>5 ea. x \$</u>		=	\$
	(Unit Price in Figures)			
29.	For Furnishing Hydrants, the unit price of			
	(Unit Price in Words)			
	per each for an estimated quantity of			
	<u>12 ea.</u> x \$(Unit Price in Figures)		=	\$
	(Unit Price in Figures)			
30.	Bursting 6-Inch and 10-Inch C.I. Pipe, the unit price of			

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(Unit Price in Words)		
per linear foot for an estimated quantity of		
<u>4,790 l.f.</u> x \$ (Unit Price in Figures)	=	\$
(Unit Price in Figures)		
For 6-Inch Ductile Iron Pipe, the unit price of		
(Unit Price in Words)		
per linear foot for an estimated quantity of		
50 1.f. x \$	=	\$
50 1.f. x \$(Unit Price in Figures)		
For 8-Inch and 10-Inch Ductile Iron Pipe, the unit price of		
(Unit Price in Words)		
per linear foot for an estimated quantity of		
250 1.f. x \$(Unit Price in Figures)	=	\$
(Unit Price in Figures)		
For 12-Inch Ductile Iron Pipe, the unit price of		
(Unit Price in Words)		
per linear foot for an estimated quantity of		
<u>120 l.f.</u> x \$	=	\$
120 l.f. x \$(Unit Price in Figures)		
For 8-Inch Sliplining Frost Street, the unit price of		
(Unit Price in Words)		
per linear foot for an estimated quantity of		
<u>345 l.f. x \$</u>	=	\$
<u>345 l.f.</u> x \$(Unit Price in Figures)		

(Unit Price in Words)		
per linear foot for an estimated quantity of		
_155 l.f. x \$	=	\$
<u>155 l.f.</u> x \$(Unit Price in Figures)		
For Inspection Pits, the unit price of		
(Unit Price in Words)		
per cubic yard for an estimated quantity of		
<u>75 c.y.</u> x \$ (Unit Price in Figures)	=	\$
For Miscellaneous Pits, the unit price of		
(Unit Drive in Words)		
(Unit Price in Words)		
per cubic yard for an estimated quantity of		
35 c.y. x \$(Unit Price in Figures)	=	\$
(Unit Price in Figures)		
For Environmental Controls, the lump sum price of		
(Lump Sum Price in Words)	=	\$
For Open Cut 10-Inch and 12-Inch Pipe, the unit price of		
(Unit Price in Words)		
per linear foot for an estimated quantity of		
<u>1,290 l.f.</u> x \$	=	\$
1,290 l.f. x \$(Unit Price in Figures)		
For Open Cut 8-Inch WC Water Main, the unit price of		
(Unit Price in Words)		

per linear foot for an estimated quantity of 120 l.f. x \$_____(Unit Price in Figures) \$_____ = 41. For Open Cut 8-Inch Water Main Rt. 30 & Frost, the unit price of (Unit Price in Words) per linear foot for an estimated quantity of <u>1,390 l.f.</u> x \$_____(Unit Price in Figures) \$ = 42. For Forcemain & Air Release Manholes, the lump sum price of \$ = (Lump Sum Price in Words) 43. For Forcemain Sewer Connection, the unit price of (Unit Price in Words) per each for an estimated quantity of <u>2 ea.</u> x \$_____(Unit Price in Figures) \$ =44. For Sewer By-Pass, the lump sum price of \$ =(Lump Sum Price in Words) 45. For Drain Replacement, the unit price of (Unit Price in Words) per linear foot for an estimated quantity of <u>340 l.f.</u> x \$_____(Unit Price in Figures) \$ For Electronic Message Boards, the unit price of 46.

	(Unit Price in Words)			
	per day for an estimated quantity of			
	<u>90 days</u> x \$		=	\$
	90 days x \$(Unit Price in Figures)			
47.	For Line Painting, the unit price of			
	(Unit Price in Words)			
	per linear foot for an estimated quantity of			
	<u>2,800 l.f.</u> x \$(Unit Price in Figures)		=	\$
	(Unit Price in Figures)			
48.	For Traffic Management, the lump price of			
			=	\$
	(Lump Sum Price in Words)			
49.	For Cold Plane West Central, the unit price bid of			
	(Unit Price in Words)	_		
	per square yard for an estimated quantity of			
	2,500 s.y. x \$(Unit Price in Figures)		=	\$
	(Unit Price in Figures)			
TOTA	AL BID PRICE FOR BID COMPARISON	=\$		

(Bid Price in Words)

The Town will award the project based upon available funding. An unbalanced or unreasonable lump sum or unit price submitted herein may be grounds for rejection of the Bid.

Specific items of this Contract may be eliminated or reduced in quantity to keep within limits of available funding, at the OWNER'S option.

<u>STATEMENT OF EXPERIENCE</u>: The undersigned as Bidder declares that he has successfully accomplished similar pipe bursting work in the following places:

1. Description of Project	
1 5 —	(Include type of project, total value of Contract, date of
completion, etc.)	
Owner & Contact Person	(Names, Addresses and Telephone Nos.)
Engineer & Contact Person _	
2. Description of Project	(Include type of project, total value of Contract, date of
completion, etc.)	
	(Names, Addresses and Telephone Nos.)
Engineer & Contact Person _	
3. Description of Project	(Include type of project, total value of Contract, date of
completion, etc.)	

Owner & Contact Person	
	(Names, Addresses and Telephone Nos.)
Engineer & Contact Person	
1 Description of Project	
4. Description of Project	(Include type of project, total value of Contract, date of
completion, etc.)	
Owner & Contact Person	
	(Names, Addresses and Telephone Nos.)
Engineer & Contract Demon	
Engineer & Contact Person	
5. Description of Project	
	(Include type of project, total value of Contract, date of
of completion, etc.)	
Owner & Contact Person	
	(Names, Addresses and Telephone Nos.)
Engineer & Contact Person	
6	

NOTE: Bidders may attach supplementary information, if necessary, to indicate the experience, organization and equipment available to undertake the Work in the event of an award of the Contract.

The Bidder shall list below, the name/names of subcontractor, if other than Bidder, who shall perform work on the project, including but not limited to the subcontractor qualified as an Approved Concrete Specialty Contractor to do the concrete repairs.

A.____

B.____

The Bidder shall submit a list of experience for above sub-contractor.

Each Bid shall be accompanied by a <u>Bid Deposit in the form of a Bid Bond, or cash, or a</u> <u>certified check on, or a treasurer's or cashier's check issued by, a responsible bank or trust company,</u> <u>payable to the awarding authority. The amount of such Bid Deposit shall be five percent (5%) of the value</u> <u>of the Bid.</u> No Bidder may withdraw his Bid for a period of thirty (30) days after the date of Bid opening, excluding Saturdays, Sundays and holidays.

A Performance Bond and a Payment Bond, each in the amount of one hundred percent (100 %) of the Contract Price, with a corporate surety approved by the OWNER, shall be required for the faithful performance of the Contract.

BIDDER: The full name and residence of all persons and parties interested in this Bid as principals, is as follows:

This Bid shall bear the written signature of the Bidder or his authorized agent. If the Bidder is a corporation or a partnership, the Bid shall be signed by a duly authorized officer of such corporation or by a partner, and the title of such officer shall be stated. The Certificate as to Corporate Bidder Form shall be completed following this page.

The undersigned Bidder hereby certifies he/she shall comply with the minority workforce percentage ratio and specific affirmative action steps contained in the Non-Discrimination in Workforce provisions of this Contract provisions. The Contractor receiving the award of the Contract shall be required to obtain from each of its subcontractors a copy of the certification by said subcontractor, regardless of tier, that it shall comply with the minority workforce ratio and specific affirmative action steps contained in these contract provisions and submit it to the contracting agency prior to the award of such subcontract.

The undersigned, as Bidder, hereby certifies that he is aware of the applicable requirements of the Williams-Steiger Occupational Safety and Health Act of 1970 (O.S.H.A.), and all latest revisions thereto, and that this Bid is prepared on the basis of compliance with those requirements.

The undersigned, as Bidder, hereby certifies that he is able to furnish labor that can work in harmony with all other elements of labor employed or to be employed on the work. The undersigned, as Bidder, hereby certifies that all employees to be employed at the worksite shall have successfully completed a course in construction safety and health approved by the United States Occupational Safety and Health Administration that is at least ten (10) hours in duration at the time the employees begin work. The undersigned, as Bidder, hereby certifies that if it is selected as Contractor, it shall furnish documentation of successful completion of said course with the first certified payroll report for each employee. The undersigned, as Bidder, hereby certifies that he is currently in compliance with the provisions of Massachusetts General Laws, Chapter 151B, which governs nondiscrimination in employment.

The undersigned, as Bidder, hereby certifies that he shall maintain records in reasonable detail which accurately and fairly reflect the financial transactions and disposition of the Bidder, in accordance with M.G.L. Chapter 30, Section 39R.

THIS BID SUBMITTED ON 20	THIS BID SUBMITTED ON	20
--------------------------	-----------------------	----

By_____

Signature

Printed Name

Printed Title

By_____

(Corporation Name)

(State of Incorporation)

(Corporate Seal)

Attest ______(Secretary)

Business Address:

 Telephone Number:
 ()
 Email Address:

Fax Number: (· ·)

CERTIFICATE OF NON-COLLUSION

The undersigned certifies under penalties of perjury that this Bid, in all respects is bona fide, fair, and 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, joint ventures, partnership, corporation, union, committee, club, or other organization, entity or group of individuals.

Name of Bidder

Address of Bidder

By:

Signature

Printed Name

Printed Title

Date

NAT-446/Contract No. W-148 N 03/24/2017

TAX COMPLIANCE CERTIFICATION

Pursuant to M.G.L. c.62C, Section 49A, the undersigned hereby certifies under penalty of perjury

has complied with all laws of the Commonwealth of Massachusetts relating to the payment of taxes, to the reporting of employees and contractors, and to the withholding and remitting of child support.

Name of Bidder

Address of Bidder

By:

Signature

Printed Name

Printed Title

Date

CONFLICT OF INTEREST CERTIFICATION

The Bidder named below hereby certifies that:

- 1. The Bidder has not given, offered, or agreed to give any gift, contribution, or, offer of employment as an inducement for, or in connection with, the award of a contract for these services.
- 2. No consultant to, or, subcontractor for the Bidder has given, offered, or agreed to give any gift, contribution, or, offer of employment to the Bidder, or, to any other person, corporation, or entity as an inducement for, or, in connection with, the award to the consultant or subcontractor of a contract by the Bidder.
- 3. No person, corporation, or, other entity, other than a bona fide full time employee of the Bidder has been retained or hired to solicit for or in any way assist the Bidder in obtaining the contract for services upon an agreement or understanding that such person, corporation, or entity be paid a fee or other compensation contingent upon the award of the contract to the Bidder.
- 4. The Massachusetts Conflict of Interest Law, Chapter 268A of the Massachusetts General Laws, applies to the Bidder with respect to the services outlined in the Project Manual.
- 5. Bidder, its officers, employees, agents, subcontractors and affiliated agencies, shall not participate in any activity which constitutes a violation of the Massachusetts Conflict of Interest Law or which creates an appearance of a violation of the Massachusetts Conflict of Interest Law.

Name of Bidder

Address of Bidder

By:

Signature

Printed Name

Printed Title

Date

CERTIFICATE AS TO CORPORATE BIDDER

<u> I,</u>	certify that I am the	of the corporation
named as Bidder in the Bid includ	led herein; that	, who signed said Bid on behalf of
the Bidder was then	of said corporation; that	t I know his signature; that his signature
thereon is genuine and that said B	id was duly signed, sealed and e	executed for and in behalf of said
corporation by authority of its gov	verning body.	

(Corporate Seal)

Name of Bidder

Address of Bidder

Telephone Number

By:

Signature

Printed Name

Printed Title

Date

This Certificate shall be completed where Bidder is a Corporation and shall be so completed by its Clerk. In the event that the Clerk is the person signing the Bidder on behalf of the Corporation, this certificate shall be completed by another office of the Corporation.

CERTIFICATE OF COMPLIANCE WITH M.G.L., C.151B

The Bidder hereby certifies that it is in compliance with and shall remain in compliance with Massachusetts General Laws (M.G.L.) Chapter 151B and shall not discriminate on any prohibited basis outlined herein.

Name of Bidder

Address of Bidder

Telephone Number

By:

Signature

Printed Name

Printed Title

Date

CERTIFICATE OF NON-DEBARMENT

The undersigned further certifies under penalty of perjury that the said undersigned is not presently debarred from doing public construction work in the Commonwealth under the provisions of section twenty-nine F of chapter twenty-nine or any other applicable debarment provisions of any other chapter of the General Law or any rule or regulation promulgated thereunder.

_(Company Name)	
(Signature title)	
Name of Bidder	
Address of Bidder	
<u>By:</u> Signature	
Printed Name	
Printed Title	
Date	

CERTIFICATE OF FOREIGN CORPORATION

If the Bidder is a foreign corporation, by affixing his or her signature, the Bidder certifies that the corporation is qualified under provision of M.G.L. c. 181, Section 4 to do business in the Commonwealth of Massachusetts.

	Name of Bidder
	Address of Bidder
By:	
	Signature
	Printed Name
	Printed Title

Date

If awarded the Contract, the Contractor shall provide with his agreement package, a certificate from the Secretary of the Commonwealth of Massachusetts that the corporation is qualified under provisions of M.G.L. c.181, Section 4, to do business in the Commonwealth.

CONTRACT INSURANCE REQUIREMENTS

The undersigned certifies that he/she is aware of the insurance requirements of this Contract and he/she is willing and able to furnish the required insurance as specified, and that this Bid is prepared on the basis of compliance with these requirements.

	Name of Bidder
	Address of Bidder
By:	
	Signature
	Printed Name
	Printed Title
	Date

OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION CERTIFICATION

The undersigned agrees that if he is selected as the contractor, he shall comply with the provisions of M.G.L. Chapter 30, Section 39S.

The undersigned certifies, under penalties of perjury, that he is able to furnish labor that can work in harmony with all other elements of labor employed or to be employed in the work; that all employees to be employed at the worksite shall have successfully completed a course in construction safety and health approved by the United States Occupational Safety and Health Administration that is at least ten (10) hours in duration at the time the employee begins work and who shall furnish documentation of successful completion of said course with the first certified payroll report for each employee; and that all employees to be employed in the work subject to this Bid have successfully completed a course in construction safety and health approved by the United States Occupational Safety and Health Administration that is at least ten (10) hours in duration.

Name of Bidder

Address of Bidder

By:

Signature

Printed Name

Printed Title

Date

TOWN OF NATICK, MASSACHUSETTS BOARD OF SELECTMEN

CONTRACT NO W-148

WEST CENTRAL, ROUTE 30 WATER MAINS AND HEALTH CENTER FORCEMAIN

BID BOND

KNOW ALL MEN BY THESE PRESENTS, that we, the undersigned,

(Name of Contractor)	
(Address of Contractor)	
a, hereinafter called PRINCIPAL and (Corporation, Partnership, or Indivi	idual)
(Name of Surety)	
(Address of Surety)	
hereinafter called Surety, are held and firmly bound unto	
the Town of Natick, Massachusetts (Name of Owner)	
Natick Town Hall, 13 East Central Street, Natick, MA 01760 (Address of Owner)	
as OWNER in the total aggregate penal sum of	

in lawful money of the United States, for the payment of which sum well and truly to be made, we bind ourselves, our heirs, executors, administrators, successors, and assigns, jointly and severally, firmly by these presents.

_____ Dollars (\$_____)

The Condition of the above obligation is such that, whereas the Principal has submitted to the Board of Selectmen, Town of Natick, Massachusetts a certain Bid, attached hereto and hereby made a part hereof and hereby incorporated by reference herein, to enter into a Contract in writing, for the West Central, Route 30 and Health Center Forcemains Project in Natick, Massachusetts.

NOW, THEREFORE,

- (a) If said Bid shall be rejected, or
- (b) If said Bid shall be accepted and the Principal shall execute and deliver a Contract in the Form of Contract attached hereto (properly completed in accordance with said Bid) and shall furnish a Bond for his faithful performance of said Contract, and for the payment of all persons performing labor or furnishing materials in connection therewith, and shall in all other respects perform the agreement created by the acceptance of said Bid,

then this obligation shall be void, otherwise the same shall remain in force and effect; it being expressly understood and agreed that the liability of the Surety for any and all claims hereunder shall, in no event, exceed the penal amount of this obligation as herein stated.

The Surety, for value received, hereby stipulates and agrees that the obligations of said Surety and its Bond shall be in no way impaired or affected by any extension of the time within which the OWNER may accept such Bid; and said Surety does hereby waive notice of any such extension.

IN WITNESS WHEREOF, the Principal and the Surety have hereunto set their hand and seals, and such of them as are corporations have caused their corporate seals to be hereto affixed and these presents to be signed by their proper officers, the day and year first set forth above.

ATTEST:

	Principal
(Principal Secretary)	_
(SEAL)(s)	By <u>Signature</u>
Printed Name	<u> </u>
	Printed Title
(Address)	(Address)
	(Surety)

ATTEST:

(Witness as to Surety)

By_____ Attorney-in-Fact Signature

Printed Name

Printed Title

(Address)

(Address)

If Contractor is partnership, all partners should execute Bond.

IMPORTANT - Surety companies executing Bonds must appear on the Treasury Department's most current list (Circular 570 as amended) and be authorized to transact business in the state of Massachusetts.

TOWN OF NATICK, MASSACHUSETTS BOARD OF SELECTMEN

CONTRACT NO. W-148

WEST CENTRAL, ROUTE 30 WATER MAINS AND HEALTH CENTER FORCEMAIN

CONTRACT SIGNING DOCUMENTS

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TOWN OF NATICK, MASSACHUSETTS BOARD OF SELECTMEN

CONTRACT NO. W-148

WEST CENTRAL, ROUTE 30 WATER MAINS AND HEALTH CENTER FORCEMAIN

NOTICE OF AWARD

DATED

To: BIDDER:

ADDRESS:

OWNER has considered the Bid submitted by you for the above described Work in response to the Invitation for Bids dated ______ and Instructions to Bidders.

You are hereby notified that your Bid has been accepted in the amount of \$_____.

You shall comply with the following conditions precedent within ten (10) calendar days of the date of this Notice of Award, that is by _____.

- 1. You shall deliver to OWNER five (5) fully executed counterparts of the Agreement including all the Contract Documents. Each of the Contract Documents shall bear your signature on the cover page.
- 2. You shall deliver with the executed Agreement, the Contract Security (Bonds including both a fully-executed Performance Bond and a fully-executed Payment Bond and Certificates of Insurance) as specified in the Instructions to Bidders, General Conditions and Supplementary Conditions.

Failure to comply with these conditions within the time specified will entitle OWNER to consider your bid abandoned, to annul this Notice of Award and to declare your Bid Security forfeited.

Five (5) copies of each of the proposed Contract Documents accompany this Notice of Award.

Within ten (10) days after you comply with those conditions, OWNER will return to you one (1) fully signed counterpart of the Agreement with the Contract Documents attached.

Dated this ______ day of ______, 20____.

By:

Signature of Owner's Representative

Printed Name

Printed Title

ACCEPTANCE OF NOTICE

Receipt of the above NOTICE OF AWARD is hereby acknowledged

By

(Contractor)

this _____ day of ______, 20____.

By Authorized Signature

Printed Name

Printed Title

COPY TO ENGINEER

NATICK, MASSACHUSETTS BOARD OF SELECTMEN

CONTRACT NO. W-148

WEST CENTRAL, ROUTE 30 WATER MAINS AND HEALTH CENTER FORCEMAIN

AGREEMENT

THIS AGREEMENT made this _____ day of _____ in the year 2018, by and between the Town of Natick, Massachusetts, Natick Town Hall, 13 East Central Street, Natick, MA 01760 (hereinafter called OWNER), by its Board of Selectmen, and

______, having an address of______, doing business as a (Corporation, Partnership or Individual) hereinafter called "CONTRACTOR."

WITNESSETH: That for and in consideration of the payments and agreements hereinafter mentioned, OWNER and CONTRACTOR hereby agree as follows:

ARTICLE 1. WORK

1.1. CONTRACTOR shall commence the Work as specified or indicated in the Contract Documents as defined in Article 8 herein. The Work is generally described as follows:

1.2. The West Central Street and Route 30 Work for this project consists of installing approximately five thousand eight hundred and seventy-five (5,875) linear feet of eight-inch (8") diameter water main through combination of open cut, sliplining and pipe bursting. Work also includes open cut installation of approximately three hundred and thirty (330) linear feet of ten-inch (10") diameter water main. The Contractor shall supply all labor, materials and equipment necessary to complete the work shown on the Contract Drawings and hereinafter contained in the Specifications.

1.3. The Health Center forcemain Work for this project consists of installing approximately one thousand six hundred and seventy-five (1,675) linear feet of twelve-inch (12") diameter sewer forcemain through combination of open cut, sliplining and pipe bursting. The Contractor shall supply all labor, materials and equipment necessary to complete the work shown on the Contract Drawings and hereinafter contained in the Specifications.

1.4. CONTRACTOR shall furnish all materials, supplies, tools, equipment, labor, and other services necessary for the construction and completion of the Project described herein.

ARTICLE 2. ENGINEER

2.1. The Project has been designed by Haley and Ward, Inc., who is hereinafter called ENGINEER and who shall act as OWNER'S representative, who shall assume all duties and responsibilities, and who and shall have the rights and authority assigned to ENGINEER in the Contract Documents in connection with completion of the Work in accordance with the Contract Documents.

ARTICLE 3. CONTRACT TIME

3.1. CONTRACTOR shall commence work when authorization by the OWNER or ENGINEER with the provisions of the Notice to Proceed and Contract Documents. There are two separate work completion dates, one for West Central water main and one for Health Center Forcemain. Route 30 water main must be completed within the overall completion dates. You are to substantially complete the West Central work within <u>one hundred and sixty</u> (160) consecutive calendar days from Contract start date. You are to complete all West Central finish paving Work within <u>three hundred and fifty (350)</u> consecutive calendar days from the Contract start date. You are to substantially complete the Health Center forcemain Work within <u>four hundred and twenty</u> (420) consecutive calendar days from Contract start date. You are to complete all Health Center finish paving Work within <u>five hundred and twenty</u> (520) consecutive calendar days from the Contract start date. Therefore the date all work will be completed is ______, 20__.

3.2. Liquidated Damages. OWNER and CONTRACTOR recognize that time is of the essence of this Agreement. They also recognize the delays, expense and difficulties involved in proving in a legal or arbitration proceeding the actual loss suffered by OWNER if the Work is not completed on time. Accordingly, instead of requiring any such proof, OWNER and CONTRACTOR agree that as liquidated damages for delay (but not as a penalty) CONTRACTOR shall pay OWNER **Four Hundred** dollars (**\$400.00**) for each day that expires after each Substantial Completion date and **Eight Hundred** dollars (**\$800.00**) after each Final Completion date specified in paragraph 3.1 of this section for completion and readiness for final payment.

ARTICLE 4. CONTRACT PRICE

4.1. In consideration for performance of the work as required by the Contract Documents, the OWNER shall pay CONTRACTOR for completion of the Work in accordance with the Contract Documents in current funds as follows:

Contractor's Bid is attached to this Agreement as an exhibit.

CONTRACT PRICES

ITEM <u>NO.</u>	DESCRIPTION	QUAN	<u>NTITY</u>	UNIT <u>PRICE</u>	<u>AMOUNT</u>
1.	Mobilization	1	L.S.	<u>\$</u>	<u>\$</u>

2. Below Grade Excavation	125	C.Y	\$	\$
3. Test Pit Excavation	215	C.Y.	\$	\$
4. Rock Excavation, No Explosives	65	C.Y.	\$	\$
5. Process Gravel	2,150	C.Y.	\$	\$
6. Ordinary Borrow	1,725	C.Y.	\$	\$
7. Select Borrow	1,850	C.Y.	\$	\$
8. Cast-In-Place Concrete	950	C.Y.	\$	\$
9. Temporary Trench Paving	450	TONS	\$	\$
10. Temporary Pit Paving	55	TONS	<u>\$</u>	\$
11. Permanent Trench Paving	2,290	TONS	\$	\$
12. Permanent Pit Paving	315	TONS	\$	\$
13. Dust Control	20	CWT	<u>\$</u>	\$
14. Bituminous Berm	875	L.F.	\$	\$
15. Granite Curb	750	L.F.	\$	\$
16. Bituminous Sidewalk	110	L.F	<u>\$</u>	\$
17. Loam and Seed	2,400	S.Y.	\$	\$
18. For 6 and 8 inch Gate Valves	23	EA.	<u>\$</u>	\$
19. For 10 and 12 inch Gate Valves	4	EA.	\$	\$
20. Solid Sleeves	53	EA.	<u>\$</u>	\$
21. Fittings	5,300	LBS	<u>\$</u>	\$
22. Temporary Water Service	1	L.S.	\$	\$
23. Trenchless Water Service 2"	180	L.F.	<u>\$</u>	\$
24. Open Cut Water Service 2"	460	L.F.	\$	\$

25. Open Cut Water Service 6"	270	L.F.	\$	\$
26. Small Service Valves	22	L.F.	<u>\$</u>	<u>\$</u>
27. Hydrant Assemblies WC North Side	e 3	EA.	\$	<u>\$</u>
28. Hydrant Ass. WC South & Frost	5	EA	\$	<u>\$</u>
29. Furnishing Hydrants	12	EA.	\$	<u>\$</u>
30. Bursting 6" & 10" pipe	4,790	L.F.	<u>\$</u>	<u>\$</u>
31. For 6" DI Pipe	50	L.F.	<u>\$</u>	<u>\$</u>
32. For 8" and 10" DI Pipe	250	L.F	<u>\$</u>	<u>\$</u>
33. For 12" DI Pipe	120	L.F.	<u>\$</u>	<u>\$</u>
34. For 8 inch Slipling Frost Street	345	L.F.	<u>\$</u>	<u>\$</u>
35. For 12 inch Slipling Frost Street	155	L.F.	<u>\$</u>	<u>\$</u>
36. For Inspection Pits	75	C.Y.	\$	\$
37. For Miscellaneous Pits	35	C.Y.	<u>\$</u>	<u>\$</u>
38. For Environmental Controls	1	L.S.	\$	<u>\$</u>
39. Open Cut 10" & 12" Pipe	1,290	L.F.	<u>\$</u>	<u>\$</u>
40. Open Cut 8" WC Water Mains	120	L.F.	\$	<u>\$</u>
41. Open Cut 8" Water Main Route 30	1,390	L.F.	<u>\$</u>	<u>\$</u>
42. Forcemain & Air Release SMH	1	L.S.	\$	<u>\$</u>
43. Forcemain Sewer Connections	2	EA.	<u>\$</u>	<u>\$</u>
44. For Sewer By-Pass	1	L.S.	\$	\$
45. For Drain Replacement	340	L.F.	\$	<u>\$</u>
46. For Electronic Message Board	90	Days	\$	\$
47. For Line Painting	2,800	L.F.	<u>\$</u>	<u>\$</u>
48. For Traffic Management	1	L.S.	\$	\$

49. Cold Plane West Central	2,500	S.F.	\$ 	\$
TOTAL CONTRACT AMOUNT		\$		

As permitted by law, specific items of this Contract may be eliminated, or reduced in quantity to keep within the limits of available funding, at the OWNER'S option.

ARTICLE 5. PAYMENT PROCEDURES

5.1. CONTRACTOR shall submit Applications for Payment in accordance with Article 14 of the General Conditions, as modified, if applicable, by the Supplementary Conditions. Applications for Payment will be processed by ENGINEER as provided in the General Conditions.

5.2. Progress Payments. OWNER shall make progress payments on account of the Contract Price on the basis of CONTRACTOR'S Applications for Payment as recommended by ENGINEER and as provided in Article 14 of the General Conditions, as modified, if applicable, by the Supplementary Conditions.

5.3. Final Payment. Upon final completion and acceptance of the Work in accordance with paragraph 14.13 of the General Conditions, as modified, if applicable, by the Supplementary Conditions, OWNER shall pay the remainder of the Contract Price as recommended by ENGINEER as provided in said paragraph 14.13.

ARTICLE 6. TERMS

6.1. Terms used in this Agreement, which are defined in Article 1 of the General Conditions, as modified, if applicable, by the Supplementary Conditions, will have the meanings indicated in the General Conditions, as modified, if applicable, by the Supplementary Conditions

ARTICLE 7. CONTRACTOR'S REPRESENTATIONS

In order to induce OWNER to enter into this Agreement CONTRACTOR makes the following representations:

7.1. CONTRACTOR has familiarized itself with the nature and extent of the Contract Documents, work, site, locality, and all local conditions and Laws and Regulations that in any manner may affect cost, progress, performance or furnishing of the Work.

7.2. CONTRACTOR has studied carefully all reports of explorations and tests of subsurface conditions and drawings of physical conditions which are identified in the Supplementary Conditions as provided in paragraph 4.2 of the General Conditions, and accepts the determination set forth in paragraph SC-4.2 of the Supplementary Conditions of the extent of the technical data contained in such reports and drawings upon which CONTRACTOR is entitled to rely.

7.3. CONTRACTOR has obtained and carefully studied (or assumes responsibility for obtaining and carefully studying) all such examinations, investigations, explorations, tests, reports and studies (in addition to or to supplement those referred to in paragraph 7.2 above) which pertain to the subsurface or physical conditions at or contiguous to the site or otherwise may affect the cost, progress, performance or furnishing of the Work as CONTRACTOR considers necessary for the performance or furnishing of the Contract Price, within the Contract Time and in accordance with the other terms and conditions of the Contract Documents, including specifically the provisions of paragraph 4.2 of the General Conditions, as modified, if applicable, by the Supplementary Conditions; and no additional examinations, investigations, explorations, tests, reports, studies or similar information or data are or will be required by CONTRACTOR for such purposes.

7.4. CONTRACTOR has reviewed and checked all information and data shown or indicated on the Contract Documents with respect to existing Underground Facilities at or contiguous to the site and assumes responsibility for the accurate location of said Underground Facilities. No additional examinations, investigations, explorations, tests, reports, studies or similar information or data in respect of said Underground Facilities are or will be required by CONTRACTOR in order to perform and furnish the Work at the Contract Price, within the Contract Time and in accordance with the other terms and conditions of the Contract Documents, including specifically the provisions of paragraph 4.3 of the General Conditions, as modified, if applicable, by the Supplementary Conditions.

7.5. CONTRACTOR has correlated the results of all such observations, examinations, investigations, explorations, tests, reports and studies with the terms and conditions of the Contract Documents.

7.6. CONTRACTOR has given ENGINEER written notice of all conflicts, errors or discrepancies that he has discovered in the Contract Documents and the written resolution thereof by ENGINEER is acceptable to CONTRACTOR.

ARTICLE 8. CONTRACT DOCUMENTS

The Contract Documents which comprise the entire agreement between OWNER and CONTRACTOR concerning the Work consist of the following:

- 8.1 Invitation for Bids
- 8.2 Instructions to Bidders
- 8.3 Contractor's Bid
- 8.4 This Agreement ("Agreement")
- 8.5. Exhibits to this Agreement
- 8.6. General Conditions

- 8.7 Supplementary Conditions
- 8.8 Contractor's Performance and Payment Bonds, and insurance certificates
- 8.9. Notice of Award
- 8.10 Notice to Proceed
- 8.11 Specifications contained in Divisions 1-3, as listed in table of contents
- 8.12 Construction Drawings generally entitled "West Central & RT 30 Water Mains & Health Center Forcemain": Drawing Numbers 1-21
- 8.13 Addenda numbers _____ to ____, inclusive.
- 8.14 Change Order

There are no Contract Documents other than those listed above in this Article 8. The Contract Documents may only be amended, modified or supplemented as provided in paragraphs 3.4 and 3.5 of the General Conditions.

ARTICLE 9. INDEMNIFICATION

To the fullest extent permitted by law, the CONTRACTOR shall indemnify, defend, and hold harmless the Town of Natick and all of its officers, employees, boards, commissions, committees, agents and representatives from and against all claims, causes of action, suits, costs, damages, and liability of any kind which arise out of the breach by the CONTRACTOR of its obligations under this Contract, or the act or omission of the CONTRACTOR, its Subcontractors, or their officers, employees, agents and representatives or anyone directly or indirectly employed by them, or anyone for whose acts or omissions they may be liable, regarding the work to be performed by the CONTRACTOR under the Contract, or which arise out of the violation of any Federal, Massachusetts or Town of Natick statute, by-law, rule, regulation, order or directive, or which relate to personal injury or property damage suffered by the CONTRACTOR or any of its officers or employees regarding the subject matter of the Contract.

ARTICLE 10: INSURANCE

10.1. The CONTRACTOR shall provide insurance that satisfies the categories and amounts specified in Article 5 of the General Conditions, as modified by Article 5 of the Supplementary Conditions.

10.2. Each certificate and policy of insurance required by this Agreement shall contain a cancellation provision as indicated below with no variations.

"Should any of the above described policies be canceled or materially amended before the expiration date thereof, the issuing insurer will mail within thirty (30) days written notice to the

certificate holder named to the left".

10.3. The Town of Natick and ENGINEER shall be named as an additional insured on each policy of insurance required by this agreement other than worker's compensation.

ARTICLE 11: MISCELLANEOUS PROVISIONS

11.1. No assignment by CONTRACTOR of any rights under or interests in the Contract Documents will be binding on OWNER without the written consent of OWNER; and specifically but without limitation moneys that may become due and moneys that are due may not be assigned without such consent, and unless specifically stated to the contrary in any written consent to an assignment no assignment will release or discharge the CONTRACTOR from any duty or responsibility under the Contract Documents.

11.2. This Agreement shall be binding upon the OWNER and CONTRACTOR, their respective heirs, executors, administrators, successors, or assigns and legal representative to the other party hereto, its partners, heirs, executors, successors, assigns and legal representatives in respect of all covenants, agreements and obligations contained in the Contract Documents.

11.3. If any provision of this Agreement shall be determined to be invalid or unenforceable by final judgment of a court of competent jurisdiction, the remaining provisions shall continue in effect to the extent permitted by law.

11.4. This Agreement may be amended only by a written instrument signed by the parties.

11.5. This Agreement shall be governed by and construed in accordance with the Massachusetts law, without respect to choice of law principles.

11.6. The CONTRACTOR shall provide to the satisfaction of the OWNER, adequate supervision of all work performed under this Agreement.

11.7. This Agreement shall be subject to the Natick Non-Discrimination in the Workforce provision included in Part I Supplementary Conditions.

11.8. The CONTRACTOR shall comply with all provisions of law applicable to his work including without limitation statutes, by-laws rules, regulations, orders and directives. This Contract shall be considered to include in their entirety all terms respecting workers' compensation insurance and other terms required to be included in it by Chapter 152 of the Massachusetts General Laws, as amended, and any other laws, as though such terms were set forth in their entirety herein. The CONTRACTOR shall comply with all applicable provisions of law and regulation as specified by the Williams-Steiger Occupational Safety and Health Act of 1970, as amended.

11.9. The CONTRACTOR has made this Contract in reliance on his own examinations and estimates as to the amount and character of his work, and conditions which may be encountered in the performance thereof, and shall assume all risks and bear all losses pertaining thereto.

11.10. The CONTRACTOR shall compensate the Town of Natick for all damages to the Town

property of any nature arising out of the CONTRACTOR'S work.

11.11. The Town of Natick may defer payment to the CONTRACTOR of such sums otherwise due him under this Contract for such period of time as the Director of Public Works may deem required by law or expedient for protection of the Town or others against his noncompliance with the provisions thereof; and the Town may reimburse itself, by deduction from the money so retained, for all expense and loss resulting to it from his noncompliance.

11.12. No payment by the Town of Natick to the CONTRACTOR shall be deemed to be a waiver of any right of the Town of Natick under this Contract or ratification by the Town of Natick any breach hereof by him.

11.13. The CONTRACTOR shall provide services under this Agreement as an independent CONTRACTOR with the town of Natick and the CONTRACTOR and its employees shall not be entitled to receive any benefits of employment with the Town of Natick, including without limitation salary, overtime, vacation pay, holiday pay, health insurance, life insurance, pension or deferred compensation.

11.14. If any assignment shall be made by the CONTRACTOR or by any guarantor of the CONTRACTOR for the benefit of creditors, or if a petition is filed by the CONTRACTOR or by any guarantor of the CONTRACTOR for adjudication as a bankrupt, or for reorganization or an arrangement under any provision of the Bankruptcy Act as then in force and effect, or if an involuntary petition under any of the provisions of the Bankruptcy Act is filed against the CONTRACTOR and such involuntary petition is not discharged within ninety (90) days thereafter, in any event the Town may terminate this Contract upon written notice to the CONTRACTOR.

11.15. The award of this Contract and the continued operation of this Contract are subject to appropriation by Natick Town Meeting of sufficient money to fund the Contract.

11.16. The Owner may terminate this Contract upon written notice to the CONTRACTOR if a source of money to fund the Contract is lost during any year of the Contract term. In the alternative, the parties may agree in writing to amend the Contract to provide for a Contract price which represents the reduced appropriation for a contract year.

11.17. In the event of termination, the CONTRACTOR shall be entitled to be paid for services rendered in accordance with this Contract prior to termination.

IN WITNESS WHEREOF, OWNER and CONTRACTOR have executed or caused to be executed by their duly authorized officials this Agreement in five (5) copies, each of which shall be deemed as an original on the date first above written. One Counterpart each has been delivered to OWNER, CONTRACTOR, ENGINEER, Town Counsel and Town Accountant.

OWNER:

CONTRACTOR:

Town of Natick, Massachusetts The Natick Board of Selectmen	Printed Name of CONTRACTOR
Jonathan H. Freedman, Chairman	Signature
Susan G. Salamoff, Vice Chairman	Printed Name
Richard P. Jennett, Jr., Clerk	Printed Title
Michael J. Hickey, Jr.	Dated:
Amy K. Mistrot	
Dated:	
	[CORPORATE SEAL]
Owner Address for giving notices:	Attest
Board of Selectmen	Contractor Address for giving notices:
Natick Town Hall	
13 East Central Street	
Natick, MA 01760	

CERTIFICATE OF APPROPRIATION

In accordance with the requirements of M.G.L. Chapter 44, Section 31C, this is to certify that an appropriation in the amount of this Agreement is available therefore, and that the Natick Board of Selectmen is authorized to execute this Agreement and to approve all requisitions and execute change orders.

Arti P. Mehta Comptroller, Town of Natick

Date

APPROVED AS TO FORM ONLY (AND NOT AS TO SUBSTANCE):

John	P.	Flynn,	Esq.
------	----	--------	------

Date

		<u>ACT NO. W-148</u>	
	WEST CENTRAL, F		
		CENTER FORCEM	
	CERTIFICATE OF CO	RPORATE AUTHO	DRIZATION
I,	, Clerk of	, a	corporation organized
pursuant to	state law, which n	naintains its principal	l office at
	hereby certify that at		
	(the "Corporation") du	ily held on	,, at which
		-	st be earlier than Lease)
	ent and voting throughout, the	e following vote was	duly passed and is now in full force
and effect:			
<u>"VOTED: That</u>		be and her	
	me of Officer authorized to s	-	
	-		this Corporation to sign seal with
_	-		nds and other obligations of the
			n of Natick, Massachusetts, 13 East
Central Street, Nati	ck, MA 01760; the execution	of any such contract,	lease, bond or obligation by such
	(Name of Officer)	to be valid and bin	ding
upon this Corporati			erk of this Corporation setting forth
	elivered to the Town of Natick		ink of this corporation setting forth
I further certify that			
i further certify that			
	(Name of Officer)		
	``````````````````````````````````````		
is duly elected		of said (	Corporation.
	(Title)		
Signed:			
Printed Name:			
r milleu Maille.			
<b>Printed Title:</b>	(Clerk- Secretary)		
Timed The	(Clerk-Secretary)		
Date:			
Place of Business:			
	AFFIX CC	ORPORATE SEAL	
COUNTERSIGNA	TURE:		
	(Name o and	Tide of Officers)	
	(Iname and	Title of Officer)	
Date:			
	clerk or Secretary is the same	e person as the Offici	er authorized to sign that contract
	-		ersigned by another officer of the
Corporation.	• <u> </u>	•	

NAT-446/Contract No. W-148 N 03/24/2017

## NATICK, MASSACHUSETTS BOARD OF SELECTMEN

## CONTRACT NO. W-148

# WEST CENTRAL, ROUTE 30 WATER MAINS AND HEALTH CENTER FORCEMAIN <u>Contractor's Certification</u>

#### Name of Project

A contractor will not be eligible for award of a contract unless such contractor has submitted the following certification, which is deemed a part of the resulting contract:

# CONTRACTOR'S CERTIFICATION

certifies that

1. it intends to use the following listed construction trades in the work under the contract

_; and

- 2. will comply with the minority manpower ratio and specific affirmative action steps contained herein; and
- 3. will obtain from each of its Subcontractors and submit to the contracting or administering agency prior to the award of any subcontract under this contract the Subcontractor certification required by these bid conditions.

(Signature of authorized representative of Contractor)

Printed Name

Printed Title

Date

## NATICK, MASSACHUSETTS BOARD OF SELECTMEN

## CONTRACT NO W-148

## WEST CENTRAL, ROUTE 30 WATER MAINS AND HEALTH CENTER FORCEMAIN

#### Subcontractor's Certification

Name of Project	

Prior to the award of any subcontract, regardless of tier, the prospective Subcontractor must execute and submit to the contractor the following certification, which is deemed a part of the resulting contract:

____ certifies that

1. it intends to use the following listed construction trades in the work under the contract

; and

- 2. will comply with the minority manpower ratio and specific affirmative action steps contained herein; and
- 3. will obtain from each of its Subcontractors and submit to the contracting or administering agency prior to the award of any subcontract under this contract the Subcontractor certification required by these bid conditions.

(Signature of authorized representative of Subcontractor)

Printed Name

Printed Title

Date

In order to ensure that the said Subcontractor's certification becomes a part of all subcontracts under the contract, no subcontract shall be executed until an authorized representative of the Town agency (or agencies) administering this project has determined, in writing, that the said certification has been incorporated in such subcontract, regardless of tier. Any subcontract executed without such written approval shall be void.

## TOWN OF NATICK, MASSACHUSETTS BOARD OF SELECTMEN

## CONTRACT NO. W-148

## WEST CENTRAL, ROUTE 30 WATER MAINS AND HEALTH CENTER FORCEMAIN

### NOTICE TO PROCEED

Dated _____, 20___.

To:

(Contractor)

(Address)

You are hereby notified to commence Work in accordance with the Agreement dated ______, 20<u>18</u>, on or before ______, 20<u>18</u>. There are two separate work completion dates, one for West Central and Route 30 and one for Health Center Forcemain. You are to substantially complete the West Central work within <u>one hundred and sixty</u> (160) consecutive calendar days from Contract start on this form. You are to complete all West Central finish paving Work within <u>three hundred and fifty</u> (350) consecutive calendar days from the Contract start on this form. You are to substantially complete the Health Center forcemain Work within <u>four hundred and twenty</u> (420) consecutive calendar days from Contract start on this form. You are to complete all Health Center finish paving Work within <u>five hundred and twenty</u> (520) consecutive calendar days from the Contract start on this form. The date of substantial completion is therefore ______201, Contract completion date is therefore _______, 201.

OWNER: <u>Town of Natick</u>, Massachusetts Board of Selectmen

By

(Authorized Signature)

Printed Name

Printed Title

# ACCEPTANCE OF NOTICE

# Receipt of the above Notice to Proceed is hereby acknowledged by

this the _____ day of _____20__.

By _____

(Authorized Signature)

Printed Name

Printed Title

## TOWN OF NATICK, MASSACHUSETTS BOARD OF SELECTMEN

## CONTRACT NO. W-148

## WEST CENTRAL, ROUTE 30 WATER MAINS AND HEALTH CENTER FORCEMAIN

## PERFORMANCE BOND

## KNOW ALL PERSONS BY THESE PRESENTS: that

(Name of Contractor)
(Address of Contractor)
hereinafter called PRINCIPAL and (Corporation, Partnership, or Individual)
(Name of Surety)
(Address of Surety)
ereinafter called Surety, are held and firmly bound unto
he Town of Natick, Massachusetts
(Name of Owner)
Natick Town Hall, 13 East Central Street, Natick, MA 01760
(Address of Owner)
hereinafter called Owner, in the total aggregate penal sum of
Dollars (\$

in lawful money of the United States, for the payment of which sum well and truly to be made, we bind ourselves, our heirs, executors, administrators, successors, and assigns, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION is such that whereas, the Principal entered into a certain contract with the OWNER, dated the ____ day of _____ 20____, a copy of which is hereto attached and made a part hereof for Contract No. S-148 West Central and Route 30 Water Mains. Now, THEREFORE, if the Principal shall well, truly and faithfully perform its duties, all the undertakings, covenants, terms, conditions, and agreements of said Contract during the original term thereof, and any extensions thereof which may be granted by the Owner, with or without notice to the Surety and during the one year guarantee period, and if the Principal shall satisfy all claims and demands incurred under such Contract, and shall fully indemnify and save harmless the Owner from all costs and damages which it may suffer by reason of failure to do so, and shall reimburse and repay the Owner all outlay and expense which the Owner may incur in making good any default, then this obligation shall be void, otherwise to remain in full force and effect.

PROVIDED, FURTHER, that the said surety, for value received hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the contract or to Work to be performed thereunder or the Specifications accompanying same shall in any way affect its obligation on this Bond, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the Contract or to the Work or to the Specifications.

PROVIDED, FURTHER, that it is expressly agreed that the Bond shall be deemed amended automatically and immediately, without formal and separate amendments hereto, upon amendment to the Contract not increasing the Contract Price more than twenty percent (20%), so as to bind the Principal and the Surety to the full and faithful performance of the Contract as so amended. The term "Amendment", wherever used in this Bond, and whether referring to this Bond, the Contract or the Loan Documents shall include any alteration, addition, extension, or modification of any character whatsoever.

PROVIDED, FURTHER, that no final settlement between the Owner and the Principal shall abridge the right of the other beneficiary hereunder, whose claim may be unsatisfied. The Owner is the only beneficiary hereunder.

WITNESS WHEREOF, this instrument is executed in five (5) counterparts, each of which shall be deemed an original, this ______, 20 _____.

ATTEST:

Principal

(Principal Secretary)

(SEAL)(s)

By

Signature

Printed Name

	Printed Title
	(Address)
	(0,)
	(Surety)
ATTEST:	
By	
(Witness as to Surety)	Attorney-in-Fact Signature
	Printed Name
	Printed Title
(Address)	

NOTE: Date of Bond must not be prior to date of Contract. If Contractor is partnership, all partners should execute Bond. IMPORTANT: Surety companies executing Bonds must appear on the Treasury Department's most current list (Circular 570 as amended) and be authorized to transact business in the State where the Project is located.

## TOWN OF NATICK, MASSACHUSETTS BOARD OF SELECTMEN

## CONTRACT NO. W-148

# WEST CENTRAL, ROUTE 30 WATER MAINS AND HEALTH CENTER FORCEMAIN

## PAYMENT BOND

## KNOW ALL PERSONS BY THESE PRESENTS: that

(Name of Contractor)	
(Address of Contractor)	
a, hereinafter called PRINCIPAL and (Corporation, Partnership, or Individual)	
(Name of Surety)	
(Address of Surety)	
nereinafter called Surety, are held and firmly bound unto	
he Town of Natick, Massachusetts	
(Name of Owner)	
Natick Town Hall, 13 East Central Street, Natick, MA 01760 (Address of Owner)	
nereinafter called Owner, and unto all persons, firms, and corporations who or which may furnish labor who furnish materials to perform as described under the contract and to their successors and assigns in total aggregate penal sum of	
Dollars (\$)	
n lawful money of the United States, for the payment of which sum well and truly to be made, we bin purselves, our heirs, executors, administrators, successors, and assigns, jointly and severally, firmly by	

these presents.

THE CONDITION OF THIS OBLIGATION is such that whereas, the Principal entered into a certain contract with the Owner, dated the _____ day of ______ 20___, a copy of which is hereto attached and made a part hereof for Contract No. S-148 West Central and Route 30 Water Mains.

NOW, THEREFORE, if the Principal shall promptly make payment to all persons, firms, and corporations furnishing materials for or performing labor in prosecution of the Work provided for in such Contract, and any authorized extensions or modification thereof, including all amounts due for materials, lubricants, oil, gasoline, coal and coke, repairs on machinery, equipment and tools, consumed or used in connection with the construction of such Work, and for all labor cost incurred in such Work including that by a Subcontractor, and to any mechanic or materialman lienholder whether it acquires its lien by operation of State or Federal law; then this obligation shall be void, otherwise to remain in full force and effect.

PROVIDED, that beneficiaries or claimants hereunder shall be limited to the Subcontractors, and persons, firms, and corporations having a direct contract with the Principal or its Subcontractors.

PROVIDED, FURTHER, that the said Surety for value received hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the contract or to the Work to be performed thereunder or the Specifications accompanying the same shall in any way affect its obligation on this Bond, and it does hereby waive notice to the terms of this contract or to the Work or to the Specifications.

PROVIDED, FURTHER, that no suit or action shall be commenced hereunder by any claimant: (a) unless claimant, other than one having a direct Contract with the Principal, shall have given written notice to any two of the following: The Principal, the Owner, or the Surety above named within sixty-five (65) days after such claimant did or performed the last of the work or labor, or furnished the last of the materials for which said claim is made, stating with substantial accuracy the amount claimed and the name of the party to whom the materials were furnished, or for whom the work or labor was done or performed. Such notice shall be served by mailing the same by registered mail or certified mail, postage prepaid, in an envelope addressed to the Principal, Owner, or Surety, at any place where an office is regularly maintained for the transaction of business, or served in any manner in which legal process may be served in the state in which the aforesaid project is located, save that such service need not be made by a public officer. (b) After the expiration date of <u>one</u> (1) year following the date of which Principal ceased work on said Contract, it being understood, however, that if any limitation embodied in the Bond is prohibited by any law controlling the construction hereof, such limitation shall be deemed to be amended so as to be equal to the minimum period of limitation permitted by such law.

PROVIDED, FURTHER, that it is expressly agreed that this Bond shall be deemed amended automatically and immediately, without formal and separate amendments hereto, upon amendment to the Contract not increasing the Contract Price more than twenty percent (20%), so as to bind the Principal and the Surety to the full and faithful performance of the Contract as so amended.

The term "Amendment", wherever used in this Bond and whether referring to this Bond, the Contract or the Loan Documents shall include any alteration, addition, extension or modification of any character whatsoever.

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

WITNESS WHEREOF, this instrument is executed in five (5) counterparts, each of which shall be deemed an original, this

day of	20	<u>      .</u> .
ATTEST:		
		Principal
(Principal Secretary)		
(SEAL)(s)	By	Signature
		Signature
		Printed Name
		Printed Title
		(Address)
		(Surety)
ATTEST:		
By		
(Witness as to Surety)		Attorney-in-Fact Signature
		Printed Name
		Printed Title

(Address)

NOTE: Date of Bond must not be prior to date of Contract. If Contractor is partnership, all partners should execute Bond. IMPORTANT: Surety companies executing Bonds must appear on the Treasury Department's most current list (Circular 570 as amended) and be authorized to transact business in the State where the Project is located.

This document has important legal consequences; consultation with an attorney is encouraged with respect to its use or modification. This document should be adapted to the particular circumstances of the contemplated Project and the Controlling Law.

# STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

Prepared by

#### ENGINEERS JOINT CONTRACT DOCUMENTS COMMITTEE

and

Issued and Published Jointly By





PROFESSIONAL ENGINEERS IN PRIVATE PRACTICE a practice division of the NATIONAL SOCIETY OF PROFESSIONAL ENGINEERS

AMERICAN COUNCIL OF ENGINEERING COMPANIES

AMERICAN SOCIETY OF CIVIL ENGINEERS

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Construction Specifications Institute

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National Society of Professional Engineers 1420 King Street, Alexandria, VA 22314

American Council of Engineering Companies 1015 15th Street, N.W., Washington, DC 20005

American Society of Civil Engineers 1801 Alexander Bell Drive, Reston, VA 20191-4400

These General Conditions have been prepared for use with the Suggested Forms of Agreement Between Owner and Contractor Nos. C-520 or C-525 (2002 Editions). Their provisions are interrelated and a change in one may necessitate a change in the other. Comments concerning their usage are contained in the EJCDC Construction Documents, General and Instructions (No. C-001) (2002 Edition). For guidance in the preparation of Supplementary Conditions, see Guide to the Preparation of Supplementary Conditions (No. C-800) (2002 Edition).

# NOTE:

Highlighted text (Substantial Completion) indicates the paragraph has been amended. Stricken text indicates the paragraph has been deleted or superseded.

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#### **GENERAL CONDITIONS**

#### ARTICLE 1 - DEFINITIONS AND TERMINOLOGY

#### 1.01 Defined Terms

A. Wherever used in the Bidding Requirements or Contract Documents and printed with initial capital letters, the terms listed below will have the meanings indicated which are applicable to both the singular and plural thereof. In addition to terms specifically defined, terms with initial capital letters in the Contract Documents include references to identified articles and paragraphs, and the titles of other documents or forms.

1. *Addenda*--Written or graphic instruments issued prior to the opening of Bids which clarify, correct, or change the Bidding Requirements or the proposed Contract Documents.

2. *Agreement*--The written instrument which is evidence of the agreement between Owner and Contractor covering the Work.

3. *Application for Payment--*The form acceptable to Engineer which is to be used by Contractor during the course of the Work in requesting progress or final payments and which is to be accompanied by such supporting documentation as is required by the Contract Documents.

4. *Asbestos*--Any material that contains more than one percent asbestos and is friable or is releasing asbestos fibers into the air above current action levels established by the United States Occupational Safety and Health Administration.

5. *Bid* The offer or proposal of a Bidder submitted on the prescribed form setting forth the prices for the Work to be performed.

6. *Bidder*--The individual or entity who submits a Bid directly to Owner.

7. *Bidding Documents*—The Bidding Requirements and the proposed Contract Documents (including all Addenda).

8. Bidding Requirements--The Advertisement or Invitation to Bid, Instructions to Bidders, bid security of acceptable form, if any, and the Bid Form with any supplements. 9. Change Order - A document recommended by Engineer which is signed by Contractor and Owner and authorizes an addition, deletion, or revision in the Work or an adjustment in the Contract Price or the Contract Times, issued on or after the Effective Date of the Agreement.

10. *Claim*--A demand or assertion by Owner or Contractor seeking an adjustment of Contract Price or Contract Times, or both, or other relief with respect to the terms of the Contract. A demand for money or services by a third party is not a Claim.

11. *Contract*--The entire and integrated written agreement between the Owner and Contractor concerning the Work. The Contract supersedes prior negotiations, representations, or agreements, whether written or oral.

12. Contract Documents Those items so designated in the Agreement. Only printed or hard copies of the items listed in the Agreement are Contract Documents. Approved Shop Drawings, other Contractor's submittals, and the reports and drawings of subsurface and physical conditions are not Contract Documents.

13. *Contract Price*--The moneys payable by Owner to Contractor for completion of the Work in accordance with the Contract Documents as stated in the Agreement (subject to the provisions of Paragraph 11.03 in the case of Unit Price Work).

14. *Contract Times*--The number of days or the dates stated in the Agreement to: (i) achieve Milestones, if any, (ii) achieve Substantial Completion; and (iii) complete the Work so that it is ready for final payment as evidenced by Engineer's written recommendation of final payment.

15. *Contractor*--The individual or entity with whom Owner has entered into the Agreement.

16. *Cost of the Work*--See Paragraph 11.01.A for definition.

17. *Drawings*--That part of the Contract Documents prepared or approved by Engineer which graphically shows the scope, extent, and character of the Work to be performed by Contractor. Shop Drawings and other Contractor submittals are not Drawings as so defined.

18. *Effective Date of the Agreement*--The date indicated in the Agreement on which it becomes effective, but if no such date is indicated, it means the date on which the Agreement is signed and delivered by the last of the two parties to sign and deliver.

19. *Engineer*--The individual or entity named as such in the Agreement.

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20. Field Order--A written order issued by Engineer which requires minor changes in the Work but which does not involve a change in the Contract Price or the Contract Times.

21. General Requirements--Sections of Division 1 of the Specifications. The General Requirements pertain to all sections of the Specifications.

22. Hazardous Environmental Condition--The presence at the Site of Asbestos, PCBs, Petroleum, Hazardous Waste, or Radioactive Material in such quantities or circumstances that may present a substantial danger to persons or property exposed thereto in connection with the Work.

23. Hazardous Waste--The term Hazardous Waste shall have the meaning provided in Section 1004 of the Solid Waste Disposal Act (42 USC Section 6903) as amended from time to time.

24. Laws and Regulations; Laws or Regulations--Any and all applicable laws, rules, regulations, ordinances, codes, and orders of any and all governmental bodies, agencies, authorities, and courts having jurisdiction.

25. Liens--Charges, security interests, or encumbrances upon Project funds, real property, or personal property.

26. Milestone--A principal event specified in the Contract Documents relating to an intermediate completion date or time prior to Substantial Completion of all the Work.

27. Notice of Award--The written notice by Owner to the Successful Bidder stating that upon timely compliance by the Successful Bidder with the conditions precedent listed therein, Owner will sign and deliver the Agreement.

28. Notice to Proceed--A written notice given by Owner to Contractor fixing the date on which the Contract Times will commence to run and on which Contractor shall start to perform the Work under the Contract Documents.

29. Owner--The individual or entity with whom Contractor has entered into the Agreement and for whom the Work is to be performed.

30. PCBs--Polychlorinated biphenyls.

31. Petroleum--Petroleum, including crude oil or any fraction thereof which is liquid at standard conditions of temperature and pressure (60 degrees Fahrenheit and 14.7 pounds per square inch absolute), such as oil, petroleum, fuel oil, oil sludge, oil refuse, gasoline, kerosene, and oil mixed with other non-Hazardous Waste and crude oils.

32. Progress Schedule--A schedule, prepared and maintained by Contractor, describing the sequence and duration of the activities comprising the Contractor's plan to accomplish the Work within the Contract Times.

33. Project--The total construction of which the Work to be performed under the Contract Documents may be the whole, or a part.

34. Project Manual--The bound documentary information prepared for bidding and constructing the Work. A listing of the contents of the Project Manual, which may be bound in one or more volumes, is contained in the table(s) of contents.

35. Radioactive Material--Source, special nuclear, or byproduct material as defined by the Atomic Energy Act of 1954 (42 USC Section 2011 et seq.) as amended from time to time.

36. Related Entity -- An officer, director, partner, employee, agent, consultant, or subcontractor.

37. Resident Project Representative--The authorized representative of Engineer who may be assigned to the Site or any part thereof.

38. Samples--Physical examples of materials, equipment, or workmanship that are representative of some portion of the Work and which establish the standards by which such portion of the Work will be judged.

39. Schedule of Submittals--A schedule, prepared and maintained by Contractor, of required submittals and the time requirements to support scheduled performance of related construction activities.

40. Schedule of Values -- A schedule, prepared and maintained by Contractor, allocating portions of the Contract Price to various portions of the Work and used as the basis for reviewing Contractor's Applications for Payment.

41. Shop Drawings--All drawings, diagrams, illustrations, schedules, and other data or information which are specifically prepared or assembled by or for Contractor and submitted by Contractor to illustrate some portion of the Work.

42. Site--Lands or areas indicated in the Contract Documents as being furnished by Owner upon which the Work is to be performed, including rights-of-way and easements for access thereto, and such other lands furnished by Owner which are designated for the use of Contractor.

43. Specifications--That part of the Contract Documents consisting of written requirements for materials, equipment, systems, standards and workmanship as applied to the Work, and certain

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administrative requirements and procedural matters applicable thereto.

44. *Subcontractor*--An individual or entity having a direct contract with Contractor or with any other Subcontractor for the performance of a part of the Work at the Site.

45. Substantial Completion--The time at which the Work (or a specified part thereof) has progressed to the point where, in the opinion of Engineer, the Work (or a specified part thereof) is sufficiently complete, in accordance with the Contract Documents, so that the Work (or a specified part thereof) can be utilized for the purposes for which it is intended. The terms "substantially complete" and "substantially completed" as applied to all or part of the Work refer to Substantial Completion thereof.

# 46. Successful Bidder--The Bidder submitting a responsive Bid to whom Owner makes an award.

47. *Supplementary Conditions*--That part of the Contract Documents which amends or supplements these General Conditions.

48. *Supplier*--A manufacturer, fabricator, supplier, distributor, materialman, or vendor having a direct contract with Contractor or with any Subcontractor to furnish materials or equipment to be incorporated in the Work by Contractor or any Subcontractor.

49. Underground Facilities--All underground pipelines, conduits, ducts, cables, wires, manholes, vaults, tanks, tunnels, or other such facilities or attachments, and any encasements containing such facilities, including those that convey electricity, gases, steam, liquid petroleum products, telephone or other communications, cable television, water, wastewater, storm water, other liquids or chemicals, or traffic or other control systems.

50. *Unit Price Work*--Work to be paid for on the basis of unit prices.

51. *Work*--The entire construction or the various separately identifiable parts thereof required to be provided under the Contract Documents. Work includes and is the result of performing or providing all labor, services, and documentation necessary to produce such construction, and furnishing, installing, and incorporating all materials and equipment into such construction, all as required by the Contract Documents.

52. Work Change Directive--A written statement to Contractor issued on or after the Effective Date of the Agreement and signed by Owner and recommended by Engineer ordering an addition, deletion, or revision in the Work, or responding to differing or unforeseen subsurface or physical conditions under which the Work is to be performed or to emergencies. A Work Change Directive will not change the Contract Price or the Contract Times but is evidence that the parties expect that the change ordered or documented by a Work Change Directive will be incorporated in a subsequently issued Change Order following negotiations by the parties as to its effect, if any, on the Contract Price or Contract Times.

#### 1.02 Terminology

A. The following words or terms are not defined but, when used in the Bidding Requirements or Contract Documents, have the following meaning.

#### B. Intent of Certain Terms or Adjectives

1. The Contract Documents include the terms "as allowed," "as approved," "as ordered", "as directed" or terms of like effect or import to authorize an exercise of professional judgment by Engineer. In addition, the "reasonable," "suitable," adjectives "acceptable," "proper," "satisfactory," or adjectives of like effect or import are used to describe an action or determination of Engineer as to the Work. It is intended that such exercise of professional judgment, action or determination will be solely to evaluate, in general, the Work for compliance with the requirements of and information in the Contract Documents and conformance with the design concept of the completed Project as a functioning whole as shown or indicated in the Contract Documents (unless there is a specific statement indicating otherwise). The use of any such term or adjective is not intended to and shall not be effective to assign to Engineer any duty or authority to supervise or direct the performance of the Work or any duty or authority to undertake responsibility contrary to the provisions of Paragraph 9.09 or any other provision of the Contract Documents.

C. Day

1. The word "day" means a calendar day of 24 hours measured from midnight to the next midnight.

D. Defective

1. The word "defective," when modifying the word "Work," refers to Work that is unsatisfactory, faulty, or deficient in that it:

a. does not conform to the Contract Documents, or

b. does not meet the requirements of any applicable inspection, reference standard, test, or approval referred to in the Contract Documents, or

c. has been damaged prior to Engineer's recommendation of final payment (unless responsibility for the protection thereof has been assumed by Owner at Substantial Completion in accordance with Paragraph 14.04 or 14.05).

#### E. Furnish, Install, Perform, Provide

1. The word "furnish," when used in connection with services, materials, or equipment, shall mean to supply and deliver said services, materials, or equipment to the Site (or some other specified location) ready for use or installation and in usable or operable condition.

2. The word "install," when used in connection with services, materials, or equipment, shall mean to put into use or place in final position said services, materials, or equipment complete and ready for intended use.

3. The words "perform" or "provide," when used in connection with services, materials, or equipment, shall mean to furnish and install said services, materials, or equipment complete and ready for intended use.

4. When "furnish," "install," "perform," or "provide" is not used in connection with services, materials, or equipment in a context clearly requiring an obligation of Contractor, "provide" is implied.

F. Unless stated otherwise in the Contract Documents, words or phrases which have a well-known technical or construction industry or trade meaning are used in the Contract Documents in accordance with such recognized meaning.

#### **ARTICLE 2 - PRELIMINARY MATTERS**

#### 2.01 Delivery of Bonds and Evidence of Insurance

A. When Contractor delivers the executed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner such bonds as Contractor may be required to furnish.

B. Evidence of Insurance: Before any Work at the Site is started, Contractor and Owner shall each deliver to the other, with copies to each additional insured identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance which either of them or any additional insured may reasonably request) which Contractor and Owner respectively are required to purchase and maintain in accordance with Article 5.

#### 2.02 *Copies of Documents*

A. Owner shall furnish to Contractor up to ten printed or hard copies of the Drawings and Project Manual. Additional copies will be furnished upon request at the cost of reproduction.

2.03 Commencement of Contract Times; Notice to Proceed

A. The Contract Times will commence to run on the thirtieth day after the Effective Date of the Agreement

or, if a Notice to Proceed is given, on the day indicated in the Notice to Proceed. A Notice to Proceed may be given at any time within 30 days after the Effective Date of the Agreement. In no event will the Contract Times commence to run later than the sixtieth day after the day of Bid opening or the thirtieth day after the Effective Date of the Agreement, whichever date is earlier.

#### 2.04 *Starting the Work*

A. Contractor shall start to perform the Work on the date when the Contract Times commence to run. No Work shall be done at the Site prior to the date on which the Contract Times commence to run.

#### 2.05 Before Starting Construction

A. *Preliminary Schedules:* Within 10 days after the Effective Date of the Agreement (unless otherwise specified in the General Requirements), Contractor shall submit to Engineer for timely review:

1. a preliminary Progress Schedule; indicating the times (numbers of days or dates) for starting and completing the various stages of the Work, including any Milestones specified in the Contract Documents;

2. a preliminary Schedule of Submittals; and

3. a preliminary Schedule of Values for all of the Work which includes quantities and prices of items which when added together equal the Contract Price and subdivides the Work into component parts in sufficient detail to serve as the basis for progress payments during performance of the Work. Such prices will include an appropriate amount of overhead and profit applicable to each item of Work.

#### 2.06 Preconstruction Conference

A. Before any Work at the Site is started, a conference attended by Owner, Contractor, Engineer, and others as appropriate will be held to establish a working understanding among the parties as to the Work and to discuss the schedules referred to in Paragraph 2.05.A, procedures for handling Shop Drawings and other submittals, processing Applications for Payment, and maintaining required records.

#### 2.07 Initial Acceptance of Schedules

A. At least 10 days before submission of the first Application for Payment a conference attended by Contractor, Engineer, and others as appropriate will be held to review for acceptability to Engineer as provided below the schedules submitted in accordance with Paragraph 2.05.A. Contractor shall have an additional 10 days to make corrections and adjustments and to complete and resubmit the schedules. No progress payment shall be made to Contractor until acceptable schedules are submitted to Engineer.

EJCDC C-700 Standard General Conditions of the Construction Contract. Copyright © 2002 National Society of Professional Engineers for EJCDC. All rights reserved. 00700 - 8 1. The Progress Schedule will be acceptable to Engineer if it provides an orderly progression of the Work to completion within the Contract Times. Such acceptance will not impose on Engineer responsibility for the Progress Schedule, for sequencing, scheduling, or progress of the Work nor interfere with or relieve Contractor from Contractor's full responsibility therefor.

2. Contractor's Schedule of Submittals will be acceptable to Engineer if it provides a workable arrangement for reviewing and processing the required submittals.

3. Contractor's Schedule of Values will be acceptable to Engineer as to form and substance if it provides a reasonable allocation of the Contract Price to component parts of the Work.

# ARTICLE 3 - CONTRACT DOCUMENTS: INTENT, AMENDING, REUSE

3.01 Intent

A. The Contract Documents are complementary; what is required by one is as binding as if required by all.

B. It is the intent of the Contract Documents to describe a functionally complete Project (or part thereof) to be constructed in accordance with the Contract Documents. Any labor, documentation, services, materials, or equipment that may reasonably be inferred from the Contract Documents or from prevailing custom or trade usage as being required to produce the intended result will be provided whether or not specifically called for at no additional cost to Owner.

C. Clarifications and interpretations of the Contract Documents shall be issued by Engineer as provided in Article 9.

3.02

02 *Reference Standards* 

A. Standards, Specifications, Codes, Laws, and Regulations

1. Reference to standards, specifications, manuals, or codes of any technical society, organization, or association, or to Laws or Regulations, whether such reference be specific or by implication, shall mean the standard, specification, manual, code, or Laws or Regulations in effect at the time of opening of Bids (or on the Effective Date of the Agreement if there were no Bids), except as may be otherwise specifically stated in the Contract Documents.

2. No provision of any such standard, specification, manual or code, or any instruction of a Supplier shall be effective to change the duties or responsibilities of Owner, Contractor, or Engineer, or any of their subcontractors, consultants, agents, or employees from those set forth in the Contract Documents. No such provision or instruction shall be effective to assign to Owner, or Engineer, or any of, their Related Entities, any duty or authority to supervise or direct the performance of the Work or any duty or authority to undertake responsibility inconsistent with the provisions of the Contract Documents.

## 3.03 *Reporting and Resolving Discrepancies*

A. Reporting Discrepancies

1. Contractor's Review of Contract Documents Before Starting Work: Before undertaking each part of the Work, Contractor shall carefully study and compare the Contract Documents and check and verify pertinent figures therein and all applicable field measurements. Contractor shall promptly report in writing to Engineer any conflict, error, ambiguity, or discrepancy which Contractor may discover and shall obtain a written interpretation or clarification from Engineer before proceeding with any Work affected thereby.

2. Contractor's Review of Contract Documents During Performance of Work: If, during the performance of the Work, Contractor discovers any conflict, error, ambiguity, or discrepancy within the Contract Documents or between the Contract Documents and any provision of any Law or Regulation applicable to the performance of the Work or of any standard, specification, manual or code, or of any instruction of any Supplier, Contractor shall promptly report it to Engineer in writing. Contractor shall not proceed with the Work affected thereby (except in an emergency as required by Paragraph 6.16.A) until an amendment or supplement to the Contract Documents has been issued by one of the methods indicated in Paragraph 3.04.

3. Contractor shall not be liable to Owner or Engineer for failure to report any conflict, error, ambiguity, or discrepancy in the Contract Documents unless Contractor knew or reasonably should have known thereof.

#### **B.** Resolving Discrepancies

1. Except as may be otherwise specifically stated in the Contract Documents, the provisions of the Contract Documents shall take precedence in resolving any conflict, error, ambiguity, or discrepancy between the provisions of the Contract Documents and:

> a. the provisions of any standard, specification, manual, code, or instruction (whether or not specifically incorporated by reference in the Contract Documents); or

> b. the provisions of any Laws or Regulations applicable to the performance of the Work

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3.04 Amending and Supplementing Contract Documents

A. The Contract Documents may be amended to provide for additions, deletions, and revisions in the Work or to modify the terms and conditions thereof by either a Change Order or a Work Change Directive.

B. The requirements of the Contract Documents may be supplemented, and minor variations and deviations in the Work may be authorized, by one or more of the following ways:

1. A Field Order;

2. Engineer's approval of a Shop Drawing or Sample; (Subject to the provisions of Paragraph 6.17.D.3); or

3. Engineer's written interpretation or clarification.

3.05 *Reuse of Documents* 

A. Contractor and any Subcontractor or Supplier or other individual or entity performing or furnishing all of the Work under a direct or indirect contract with Contractor, shall not:

1. have or acquire any title to or ownership rights in any of the Drawings, Specifications, or other documents (or copies of any thereof) prepared by or bearing the seal of Engineer or Engineer's consultants, including electronic media editions; or

2. reuse any of such Drawings, Specifications, other documents, or copies thereof on extensions of the Project or any other project without written consent of Owner and Engineer and specific written verification or adaption by Engineer.

B. The prohibition of this Paragraph 3.05 will survive final payment, or termination of the Contract. Nothing herein shall preclude Contractor from retaining copies of the Contract Documents for record purposes.

#### 3.06 Electronic Data

A. Copies of data furnished by Owner or Engineer to Contractor or Contractor to Owner or Engineer that may be relied upon are limited to the printed copies (also known as hard copies). Files in electronic media format of text, data, graphics, or other types are furnished only for the convenience of the receiving party. Any conclusion or information obtained or derived from such electronic files will be at the user's sole risk. If there is a discrepancy between the electronic files and the hard copies, the hard copies govern.

B. Because data stored in electronic media format can deteriorate or be modified inadvertently or otherwise without authorization of the data's creator, the party receiving electronic files agrees that it will perform acceptance tests or procedures within 60 days, after which the receiving party shall be deemed to have accepted the data thus transferred. Any errors detected within the 60day acceptance period will be corrected by the transferring party..

C. When transferring documents in electronic media format, the transferring party makes no representations as to long term compatibility, usability, or readability of documents resulting from the use of software application packages, operating systems, or computer hardware differing from those used by the data's creator.

#### ARTICLE 4 - AVAILABILITY OF LANDS; SUBSURFACE AND PHYSICAL CONDITIONS; HAZARDOUS ENVIRONMENTAL CONDITIONS; REFERENCE POINTS

#### 4.01 Availability of Lands

A. Owner shall furnish the Site. Owner shall notify Contractor of any encumbrances or restrictions not of general application but specifically related to use of the Site with which Contractor must comply in performing the Work. Owner will obtain in a timely manner and pay for easements for permanent structures or permanent changes in existing facilities. If Contractor and Owner are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times, or both, as a result of any delay in Owner's furnishing the Site or a part thereof, Contractor may make a Claim therefor as provided in Paragraph 10.05.

B. Upon reasonable written request, Owner shall furnish Contractor with a current statement of record legal title and legal description of the lands upon which the Work is to be performed and Owner's interest therein as necessary for giving notice of or filing a mechanic's or construction lien against such lands in accordance with applicable Laws and Regulations.

C. Contractor shall provide for all additional lands and access thereto that may be required for temporary construction facilities or storage of materials and equipment. A. *Reports and Drawings:* The Supplementary Conditions identify:

1. those reports of explorations and tests of subsurface conditions at or contiguous to the Site that Engineer has used in preparing the Contract Documents; and

2. those drawings of physical conditions in or relating to existing surface or subsurface structures at or contiguous to the Site (except Underground Facilities) that Engineer has used in preparing the Contract Documents.

B. Limited Reliance by Contractor on Technical Data Authorized: Contractor may rely upon the general accuracy of the "technical data" contained in such reports and drawings, but such reports and drawings are not Contract Documents. Such "technical data" is identified in the Supplementary Conditions. Except for such reliance on such "technical data," Contractor may not rely upon or make any claim against Owner or Engineer, or any of their Related Entities with respect to:

1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor, and safety precautions and programs incident thereto; or

2. other data, interpretations, opinions, and information contained in such reports or shown or indicated in such drawings; or

3. any Contractor interpretation of or conclusion drawn from any "technical data" or any such other data, interpretations, opinions, or information.

4.03 Differing Subsurface or Physical Conditions

A. *Notice:* If Contractor believes that any subsurface or physical condition at or contiguous to the Site that is uncovered or revealed either:

1. is of such a nature as to establish that any "technical data" on which Contractor is entitled to rely as provided in Paragraph 4.02 is materially inaccurate; or

2. is of such a nature as to require a change in the Contract Documents; or

3. differs materially from that shown or indicated in the Contract Documents; or

4. is of an unusual nature, and differs materially from conditions ordinarily encountered and generally recognized as inherent in work of the character provided for in the Contract Documents;

then Contractor shall, promptly after becoming aware thereof and before further disturbing the subsurface or physical conditions or performing any Work in connection therewith (except in an emergency as required by Paragraph 6.16.A), notify Owner and Engineer in writing about such condition. Contractor shall not further disturb such condition or perform any Work in connection therewith (except as aforesaid) until receipt of written order to do so.

B. Engineer's Review: After receipt of written notice as required by Paragraph 4.03.A, Engineer will promptly review the pertinent condition, determine the necessity of Owner's obtaining additional exploration or tests with respect thereto, and advise Owner in writing (with a copy to Contractor) of Engineer's findings and eonclusions.

C. Possible Price and Times Adjustments

1. The Contract Price or the Contract Times, or both, will be equitably adjusted to the extent that the existence of such differing subsurface or physical condition causes an increase or decrease in Contractor's cost of, or time required for, performance of the Work; subject, however, to the following:

> a. such condition must meet any one or more of the categories described in Paragraph 4.03.A; and

> b. with respect to Work that is paid for on a Unit Price Basis, any adjustment in Contract Price will be subject to the provisions of Paragraphs 9.07 and 11.03.

2. Contractor shall not be entitled to any adjustment in the Contract Price or Contract Times if:

a. Contractor knew of the existence of such conditions at the time Contractor made a final commitment to Owner with respect to Contract Price and Contract Times by the submission of a Bid or becoming bound under a negotiated contract; or

b. the existence of such condition could reasonably have been discovered or revealed as a result of any examination, investigation, exploration, test, or study of the Site and contiguous areas required by the Bidding Requirements or Contract Documents to be conducted by or for Contractor prior to Contractor's making such final commitment; or

EJCDC C-700 Standard General Conditions of the Construction Contract. Copyright © 2002 National Society of Professional Engineers for EJCDC. All rights reserved. 00700 - 11 e. Contractor failed to give the written notice as required by Paragraph 4.03.A.

3. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times, or both, a Claim may be made therefor as provided in Paragraph 10.05. However, Owner and Engineer, and any of their Related Entities shall not be liable to Contractor for any claims, costs, losses, or damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) sustained by Contractor on or in connection with any other project or anticipated project.

#### 4.04 Underground Facilities

A. Shown or Indicated: The information and data shown or indicated in the Contract Documents with respect to existing Underground Facilities at or contiguous to the Site is based on information and data furnished to Owner or Engineer by the owners of such Underground Facilities, including Owner, or by others. Unless it is otherwise expressly provided in the Supplementary Conditions:

1. Owner and Engineer shall not be responsible for the accuracy or completeness of any such information or data; and

2. the cost of all of the following will be included in the Contract Price, and Contractor shall have full responsibility for:

a. reviewing and checking all such information and data,

b. locating all Underground Facilities shown or indicated in the Contract Documents,

c. coordination of the Work with the owners of such Underground Facilities, including Owner, during construction, and

d. the safety and protection of all such Underground Facilities and repairing any damage thereto resulting from the Work.

#### B. Not Shown or Indicated

1. If an Underground Facility is uncovered or revealed at or contiguous to the Site which was not shown or indicated, or not shown or indicated with reasonable accuracy in the Contract Documents, Contractor shall, promptly after becoming aware thereof and before further disturbing conditions affected thereby or performing any Work in connection therewith (except in an emergency as required by Paragraph 6.16.A), identify the owner of such Underground Facility and give written notice to that owner and to Owner and Engineer. Engineer will promptly review the Underground Facility and determine the extent, if any, to which a change is required in the Contract Documents to reflect and document the consequences of the existence or location of the Underground Facility. During such time, Contractor shall be responsible for the safety and protection of such Underground Facility.

2. If Engineer concludes that a change in the Contract Documents is required, a Work Change Directive or a Change Order will be issued to reflect and document such consequences. An equitable adjustment shall be made in the Contract Price or Contract Times, or both, to the extent that they are attributable to the existence or location of any Underground Facility that was not shown or indicated or not shown or indicated with reasonable accuracy in the Contract Documents and that Contractor did not know of and could not reasonably have been expected to be aware of or to have anticipated. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment in Contract Price or Contract Times, Owner or Contractor may make a Claim therefor as provided in Paragraph 10.05.

#### 4.05 *Reference Points*

A. Owner shall provide engineering surveys to establish reference points for construction which in Engineer's judgment are necessary to enable Contractor to proceed with the Work. Contractor shall be responsible for laying out the Work, shall protect and preserve the established reference points and property monuments, and shall make no changes or relocations without the prior written approval of Owner. Contractor shall report to Engineer whenever any reference point or property monument is lost or destroyed or requires relocation because of necessary changes in grades or locations, and shall be responsible for the accurate replacement or relocation of such reference points or property monuments by professionally qualified personnel.

#### 4.06 *Hazardous Environmental Condition at Site*

A. *Reports and Drawings:* Reference is made to the Supplementary Conditions for the identification of those reports and drawings relating to a Hazardous Environmental Condition identified at the Site, if any, that have been utilized by the Engineer in the preparation of the Contract Documents.

B. Limited Reliance by Contractor on Technical Data Authorized: Contractor may rely upon the general accuracy of the "technical data" contained in such reports and drawings, but such reports and drawings are not Contract Documents. Such "technical data" is identified in the Supplementary Conditions. Except for such reliance on such "technical data," Contractor may not rely upon or make any claim against Owner or Engineer, or any of their Related Entities with respect to:

1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences and procedures of construction to be employed by Contractor and safety precautions and programs incident thereto; or

2. other data, interpretations, opinions and information contained in such reports or shown or indicated in such drawings; or

3. any Contractor interpretation of or conclusion drawn from any "technical data" or any such other data, interpretations, opinions or information.

C. Contractor shall not be responsible for any Hazardous Environmental Condition uncovered or revealed at the Site which was not shown or indicated in Drawings or Specifications or identified in the Contract Documents to be within the scope of the Work. Contractor shall be responsible for a Hazardous Environmental Condition created with any materials brought to the Site by Contractor, Subcontractors, Suppliers, or anyone else for whom Contractor is responsible.

D. If Contractor encounters a Hazardous Environmental Condition or if Contractor or anyone for whom Contractor is responsible creates a Hazardous Environmental Condition, Contractor shall immediately: (i) secure or otherwise isolate such condition; (ii) stop all Work in connection with such condition and in any area affected thereby (except in an emergency as required by Paragraph 6.16.A); and (iii) notify Owner and Engineer (and promptly thereafter confirm such notice in writing). Owner shall promptly consult with Engineer concerning the necessity for Owner to retain a qualified expert to evaluate such condition or take corrective action, if any.

E. Contractor shall not be required to resume Work in connection with such condition or in any affected area until after Owner has obtained any required permits related thereto and delivered to Contractor written notice: (i) specifying that such condition and any affected area is or has been rendered safe for the resumption of Work; or (ii) specifying any special conditions under which such Work may be resumed safely. If Owner and Contractor cannot agree as to entitlement to or on the amount or extent, if any, of any adjustment in Contract Price or Contract Times, or both, as a result of such Work stoppage or such special conditions under which Work is agreed to be resumed by Contractor, either party may make a Claim therefor as provided in Paragraph 10.05.

F. If after receipt of such written notice Contractor does not agree to resume such Work based on a reasonable belief it is unsafe, or does not agree to resume such Work under such special conditions, then Owner may order the portion of the Work that is in the area affected by such condition to be deleted from the Work. If Owner and Contractor cannot agree as to entitlement to or on the amount or extent, if any, of an adjustment in Contract Price or Contract Times as a result of deleting such portion of the Work, then either party may make a Claim therefor as provided in Paragraph 10.05. Owner may have such deleted portion of the Work performed by Owner's own forces or others in accordance with Article 7.

G. To the fullest extent permitted by Laws and Regulations, Owner shall indemnify and hold harmless Contractor, Subcontractors, and Engineer, and the officers. directors, partners, employees, agents, consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to a Hazardous Environmental Condition, provided that such Hazardous Environmental Condition: (i) was not shown or indicated in the Drawings or Specifications or identified in the Contract Documents to be included within the scope of the Work, and (ii) was not created by Contractor or by anvone for whom Contractor is responsible. Nothing in this Paragraph 4.06. G shall obligate Owner to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.

H. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, employees. partners. agents. consultants. and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to a Hazardous Environmental Condition created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 4.06.H shall obligate Contractor to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.

I. The provisions of Paragraphs 4.02, 4.03, and 4.04 do not apply to a Hazardous Environmental Condition uncovered or revealed at the Site.

#### **ARTICLE 5 - BONDS AND INSURANCE**

#### 5.01 *Performance, Payment, and Other Bonds*

A. Contractor shall furnish performance and payment bonds, each in an amount at least equal to the Contract Price as security for the faithful performance and payment of all of Contractor's obligations under the Contract Documents. These bonds shall remain in effect until one year after the date when final payment becomes due or until completion of the correction period specified in Paragraph 13.07, whichever is later, except as provided otherwise by Laws or Regulations or by the Contract Documents. Contractor shall also furnish such other bonds as are required by the Contract Documents.

B. All bonds shall be in the form prescribed by the Contract Documents except as provided otherwise by Laws or Regulations, and shall be executed by such sureties as are named in the current list of "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" as published in Circular 570 (amended) by the Financial Management Service, Surety Bond Branch, U.S. Department of the Treasury. All bonds signed by an agent must be accompanied by a certified copy of the agent's authority to act.

C. If the surety on any bond furnished by Contractor is declared bankrupt or becomes insolvent or its right to do business is terminated in any state where any part of the Project is located or it ceases to meet the requirements of Paragraph 5.01.B, Contractor shall promptly notify Owner and Engineer and shall, within 20 days after the event giving rise to such notification, provide another bond and surety, both of which shall comply with the requirements of Paragraphs 5.01.B and 5.02.

# 5.02 Licensed Sureties and Insurers

A. All bonds and insurance required by the Contract Documents to be purchased and maintained by Owner or Contractor shall be obtained from surety or insurance companies that are duly licensed or authorized in the jurisdiction in which the Project is located to issue bonds or insurance policies for the limits and coverages so required. Such surety and insurance companies shall also meet such additional requirements and qualifications as may be provided in the Supplementary Conditions.

# 5.03 *Certificates of Insurance*

A. Contractor shall deliver to Owner, with copies to each additional insured identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance requested by Owner or any other additional insured) which Contractor is required to purchase and maintain.

B. Owner shall deliver to Contractor, with copies to each additional insured identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance requested by Contractor or any other additional insured) which Owner is required to purchase and maintain.

# 5.04 *Contractor's Liability Insurance*

A. Contractor shall purchase and maintain such liability and other insurance as is appropriate for the Work being performed and as will provide protection

from claims set forth below which may arise out of or result from Contractor's performance of the Work and Contractor's other obligations under the Contract Documents, whether it is to be performed by Contractor, any Subcontractor or Supplier, or by anyone directly or indirectly employed by any of them to perform any of the Work, or by anyone for whose acts any of them may be liable:

1. claims under workers' compensation, disability benefits, and other similar employee benefit acts;

2. claims for damages because of bodily injury, occupational sickness or disease, or death of Contractor's employees;

3. claims for damages because of bodily injury, sickness or disease, or death of any person other than Contractor's employees;

4. claims for damages insured by reasonably available personal injury liability coverage which are sustained:

a. by any person as a result of an offense directly or indirectly related to the employment of such person by Contractor, or

b. by any other person for any other reason;

5. claims for damages, other than to the Work itself, because of injury to or destruction of tangible property wherever located, including loss of use resulting therefrom; and

6. claims for damages because of bodily injury or death of any person or property damage arising out of the ownership, maintenance or use of any motor vehicle.

B. The policies of insurance required by this Paragraph 5.04 shall:

1. with respect to insurance required by Paragraphs 5.04.A.3 through 5.04.A.6 inclusive, include as additional insured (subject to any customary exclusion regarding professional liability) Owner and Engineer, and any other individuals or entities identified in the Supplementary Conditions, all of whom shall be listed as additional insureds, and include coverage for the respective officers, directors, partners, employees, agents, consultants and subcontractors of each and any of all such additional insureds, and the insurance afforded to these additional insureds shall provide primary coverage for all claims covered thereby;

2. include at least the specific coverages and be written for not less than the limits of liability provided in the Supplementary Conditions or required by Laws or Regulations, whichever is greater; 3. include completed operations insurance;

4. include contractual liability insurance covering Contractor's indemnity obligations under Paragraphs 6.11 and 6.20;

5. contain a provision or endorsement that the coverage afforded will not be canceled, materially changed or renewal refused until at least 30 days prior written notice has been given to Owner and Contractor and to each other additional insured identified in the Supplementary Conditions to whom a certificate of insurance has been issued (and the certificates of insurance furnished by the Contractor pursuant to Paragraph 5.03 will so provide);

6. remain in effect at least until final payment and at all times thereafter when Contractor may be correcting, removing, or replacing defective Work in accordance with Paragraph 13.07; and

7. with respect to completed operations insurance, and any insurance coverage written on a claimsmade basis, remain in effect for at least two years after final payment.

> a. Contractor shall furnish Owner and each other additional insured identified in the Supplementary Conditions, to whom a certificate of insurance has been issued, evidence satisfactory to Owner and any such additional insured of continuation of such insurance at final payment and one year thereafter.

5.05 *Owner's Liability Insurance* 

A. In addition to the insurance required to be provided by Contractor under Paragraph 5.04, Owner, at Owner's option, may purchase and maintain at Owner's expense Owner's own liability insurance as will protect Owner against claims which may arise from operations under the Contract Documents.

5.06 Property Insurance

A. Unless otherwise provided in the Supplementary Conditions, Owner shall purchase and maintain property insurance upon the Work at the Site in the amount of the full replacement cost thereof (subject to such deductible amounts as may be provided in the Supplementary Conditions or required by Laws and Regulations). This insurance shall:

1. include the interests of Owner, Contractor, Subcontractors, and Engineer, and any other individuals or entities identified in the Supplementary Conditions, and the officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them, each of whom is deemed to have an insurable interest and shall be listed as an insured or additional insured;

2. be written on a Builder's Risk "all-risk" or open peril or special causes of loss policy form that shall at least include insurance for physical loss or damage to the Work, temporary buildings, false work, and materials and equipment in transit, and shall insure against at least the following perils or causes of loss: fire, lightning, extended coverage, theft, vandalism and malicious collapse, mischief, earthquake, debris removal, demolition occasioned by enforcement of Laws and Regulations, water damage, (other than caused by flood) and such other perils or causes of loss as may be specifically required by the Supplementary Conditions;

3. include expenses incurred in the repair or replacement of any insured property (including but not limited to fees and charges of engineers and architects);

4. cover materials and equipment stored at the Site or at another location that was agreed to in writing by Owner prior to being incorporated in the Work, provided that such materials and equipment have been included in an Application for Payment recommended by Engineer;

5. allow for partial utilization of the Work by Owner;

6. include testing and startup; and

7. be maintained in effect until final payment is made unless otherwise agreed to in writing by Owner, Contractor, and Engineer with 30 days written notice to each other additional insured to whom a certificate of insurance has been issued.

B. Owner shall purchase and maintain such boiler and machinery insurance or additional property insurance as may be required by the Supplementary Conditions or Laws and Regulations which will include the interests of Owner, Contractor, Subcontractors, and Engineer, and any other individuals or entities identified in the Supplementary Conditions, and the officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them, each of whom is deemed to have an insurable interest and shall be listed as an insured or additional insured.

C. All the policies of insurance (and the certifieates or other evidence thereof) required to be purchased and maintained in accordance with Paragraph 5.06 will contain a provision or endorsement that the coverage afforded will not be canceled or materially changed or renewal refused until at least 30 days prior written notice has been given to Owner and Contractor and to each other additional insured to whom a certificate of insurance has been issued and will contain waiver provisions in accordance with Paragraph 5.07.

D. Owner shall not be responsible for purchasing and maintaining any property insurance specified in this Paragraph 5.06 to protect the interests of Contractor, Subcontractors, or others in the Work to the extent of any deductible amounts that are identified in the Supplementary Conditions. The risk of loss within such identified deductible amount will be borne by Contractor, Subcontractors, or others suffering any such loss, and if any of them wishes property insurance coverage within the limits of such amounts, each may purchase and maintain it at the purchaser's own expense.

E. If Contractor requests in writing that other special insurance be included in the property insurance policies provided under Paragraph 5.06, Owner shall, if possible, include such insurance, and the cost thereof will be charged to Contractor by appropriate Change Order. Prior to commencement of the Work at the Site, Owner shall in writing advise Contractor whether or not such other insurance has been procured by Owner.

#### 5.07 Waiver of Rights

A. Owner and Contractor intend that all policies purchased in accordance with Paragraph 5.06 will protect Owner, Contractor, Subcontractors, and Engineer, and all other individuals or entities identified in the Supplementary Conditions to be listed as insureds or additional insureds (and the officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them) in such policies and will provide primary coverage for all losses and damages caused by the perils or causes of loss covered thereby. All such policies shall contain provisions to the effect that in the event of payment of any loss or damage the insurers will have no rights of recovery against any of the insureds or additional insureds thereunder. Owner and Contractor waive all rights against each other and their respective officers, directors, agents, partners, employees, **consultants** and subcontractors of each and any of them for all losses and damages caused by, arising out of or resulting from any of the perils or causes of loss covered by such policies and any other property insurance applicable to the Work; and, in addition, waive all such rights against Subcontractors, and Engineer, and all other individuals or entities identified in the Supplementary Conditions to be listed as insured or additional insured (and the officers, directors, employees, partners, agents, **consultants** and subcontractors of each and any of them) under such policies for losses and damages so caused. None of the above waivers shall extend to the rights that any party making such waiver may have to the proceeds of insurance held by Owner as trustee or otherwise payable under any policy so issued.

B. Owner waives all rights against Contractor, Subcontractors, and Engineer, and the officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them for: 1. loss due to business interruption, loss of use, or other consequential loss extending beyond direct physical loss or damage to Owner's property or the Work caused by, arising out of, or resulting from fire or other perils whether or not insured by Owner; and

2. loss or damage to the completed Project or part thereof caused by, arising out of, or resulting from fire or other insured peril or cause of loss covered by any property insurance maintained on the completed Project or part thereof by Owner during partial utilization pursuant to Paragraph 14.05, after Substantial Completion pursuant to Paragraph 14.04, or after final payment pursuant to Paragraph 14.07.

C. Any insurance policy maintained by Owner eovering any loss, damage or consequential loss referred to in Paragraph 5.07.B shall contain provisions to the effect that in the event of payment of any such loss, damage, or consequential loss, the insurers will have no rights of recovery against Contractor, Subcontractors, or Engineer, and the officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them.

#### 5.08 *Receipt and Application of Insurance Proceeds*

A. Any insured loss under the policies of insurance required by Paragraph 5.06 will be adjusted with Owner and made payable to Owner as fiduciary for the insureds, as their interests may appear, subject to the requirements of any applicable mortgage clause and of Paragraph 5.08.B. Owner shall deposit in a separate account any money so received and shall distribute it in accordance with such agreement as the parties in interest may reach. If no other special agreement is reached, the damaged Work shall be repaired or replaced, the moneys so received applied on account thereof, and the Work and the cost thereof covered by an appropriate Change Order.

B. Owner as fiduciary shall have power to adjust and settle any loss with the insurers unless one of the parties in interest shall object in writing within 15 days after the occurrence of loss to Owner's exercise of this power. If such objection be made, Owner as fiduciary shall make settlement with the insurers in accordance with such agreement as the parties in interest may reach. If no such agreement among the parties in interest is reached, Owner as fiduciary shall adjust and settle the loss with the insurers and, if required in writing by any party in interest, Owner as fiduciary shall give bond for the proper performance of such duties.

5.09 Acceptance of Bonds and Insurance; Option to Replace

A. If either Owner or Contractor has any objection to the coverage afforded by or other provisions of the bonds or insurance required to be purchased and maintained by the other party in accordance with Article 5 on the basis of non-conformance with the Contract

Documents, the objecting party shall so notify the other party in writing within 10 days after receipt of the certificates (or other evidence requested) required by Paragraph 2.01.B. Owner and Contractor shall each provide to the other such additional information in respect of insurance provided as the other may reasonably request. If either party does not purchase or maintain all of the bonds and insurance required of such party by the Contract Documents, such party shall notify the other party in writing of such failure to purchase prior to the start of the Work, or of such failure to maintain prior to any change in the required coverage. Without prejudice to any other right or remedy, the other party may elect to obtain equivalent bonds or insurance to protect such other party's interests at the expense of the party who was required to provide such coverage, and a Change Order shall be issued to adjust the Contract Price accordingly.

# 5.10 Partial Utilization, Acknowledgment of Property Insurer

A. If Owner finds it necessary to occupy or use a portion or portions of the Work prior to Substantial Completion of all the Work as provided in Paragraph 14.05, no such use or occupancy shall commence before the insurers providing the property insurance pursuant to Paragraph 5.06 have acknowledged notice thereof and in writing effected any changes in coverage necessitated thereby. The insurers providing the property insurance shall consent by endorsement on the policy or policies, but the property insurance shall not be canceled or permitted to lapse on account of any such partial use or occupancy.

# ARTICLE 6 - CONTRACTOR'S RESPONSIBILITIES

#### 6.01 Supervision and Superintendence

A. Contractor shall supervise, inspect, and direct the Work competently and efficiently, devoting such attention thereto and applying such skills and expertise as may be necessary to perform the Work in accordance with the Contract Documents. Contractor shall be solely responsible for the means, methods, techniques, sequences, and procedures of construction. Contractor shall not be responsible for the negligence of Owner or Engineer in the design or specification of a specific means, method, technique, sequence, or procedure of construction which is shown or indicated in and expressly required by the Contract Documents.

B. At all times during the progress of the Work, Contractor shall assign a competent resident superintendent who shall not be replaced without written notice to Owner and Engineer except under extraordinary eircumstances. The superintendent will be Contractor's representative at the Site and shall have authority to act on behalf of Contractor. All communications given to or

# received from the superintendent shall be binding on Contractor.

### 6.02 Labor; Working Hours

A. Contractor shall provide competent, suitably qualified personnel to survey and lay out the Work and perform construction as required by the Contract Documents. Contractor shall at all times maintain good discipline and order at the Site.

B. Except as otherwise required for the safety or protection of persons or the Work or property at the Site or adjacent thereto, and except as otherwise stated in the Contract Documents, all Work at the Site shall be performed during regular working hours. Contractor will not permit the performance of Work on a Saturday, Sunday, or any legal holiday without Owner's written consent (which will not be unreasonably withheld) given after prior written notice to Engineer.

### 6.03 Services, Materials, and Equipment

A. Unless otherwise specified in the Contract Documents, Contractor shall provide and assume full responsibility for all services, materials, equipment, labor, transportation, construction equipment and machinery, tools, appliances, fuel, power, light, heat, telephone, water, sanitary facilities, temporary facilities, and all other facilities and incidentals necessary for the performance, testing, start-up, and completion of the Work.

B. All materials and equipment incorporated into the Work shall be as specified or, if not specified, shall be of good quality and new, except as otherwise provided in the Contract Documents. All special warranties and guarantees required by the Specifications shall expressly run to the benefit of Owner. If required by Engineer, Contractor shall furnish satisfactory evidence (including reports of required tests) as to the source, kind, and quality of materials and equipment.

C. All materials and equipment shall be stored, applied, installed, connected, erected, protected, used, cleaned, and conditioned in accordance with instructions of the applicable Supplier, except as otherwise may be provided in the Contract Documents.

#### 6.04 *Progress Schedule*

A. Contractor shall adhere to the Progress Schedule established in accordance with Paragraph 2.07 as it may be adjusted from time to time as provided below. 1. Contractor shall submit to Engineer for acceptance (to the extent indicated in Paragraph 2.07) proposed adjustments in the Progress Schedule that will not result in changing the Contract Times. Such adjustments will comply with any provisions of the General Requirements applicable thereto.

2. Proposed adjustments in the Progress Schedule that will change the Contract Times shall be submitted in accordance with the requirements of Article 12. Adjustments in Contract Times may only be made by a Change Order.

6.05 Substitutes and "Or-Equals"

A. Whenever an item of material or equipment is specified or described in the Contract Documents by using the name of a proprietary item or the name of a particular Supplier, the specification or description is intended to establish the type, function, appearance, and quality required. Unless the specification or description contains or is followed by words reading that no like, equivalent, or "or-equal" item or no substitution is permitted, other items of material or equipment or material or equipment of other Suppliers may be submitted to Engineer for review under the circumstances described below.

1. "Or-Equal" Items: If in Engineer's sole discretion an item of material or equipment proposed by Contractor is functionally equal to that named and sufficiently similar so that no change in related Work will be required, it may be considered by Engineer as an "or equal" item, in which case review and approval of the proposed item may, in Engineer's sole discretion, be accomplished without compliance with some or all of the requirements for approval of proposed substitute items. For the purposes of this Paragraph 6.05.A.1, a proposed item of material or equipment will be considered functionally equal to an item so named if:

> a. in the exercise of reasonable judgment Engineer determines that:

> 1) it is at least equal in materials of construction, quality, durability, appearance, strength, and design characteristics;

2) it will reliably perform at least equally well the function and achieve the results imposed by the design concept of the completed Project as a functioning whole,

3) it has a proven record of performance and availability of responsive service; and

b. Contractor certifies that, if approved and incorporated into the Work:

1) there will be no increase in cost to the Owner or increase in Contract Times, and

# 2) it will conform substantially to the detailed requirements of the item named in the Contract Documents.

# 2. Substitute Items

a. If in Engineer's sole discretion an item of material or equipment proposed by Contractor does not qualify as an "or-equal" item under Paragraph 6.05.A.1, it will be considered a proposed substitute item.

b. Contractor shall submit sufficient information as provided below to allow Engineer to determine that the item of material or equipment proposed is essentially equivalent to that named and an acceptable substitute therefor. Requests for review of proposed substitute items of material or equipment will not be accepted by Engineer from anyone other than Contractor.

c. The requirements for review by Engineer will be as set forth in Paragraph 6.05.A.2.d, as supplemented in the General Requirements and as Engineer may decide is appropriate under the circumstances.

d. Contractor shall make written application to Engineer for review of a proposed substitute item of material or equipment that Contractor seeks to furnish or use. The application:

1) shall certify that the proposed substitute item will:

a) perform adequately the functions and achieve the results called for by the general design,

b) be similar in substance to that specified, and

c) be suited to the same use as that specified;

# 2) will state:

a) the extent, if any, to which the use of the proposed substitute item will prejudice Contractor's achievement of Substantial Completion on time;

b) whether or not use of the proposed substitute item in the Work will require a change in any of the Contract Documents (or in the provisions of any other direct contract with Owner for other work on the Project) to adapt the design to the proposed substitute item; and

EJCDC C-700 Standard General Conditions of the Construction Contract. Copyright © 2002 National Society of Professional Engineers for EJCDC. All rights reserved. 00700 - 18 c) whether or not incorporation or use of the proposed substitute item in connection with the Work is subject to payment of any license fee or royalty;

# 3) will identify:

a) all variations of the proposed substitute item from that specified , and

b) available engineering, sales, maintenance, repair, and replacement services;

4) and shall contain an itemized estimate of all costs or credits that will result directly or indirectly from use of such substitute item, including costs of redesign and claims of other contractors affected by any resulting change,

B. Substitute Construction Methods or Procedures: If a specific means, method, technique, sequence, or procedure of construction is expressly required by the Contract Documents, Contractor may furnish or utilize a substitute means, method, technique, sequence, or procedure of construction approved by Engineer. Contractor shall submit sufficient information to allow Engineer, in Engineer's sole discretion, to determine that the substitute proposed is equivalent to that expressly called for by the Contract Documents. The requirements for review by Engineer will be similar to those provided in Paragraph 6.05.A.2.

C. *Engineer's Evaluation:* Engineer will be allowed a reasonable time within which to evaluate each proposal or submittal made pursuant to Paragraphs 6.05.A and 6.05.B. Engineer may require Contractor to furnish additional data about the proposed substitute item. Engineer will be the sole judge of acceptability. No "or equal" or substitute will be ordered, installed or utilized until Engineer's review is complete, which will be evidenced by either a Change Order for a substitute or an approved Shop Drawing for an "or equal." Engineer will advise Contractor in writing of any negative determination.

D. *Special Guarantee:* Owner may require Contractor to furnish at Contractor's expense a special performance guarantee or other surety with respect to any substitute.

E. Engineer's Cost Reimbursement: Engineer will record Engineer's costs in evaluating a substitute proposed or submitted by Contractor pursuant to Paragraphs 6.05.A.2 and 6.05.B Whether or not Engineer approves a substitute item so proposed or submitted by Contractor, Contractor shall reimburse Owner for the charges of Engineer for evaluating each such proposed substitute. Contractor shall also reimburse Owner for the charges of Engineer for making changes in the Contract Documents (or in the provisions of any other direct contract with Owner) resulting from the acceptance of each proposed substitute.

(F.) *Contractor's Expense*: Contractor shall provide all data in support of any proposed substitute or "or-equal" at Contractor's expense.

6.06 Concerning Subcontractors, Suppliers, and Others

A. Contractor shall not employ any Subcontractor, Supplier, or other individual or entity (including those acceptable to Owner as indicated in Paragraph 6.06.B), whether initially or as a replacement, against whom Owner may have reasonable objection. Contractor shall not be required to employ any Subcontractor, Supplier, or other individual or entity to furnish or perform any of the Work against whom Contractor has reasonable objection.

B. If the Supplementary Conditions require the identity of certain Subcontractors, Suppliers, or other individuals or entities to be submitted to Owner in advance for acceptance by Owner by a specified date prior to the Effective Date of the Agreement, and if Contractor has submitted a list thereof in accordance with the Supplementary Conditions, Owner's acceptance (either in writing or by failing to make written objection thereto by the date indicated for acceptance or objection in the Bidding Documents or the Contract Documents) of any such Subcontractor, Supplier, or other individual or entity so identified may be revoked on the basis of reasonable objection after due investigation. Contractor shall submit an acceptable replacement for the rejected Subcontractor, Supplier, or other individual or entity, and the Contract Price will be adjusted by the difference in the cost occasioned by such replacement, and an appropriate Change Order will be issued . No acceptance by Owner of any such Subcontractor, Supplier, or other individual or entity, whether initially or as a replacement, shall constitute a waiver of any right of Owner or Engineer to reject defective Work.

C. Contractor shall be fully responsible to Owner and Engineer for all acts and omissions of the Subcontractors, Suppliers, and other individuals or entities performing or furnishing any of the Work just as Contractor is responsible for Contractor's own acts and omissions. Nothing in the Contract Documents:

1. shall create for the benefit of any such Subcontractor, Supplier, or other individual or entity any contractual relationship between Owner or Engineer and any such Subcontractor, Supplier or other individual or entity, nor

2. shall anything in the Contract Documents create any obligation on the part of Owner or Engineer to pay or to see to the payment of any moneys due any such Subcontractor, Supplier, or other individual or entity except as may otherwise be required by Laws and Regulations.

D. Contractor shall be solely responsible for scheduling and coordinating the Work of Subcontractors, Suppliers, and other individuals or entities performing or furnishing any of the Work under a direct or indirect contract with Contractor.

E. Contractor shall require all Subcontractors, Suppliers, and such other individuals or entities performing or furnishing any of the Work to communicate with Engineer through Contractor.

F. The divisions and sections of the Specifications and the identifications of any Drawings shall not control Contractor in dividing the Work among Subcontractors or Suppliers or delineating the Work to be performed by any specific trade.

G. All Work performed for Contractor by a Subcontractor or Supplier will be pursuant to an approagreement between Contractor and priate the Subcontractor or Supplier which specifically binds the Subcontractor or Supplier to the applicable terms and conditions of the Contract Documents for the benefit of Owner and Engineer. Whenever any such agreement is with a Subcontractor or Supplier who is listed as an additional insured on the property insurance provided in Paragraph 5.06, the agreement between the Contractor and the Subcontractor or Supplier will contain provisions whereby the Subcontractor or Supplier waives all rights against Owner, Contractor, and Engineer,, and all other individuals or entities identified in the Supplementary Conditions to be listed as insureds or additional insureds (and the officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them) for all losses and damages caused by, arising out of, relating to, or resulting from any of the perils or causes of loss covered by such policies and any other property insurance applicable to the Work. If the insurers on any such policies require separate waiver forms to be signed by any Subcontractor or Supplier, Contractor will obtain the same.

# 6.07 Patent Fees and Royalties

A. Contractor shall pay all license fees and royalties and assume all costs incident to the use in the performance of the Work or the incorporation in the Work of any invention, design, process, product, or device which is the subject of patent rights or copyrights held by others. If a particular invention, design, process, product, or device is specified in the Contract Documents for use in the performance of the Work and if to the actual knowledge of Owner or Engineer its use is subject to patent rights or copyrights calling for the payment of any license fee or royalty to others, the existence of such rights shall be disclosed by Owner in the Contract Documents.

B. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, employees, consultants <del>partners,</del> agents, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any infringement of patent rights or copyrights incident to the use in the performance of the Work or resulting from the incorporation in the Work of any invention, design, process, product, or device not specified in the Contract Documents.

#### 6.08 Permits

A. Unless otherwise provided in the Supplementary Conditions, Contractor shall obtain and pay for all construction permits and licenses. Owner shall assist Contractor, when necessary, in obtaining such permits and licenses. Contractor shall pay all governmental charges and inspection fees necessary for the prosecution of the Work which are applicable at the time of opening of Bids, or, if there are no Bids, on the Effective Date of the Agreement. Owner shall pay all charges of utility owners for connections for providing permanent service to the Work.

# 6.09 *Laws and Regulations*

A. Contractor shall give all notices required by and shall comply with all Laws and Regulations applicable to the performance of the Work. Except where otherwise expressly required by applicable Laws and Regulations, neither Owner nor Engineer shall be responsible for monitoring Contractor's compliance with any Laws or Regulations.

B. If Contractor performs any Work knowing or having reason to know that it is contrary to Laws or Regulations, Contractor shall bear all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such Work. However, it shall not be Contractor's primary responsibility to make certain that the Specifications and Drawings are in accordance with Laws and Regulations, but this shall not relieve Contractor of Contractor's obligations under Paragraph 3.03.

C. Changes in Laws or Regulations not known at the time of opening of Bids (or, on the Effective Date of the Agreement if there were no Bids) having an effect on the cost or time of performance of the Work shall be the subject of an adjustment in Contract Price or Contract Times. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment, a Claim may be made therefor as provided in Paragraph 10.05.

#### 6.10 *Taxes*

A. Contractor shall pay all sales, consumer, use, and other similar taxes required to be paid by Contractor in accordance with the Laws and Regulations of the place of the Project which are applicable during the performance of the Work.

#### 6.11 Use of Site and Other Areas

#### A. Limitation on Use of Site and Other Areas

1. Contractor shall confine construction equipment, the storage of materials and equipment, and the operations of workers to the Site and other areas permitted by Laws and Regulations, and shall not unreasonably encumber the Site and other areas with construction equipment or other materials or equipment. Contractor shall assume full responsibility for any damage to any such land or area, or to the owner or occupant thereof, or of any adjacent land or areas resulting from the performance of the Work.

2. Should any claim be made by any such owner or occupant because of the performance of the Work, Contractor shall promptly settle with such other party by negotiation or otherwise resolve the claim by arbitration or other dispute resolution proceeding or at law.

3. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, employees, agents, consultants partners, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any claim or action, legal or equitable, brought by any such owner or occupant against Owner, Engineer, or any other party indemnified hereunder to the extent caused by or based upon Contractor's performance of the Work.

B. *Removal of Debris During Performance of the Work:* During the progress of the Work Contractor shall keep the Site and other areas free from accumulations of waste materials, rubbish, and other debris. Removal and disposal of such waste materials, rubbish, and other debris shall conform to applicable Laws and Regulations.

C. *Cleaning:* Prior to Substantial Completion of the Work Contractor shall clean the Site and the Work and make it ready for utilization by Owner. At the completion of the Work Contractor shall remove from the Site all tools, appliances, construction equipment and machinery, and surplus materials and shall restore to original condition all property not designated for alteration by the Contract Documents. D. *Loading Structures:* Contractor shall not load nor permit any part of any structure to be loaded in any manner that will endanger the structure, nor shall Contractor subject any part of the Work or adjacent property to stresses or pressures that will endanger it.

### 6.12 *Record Documents*

A. Contractor shall maintain in a safe place at the Site one record copy of all Drawings, Specifications, Addenda, Change Orders, Work Change Directives, Field Orders, and written interpretations and clarifications in good order and annotated to show changes made during construction. These record documents together with all approved Samples and a counterpart of all approved Shop Drawings will be available to Engineer for reference. Upon completion of the Work, these record documents, Samples, and Shop Drawings will be delivered to Engineer for Owner.

#### 6.13 Safety and Protection

A. Contractor shall be solely responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the Work. Contractor shall take all necessary precautions for the safety of, and shall provide the necessary protection to prevent damage, injury or loss to:

1. all persons on the Site or who may be affected by the Work;

2. all the Work and materials and equipment to be incorporated therein, whether in storage on or off the Site; and

3. other property at the Site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures, utilities, and Underground Facilities not designated for removal, relocation, or replacement in the course of construction.

B. Contractor shall comply with all applicable Laws and Regulations relating to the safety of persons or property, or to the protection of persons or property from damage, injury, or loss; and shall erect and maintain all necessary safeguards for such safety and protection. Contractor shall notify owners of adjacent property and of Underground Facilities and other utility owners when prosecution of the Work may affect them, and shall cooperate with them in the protection, removal, relocation, and replacement of their property.

C. All damage, injury, or loss to any property referred to in Paragraph 6.13.A.2 or 6.13.A.3 caused, directly or indirectly, in whole or in part, by Contractor, any Subcontractor, Supplier, or any other individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, shall be remedied by Contractor (except damage or loss attributable to the fault of Drawings or Specifications or to the acts or omissions of Owner or Engineer or , or anyone employed by any of them, or anyone for whose acts any of them may be liable, and not attributable, directly or indirectly, in whole or in part, to the fault or negligence of Contractor or any Subcontractor, Supplier, or other individual or entity directly or indirectly employed by any of them).

D. Contractor's duties and responsibilities for safety and for protection of the Work shall continue until such time as all the Work is completed and Engineer has issued a notice to Owner and Contractor in accordance with Paragraph 14.07.B that the Work is acceptable (except as otherwise expressly provided in connection with Substantial Completion).

#### 6.14 *Safety Representative*

A. Contractor shall designate a qualified and experienced safety representative at the Site whose duties and responsibilities shall be the prevention of accidents and the maintaining and supervising of safety precautions and programs.

#### 6.15 Hazard Communication Programs

A. Contractor shall be responsible for coordinating any exchange of material safety data sheets or other hazard communication information required to be made available to or exchanged between or among employers at the Site in accordance with Laws or Regulations.

# 6.16 *Emergencies*

A. In emergencies affecting the safety or protection of persons or the Work or property at the Site or adjacent thereto, Contractor is obligated to act to prevent threatened damage, injury, or loss. Contractor shall give Engineer prompt written notice if Contractor believes that any significant changes in the Work or variations from the Contract Documents have been caused thereby or are required as a result thereof. If Engineer determines that a change in the Contract Documents is required because of the action taken by Contractor in response to such an emergency, a Work Change Directive or Change Order will be issued.

# 6.17 Shop Drawings and Samples

A. Contractor shall submit Shop Drawings and Samples to Engineer for review and approval in accordance with the acceptable Schedule of Submittals (as required by Paragraph 2.07). Each submittal will be identified as Engineer may require.

1. Shop Drawings

a. Submit number of copies specified in the General Requirements.

b. Data shown on the Shop Drawings will be complete with respect to quantities, dimensions, specified performance and design criteria, materials, and similar data to show Engineer the services, materials, and equipment Contractor proposes to provide and to enable Engineer to review the information for the limited purposes required by Paragraph 6.17.D.

2. *Samples:* Contractor shall also submit Samples to Engineer for review and approval in accordance with the acceptable schedule of Shop Drawings and Sample submittals.

a. Submit number of Samples specified in the Specifications.

b. Clearly identify each Sample as to material, Supplier, pertinent data such as catalog numbers, the use for which intended and other data as Engineer may require to enable Engineer to review the submittal for the limited purposes required by Paragraph 6.17.D.

B. Where a Shop Drawing or Sample is required by the Contract Documents or the Schedule of Submittals , any related Work performed prior to Engineer's review and approval of the pertinent submittal will be at the sole expense and responsibility of Contractor.

C. Submittal Procedures

1. Before submitting each Shop Drawing or Sample, Contractor shall have determined and verified:

a. all field measurements, quantities, dimensions, specified performance and design criteria, installation requirements, materials, catalog numbers, and similar information with respect thereto;

b. the suitability of all materials with respect to intended use, fabrication, shipping, handling, storage, assembly, and installation pertaining to the performance of the Work;

c. all information relative to Contractor's responsibilities for means, methods, techniques, sequences, and procedures of construction, and safety precautions and programs incident thereto; and

d. shall also have reviewed and coordinated each Shop Drawing or Sample with other Shop Drawings and Samples and with the requirements of the Work and the Contract Documents.

2. Each submittal shall bear a stamp or specific written certification that Contractor has satisfied Contractor's obligations under the Contract Documents

with respect to Contractor's review and approval of that submittal.

3. With each submittal, Contractor shall give Engineer specific written notice of any variations, that the Shop Drawing or Sample may have from the requirements of the Contract Documents. This notice shall be both a written communication separate from the Shop Drawing's or Sample Submittal; and, in addition, by a specific notation made on each Shop Drawing or Sample submitted to Engineer for review and approval of each such variation.

#### D. Engineer's Review

1. Engineer will provide timely review of Shop Drawings and Samples in accordance with the Schedule of Submittals acceptable to Engineer. Engineer's review and approval will be only to determine if the items covered by the submittals will, after installation or incorporation in the Work, conform to the information given in the Contract Documents and be compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents.

2. Engineer's review and approval will not extend to means, methods, techniques, sequences, or procedures of construction (except where a particular means, method, technique, sequence, or procedure of construction is specifically and expressly called for by the Contract Documents) or to safety precautions or programs incident thereto. The review and approval of a separate item as such will not indicate approval of the assembly in which the item functions.

3. Engineer's review and approval shall not relieve Contractor from responsibility for any variation from the requirements of the Contract Documents unless Contractor has complied with the requirements of Paragraph 6.17.C.3 and Engineer has given written approval of each such variation by specific written notation thereof incorporated in or accompanying the Shop Drawing or Sample. Engineer's review and approval shall not relieve Contractor from responsibility for complying with the requirements of Paragraph 6.17.C.1.

#### E. Resubmittal Procedures

1. Contractor shall make corrections required by Engineer and shall return the required number of corrected copies of Shop Drawings and submit, as required, new Samples for review and approval. Contractor shall direct specific attention in writing to revisions other than the corrections called for by Engineer on previous submittals.

#### 6.18 *Continuing the Work*

A. Contractor shall carry on the Work and adhere to the Progress Schedule during all disputes or

disagreements with Owner. No Work shall be delayed or postponed pending resolution of any disputes or disagreements, except as permitted by Paragraph 15.04 or as Owner and Contractor may otherwise agree in writing.

#### 6.19 *Contractor's General Warranty and Guarantee*

A. Contractor warrants and guarantees to Owner that all Work will be in accordance with the Contract Documents and will not be defective. Engineer and its Related Entities shall be entitled to rely on representation of Contractor's warranty and guarantee.

B. Contractor's warranty and guarantee hereunder excludes defects or damage caused by:

1. abuse, modification, or improper maintenance or operation by persons other than Contractor, Subcontractors, Suppliers, or any other individual or entity for whom Contractor is responsible; or

2. normal wear and tear under normal usage.

C. Contractor's obligation to perform and complete the Work in accordance with the Contract Documents shall be absolute. None of the following will constitute an acceptance of Work that is not in accordance with the Contract Documents or a release of Contractor's obligation to perform the Work in accordance with the Contract Documents:

1. observations by Engineer;

2. recommendation by Engineer or payment by Owner of any progress or final payment;

3. the issuance of a certificate of Substantial Completion by Engineer or any payment related thereto by Owner;

4. use or occupancy of the Work or any part thereof by Owner;

5. any review and approval of a Shop Drawing or Sample submittal or the issuance of a notice of acceptability by Engineer;

6. any inspection, test, or approval by others; or

7. any correction of defective Work by Owner.

#### 6.20 *Indemnification*

A. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or

EJCDC C-700 Standard General Conditions of the Construction Contract. Copyright © 2002 National Society of Professional Engineers for EJCDC. All rights reserved. arbitration or other dispute resolution costs) arising out of or relating to the performance of the Work, provided that any such claim, cost, loss, or damage is attributable to bodily injury, sickness, disease, or death, or to injury to or destruction of tangible property (other than the Work itself), including the loss of use resulting therefrom but only to the extent caused by any negligent act or omission of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work or anyone for whose acts any of them may be liable.

B. In any and all claims against Owner or Engineer or any of their respective consultants, agents, officers, directors, partners, or employees by any employee (or the survivor or personal representative of such employee) of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, the indemnification obligation under Paragraph 6.20.A shall not be limited in any way by any limitation on the amount or type of damages, compensation, or benefits payable by or for Contractor or any such Subcontractor, Supplier, or other individual or entity under workers' compensation acts, disability benefit acts, or other employee benefit acts.

C. The indemnification obligations of Contractor under Paragraph 6.20.A shall not extend to the liability of Engineer and Engineer's officers, directors, partners, employees, agents, consultants and subcontractors arising out of:

1. the preparation or approval of, or the failure to prepare or approve, maps, Drawings, opinions, reports, surveys, Change Orders, designs, or Specifications; or

2. giving directions or instructions, or failing to give them, if that is the primary cause of the injury or damage.

6.21 Delegation of Professional Design Services

A. Contractor will not be required to provide professional design services unless such services are specifically required by the Contract Documents for a portion of the Work or unless such services are required to carry out Contractor's responsibilities for construction means, methods, techniques, sequences and procedures. Contractor shall not be required to provide professional services in violation of applicable law.

B. If professional design services or certifications by a design professional related to systems, materials or equipment are specifically required of Contractor by the Contract Documents, Owner and Engineer will specify all performance and design criteria that such services must satisfy. Contractor shall cause such services or certifications to be provided by a properly licensed professional, whose signature and seal shall appear on all drawings, calculations, specifications, certifications, Shop Drawings and other submittals prepared by such professional. Shop Drawings and other submittals related to the Work designed or certified by such professional, if prepared by others, shall bear such professional's written approval when submitted to Engineer.

C. Owner and Engineer shall be entitled to rely upon the adequacy, accuracy and completeness of the services, certifications or approvals performed by such design professionals, provided Owner and Engineer have specified to Contractor all performance and design criteria that such services must satisfy.

D. Pursuant to this Paragraph 6.21, Engineer's review and approval of design calculations and design drawings will be only for the limited purpose of checking for conformance with performance and design criteria given and the design concept expressed in the Contract Documents. Engineer's review and approval of Shop Drawings and other submittals (except design calculations and design drawings) will be only for the purpose stated in Paragraph 6.17.D.1.

E. Contractor shall not be responsible for the adequacy of the performance or design criteria required by the Contract Documents.

# ARTICLE 7 - OTHER WORK AT THE SITE

# 7.01 Related Work at Site

A. Owner may perform other work related to the Project at the Site with Owner's employees, or via other direct contracts therefor, or have other work performed by utility owners. If such other work is not noted in the Contract Documents, then:

1. written notice thereof will be given to Contractor prior to starting any such other work; and

2. if Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times that should be allowed as a result of such other work, a Claim may be made therefor as provided in Paragraph 10.05.

B. Contractor shall afford each other contractor who is a party to such a direct contract, each utility owner and Owner, if Owner is performing other work with Owner's employees, proper and safe access to the Site, a reasonable opportunity for the introduction and storage of materials and equipment and the execution of such other work, and shall properly coordinate the Work with theirs. Contractor shall do all cutting, fitting, and patching of the Work that may be required to properly connect or otherwise make its several parts come together and properly integrate with such other work. Contractor shall not endanger any work of others by cutting, excavating, or otherwise altering their work and will only cut or alter their work with the written consent of Engineer and the others whose work will be affected. The duties and responsibilities of Contractor under this Paragraph are for the benefit of such utility owners and other contractors to the extent that there are comparable provisions for the benefit of Contractor in said direct contracts between Owner and such utility owners and other contractors.

C. If the proper execution or results of any part of Contractor's Work depends upon work performed by others under this Article 7, Contractor shall inspect such other work and promptly report to Engineer in writing any delays, defects, or deficiencies in such other work that render it unavailable or unsuitable for the proper execution and results of Contractor's Work. Contractor's failure to so report will constitute an acceptance of such other work as fit and proper for integration with Contractor's Work except for latent defects and deficiencies in such other work.

#### 7.02 Coordination

A. If Owner intends to contract with others for the performance of other work on the Project at the Site, the following will be set forth in Supplementary Conditions:

1. the individual or entity who will have authority and responsibility for coordination of the activities among the various contractors will be identified;

2. the specific matters to be covered by such authority and responsibility will be itemized; and

3. the extent of such authority and responsibilities will be provided.

B. Unless otherwise provided in the Supplementary Conditions, Owner shall have sole authority and responsibility for such coordination.

7.03 Legal Relationships

A. Paragraphs 7.01.A and 7.02 are not applicable for utilities not under the control of Owner.

B. Each other direct contract of Owner under Paragraph 7.01.A shall provide that the other contractor is liable to Owner and Contractor for the reasonable direct delay and disruption costs incurred by Contractor as a result of the other contractor's actions or inactions.

C. Contractor shall be liable to Owner and any other contractor for the reasonable direct delay and disruption costs incurred by such other contractor as a result of Contractor's action or inactions.

#### **ARTICLE 8 - OWNER'S RESPONSIBILITIES**

#### 8.01 *Communications to Contractor*

A. Except as otherwise provided in these General Conditions, Owner shall issue all communications to Contractor through Engineer.

### 8.02 Replacement of Engineer

A. In case of termination of the employment of Engineer, Owner shall appoint an engineer to whom Contractor makes no reasonable objection, whose status under the Contract Documents shall be that of the former Engineer.

#### 8.03 Furnish Data

A. Owner shall promptly furnish the data required of Owner under the Contract Documents.

#### 8.04 Pay When Due

A. Owner shall make payments to Contractor when they are due as provided in Paragraphs 14.02.C and 14.07.C.

#### 8.05 Lands and Easements; Reports and Tests

A. Owner's duties in respect of providing lands and easements and providing engineering surveys to establish reference points are set forth in Paragraphs 4.01 and 4.05. Paragraph 4.02 refers to Owner's identifying and making available to Contractor copies of reports of explorations and tests of subsurface conditions and drawings of physical conditions in or relating to existing surface or subsurface structures at or contiguous to the Site that have been utilized by Engineer in preparing the Contract Documents.

#### 8.06 Insurance

A. Owner's responsibilities, if any, in respect to purchasing and maintaining liability and property insurance are set forth in Article 5.

### 8.07 Change Orders

A. Owner is obligated to execute Change Orders as indicated in Paragraph 10.03.

#### 8.08 Inspections, Tests, and Approvals

A. Owner's responsibility in respect to certain inspections, tests, and approvals is set forth in Paragraph 13.03.B.

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#### 8.09 Limitations on Owner's Responsibilities

A. The Owner shall not supervise, direct, or have control or authority over, nor be responsible for, Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work. Owner will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.

# 8.10 Undisclosed Hazardous Environmental Condition

A. Owner's responsibility in respect to an undiselosed Hazardous Environmental Condition is set forth in Paragraph 4.06.

#### 8.11 Evidence of Financial Arrangements

A. If and to the extent Owner has agreed to furnish Contractor reasonable evidence that financial arrangements have been made to satisfy Owner's obligations under the Contract Documents, Owner's responsibility in respect thereof will be as set forth in the Supplementary Conditions.

# ARTICLE 9 - ENGINEER'S STATUS DURING CONSTRUCTION

#### 9.01 *Owner's Representative*

A. Engineer will be Owner's representative during the construction period. The duties and responsibilities and the limitations of authority of Engineer as Owner's representative during construction are set forth in the Contract Documents and will not be changed without written consent of Owner and Engineer.

# 9.02 Visits to Site

A. Engineer will make visits to the Site at intervals appropriate to the various stages of construction as Engineer deems necessary in order to observe as an experienced and qualified design professional the progress that has been made and the quality of the various aspects of Contractor's executed Work. Based on information obtained during such visits and observations, Engineer, for the benefit of Owner, will determine, in general, if the Work is proceeding in accordance with the Contract Documents. Engineer will not be required to make exhaustive or continuous inspections on the Site to check the quality or quantity of the Work. Engineer's efforts will be directed toward providing for Owner a greater degree of confidence that the completed Work will conform generally to the Contract Documents. On the basis of such visits and observations, Engineer will keep

# Owner informed of the progress of the Work and will endeavor to guard Owner against defective Work.

B. Engineer's visits and observations are subject to all the limitations on Engineer's authority and responsibility set forth in Paragraph 9.09. Particularly, but without limitation, during or as a result of Engineer's visits or observations of Contractor's Work Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work.

#### 9.03 *Project Representative*

A. If Owner and Engineer agree, Engineer will furnish a Resident Project Representative to assist Engineer in providing more extensive observation of the Work. The authority and responsibilities of any such Resident Project Representative and assistants will be as provided in the Supplementary Conditions, and limitations on the responsibilities thereof will be as provided in Paragraph 9.09. If Owner designates another representative or agent to represent Owner at the Site who is not Engineer's consultant, agent or employee, the responsibilities and authority and limitations thereon of such other individual or entity will be as provided in the Supplementary Conditions.

### 9.04 Authorized Variations in Work

A. Engineer may authorize minor variations in the Work from the requirements of the Contract Documents which do not involve an adjustment in the Contract Price or the Contract Times and are compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. These may be accomplished by a Field Order and will be binding on Owner and also on Contractor, who shall perform the Work involved promptly. If Owner or Contractor believes that a Field Order justifies an adjustment in the Contract Price or Contract Times, or both, and the parties are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment , a Claim may be made therefor as provided in Paragraph 10.05.

# 9.05 Rejecting Defective Work

A. Engineer will have authority to reject Work which Engineer believes to be defective, or that Engineer believes will not produce a completed Project that conforms to the Contract Documents or that will prejudice the integrity of the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. Engineer will also have authority to require special inspection or testing of the Work as provided in Paragraph 13.04, whether or not the Work is fabricated, installed, or completed.

#### 9.06 Shop Drawings, Change Orders and Payments

A. In connection with Engineer's authority, and limitations thereof, as to Shop Drawings and Samples, see Paragraph 6.17.

B. In connection with Engineer's authority, and limitations thereof, as to design calculations and design drawings submitted in response to a delegation of professional design services, if any, see Paragraph 6.21.

C. In connection with Engineer's authority as to Change Orders, see Articles 10, 11, and 12.

D. In connection with Engineer's authority as to Applications for Payment, see Article 14.

#### 9.07 Determinations for Unit Price Work

A. Engineer will determine the actual quantities and classifications of Unit Price Work performed by Contractor. Engineer will review with Contractor the Engineer's preliminary determinations on such matters before rendering a written decision thereon (by recommendation of an Application for Payment or otherwise). Engineer's written decision thereon will be final and binding (except as modified by Engineer to reflect changed factual conditions or more accurate data) upon Owner and Contractor, subject to the provisions of Paragraph 10.05.

9.08 Decisions on Requirements of Contract Documents and Acceptability of Work

A. Engineer will be the initial interpreter of the requirements of the Contract Documents and judge of the acceptability of the Work thereunder. All matters in question and other matters between Owner and Contractor arising prior to the date final payment is due relating to the acceptability of the Work, and the interpretation of the requirements of the Contract Documents pertaining to the performance of the Work, will be referred initially to Engineer in writing within 30 days of the event giving rise to the question

B. Engineer will, with reasonable promptness, render a written decision on the issue referred. If Owner or Contractor believe that any such decision entitles them to an adjustment in the Contract Price or Contract Times or both, a Claim may be made under Paragraph 10.05. The date of Engineer's decision shall be the date of the event giving rise to the issues referenced for the purposes of Paragraph 10.05.B.

C. Engineer's written decision on the issue referred will be final and binding on Owner and Contractor, subject to the provisions of Paragraph 10.05.

D. When functioning as interpreter and judge under this Paragraph 9.08, Engineer will not show

partiality to Owner or Contractor and will not be liable in connection with any interpretation or decision rendered in good faith in such capacity.

# 9.09 Limitations on Engineer's Authority and Responsibilities

A. Neither Engineer's authority or responsibility under this Article 9 or under any other provision of the Contract Documents nor any decision made by Engineer in good faith either to exercise or not exercise such authority or responsibility or the undertaking, exercise, or performance of any authority or responsibility by Engineer shall create, impose, or give rise to any duty in contract, tort, or otherwise owed by Engineer to Contractor, any Subcontractor, any Supplier, any other individual or entity, or to any surety for or employee or agent of any of them.

B. Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work. Engineer will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.

C. Engineer will not be responsible for the acts or omissions of Contractor or of any Subcontractor, any Supplier, or of any other individual or entity performing any of the Work.

D. Engineer's review of the final Application for Payment and accompanying documentation and all maintenance and operating instructions, schedules, guarantees, bonds, certificates of inspection, tests and approvals, and other documentation required to be delivered by Paragraph 14.07.A will only be to determine generally that their content complies with the requirements of, and in the case of certificates of inspections, tests, and approvals that the results certified indicate compliance with the Contract Documents.

E. The limitations upon authority and responsibility set forth in this Paragraph 9.09 shall also apply to, the Resident Project Representative, if any, and assistants, if any.

ARTICLE 10 - CHANGES IN THE WORK; CLAIMS

#### 10.01 Authorized Changes in the Work

A. Without invalidating the Contract and without notice to any surety, Owner may, at any time or from time to time, order additions, deletions, or revisions in the Work by a Change Order, or a Work Change Directive. Upon receipt of any such document, Contractor shall

EJCDC C-700 Standard General Conditions of the Construction Contract. Copyright © 2002 National Society of Professional Engineers for EJCDC. All rights reserved. promptly proceed with the Work involved which will be performed under the applicable conditions of the Contract Documents (except as otherwise specifically provided).

B. If Owner and Contractor are unable to agree on entitlement to, or on the amount or extent, if any, of an adjustment in the Contract Price or Contract Times, or both, that should be allowed as a result of a Work Change Directive, a Claim may be made therefor as provided in Paragraph 10.05.

#### 10.02 Unauthorized Changes in the Work

A.Contractor shall not be entitled to an increase in the Contract Price or an extension of the Contract Times with respect to any work performed that is not required by the Contract Documents as amended, modified, or supplemented as provided in Paragraph 3.04, except in the case of an emergency as provided in Paragraph 6.16 or in the case of uncovering Work as provided in Paragraph 13.04.B.

#### 10.03 Execution of Change Orders

A. Owner and Contractor shall execute appropriate Change Orders recommended by Engineer covering:

1. changes in the Work which are: (i) ordered by Owner pursuant to Paragraph 10.01.A, (ii) required because of acceptance of defective Work under Paragraph 13.08.A or Owner's correction of defective Work under Paragraph 13.09, or (iii) agreed to by the parties;

2. changes in the Contract Price or Contract Times which are agreed to by the parties, including any undisputed sum or amount of time for Work actually performed in accordance with a Work Change Directive; and

3. changes in the Contract Price or Contract Times which embody the substance of any written decision rendered by Engineer pursuant to Paragraph 10.05; provided that, in lieu of executing any such Change Order, an appeal may be taken from any such decision in accordance with the provisions of the Contract Documents and applicable Laws and Regulations, but during any such appeal, Contractor shall carry on the Work and adhere to the Progress Schedule as provided in Paragraph 6.18.A.

#### 10.04 Notification to Surety

A. If notice of any change affecting the general scope of the Work or the provisions of the Contract Documents (including, but not limited to, Contract Price or Contract Times) is required by the provisions of any bond to be given to a surety, the giving of any such notice will be Contractor's responsibility. The amount of each applicable bond will be adjusted to reflect the effect of any such change.

#### 10.05 Claims

A. Engineer's Decision Required: All Claims, except those waived pursuant to Paragraph 14.09, shall be referred to the Engineer for decision. A decision by Engineer shall be required as a condition precedent to any exercise by Owner or Contractor of any rights or remedies either may otherwise have under the Contract Documents or by Laws and Regulations in respect of such Claims.

B. Notice: Written notice stating the general nature of each Claim, shall be delivered by the claimant to Engineer and the other party to the Contract promptly (but in no event later than 30 days) after the start of the event giving rise thereto. The responsibility to substantiate a Claim shall rest with the party making the Claim. Notice of the amount or extent of the Claim, with supporting data shall be delivered to the Engineer and the other party to the Contract within 60 days after the start of such event (unless Engineer allows additional time for claimant to submit additional or more accurate data in support of such Claim). A Claim for an adjustment in Contract Price shall be prepared in accordance with the provisions of Paragraph 12.01.B. A Claim for an adjustment in Contract Time shall be prepared in accordance with the provisions of Paragraph 12.02.B. Each Claim shall be accompanied by claimant's written statement that the adjustment elaimed is the entire adjustment to which the elaimant believes it is entitled as a result of said event. The opposing party shall submit any response to Engineer and the claimant within 30 days after receipt of the claimant's last submittal (unless Engineer allows additional time).

C. Engineer's Action: Engineer will review each Claim and, within 30 days after receipt of the last submittal of the claimant or the last submittal of the opposing party, if any, take one of the following actions in writing:

1. deny the Claim in whole or in part,

2. approve the Claim, or

3. notify the parties that the Engineer is unable to resolve the Claim if, in the Engineer's sole discretion, it would be inappropriate for the Engineer to do so. For purposes of further resolution of the Claim, such notice shall be deemed a denial.

D. In the event that Engineer does not take action on a Claim within said 30 days, the Claim shall be deemed denied.

E. Engineer's written action under Paragraph 10.05.C or denial pursuant to Paragraphs 10.05.C.3 or 10.05.D will be final and binding upon Owner and Contractor, unless Owner or Contractor invoke the dispute resolution procedure set forth in Article 16 within 30 days of such action or denial. F. No Claim for an adjustment in Contract Price or Contract Times will be valid if not submitted in accordance with this Paragraph 10.05.

ARTICLE 11 - COST OF THE WORK; ALLOWANCES; UNIT PRICE WORK

11.01 *Cost of the Work* 

A. *Costs Included:* The term Cost of the Work means the sum of all costs, except those excluded in Paragraph 11.01.B, necessarily incurred and paid by Contractor in the proper performance of the Work. When the value of any Work covered by a Change Order or when a Claim for an adjustment in Contract Price is determined on the basis of Cost of the Work, the costs to be reimbursed to Contractor will be only those additional or incremental costs required because of the change in the Work or because of the event giving rise to the Claim. Except as otherwise may be agreed to in writing by Owner, such costs shall be in amounts no higher than those prevailing in the locality of the Project, shall include only the following items, and shall not include any of the costs itemized in Paragraph 11.01.B.

1. Payroll costs for employees in the direct employ of Contractor in the performance of the Work under schedules of job classifications agreed upon by Owner and Contractor. Such employees shall include, without limitation, superintendents, foremen, and other personnel employed full time at the Site. Payroll costs for employees not employed full time on the Work shall be apportioned on the basis of their time spent on the Work. Payroll costs shall include, but not be limited to, salaries and wages plus the cost of fringe benefits, which shall include social security contributions, unemployment, excise, and payroll taxes, workers' compensation, health and retirement benefits, bonuses, sick leave, vacation and holiday pay applicable thereto. The expenses of performing Work outside of regular working hours, on Saturday, Sunday, or legal holidays, shall be included in the above to the extent authorized by Owner.

2. Cost of all materials and equipment furnished and incorporated in the Work, including costs of transportation and storage thereof, and Suppliers' field services required in connection therewith. All cash discounts shall accrue to Contractor unless Owner deposits funds with Contractor with which to make payments, in which case the cash discounts shall accrue to Owner. All trade discounts, rebates and refunds and returns from sale of surplus materials and equipment shall accrue to Owner, and Contractor shall make provisions so that they may be obtained.

3. Payments made by Contractor to Subcontractors for Work performed by Subcontractors. If required by Owner, Contractor shall obtain competitive bids from subcontractors acceptable to Owner and Contractor and shall deliver such bids to Owner, who will then determine, with the advice of Engineer, which bids, if any, will be acceptable. If any subcontract provides that the Subcontractor is to be paid on the basis of Cost of the Work plus a fee, the Subcontractor's Cost of the Work and fee shall be determined in the same manner as Contractor's Cost of the Work and fee as provided in this Paragraph 11.01.

4. Costs of special consultants (including but not limited to Engineers, architects, testing laboratories, surveyors, attorneys, and accountants) employed for services specifically related to the Work.

5. Supplemental costs including the following:

a. The proportion of necessary transportation, travel, and subsistence expenses of Contractor's employees incurred in discharge of duties connected with the Work.

b. Cost, including transportation and maintenance, of all materials, supplies, equipment, machinery, appliances, office, and temporary facilities at the Site, and hand tools not owned by the workers, which are consumed in the performance of the Work, and cost, less market value, of such items used but not consumed which remain the property of Contractor.

e. Rentals of all construction equipment and machinery, and the parts thereof whether rented from Contractor or others in accordance with rental agreements approved by Owner with the advice of Engineer, and the costs of transportation, loading, unloading, assembly, dismantling, and removal thereof. All such costs shall be in accordance with the terms of said rental agreements. The rental of any such equipment, machinery, or parts shall cease when the use thereof is no longer necessary for the Work.

d. Sales, consumer, use, and other similar taxes related to the Work, and for which Contractor is liable, imposed by Laws and Regulations.

e. Deposits lost for causes other than negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, and royalty payments and fees for permits and licenses.

f. Losses and damages (and related expenses) caused by damage to the Work, not compensated by insurance or otherwise, sustained by Contractor in connection with the performance of the Work (except losses and damages within the deductible amounts of property insurance established in accordance with (Paragraph 5.06.D), provided such losses and damages have resulted from causes other than the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable. Such losses shall include settlements made with the written consent and approval of Owner. No such losses, damages, and expenses shall be included in the Cost of the Work for the purpose of determining Contractor's fee.

g. The cost of utilities, fuel, and sanitary facilities at the Site.

h. Minor expenses such as telegrams, long distance telephone calls, telephone service at the Site, expresses, and similar petty cash items in connection with the Work.

i. The costs of premiums for all bonds and insurance Contractor is required by the Contract Documents to purchase and maintain.

B. Costs Excluded: The term Cost of the Work shall not include any of the following items:

1. Payroll costs and other compensation of Contractor's officers, executives, principals (of partnerships and sole proprietorships), general managers, safety managers, engineers, architects, estimators, attorneys, auditors, accountants, purchasing and contracting agents, expediters, timekeepers, clerks, and other personnel employed by Contractor, whether at the Site or in Contractor's principal or branch office for general administration of the Work and not specifically included in the agreed upon schedule of job classifications referred to in Paragraph 11.01.A.1 or specifically covered by Paragraph 11.01.A.4, all of which are to be considered administrative costs covered by the Contractor's fee.

2. Expenses of Contractor's principal and branch offices other than Contractor's office at the Site.

3. Any part of Contractor's capital expenses, including interest on Contractor's capital employed for the Work and charges against Contractor for delinquent payments.

4. Costs due to the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, including but not limited to, the correction of defective Work, disposal of materials or equipment wrongly supplied, and making good any damage to property.

5. Other overhead or general expense costs of any kind and the costs of any item not specifically and expressly included in Paragraphs 11.01.A and 11.01.B.

C. Contractor's Fee: When all the Work is performed on the basis of cost-plus, Contractor's fee shall

be determined as set forth in the Agreement. When the value of any Work covered by a Change Order or when a Claim for an adjustment in Contract Price is determined on the basis of Cost of the Work, Contractor's fee shall be determined as set forth in Paragraph 12.01.C.

D. Documentation: Whenever the Cost of the Work for any purpose is to be determined pursuant to Paragraphs 11.01.A and 11.01.B, Contractor will establish and maintain records thereof in accordance with generally accepted accounting practices and submit in a form acceptable to Engineer an itemized cost breakdown together with supporting data.

#### 11.02 Allowances

A. It is understood that Contractor has included in the Contract Price all allowances so named in the Contract Documents and shall cause the Work so covered to be performed for such sums and by such persons or entities as may be acceptable to Owner and Engineer.

B. Cash Allowances

1. Contractor agrees that:

a. the cash allowances include the cost to Contractor (less any applicable trade discounts) of materials and equipment required by the allowances to be delivered at the Site, and all applicable taxes; and

b. Contractor's costs for unloading and handling on the Site, labor, installation, overhead, profit, and other expenses contemplated for the cash allowances have been included in the Contract Price and not in the allowances, and no demand for additional payment on account of any of the foregoing will be valid.

C. Contingency Allowance

1. Contractor agrees that a contingency allowance, if any, is for the sole use of Owner to cover unanticipated costs.

D. Prior to final payment, an appropriate Change Order will be issued as recommended by Engineer to reflect actual amounts due Contractor on account of Work covered by allowances, and the Contract Price shall be correspondingly adjusted.

#### 11.03 Unit Price Work

A. Where the Contract Documents provide that all or part of the Work is to be Unit Price Work, initially the Contract Price will be deemed to include for all Unit Price Work an amount equal to the sum of the unit price for each separately identified item of Unit Price Work times the estimated quantity of each item as indicated in the Agreement.

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B. The estimated quantities of items of Unit Price Work are not guaranteed and are solely for the purpose of comparison of Bids and determining an initial Contract Price. Determinations of the actual quantities and classifications of Unit Price Work performed by Contractor will be made by Engineer subject to the provisions of Paragraph 9.07.

C. Each unit price will be deemed to include an amount considered by Contractor to be adequate to cover Contractor's overhead and profit for each separately identified item.

D. Owner or Contractor may make a Claim for an adjustment in the Contract Price in accordance with Paragraph 10.05 if:

1. the quantity of any item of Unit Price Work performed by Contractor differs materially and significantly from the estimated quantity of such item indicated in the Agreement; and

2. there is no corresponding adjustment with respect any other item of Work; and

3. Contractor believes that Contractor is entitled to an increase in Contract Price as a result of having incurred additional expense or Owner believes that Owner is entitled to a decrease in Contract Price and the parties are unable to agree as to the amount of any such increase or decrease.

ARTICLE 12 - CHANGE OF CONTRACT PRICE; CHANGE OF CONTRACT TIMES

12.01 Change of Contract Price

A. The Contract Price may only be changed by a Change Order. Any Claim for an adjustment in the Contract Price shall be based on written notice submitted by the party making the Claim to the Engineer and the other party to the Contract in accordance with the provisions of Paragraph 10.05.

B. The value of any Work covered by a Change Order or of any Claim for an adjustment in the Contract Price will be determined as follows:

1. where the Work involved is covered by unit prices contained in the Contract Documents, by application of such unit prices to the quantities of the items involved (subject to the provisions of Paragraph 11.03); or

2. where the Work involved is not covered by unit prices contained in the Contract Documents, by a mutually agreed lump sum (which may include an allowance for overhead and profit not necessarily in accordance with Paragraph 12.01.C.2); or

3. where the Work involved is not covered by unit prices contained in the Contract Documents and agreement to a lump sum is not reached under Paragraph 12.01.B.2, on the basis of the Cost of the Work (determined as provided in Paragraph 11.01) plus a Contractor's fee for overhead and profit (determined as provided in Paragraph 12.01.C).

C. *Contractor's Fee:* The Contractor's fee for overhead and profit shall be determined as follows:

1. a mutually acceptable fixed fee; or

2. if a fixed fee is not agreed upon, then a fee based on the following percentages of the various portions of the Cost of the Work:

a. for costs incurred under Paragraphs 11.01.A.1 and 11.01.A.2, the Contractor's fee shall be 15 percent;

b. for costs incurred under Paragraph 11.01.A.3, the Contractor's fee shall be five percent;

e. where one or more tiers of subcontracts are on the basis of Cost of the Work plus a fee and no fixed fee is agreed upon, the intent of Paragraph 12.01.C.2.a is that the Subcontractor who actually performs the Work, at whatever tier, will be paid a fee of 15 percent of the costs incurred by such Subcontractor under Paragraphs 11.01.A.1 and 11.01.A.2 and that any higher tier Subcontractor and Contractor will each be paid a fee of five percent of the amount paid to the next lower tier Subcontractor;

d. no fee shall be payable on the basis of costs itemized under Paragraphs 11.01.A.4, 11.01.A.5, and 11.01.B;

e. the amount of credit to be allowed by Contractor to Owner for any change which results in a net decrease in cost will be the amount of the actual net decrease in cost plus a deduction in Contractor's fee by an amount equal to five percent of such net decrease; and

f. when both additions and credits are involved in any one change, the adjustment in Contractor's fee shall be computed on the basis of the net change in accordance with Paragraphs 12.01.C.2.a through 12.01.C.2.e, inclusive.

12.02 Change of Contract Times

A. The Contract Times may only be changed by a Change Order. Any Claim for an adjustment in the Contract Times shall be based on written notice submitted by the party making the Claim to the Engineer and the other party to the Contract in accordance with the provisions of Paragraph 10.05.

B. Any adjustment of the Contract Times covered by a Change Order or any Claim for an adjustment in the Contract Times will be determined in accordance with the provisions of this Article 12.

#### 12.03 Delays

A. Where Contractor is prevented from completing any part of the Work within the Contract Times due to delay beyond the control of Contractor, the Contract Times will be extended in an amount equal to the time lost due to such delay if a Claim is made therefor as provided in Paragraph 12.02.A. Delays beyond the control of Contractor shall include, but not be limited to, acts or neglect by Owner, acts or neglect of utility owners or other contractors performing other work as contemplated by Article 7, fires, floods, epidemics, abnormal weather conditions, or acts of God.

B. If Owner, Engineer, or other contractors or utility owners performing other work for Owner as contemplated by Article 7, or anyone for whom Owner is responsible, delays, disrupts, or interferes with the performance or progress of the Work, then Contractor shall be entitled to an equitable adjustment in the Contract Price or the Contract Times , or both. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times.

C If Contractor is delayed in the performance or progress of the Work by fire, flood, epidemic, abnormal weather conditions, acts of God, acts or failures to act of utility owners not under the control of Owner, or other causes not the fault of and beyond control of Owner and Contractor, then Contractor shall be entitled to an equitable (adjustment) in Contract Times, if such adjustment is essential to Contractor's ability to complete the Work within the Contract Times. Such an adjustment shall be Contractor's sole and exclusive remedy for the delays described in this Paragraph 12.03.C.

D. Owner, Engineer and the Related Entities of each of them shall not be liable to Contractor for any claims, costs, losses, or damages (including but not limited to all fees and charges of Engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) sustained by Contractor on or in connection with any other project or anticipated project.

E. Contractor shall not be entitled to an adjustment in Contract Price or Contract Times for delays within the control of Contractor. Delays attributable to and within the control of a Subcontractor or Supplier shall be deemed to be delays within the control of Contractor.

ARTICLE 13 - TESTS AND INSPECTIONS; CORRECTION, REMOVAL OR ACCEPTANCE OF DEFECTIVE WORK

#### 13.01 Notice of Defects

A. Prompt notice of all defective Work of which Owner or Engineer has actual knowledge will be given to Contractor. All defective Work may be rejected, corrected, or accepted as provided in this Article 13.

#### 13.02 Access to Work

A. Owner, Engineer, their consultants and other representatives and personnel of Owner, independent testing laboratories, and governmental agencies with jurisdictional interests will have access to the Site and the Work at reasonable times for their observation, inspecting, and testing. Contractor shall provide them proper and safe conditions for such access and advise them of Contractor's Site safety procedures and programs so that they may comply therewith as applicable.

#### 13.03 *Tests and Inspections*

A. Contractor shall give Engineer timely notice of readiness of the Work for all required inspections, tests, or approvals and shall cooperate with inspection and testing personnel to facilitate required inspections or tests.

B. Owner shall employ and pay for the services of an independent testing laboratory to perform all inspections, tests, or approvals required by the Contract Documents except:

1. for inspections, tests, or approvals covered by Paragraphs 13.03.C and 13.03.D below;

2. that costs incurred in connection with tests or inspections conducted pursuant to Paragraph 13.04.B shall be paid as provided in said Paragraph 13.04.C; and

3. as otherwise specifically provided in the Contract Documents.

C. If Laws or Regulations of any public body having jurisdiction require any Work (or part thereof) specifically to be inspected, tested, or approved by an employee or other representative of such public body, Contractor shall assume full responsibility for arranging and obtaining such inspections, tests, or approvals, pay all costs in connection therewith, and furnish Engineer the required certificates of inspection or approval.

D. Contractor shall be responsible for arranging and obtaining and shall pay all costs in connection with any inspections, tests, or approvals required for Owner's and Engineer's acceptance of materials or equipment to be incorporated in the Work; or acceptance of materials, mix designs, or equipment submitted for approval prior to Contractor's purchase thereof for incorporation in the Work. Such inspections, tests, or approvals shall be performed by organizations acceptable to Owner and Engineer.

E. If any Work (or the work of others) that is to be inspected, tested, or approved is covered by Contractor without written concurrence of Engineer, it must, if requested by Engineer, be uncovered for observation.

F. Uncovering Work as provided in Paragraph 13.03.E shall be at Contractor's expense unless Contractor has given Engineer timely notice of Contractor's intention to cover the same and Engineer has not acted with reasonable promptness in response to such notice.

# 13.04 Uncovering Work

A. If any Work is covered contrary to the written request of Engineer, it must, if requested by Engineer, be uncovered for Engineer's observation and replaced at Contractor's expense.

B. If Engineer considers it necessary or advisable that covered Work be observed by Engineer or inspected or tested by others, Contractor, at Engineer's request, shall uncover, expose, or otherwise make available for observation, inspection, or testing as Engineer may require, that portion of the Work in question, furnishing all necessary labor, material, and equipment.

C. If it is found that the uncovered Work is defective, Contractor shall pay all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such uncovering, exposure, observation, inspection, and testing, and of satisfactory replacement or reconstruction (including but not limited to all costs of repair or replacement of work of others); and Owner shall be entitled to an appropriate decrease in the Contract Price. If the parties are unable to agree as to the amount thereof, Owner may make a Claim therefor as provided in Paragraph 10.05.

D. If, the uncovered Work is not found to be defective, Contractor shall be allowed an increase in the Contract Price or an extension of the Contract Times, or both, directly attributable to such uncovering, exposure, observation, inspection, testing, replacement, and reconstruction. If the parties are unable to agree as to the amount or extent thereof, Contractor may make a Claim therefor as provided in Paragraph 10.05.

13.05 Owner May Stop the Work

A. If the Work is defective, or Contractor fails to supply sufficient skilled workers or suitable materials or equipment, or fails to perform the Work in such a way that the completed Work will conform to the Contract Documents, Owner may order Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, this right of Owner to stop the Work shall not give rise to any duty on the part of Owner to exercise this right for the benefit of Contractor, any Subcontractor, any Supplier, any other individual or entity, or any surety for, or employee or agent of any of them.

# 13.06 Correction or Removal of Defective Work

A. Promptly after receipt of notice, Contractor shall correct all defective Work, whether or not fabricated, installed, or completed, or, if the Work has been rejected by Engineer, remove it from the Project and replace it with Work that is not defective. Contractor shall pay all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such correction or removal (including but not limited to all costs of repair or replacement of work of others).

B. When correcting defective Work under the terms of this Paragraph 13.06 or Paragraph 13.07, Contractor shall take no action that would void or otherwise impair Owner's special warranty and guarantee, if any, on said Work.

# 13.07 Correction Period

A. If within one year after the date of Substantial Completion (or such longer period of time as may be prescribed by the terms of any applicable special guarantee required by the Contract Documents) or by any specific provision of the Contract Documents, any Work is found to be defective, or if the repair of any damages to the land or areas made available for Contractor's use by Owner or permitted by Laws and Regulations as contemplated in Paragraph 6.11.A is found to be defective, Contractor shall promptly, without cost to Owner and in accordance with Owner's written instructions:

- 1. repair such defective land or areas; or
- 2. correct such defective Work; or

3. if the defective Work has been rejected by Owner, remove it from the Project and replace it with Work that is not defective, and

4. satisfactorily correct or repair or remove and replace any damage to other Work, to the work of others or other land or areas resulting therefrom. B. If Contractor does not promptly comply with the terms of Owner's written instructions, or in an emergency where delay would cause serious risk of loss or damage, Owner may have the defective Work corrected or repaired or may have the rejected Work removed and replaced. All claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such correction or repair or such removal and replacement (including but not limited to all costs of repair or replacement of work of others) will be paid by Contractor.

C. In special circumstances where a particular item of equipment is placed in continuous service before Substantial Completion of all the Work, the correction period for that item may start to run from an earlier date if so provided in the Specifications.

D. Where defective Work (and damage to other Work resulting therefrom) has been corrected or removed and replaced under this Paragraph 13.07, the correction period hereunder with respect to such Work will be extended for an additional period of one year after such correction or removal and replacement has been satisfactorily completed.

E. Contractor's obligations under this Paragraph 13.07 are in addition to any other obligation or warranty. The provisions of this Paragraph 13.07 shall not be construed as a substitute for or a waiver of the provisions of any applicable statute of limitation or repose.

#### 13.08 Acceptance of Defective Work

A. If, instead of requiring correction or removal and replacement of defective Work, Owner (and, prior to Engineer's recommendation of final payment, Engineer) prefers to accept it, Owner may do so. Contractor shall pay all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) attributable to Owner's evaluation of and determination to accept such defective Work (such costs to be approved by Engineer as to reasonableness) and the diminished value of the Work to the extent not otherwise paid by Contractor pursuant to this sentence. If any such acceptance occurs prior to Engineer's recommendation of final payment, a Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the Work, and Owner shall be entitled to an appropriate decrease in the Contract Price, reflecting the diminished value of Work so accepted. If the parties are unable to agree as to the amount thereof, Owner may make a Claim therefor as provided in Paragraph 10.05. If the acceptance occurs after such recommendation, an appropriate amount will be paid by Contractor to Owner.

#### 13.09 Owner May Correct Defective Work

A. If Contractor fails within a reasonable time after written notice from Engineer to correct defective Work or to remove and replace rejected Work as required by Engineer in accordance with Paragraph 13.06.A, or if Contractor fails to perform the Work in accordance with the Contract Documents, or if Contractor fails to comply with any other provision of the Contract Documents, Owner may, after seven days written notice to Contractor, correct or remedy any such deficiency.

B. In exercising the rights and remedies under this Paragraph 13.09, Owner shall proceed expeditiously. In connection with such corrective or remedial action, Owner may exclude Contractor from all or part of the Site, take possession of all or part of the Work and suspend Contractor's services related thereto, take possession of Contractor's tools, appliances, construction equipment and machinery at the Site, and incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere. Contractor shall allow Owner, Owner's representatives, agents and employees, Owner's other contractors, and Engineer and Engineer's consultants access to the Site to enable Owner to exercise the rights and remedies under this Paragraph.

C. All claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) incurred or sustained by Owner in exercising the rights and remedies under this Paragraph 13.09 will be charged against Contractor, and a Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the Work; and Owner shall be entitled to an appropriate decrease in the Contract Price. If the parties are unable to agree as to the amount of the adjustment, Owner may make a Claim therefor as provided in Paragraph 10.05. Such claims, costs, losses and damages will include but not be limited to all costs of repair, or replacement of work of others destroyed or damaged by correction, removal, or replacement of Contractor's defective Work.

D. Contractor shall not be allowed an extension of the Contract Times because of any delay in the performance of the Work attributable to the exercise by Owner of Owner's rights and remedies under this Paragraph 13.09.

# ARTICLE 14 - PAYMENTS TO CONTRACTOR AND COMPLETION

#### 14.01 Schedule of Values

A. The Schedule of Values established as provided in Paragraph 2.07.A will serve as the basis for progress

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payments and will be incorporated into a form of Application for Payment acceptable to Engineer. Progress payments on account of Unit Price Work will be based on the number of units completed.

#### 14.02 Progress Payments

#### A. Applications for Payments

1. At least 20 days before the date established in the Agreement for each progress payment (but not more often than once a month), Contractor shall submit to Engineer for review an Application for Payment filled out and signed by Contractor covering the Work completed as of the date of the Application and accompanied by such supporting documentation as is required by the Contract Documents. If payment is requested on the basis of materials and equipment not incorporated in the Work but delivered and suitably stored at the Site or at another location agreed to in writing, the Application for Payment shall also be accompanied by a bill of sale, invoice, or other documentation warranting that Owner has received the materials and equipment free and clear of all Liens and evidence that the materials and equipment are covered by appropriate property insurance or other arrangements to protect Owner's interest therein, all of which must be satisfactory to Owner.

2. Beginning with the second Application for Payment, each Application shall include an affidavit of Contractor stating that all previous progress payments received on account of the Work have been applied on account to discharge Contractor's legitimate obligations associated with prior Applications for Payment.

3. The amount of retainage with respect to progress payments will be as stipulated in the Agreement.

### B. Review of Applications

1. Engineer will, within 10 days after receipt of each Application for Payment, either indicate in writing a recommendation of payment and present the Application to Owner or return the Application to Contractor indicating in writing Engineer's reasons for refusing to recommend payment. In the latter case, Contractor may make the necessary corrections and resubmit the Application.

2. Engineer's recommendation of any payment requested in an Application for Payment will constitute a representation by Engineer to Owner, based on Engineer's observations on the Site of the executed Work as an experienced and qualified design professional and on Engineer's review of the Application for Payment and the accompanying data and schedules, that to the best of Engineer's knowledge, information and belief:

> a. the Work has progressed to the point indicated;

b. the quality of the Work is generally in accordance with the Contract Documents (subject to an evaluation of the Work as a functioning whole prior to or upon Substantial Completion, to the results of any subsequent tests called for in the Contract Documents, to a final determination of quantities and classifications for Unit Price Work under Paragraph 9.07, and to any other qualifications stated in the recommendation); and

e. the conditions precedent to Contractor's being entitled to such payment appear to have been fulfilled in so far as it is Engineer's responsibility to observe the Work.

3. By recommending any such payment Engineer will not thereby be deemed to have represented that:

a. inspections made to check the quality or the quantity of the Work as it has been performed have been exhaustive, extended to every aspect of the Work in progress, or involved detailed inspections of the Work beyond the responsibilities specifically assigned to Engineer in the Contract Documents; or

b. that there may not be other matters or issues between the parties that might entitle Contractor to be paid additionally by Owner or entitle Owner to withhold payment to Contractor.

4. Neither Engineer's review of Contractor's Work for the purposes of recommending payments nor Engineer's recommendation of any payment, including final payment, will impose responsibility on Engineer:

a. to supervise, direct, or control the Work, or

b. for the means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or

e. for Contractor's failure to comply with Laws and Regulations applicable to Contractor's performance of the Work, or

d. to make any examination to ascertain how or for what purposes Contractor has used the moneys paid on account of the Contract Price, or

e. to determine that title to any of the Work, materials, or equipment has passed to Owner free and clear of any Liens.

5. Engineer may refuse to recommend the whole or any part of any payment if, in Engineer's opinion, it would be incorrect to make the representations to Owner stated in Paragraph 14.02.B.2. Engineer may also refuse to recommend any such payment or, because of subsequently discovered evidence or the results of subsequent inspections or tests, revise or revoke any such payment recommendation previously made, to such extent as may be necessary in Engineer's opinion to protect Owner from loss because:

> a. the Work is defective, or completed Work has been damaged, requiring correction or replacement;

> b. the Contract Price has been reduced by Change Orders;

e. Owner has been required to correct defective Work or complete Work in accordance with Paragraph 13.09; or

d. Engineer has actual knowledge of the occurrence of any of the events enumerated in Paragraph 15.02.A.

#### C. Payment Becomes Due

1. Ten days after presentation of the Application for Payment to Owner with Engineer's recommendation, the amount recommended will (subject to the provisions of Paragraph 14.02.D) become due, and when due will be paid by Owner to Contractor.

#### D. Reduction in Payment

1. Owner may refuse to make payment of the full amount recommended by Engineer because:

a. claims have been made against Owner on account of Contractor's performance or furnishing of the Work;

b. Liens have been filed in connection with the Work, except where Contractor has delivered a specific bond satisfactory to Owner to secure the satisfaction and discharge of such Liens;

e. there are other items entitling Owner to a set-off against the amount recommended; or

d. Owner has actual knowledge of the occurrence of any of the events enumerated in Paragraphs 14.02.B.5.a through 14.02.B.5.e or Paragraph 15.02.A.

2. If Owner refuses to make payment of the full amount recommended by Engineer, Owner will give Contractor immediate written notice (with a copy to Engineer) stating the reasons for such action and promptly pay Contractor any amount remaining after deduction of the amount so withheld. Owner shall promptly pay Contractor the amount so withheld, or any adjustment thereto agreed to by Owner and Contractor, when Contractor corrects to Owner's satisfaction the reasons for such action. 3. If it is subsequently determined that Owner's refusal of payment was not justified, the amount wrongfully withheld shall be treated as an amount due as determined by Paragraph 14.02.C.1.

#### 14.03 Contractor's Warranty of Title

A. Contractor warrants and guarantees that title to all Work, materials, and equipment covered by any Application for Payment, whether incorporated in the Project or not, will pass to Owner no later than the time of payment free and clear of all Liens.

14.04 Substantial Completion

A. When Contractor considers the entire Work ready for its intended use Contractor shall notify Owner and Engineer in writing that the entire Work is substantially complete (except for items specifically listed by Contractor as incomplete) and request that Engineer issue a certificate of Substantial Completion.

B. Promptly after Contractor's notification, , Owner, Contractor, and Engineer shall make an inspection of the Work to determine the status of completion. If Engineer does not consider the Work substantially complete, Engineer will notify Contractor in writing giving the reasons therefor.

C. If Engineer considers the Work substantially complete, Engineer will deliver to Owner a tentative eertificate of Substantial Completion which shall fix the date of Substantial Completion. There shall be attached to the certificate a tentative list of items to be completed or corrected before final payment. Owner shall have seven days after receipt of the tentative certificate during which to make written objection to Engineer as to any provisions of the certificate or attached list. If, after considering such objections, Engineer concludes that the Work is not substantially complete, Engineer will within 14 days after submission of the tentative certificate to Owner notify Contractor in writing, stating the reasons therefor. If, after consideration of Owner's objections, Engineer considers the Work substantially complete, Engineer will within said 14 days execute and deliver to Owner and Contractor a definitive certificate of Substantial Completion (with a revised tentative list of items to be completed or corrected) reflecting such changes from the tentative certificate as Engineer believes justified after consideration of any objections from Owner.

D. At the time of delivery of the tentative eertificate of Substantial Completion, Engineer will deliver to Owner and Contractor a written recommendation as to division of responsibilities pending final payment between Owner and Contractor with respect to security, operation, safety, and protection of the Work, maintenance, heat, utilities, insurance, and warranties and guarantees. Unless Owner and Contractor agree otherwise in writing and so inform Engineer in writing prior to Engineer's issuing the definitive certificate of Substantial

# Completion, Engineer's aforesaid recommendation will be binding on Owner and Contractor until final payment.

E. Owner shall have the right to exclude Contractor from the Site after the date of Substantial Completion subject to allowing Contractor reasonable access to complete or correct items on the tentative list.

# 14.05 Partial Utilization

A. Prior to Substantial Completion of all the Work, Owner may use or occupy any substantially completed part of the Work which has specifically been identified in the Contract Documents, or which Owner, Engineer, and Contractor agree constitutes a separately functioning and usable part of the Work that can be used by Owner for its intended purpose without significant interference with Contractor's performance of the remainder of the Work, subject to the following conditions.

1. Owner at any time may request Contractor in writing to permit Owner to use or occupy any such part of the Work which Owner believes to be ready for its intended use and substantially complete. If and when Contractor agrees that such part of the Work is substantially complete, Contractor will certify to Owner and Engineer that such part of the Work is substantially complete and request Engineer to issue a certificate of Substantial Completion for that part of the Work.

2. Contractor at any time may notify Owner and Engineer in writing that Contractor considers any such part of the Work ready for its intended use and substantially complete and request Engineer to issue a certificate of Substantial Completion for that part of the Work.

3. Within a reasonable time after either such request, Owner, Contractor, and Engineer shall make an inspection of that part of the Work to determine its status of completion. If Engineer does not consider that part of the Work to be substantially complete, Engineer will notify Owner and Contractor in writing giving the reasons therefor. If Engineer considers that part of the Work to be substantially complete, the provisions of Paragraph 14.04 will apply with respect to certification of Substantial Completion of that part of the Work and the division of responsibility in respect thereof and access thereto.

4. No use or occupancy or separate operation of part of the Work may occur prior to compliance with the requirements of Paragraph 5.10 regarding property insurance.

# 14.06 Final Inspection

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

# 14.07 Final Payment

# A. Application for Payment

1. After Contractor has, in the opinion of Engineer, satisfactorily completed all corrections identified during the final inspection and has delivered, in accordance with the Contract Documents, all maintenance and operating instructions, schedules, guarantees, bonds, certificates or other evidence of insurance certificates of inspection, marked-up record documents (as provided in Paragraph 6.12), and other documents, Contractor may make application for final payment following the procedure for progress payments.

2. The final Application for Payment shall be accompanied (except as previously delivered) by:

a. all documentation called for in the Contract Documents, including but not limited to the evidence of insurance required by Paragraph 5.04.B.7;

b. consent of the surety, if any, to final payment;

e. a list of all Claims against Owner that Contractor believes are unsettled; and

d. complete and legally effective releases or waivers (satisfactory to Owner) of all Lien rights arising out of or Liens filed in connection with the Work.

3. In lieu of the releases or waivers of Liens specified in Paragraph 14.07.A.2 and as approved by Owner, Contractor may furnish receipts or releases in full and an affidavit of Contractor that: (i) the releases and receipts include all labor, services, material, and equipment for which a Lien could be filed; and (ii) all payrolls, material and equipment bills, and other indebtedness connected with the Work for which Owner or Owner's property might in any way be responsible have been paid or otherwise satisfied. If any Subcontractor or Supplier fails to furnish such a release or receipt in full, Contractor may furnish a bond or other collateral satisfactory to Owner to indemnify Owner against any Lien.

B. Engineer's Review of Application and Acceptance

1. If, on the basis of Engineer's observation of the Work during construction and final inspection, and Engineer's review of the final Application for Payment and accompanying documentation as required by the Contract Documents, Engineer is satisfied that the Work has been completed and Contractor's other obligations

EJCDC C-700 Standard General Conditions of the Construction Contract. Copyright © 2002 National Society of Professional Engineers for EJCDC. All rights reserved. 00700 - 37 under the Contract Documents have been fulfilled, Engineer will, within ten days after receipt of the final Application for Payment, indicate in writing Engineer's recommendation of payment and present the Application for Payment to Owner for payment. At the same time Engineer will also give written notice to Owner and Contractor that the Work is acceptable subject to the provisions of Paragraph 14.09. Otherwise, Engineer will return the Application for Payment to Contractor, indicating in writing the reasons for refusing to recommend final payment, in which case Contractor shall make the necessary corrections and resubmit the Application for Payment.

#### C. Payment Becomes Due

1. Thirty days after the presentation to Owner of the Application for Payment and accompanying documentation, the amount recommended by Engineer, less any sum Owner is entitled to set off against Engineer's recommendation, including but not limited to liquidated damages, will become due and , will be paid by Owner to Contractor.

#### 14.08 Final Completion Delayed

A. If, through no fault of Contractor, final completion of the Work is significantly delayed, and if Engineer so confirms, Owner shall, upon receipt of Contractor's final Application for Payment (for Work fully completed and accepted) and recommendation of Engineer, and without terminating the Contract, make payment of the balance due for that portion of the Work fully completed and accepted. If the remaining balance to be held by Owner for Work not fully completed or corrected is less than the retainage stipulated in the Agreement, and if bonds have been furnished as required in Paragraph 5.01, the written consent of the surety to the payment of the balance due for that portion of the Work fully completed and accepted shall be submitted by Contractor to Engineer with the Application for such payment. Such payment shall be made under the terms and conditions governing final payment, except that it shall not constitute a waiver of Claims.

#### 14.09 Waiver of Claims

A. The making and acceptance of final payment will constitute:

1. a waiver of all Claims by Owner against Contractor, except Claims arising from unsettled Liens, from defective Work appearing after final inspection pursuant to Paragraph 14.06, from failure to comply with the Contract Documents or the terms of any special guarantees specified therein, or from Contractor's continuing obligations under the Contract Documents; and

2. a waiver of all Claims by Contractor against Owner other than those previously made in accordance with the requirements herein and expressly acknowledged by Owner in writing as still unsettled.

# ARTICLE 15 - SUSPENSION OF WORK AND TERMINATION

#### 15.01 Owner May Suspend Work

A. At any time and without cause, Owner may suspend the Work or any portion thereof for a period of not more than 90 consecutive days by notice in writing to Contractor and Engineer which will fix the date on which Work will be resumed. Contractor shall resume the Work on the date so fixed. Contractor shall be granted an adjustment in the Contract Price or an extension of the Contract Times, or both, directly attributable to any such suspension if Contractor makes a Claim therefor as provided in Paragraph 10.05.

#### 15.02 Owner May Terminate for Cause

A. The occurrence of any one or more of the following events will justify termination for cause:

1. Contractor's persistent failure to perform the Work in accordance with the Contract Documents (including, but not limited to, failure to supply sufficient skilled workers or suitable materials or equipment or failure to adhere to the Progress Schedule established under Paragraph 2.07 as adjusted from time to time pursuant to Paragraph 6.04);

 Contractor's disregard of Laws or Regulations of any public body having jurisdiction;

3. Contractor's disregard of the authority of Engineer; or

4. Contractor's violation in any substantial way of any provisions of the Contract Documents.

B. If one or more of the events identified in Paragraph 15.02.A occur, Owner may, after giving Contractor (and surety ) seven days written notice of its intent to terminate the services of Contractor:

1. exclude Contractor from the Site, and take possession of the Work and of all Contractor's tools, appliances, construction equipment, and machinery at the Site, and use the same to the full extent they could be used by Contractor (without liability to Contractor for trespass or conversion),

2. incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere, and

3. complete the Work as Owner may deem expedient.

C. If Owner proceeds as provided in Paragraph 15.02.B, Contractor shall not be entitled to receive any further payment until the Work is completed. If the unpaid balance of the Contract Price exceeds all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) sustained by Owner arising out of or relating to completing the Work, such excess will be paid to Contractor. If such claims, costs, losses, and damages exceed such unpaid balance, Contractor shall pay the difference to Owner. Such claims, costs, losses, and damages incurred by Owner will be reviewed by Engineer as to their reasonableness and, when so approved by Engineer, incorporated in a Change Order. When exercising any rights or remedies under this Paragraph Owner shall not be required to obtain the lowest price for the Work performed.

D. Notwithstanding Paragraphs 15.02.B and 15.02.C, Contractor's services will not be terminated if Contractor begins within seven days of receipt of notice of intent to terminate to correct its failure to perform and proceeds diligently to cure such failure within no more than 30 days of receipt of said notice.

E. Where Contractor's services have been so terminated by Owner, the termination will not affect any rights or remedies of Owner against Contractor then existing or which may thereafter accrue. Any retention or payment of moneys due Contractor by Owner will not release Contractor from liability.

F. If and to the extent that Contractor has provided a performance bond under the provisions of Paragraph 5.01.A, the termination procedures of that bond shall supersede the provisions of Paragraphs 15.02.B, and <del>15.02.C.</del>

#### 15.03 **Owner May Terminate For Convenience**

A. Upon seven days written notice to Contractor and Engineer, Owner may, without cause and without prejudice to any other right or remedy of Owner, terminate the Contract. In such case, Contractor shall be paid for (without duplication of any items):

1. completed and acceptable Work executed in accordance with the Contract Documents prior to the effective date of termination, including fair and reasonable sums for overhead and profit on such Work;

2. expenses sustained prior to the effective date of termination in performing services and furnishing labor, materials, or equipment as required by the Contract Documents in connection with uncompleted Work, plus fair and reasonable sums for overhead and profit on such expenses;

3. all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) incurred in settlement of terminated contracts with Subcontractors, Suppliers, and others; and

4. reasonable expenses directly attributable to termination.

# B. Contractor shall not be paid on account of loss of anticipated profits or revenue or other economic loss arising out of or resulting from such termination.

#### 15.04 Contractor May Stop Work or Terminate

A. If, through no act or fault of Contractor, (i) the Work is suspended for more than 90 consecutive days by Owner or under an order of court or other public authority, or (ii) Engineer fails to act on any Application for Payment within 30 days after it is submitted, or (iii) Owner fails for 30 days to pay Contractor any sum finally determined to be due, then Contractor may, upon seven days written notice to Owner and Engineer, and provided Owner or Engineer do not remedy such suspension or failure within that time, terminate the Contract and recover from Owner payment on the same terms as provided in Paragraph 15.03.

B. In lieu of terminating the Contract and without prejudice to any other right or remedy, if Engineer has failed to act on an Application for Payment within 30 days after it is submitted, or Owner has failed for 30 days to pay Contractor any sum finally determined to be due, Contractor may, seven days after written notice to Owner and Engineer, stop the Work until payment is made of all such amounts due Contractor, including interest thereon. The provisions of this Paragraph 15.04 are not intended to preclude Contractor from making a Claim under Paragraph 10.05 for an adjustment in Contract Price or Contract Times or otherwise for expenses or damage directly attributable to Contractor's stopping the Work as permitted by this Paragraph.

#### **ARTICLE 16 - DISPUTE RESOLUTION**

#### 16.01 Methods and Procedures

A. Either Owner or Contractor may request mediation of any Claim submitted to Engineer for a decision under Paragraph 10.05 before such decision becomes final and binding. The mediation will be

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governed by the Construction Industry Mediation Rules of the American Arbitration Association in effect as of the Effective Date of the Agreement. The request for mediation shall be submitted in writing to the American Arbitration Association and the other party to the Contract. Timely submission of the request shall stay the effect of Paragraph 10.05.E.

B. Owner and Contractor shall participate in the mediation process in good faith. The process shall be concluded within 60 days of filing of the request. The date of termination of the mediation shall be determined by application of the mediation rules referenced above.

C. If the Claim is not resolved by mediation, Engineer's action under Paragraph 10.05.C or a denial pursuant to Paragraphs 10.05.C.3 or 10.05.D shall become final and binding 30 days after termination of the mediation unless, within that time period, Owner or Contractor:

1. elects in writing to invoke any dispute resolution process provided for in the Supplementary Conditions, or

2. agrees with the other party to submit the Claim to another dispute resolution process, or

3. gives written notice to the other party of their intent to submit the Claim to a court of competent jurisdiction.

# ARTICLE 17 - MISCELLANEOUS

### 17.01 *Giving Notice*

A. Whenever any provision of the Contract Documents requires the giving of written notice, it will be deemed to have been validly given if:

1. delivered in person to the individual or to a member of the firm or to an officer of the corporation for whom it is intended, or

2. delivered at or sent by registered or certified mail, postage prepaid, to the last business address known to the giver of the notice.

# 17.02 *Computation of Times*

A. When any period of time is referred to in the Contract Documents by days, it will be computed to exclude the first and include the last day of such period. If the last day of any such period falls on a Saturday or Sunday or on a day made a legal holiday by the law of the applicable jurisdiction, such day will be omitted from the computation.

#### 17.03 *Cumulative Remedies*

A. The duties and obligations imposed by these General Conditions and the rights and remedies available hereunder to the parties hereto are in addition to, and are not to be construed in any way as a limitation of, any rights and remedies available to any or all of them which are otherwise imposed or available by Laws or Regulations, by special warranty or guarantee, or by other provisions of the Contract Documents. The provisions of this Paragraph will be as effective as if repeated specifically in the Contract Documents in connection with each particular duty, obligation, right, and remedy to which they apply.

# 17.04 *Survival of Obligations*

A. All representations, indemnifications, warranties, and guarantees made in, required by, or given in accordance with the Contract Documents, as well as all continuing obligations indicated in the Contract Documents, will survive final payment, completion, and acceptance of the Work or termination or completion of the Contract or termination of the services of Contractor.

### 17.05 Controlling Law

A. This Contract is to be governed by the law of the state in which the Project is located.

17.06 Headings

A. Article and paragraph headings are inserted for convenience only and do not constitute parts of these General Conditions.

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# SECTION 00800

# SUPPLEMENTARY CONDITIONS Part I AMENDMENTS TO GENERAL CONDITIONS

These Supplementary Conditions amend or supplement the Standard General Conditions of the Construction Contract (EJCDC No. C-700, 2002 Edition)(the General Conditions) and other provisions of the Contract Documents as indicated below. All provisions which are not so amended or supplemented remain in full force and effect.

Paragraphs or subparagraphs as noted below are required by or are intended to be consistent with the requirements of Massachusetts statutes governing public construction contracts in the Commonwealth of Massachusetts (the "Commonwealth"). Any other provisions required by statute to be included herein shall be deemed to be so included. In addition, the Owner and Contractor recognize that other rights, duties and obligations with respect to public construction contracts are provided for by statute, notwithstanding the fact that they are not provided for in the Contract Documents. In case of conflict between the asterisked provisions and other provisions of the Contract Documents, the asterisked provisions of any applicable statute, the statutory provisions shall govern. Where the term "Awarding Authority" appears in any asterisked provision, it shall mean the Owner.

# ARTICLE 1 – DEFINITIONS AND TERMINOLOGY

SC-1.01 Defined Terms

Delete the definition of 5. Bid in its entirety and insert in its place the following:

"Bid shall mean the price submission by the individual, partnership, corporation, or other entity setting forth the monetary amount of the total contract, together with any unit prices requested, on a form prescribed by the Owner, pursuant to M.G.L. c. 149, §§44A et seq.."

Delete the definition of 6. Bidder in its entirety and insert in its place the following:

"Bidder shall mean the individual, partnership, corporation, or other entity who submits a Bid pursuant to an Invitation for Bids by the Owner."

Delete the definition of 7. Bidding Documents in its entirety and insert in its place the following:

"Bidding documents shall mean any and all documents issued by the Owner in requesting Bids pursuant to M.G.L. c.149, §§44A et seq., which shall include, but shall not be limited to, the Invitation for Bids, the Information for Bidders, Bid Bond (if any), Performance Bond, Payment Bond, Contract, General Conditions of the Contract, Supplementary General Conditions of the Contract, Supplier Diversity Office (SDO) Forms (if applicable), Minimum Prevailing Wage Rates (as applicable), and other additional information provided to potential Bidders by the Owner."

Delete the definition of 8. Bidding Requirements in its entirety and insert in its place the following:

"Bidding requirements shall mean any and all requirements contained in any portion of the Bidding Documents issued by the Owner."

Delete the definition of 9. Change Order in its entirety and insert in its place the following:

"Change Order shall mean a written order to the Contract signed to show the recommendation of the Project Manager, if any, the approval of the Engineer and the authorization of the Owner, executed with the same formality as the Contract, issued after the execution of the Contract, authorizing a change in the Work or an adjustment in the Contract Sum or the Contract Time. The Contract Sum and Contract Time may be changed only by Change Order. A Change Order signed by the Contractor indicates the Contractor's Contract therewith, including the adjustment in the Contract Sum or the Contract Sum or the Contract Time.

A Change Order request may originate with the Owner, the Engineer, if any, or the Contractor and shall be submitted to the Owner. The Change Order request shall be made in writing and in accordance with the provisions of the Contract and applicable procedures of the Owner. The term equitable adjustment, as used in this paragraph, shall include all adjustments to the Contract Price or to the Time to which the Contractor is entitled, pursuant to M.G.L. c.30, Sections 39N and 39O. Such equitable adjustment shall be made in accordance with the provisions of this Article.

A Change Order may be submitted for changes in the Contract work, including but not limited to, changes in:

- a. the plans and specifications
- b, in the method or manner or performance of the work; and/or
- c. in the schedule for performance of the work."

In the definition of 11. Contract, insert the following sentence at the end: "The word "Agreement" in the Bidding Requirements or Contract Documents shall mean the same as the word Contract."

Delete the definition of 12. Contract Documents and insert in its place the following:

"Contract documents are those documents enumerated in the written Agreement between the Owner and Contractor (hereinafter the Agreement) and consist of the Agreement, the General Conditions of the Contract, the Supplementary General Conditions of the Contract, other Conditions of the Contract, Drawings, Specifications, Addenda issued prior to the execution of the contract, other documents listed in the Agreement, and modifications issued after the execution of the Contract. A modification is a written amendment signed by both parties to the Agreement, a Change Order, a Work Change Directive, or a minor written change in the Work Ordered by the Engineer (Field Order)."

Delete the definition of 22. Hazardous Environmental Condition and insert in its place the following:

"Hazardous Environmental Condition is the presence at the Site of Asbestos, PCBs, Petroleum,

Hazardous Waste, Radioactive Material or other material in such quantities or circumstances that may present a substantial or notable danger or harm to persons or property exposed thereto in connection with the Work."

Delete the definition of 24. Laws and Regulations; Laws or Regulations and insert in its place the following:

"Laws and Regulations shall mean all Federal, Massachusetts and Town of Natick law applicable to his work including, without limitation, statutes, by-laws, rules, regulations, orders and directives, as amended, and including, without limitation, the Williams-Steiger Occupational Safety and Health Act, as amended, and related regulations, as amended, in effect throughout the term of the Contract and any extension or renewal thereof, with which the Contractor shall be required to comply. Without limitation, the Contractor shall comply with the provisions of Chapter 149, Section 26 to 27D of the Massachusetts General Laws, as amended, and the applicable minimum prevailing wage rates as determined by the Massachusetts Commissioner of Labor and Industries. The Contract shall be considered to include in their entirety all terms respecting workers' compensation insurance and other terms required to be included in it by Chapter 152 of the Massachusetts General Laws, as amended, and any other laws, as though such terms were set forth in their entirety herein."

Delete the definition of 29. Owner and insert in its place the following:

"Owner, sometimes referred to as Town or Awarding Authority, is the Town of Natick, a body corporate and politic located in Natick, Middlesex County, Massachusetts. The Owner and its authorized representatives, as well as Engineer and Owner's Project Manager, if any, shall at all times have access to and be permitted to observe and review all Work, materials, payrolls, records of personnel, conditions of employment, invoices for materials, and generally all records relating to the Work. No member, officer, agent, employee, representative or official of the Owner shall in any way, directly or indirectly, be personally liable, under any provisions of the Contract."

In the definition of 36. Related Entity, insert "board, commission, committee or member thereof" between "employee" and "agent".

Delete the definition of 45. Substantial Completion in its entirety and insert in its place the following definition:

"45. Substantial Completion shall mean either that the Work required by the Contract has been completed except for Work having a Contract Price of less than one (1) percent of the then adjusted total Contract Price, or 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 required by the Contract."

Delete the definition of 46. Successful Bidder in its entirety and insert in its place the following:

"Successful bidder shall mean the lowest responsible and eligible bidder, as defined in M.G.L. c. 149, §§44A et seq., on the basis of competitive bids publicly opened and read by the Awarding Authority forthwith upon expiration of the time for the filing thereof; provided, however, that the Awarding

Authority may reject any and all bids, if it is in the public interest to do so."

Add the following to the definition of 51. Work:

"All Work mentioned or indicated in the Contract Documents shall be performed by the Contractor as part of the Contract unless it is specifically indicated in the Contract Documents that such Work is to be done by others. Should the Drawings or the Specifications disagree in themselves or with each other, the Contractor shall provide the better quality or greater quantity of Work unless otherwise directed by written addendum to the Contract. All indications or notations which apply to one of a number of similar situations, materials or processes shall be deemed to apply to all such situations, materials or processes wherever they appear in the Work, except where a contrary result is clearly indicated by the Contract Documents. Where codes, regulations, standards,

requirements and publications of public and private bodies are referred to in the

Specifications, references shall be understood to be to the latest revision prior to the date of receiving bids, except where otherwise indicated. Where no explicit quality or standards for workmanship are established for Work, such Work is to be of good quality and consistent with the quality required by the Contract Documents. The Drawings are diagrammatic only, and are not intended to show the alignment, physical locations or configurations of such Work. The Owner and Engineer assume no liability arising out of jurisdictional issues raised or claims advanced by trade organizations or other interested parties based on the arrangement or manner of subdivision of the content of the Drawings and Specifications. The Contractor shall make all necessary arrangements to reconcile any such jurisdictional conflicts without delay, damage or cost to the Owner, unless otherwise agreed by the parties hereto."

Delete the definition of 52. Work Change Directive in its entirety and insert in its place the following:

"Work Change Directive shall mean a written order prepared by the Engineer and signed off on by the Owner and Engineer, directing a change in the Work prior to agreement on adjustment, if any, in the Contract Price or Contract Times, or both. The Owner may, by Work Change Directive, without invalidating the Contract, order changes in the Work within the general scope of the Contract, consisting of additions, deletions, or other revisions, the Contract Price and Contract Times being adjusted accordingly."

Add the definition of "Complete and/or Completion" after paragraph 52, which is to read as follows:

"53. Complete and/or Completion - Whenever the word "Complete and/or Completion" is utilized in the Contract in reference to work completed when referring to the completion date of the contract and the assessment of liquidated damages, it shall be understood to mean that all work on the project is completed, the facilities are fully operational, the data required to closeout the project has been submitted and approved, and incidental items included in the closeout punch list have been completed to the Owner's satisfaction".

# ARTICLE 2 PRELIMINARY MATTERS

SC-2.01-B Delete paragraph 2.01-B of the General Conditions in its entirety.

SC-2.03-A Delete the last sentence of paragraph 2.03-A.

# ARTICLE 3 – CONTRACT DOCUMENTS: INTENT, AMENDING, REUSE

SC-3.01 The last clause in paragraph 3.01-B of the General Conditions shall read:

"shall be provided by the Contractor, at no additional cost to the Owner, whether or not specifically called for".

SC-3.01-D Add a new section 3.01-D to the General Conditions as follows:

"In the event of any conflict among the Contract Documents, the Documents shall be construed according to the following priorities:

Highest Priority:	Amendments			
Second Priority:	Contract			
Third Priority:	Addendalater date to			
	take precedence			
Fourth Priority:	Supplementary General			
	Conditions			
Fifth Priority:	General Conditions			
Sixth Priority:	Division 1, General			
	Requirements			
Seventh Priority:	<b>Technical Specifications</b>			
<b>Eighth Priority:</b>	Drawings, with larger scale	drawings to take precedence		
Ninth Priority: Invitation to Bid, Instruction to Bidders, The Contractor's General Bid.				

Notwithstanding the order of priority of documents set forth in Subparagraph 3.01-D, any matters contained in the Specifications which have been omitted from the Drawings or vice versa shall be construed as though contained in both. In the event of any duplication, conflict, or discrepancy between the Drawings and the Specifications or between other contract clauses, so far as the same pertains to the Drawings, the Specifications or any modifications to the Drawings or the Specifications, the matter shall be promptly brought to the attention of the Engineer, without whose instructions the Contractor shall not adjust the matter except at his own risk. Any instructions of the Engineer shall be given in writing."

SC-3.02	Insert a new paragraph SC-3.02-A.3 in the General
	Conditions as follows:

"Paragraphs or subparagraphs herein are intended to be consistent with the requirements of Massachusetts statutes governing public building construction contracts in the Commonwealth. Any other provisions required by statute to be included herein shall be deemed to be so included. In addition, the Owner and Contractor recognize that other rights, duties and obligations with respect to public construction contracts are provided for by statute, notwithstanding the fact that they are not provided for in the Contract Documents."

SC-3.03 Insert the following language at the beginning of the second sentence in paragraph 3.03-A.2 of the General Conditions:

"In the event that such a conflict, error, ambiguity or discrepancy actually exists which requires an amendment or supplement to the Contract Documents,".

SC-3.04 Insert a new paragraph 3.04-C in the General Conditions as follows:

No officer, official, agent or employee of the Town of Natick shall have the power to amend, modify or alter the Contract or waive any of its provisions or to bind the Town of Natick by making any promise or representation not contained herein except by an amendment, in writing, executed by the Owner in the same manner as the Contract is executed. Neither party may rely on any conduct, statement, action, inaction or course of conduct of the employees, agents or officers of the other party as having changed, modified or amended the Contract. Neither party shall be construed as waiving any provision of the Contract unless the waiver is executed in writing as an amendment to the Contract. No waiver by either party of any default or breach shall constitute a waiver of any subsequent default or breach. Forbearance or indulgence in any form or manner by either party shall not be construed as waiver of any term or condition hereto nor shall it limit the legal or equitable remedies available to that party.

Information or services required of the Owner hereunder shall be furnished by the Owner with reasonable promptness and in accordance with M.G.L. c.30, §39P, as applicable, after receipt from the Contractor of a reasonably detailed written request for such information or services. Reference is made to General Laws Chapter 30, Section 39P, the provisions of which are incorporated herein."

SC-3.05 In paragraph 3.05-A.2 of the General Conditions, in the third line, insert "prior" between "without" and "written" and in the fourth line, insert "prior" between "specific" and "written".

# ARTICLE 4 AVAILABILITY OF LANDS; SUBSURFACE AND PHYSICAL CONDITIONS; HAZARDOUS ENVIRONMENTAL CONDITIONS, REFERENCE POINTS

SC 4.01 Insert the following language at the end of the third sentence of paragraph 4.01-A of the General Conditions ", which easements are required under the circumstances".

SC-4.01-C Add the following language to the last sentence in paragraph 4.01-C of the General Conditions:

", at his own expense and without liability to the Owner"

SC-4.01-B Delete paragraph 4.01-B of the General Conditions in its entirety.

SC-4.03 Delete paragraph 4.03 A, B and C of the General Conditions in their entirety and insert in its place the following language:

# "(Statutory reference: M.G.L. c.30 §39N)

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 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 Awarding 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 methods required for the performance of the work which results in an increase or decrease in the cost of the work, the Awarding Authority shall make an equitable adjustment in the Contract price and the Contract shall be modified in writing accordingly.

If the Contractor claims that any acts or omissions of the Owner or the Engineer, including any instructions or orders, whether oral, written, by Drawings, or otherwise, involve extra cost or time, and the Contractor has not received a written acknowledgment by the Owner or Engineer that extra payment will be made or time extended on account thereof, the Contractor shall promptly so notify the Engineer in writing of such Claim and shall not proceed with the Work relating to such Claim until the Contractor has received a further written order to proceed in accordance with this Agreement. No Claim by the Contractor on account of such acts, omissions, instructions or orders shall be valid unless the Contractor has so notified the Engineer in writing, before proceeding, and has received the further written order to proceed.

The Contractor shall have the burden of demonstrating the effect of the claimed delay on the Contract Time, and shall furnish the Engineer with such documentation relating thereto as the Engineer may reasonably require. Estimates of the extension of time shall be accompanied by a schedule showing how the Critical Path has been affected."

SC 4.04 Insert the following sentence just prior to the last sentence of paragraph 4.04-A of the General Conditions:

"The locations of existing underground facilities shown on the Contract Drawings are approximate only, and are included to indicate that the underground facilities are present, and it shall be the Contractor's responsibility to make arrangements with all utility companies for field locations. The Contractor shall also contact "Dig Safe" and other appropriate departments, agencies and companies to insure that all underground facilities are located prior to excavation, regardless of the fact that they may or may not be shown on the Contract Drawings".

SC-4.04-B.2 Delete the final sentence of paragraph 4.04-B.2 of the General Conditions.

SC-4.06 Insert the following sentence after paragraph 4.06-A of the General Conditions:

"The following reports and drawings relating to a Hazardous Environmental Condition identified at the site have been utilized by the Engineer in the preparation of the Contract Documents.

• None"

SC-4.06-C Insert the following sentence at the end of paragraph 4.06-C of the General Conditions:

"Nothing in the Contract Documents shall limit the responsibility of the Contractor for any Hazardous Environmental Condition which is caused by the Contractor or by any of its officers, employees, boards, commissions, committees, agents or representatives."

SC-4.06-D Insert the following sentences at the end of paragraph 4.06-D of the General Conditions:

"In that event Contractor and its officers, employees, agents and representatives shall have no authority to handle, transport, remove or dispose of any materials the presence of which at the site constitutes a Hazardous Environmental Condition. In any event Contractor shall be liable for its negligence or willful misconduct."

SC-4.06-G Delete paragraph 4.06-G of the General Conditions.

## ARTICLE 5 BONDS AND INSURANCE

SC-5.01 Delete paragraph 5.01-A of the General Conditions in its entirety and insert in its place the following:

"As required by M.G.L. c. 149, §44E, or by these Supplementary Conditions, the Contractor shall furnish a Performance Bond, acceptable to the Town of Natick, as security for the faithful performance of its obligations under the Contract. Said Performance Bond shall be in the amount of one hundred percent (100%) of the Contract Price and shall be issued by a surety company qualified to do business under the laws of the Commonwealth of Massachusetts and approved by the Owner. Said Performance Bond shall obligate the Contractor, its surety, and their successors and assigns for all of the work required to be performed by the Contractor under the Contract. Said Performance Bond shall remain in effect no less than one (1) year after the expiration of the term of the Contract, or any extension or renewal thereof.

As also required by M.G.L. c. 149, §44E, or by these Supplementary Conditions, the Contractor shall furnish a Payment Bond, acceptable to the Town of Natick, as security for the faithful payment of its obligations under the Contract. Said Payment Bond shall be in the amount of one hundred percent (100%) of the Contract Price and shall be issued by a surety company qualified to do business under the laws of the Commonwealth of Massachusetts and approved by the Owner. Said Payment Bond shall obligate the Contractor, its surety, and their successors and assigns to pay for labor, materials and equipment furnished for use regarding the work to be performed by the Contractor under the Contract.

Said Payment Bond shall remain in effect no less than one (1) year after the expiration of the term of the Contract, or any extension or renewal thereof."

SC-5.04 Insert the following language at the end of paragraph 5.04-B.1 of the General Conditions:

"Notwithstanding any other provision of the Contract Documents, the Contractor shall provide to the Owner, with its proof of insurance coverage, endorsements or riders to the policies of Commercial General Liability Insurance, Automobile Liability Insurance, and Excess Liability Insurance, Umbrella Form, which indicate that the Town of Natick and Haley and Ward are named as an additional insured on each such policy."

SC-5.04 Add the following language after paragraph 5.04.B-5 of the General Conditions:

"Each certificate and policy of insurance required by this Agreement shall contain a cancellation provision as indicated below with no variations.

The above policies will not be cancelled or materially amended before the expiration date thereof, until at least thirty (30) calendar days prior written notice has been given to the certificate holders and the named insured and the Owner."

SC-5.04 Add the following paragraphs at the end of paragraph 5.04-B.2 of the General Conditions:

"5.04-B-2.a "The Contractor shall provide and maintain throughout the term of the Contract and any extension or renewal thereof the following insurance with companies that are authorized and licensed in the Commonwealth of Massachusetts to issue policies for the coverages and limits so required. The Contractor shall also ensure that any and all Subcontractors and sub-subcontractors provide insurance in the following limits and that the Town of Natick is named as an additional insured and meet the following requirements.

A 1 Commercial General Liability including but not limited to:

- 1. Premises/Operations
- 2. Products/Completed Operations
- 3. Contractual
- 4. Independent Contractors
- 5. Broad Form Property Damage
- 6. Personal Injury
- 7. Medical Expense
- 8. Underground Explosion and Collapse Hazard (XCU)
- A 2 Limits for Commercial General Liability at a minimum shall be:
- 1. General Liability

General Aggregate		\$2,000,000.		
Each (	Occurrence	\$1,000,000.		
2.	Products/Comp	leted Operations	\$2,0	00,000.
3.	Personal Injury		\$1,0	00,000.
4.	Medical Expens	se	\$	5,000.

- B 1 Automotive Liability including but not limited to:
- 1. Scheduled Autos
- 2. Hired Autos
- 3. Non Owned Autos
- B 2 Limit for Automotive Liability at a minimum shall be:
- 1. Combined Single Limit \$1,000,000.
- C 1 Worker's Compensation and Employer's Liability
- C 2 Limits for Worker's Compensation and Employer's Liability at a minimum shall be:
- 1. Worker's Compensation

Statutory Amount
4
\$1,000,000.
\$1,000,000.
\$1,000,000.

D-1 Provide Excess Umbrella for Liability Coverage. Use of Umbrella to meet other insurance limits will not be accepted. Limits for liability at a minimum shall be:

1.	Each Occurrence	\$5,000,000
2.	General Aggregate	\$5,000,000

Excess Liability Insurance, Umbrella Form shall be following form, providing coverage over commercial general liability insurance, automobile liability insurance, and employer's liability under workers' compensation insurance.

E-1 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.

F-1 Certificates evidencing such insurance in five (5) copies shall be furnished to the Town of Natick at the execution of the Contract. Such certificates shall not merely name the types of policies provided, but shall specifically refer to the Contract and shall state that such insurance is as required by the Contract. With the certificates, the Contractor shall submit an insurance certification form from insurer/insurers, indicating that the coverages provided do in fact satisfy all the insurance requirements listed under ARTICLE 5 of the General Conditions, and the amendments thereto under the Supplementary Conditions. The insurance certification form is included in Part II of the Supplementary Conditions.

The Contractor shall also be required to provide to the Owner with its proof of insurance coverage endorsements or riders to the policies of commercial general liability insurance, automobile liability insurance, and excess umbrella liability insurance, umbrella form, which indicate that the Town of Natick is named as an additional insured on each such policy.

No insurance shall be obtained from an insurer which:

a. is not licensed to sell insurance in the Commonwealth of Massachusetts; or

b. is not authorized to provide insurance as an excess or surplus lines insurer, and does not have a current Best's rating of A or better."

G-1 The Contractor shall make no claims against the Town of Natick or its officers for any injury to any officers or employees or for damage to its equipment arising out of work contemplated by the Contract."

SC 5.05 Delete paragraph 5.05 of the General Conditions in its entirety, and insert the following paragraphs in its place:

"5.05-A Contractor shall purchase and maintain a separate Owner's Protective Liability policy, issued to Owner at the expense of Contractor, with the Owner and Engineer only as named insured. This insurance shall provide coverage for not less than the following amounts:

1.	General Aggregate	\$3,000,000.
2.	Each Occurrence	\$1,000,000.

5.05-A.1. A rider on the Contractor's Liability Insurance will not be acceptable."

5.05.-A.2 The provisions of paragraph 5.04-B.2.aE-1 and 5.04B-2.aF-1 of the General Conditions are incorporated herein by reference.

SC 5.06 Delete paragraph 5.06-A of the General Conditions in its entirety and insert the following paragraph in its place:

"5.06-A. For projects that includes work within existing structures or buildings, the Contractor shall be required to provide Installation Floater coverage in the full amount of the work being performed, and for projects that include construction of a new structure or building, the Contractor shall provide Builder's All Risk coverage in the full value of the structure and contents. This insurance shall:"

SC-5.06-A.1 Add the following sentence to the end of paragraph 5.06-A.1 of the General Conditions, as follows:

"The additional insured for this project shall be the Owner and Engineer."

SC-5.06 Delete paragraphs 5.06-B, C, D, E of the General Conditions in their entirety.

SC 5.07 Delete paragraphs 5.07-A and 5.07-B and 5.07-C of the General Conditions in their entirety, and insert the following paragraphs in their place:

"5.07 The Contractor shall waive all rights against the Owner for all losses and damages caused by any perils covered by the policies of insurance provided in response to paragraph SC 5.06 of the Supplementary Conditions and any other property insurance applicable to the Work, and also waive such rights against the Subcontractors, Engineer, Engineer's consultant and all other parties named as insured in such policies for loss and damages so caused.

5.07.1 As required by paragraph 6.06-G of the General Conditions each subcontract between Contractor and a Subcontractor will contain similar waiver provisions by the Subcontractor in favor of Owner, Contractor, Engineer, Engineer's consultants and all other parties named as insureds.

5.07.2 All such policies provided in response to paragraph 5.06 of the General Conditions, as amended in SC 5.06 of the Supplementary Conditions shall contain provisions to the effect that in the event of payment of any loss or damage the insurer will have no rights or recovery against the Owner, Engineer or Engineer's consultant."

SC 5.08 Delete paragraph 5.08-A and 5.08-B of the General Conditions in their entirety.

SC 5.09 Delete paragraph 5.09 of the General Conditions in its entirety and insert the following paragraph in its place:

"5.09 If Owner has any objection to the coverage afforded by or other provisions of the insurance required to be purchased and maintained by Contractor in accordance with paragraph 5.02 thru 5.06 on the General Conditions, as amended by SC 5.04 thru SC 5.06 of the Supplementary Conditions, on the basis of its not complying with the Contract Documents. Owner will notify Contractor in writing thereof within fourteen (14) calendar days of the date of delivery of such certificates to Owner in accordance with paragraph 2.01-B. Contractor will provide such additional information in respect of insurance provided by him as Owner may reasonably request."

# ARTICLE 6 - CONTRACTOR'S RESPONSIBILITIES

SC-6.01-A and 6.01-B Delete paragraphs 6.01A and 6.01B of the General Conditions and insert in their place the following:

"The Contractor shall employ a competent superintendent, reasonably acceptable to the Owner, and necessary assistants who shall be in attendance at the Project site full time and at all times during the progress of the Work until the date of Substantial Completion, and for such additional time thereafter as the Engineer may determine to be necessary for the expeditious completion of the Work. The Contractor shall remove the superintendent if requested to do so in writing by the Owner or by the Engineer on behalf of the Owner, and shall promptly replace him with a competent person reasonably acceptable to the Owner, at no increase in the Contract Sum or Contract Time.

The Contractor shall not replace such superintendent without the prior written approval of the Engineer.

The Contractor shall retain a competent engineer or surveyor who shall establish sufficient lines and grades for the Work.

The Contractor shall coordinate and supervise the Work performed by Subcontractors to the end that the Work is carried out without conflict between trades and so that no trade, at any time, causes delay to the general progress of the Work. The Contractor and all Subcontractors shall at all times afford each trade, any separate contractor, or the Owner, every reasonable opportunity for the storage of materials.

The Contractor shall arrange for and attend job meetings with the Engineer and such other persons as the Engineer and the Owner may from time to time wish to have present. The Contractor shall be represented by a principal, or project manager, as well as by the Contractor's own superintendent. An authorized representative of any Subcontractor or Sub-subcontractor shall attend such meetings if the representative's presence is requested by the Engineer. Such representatives shall be empowered to make binding commitments on all matters to be discussed at such meetings, including costs, payments, Change Orders, time schedules and manpower. Any notices required under the Contract may be served on such representatives.

The Contractor warrants that its financial condition is sound and that the Contractor shall be capable of obtaining any bonds required by the Contract Documents. The Contractor shall promptly advise the Owner of any occurrence, event, fact, or other matter that has had or will have a materially adverse effect upon the financial condition of the Contractor.

The Contractor hereby represents and warrants to the Owner that the Contractor is a business entity which is experienced and skilled in the construction of projects of the type described in the Contract Documents, is licensed to engage in the general construction business in the Commonwealth of Massachusetts, and is in compliance with all applicable governmental laws and regulations and all case law relative thereto.

Before starting the Work, and at frequent intervals during the progress thereof, the Contractor shall carefully study and compare the Contract Documents with each other and with the information furnished by the Owner, the Engineer and the Contractor and shall at once report to the Engineer any error, inconsistency or omission the Contractor may discover. Any necessary change shall be ordered as provided in the Contract Documents. If the Contractor proceeds with the Work without such notice to the Engineer, having discovered such errors, inconsistencies or omissions, or if by reasonable study of the Contract Documents the Contractor could have discovered such errors, inconsistencies or omissions the Contractor shall bear all costs arising therefrom."

SC-6.02-B In paragraph 6.02-B of the General Conditions, in the seventh line, insert "prior" between "Owner's" and "written".

SC-6.05-A Delete paragraph 6.05-A of the General Conditions, in its entirety and insert in its place the following:

"Specifications for such contracts, and specifications for contracts awarded pursuant to the provisions of said sections forty-four A to forty-four L of said chapter one hundred and forty-nine, shall be written to provide for full competition for each item of material to be furnished under the contract; except,

however, that said specifications may be otherwise written for sound reasons in the public interest stated in writing in the public records of the awarding authority or promptly given in writing by the awarding authority to anyone making a written request therefor, in either instance such writing to be prepared after reasonable investigation. Every such contract shall provide that an item equal to that named or described in the said specifications may be furnished; and an item shall be considered equal to the item so named or described if, in the opinion of the awarding authority: (1) it is at least equal in quality, durability, appearance, strength and design, (2) it will perform at least equally the function imposed by the general design for the public work being contracted for or the material being purchased, and (3) it conforms substantially, even with deviations, to the detailed requirements for the item in the said specifications. For each item of material the specifications shall provide for either a minimum of three named brands of material or a description of material which can be met by a minimum of three manufacturers or producers, and for the equal of any one of said named or described materials." Statutory reference M.G.L. c. 30, §39M(b)

SC-6.05-A.2.d.2) and 3) In paragraphs 6.05-A.2.d.2) and 3) of the General Conditions, delete the first word "will" and insert in its place the word "shall".

SC-6.05-BIn paragraph 6.05-B of the General Conditions, in the sixth line, insert "in<br/>advance, in writing," between "approved" and "by".SC 6.05-FAdd the following language to the end of paragraph 6.05-F of the General<br/>Conditions.

"Contractor shall submit to the Engineer for review, drawings to scale, showing the effect this substitute will have upon the adjoining materials, piping, equipment, etc., at no additional cost to the Owner."

SC-6.06-B Add the following to the end of paragraph 6.06-B of the General Conditions: "The Contractor shall be required to submit to the Owner a list of Subcontractors it intends to use at a certain date to be specified by the Owner. The Contractor shall not use any Subcontractor to which the Owner objects and to which the Owner provides written notice of such objection to the Contractor."

SC-6.06-C.2 In paragraph 6.06-C.2 of the General Conditions, in the first line, delete the words "anything in the Contract Documents".

SC 6.07-B Delete paragraph 6.07-B of the General Conditions in its entirety and insert in its place the following:

"To the fullest extent permitted by law, the Contractor shall indemnify, defend, and hold harmless the Town of Natick and the Engineer and all of their officers, employees, boards, commissions, committees, agents and representatives from and against all claims, causes of action, suits, costs, damages, and liability of any kind which arise out of the Contractor's or subcontractors' infringement of patent rights or copyrights incident to the use in the performance of the Work of, or resulting from the Contractor's or subcontractors' incorporation of, any invention, design, product or device not specified in the Contract Documents.

Neither the Town of Natick, nor the Engineer, nor any of their officers, employees, boards, committees,

commissions, agents and representatives shall be under any personal obligation or shall incur any personal liability by reason of this Contract, the execution thereof or anything relating thereto which arises out of the Contractor's or a subcontractor's infringement of patent rights or copyrights incident to the use in the performance of the Work of, or resulting from the Contractor's or a subcontractor's incorporation of, any invention, design, product or device not specified in the Contract Documents.

Nothing herein shall modify the Contractor's general indemnification obligations, as set forth in this Agreement."

SC 6.08 Delete paragraph 6.08 of the General Conditions in its entirety and insert in its place the following:

"It is the specific responsibility of the Contractor to make, in proper and timely fashion, all necessary notifications to relevant federal, state, and local governing bodies and to obtain and comply with the provisions of all permits, inspections or applications required by the work specified, as well as to make all required submittals required under those auspices. The Contractor shall indemnify the Owner from, and pay for all claims resulting from, failure to adhere to these requirements. The Contractor shall promptly provide the Engineer and the Owner with reproductions of all permits, licenses and permissions.

The Owner has waived the building permit fee only for this Project. All other pertinent permit and inspectional service fees shall apply.

The Contractor shall pay the then current inspection fee to the Town of Natick for all inspections required by state and local codes, and required by the Town of Natick.

The Contractor shall pay all charges of utility companies for connections to the Work. The Contractor shall be aware of, observe and comply with all laws, ordinances, regulations, orders, permits, licenses, etc., and shall conduct his operations in compliance thereto, and shall indemnify the Owner and Engineer from any claim or liability arising from, or based upon a violation of same."

SC-6.09-A Delete paragraph 6.09-A of the General Conditions in its entirety and insert in its place the following:

"The Contractor shall comply with all provisions of Federal, Massachusetts and Town of Natick law applicable to his work including, without limitation, statutes, by-laws, rules, regulations, orders and directives, as amended, and including, without limitation, the Williams-Steiger Occupational Safety and Health Act, as amended, and related regulations, as amended, in effect throughout the term of this Contract and any extension or renewal thereof. Without limitation, the Contractor shall comply with the provisions of Chapter 149, Section 26 to 27D of the Massachusetts General Laws, as amended, and the applicable minimum prevailing wage rates as determined by the Massachusetts Commissioner of Labor and Industries. This Contract shall be considered to include in their entirety all terms respecting workers' compensation insurance and other terms required to be included in it by Chapter 152 of the Massachusetts General Laws, as amended, and any other laws, as though such terms were set forth in their entirety herein."

SC-6.10-A In the third and fourth lines of paragraph 6.10-A of the General

Conditions delete the words Place of the Project" and insert in their place the words "Commonwealth of Massachusetts".

SC 6.10 Add the following language at the end of paragraph 6.10-A of the General Conditions: The Town is exempt from Commonwealth of Massachusetts sales tax. M.G.L. c.64, §6(h) exempts "sales of building materials and supplies to be used in the construction, reconstruction, alteration, remodeling or repair of (1) any building structure, public highway, bridge or other public works owned by or held in trust for the benefit of any governmental body or agency mentioned in paragraph (d) and used exclusively for public purposes; (2) any building or structure owned by or held in trust for the benefit of any corporation, foundation, organization or institution described in paragraph (e) and used exclusively in the conduct of its religious, scientific, charitable or educational purposes; and (3) any building, structure, residence, school or other facility included under any written contract dated on or after January 1, 1985 arising out of or related to the Massachusetts Port Authority residential and school soundproofing programs, notwithstanding whether such building, structure, residence, school or other facility is owned by or held in trust for the benefit of the Massachusetts Port Authority or is used exclusively for public purposes; provided, however, that such governmental body or agency or such corporation, foundation, organization or institution shall have first obtained a certificate from the Commissioner stating that it is entitled to such exemption and the vendor keeps a record of the sales price of each such separate sale, the name of the purchaser, the date of each such separate sale and the number of such certificate. In this paragraph the words "building materials and supplies" shall include all materials and supplies consumed, employed or expended in the construction, reconstruction, alteration, remodeling or repair of any building, structure, public highway, bridge or other such public work, as well as such materials and supplies physically incorporated therein. Said terms shall also include rental charges for construction vehicles, equipment and machinery rented specifically for use on the site of any such tax exempt project or while being used exclusively for the transportation of materials for any such tax exempt project." M.G.L. c.64I, §7 exempts from use tax "Sales exempt from the taxes imposed under chapter sixty-four H; provided, however, that in the case of the purchase of any motor vehicle or trailer, as defined in section one of chapter ninety, or any boat or airplane, other than from a vendor who is regularly engaged in the business of making sales at retail of such motor vehicles, trailers, boats or airplanes, the receipts from which are exempt from the tax imposed under said chapter sixty-four H, the purchaser thereof, except when said purchaser is the spouse, mother, father, brother, sister or child of the seller, shall pay the tax imposed by this chapter". The Contractor shall not pay, and the Town shall not reimburse or pay the Contractor or any other party, either directly or indirectly, for this or any other tax for which an exemption is provided under law. The Town will provide a state sales tax exemption number to the Contractor for use with response to this Project."

SC-6.11 Delete paragraph 6.11-A of the General Conditions in its entirety and insert in its place the following:

"The right of possession of the premises shall remain at all times in the Owner.

The Contractor's right to entry and use thereof arises solely from the permission granted by the Owner under the Contract Documents. The Contractor shall confine the Contractor's apparatus, the storage of materials and the operations of the Contractor's workmen to limits indicated by Laws and Regulations, the Contract Documents, permits, and/or directions of the Engineer and shall not unreasonably encumber the premises with the Contractor's materials. The Owner shall not be liable to the Contractor,

the Subcontractors, their employees or anyone else with respect to the conditions of the premises, except only for a condition caused directly and solely by the negligence of the Owner.

The Contractor shall at all times maintain a safe workplace, in full compliance with all federal, state, and local health and safety Laws and Regulations and shall indemnify and hold the Owner, the Engineer and the Construction Manager harmless from and against any and all liability, loss, damage or expense arising from Contractor's failure to do so.

The Contractor shall use only areas specifically assigned by the Owner for parking, storage of materials and construction operations and shall comply with all local municipal regulations regarding use of and parking on public ways.

The Contractor shall repair any and all streets, drives, curbs, sidewalks, and landscaping which are disturbed by construction operations and shall leave them in as good condition after completion of the Work as they were in before commencement of the Work.

The Contractor shall not place or maintain, or allow to be placed or maintained, on or about the Project site any advertising matter, sign, bill, poster, or billboard of any kind, except those required by law or the Contract Documents, without the prior written consent of the Owner."

SC-6.12 Delete paragraph 6-12 of the General Conditions in its entirety and insert in its place the following:

"The Contractor shall maintain a record set of Contract Documents which shall record all deviations from the Drawings and Specifications and shall be updated in detail to reflect the actual progress of the Work. The Owner and the Engineer shall have free and complete access to such Contract Documents during the Work. Upon Substantial Completion, the Contractor shall furnish to the Owner through the Engineer one set of "as built" plans in such form as the Owner shall require. The Contractor shall also maintain a record set of the Specifications, Addenda, Change Orders and other Modifications in good order and marked and annotated currently to record changes made during the Work. Record documents in relation thereto shall be in compliance with M.G.L. Chapter 30, Section 39R."

SC-6.13 Delete paragraphs 6.13-B and 6.13-C of the General Conditions in their entirety.

SC-6.19 In paragraph 6.19-A of the General Conditions insert at the beginning of the second sentence the words "Owner and".

SC-6.20 Delete paragraph 6.20 of the General Conditions in its entirety and insert in its place the following:

"The Contractor shall compensate the Town of Natick for all damage to Town property of any nature arising out of the Contractor's work. To the fullest extent permitted by law, the Contractor shall indemnify, defend, and hold harmless the Town of Natick and all of its officers, employees, boards, commissions, committees, agents and representatives from and against all claims, causes of action, suits, costs, damages, and liability of any kind which arise out of the breach by the Contractor or its subcontractor(s) of their obligations under this Contract, or the act or omission of the Contractor, its subcontractor(s), or their officers, employees, agents and representatives or anyone directly or indirectly employed by them, or anyone for whose acts or omissions they may be liable, regarding the work to be performed by the Contractor under the Contract, or which arise out of the violation of any Federal, Massachusetts or Town of Natick statute, by-law, rule, regulation, order or directive, or which relate to personal injury or property damage suffered by the Contractor or any of its officers or employees regarding the subject matter of the Contract.

Neither the Town of Natick, nor any of its officers, employees, boards, committees, commissions, agents and representatives shall be under any personal obligation or shall incur any personal liability by reason of this Contract, the execution thereof or anything relating thereto which arises out of the violation of any provision of this Contract, or the violation of any Federal, Massachusetts or Town of Natick Law or Regulation, or which relates to personal injury or property damage suffered by the Contractor or its employees, regarding the subject matter of the Contract."

SC-6.21 In paragraph 6.21-A of the General Conditions, delete the words "or unless such services are required to carry out contractor's responsibilities for construction means, methods, techniques, sequences and procedures"

SC-6.22 Insert the following new paragraph 6.22 in the General Conditions:

"SC-6.22 Miscellaneous

6.22-A The Contractor shall give the Engineer timely notice of any additional Drawings, Specifications, or instructions required to define the Work in greater detail, or to permit the proper progress of the Work. The Contractor shall not proceed with any Work not clearly and consistently defined in the Contract Documents, but shall request additional drawings or instructions from the Engineer. If the Contractor proceeds with such Work without obtaining further Drawings, Specifications or instructions, the Contractor shall correct Work incorrectly done at the Contractor's own expense. The Contractor shall give continuous attention to the faithful prosecution of the Work and shall keep the same under its personal control. It shall be responsible for all the acts and omissions of its employees, subcontractors, and of all persons directly or indirectly employed by it in connection with the prosecution of this Work.

6.22-B The Contractor may submit Requests For Information to the Engineer to help facilitate the Contractor's performance of the Contract. Prior to submitting each Request for Information, the Contractor shall first carefully study and compare the Contract Documents, field conditions, Owner-provided information, Contractor prepared Coordination Drawings, and prior Project correspondence and documentation to determine that the information to be requested is not reasonably obtainable from such sources.

Each Request for Information shall be submitted to the Engineer, in writing, on such form and with such accompanying information as the Engineer may require for such purpose. Each Request for Information shall identify the specific sources which were reviewed by the Contractor in its efforts to determine the information requested, and a statement to the effect that the information being requested could not be determined from such sources.

The Contractor shall submit each Request for Information sufficiently in advance of the date by which such information is required in order to allow the Engineer sufficient time, in the Engineer's professional judgment, to permit adequate review and response and to permit Contractor compliance with the latest Construction Schedule. The Contractor shall maintain a log at the Project site that sequentially numbers and lists each Request For Information. This log shall also contain the Drawing reference or Specification section to which the request pertains, the date of request, to whom the request was made, by whom the request was made, the nature of the request, and the Engineer's resolution thereof. This log shall be updated weekly by the Contractor and reviewed at each Project meeting, and the resolution of requests for information shall be made part of the minutes of such meetings.

The Contractor shall reimburse the Owner amounts charged to the Owner by the Engineer for responding to Contractor's Requests for Information where such information is available to the Contractor from a careful study and comparison of the Contract Documents, field conditions, other Owner provided information, Contractor prepared Coordination Drawings, or project correspondence or documentation.

6.22-C The Contractor shall be responsible to the Owner for the acts and omissions of all entities or persons performing or supplying the Work regardless of tier.

6.22-D The Contractor shall furnish sufficient forces, plant and equipment as may be necessary to insure the progress of the Work in accordance with the Project Schedule. If, in the opinion of the Owner, the Contractor has fallen behind the Project Schedule, the Contractor shall submit its bid demonstrating the manner in which the desired rate of progress may be increased and shall take such steps, at the Contractor's own cost, as may be necessary to meet the Project Schedule. It shall be the responsibility of the Contractor to maintain its schedule so as not to delay the progress of the Work or the scheduled work of separate Contractors.

6.22-E The Contractor shall be solely responsible for properly laying out the Work, and for all lines, elevations and measurements for all of the Work. It shall verify the figures shown on the Drawings before laying out the work and will be responsible for any error or inaccuracies resulting from its failure to do so. In the event that the Contractor shall, while laying out the Work, become aware of (i) any conflicts among or between the Drawings, the Specifications or any Modification to the Drawings or the Specifications and the actual layout of the Work, or (ii) any conflicts or inconsistencies in the Drawings and Specification themselves, it shall promptly notify the Engineer, without whose instructions the Contractor shall not adjust the matter except at his own risk.

6.22-F If this Project requires the containment, abatement or removal of asbestos or material containing asbestos, lead or waste containing lead-based paint, the Contractor shall ensure that the person or entity performing the asbestos or lead related services is licensed pursuant to applicable State laws and regulations.

6.22-G Chemical waste shall be stored in corrosion resistant containers, removed from the Project site, and disposed of not less frequently than every three weeks unless directed otherwise. Disposal of chemical waste shall be in accordance with requirements of the U.S. Environmental Protection Agency

(EPA) and the Massachusetts Department of Environmental Protection (DEP). Fueling and lubricating of vehicles and equipment shall be conducted in a manner that affords the maximum protection against spills and evaporation. Lubricants to be discarded or burned shall be disposed of in accordance with approved procedures meeting all applicable Federal, State and Local regulations. In the event of an oil or hazardous materials spill large enough to violate Federal, State or Local regulations, the Contractor shall notify the Engineer immediately. The Contractor shall be responsible for immediately cleaning up any oil or hazardous waste spills resulting from its operations. Any costs incurred in cleaning up any such spills shall be borne exclusively by the Contractor.

The Contractor shall be solely responsible for compliance with laws and regulations governing the handling, storage, use or disposal of hazardous materials or wastes used, stored, generated or disposed of in connection with construction of the Work and shall obtain all permits and approvals, give all required notices, and observe all applicable procedures prescribed by the EPA, DEP or other governmental authorities having jurisdiction with respect to such activities. At the Owner's request, the Contractor shall properly furnish the Owner with evidence satisfactory to the Owner demonstrating the Contractor's compliance with such procedures, the giving of such notices, and the issuance of such permits and approvals.

6.22-H The Contractor shall provide and maintain in good operating condition suitable and adequate fire protection equipment and services, and shall comply with all reasonable recommendations regarding fire protection made by the representatives of the fire insurance company carrying insurance on the Work or by the local fire chief or fire marshal. The area within the site limits shall be kept orderly and clean, and all combustible rubbish shall be promptly removed from the site.

6.22-I The Contractor shall at all times protect excavations, trenches, adjacent buildings and materials from rain water, ground water, backup or leakage of sewers, drains and other piping, and from water of any other origin, and shall remove promptly any accumulation of water. The Contractor shall provide and operate all pumps, piping and other equipment necessary to this end.

6.22-J The Contractor shall be responsible for all security measures necessary and appropriate to protect the Work area until acceptance by the Owner to assure that the Work, and all materials and equipment stored at the Site, are fully and completely protected against loss or damage due to vandalism, theft, or malicious mischief. The Contractor shall not use guard dogs for this purpose unless authorized in advance in writing by the Owner. If the Owner approves the use of guard dogs, each dog shall at all times be accompanied by an adult handler.

6.22-K The Contractor shall be responsible for the adequate strength and safety of all scaffolding, staging, and hoisting equipment and for temporary shoring, bracing, and tying.

6.22-L The Contractor shall furnish on site all personal protective equipment as required, approved first aid supplies, the name of its first-aid attendant, and a posted list of emergency facilities.

6.22-M No unauthorized visitors shall be allowed on the work site without permission from the Contractor.

6.22-N The Contractor shall employ labor subject to contract terms and conditions in order to ensure harmonious labor relations on the site and

prevent strikes or labor disputes. The Contractor, in the event of a labor dispute including strikes, shall take whatever action is required at no expense to the Owner to prevent the disruption of the work. The Contractor shall also not permit employment of any person who is not of good character and morals nor permit disorderly or indecent conduct on the job site. He shall not permit the consumption of alcoholic beverages or illegal drugs on the job site nor permit any employment or person under his supervision or control to be under the influence thereof."

#### 6.22-O (Statutory reference: M.G.L. c.149, §§30 and 34)

No laborer, worker, mechanic, foreman or inspector working within this Commonwealth in the employ of the Contractor, Subcontractor or other person doing or contracting to do the whole or part of the work contemplated by the Contract, shall be required or permitted to work more than eight hours in any one day or more than forty-eight (48) hours in any one week, or more than six (6) days in any one (1) week, except in cases of emergency.

### 6.22-P (Statutory reference: M.G.L. c.149,§25)

Every employee under this Contract shall lodge, board and trade where and with whom he elects, and neither the Contractor nor his agents or employees shall, either directly or indirectly, require as a condition of the employment of any person that the employee shall lodge, board or trade at a particular place or with a particular person.

6.22-Q (Statutory Reference: M.G.L. c.149,§34B) 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 in such city or town."

6.22-R The Contractor is solely responsible for the proper and safe operation and maintenance of all utility systems within the construction limits, whether these are supplied by the Owner's distribution system or otherwise, until the work is accepted by the Owner, and until the Owner has notified the Contractor that other arrangements have been made. The Contractor shall maintain and operate appurtenances within the construction area which serve the distribution system, subject to periodic inspection by the Owner's operating personnel. Inspection by any representative or personnel of the Owner shall not relieve the Contractor of his responsibilities in connection with operation and maintenance of these facilities and equipment. The Contractor shall provide the Owner at least seventy-two (72) hours' advance notice of the Contractor's desire to extend, connect, disconnect, or turn on or off any steam, electric, water, or other service from the Owner's supply systems. The actual operation shall be witnessed and approved by an authorized representative of the Owner. All plumbing, heating, and electrical work, including installation of equipment, and other work to be performed by the Contractor, shall be carried out without interference with the Owner's normal operation. Where any work requires interruption of any service, the Contractor shall make advance arrangements with the Owner for dealing with and minimizing such interruption.

6.22-S The Contractor agrees to procure materials, equipment, labor and supplies from such sources and to perform all Work on the Project with labor, material suppliers and Subcontractors that will work harmoniously with the Owner's employees, employees of other contractors employed by the Owner, and with other elements of labor involved in the construction of the Project or the operation of the building in which the Project is located, including, without limitation, any tenant improvement work

contractors engaged by Owner or any tenants of Owner."

6.22-T Weather Protection Devices – Pursuant to M.G.L. Chapter149, Section 44G(D), the Contractor shall install weather protection devices and shall furnish adequate heat in the area so the work is protected during the months of November through March.

## ARTICLE 7 – OTHER WORK AT THE SITE

SC-7.01 and SC-7.02 and SC-7.03 Delete paragraphs 7.01, 7.02 and 7.03 of the General Conditions in their entirety except for the first sentence in paragraph 7.01(A).

### **ARTICLE 8 - OWNER'S RESPONSIBILITIES**

SC-8.06 In paragraph 8.02-A of the General Conditions, in the second and third lines, delete the words "to whom Contractor makes no reasonable objection".

SC 8.06 Delete paragraph 8.06-A of the General Conditions in its entirety.

SC-8.06 Delete paragraphs 8.10 and 8.11 of the General Conditions.

SC-8.09 Add the following at the end of paragraph 8.09 of the General Conditions:

"The Contractor shall provide services under any Contract with the Owner as an independent contractor with the Town of Natick and not as an employee of the Town of Natick. No employee, agent or representative of the Contractor shall be entitled to receive any benefits of employment with the Town of Natick, including without limitation salary, overtime, vacation pay, holiday pay, sick leave, health insurance, life insurance, pension or deferred compensation."

### ARTICLE 9 – ENGINEER'S STATUS DURING CONSTRUCTION

SC-9.01 Delete the first sentence of paragraph 9.01 of the General Conditions.

SC-9.02 Add the words "and Owner" after the word "Engineer" in the third line of paragraph 9.02-A of the General Conditions. Substitute the word "deem" for "deems" in the same line. Delete the second and third sentences of said paragraph 9.02-A.

SC-9.08-A Delete paragraph 9.08-A of the General Conditions.

SC-9.09-A Insert the following language at the beginning of paragraph 9.09-A "To the extent permitted by law"

ARTICLE 10 -CHANGES IN THE WORK: CLAIMS

SC 10.01-A Delete Article 10 of the General Conditions in its entirety and insert in its place the following:

## "SC-10.01 Change Orders

A Change Order may be submitted for changes in the Contract work, including but not limited to, changes in:

- a. the plans and specifications
- b. in the method or manner or performance of the work; and/or
- c. in the schedule for performance of the work.

Whenever a Change Order is requested or ordered, and said Change Order will cause an adjustment in the Contractor's cost, the Contractor may request an equitable adjustment in writing in the Contract price.

The Owner and the Contractor shall attempt to negotiate an equitable adjustment in the Contract price before commencement of the pertinent work. In the absence of a Contract for an equitable adjustment and when so directed, the Contractor shall proceed with the Change Order work on a time and material basis, and the Contractor will provide the Owner with a written notice to that effect.

Contractor shall provide the Owner with all cost and pricing data used in computing the amount of the equitable adjustment, and the Contractor shall certify that the pricing data used was accurate, complete, and current.

With respect to any sum of money due to be paid by the Contractor to the Owner under the Contract, an appropriate Change Order shall be issued deducting said sum of money from payments then due or thereafter due to the Contractor from the Owner. If such deductions from payments then due or thereafter due to the Contractor from the Owner are not sufficient to cover such amounts, the Contractor shall pay the difference to the Owner.

# SC-10.02 COMPUTING EQUITABLE ADJUSTMENTS

Equitable adjustments in the Contract price shall be determined according to one of the following methods, or a combination thereof, as determined by the Owner:

a. fixed price basis, provided that the fixed price shall be inclusive of items (1) through (5) (below) and shall be computed in accordance with those provisions;

b. estimated lump sum basis, to be adjusted in accordance with contract unit prices, or other agreed upon unit prices provided that the unit prices shall be inclusive of all costs related to such

equitable adjustment;

c. time and materials basis, on a not-to-exceed predetermined upset amount to be subsequently adjusted on the basis of actual costs based on the following items (1) through (5):

(1) the cost at minimum prevailing rates for direct labor, material, supplies and use of equipment exclusive of hand tools;

(2) plus cost of Workers' Compensation Insurance, union fringe benefits, federal unemployment taxes, Federal Social Security, and Massachusetts Unemployment Compensation, or, as an alternative the Contractor may elect to use a flat twenty (20%) percent of the total labor rate in item (1);

(3) plus fifteen (15%) percent of item (1) for overhead, superintendence, and profit, which will be paid to the Contractor for work performed by the Contractors' own trade forces (for work performed by a Subcontractor, the Subcontractor will be entitled to a fifteen (15%) percent mark-up and the Contractor to a five (5%) percent mark-up; for work performed by a Sub-subcontractor, the Sub-subcontractor will be entitled to a fifteen (15%) percent mark-up, the Subcontractor to a five (5%) percent mark-up, the Subcontractor to a five (5%) percent mark-up, and the Contractor to a five (5%) percent mark-up, the Subcontractor to a five (5%) percent mark-up, and the Contractor to a five (5%) percent mark-up, the Subcontractor to a five (5%) percent mark-up, the Subcontractor to a five (5%) percent mark-up (5%) percent mark-up, the Subcontractor to a five (5%) percent mark-up (5%) percent mark-up (5%) percent mark-up (5%) percent mark-up (5%) percent mark-up (5%) percent mark-up (5%) percent mark-up (5%) percent mark-up (5%) percent mark-up (5%) percent mark-up (5%) percent mark-up (5%) percent mark-up (5%) percent mark-up (5%) percent mark-up (5%) percent mark-up (5%) percent mark-up (5%) percent mark-up (5%) percent mark-up (5%) percent mark-up (5%) percent mark-up (5%) percent mark-up (5%) percent mark-up (5%) percent mark-up (5%) percent mark-up (5%) percent mark-up (5%) percent mark-up (5%) percent mark-up (5%) percent mark-up (5%) percent mark-up (5%) percent mark-up (5%) percent mark-up (5%) percent mark-up (5%) percent mark-up (5%) percent mark-up (5%) percent mark-up (5%) percent mark-up (5%) percent mark-up (5%) percent mark-up (5%) percent mark-up (5%) percent mark-up (5%) percent mark-up (5%) percent mark-up (5%) percent mark-up (5%) percent mark-up (5%) percent mark-up (5%) percent mark-up (5%) percent mark-up (5%) percent mark-up (5%) percent mark-up (5%) percent mark-up (5%) percent mark-up (5%) percent mark-up (5%) percent mark-up (5%) percent mark-up (5%) percent mark-up (5%) percent mark-up (5%) percen

(4) if the net change is in addition to the contract price, it shall include the Contractor's overhead, superintendence, and profit. On any change which involves a net credit, no allowances for overhead, superintendence, and profit shall be figured;

(5) plus actual direct premium cost of payment and performance bonds required of the Contractor and its Subcontractors, provided there will be an appropriate credit for bond premiums in the case of a credit Change Order.

d. If unit prices are stated in the Contract Documents or subsequently agreed upon, or if quantities originally contemplated are so changed in a proposed Change Order or Construction Change Directive that application of such unit prices to quantities of Work proposed will cause substantial inequity to the Owner or Contractor, the applicable unit prices shall be equitably adjusted.

# SC-10.03 WORK PERFORMED UNDER PROTEST

The Contractor shall perform all work as directed by the Owner and if the Owner determines that certain work for which the Contractor has requested a Change Order does not represent a change in the Contract, or if the Contractor and Owner cannot agree to the amount of compensation for a Change Order, the Contractor shall perform said work under protest and shall follow the procedures described in the following subparagraphs a. and b.:

a. If the Contractor claims compensation for a Change Order not approved by the Owner, the Contractor shall, on or before the first working day following commencement of any such work or sustaining of any such damage, submit to the Owner's representative a written statement of the nature of such work or damage sustained. The Contractor will not be entitled to compensation for any portion of its Change Order claim related to work performed prior to the Owner's receipt of the written statement referred to in the previous sentence.

b. On or before the second (2nd) working day after the commencement of such work or sustaining

of such damage, and daily thereafter, the Contractor shall file to the extent possible with the Engineer and the Owner itemized statements of the details and costs of such work performed or damage sustained; and unless such statements shall be made as so required, its claim for such compensation shall be forfeited and invalid and it shall not be entitled to payment on account of any such work or damage.

c. The Owner shall have the right to reject Change Orders executed by the Contractor under a reservation of rights.

# SC-10.04 COMPUTING TIME EXTENSIONS

Contract Time shall not be changed due to a delay in the Contractor's early completion date until all Contract Float is used and performance of the specified work necessarily extends beyond the Contract Time. An extension in Contract Time will not be approved unless the Contractor demonstrates through a detailed CPM schedule analysis that unforeseeable causes, beyond the control of and without the fault or negligence of both the Contractor and the Subcontractors or Suppliers at any tier, led to performance or completion of all or part of the work beyond the corresponding Contract Time despite the Contractor's reasonable and diligent actions. If granted, an extension in Contract Time shall be the Contractor's sole and exclusive remedy for any delay, disruption, interference, hindrance, and associated costs, however caused.

# SC-10.05 STATUTORY PROVISIONS – DIFFERING SITE CONDITIONS; TIMELY DECISIONS

The Contractor's attention is directed to M.G.L. c.30, Sections 39I, 39J, 39N, 39O, and 39P, the provisions of which apply to the Contract.

a. Differing Site Conditions, M.G.L. c.30, Section 39N.

If, during the progress of the work, the Contractor or the Owner 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 Owner may request an equitable adjustment in the Contract price 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 as discovered. Upon receipt of such a claim from a Contractor, or upon its own initiative, the Owner 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 provided for in the plans and Contract Documents and are of such 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 Owner shall upon submission by the Contract or of a properly submitted change order request, make an equitable adjustment in the Contract price and the Contract shall be modified in writing accordingly.

b. Timely decision by the Owner. M.G.L. c.30, Section 39P.

Whenever the Contract requires the Owner or the Engineer to make a decision during construction of the Project on interpretation of the specifications, approval of equipment, material, or any other approval, or progress of the work, that decision shall be made promptly and, in the event, no later than thirty (30) days after receipt of a written submission for such decision by the Contractor, but if such decision requires extended investigation and study, the Owner or the Engineer shall, within thirty (30) days after the receipt of the submission, give the Contractor written notice of the reasons why the decision cannot be made within the thirty (30) day period and the date by which the decision will be made."

# SC-10.06 CERTIFICATE OF APPROPRIATION

## (Statutory reference: M.G.L. c.44 §31C)

The contract shall not be deemed to have been made until the auditor or accountant or other officer of the city or town having similar duties has certified thereon that an appropriation in the amount of the contract is available therefor and that an officer or agent of the city, town, or Awarding Authority has been authorized to execute said contract and approve all requisitions and change orders. No order to the Contractor for a change in or addition to the work, whether in the form of a drawing, plan, detail or any other written instruction, unless it is an order which the Contractor is willing to perform without any increase in the contract price, shall be deemed to be given until the auditor or accountant, or other officer of the Awarding Authority having similar duties, has certificat be construed as an admission by the Awarding Authority of its liability to pay for such work. The certificate of the auditor or accountant or other officer of the Awarding Authority having similar duties that an appropriation in the amount of the contract or in the amount of such order is available shall bar any defense by the Awarding Authority on the grounds of insufficient appropriation."

# ARTICLE 11- COST OF THE WORK; ALLOWANCES; UNIT PRICE WORK

SC-11.01-A In paragraph 11.01-A of the General Conditions, in the last sentence, delete the word "and", in the second last line, and insert at the end of the last sentence the following text ", and shall include no markup".

SC-11.01-A In paragraph 11.01-A.1 of the General Conditions, in the last line, insert "in advance, in writing," between the words "authorized" and "by".

SC 11.01-A Add the following paragraph at the end of paragraph 11.01-A.2 of the General Conditions:

"11.01-A.2.a. Only those materials required as a result of such Work and reasonable freight charges for delivery of same are allowable. Only the equipment and machinery required as a result of such Work is allowable. Costs for equipment and machinery shall be based upon the current Nielson/Dataquest Rental Bluebook for Construction Equipment (the "Bluebook"). In determining the rental rate the following shall apply:

a. For equipment already on the project the monthly prorated rental rate by the hourly use shall be applicable;

b. For equipment not on the project the daily rate, the weekly rate, or monthly rate will prevail, whichever will prove to be most cost effective. Small tools and manual equipment are examples of costs not allowable under this item. These costs are considered to be included in the Contractor's Fee as detailed in paragraphs 11.6 of the General Conditions.

(1 month (normal use) = 176 hours) (See 11.01-A.5.c. for equipment and machinery actually rented)."

Amend paragraph 11.01-A.5.a. of the General Conditions by adding the following language at the end of the paragraph:

", provided that the Contractor shall substantiate that this reimbursement payment is customarily considered normal to his operations." Delete paragraph 11.01-A.5.c. of the General Conditions in its entirety and insert the following language in its place:

"11.01-A.5.c. All construction equipment and machinery and the parts thereof actually rented from others in accordance with rental agreements approved in advance, in writing, by Owner with the advice of Engineer, and the costs of transportation, loading, unloading, installation, dismantling and removal thereof all in accordance with terms of said rental agreements. The rental of any such equipment, machinery or parts shall cease when the use thereof is no longer necessary for the Work."

Amend the first sentence of paragraph 11.01-A.5.f. of the General Conditions by striking out the following words:

"(except losses and damages within the deductible amounts of property insurance established by Owner in accordance with paragraph 5.06.D)."

and by deleting in the ninth line the word "negligence" and inserting in its place the words "act or omission".

Delete paragraph 11.01-A.5.h. of the General Conditions in its entirety.

SC-11.01-B In paragraph 11.01-B.4 of the General Conditions, in the first line, insert "or willful misconduct" between the words "negligence" and "of".

SC 11.01-D In paragraph 11.01-D of the General Conditions, in the first paragraph, third line, delete the word "will" and insert in its place the word "shall".

SC-11.01-D Add the following paragraphs after paragraph 11.01-D of the General Conditions: "11.01-D.1. Executed change orders shall be submitted to Owner in triplicate on the Change Order Form included in Part II of the Supplementary Conditions, and to the format of the Example Calculation Sheet also located in Part II of the Supplementary Conditions. 11.01-D.2. The Contractor shall include three (3) copies of invoices to substantiate all costs for materials and equipment directly associated with work involved in the change order.

11.01-D.3. The Contractor shall include three (3) copies of labor summary to include name, classification, wage and date for all personnel directly involved in the work associated with the change order."

### ARTICLE 12 – CHANGE OF CONTRACT PRICE: CHANGE OF CONTRACT TIMES

SC-12.01In paragraph 12.01-A of the General Conditions, last line, delete "10.05" andinsert in its place "10.03".SC-12.01Delete paragraphs 12.01-C.2.a, through 12.01-C.2.c. of the General Conditions.

SC-12.01-C Paragraphs 12.01-C.2.d. through 12.01-C.2.f. of the General Conditions shall be renumbered 12.-1-C.2.a. through 12-1-C.2.c., respectively.

SC-12.01-C New paragraph 12.-1-C.2.a of the General Conditions (former paragraph 12.01-C-2.d.) shall read"

"No fee shall be paid on the basis of costs."

SC-12.02 Delete paragraph 12.02-B of the General Conditions in its entirety and insert in its place the following:

"SC-12.02 TIME

### 12.02-B TIME IS OF THE ESSENCE

Time is of the essence in the performance of the Contract. By executing the Contract, the Contractor represents that the time for performance stated in the Contract documents is a reasonable period for completing the Work to be performed under the Contract.

The Contractor shall prosecute the work with the diligence necessary to ensure its completion within the required time. The Contractor shall provide sufficient labor, materials, and equipment, and shall promptly take such appropriate action to recover schedule as may be necessary. The Contractor shall carry on the work and adhere to the schedule during all disputes and disagreements with the Owner. No work shall be delayed or postponed pending resolution of any disputes and disagreements. The Contractor shall exercise reasonable precautions, efforts, and measures to avoid or mitigate situations which would cause delays.

If no specific date is identified in the Contract Documents for Final Completion of the Project or a particular phase of the Project, Final Completion of the Project or Project phase shall be achieved by the Contractor within thirty (30) calendar days after the date of Substantial Completion of the Project or

Project phase."

12.02-C At least ten (10) working days before the first Application for Payment, the Contractor shall submit to the Engineer a Progress Schedule showing for each class of work included in the Schedule of Values, the percentage completion to be obtained and the total dollar value of work to be completed as of the first of each month until Substantial Completion. All calculations shall be on the basis of work in place, but not including the value of materials delivered but not in place.

12.02-D The Progress Schedule shall be based on an orderly progression of the Work, allowing adequate time for each operation (including adequate time for submission and review of submittals), and leading to a reasonable certainty of Substantial Completion by the date established in the Contract. The Progress Schedule will be reviewed by the Engineer for compliance with the requirements of this Article and will be accepted by the Engineer or returned to the Contractor for revision and resubmittal. Unless specifically required by law, no payment under this Contract shall be due until the Progress Schedule has been approved by the Engineer. The Engineer's review of the Progress Schedule shall not impose any duty on the Engineer or the Owner with respect to the timing, planning, scheduling, or execution of the Work. In particular, if the Contract proposes a Progress Schedule indicating a date of Substantial Completion which is earlier than the Contract Time, the Contractor shall not be entitled to additional payment or compensation of any kind if, for any reason, the full Contract Time is required to achieve Substantial Completion of the Work.

12.02-E If in any Application for Payment the total value of the completed Work in place, as certified by the Engineer, is less than ninety (90%) percent of the total value of the Work in place estimated in the Progress Schedule, the Owner shall have the right, at the Owner's option and without cost to the Owner, to order the Contractor to take corrective measures necessary to expedite the progress of construction, including without limitations: (i) working additional shifts or overtime, (ii) supplying additional workers, equipment, and facilities, and (iii) other similar measures (hereinafter referred to as "Extraordinary Measures"). The Owner's right to require Extraordinary Measures is solely for the purpose of ensuring the Contractor's compliance with the construction schedule.

12.02-F If each of three successive applications for payment, as certified by the Engineer, indicate that the actual Work completed is less than ninety (90%) percent of the values estimated in the Progress Schedule to be completed by the respective dates, the Owner may at the Owner's option, treat the Contractor's delinquency as a default.

12.02-G If the Engineer has determined that the Contractor should be permitted to extend the time for completion, the calendar dates in the Progress Schedule shall be adjusted accordingly to retain their same relationship to the adjusted date of Substantial Completion, and the dollar value of Work to be completed as of the first of each month shall be adjusted prorata.

12.02-H If the Contractor fails to submit any Application for Payment in any month, the Engineer shall, for the purpose of this evaluation of progress, certify separately to the actual value of the Work in place completed as of the first of the month to the best of the Engineer's knowledge.

#### 12.02-I The Owner and the Contractor shall comply with M.G.L. c.30, §39K, which provides:

Within fifteen (15) days (thirty (30) days in the case of the commonwealth, including local housing authorities) after receipt from the contractor, at the place designated by the awarding authority if such a place is so designated, of a periodic estimate requesting payment of the amount due for the preceding month, the awarding authority will make a periodic payment to the contractor for the work performed during the preceding month and for the materials not incorporated in the work but delivered and suitably stored at the site (or at some location agreed upon in writing) to which the contractor has title or to which a subcontractor has title and has authorized the contractor to transfer title to the awarding authority, upon certification by the contractor that he is the lawful owner and that the materials are free from all encumbrances, but less (1) a retention based on its estimate of the fair value of its claims against the contractor and less (2) a retention for direct payments to subcontractors based on demands for same in accordance with the provisions of section thirty-nine F, and less (3) a retention not exceeding five per cent of the approved amount of the periodic payment. After the receipt of a periodic estimate requesting final payment and within sixty-five days after (a) the contractor fully completes the work or substantially completes the work so that the value of the work remaining to be done is, in the estimate of the awarding authority, less than one per cent of the original contract price, or (b) the contractor substantially completes the work and the awarding authority takes possession for occupancy, whichever occurs first, the awarding authority shall pay the contractor the entire balance due on the contract less (1) a retention based on its estimate of the fair value of its claims against the contractor and of the cost of completing the incomplete and unsatisfactory items of work and less (2) a retention for direct payments to subcontractors based on demands for same in accordance with the provisions of section thirty-nine F, or based on the record of payments by the contractor to the subcontractors under this contract if such record of payment indicates that the contractor has not paid subcontractors as provided in section thirty-nine F. If the awarding authority fails to make payment as herein provided, there shall be added to each such payment daily interest at the rate of three percentage points above the rediscount rate than charged by the Federal Reserve Bank of Boston commencing on the first day after said payment is due and continuing until the payment is delivered or mailed to the contractor; provided, that no interest shall be due, in any event, on the amount due on a periodic estimate for final payment until fifteen days (twenty-four days in the case of the commonwealth) after receipt of such a periodic estimate from the contractor, at the place designated by the awarding authority if such a place is so designated. The contractor agrees to pay to each subcontractor a portion of any such interest paid in accordance with the amount due each subcontractor.

The awarding authority may make changes in any periodic estimate submitted by the contractor and the payment due on said periodic estimate shall be computed in accordance with the changes so made, but such changes or any requirement for a corrected periodic estimate shall not affect the due date for the periodic payment or the date for the commencement of interest charges on the amount of the periodic payment computed in accordance with the changes made, as provided herein; provided, that the awarding authority may, within seven days after receipt, return to the contractor for correction, any periodic estimate which is not in the required form or which contains computations not arithmetically correct and, in that event, the date of receipt of such periodic estimate shall be the date of receipt of the corrected periodic estimate in proper form and with arithmetically correct computations. The date of receipt of a periodic estimate received on a Saturday shall be the first working day thereafter. The provisions of section thirty-nine G shall not apply to any contract for the construction, reconstruction, alteration, remodeling, repair or demolition of any public building to which this section applies. All periodic estimates shall be submitted to the awarding authority, or to its designee as set forth in

writing to the contractor, and the date of receipt by the awarding authority or its designee shall be marked on the estimate. All periodic estimates shall contain a separate item for each filed subtrade and each sub-subtrade listed in sub-bid form as required by specifications and a column listing the amount paid to each subcontractor and sub-subcontractor as of the date the periodic estimate is filed. The person making payment for the awarding authority shall add the daily interest provided for herein to each payment for each day beyond the due date based on the date of receipt marked on the estimate. A certificate of the architect to the effect that the contractor has fully or substantially completed the work shall, subject to the provisions of section thirty-nine J, be conclusive for the purposes of this section.

Notwithstanding the provisions of this section, at any time after the value of the work remaining to be done is, in the estimation of the awarding authority, less than 1 per cent of the adjusted contract price, or the awarding authority has determined that the contractor has substantially completed the work and the awarding authority has taken possession for occupancy, the awarding authority may send to the general contractor by certified mail, return receipt requested, a complete and final list of all incomplete and unsatisfactory work items, including, for each item on the list, a good faith estimate of the fair and reasonable cost of completing such item. The general contractor shall then complete all such work items within 30 days of receipt of such list or before the contract completion date, whichever is later. If the general contractor fails to complete all incomplete and unsatisfactory work items within 45 days after receipt of such items furnished by the awarding authority or before the contract completion date, whichever is later, subsequent to an additional 14 days' written notice to the general contractor by certified mail, return receipt requested, the awarding authority may terminate the contract and complete the incomplete and unsatisfactory work items and charge the cost of same to the general contractor and such termination shall be without prejudice to any other rights or remedies the awarding authority may have under the contract. The awarding authority shall note any such termination in the evaluation form to be filed by the awarding authority pursuant to the provisions of section 44D of chapter 149.

12.02-J Nothing herein shall limit the Owner's right to liquidated or other damages for delays by the Contractor or to any other remedy which the Owner may possess under other provisions of the Contract Documents or by law.

12.02-K Should the Contractor request additional time to complete the work, it shall document its reasons therefor and request an extension of time the alleged delay occurred. Failure to notify the Owner of any delay as provided in this Article shall preclude the Contractor from subsequently claiming any time extension or other relief due to said delay. Request for extensions of time shall be submitted as a Change Order request to the Owner.

The Contractor shall submit the amount of a claim to the Owner 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 the Contract and, except for costs due to a suspension order, the Owner shall not approve any costs in the claim incurred more than twenty (20) days before the Contractor notified the Owner in writing of the act or failure to act involved in the claim.

The Owner and the Contractor agree that they understand that this subparagraph places a burden on the Contractor to inform the Owner, as soon as practicable, whenever the Contractor considers that an action or inaction of the Owner or the Engineer could result or has resulted in a delay in the Project, thereby providing the Owner and the Engineer with the opportunity to take action to avoid or lessen the time extensions or damages that might be associated with such action or inaction.

The Contractor and the Surety on the Contractor's performance bond shall be jointly and severally liable for, and shall pay to the Owner the expenses for inspection of Work performed after the time stipulated in the Owner-Contractor Contract for Substantial Completion. Such inspection costs shall include fees paid to the Engineer and its consultants as extra services at the rate stipulated in the Owner-Engineer Contract, the costs of any other project representatives of the Owner at the current salary rate and any other direct expenses due to inspection. The Owner may retain from monies otherwise due the Contractor whatever sums accrue to the Owner pursuant to this provision. The Contractor shall not be liable for inspection costs for delay in performance as provided hereunder for any period for which an extension of the Contract Time has been granted. 12.02-L No claim for extension of time shall be allowed on account of failure of the Engineer to furnish Drawings, Specifications or instructions until fifteen (15) days after receipt by the Engineer by registered or certified mail, or by hand delivery acknowledged by the Engineer, of written demand for such instructions, Drawings, or Samples, and not then unless such claim be reasonable.

No extension of time shall be granted because of seasonal or abnormal variations in temperature, humidity or precipitation, which conditions shall be wholly at the risk of the Contractor, whether occurring within the time originally scheduled for completion or within the period of any extension granted. There shall be no increase in the Contract Sum on account of any additional costs of operations or conditions resulting therefrom.

The Contractor hereby agrees that the Contractor shall have no claim for damages of any kind against the Owner or the Engineer on account of any delay in the commencement of the Work and/or any hindrance, delay or suspension of any portion of the Work, whether such delay is caused by the Owner, the Engineer, or otherwise, except as and to the extent expressly provided under M.G.L. c.30, §390 in the case of written orders by the Owner. The Contractor acknowledges that the Contractor's sole remedy for any such delay and/or suspension will be an extension of time as provided in this Article.

12.02-M (Statutory reference: M.G.L. c.30 §39O)

a. The Awarding Authority may order the Contractor in writing to suspend, delay, or interrupt all or any part of the work for such period of time as it may determine to be appropriate for the convenience of the 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 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 Contractor shall 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 (20) days before the Contractor notified the Awarding Authority in writing of the act or failure to act involved in the claim.

In the event a suspension, delay, interruption or failure to act of the Awarding Authority increases the cost of performance to any Subcontractor, that Subcontractor shall have the same rights against the Contractor for payment for an increase in the cost of his performance as provisions a. and b. give the Contractor against the Awarding Authority, but nothing in provisions a. and b. shall in any way change, modify or alter any other rights which the Contractor or the Subcontractor may have against each other.

## 12.02-N LIQUIDATED DAMAGES

If the Contractor shall fail to achieve Substantial Completion within the Contract Time, it shall be liable to pay the Owner the daily amount as stipulated in the Contract not as a penalty, but as fixed and agreed upon damages for breach of contract. The said amount is fixed and agreed upon because of the difficulty of ascertaining the Owner's actual damages. It is mutually understood that the said amount is a reasonable approximation or estimate thereof as of the date of the Contract. The said amount may be withheld from periodic or final payments due to the Contractor, in addition to retainage and other backcharges."

SC-12.03 In paragraph 12.03-A of the General Conditions, in the eighth line, insert "acts or neglect by Engineer," after "acts or neglect by Owner".

SC-12.03 In paragraph 12.03-C of the General Conditions, in the fifth line, insert "and Engineer" between "Owner" and "and".

ARTICLE 13 - TESTS AND INSPECTIONS; CORRECTION, REMOVAL OR ACCEPTANCE OF DEFECTIVE WORK:

SC-13.03 Delete paragraph 13.03-B of the General Conditions in its entirety.

SC-13.07 In paragraph 13.07-B of the General Conditions, in the last line, delete "will" and insert in its place "shall".

SC 13.09 Add the following paragraph immediately after paragraph 13.09-D of the General Conditions:

"13.09-E In the event of an emergency caused by defective Work, if the Contractor fails to respond to notification within twelve (12) hours, the Owner may proceed with alleviating the condition, and at his option may impose a surcharge upon the Contractor or a decrease in the Contract Price to cover associated costs in relation thereto."

### ARTICLE 14 -PAYMENTS TO CONTRACTOR AND COMPLETION

SC-14.02 Delete paragraph 14.02 A, B and C of the General Conditions in their entirety

and insert in its place the following:

"M.G.L. c.30, § 39K is incorporated herein by reference. See Part II of the SUPPLEMENTARY CONDITIONS, p. 00810-7."

SC 14.03-A Add a new paragraph immediately after paragraph 14.03-A of the General Conditions:

"14.03-A.1. No materials or supplies for the Work shall be purchased by Contractor or Subcontractor subject to any chattel mortgage or under a conditional sale contract or other agreement by which an interest is retained by the seller. Contractor shall warrant that he has clear title to all materials and supplies used by him in the Work, free from all liens, claims or encumbrances."

SC 14.04 Delete paragraphs 14.04-A through 14.04-D of the General Conditions in their entirety and insert in their place the following:

"14.04-A Substantial completion and payment in relation thereto shall be in compliance with M.G.L. Chapter 30, Section 39G for Utility Contracts, and M.G.L. Chapter 30, Section 39K for Building Associated Contracts, as included in Part II of the Supplementary Conditions.

14.04-A.1. For utility contracts, Owner, within twenty one (21) days of receipt of certification from Contractor that the work has been Substantially Complete, shall present to Contractor a written declaration that work has been Substantially Complete, or an itemized list of incomplete or unsatisfactory work items.

14.04-A.1.a. Within sixty five (65) days after the effective date of Substantial Completion and receipt of an Application for Payment, Owner shall submit to Contractor payment for the quantity and price of the work done with the following deductions:

a. A retainer of one (1%) percent of the undisputed Substantial Completion payment amount.

b. Less the estimated cost of completing all incomplete and unsatisfactory work items.

c. An amount equal to sum of all demands for direct payment filed by subcontractors and not yet paid to subcontractors or deposited in a joint account."

SC-14.07-14.09 Delete paragraphs 14.07 through 14.09 of the General Conditions and insert in their place the following:

"(Statutory Reference – M.G.L. c.30, §39F:

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

Not later than the sixty-fifth (65th) 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 Contractor. The 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 Contractor.

Each payment made by the Awarding Authority to the Contractor for the labor performed and the materials furnished by a Subcontractor shall be made to the Contractor for the account of that Subcontractor; and the Awarding Authority shall take reasonable steps to compel the 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 Contractor or which is to be included in a payment to the Contractor for payment to the Subcontractor, the Awarding Authority shall act upon the demand as provided herein.

If, within seventy (70) days after the Subcontractor has substantially completed the subcontract work, the Subcontractor has not received from the Contractor the balance due under the subcontract including any amount due for extra labor and materials furnished to the Contractor, less any amount retained by the 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 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 (70th) day after the Subcontractor has substantially completed the subcontract work. Within ten (10) days after the Subcontractor has delivered or so mailed the demand to the Awarding Authority and delivered or so mailed a copy to the Contractor, the Contractor may reply to the demand. The reply shall be by a sworn statement delivered to or sent by certified mail to the 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 Contractor and of the amount due for each claim made by the Contractor against the Subcontractor.

Within fifteen (15) days after receipt of the demand by the Awarding Authority, but in no event prior to the seventieth (70th) 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 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 Contractor in the sworn reply; provided that the Awarding Authority shall not deduct from a direct payment any amount as provided in part (iii) if the reply is not sworn to, or for which the sworn reply does not contain the detailed breakdown required by M.G.L. c 30, §39F. The Awarding Authority shall make further direct payments to the Subcontractor forthwith after the removal of the basis for deductions from direct payments made.

The Awarding Authority shall forthwith deposit the amount deducted from a direct payment in an interest-bearing joint account in the names of the Contractor and the Subcontractor in a bank in Massachusetts selected by the Awarding Authority 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 a Contract between the Contractor and the Subcontractor or as determined by decree of a court of competent jurisdiction.

All direct payments and all deductions from demands for direct payments deposited in an interestbearing account or accounts in a bank pursuant to the provisions herein shall be made out of amounts payable to the Contractor at the time of receipt of a demand for direct payment from a Subcontractor and out of amounts which later become payable to the Contractor and in the order of receipt of such demands from Subcontractors. All direct payments shall discharge the obligation of the Awarding Authority to the Contractor to the extent of such payment.

The Awarding Authority shall deduct from payments to a Contractor amounts which, together with the deposits in interest-bearing accounts, are sufficient to satisfy all unpaid balances of demands for direct payment received from Subcontractors. All such amounts shall be earmarked for such direct payments, and the Subcontractors shall have a right in such deductions prior to any claims against such amounts by creditors of the Contractor.

If the Subcontractor does not receive payment as provided herein or if the Contractor does not submit a periodic estimate for the value of the labor or materials performed or furnished by the Subcontractor and the Subcontractor does not receive payment for same when due less the deductions provided for herein, the Subcontractor may demand direct payment by following the procedure provided for in M.G.L. c.30, §39F, and the Contractor may file a sworn reply as provided in that same Subsubparagraph. A demand made after the first day of the month following that 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 Awarding Authority shall proceed as provided in M.G.L. c.30, §39F.

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

(3) "Subcontractor" as used in this section (i) for contracts awarded as provided in sections forty-four A to forty-four H, inclusive, of chapter one hundred forty-nine shall mean a person who files a sub-bid and receives a subcontract as a result of that filed sub-bid or who is approved by the awarding authority in writing as a person performing labor or both performing labor and furnishing materials pursuant to a contract with the general contractor

A Contractor or a Subcontractor shall enforce a claim to any portion of the amount of a demand for

direct payment deposited pursuant to M.G.L. c.30, §39F by a petition in equity in the superior court against the other and the bank shall not be a necessary party. A Subcontractor shall enforce a claim for direct payment or a right to require a deposit by a petition in equity in the superior court against the Awarding Authority and the Contractor shall not be a necessary party. Upon motion of any party the court shall advance for speedy trial any petition filed as provided in this paragraph. M.G.L. c.231, §§59 and 59B shall apply to such petitions. The court shall enter an interlocutory decree upon which execution shall issue for any part of a claim found due pursuant to §§59 and 59B and, upon motion of any party, shall advance for speedy trial the petition to collect the remainder of the claim. Any party aggrieved by such interlocutory decree shall have the right to appeal therefrom as from a final decree. The court shall not consolidate for trial the petition of any Subcontractor with the petition of one or more Subcontractors of the same general contract unless the court finds that a substantial portion of the evidence of the same events during the course of construction (other than the fact that the claims sought to be consolidated arise under the same general contract) is applicable to the petitions sought to be consolidated and that such consolidation will prevent unnecessary duplication of evidence. A decree in any such proceeding shall not include interest on the disputed amount deposited in excess of the interest earned for the period of any such deposit. No person except a Subcontractor filing a demand for direct payment for which no funds due the Contractor are available for direct payment shall have a right to file a petition in a court of equity against the Awarding Authority claiming a demand for direct payment is premature, and such Subcontractor must file the petition before the Awarding Authority has made a direct payment to the Subcontractor and has made a deposit of the disputed portion.

In any petition to collect any claim for which a Subcontractor has filed a demand for direct payment the court shall, upon motion of the Contractor, reduce by the amount of any deposit of a disputed amount by the Awarding Authority as provided herein any amount held under a trustee writ or pursuant to a restraining order or injunction."

# ARTICLE 15 - SUSPENSION OF WORK AND TERMINATION

SC 15.01 Delete paragraph 15.01 A of the General Conditions in its entirety and insert in its place the following :

"15.01-A The Owner may order the Contractor in writing to suspend, delay, or interrupt all or any part of the Work for such period of time as it may determine to be appropriate for the convenience of the Owner; provided however, that if there is a suspension, delay or interruption for fifteen (15) days or more or due to a failure of the Owner to act within the time specified in this Contract, the Owner 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 Contractor on such increase; and provided further, that the Owner shall not make any adjustment in the Contract Price under this provision for any suspension, delay, interruption or failure to act to the extent that such is due to any cause for which this Contract provides for an equitable adjustment of the Contract Price under any other Contract provisions.

The Contractor shall submit the amount of said claim to the Owner 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 Owner shall not approve any costs in the claim incurred more than twenty (20) days before the Contractor

notified the Owner in writing of act or failure to act involved in the claim.

15.01-A-1. The above revisions contained in paragraph under SC 15.01 are in compliance with Massachusetts General Laws Chapter 30, Section 390."

## SC-15.02

Delete paragraph 15.02 A, B, C, D, E and F of the General Conditions in their entirety and insert in its place the follow provision:

"15.02-A If the Contractor persistently or repeatedly refuses or fails, except in cases for which extension of time is provided, to supply enough properly skilled workmen or proper materials, or if the Contractor fails to make prompt payment to Subcontractors or for materials or labor, or persistently disregards laws, ordinances, rules, regulations or orders of any public authority having jurisdiction or disregards an instruction, order or decision of the Engineer, or otherwise is guilty of a substantial violation of any provision of the Contract, then the Contractor shall be in default, and the Owner may, without prejudice to any other right or remedy and upon written notice to the Contractor of such default, take possession of all materials, tools, appliances, equipment, construction equipment and machinery and vehicles, offices and other facilities on the Project site, and all materials intended for the Work, wherever stored, and, if such default is not cured within seven (7) days after such notice, may terminate the employment of the Contractor, accept assignment of any or all subcontracts, and finish the Work by whatever method the Owner may deem expedient. The Owner shall be entitled to collect from the Contractor all direct, indirect, and consequential damages suffered by the Owner on account of the Contractor's default, including without limitation additional services and expenses of the Engineer made necessary thereby. The Owner shall be entitled to hold all amounts due the Contractor at the date of termination until all of the Owner's damages have been established, and to apply such amounts to such damages.

If, after final completion of the Work, the Owner determines that the unpaid amount (if any) due to the Contractor for the portion of the Work performed by the Contractor in accordance with the Contract exceeds any costs and damages incurred by the Owner as the result of the Contractor's breach of this Contract, such excess shall be paid to the Contractor. If the costs and damages incurred by the Owner as the result of the Contractor's breach of this Contract exceeds the unpaid amount (if any) due to the Contractor for the portion of the Work performed by the Contractor, the Contractor shall promptly pay such excess upon written demand by the Owner. In the event of a termination of the Contract pursuant to this Article, the Owner and the Contractor shall forthwith return to the other all papers, materials and other properties of the other held by each for the purposes of execution of the Contract. In addition, each party will make reasonable efforts to assist the other party in an orderly termination of this Contract."

15.02-B If the Contractor is determined by a court of competent jurisdiction to be bankrupt, or if any assignment shall be made by the Contractor or by any guarantor of the Contractor for the benefit of creditors, or if a petition is filed by the Contractor or by guarantor of the Contractor for adjudication as a bankrupt, or for reorganization or an arrangement under any provision of the Bankruptcy Act as then in force and effect, or in an involuntary petition under any of the provisions of the Bankruptcy Act is filed against the Contractor and such involuntary petition is not discharged within ninety (90) days thereafter, in any event the Owner may terminate this Contract upon written notice to the Contractor."

SC-15.03 Delete paragraph 15.03 of the General Conditions in its entirety and insert in its place the following:

## "15.03 OWNER'S TERMINATION FOR CONVENIENCE

The Owner may, at any time, terminate the Contract for the Owner's convenience and without cause. Upon receipt of written notice from the Owner of such termination for the Owner's convenience, the Contractor shall:

.1 cease operations as directed by the Owner in the notice;

.2 take actions necessary, or that the Owner may direct, for the protection and preservation of the Work; and

.3 except for Work directed to be performed prior to the effective date of termination stated in the notice, terminate all existing subcontracts and purchase orders and enter into no further subcontracts and/or purchase orders.

In the event of such termination for the Owner's convenience, the Contractor shall be compensated only for Work performed and expenses incurred in accordance with the Contract prior to termination, together with reasonable demobilization expenses (provided that there are appropriated Project funds available for such demobilization expenses). The Owner, however, shall not compensate the Contractor for lost profits, overhead expenses, termination expenses, or other such costs or expenses."

# ARTICLE 16 - DISPUTE RESOLUTION

SC 16.01 Delete paragraph 16.01 A, B and C of the General Conditions in their entirety and insert in its place the following:

"Any Claim arising out of or related to the Contract, except those waived as provided in herein, shall, after final decision by the Engineer or thirty (30) days after submission of the Claim to the Engineer, be subject to mediation as a condition precedent to the institution of legal or equitable proceedings by either party.

The Owner and Contractor shall endeavor to resolve their Claims by mediation which, unless the parties mutually agree otherwise, shall be conducted under the auspices of the American Arbitration Association in accordance with the most current version of the Association's Construction Industry Mediation Rules in effect at the time the request for mediation is filed. Request for mediation shall be filed in writing with the other party to this Contract and with the American Arbitration Association. All necessary parties may be brought into such mediation.

The parties shall bear equally the mediator's fee and any filing fees required for the mediation. The

mediation shall be held in the place where the Project is located, unless another location is mutually agreed upon. Written Contracts reached in mediation shall be enforceable as written settlement Contracts in any court having jurisdiction thereof. In the event that any such claim, dispute or controversy is not resolved through the mediation process, either party is free to pursue any such claim, dispute or other matter in an appropriate court proceeding.

This paragraph 16.01 shall not prohibit the initiation of legal proceedings or equitable proceedings in circumstances where mediation will not be completed before the expiration of the applicable time within which to initiate legal proceedings or equitable proceedings. Under no circumstances shall either party call for mediation of any claim or dispute arising out of this Contract after such period of time as would normally bar the initiation of legal proceedings to litigate such a claim or dispute under the laws of the Commonwealth of Massachusetts.

This Paragraph 16.01 shall survive completion or termination of the Contract."

ARTICLE 17 Renumber Article 17 as Article 19, and renumber paragraphs 17.01 thru 17.06 as paragraphs 19.01 thru 19.06.

Insert new paragraphs 17.01 through 17.06 in the General Conditions:

"ARTICLE 17 - CONTRACTOR'S ACCOUNTING METHOD REQUIREMENTS (Statutory reference: M.G.L. c.30, §39R)

SC_17.01*-SC-17.06* Add new paragraphs 17.01 through 17.06, to the General Conditions as follows:

"17.01-A* The words defined herein shall have the meaning stated below whenever they appear in this Article 17:

17.01-A.1 "Contractor" means any person, corporation, partnership, joint venture, sole proprietorship, or other entity awarded a contract pursuant to §39M of c.30, §§44A-44H inclusive, of c.149, §11C of c.25, or §§44-58, inclusive, of c.7C, which is for an amount or estimated amount greater than one hundred thousand dollars.

17.01-A.2 "Contract" means any contract awarded or executed pursuant to §§44-58, inclusive of c.7C, and any contract awarded or executed pursuant to §11C of c.25A, §39M of c.30, or §§44A-44H, inclusive, of c.149, which is for an amount or estimated amount greater than one hundred thousand dollars.

17.01-A.3 "Records" means books of original entry, accounts, checks, bank statements and all other banking documents, correspondence, memoranda, invoices, computer printouts, tapes, discs, papers and other documents or transcribed information of any type, whether expressed in ordinary or machine language.

17.01-A.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.

17.01-A.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 principles and auditing standards for the purpose of expressing a CERTIFIED opinion thereon, or, in the alternative, a qualified opinion or a declination to express an opinion for stated reasons.

17.01-A.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 s/he 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 therefor shall be stated. An accountant's report shall include as a 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.

17.01-A.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.

17.01-A.8 Accounting terms, unless otherwise defined herein, shall have a meaning in accordance with generally accepted accounting principles and auditing standards.

17.02-A Every Contract or contract awarded or executed pursuant to §§44-58, inclusive of c.7C, §11C of c.25A, and pursuant to §39M of c.30 or to §§44A-44H, inclusive, of c.149, shall provide that:

17.02-A.1 The Contractor shall make, and keep for at least six (6) years after final payment, books, records, and accounts which in reasonable detail accurately and fairly reflect the transactions and dispositions of the Contractor.

17.02-A.2 Until the expiration of six (6) years after final payment, the Awarding Authority, Office of 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/her Subcontractors that directly pertain to, and involve transactions relating to, the Contractor or his/her Subcontractors.

17.02-A.3 If the Contract 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 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.

17.02-A.4 If the Contract is a contract as defined herein, the Contractor has filed a statement of management on internal accounting controls as set forth in Paragraph 17.03 below prior to the execution of the contract.

17.02-A.5 If the Contract 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 17.05 below.

17.03-A 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:

17.03-A.1 transactions are executed in accordance with management's general and specific authorization;

17.03-A.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;

17.03-A.3 access to assets is permitted only in accordance with management's general or specific authorization; and

17.03-A.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.

17.04-A Every Contractor awarded a contract shall also file with the Awarding Authority a statement prepared and signed by an independent certified public accountant, stating that he or she has examined the statement of management on internal accounting controls, and expressing an opinion as to

17.04-A.1 whether the representations of management in response to this paragraph and Paragraph 17.02 above are consistent with the result of management's evaluation of the system of internal accounting controls; and

17.04-A.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.

17.05-A Every Contractor awarded a contract by the Commonwealth or by any political subdivision thereof shall annually file with the Commissioner of Division of Capital Asset Management during the term of the Contract a financial statement prepared by an independent certified public accountant on the

basis of an audit by such accountant. The final statement filed shall include the date of final payment. All statements shall be accompanied by an accountant's report. Such statement shall be made available to the Owner upon request.

17.06-A Records and statements required to be made, kept or filed under the provisions of this Article 17 shall not be public records as defined in M.G.L. c.4, §7 and shall not be open to public inspection; provided, however, that such records and statements shall be made available pursuant to the provisions of Subparagraph 17.02-A.2 and 17.05-A."

ARTICLE 18 INSERT A NEW ARTICLE 18 IN THE GENERAL CONDITIONS AS FOLLOWS:

# "ARTICLE 18: NONDISCRIMINATION IN EMPLOYMENT

18.01-A Contracts for work under this bid will obligate the Contractor and Subcontractors not to discriminate in employment practices.

18.02-A Contracts for work under this project will obligate the Contractor and Subcontractors to maintain not less than five (5%) percent ratio of minority employee man hours to total man hours.

18.03-A In connection with the performance of work under the Contract, the Contractor shall not discriminate against any employee or applicant for employment because of race, color, religious creed, national origin, age, sex, gender identity, sexual orientation (which shall not include persons whose sexual orientation involves minor children as the sex object), genetic information, ancestry, children, marital status, veteran status or membership in the armed services, the receiving of public assistance, and handicap. The aforesaid provision shall include, but not be limited to the following: advertising; recruitment; hiring; rates of pay or other forms of compensation; terms, conditions or privileges of employment; employment upgrading; transfer; demotion; layoff; and termination. The Contractor shall post hereafter in conspicuous places, available for employees and applicants for employment, notices to be provided by the Massachusetts Commission Against Discrimination or other applicable agency of the Commonwealth of Massachusetts setting forth the provisions of the Fair Employment Practices Law of the Commonwealth. The Contractor shall also undertake in good faith, affirmative action measures designed to eliminate any discriminatory barriers in the terms and conditions of employment on the grounds of race, color, religious creed, national origin, age, sex, gender identity, sexual orientation (which shall not include persons whose sexual orientation involves minor children as the sex object; genetic information, ancestry, children, marital status, veteran status or membership in the armed services, the receiving of public assistance, and handicap, and to eliminate and remedy any effects of such discrimination in the past.

18.04-A Successful Bidder shall submit a Contractor's Certification Form and a Subcontractor's Certification Form concerning its employment practices and policies in order to maintain its eligibility to receive the award of the Contract. These forms shall be submitted with the signed Contract Documents."

### **ARTICLE 19 - MISCELLANEOUS**

SC 19.01-B Add the following new paragraph immediately after paragraph 19.01-A.2. of the General Conditions:

"19.01-B Both the address given in the Bid Form upon which this Agreement is founded, and Contractor's office at or near the site of the Work are hereby designated as places to either of which notices, letters, and other communications to Contractor shall be certified, mailed, or delivered, the delivering at the above named place, or depositing in a postpaid wrapper directed to the first named place, in any post office box regularly maintained by the post office department, of any notice, letter or other communication to Contractor shall be deemed sufficient service thereof upon Contractor; and the date of said service shall be the date of such delivery or mailing.

The first named address may be changed at any time by an instrument in writing, executed and acknowledged by Contractor, and delivered to Owner and Engineer in accordance with this Article 19. Nothing herein contained shall be deemed to preclude or render inoperative the service of any notice, letter or other communication upon Contractor personally."

SC-19.01-C Add the following new paragraph 19.01-C to the General Conditions:

Notices given to the Owner shall be given to the Town Administrator, Town of Natick, Natick Town Hall, 13 East Central Street, Natick, MA 01760, to the Director, Natick Department of Public Works, 75 West Street, Natick, MA 01760 and to the Engineer.

SC-19.05-A Delete paragraph 19.05-A (formerly 17.05-A) of the General Conditions and insert the following paragraph:

"A. This Contract shall be governed by and interpreted in accordance with the laws of the Commonwealth of Massachusetts, regardless of choice of law principles".

Insert the following new paragraphs 19.07 through 19.15 in the General Conditions.

### **"19.07 MINIMUM PREVAILING WAGE RATES**

19.07 -A The requirements and provisions of all applicable laws and any amendments thereof or additions thereto as to the employment of labor, and to the schedule of minimum prevailing wage rates established in compliance with laws, including without limitation M.G.L. c.149, §26-27G, shall be a part of these Contract Documents. Copies of Federal and/or State wage schedules are included at the end of Part I of these Supplementary Conditions. If, after the Notice to Proceed, it becomes necessary to employ any person in a trade or occupation not classified in the wage determinations, such person shall be paid at not less than such wages as shall be determined by the officials administrating the laws mentioned above. Such approved minimum rate shall be retroactive to the time of the initial employment of such person on such trade or occupation. Contractor shall notify Owner of his intention to employ persons in trades or occupations not classified in sufficient time for Owner to obtain approved rates for such trades or occupations.

19.07-A.1. The schedules of wages referred to above are minimum rates only, and Owner will not consider any claims for additional compensation made by Contractor because of payment by Contractor of any wage rate in excess of the applicable rate contained in these Contract Documents. All disputes in regard to the payment of wages in excess of these specified in the schedules shall be adjusted by Contractor.

19.07-A.2 The said schedules of wages shall continue to be the minimum rates to be paid during the life of the Agreement and a legible copy of said schedules shall be kept posted in a conspicuous place at the site of the Work.

19.07-A.3 Federal and/or State schedule of minimum prevailing wage rates are included in Part I of these Supplementary Conditions. Where rates differ, the higher rates shall apply as a minimum for that trade.

19.07-A.4 The Contractor shall submit weekly payroll records to the Owner during the progress of the Contract, for each day work is performed and keep them on file for three (3) years.

19.07-A.5 The Contractor should obtain a schedule of minimum prevailing wage rates for every public building construction project from the Owner. It is the Owner's responsibility to ensure that a copy of the wage schedule is provided to all Contractors from whom estimates or bids are solicited for all projects. The Department of Labor and Workforce Development will not issue wage schedules directly to contractors or employees.

19.07-A.6 Once a wage schedule has been issued for a project by the Department of Labor and Workforce Development, it will remain in effect for the entire project. Appeals of wage determinations or classifications of employment may be made to the Department of Labor and Workforce Development Commissioner.

19.07-A.7 A wage schedule issued for a project may not be issued on any other project. If, by chance, the Owner fails to provide a wage schedule to use when figuring your bid, do not use one from another project. In this case, the Contractor should contact the Department of Labor and Workforce Development immediately and urge the Owner to contact the Department of Labor and Workforce Development to correct the oversight.

19.07-A.8 The failure of the Owner to provide a wage schedule does not excuse the Contractor from paying the minimum prevailing wage rate.

19.07-A.9 The Attorney General's Division of Fair Labor & Business Practices enforces the minimum prevailing wage law. All bids shall reflect minimum prevailing wage rates. CONTRACTORS may be required by an awarding authority to "demonstrate how they could complete the project and comply with Mass. Gen. Laws". The Division issued an "Advisory" discussing these and other points. For a copy, please contact the Attorney General's Office.

19.07-A.10 Minimum prevailing wages shall be paid to all employees on public building construction projects regardless of whether they are employed by the General Contractor, a filed sub-bidder or any sub-contractor. The minimum prevailing wage applies equally to unionized and non-unionized

workers.

19.07-A.11 All employees who perform work on a public building construction project shall be paid hourly according to the wage schedule issued for the particular project.

19.07-A.12 The wage schedule issued for each project is in effect for the duration of that project. All wage increases listed on the schedule shall be paid on the specified dates.

19.07-A.13 Contractors are limited in the deductions that can be made from the hourly rate (represented as the "total rate" on the wage schedules). Only contributions to the following plans may be deducted:

- Health and Welfare
- Pension
- Supplementary Unemployment

All contributions shall be made to bona fide plans.

19.07-A.14 If the Contractor contributes to any, or all, of the above plans, it may deduct the hourly amount contributed from the "total rate". If the Contractor does not contribute to any of the benefit plans listed above, then the hourly rate of pay will be the "total rate" from the wage schedule.

19.07-A.15 All other deductions, including but not limited to the following, may not be subtracted from the employee's hourly minimum prevailing wage rate:

- Vacation Time
- Sick Time
- Training Funds
- Charitable Contributions
- Workers Compensation
- Unemployment Insurance
- Uniforms

19.07-A.16 Overtime, which shall be paid to all employees who work more than forty (40) hours per week, shall be at least time-and-one-half the base rate ("total rate" less benefits, if any).

19.07-A.17 Any "separate check" given to any employee as the "benefit portion" of the minimum prevailing wage may not be treated differently than the check for "base wages". All "separate checks" are considered wages and subject to state and federal taxes, unemployment insurance and worker's compensation requirements.

19.07-A.18 A reporting form is sent along with each wage schedule that may be used. Each report shall contain at least: the employee's name, address, occupational classification, hours worked and wages paid. Do not submit weekly payroll reports to the Department of Labor and Workforce Development.

19.07-A.19 After the Contractor completes its portion of the public building construction project, the Contractor shall submit a Statement of Compliance to the Department of Labor and Workforce Development. A Statement of Compliance form is also sent along with each wage schedule issued.

19.07-A.20 Apprentices shall be registered with the Division of Apprentice Training (DAT). All persons not registered with DAT shall be paid the "total rate" listed on the wage schedule. An apprentice sheet showing percentages based on the apprentice steps is included with all wage schedules.

19.07-A.21 Failure to pay the minimum prevailing wage subjects the Contractor to potential civil and criminal liability.

"SC-19.08-A If any provision of the Contract Documents is determined to be invalid or unenforceable by final judgment of a court of competent jurisdiction, the remaining provisions shall continue in effect to the extent permitted by law.

SC-19.09-A All provisions of law required to be inserted in the Contract Documents shall be and are inserted herein. If any such provision is not herein inserted or inserted in improper form, upon the application of either party, the Contract Documents shall be changed by the Owner, at no increase in contract sum or contract time, so as to strictly comply with the law and without prejudice to the rights of either party herein.

SC-19.10-A No forbearance or indulgence in any form or manner by the Owner shall be construed as a waiver or in any way limit the legal or equitable remedies available to the Owner. No waiver by the Owner of any default or breach shall constitute a waiver of any subsequent default or breach.

SC-19.11-A Attorney's Fees. In the event that any legal or equitable action, suit, or claim, counterclaim, cross-claim, or third-party claim of any kind relating to the Contract is filed, pleaded or initiated by the Owner or Contractor against the other party to the Contract, which results in a judgment, award or order of any kind in favor of the Owner, the Contractor shall be responsible for all reasonable costs, expenses, attorney's fees and expert witness fees incurred by the Owner in filing, prosecuting, maintaining, appealing or defending against such action, suit, or claim, counter-claim, cross-claim, or third-party claim.

SC-19.12-A Any cause of action which the Owner may have in connection with Work shall be deemed to accrue only when the Owner has obtained actual knowledge of the act of omission which gives rise to the cause of action, not before.

SC-19.13-A No officer, member of a board, commission or committee, employee or agent of the Owner shall be personally or individually liable to the Contractor with respect to the Contract or the Work. Each subcontract shall include the foregoing limitation, which shall be effective if the Owner ever succeeds to the Contractor's rights and obligations under the subcontract.

SC-19.14-A The Contract may be amended only by written Contract of the parties.

SC-19.15-A The Contract may not be assigned by the Contractor without the prior written assent of the Owner."

### Insert a new Article 20 in the General Conditions, as follows:

### ARTICLE 20: ADDITIONAL PROVISIONS

20.01 Certification of Tax Compliance - By entering into an Contract with the Owner, the Contractor certifies under the penalties of perjury, pursuant to M.G.L. Chapter 62C, Section 49A(b), that it has complied with all laws of the Commonwealth of Massachusetts relating to taxes, to the reporting of employees and Contractors, and to the withholding and remitting of child support.

20.02 Conflict of Interest - The Contractor understands that the Massachusetts Conflict of Interest Law, Chapter 268A of the Massachusetts General Laws, applies to the Contractor with respect to the services required to be provided under the Contract. The Contractor and its officers, employees, agents, Subcontractors and affiliated agencies shall not participate in any activity which constitutes a violation of the Massachusetts Conflict of Interest Law or which creates an appearance of a violation of the Massachusetts Conflict of Interest Law.

20.03 Non-Collusion - By entering into the Contract with the Owner, the Contractor certifies under penalties of perjury that its bid has been made and submitted in good faith and without collusion or fraud with any 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.

20.04 Independent Contractor Status - The Contractor shall provide services under any Contract with the Owner as an independent contractor with the Town of Natick and not as an employee of the Town of Natick. No employee, agent or representative of the Contractor shall be entitled to receive any benefits of employment with the Town of Natick, including without limitation salary, overtime, vacation pay, holiday pay, sick leave, health insurance, life insurance, pension or deferred compensation.

20.05 Additional Statutory Incorporations - The provisions of M.G.L. Chapter 149, Sections 34 (Public contracts; stipulation as to hours and days of work; void contracts), 34A (Contracts for public works; workers' compensation insurance; breach of contract; enforcement and violation of statute ), and 34B (Contracts for public works; wages for reserve police officer) shall hereby be incorporated into this Contract by reference.



CHARLES D. BAKER Governor

KARYN E. POLITO Lt. Governor

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

### **Prevailing Wage Rates**

As determined by the Director under the provisions of the Massachusetts General Laws, Chapter 149, Sections 26 to 27H ROSALIN ACOSTA Secretary WILLIAM D MCKINNEY Director

Awarding Authority:	Natick Department of Public Works	
<b>Contract Number:</b>	446	City/Town: NATICK
Description of Work:	Work for this project: install approx. 5,875 LF of 8 & 1675 LF of 12" sewer forcemain all through slip	" water main, open cut installation of 330 LF of 10" water main lining & pipe bursting.
Job Location:	West Central Street & Route 30	

Information about Prevailing Wage Schedules for Awarding Authorities and Contractors

• This wage schedule applies only to the specific project referenced at the top of this page and uniquely identified by the "Wage Request Number" on all pages of this schedule.

• An Awarding Authority must request an updated wage schedule from the Department of Labor Standards ("DLS") if it has not opened bids or selected a contractor within 90 days of the date of issuance of the wage schedule. For CM AT RISK projects (bid pursuant to G.L. c.149A), the earlier of: (a) the execution date of the GMP Amendment, or (b) the bid for the first construction scope of work must be within 90-days of the wage schedule issuance date.

• The wage schedule shall be incorporated in any advertisement or call for bids for the project as required by M.G.L. c. 149, § 27. The wage schedule shall be made a part of the contract awarded for the project. The wage schedule must be posted in a conspicuous place at the work site for the life of the project in accordance with M.G.L. c. 149 § 27. The wages listed on the wage schedule must be paid to employees performing construction work on the project whether they are employed by the prime contractor, a filed sub-bidder, or any sub-contractor.

• All apprentices working on the project are required to be registered with the Massachusetts Department of Labor Standards, Division of Apprentice Standards (DLS/DAS). Apprentice must keep his/her apprentice identification card on his/her person during all work hours on the project. An apprentice registered with DAS may be paid the lower apprentice wage rate at the applicable step as provided on the prevailing wage schedule. Any apprentice not registered with DLS/DAS regardless of whether or not they are registered with any other federal, state, local, or private agency must be paid the journeyworker's rate for the trade.

• The wage rates will remain in effect for the duration of the project, except in the case of multi-year public construction projects. For construction projects lasting longer than one year, awarding authorities must request an updated wage schedule. Awarding authorities are required to request these updates no later than two weeks before the anniversary of the date the contract was executed by the awarding authority and the general contractor. For multi-year CM AT RISK projects, awarding authority must request an annual update no later than two weeks before the anniversary date, determined as the earlier of: (a) the execution date of the GMP Amendment, or (b) the execution date of the first amendment to permit procurement of construction services. Contractors are required to obtain the wage schedules from awarding authorities, and to pay no less than these rates to covered workers. The annual update requirement is not applicable to 27F "rental of equipment" contracts.

• Every contractor or subcontractor which performs construction work on the project is required to submit weekly payroll reports and a Statement of Compliance directly to the awarding authority by mail or email and keep them on file for three years. Each weekly payroll report must contain: the employee's name, address, occupational classification, hours worked, and wages paid. Do not submit weekly payroll reports to DLS. A sample of a payroll reporting form may be obtained at http://www.mass.gov/dols/pw.

• Contractors with questions about the wage rates or classifications included on the wage schedule have an affirmative obligation to inquire with DLS at (617) 626-6953.

• Employees not receiving the prevailing wage rate set forth on the wage schedule may report the violation to the Fair Labor Division of the office of the Attorney General at (617) 727-3465.

• Failure of a contractor or subcontractor to pay the prevailing wage rates listed on the wage schedule to all employees who perform construction work on the project is a violation of the law and subjects the contractor or subcontractor to civil and

Classification Construction	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
(2 AXLE) DRIVER - EQUIPMENT	12/01/2016	¢20.15	¢10.01	\$10.89	\$0.00	¢52.05
FEAMSTERS JOINT COUNCIL NO. 10 ZONE B	12/01/2010	\$32.15	\$10.91	\$10.89	\$0.00	\$53.95
3 AXLE) DRIVER - EQUIPMENT	12/01/2016	\$32.22	\$10.91	\$10.89	\$0.00	\$54.02
TEAMSTERS JOINT COUNCIL NO. 10 ZONE B						
4 & 5 AXLE) DRIVER - EQUIPMENT	12/01/2016	\$32.34	\$10.91	\$10.89	\$0.00	\$54.14
TEAMSTERS JOINT COUNCIL NO. 10 ZONE B						
ADS/SUBMERSIBLE PILOT PILE DRIVER LOCAL 56 (ZONE 1)	08/01/2017	\$92.97	\$9.90	\$21.15	\$0.00	\$124.02
	08/01/2018	\$97.80	\$9.90	\$21.15	\$0.00	\$128.85
For emprentice rotes see "Apprentice_DILE DDIVED"	08/01/2019	\$102.78	\$9.90	\$21.15	\$0.00	\$133.83
For apprentice rates see "Apprentice- PILE DRIVER" AIR TRACK OPERATOR	12/01/2017	<b>\$22.50</b>	<b>*----</b>	¢12.00	¢0.00	<b>\$54.00</b>
LABORERS - ZONE 2	12/01/2017	\$33.58	\$7.70	\$13.60	\$0.00	\$54.88
	06/01/2018	\$34.42	\$7.70	\$13.60	\$0.00	\$55.72
	12/01/2018	\$35.26	\$7.70	\$13.60	\$0.00	\$56.56
	06/01/2019	\$36.13	\$7.70	\$13.60	\$0.00	\$57.43
	12/01/2019	\$36.99	\$7.70	\$13.60	\$0.00	\$58.29
	06/01/2020	\$37.88	\$7.70	\$13.60	\$0.00	\$59.18
	12/01/2020	\$38.77	\$7.70	\$13.60	\$0.00	\$60.07
	06/01/2021	\$39.69	\$7.70	\$13.60	\$0.00	\$60.99
For apprentice rates see "Apprentice- LABORER"	12/01/2021	\$40.60	\$7.70	\$13.60	\$0.00	\$61.90
ASBESTOS REMOVER - PIPE / MECH. EQUIPT.	12/01/2017	\$35.90	\$11.50	\$7.10	\$0.00	\$54.50
HEAT & FROST INSULATORS LOCAL 6 (BOSTON)	06/01/2018	\$36.90	\$11.50	\$7.10	\$0.00	\$55.50
	12/01/2018	\$37.90	\$11.50	\$7.10	\$0.00	\$56.50
	06/01/2019	\$38.90	\$11.50	\$7.10	\$0.00	\$57.50
	12/01/2019	\$39.90	\$11.50	\$7.10	\$0.00	\$58.50
	06/01/2020	\$40.90	\$11.50	\$7.10	\$0.00	\$59.50
	12/01/2020	\$41.90	\$11.50	\$7.10	\$0.00	\$60.50
ASPHALT RAKER	12/01/2017	\$33.08	\$7.70	\$13.60	\$0.00	\$54.38
LABORERS - ZONE 2	06/01/2018	\$33.92	\$7.70	\$13.60	\$0.00	\$55.22
	12/01/2018	\$34.76	\$7.70	\$13.60	\$0.00	\$56.06
	06/01/2019	\$35.63	\$7.70	\$13.60	\$0.00	\$56.93
	12/01/2019	\$36.49	\$7.70	\$13.60	\$0.00	\$57.79
	06/01/2020	\$37.38	\$7.70	\$13.60	\$0.00	\$58.68
	12/01/2020	\$38.27	\$7.70	\$13.60	\$0.00	\$59.57
	06/01/2021	\$39.19	\$7.70	\$13.60	\$0.00	\$60.49
	12/01/2021	\$40.10	\$7.70	\$13.60	\$0.00	\$61.40
For apprentice rates see "Apprentice- LABORER"		-				-
ASPHALT/CONCRETE/CRUSHER PLANT-ON SITE OPERATING ENGINEERS LOCAL 4	12/01/2017	\$46.63	\$10.50	\$15.50	\$0.00	\$72.63
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
BACKHOE/FRONT-END LOADER OPERATING ENGINEERS LOCAL 4	12/01/2017	\$46.63	\$10.50	\$15.50	\$0.00	\$72.63
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
BARCO-TYPE JUMPING TAMPER	12/01/2017	\$33.08	\$7.70	\$13.60	\$0.00	\$54.38
LABORERS - ZONE 2	06/01/2018	\$33.92	\$7.70	\$13.60	\$0.00	\$55.22
	12/01/2018	\$34.76	\$7.70	\$13.60	\$0.00	\$56.06
	06/01/2019	\$35.63	\$7.70	\$13.60	\$0.00	\$56.93
	12/01/2019	\$36.49	\$7.70	\$13.60	\$0.00	\$57.79
	06/01/2020	\$37.38	\$7.70	\$13.60	\$0.00	\$58.68
	12/01/2020	\$38.27	\$7.70	\$13.60	\$0.00	\$59.57
	06/01/2021	\$39.19	\$7.70	\$13.60	\$0.00	\$60.49
For apprentice rates see "Apprentice- LABORER"	12/01/2021	\$40.10	\$7.70	\$13.60	\$0.00	\$61.40
BLOCK PAVER, RAMMER / CURB SETTER	12/01/2017	\$33.58	\$7.70	\$13.60	\$0.00	\$54.88
LABORERS - ZONE 2	06/01/2018	\$35.58 \$34.42	\$7.70 \$7.70	\$13.60	\$0.00	\$54.88 \$55.72
	12/01/2018	\$35.26	\$7.70	\$13.60	\$0.00	\$56.56
	06/01/2019	\$36.13	\$7.70	\$13.60	\$0.00	\$57.43
	12/01/2019	\$36.99	\$7.70	\$13.60	\$0.00	\$58.29
	06/01/2020	\$37.88	\$7.70	\$13.60	\$0.00	\$59.18
	12/01/2020	\$38.77	\$7.70	\$13.60	\$0.00	\$60.07
	06/01/2021	\$39.69	\$7.70	\$13.60	\$0.00	\$60.99
	12/01/2021	\$40.60	\$7.70	\$13.60	\$0.00	\$61.90
For apprentice rates see "Apprentice- LABORER"						
BOILER MAKER BOILERMAKERS LOCAL 29	01/01/2017	\$42.92	\$6.97	\$16.21	\$0.00	\$66.10

# Apprentice - BOILERMAKER - Local 29

Step	ive Date - 01/01/201 percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
July		Appientice Duse Wuge	Incurtii	1 chiston	enempioyment	Total Rate
1	65	\$27.90	\$6.97	\$10.54	\$0.00	\$45.41
2	65	\$27.90	\$6.97	\$10.54	\$0.00	\$45.41
3	70	\$30.04	\$6.97	\$11.35	\$0.00	\$48.36
4	75	\$32.19	\$6.97	\$12.16	\$0.00	\$51.32
5	80	\$34.34	\$6.97	\$12.97	\$0.00	\$54.28
6	85	\$36.48	\$6.97	\$13.78	\$0.00	\$57.23
7	90	\$38.63	\$6.97	\$14.59	\$0.00	\$60.19
8	95	\$40.77	\$6.97	\$15.40	\$0.00	\$63.14

Notes:

Apprentice to Journeyworker Ratio:1:5

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Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
BRICK/STONE/ARTIFICIAL MASONRY (INCL. MASONRY	03/01/2018	\$49.96	\$10.75	\$19.43	\$0.00	\$80.14
WATERPROOFING) Bricklayers local 3 (lowell)	08/01/2018	\$51.31	\$10.75	\$19.56	\$0.00	\$81.62
	02/01/2019	\$51.91	\$10.75	\$19.56	\$0.00	\$82.22
	08/01/2019	\$53.26	\$10.75	\$19.70	\$0.00	\$83.71
	02/01/2020	\$53.86	\$10.75	\$19.70	\$0.00	\$84.31
	08/01/2020	\$55.21	\$10.75	\$19.85	\$0.00	\$85.81
	02/01/2021	\$55.81	\$10.75	\$19.85	\$0.00	\$86.41
	08/01/2021	\$57.21	\$10.75	\$20.01	\$0.00	\$87.97
	02/01/2022	\$57.79	\$10.75	\$20.01	\$0.00	\$88.55

# Apprentice - BRICK/PLASTER/CEMENT MASON - Local 3 Lowell

Effecti	ive Date -	03/01/2018				Supplemental		
Step	percent		Apprentice Base Wage	Health	Pension	Unemployment	Total Rate	
1	50		\$24.98	\$10.75	\$19.43	\$0.00	\$55.16	
2	60		\$29.98	\$10.75	\$19.43	\$0.00	\$60.16	
3	70		\$34.97	\$10.75	\$19.43	\$0.00	\$65.15	
4	80		\$39.97	\$10.75	\$19.43	\$0.00	\$70.15	
5	90		\$44.96	\$10.75	\$19.43	\$0.00	\$75.14	

Step	percent	I	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50		\$25.66	\$10.75	\$19.56	\$0.00	\$55.97
2	60		\$30.79	\$10.75	\$19.56	\$0.00	\$61.10
3	70		\$35.92	\$10.75	\$19.56	\$0.00	\$66.23
4	80		\$41.05	\$10.75	\$19.56	\$0.00	\$71.36
5	90		\$46.18	\$10.75	\$19.56	\$0.00	\$76.49

### Apprentice to Journeyworker Ratio:1:5

BULLDOZER/GRADER/SCRAPER OPERATING ENGINEERS LOCAL 4	12/01/2017	\$46.17	\$10.50	\$15.50	\$0.00	\$72.17
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
CAISSON & UNDERPINNING BOTTOM MAN	12/01/2017	\$38.60	\$7.70	\$14.95	\$0.00	\$61.25
LABORERS - FOUNDATION AND MARINE	06/01/2018	\$39.55	\$7.70	\$14.95	\$0.00	\$62.20
	12/01/2018	\$40.50	\$7.70	\$14.95	\$0.00	\$63.15
	06/01/2019	\$41.50	\$7.70	\$14.95	\$0.00	\$64.15
	12/01/2019	\$42.50	\$7.70	\$14.95	\$0.00	\$65.15
	06/01/2020	\$43.49	\$7.70	\$14.95	\$0.00	\$66.14
	12/01/2020	\$44.47	\$7.70	\$14.95	\$0.00	\$67.12
	06/01/2021	\$45.49	\$7.70	\$14.95	\$0.00	\$68.14
	12/01/2021	\$46.50	\$7.70	\$14.95	\$0.00	\$69.15

For apprentice rates see "Apprentice- LABORER"

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
CAISSON & UNDERPINNING LABORER	12/01/2017	\$37.45	\$7.70	\$14.95	\$0.00	\$60.10
LABORERS - FOUNDATION AND MARINE	06/01/2018	\$38.40	\$7.70	\$14.95	\$0.00	\$61.05
	12/01/2018	\$39.35	\$7.70	\$14.95	\$0.00	\$62.00
	06/01/2019	\$40.35	\$7.70	\$14.95	\$0.00	\$63.00
	12/01/2019	\$41.35	\$7.70	\$14.95	\$0.00	\$64.00
	06/01/2020	\$42.34	\$7.70	\$14.95	\$0.00	\$64.99
	12/01/2020	\$43.32	\$7.70	\$14.95	\$0.00	\$65.97
	06/01/2021	\$44.34	\$7.70	\$14.95	\$0.00	\$66.99
	12/01/2021	\$45.35	\$7.70	\$14.95	\$0.00	\$68.00
For apprentice rates see "Apprentice- LABORER"						
CAISSON & UNDERPINNING TOP MAN LABORERS - FOUNDATION AND MARINE	12/01/2017	\$37.45	\$7.70	\$14.95	\$0.00	\$60.10
LADOKEKS - FOUNDATION AND MAKINE	06/01/2018	\$38.40	\$7.70	\$14.95	\$0.00	\$61.05
	12/01/2018	\$39.35	\$7.70	\$14.95	\$0.00	\$62.00
	06/01/2019	\$40.35	\$7.70	\$14.95	\$0.00	\$63.00
	12/01/2019	\$41.35	\$7.70	\$14.95	\$0.00	\$64.00
	06/01/2020	\$42.34	\$7.70	\$14.95	\$0.00	\$64.99
	12/01/2020	\$43.32	\$7.70	\$14.95	\$0.00	\$65.97
	06/01/2021	\$44.34	\$7.70	\$14.95	\$0.00	\$66.99
	12/01/2021	\$45.35	\$7.70	\$14.95	\$0.00	\$68.00
For apprentice rates see "Apprentice- LABORER"						
CARBIDE CORE DRILL OPERATOR LABORERS - ZONE 2	12/01/2017	\$33.08	\$7.70	\$13.60	\$0.00	\$54.38
LABORERS - ZONE 2	06/01/2018	\$33.92	\$7.70	\$13.60	\$0.00	\$55.22
	12/01/2018	\$34.76	\$7.70	\$13.60	\$0.00	\$56.06
	06/01/2019	\$35.63	\$7.70	\$13.60	\$0.00	\$56.93
	12/01/2019	\$36.49	\$7.70	\$13.60	\$0.00	\$57.79
	06/01/2020	\$37.38	\$7.70	\$13.60	\$0.00	\$58.68
	12/01/2020	\$38.27	\$7.70	\$13.60	\$0.00	\$59.57
	06/01/2021	\$39.19	\$7.70	\$13.60	\$0.00	\$60.49
	12/01/2021	\$40.10	\$7.70	\$13.60	\$0.00	\$61.40
For apprentice rates see "Apprentice- LABORER"						
CARPENTER CARPENTERS -ZONE 2 (Eastern Massachusetts)	03/01/2018	\$40.28	\$9.90	\$17.50	\$0.00	\$67.68
	09/01/2018	\$41.32	\$9.90	\$17.50	\$0.00	\$68.72
	03/01/2019	\$42.35	\$9.90	\$17.50	\$0.00	\$69.75

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Effect	ive Date -	03/01/2018			Supplemental		
Step	percent		Apprentice Base Wage	Health	Pension	Unemployment	Total Rate
1	50		\$20.14	\$9.90	\$1.73	\$0.00	\$31.77
2	60		\$24.17	\$9.90	\$1.73	\$0.00	\$35.80
3	70		\$28.20	\$9.90	\$12.31	\$0.00	\$50.41
4	75		\$30.21	\$9.90	\$12.31	\$0.00	\$52.42
5	80		\$32.22	\$9.90	\$14.04	\$0.00	\$56.16
6	80		\$32.22	\$9.90	\$14.04	\$0.00	\$56.16
7	90		\$36.25	\$9.90	\$15.77	\$0.00	\$61.92
8	90		\$36.25	\$9.90	\$15.77	\$0.00	\$61.92

# Apprentice - CARPENTER - Zone 2 Eastern MA

### Effective Date - 09/01/2018

Effecti	ve Date -	09/01/2018			Supplemental		
Step	percent	Apprentice Base Wage	Health	Pension	Unemployment	Total Rate	
1	50	\$20.66	\$9.90	\$1.73	\$0.00	\$32.29	
2	60	\$24.79	\$9.90	\$1.73	\$0.00	\$36.42	
3	70	\$28.92	\$9.90	\$12.31	\$0.00	\$51.13	
4	75	\$30.99	\$9.90	\$12.31	\$0.00	\$53.20	
5	80	\$33.06	\$9.90	\$14.04	\$0.00	\$57.00	
6	80	\$33.06	\$9.90	\$14.04	\$0.00	\$57.00	
7	90	\$37.19	\$9.90	\$15.77	\$0.00	\$62.86	
8	90	\$37.19	\$9.90	\$15.77	\$0.00	\$62.86	
Notes:							
		ed After 10/1/17; 45/45/55/55/70/70/80/80 29.76/ 3&4 \$35.45/ 5&6 \$52.14/ 7&8 \$57.89					
Appre	ntice to Jour	neyworker Ratio:1:5					
CARPENTER WOOD		10/01/2017	\$26.25	\$7.07	\$7.86	\$0.00	\$41.18
CARPENTERS -ZONE 2 (Woo	od Frame)	04/01/2018	\$\$26.67	\$7.07	\$7.86	\$0.00	\$41.60
		10/01/2018	\$\$\$\$\$\$\$\$\$\$\$\$\$\$\$\$\$\$\$\$\$\$\$\$\$\$\$\$\$\$\$\$\$\$\$\$\$\$\$	\$7.07	\$7.86	\$0.00	\$42.02
		04/01/2019	\$27.52	\$7.07	\$7.86	\$0.00	\$42.45
		10/01/2019	\$27.95	\$7.07	\$7.86	\$0.00	\$42.88

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

Effect	ive Date -	10/01/2017				Supplemental	
Step	percent		Apprentice Base Wage	Health	Pension	Unemployment	Total Rate
1	60		\$15.75	\$7.07	\$0.00	\$0.00	\$22.82
2	60		\$15.75	\$7.07	\$0.00	\$0.00	\$22.82
3	65		\$17.06	\$7.07	\$7.86	\$0.00	\$31.99
4	70		\$18.38	\$7.07	\$7.86	\$0.00	\$33.31
5	75		\$19.69	\$7.07	\$7.86	\$0.00	\$34.62
6	80		\$21.00	\$7.07	\$7.86	\$0.00	\$35.93
7	85		\$22.31	\$7.07	\$7.86	\$0.00	\$37.24
8	90		\$23.63	\$7.07	\$7.86	\$0.00	\$38.56

# Apprentice - CARPENTER (Wood Frame) - Zone 2

### **Effective Date -** 04/01/2018

]	Effectiv	<b>ve Date -</b> 04/01/2018				Supplemental		
	Step	percent	Apprentice Base Wage	Health	Pension	Unemployment	Total Rate	e
	1	60	\$16.00	\$7.07	\$0.00	\$0.00	\$23.07	7
	2	60	\$16.00	\$7.07	\$0.00	\$0.00	\$23.07	7
	3	65	\$17.34	\$7.07	\$7.86	\$0.00	\$32.27	7
	4	70	\$18.67	\$7.07	\$7.86	\$0.00	\$33.60	)
	5	75	\$20.00	\$7.07	\$7.86	\$0.00	\$34.93	3
	6	80	\$21.34	\$7.07	\$7.86	\$0.00	\$36.27	7
	7	85	\$22.67	\$7.07	\$7.86	\$0.00	\$37.60	)
	8	90	\$24.00	\$7.07	\$7.86	\$0.00	\$38.93	3
[]	Notes:	% Indentured After 10/1/17; 45/4					- — — — 	
		Step 1&2 \$18.88/ 3&4 \$26.26/ 5d						
	Appren	tice to Journeyworker Ratio:1:5						
CARPENTER W CARPENTERS -ZONI		RAME (All Other Work)	06/01/2016	\$25.32	\$9.80	\$16.82	\$0.00	\$51.94
CEMENT MASC			01/01/2018	\$41.67	\$12.35	\$22.41	\$0.30	\$76.73
BRICKLAYERS LOCA	4L 3 (LOV	WELL)	07/01/2018	\$42.59	\$12.35	\$22.41	\$0.30	\$77.65
			01/01/2019	\$43.83	\$12.35	\$22.41	\$0.30	\$78.89
			07/01/2019	\$44.71	\$12.35	\$22.41	\$0.30	\$79.77
			01/01/2020	\$45.95	\$12.35	\$22.41	\$0.30	\$81.01

-	-	CEMENT MASONRY/PLASTE - 01/01/2018	RING - Lowell					
	ffective Date - ep percent		Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate	
			\$20.84	\$12.35	\$15.41	\$0.00	\$48.60	
2			\$25.00	\$12.35	\$13.41 \$17.41	\$0.30	\$48.00	
3			\$27.09	\$12.35	\$18.41	\$0.30	\$58.15	
4			\$29.17		\$19.41			
5				\$12.35 \$12.25		\$0.30 \$0.20	\$61.23 \$64.21	
6			\$31.25	\$12.35	\$20.41	\$0.30	\$64.31	
7			\$33.34	\$12.35	\$21.41	\$0.30	\$67.40	
,	90		\$37.50	\$12.35	\$22.41	\$0.30	\$72.56	
E	ffective Date -	. 07/01/2018				Supplemental		
St	ep percent		Apprentice Base Wage	Health	Pension	Unemployment	Total Rate	
1	50		\$21.30	\$12.35	\$15.41	\$0.00	\$49.06	
2	60		\$25.55	\$12.35	\$17.41	\$0.30	\$55.61	
3	65		\$27.68	\$12.35	\$18.41	\$0.30	\$58.74	
4	70		\$29.81	\$12.35	\$19.41	\$0.30	\$61.87	
5	75		\$31.94	\$12.35	\$20.41	\$0.30	\$65.00	
6	80		\$34.07	\$12.35	\$21.41	\$0.30	\$68.13	
7	90		\$38.33	\$12.35	\$22.41	\$0.30	\$73.39	
N	otes: Steps 3.	4 are 500 hrs. All other steps a						
 		ourneyworker Ratio:1:3						
IAIN SAW OPE		ourneyworker Katto.1.5	12/01/201/		<b>\$7.7</b> 0	¢12.(0	\$0.00	<b>\$54.20</b>
ORERS - ZONE 2	addition (		12/01/2017			\$13.60 \$12.60	\$0.00	\$54.38
			06/01/2013			\$13.60 \$12.60	\$0.00 \$0.00	\$55.22
			12/01/2013			\$13.60 \$12.60	\$0.00	\$56.06
			06/01/2019			\$13.60	\$0.00	\$56.93
			12/01/2019			\$13.60	\$0.00	\$57.79
			06/01/2020			\$13.60	\$0.00	\$58.68
			12/01/2020			\$13.60	\$0.00	\$59.57
			06/01/202			\$13.60	\$0.00	\$60.49
For apprentice rate	s see "Apprentice	- LABORER"	12/01/202	1 \$40.10	\$7.70	\$13.60	\$0.00	\$61.40
AM SHELLS/S ERATING ENGINEE		KETS/HEADING MACHINE	ES 12/01/2017	7 \$47.63	\$10.50	\$15.50	\$0.00	\$73.63
For apprentice rate	s see "Apprentice	- OPERATING ENGINEERS"						
OMPRESSOR O ERATING ENGINEE			12/01/2017	7 \$31.80	\$10.50	\$15.50	\$0.00	\$57.80
For apprentice rate	s see "Apprentice	- OPERATING ENGINEERS"						
ELEADER (BRI	DGE)		01/01/201/	7 \$51.41	\$7.05	\$16.10	\$0.00	\$75.26

### Apprentice - CEMENT MASONRY/PLASTERING - Lowell

DELEADER (BRIDGE) PAINTERS LOCAL 35 - ZONE 2

01/01/2017

\$51.41

\$7.85

\$16.10

\$0.00

\$75.36

-	•	cal 35 - BRIDGES/TANKS					
St		Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate	
1	50	\$25.71	\$7.85	\$0.00	\$0.00	\$33.56	
2	55	\$28.28	\$7.85	\$3.66	\$0.00	\$39.79	
3	60	\$30.85	\$7.85	\$3.99	\$0.00	\$42.69	
4	65	\$33.42	\$7.85	\$4.32	\$0.00	\$45.59	
5	70	\$35.99	\$7.85	\$14.11	\$0.00	\$57.95	
6		\$38.56	\$7.85	\$14.44	\$0.00	\$60.85	
7		\$41.13	\$7.85	\$14.77	\$0.00	\$63.75	
8		\$46.27	\$7.85	\$15.44	\$0.00	\$69.56	
N	otes:						
	Steps are 750 hrs.						
	pprentice to Journeywork	er Ratio:1:1					
EMO: ADZEMA 4borers - zone 2	N	12/01/201	7 \$37.65	\$7.70	\$14.75	\$0.00	\$60.10
IDONENS * LONE 2		06/01/2013	8 \$38.60	\$7.70	\$14.75	\$0.00	\$61.05
		12/01/2013	8 \$39.55	\$7.70	\$14.75	\$0.00	\$62.00
		06/01/2019	9 \$40.55	\$7.70	\$14.75	\$0.00	\$63.00
For apprentice rates	s see "Apprentice- LABORER"	12/01/2019	9 \$41.55	\$7.70	\$14.75	\$0.00	\$64.00
EMO: BACKHO	E/LOADER/HAMMER O	PERATOR 12/01/201	7 \$38.65	\$7.70	\$14.75	\$0.00	\$61.10
4BORERS - ZONE 2		06/01/2013			\$14.75	\$0.00	\$62.05
		12/01/2013			\$14.75	\$0.00	\$63.00
		06/01/2019	9 \$41.55	\$7.70	\$14.75	\$0.00	\$64.00
		12/01/2019	9 \$42.55	\$7.70	\$14.75	\$0.00	\$65.00
For apprentice rates	s see "Apprentice- LABORER"	12/01/201/	7 \$29.40	\$7.70	¢14 75	\$0.00	¢(0.95
ABORERS - ZONE 2	5	12/01/201			\$14.75 \$14.75	\$0.00	\$60.85
		06/01/2013 12/01/2013			\$14.75 \$14.75	\$0.00 \$0.00	\$61.80
		06/01/201			\$14.75	\$0.00	\$62.75 \$63.75
		12/01/201			\$14.75	\$0.00	\$64.75
For apprentice rates	s see "Apprentice- LABORER"	12/01/201	φ <del>1</del> 2.50	\$7.70	φ11.75	ψ0.00	<b>ФО</b> <del>1</del> .75
	TE CUTTER/SAWYER	12/01/2017	7 \$38.65	\$7.70	\$14.75	\$0.00	\$61.10
4BORERS - ZONE 2		06/01/2013	8 \$39.60	\$7.70	\$14.75	\$0.00	\$62.05
		12/01/2013	8 \$40.55	\$7.70	\$14.75	\$0.00	\$63.00
		06/01/201	9 \$41.55	\$7.70	\$14.75	\$0.00	\$64.00
		12/01/2019	9 \$42.55	\$7.70	\$14.75	\$0.00	\$65.00
	s see "Apprentice- LABORER"						
EMO: JACKHAN Aborers - zone 2	MMER OPERATOR	12/01/201	7 \$38.40	\$7.70	\$14.75	\$0.00	\$60.85
IL OILLING - LOINE 2		06/01/2013	8 \$39.35	\$7.70	\$14.75	\$0.00	\$61.80
		12/01/2013	8 \$40.30	\$7.70	\$14.75	\$0.00	\$62.75
		06/01/2019	9 \$41.30	\$7.70	\$14.75	\$0.00	\$63.75
		12/01/2019	9 \$42.30	\$7.70	\$14.75	\$0.00	\$64.75
sue Date: 03/2	0/2019	Wage Request Number: 201803	20.017				Page Q of 3

#### PAINTER Local 35 - BRIDGES/TANKS Annrentice

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate	
For apprentice rates see "Apprentice- LABORER"					onempioyment		
DEMO: WRECKING LABORER	12/01/2017	\$37.65	\$7.70	\$14.75	\$0.00	\$60.10	
LABORERS - ZONE 2	06/01/2018	\$38.60	\$7.70	\$14.75	\$0.00	\$61.05	
	12/01/2018	\$39.55	\$7.70	\$14.75	\$0.00	\$62.00	
	06/01/2019	\$40.55	\$7.70	\$14.75	\$0.00	\$63.00	
	12/01/2019	\$41.55	\$7.70	\$14.75	\$0.00	\$64.00	
For apprentice rates see "Apprentice- LABORER"							
DIRECTIONAL DRILL MACHINE OPERATOR OPERATING ENGINEERS LOCAL 4	12/01/2017	\$46.17	\$10.50	\$15.50	\$0.00	\$72.17	
For apprentice rates see "Apprentice- OPERATING ENGINEERS"							
DIVER	08/01/2017	\$61.98	\$9.90	\$21.15	\$0.00	\$93.03	
PILE DRIVER LOCAL 56 (ZONE 1)	08/01/2018	\$65.20	\$9.90	\$21.15	\$0.00	\$96.25	
	08/01/2019	\$68.52	\$9.90	\$21.15	\$0.00	\$99.57	
For apprentice rates see "Apprentice- PILE DRIVER"							
DIVER TENDER Pile driver local 56 (zone 1)	08/01/2017	\$44.27	\$9.90	\$21.15	\$0.00	\$75.32	
THE DRIVER LOCAL 50 (LONE 1)	08/01/2018	\$46.57	\$9.90	\$21.15	\$0.00	\$77.62	
	08/01/2019	\$48.94	\$9.90	\$21.15	\$0.00	\$79.99	
For apprentice rates see "Apprentice- PILE DRIVER"							
DIVER TENDER (EFFLUENT) PILE DRIVER LOCAL 56 (ZONE 1)	08/01/2017	\$66.41	\$9.90	\$21.15	\$0.00	\$97.46	
	08/01/2018	\$69.86	\$9.90	\$21.15	\$0.00	\$100.91	
For apprentice rates see "Apprentice- PILE DRIVER"	08/01/2019	\$73.41	\$9.90	\$21.15	\$0.00	\$104.46	
DIVER/SLURRY (EFFLUENT)	08/01/2017	\$92.97	\$9.90	\$21.15	\$0.00	\$124.02	
PILE DRIVER LOCAL 56 (ZONE 1)	08/01/2018	\$97.80	\$9.90	\$21.15	\$0.00	\$128.85	
	08/01/2019	\$102.78	\$9.90	\$21.15	\$0.00	\$133.83	
For apprentice rates see "Apprentice- PILE DRIVER"							
DRAWBRIDGE OPERATOR (Construction)	03/01/2018	\$50.15	\$13.00	\$17.85	\$0.00	\$81.00	
ELECTRICIANS LOCAL 103	09/01/2018	\$51.34	\$13.00	\$17.89	\$0.00	\$82.23	
	03/01/2019	\$52.53	\$13.00	\$17.93	\$0.00	\$83.46	
For apprentice rates see "Apprentice- ELECTRICIAN"							
ELECTRICIAN ELECTRICIANS LOCAL 103	03/01/2018	\$50.15	\$13.00	\$17.85	\$0.00	\$81.00	
ELECTNICIANS LOCAL 103	09/01/2018	\$51.34	\$13.00	\$17.89	\$0.00	\$82.23	
	03/01/2019	\$52.53	\$13.00	\$17.93	\$0.00	\$83.46	

Effect	ive Date -	03/01/2018				Supplemental	
Step	percent		Apprentice Base Wage	Health	Pension	Unemployment	Total Rate
1	40		\$20.06	\$13.00	\$0.60	\$0.00	\$33.66
2	40		\$20.06	\$13.00	\$0.60	\$0.00	\$33.66
3	45		\$22.57	\$13.00	\$13.61	\$0.00	\$49.18
4	45		\$22.57	\$13.00	\$13.61	\$0.00	\$49.18
5	50		\$25.08	\$13.00	\$13.99	\$0.00	\$52.07
6	55		\$27.58	\$13.00	\$14.38	\$0.00	\$54.96
7	60		\$30.09	\$13.00	\$14.76	\$0.00	\$57.85
8	65		\$32.60	\$13.00	\$15.15	\$0.00	\$60.75
9	70		\$35.11	\$13.00	\$15.53	\$0.00	\$63.64
10	75		\$37.61	\$13.00	\$15.93	\$0.00	\$66.54

# Apprentice - ELECTRICIAN - Local 103

Effective Date - 0	9/01/2018
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Step	ve Date - 09/01/2018 percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	\$20.54	\$13.00	\$0.62	\$0.00	\$34.16
2	40	\$20.54	\$13.00	\$0.62	\$0.00	\$34.16
3	45	\$23.10	\$13.00	\$13.62	\$0.00	\$49.72
4	45	\$23.10	\$13.00	\$13.62	\$0.00	\$49.72
5	50	\$25.67	\$13.00	\$14.01	\$0.00	\$52.68
6	55	\$28.24	\$13.00	\$14.40	\$0.00	\$55.64
7	60	\$30.80	\$13.00	\$14.78	\$0.00	\$58.58
8	65	\$33.37	\$13.00	\$15.17	\$0.00	\$61.54
9	70	\$35.94	\$13.00	\$15.56	\$0.00	\$64.50
10	75	\$38.51	\$13.00	\$15.96	\$0.00	\$67.47
Notes:	:					
ĺ	App Prior 1/1/03; 30/35/	40/45/50/55/65/70/75/80				
Apprei	ntice to Journeyworker I	Ratio:2:3***				·
ATOR CONSTRU		01/01/2017	7 \$55	.86 \$15.28	\$15.71	\$0.00 \$86.

	Effective Date - 01/01/2017		Locur /			Supplemental		
	Step	percent	Apprentice Base Wage	Health	Pension	Unemployment	Total R	ate
	1	50	\$27.93	\$15.28	\$0.00	\$0.00	\$43	.21
	2	55	\$30.72	\$15.28	\$15.71	\$0.00	\$61	.71
	3	65	\$36.31	\$15.28	\$15.71	\$0.00	\$67	.30
	4	70	\$39.10	\$15.28	\$15.71	\$0.00	\$70	.09
	5	80	\$44.69	\$15.28	\$15.71	\$0.00	\$75	.68
	Notes:	Steps 1-2 are 6 mos.; Steps 3-5 are 1 ye	ar					
	Appre	entice to Journeyworker Ratio:1:1						
ELEVATOR C		UCTOR HELPER RS LOCAL 4	01/01/201	7 \$39.10	\$15.28	\$15.71	\$0.00	\$70.09
For apprentice	e rates see	"Apprentice - ELEVATOR CONSTRUCTOR"						
FENCE & GUA		AIL ERECTOR	12/01/201	7 \$33.08	\$7.70	\$13.60	\$0.00	\$54.38
LABORERS - ZONI	E 2		06/01/201	8 \$33.92	\$7.70	\$13.60	\$0.00	\$55.22
			12/01/201	8 \$34.76	\$7.70	\$13.60	\$0.00	\$56.06
			06/01/201	9 \$35.63	\$7.70	\$13.60	\$0.00	\$56.93
			12/01/201	9 \$36.49	\$7.70	\$13.60	\$0.00	\$57.79
			06/01/202	0 \$37.38	\$7.70	\$13.60	\$0.00	\$58.68
			12/01/202	0 \$38.27	\$7.70	\$13.60	\$0.00	\$59.57
			06/01/202	1 \$39.19	\$7.70	\$13.60	\$0.00	\$60.49
			12/01/202	1 \$40.10	\$7.70	\$13.60	\$0.00	\$61.40
		"Apprentice- LABORER"						
FIELD ENG.IN		RSON-BLDG,SITE,HVY/HWY 0CAL 4	11/01/201		\$10.00	\$15.25	\$0.00	\$68.13
		"Apprentice- OPERATING ENGINEERS"	05/01/201	8 \$43.59	\$10.00	\$15.25	\$0.00	\$68.84
		CHIEF-BLDG,SITE,HVY/HWY	11/01/201		¢10.00	¢15.05	¢0.00	¢ ( 0, <b>5</b> 0
OPERATING ENGL			11/01/201		\$10.00	\$15.25	\$0.00	\$69.59
For apprentice	e rates see '	"Apprentice- OPERATING ENGINEERS"	05/01/201	8 \$45.06	\$10.00	\$15.25	\$0.00	\$70.31
FIELD ENG.R	OD PER	SON-BLDG,SITE,HVY/HWY	11/01/201	7 \$22.83	\$10.00	\$15.25	\$0.00	\$48.08
OPERATING ENG	INEERS L	OCAL 4	05/01/201		\$10.00	\$15.25	\$0.00	\$48.51
For apprentice	e rates see	"Apprentice- OPERATING ENGINEERS"	00,01,201	φ23.20	\$10.00		+ • • • •	\$10.01
FIRE ALARM			03/01/201	8 \$50.15	\$13.00	\$17.85	\$0.00	\$81.00
ELECTRICIANS LO	OCAL 103		09/01/201	8 \$51.34	\$13.00	\$17.89	\$0.00	\$82.23
			03/01/201	9 \$52.53	\$13.00	\$17.93	\$0.00	\$83.46
		"Apprentice- ELECTRICIAN"						
FIRE ALARM	REPAII	R / MAINTENANCE	03/01/201	8 \$37.61	\$13.00	\$15.93	\$0.00	\$66.54
LOCAL 103		/ COMMISSIONINGELECTRICIANS	09/01/201	8 \$38.51	\$13.00	\$15.96	\$0.00	\$67.47
For appropriate	a rates soc	"Apprentice TELECOMMENTCATIONS TECTING	03/01/201	9 \$39.40	\$13.00	\$15.98	\$0.00	\$68.38
FIREMAN (AS	SST. EN		12/01/201	7 \$38.57	\$10.50	\$15.50	\$0.00	\$64.57
OPERATING ENG	INEERS L	OCAL 4						
For apprentice	e rates see	"Apprentice- OPERATING ENGINEERS"						

Apprentice -	ELEVATOR CONSTRUCTOR - Local 4
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**Issue Date:** 03/20/2018

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Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
FLAGGER & SIGNALER	12/01/2017	\$21.50	\$7.70	\$13.60	\$0.00	\$42.80
LABORERS - ZONE 2	06/01/2018	\$21.50	\$7.70	\$13.60	\$0.00	\$42.80
	12/01/2018	\$22.50	\$7.70	\$13.60	\$0.00	\$43.80
	06/01/2019	\$22.50	\$7.70	\$13.60	\$0.00	\$43.80
	12/01/2019	\$23.50	\$7.70	\$13.60	\$0.00	\$44.80
	06/01/2020	\$23.50	\$7.70	\$13.60	\$0.00	\$44.80
	12/01/2020	\$24.50	\$7.70	\$13.60	\$0.00	\$45.80
	06/01/2021	\$24.50	\$7.70	\$13.60	\$0.00	\$45.80
For apprentice rates see "Apprentice- LABORER"	12/01/2021	\$24.50	\$7.70	\$13.60	\$0.00	\$45.80
FLOORCOVERER FLOORCOVERERS LOCAL 2168 ZONE 1	03/01/2016	\$42.13	\$9.80	\$17.62	\$0.00	\$69.55

Apprentice - FLOORCOVERER - Local 2168 Zone I

Effecti	ve Date - 03/01/2016				Supplemental		
Step	percent	Apprentice Base Wage	Health	Pension	Unemployment	Total Ra	ite
1	50	\$21.07	\$9.80	\$1.79	\$0.00	\$32.	56
2	55	\$23.17	\$9.80	\$1.79	\$0.00	\$34.7	76
3	60	\$25.28	\$9.80	\$12.25	\$0.00	\$47	33
4	65	\$27.38	\$9.80	\$12.25	\$0.00	\$49.4	43
5	70	\$29.49	\$9.80	\$14.04	\$0.00	\$53.	33
6	75	\$31.60	\$9.80	\$14.04	\$0.00	\$55.4	14
7	80	\$33.70	\$9.80	\$15.83	\$0.00	\$59	33
8	85	\$35.81	\$9.80	\$15.83	\$0.00	\$61.4	14
	Steps are 750 hrs. % After 09/1/17; 45/45/55/55/70/7 Step 1&2 \$30.55/ 3&4 \$36.49/ 5& ntice to Journeyworker Ratio:1:1						-
FORK LIFT/CHERRY OPERATING ENGINEERS LO		12/01/2017	7 \$46.63	\$10.50	\$15.50	\$0.00	\$72.63
For apprentice rates see "	'Apprentice- OPERATING ENGINEERS"						
GENERATOR/LIGHTI OPERATING ENGINEERS LO	NG PLANT/HEATERS OCAL 4	12/01/2017	7 \$31.80	\$10.50	\$15.50	\$0.00	\$57.80
For apprentice rates see "	Apprentice- OPERATING ENGINEERS"						
GLAZIER (GLASS PL. SYSTEMS) GLAZIERS LOCAL 35 (ZONE	ANK/AIR BARRIER/INTERIOR	01/01/2017	7 \$40.91	\$7.85	\$16.10	\$0.00	\$64.86

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		ve Date - 01/01/2017				Supplemental	
S	Step	percent	Apprentice Base Wage	Health	Pension	Unemployment	Total Rate
	1	50	\$20.46	\$7.85	\$0.00	\$0.00	\$28.31
	2	55	\$22.50	\$7.85	\$3.66	\$0.00	\$34.01
	3	60	\$24.55	\$7.85	\$3.99	\$0.00	\$36.39
	4	65	\$26.59	\$7.85	\$4.32	\$0.00	\$38.76
	5	70	\$28.64	\$7.85	\$14.11	\$0.00	\$50.60
	6	75	\$30.68	\$7.85	\$14.44	\$0.00	\$52.97
	7	80	\$32.73	\$7.85	\$14.77	\$0.00	\$55.35
	8	90	\$36.82	\$7.85	\$15.44	\$0.00	\$60.11
1	Notes:						
İ		Steps are 750 hrs.					
L. 2	Appre	ntice to Journeyworker Ratio:1:1					
HOISTING ENG		R/CRANES/GRADALLS DCAL 4	12/01/2017	7 \$46.6	3 \$10.50	\$15.50	\$0.00 \$72.63

Apprentice -	GLAZIER - Local 35 Zone 2
Fff4. D.4.	01/01/2017

Apprentice -	OPERATING	ENGINEERS - Local 4
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Effect	ive Date - 12/01/2017				Supplemental		
Step	percent	Apprentice Base Wage	Health	Pension	Unemployment	Total Rate	
1	55	\$25.65	\$10.50	\$0.00	\$0.00	\$36.15	
2	60	\$27.98	\$10.50	\$15.50	\$0.00	\$53.98	
3	65	\$30.31	\$10.50	\$15.50	\$0.00	\$56.31	
4	70	\$32.64	\$10.50	\$15.50	\$0.00	\$58.64	
5	75	\$34.97	\$10.50	\$15.50	\$0.00	\$60.97	
6	80	\$37.30	\$10.50	\$15.50	\$0.00	\$63.30	
7	85	\$39.64	\$10.50	\$15.50	\$0.00	\$65.64	
8	90	\$41.97	\$10.50	\$15.50	\$0.00	\$67.97	
Notes:							
Appre	ntice to Journeyworker Ratio:1:6						
HVAC (DUCTWORK) SHEETMETAL WORKERS LO		02/01/2018	8 \$44.11	\$12.20	\$24.12	\$2.41	\$82.84
For apprentice rates see '	'Apprentice- SHEET METAL WORKER"						
HVAC (ELECTRICAL	CONTROLS)	03/01/2018	8 \$50.15	\$13.00	\$17.85	\$0.00	\$81.00
ELECTRICIANS LOCAL 103		09/01/2018	\$\$1.34	\$13.00	\$17.89	\$0.00	\$82.23
		03/01/2019	\$52.53	\$13.00	\$17.93	\$0.00	\$83.46
For apprentice rates see	'Apprentice- ELECTRICIAN"						
HVAC (TESTING ANI SHEETMETAL WORKERS LO	D BALANCING - AIR) OCAL 17 - A	02/01/2018	\$44.11	\$12.20	\$24.12	\$2.41	\$82.84
For apprentice rates see '	'Apprentice- SHEET METAL WORKER"						

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**Issue Date:** 03/20/2018

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
HVAC (TESTING AND BALANCING -WATER) PIPEFITTERS LOCAL 537	03/01/2017	\$51.19	\$9.70	\$18.14	\$0.00	\$79.03
For apprentice rates see "Apprentice- PIPEFITTER" or "PLUMBER/PIPEFITTER"						
HVAC MECHANIC PIPEFITTERS LOCAL 537	03/01/2017	\$51.19	\$9.70	\$18.14	\$0.00	\$79.03
For apprentice rates see "Apprentice- PIPEFITTER" or "PLUMBER/PIPEFITTER"						
HYDRAULIC DRILLS ABORERS - ZONE 2	12/01/2017	\$33.58	\$7.70	\$13.60	\$0.00	\$54.88
LABORERS - ZONE 2	06/01/2018	\$34.42	\$7.70	\$13.60	\$0.00	\$55.72
	12/01/2018	\$35.26	\$7.70	\$13.60	\$0.00	\$56.56
	06/01/2019	\$36.13	\$7.70	\$13.60	\$0.00	\$57.43
	12/01/2019	\$36.99	\$7.70	\$13.60	\$0.00	\$58.29
	06/01/2020	\$37.88	\$7.70	\$13.60	\$0.00	\$59.18
	12/01/2020	\$38.77	\$7.70	\$13.60	\$0.00	\$60.07
	06/01/2021	\$39.69	\$7.70	\$13.60	\$0.00	\$60.99
	12/01/2021	\$40.60	\$7.70	\$13.60	\$0.00	\$61.90
For apprentice rates see "Apprentice- LABORER"						
INSULATOR (PIPES & TANKS)	09/01/2017	\$47.09	\$11.75	\$14.20	\$0.00	\$73.04
HEAT & FROST INSULATORS LOCAL 6 (BOSTON)	09/01/2018	\$49.34	\$11.75	\$14.20	\$0.00	\$75.29
	09/01/2019	\$51.84	\$11.75	\$14.20	\$0.00	\$77.79

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

Effecti	ve Date -	09/01/2017				Supplemental		
Step	percent		Apprentice Base Wage	Health	Pension	Unemployment	Total Rate	
1	50		\$23.55	\$11.75	\$10.45	\$0.00	\$45.75	
2	60		\$28.25	\$11.75	\$11.20	\$0.00	\$51.20	
3	70		\$32.96	\$11.75	\$11.95	\$0.00	\$56.66	
4	80		\$37.67	\$11.75	\$12.70	\$0.00	\$62.12	

Effecti	ive Date - 09/01/2018				Supplemental	
Step	percent	Apprentice Base Wage	Health	Pension	Unemployment	Total Rate
1	50	\$24.67	\$11.75	\$10.45	\$0.00	\$46.87
2	60	\$29.60	\$11.75	\$11.20	\$0.00	\$52.55
3	70	\$34.54	\$11.75	\$11.95	\$0.00	\$58.24
4	80	\$39.47	\$11.75	\$12.70	\$0.00	\$63.92
Notes:	Notes: Steps are 1 year					
Appre	ntice to Journeyworker Ratio:1:4					
IRONWORKER/WELI IRONWORKERS LOCAL 7 (B		03/16/2017	7 \$44.6	5 \$7.80	\$20.85	\$0.00 \$73.30

1	Effecti	ive Date - 03/16/2017						
	Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate	
-	1	60	\$26.79	\$7.80	\$20.85	\$0.00	\$55.44	
	2	70	\$31.26	\$7.80	\$20.85	\$0.00	\$59.91	
	3	75	\$33.49	\$7.80	\$20.85	\$0.00	\$62.14	
	4	80	\$35.72	\$7.80	\$20.85	\$0.00	\$64.37	
	5	85	\$37.95	\$7.80	\$20.85	\$0.00	\$66.60	
	6	90	\$40.19	\$7.80	\$20.85	\$0.00	\$68.84	
:	Notes:	** Structural 1:6; Ornamental 1:4						
	Appre	entice to Journeyworker Ratio:**						
JACKHAMMER & PAVING BREAKER OPERATOR		12/01/2017	7 \$33.0	8 \$7.70	\$13.60	\$0.00	\$54.38	
ABORERS - ZONE 2	2		06/01/2018	\$33.9	2 \$7.70	\$13.60	\$0.00	\$55.22
			12/01/2018	8 \$34.7	6 \$7.70	\$13.60	\$0.00	\$56.06
			06/01/2019	\$35.6	3 \$7.70	\$13.60	\$0.00	\$56.93
			12/01/2019	\$36.4	9 \$7.70	\$13.60	\$0.00	\$57.79
			06/01/2020	\$37.3	8 \$7.70	\$13.60	\$0.00	\$58.68
			12/01/2020	\$38.2	7 \$7.70	\$13.60	\$0.00	\$59.57
			06/01/2021	\$39.1	9 \$7.70	\$13.60	\$0.00	\$60.49
			12/01/2021	\$40.1	0 \$7.70	\$13.60	\$0.00	\$61.40
	ates see	"Apprentice- LABORER"						
ABORER Aborers - zone 2	2		12/01/2017			\$13.60	\$0.00	\$54.13
			06/01/2018			\$13.60	\$0.00	\$54.97
			12/01/2018			\$13.60	\$0.00	\$55.81
			06/01/2019			\$13.60	\$0.00	\$56.68
			12/01/2019			\$13.60	\$0.00	\$57.54
			06/01/2020			\$13.60	\$0.00	\$58.43
			12/01/2020			\$13.60	\$0.00	\$59.32
			06/01/2021			\$13.60	\$0.00	\$60.24
			12/01/2021	\$39.8	5 \$7.70	\$13.60	\$0.00	\$61.15

Apprentice -	IRONWORKER - Local 7 Boston
Effective Date	- 03/16/2017

		ntice - LABORER - Zone 2 ve Date - 12/01/2017				Supplemental		
	Step	percent	Apprentice Base Wage	Health	Pension	Unemployment	Total Rate	
	1	60	\$19.70	\$7.70	\$13.60	\$0.00	\$41.00	
	2	70	\$22.98	\$7.70	\$13.60	\$0.00	\$44.28	
	3	80	\$26.26	\$7.70	\$13.60	\$0.00	\$47.56	
	4	90	\$29.55	\$7.70	\$13.60	\$0.00	\$50.85	
	Effecti	<b>ve Date -</b> 06/01/2018				Supplemental		
	Step	percent	Apprentice Base Wage	Health	Pension	Unemployment	Total Rate	
	1	60	\$20.20	\$7.70	\$13.60	\$0.00	\$41.50	
	2	70	\$23.57	\$7.70	\$13.60	\$0.00	\$44.87	
	3	80	\$26.94	\$7.70	\$13.60	\$0.00	\$48.24	
	4	90	\$30.30	\$7.70	\$13.60	\$0.00	\$51.60	
	Notes:							
	Appre	ntice to Journeyworker Ratio:1::	5					
		ER TENDER	12/01/2017	\$32.83	\$7.70	\$13.60	\$0.00	\$54.13
BORERS - ZONE	E 2		06/01/2018	\$33.67	\$7.70	\$13.60	\$0.00	\$54.97
			12/01/2018	\$34.51	\$7.70	\$13.60	\$0.00	\$55.81
			06/01/2019	\$35.38	\$7.70	\$13.60	\$0.00	\$56.68
			12/01/2019	\$36.24	\$7.70	\$13.60	\$0.00	\$57.54
			06/01/2020	\$37.13	\$7.70	\$13.60	\$0.00	\$58.43
			12/01/2020	\$38.02	\$7.70	\$13.60	\$0.00	\$59.32
			06/01/2021	\$38.94	\$7.70	\$13.60	\$0.00	\$60.24
			12/01/2021	\$39.85	\$7.70	\$13.60	\$0.00	\$61.15
		Apprentice- LABORER" FINISHER TENDER				¢12.60	<b>*</b> 0.00	
BORERS - ZONE		FINISHER TENDER	12/01/2017			\$13.60	\$0.00	\$54.13
			06/01/2018			\$13.60	\$0.00	\$54.97
			12/01/2018			\$13.60	\$0.00	\$55.81
			06/01/2019			\$13.60	\$0.00	\$56.68
			12/01/2019			\$13.60	\$0.00	\$57.54
			06/01/2020			\$13.60	\$0.00	\$58.43
			12/01/2020			\$13.60	\$0.00	\$59.32
			06/01/2021			\$13.60	\$0.00	\$60.24
For apprentice	rates see '	Apprentice- LABORER"	12/01/2021	\$39.85	\$7.70	\$13.60	\$0.00	\$61.15
		DUS WASTE/ASBESTOS REMO	VER 12/01/2017	\$33.03	\$7.70	\$13.55	\$0.00	\$54.28
BORERS - ZONE	Ξ2		06/01/2018			\$13.55	\$0.00	\$55.12
			12/01/2018			\$13.55	\$0.00	\$55.96
			06/01/2019			\$13.55	\$0.00	\$56.83
			12/01/2019			\$13.55	\$0.00	\$57.69
		Apprentice- LABORER"	12,01/201/	400.11	21.10			

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Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
LABORER: MASON TENDER	12/01/2017	\$33.08	\$7.70	\$13.60	\$0.00	\$54.38
LABORERS - ZONE 2	06/01/2018	\$33.92	\$7.70	\$13.60	\$0.00	\$55.22
	12/01/2018	\$34.76	\$7.70	\$13.60	\$0.00	\$56.06
	06/01/2019	\$35.63	\$7.70	\$13.60	\$0.00	\$56.93
	12/01/2019	\$36.49	\$7.70	\$13.60	\$0.00	\$57.79
	06/01/2020	\$37.38	\$7.70	\$13.60	\$0.00	\$58.68
	12/01/2020	\$38.27	\$7.70	\$13.60	\$0.00	\$59.57
	06/01/2021	\$39.19	\$7.70	\$13.60	\$0.00	\$60.49
	12/01/2021	\$40.10	\$7.70	\$13.60	\$0.00	\$61.40
For apprentice rates see "Apprentice- LABORER"						
LABORER: MULTI-TRADE TENDER LABORERS - ZONE 2	12/01/2017	\$32.83	\$7.70	\$13.60	\$0.00	\$54.13
LADORERS - ZONE 2	06/01/2018	\$33.67	\$7.70	\$13.60	\$0.00	\$54.97
	12/01/2018	\$34.51	\$7.70	\$13.60	\$0.00	\$55.81
	06/01/2019	\$35.38	\$7.70	\$13.60	\$0.00	\$56.68
	12/01/2019	\$36.24	\$7.70	\$13.60	\$0.00	\$57.54
	06/01/2020	\$37.13	\$7.70	\$13.60	\$0.00	\$58.43
	12/01/2020	\$38.02	\$7.70	\$13.60	\$0.00	\$59.32
	06/01/2021	\$38.94	\$7.70	\$13.60	\$0.00	\$60.24
For apprentice rates see "Apprentice- LABORER"	12/01/2021	\$39.85	\$7.70	\$13.60	\$0.00	\$61.15
LABORER: TREE REMOVER	12/01/2017	\$32.83	\$7.70	\$13.60	\$0.00	\$54.13
ABORERS - ZONE 2	06/01/2018	\$33.67	\$7.70	\$13.60	\$0.00	\$54.97
	12/01/2018	\$34.51	\$7.70	\$13.60	\$0.00	\$55.81
	06/01/2019	\$35.38	\$7.70	\$13.60	\$0.00	\$56.68
	12/01/2019	\$36.24	\$7.70	\$13.60	\$0.00	\$57.54
	06/01/2020	\$37.13	\$7.70	\$13.60	\$0.00	\$58.43
	12/01/2020	\$38.02	\$7.70	\$13.60	\$0.00	\$59.32
	06/01/2021	\$38.94	\$7.70	\$13.60	\$0.00	\$60.24
This classification applies to all tree work associated with the removal o	12/01/2021 f standing trees, and trimming and ren	\$39.85 noval of branche	\$7.70 s and limbs w	\$13.60 hen the work is	\$0.00 s not done for	\$61.15
a utility company for the purpose of operation, maintenance or repair of		entice rates see "A	Apprentice- L.			
LASER BEAM OPERATOR LABORERS - ZONE 2	12/01/2017	\$33.08	\$7.70	\$13.60	\$0.00	\$54.38
	06/01/2018	\$33.92	\$7.70	\$13.60	\$0.00	\$55.22
	12/01/2018	\$34.76	\$7.70	\$13.60	\$0.00	\$56.06
	06/01/2019	\$35.63	\$7.70	\$13.60	\$0.00	\$56.93
	12/01/2019	\$36.49	\$7.70	\$13.60	\$0.00	\$57.79
	06/01/2020	\$37.38	\$7.70	\$13.60	\$0.00	\$58.68
	12/01/2020	\$38.27	\$7.70	\$13.60	\$0.00	\$59.57
	06/01/2021	\$39.19	\$7.70	\$13.60	\$0.00	\$60.49
For apprentice rates see "Apprentice- LABORER"	12/01/2021	\$40.10	\$7.70	\$13.60	\$0.00	\$61.40
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Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
MARBLE & TILE FINISHERS	02/01/2018	\$39.82	\$10.75	\$18.34	\$0.00	\$68.91
BRICKLAYERS LOCAL 3 - MARBLE & TILE	08/01/2018	\$40.90	\$10.75	\$18.47	\$0.00	\$70.12
	02/01/2019	\$41.41	\$10.75	\$18.47	\$0.00	\$70.63
	08/01/2019	\$42.49	\$10.75	\$18.61	\$0.00	\$71.85
	02/01/2020	\$43.00	\$10.75	\$18.61	\$0.00	\$72.36
	08/01/2020	\$44.08	\$10.75	\$18.76	\$0.00	\$73.59
	02/01/2021	\$44.59	\$10.75	\$18.76	\$0.00	\$74.10
	08/01/2021	\$45.71	\$10.75	\$18.92	\$0.00	\$75.38
	02/01/2022	\$46.18	\$10.75	\$18.92	\$0.00	\$75.85

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

Effecti	ive Date -	02/01/2018				Supplemental		
Step	percent		Apprentice Base Wage	Health	Pension	Unemployment	Total Rate	
1	50		\$19.91	\$10.75	\$18.34	\$0.00	\$49.00	
2	60		\$23.89	\$10.75	\$18.34	\$0.00	\$52.98	
3	70		\$27.87	\$10.75	\$18.34	\$0.00	\$56.96	
4	80		\$31.86	\$10.75	\$18.34	\$0.00	\$60.95	
5	90		\$35.84	\$10.75	\$18.34	\$0.00	\$64.93	

Effective Date -	08/01/2018
Encluye Date -	00/01/2010

Step	ive Date - 08/01/2018 percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$20.45	\$10.75	\$18.47	\$0.00	\$49.67
2	60	\$24.54	\$10.75	\$18.47	\$0.00	\$53.76
3	70	\$28.63	\$10.75	\$18.47	\$0.00	\$57.85
4	80	\$32.72	\$10.75	\$18.47	\$0.00	\$61.94
5	90	\$36.81	\$10.75	\$18.47	\$0.00	\$66.03

### Apprentice to Journeyworker Ratio:1:3

MARBLE MASONS, TILELAYERS & TERRAZZO MECH BRICKLAYERS LOCAL 3 - MARBLE & TILE

02/01/2018	\$52.10	\$10.75	\$20.03	\$0.00	\$82.88
08/01/2018	\$53.45	\$10.75	\$20.16	\$0.00	\$84.36
02/01/2019	\$54.07	\$10.75	\$20.16	\$0.00	\$84.98
08/01/2019	\$55.42	\$10.75	\$20.30	\$0.00	\$86.47
02/01/2020	\$56.05	\$10.75	\$20.30	\$0.00	\$87.10
08/01/2020	\$57.40	\$10.75	\$20.45	\$0.00	\$88.60
02/01/2021	\$58.04	\$10.75	\$20.45	\$0.00	\$89.24
08/01/2021	\$59.44	\$10.75	\$20.61	\$0.00	\$90.80
02/01/2022	\$60.01	\$10.75	\$20.61	\$0.00	\$91.37

	Effecti	ve Date -	02/01/2018				Supplemental		
	Step	percent		Apprentice Base Wage	Health	Pension	Unemployment	Total Rate	2
	1	50		\$26.05	\$10.75	\$20.03	\$0.00	\$56.83	3
	2	60		\$31.26	\$10.75	\$20.03	\$0.00	\$62.04	Ļ
	3	70		\$36.47	\$10.75	\$20.03	\$0.00	\$67.25	5
	4	80		\$41.68	\$10.75	\$20.03	\$0.00	\$72.46	Ď
	5	90		\$46.89	\$10.75	\$20.03	\$0.00	\$77.67	7
	Effecti	ve Date -	08/01/2018				Supplemental		
	Step	percent		Apprentice Base Wage	Health	Pension	Unemployment	Total Rate	e
	1	50		\$26.73	\$10.75	\$20.16	\$0.00	\$57.64	Ļ
	2	60		\$32.07	\$10.75	\$20.16	\$0.00	\$62.98	3
	3	70		\$37.42	\$10.75	\$20.16	\$0.00	\$68.33	;
	4	80		\$42.76	\$10.75	\$20.16	\$0.00	\$73.67	1
	5	90		\$48.11	\$10.75	\$20.16	\$0.00	\$79.02	2
	Notes:								
	Ì								
	Appre	ntice to Jo	urneyworker Ratio:1:5						
MECH. SWEEI OPERATING ENGL			ON CONST. SITES)	12/01/2017	7 \$46	5.17 \$10.50	\$15.50	\$0.00	\$72.17
For apprentice	rates see "	Apprentice- C	PERATING ENGINEERS"						
MECHANICS I OPERATING ENGI				12/01/2017	7 \$46	5.17 \$10.50	\$15.50	\$0.00	\$72.17
For apprentice	rates see "	Apprentice- C	PERATING ENGINEERS"						
MILLWRIGHT				10/01/2017	7 \$36	5.32 \$9.90	\$18.50	\$0.00	\$64.72
MILLWRIGHTS LO	OCAL 1121	- Zone 2		04/01/2018	8 \$37	.17 \$9.90	\$18.50	\$0.00	\$65.57
				10/01/2018	8 \$38	\$.02 \$9.90	\$18.50	\$0.00	\$66.42
				04/01/2019	\$38	8.87 \$9.90	\$18.50	\$0.00	\$67.27

Apprentice -	MARBLE-TILE-TERRAZZO MECHANIC - Local 3 Marble & Tile
Effective Date	- 02/01/2018

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		10/01/2017						
	Step	ive Date - 10/01/2017 percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate	
	1	55	\$19.98	\$9.90	\$5.31	\$0.00	\$35.19	
	2	65	\$23.61	\$9.90	\$15.13	\$0.00	\$48.64	
	3	75	\$27.24	\$9.90	\$16.10	\$0.00	\$53.24	
	4	85	\$30.87	\$9.90	\$17.06	\$0.00	\$57.83	
	Effecti	ive Date - 04/01/2018				Supplemental		
	Step	percent	Apprentice Base Wage	Health	Pension	Unemployment	Total Rate	
	1	55	\$20.44	\$9.90	\$5.31	\$0.00	\$35.65	
	2	65	\$24.16	\$9.90	\$15.13	\$0.00	\$49.19	
	3	75	\$27.88	\$9.90	\$16.10	\$0.00	\$53.88	
	4	85	\$31.59	\$9.90	\$17.06	\$0.00	\$58.55	
	Notes:							
		Steps are 2,000 hours					İ	
	Appre	ntice to Journeyworker Ratio:1:5						
MORTAR MI			12/01/2017	\$33.08	\$7.70	\$13.60	\$0.00	\$54.38
ABORERS - ZON	<i>E 2</i>		06/01/2018	\$33.92	\$7.70	\$13.60	\$0.00	\$55.22
			12/01/2018	\$34.76	\$7.70	\$13.60	\$0.00	\$56.06
			06/01/2019	\$35.63	\$7.70	\$13.60	\$0.00	\$56.93
			12/01/2019	\$36.49	\$7.70	\$13.60	\$0.00	\$57.79
			06/01/2020	\$37.38	\$7.70	\$13.60	\$0.00	\$58.68
			12/01/2020	\$38.27	\$7.70	\$13.60	\$0.00	\$59.57
			06/01/2021	\$39.19	\$7.70	\$13.60	\$0.00	\$60.49
			12/01/2021	\$40.10	\$7.70	\$13.60	\$0.00	\$61.40
		"Apprentice- LABORER"						
DILER (OTHE OPERATING ENC		N TRUCK CRANES,GRADALLS) 0CAL 4	12/01/2017	\$23.24	\$10.50	\$15.50	\$0.00	\$49.24
For apprentic	e rates see '	"Apprentice- OPERATING ENGINEERS"						
DILER (TRUC OPERATING ENC		NES, GRADALLS) <i>ocal 4</i>	12/01/2017	\$27.40	\$10.50	\$15.50	\$0.00	\$53.40
For apprentic	e rates see	"Apprentice- OPERATING ENGINEERS"						
OTHER POW		/EN EQUIPMENT - CLASS II 0CAL 4	12/01/2017	\$46.17	\$10.50	\$15.50	\$0.00	\$72.17
For apprentic	e rates see '	"Apprentice- OPERATING ENGINEERS"						
PAINTER (BR PAINTERS LOCA			01/01/2017	\$51.41	\$7.85	\$16.10	\$0.00	\$75.36

### Apprentice - MILLWRIGHT - Local 1121 Zone 2

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Effect	ive Date - 01/01/2017				Supplemental	
Step	percent	Apprentice Base Wage	Health	Pension	Unemployment	Total Rate
1	50	\$25.71	\$7.85	\$0.00	\$0.00	\$33.56
2	55	\$28.28	\$7.85	\$3.66	\$0.00	\$39.79
3	60	\$30.85	\$7.85	\$3.99	\$0.00	\$42.69
4	65	\$33.42	\$7.85	\$4.32	\$0.00	\$45.59
5	70	\$35.99	\$7.85	\$14.11	\$0.00	\$57.95
6	75	\$38.56	\$7.85	\$14.44	\$0.00	\$60.85
7	80	\$41.13	\$7.85	\$14.77	\$0.00	\$63.75
8	90	\$46.27	\$7.85	\$15.44	\$0.00	\$69.56
Notes:						
	Steps are 750 hrs.					
Appre	entice to Journeyworker Ratio:1:	1				
· ·	R SANDBLAST, NEW) * rfaces to be painted are new constr	01/01/2017	\$42.3	1 \$7.85	\$16.10	\$0.00 \$66.26

Apprentice -	PAINTER Local 35	- BRIDGES/TANKS

* If 30% or more of surfaces to be painted are new construct NEW paint rate shall be used.*PAINTERS LOCAL 35 - ZONE 2* 

Apprentice -	PAINTER Local 35 Zone 2 - Spray/Sandblast - New
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Effective Date -	01/01/2017				Supplemental		
Step percent		Apprentice Base Wage	Health	Pension	Unemployment	Total Rate	
1 50		\$21.16	\$7.85	\$0.00	\$0.00	\$29.01	
2 55		\$23.27	\$7.85	\$3.66	\$0.00	\$34.78	
3 60		\$25.39	\$7.85	\$3.99	\$0.00	\$37.23	
4 65		\$27.50	\$7.85	\$4.32	\$0.00	\$39.67	
5 70		\$29.62	\$7.85	\$14.11	\$0.00	\$51.58	
6 75		\$31.73	\$7.85	\$14.44	\$0.00	\$54.02	
7 80		\$33.85	\$7.85	\$14.77	\$0.00	\$56.47	
8 90		\$38.08	\$7.85	\$15.44	\$0.00	\$61.37	
<b>Notes:</b> Steps ar	e 750 hrs.						
Apprentice to J	ourneyworker Ratio:1:1						
PAINTER (SPRAY OR SANDB PAINTERS LOCAL 35 - ZONE 2	LAST, REPAINT)	01/01/2017	\$40.37	\$7.85	\$16.10 \$	0.00	\$64.32

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**Issue Date:** 03/20/2018

	Effecti	ive Date - 01/01/2017				Supplemental		
S	Step	percent	Apprentice Base Wage	Health	Pension	Unemployment	Total Rate	
	1	50	\$20.19	\$7.85	\$0.00	\$0.00	\$28.04	
	2	55	\$22.20	\$7.85	\$3.66	\$0.00	\$33.71	
ź	3	60	\$24.22	\$7.85	\$3.99	\$0.00	\$36.06	
4	4	65	\$26.24	\$7.85	\$4.32	\$0.00	\$38.41	
:	5	70	\$28.26	\$7.85	\$14.11	\$0.00	\$50.22	
(	6	75	\$30.28	\$7.85	\$14.44	\$0.00	\$52.57	
,	7	80	\$32.30	\$7.85	\$14.77	\$0.00	\$54.92	
\$	8	90	\$36.33	\$7.85	\$15.44	\$0.00	\$59.62	
N	Notes:							
		Steps are 750 hrs.						
A	Appre	ntice to Journeyworker Ratio:1:1						
AINTER (TRAF	FIC N	MARKINGS)	12/01/2017	\$32.83	\$7.70	\$13.60	\$0.00	\$54.13
ABORERS - ZONE 2			06/01/2018	\$33.67	\$7.70	\$13.60	\$0.00	\$54.97
			12/01/2018	\$34.51	\$7.70	\$13.60	\$0.00	\$55.81
			06/01/2019	\$35.38	\$7.70	\$13.60	\$0.00	\$56.68
			12/01/2019	\$36.24	\$7.70	\$13.60	\$0.00	\$57.54
			06/01/2020	\$37.13	\$7.70	\$13.60	\$0.00	\$58.43
			12/01/2020	\$38.02	\$7.70	\$13.60	\$0.00	\$59.32
			06/01/2021	\$38.94	\$7.70	\$13.60	\$0.00	\$60.24
			12/01/2021	\$39.85	\$7.70	\$13.60	\$0.00	\$61.15
		"Apprentice- LABORER"						
PAINTER / TAPE			01/01/2017	\$40.91	\$7.85	\$16.10	\$0.00	\$64.86
11 50% or more	of sur	faces to be painted are new construction	ли,					

Apprentice -	PAINTER Local 35 Zone 2 - Spray/Sandblast - Repaint
Effective Date	- 01/01/2017

NEW paint rate shall be used. PAINTERS LOCAL 35 - ZONE 2

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Effectiv	ve Date - 01/01/2017				Supplemental	
Step	percent	Apprentice Base Wage	Health	Pension	Unemployment	Total Rate
1	50	\$20.46	\$7.85	\$0.00	\$0.00	\$28.31
2	55	\$22.50	\$7.85	\$3.66	\$0.00	\$34.01
3	60	\$24.55	\$7.85	\$3.99	\$0.00	\$36.39
4	65	\$26.59	\$7.85	\$4.32	\$0.00	\$38.76
5	70	\$28.64	\$7.85	\$14.11	\$0.00	\$50.60
6	75	\$30.68	\$7.85	\$14.44	\$0.00	\$52.97
7	80	\$32.73	\$7.85	\$14.77	\$0.00	\$55.35
8	90	\$36.82	\$7.85	\$15.44	\$0.00	\$60.11
Notes:						
İ	Steps are 750 hrs.					
Apprer	ntice to Journeyworker Ratio:1:1					
PAINTER / TAPER (BF PAINTERS LOCAL 35 - ZONE		01/01/2017	\$38	.97 \$7.85	\$16.10	\$0.00 \$62.92

Apprentice -	PAINTER - Local 35 Zone 2 - BRUSH NEW
Effective Date	01/01/2017

Apprentice -	PAINTER Local 35 Zone 2 - BRUSH REPAINT
Eff	01/01/2017

	Effecti	ive Date - 01/01/2017				Supplemental		
	Step	percent	Apprentice Base Wage	Health	Pension	Unemployment	Total Rat	e
	1	50	\$19.49	\$7.85	\$0.00	\$0.00	\$27.34	4
	2	55	\$21.43	\$7.85	\$3.66	\$0.00	\$32.94	4
	3	60	\$23.38	\$7.85	\$3.99	\$0.00	\$35.2	2
	4	65	\$25.33	\$7.85	\$4.32	\$0.00	\$37.5	0
	5	70	\$27.28	\$7.85	\$14.11	\$0.00	\$49.24	4
	6	75	\$29.23	\$7.85	\$14.44	\$0.00	\$51.52	2
	7	80	\$31.18	\$7.85	\$14.77	\$0.00	\$53.8	0
	8	90	\$35.07	\$7.85	\$15.44	\$0.00	\$58.3	6
ĺ	Notes:	Steps are 750 hrs.						
l	Appre	ntice to Journeyworker Ratio:1:1						
ANEL & PICK EAMSTERS JOINT		UCKS DRIVER IL NO. 10 ZONE B	12/01/2012	2 \$30.28	\$ \$9.07	\$8.00	\$0.00	\$47.35
	CK COI	NSTRUCTOR (UNDERPINNING AN	D 08/01/2017	7 \$44.27	\$9.90	\$21.15	\$0.00	\$75.32
ECK) ILE DRIVER LOCA	L 56 (ZC	DNE 1)	08/01/2018	8 \$46.57	\$9.90	\$21.15	\$0.00	\$77.62
	4	'Apprentice- PILE DRIVER"	08/01/2019	9 \$48.94	\$9.90	\$21.15	\$0.00	\$79.99
ILE DRIVER	1.54 (7)		08/01/2017	7 \$44.27	\$9.90	\$21.15	\$0.00	\$75.32
ILE DRIVER LOCA	L 36 (ZC	JNE I)	08/01/2018	8 \$46.57	\$9.90	\$21.15	\$0.00	\$77.62
			08/01/2019	9 \$48.94	\$9.90	\$21.15	\$0.00	\$79.99

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**Issue Date:** 03/20/2018

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TICC 4	· • •	08/01/2017						
Enect	ive Date -	08/01/2017				Supplemental		
Step	percent		Apprentice Base Wage	e Health	Pension	Unemployment	Total Rate	
1	50		\$22.14	\$9.90	\$21.15	\$0.00	\$53.19	
2	60		\$26.56	\$9.90	\$21.15	\$0.00	\$57.61	
3	70		\$30.99	\$9.90	\$21.15	\$0.00	\$62.04	
4	75		\$33.20	\$9.90	\$21.15	\$0.00	\$64.25	
5	80		\$35.42	\$9.90	\$21.15	\$0.00	\$66.47	
6	80		\$35.42	\$9.90	\$21.15	\$0.00	\$66.47	
7	90		\$39.84	\$9.90	\$21.15	\$0.00	\$70.89	
8	90		\$39.84	\$9.90	\$21.15	\$0.00	\$70.89	

# Apprentice - PILE DRIVER - Local 56 Zone 1

### **Effective Date -** 08/01/2018

	fective Date		Apprentice Base Wage	Uaalth	Pension	Supplemental Unemployment	Total Rate	
Ste	ep percer	l	Apprentice base wage	nealth	relision	Onemployment	Total Kate	
1	50		\$23.29	\$9.90	\$21.15	\$0.00	\$54.34	
2	60		\$27.94	\$9.90	\$21.15	\$0.00	\$58.99	
3	70		\$32.60	\$9.90	\$21.15	\$0.00	\$63.65	
4	75		\$34.93	\$9.90	\$21.15	\$0.00	\$65.98	
5	80		\$37.26	\$9.90	\$21.15	\$0.00	\$68.31	
6	80		\$37.26	\$9.90	\$21.15	\$0.00	\$68.31	
7	90		\$41.91	\$9.90	\$21.15	\$0.00	\$72.96	
8	90		\$41.91	\$9.90	\$21.15	\$0.00	\$72.96	
<b>N</b> o	otes:							
Ар	oprentice to	Journeyworker Ratio:1:5					'	
PIPEFITTER & ST PIPEFITTERS LOCAL 5		R	03/01/2017	7 \$51.19	\$9.70	\$18.14	\$0.00	\$79.03

### Apprentice - PIPEFITTER - Local 537

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	\$20.48	\$9.70	\$7.50	\$0.00	\$37.68
2	45	\$23.04	\$9.70	\$18.14	\$0.00	\$50.88
3	60	\$30.71	\$9.70	\$18.14	\$0.00	\$58.55
4	70	\$35.83	\$9.70	\$18.14	\$0.00	\$63.67
5	80	\$40.95	\$9.70	\$18.14	\$0.00	\$68.79

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Apprentice to Journeyworker Ratio:**

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
PIPELAYER	12/01/2017	\$33.08	\$7.70	\$13.60	\$0.00	\$54.38
LABORERS - ZONE 2	06/01/2018	\$33.92	\$7.70	\$13.60	\$0.00	\$55.22
	12/01/2018	\$34.76	\$7.70	\$13.60	\$0.00	\$56.06
	06/01/2019	\$35.63	\$7.70	\$13.60	\$0.00	\$56.93
	12/01/2019	\$36.49	\$7.70	\$13.60	\$0.00	\$57.79
	06/01/2020	\$37.38	\$7.70	\$13.60	\$0.00	\$58.68
	12/01/2020	\$38.27	\$7.70	\$13.60	\$0.00	\$59.57
	06/01/2021	\$39.19	\$7.70	\$13.60	\$0.00	\$60.49
	12/01/2021	\$40.10	\$7.70	\$13.60	\$0.00	\$61.40
For apprentice rates see "Apprentice- LABORER"						
PLUMBERS & GASFITTERS	03/01/2018	\$54.69	\$11.57	\$15.76	\$0.00	\$82.02
PLUMBERS & GASFITTERS LOCAL 12	09/01/2018	\$56.19	\$11.57	\$15.76	\$0.00	\$83.52
	03/01/2019	\$57.69	\$11.57	\$15.76	\$0.00	\$85.02
	09/01/2019	\$59.19	\$11.57	\$15.76	\$0.00	\$86.52
	03/01/2020	\$60.69	\$11.57	\$15.76	\$0.00	\$88.02
	09/01/2020	\$62.19	\$11.57	\$15.76	\$0.00	\$89.52
	03/01/2021	\$63.69	\$11.57	\$15.76	\$0.00	\$91.02

### Apprentice - PLUMBER/GASFITTER - Local 12

Effecti	ive Date -	03/01/2018				Supplemental		
Step	percent		Apprentice Base Wage	Health	Pension	Unemployment	Total Rate	
1	35		\$19.14	\$11.57	\$5.72	\$0.00	\$36.43	
2	40		\$21.88	\$11.57	\$6.49	\$0.00	\$39.94	
3	55		\$30.08	\$11.57	\$8.81	\$0.00	\$50.46	
4	65		\$35.55	\$11.57	\$10.36	\$0.00	\$57.48	
5	75		\$41.02	\$11.57	\$11.90	\$0.00	\$64.49	

Effecti	ive Date - 09/01/2018				Supplemental	
Step	percent	Apprentice Base Wage	Health	Pension	Unemployment	Total Rate
1	35	\$19.67	\$11.57	\$5.72	\$0.00	\$36.96
2	40	\$22.48	\$11.57	\$6.49	\$0.00	\$40.54
3	55	\$30.90	\$11.57	\$8.82	\$0.00	\$51.29
4	65	\$36.52	\$11.57	\$10.36	\$0.00	\$58.45
5	75	\$42.14	\$11.57	\$11.90	\$0.00	\$65.61
Notes:						
	** 1:2; 2:6; 3:10; 4:14; 5:19/Steps are Step4 with lic\$61.00, Step5 with lic\$6	•				
Appre	entice to Journeyworker Ratio:**					
PNEUMATIC CONTR PIPEFITTERS LOCAL 537	OLS (TEMP.)	03/01/2017	\$51.1	9 \$9.70	\$18.14	\$0.00 \$79.03

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

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
PNEUMATIC DRILL/TOOL OPERATOR	12/01/2017	\$33.08	\$7.70	\$13.60	\$0.00	\$54.38
ABORERS - ZONE 2	06/01/2018	\$33.92	\$7.70	\$13.60	\$0.00	\$55.22
	12/01/2018	\$34.76	\$7.70	\$13.60	\$0.00	\$56.06
	06/01/2019	\$35.63	\$7.70	\$13.60	\$0.00	\$56.93
	12/01/2019	\$36.49	\$7.70	\$13.60	\$0.00	\$57.79
	06/01/2020	\$37.38	\$7.70	\$13.60	\$0.00	\$58.68
	12/01/2020	\$38.27	\$7.70	\$13.60	\$0.00	\$59.57
	06/01/2021	\$39.19	\$7.70	\$13.60	\$0.00	\$60.49
	12/01/2021	\$40.10	\$7.70	\$13.60	\$0.00	\$61.40
For apprentice rates see "Apprentice- LABORER"						
OWDERMAN & BLASTER Aborers - zone 2	12/01/2017	\$33.83	\$7.70	\$13.60	\$0.00	\$55.13
	06/01/2018	\$34.67	\$7.70	\$13.60	\$0.00	\$55.97
	12/01/2018	\$35.51	\$7.70	\$13.60	\$0.00	\$56.81
	06/01/2019	\$36.38	\$7.70	\$13.60	\$0.00	\$57.68
	12/01/2019	\$37.24	\$7.70	\$13.60	\$0.00	\$58.54
	06/01/2020	\$38.13	\$7.70	\$13.60	\$0.00	\$59.43
	12/01/2020	\$39.02	\$7.70	\$13.60	\$0.00	\$60.32
	06/01/2021	\$39.94	\$7.70	\$13.60	\$0.00	\$61.24
	12/01/2021	\$40.85	\$7.70	\$13.60	\$0.00	\$62.15
For apprentice rates see "Apprentice- LABORER" POWER SHOVEL/DERRICK/TRENCHING MACHINE PPERATING ENGINEERS LOCAL 4	12/01/2017	\$46.63	\$10.50	\$15.50	\$0.00	\$72.63
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
PUMP OPERATOR (CONCRETE)	12/01/2017	\$16.62	\$10.50	\$15.50	\$0.00	\$72.63
OPERATING ENGINEERS LOCAL 4	12/01/2017	\$46.63	\$10.50	\$15.50	\$0.00	\$72.03
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
PUMP OPERATOR (DEWATERING, OTHER) DPERATING ENGINEERS LOCAL 4	12/01/2017	\$31.80	\$10.50	\$15.50	\$0.00	\$57.80
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
READY MIX CONCRETE DRIVERS after 4/30/10 Drivers Hired After 4/30/2010) <i>TEAMSTERS LOCAL 25c</i>	07/01/2017	\$28.18	\$8.48	\$9.72	\$0.00	\$46.38
READY-MIX CONCRETE DRIVER	07/01/2017	\$29.48	\$8.48	\$9.72	\$0.00	\$47.68
RECLAIMERS OPERATING ENGINEERS LOCAL 4	12/01/2017	\$46.17	\$10.50	\$15.50	\$0.00	\$72.17
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
RIDE-ON MOTORIZED BUGGY OPERATOR ABORERS - ZONE 2	12/01/2017	\$33.08	\$7.70	\$13.60	\$0.00	\$54.38
ABORERS - ZONE 2	06/01/2018	\$33.92	\$7.70	\$13.60	\$0.00	\$55.22
	12/01/2018	\$34.76	\$7.70	\$13.60	\$0.00	\$56.06
	06/01/2019	\$35.63	\$7.70	\$13.60	\$0.00	\$56.93
	12/01/2019	\$36.49	\$7.70	\$13.60	\$0.00	\$57.79
	06/01/2020	\$37.38	\$7.70	\$13.60	\$0.00	\$58.68
	12/01/2020	\$38.27	\$7.70	\$13.60	\$0.00	\$59.57
	06/01/2021	\$39.19	\$7.70	\$13.60	\$0.00	\$60.49
	12/01/2021	\$40.10	\$7.70	\$13.60	\$0.00	\$61.40
For apprentice rates see "Apprentice- LABORER"						
ROLLER/SPREADER/MULCHING MACHINE	12/01/2017	\$46.17	\$10.50	\$15.50	\$0.00	\$72.17
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
ROOFER (Inc.Roofer Waterproofng &Roofer Damproofg)	02/01/2018	\$42.36	\$11.35	\$14.80	\$0.00	\$68.51
ROOFERS LOCAL 33	08/01/2018	\$43.46	\$11.35	\$14.80	\$0.00	\$69.61
	02/01/2019	\$44.61	\$11.35	\$14.80	\$0.00	\$70.76

	Effecti	ve Date -	02/01/2018				Supplemental		
	Step	percent	Apprentie	ce Base Wage	Health	Pension	Unemployment	Total Rate	
	1	50		\$21.18	\$11.35	\$3.44	\$0.00	\$35.97	
	2	60		\$25.42	\$11.35	\$14.80	\$0.00	\$51.57	
	3	65		\$27.53	\$11.35	\$14.80	\$0.00	\$53.68	
	4	75		\$31.77	\$11.35	\$14.80	\$0.00	\$57.92	
	5	85		\$36.01	\$11.35	\$14.80	\$0.00	\$62.16	
	Effecti	ve Date -	08/01/2018				Supplemental		
	Step	percent	Apprentie	e Base Wage	Health	Pension	Unemployment	Total Rate	
	1	50		\$21.73	\$11.35	\$3.44	\$0.00	\$36.52	
	2	60		\$26.08	\$11.35	\$14.80	\$0.00	\$52.23	
	3	65		\$28.25	\$11.35	\$14.80	\$0.00	\$54.40	
	4	75		\$32.60	\$11.35	\$14.80	\$0.00	\$58.75	
	5	85		\$36.94	\$11.35	\$14.80	\$0.00	\$63.09	
	Notes:	** 1:5, 2:6	-10, the 1:10; Reroofing: 1:4, then 1:1						
			2000 hrs.; Steps 2-5 are 1000 hrs. Mechanics' receive \$1.00 hr. above R	OOFER)					
	Appre	ntice to Jo	ırneyworker Ratio:**						
		E / PRECA	ST CONCRETE	02/01/2018	8 \$42.61	\$11.35	\$14.80	\$0.00	\$68.76
OFERS LOCAL	55			08/01/2018	\$43.71	\$11.35	\$14.80	\$0.00	\$69.86
E		A	OOFED!	02/01/2019	9 \$44.86	\$11.35	\$14.80	\$0.00	\$71.01
For apprentice	rates see "	Apprentice- R	OUFER						

Step	ive Date - 02/01/2018 percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	\$17.64	\$12.20	\$5.61	\$0.00	\$35.45
2	40	\$17.64	\$12.20	\$5.61	\$0.00	\$35.45
3	45	\$19.85	\$12.20	\$10.85	\$1.29	\$44.19
4	45	\$19.85	\$12.20	\$10.85	\$1.29	\$44.19
5	50	\$22.06	\$12.20	\$11.80	\$1.38	\$47.44
6	50	\$22.06	\$12.20	\$12.05	\$1.39	\$47.70
7	60	\$26.47	\$12.20	\$13.70	\$1.57	\$53.94
8	65	\$28.67	\$12.20	\$14.65	\$1.67	\$57.19
9	75	\$33.08	\$12.20	\$16.56	\$1.86	\$63.70
10	85	\$37.49	\$12.20	\$17.96	\$2.03	\$69.68
Notes:						
	Steps are 6 mos.					i i
Appre	entice to Journeyworker Rat	io:1:4				
FOR		06/01/2013	3 \$25.3	81 \$7.07	\$7.05 \$	0.00

# Apprentice - SHEET METAL WORKER - Local 17-A

### Apprentice - SIGN ERECTOR - Local 35 Zone 2

	<b>ve Date -</b> 06/01/2013				Supplemental		
Step	percent	Apprentice Base Wage	Health	Pension	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.						
Appre	ntice to Journeyworker Ratio:1:1						
SPECIALIZED EARTH	H MOVING EQUIP < 35 TONS IL NO. 10 ZONE B	12/01/2016	5 \$32.44	\$10.91	\$10.89	\$0.00	\$54.24
SPECIALIZED EARTH	H MOVING EQUIP $> 35$ TONS IL NO. 10 ZONE B	12/01/2016	5 \$32.73	\$10.91	\$10.89	\$0.00	\$54.53

SPECIALIZE TEAMSTERS JOINT COUNCIL NO. 10 ZONE B

### Classification

SPRINKLER FITTER SPRINKLER FITTERS LOCAL 550 - (Section A) Zone 1

Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
03/01/2018	\$57.78	\$9.12	\$18.15	\$0.00	\$85.05
10/01/2018	\$59.28	\$9.12	\$18.15	\$0.00	\$86.55
01/01/2019	\$59.28	\$9.47	\$18.35	\$0.00	\$87.10
03/01/2019	\$60.78	\$9.47	\$18.35	\$0.00	\$88.60
10/01/2019	\$62.28	\$9.47	\$18.35	\$0.00	\$90.10
03/01/2020	\$63.78	\$9.47	\$18.35	\$0.00	\$91.60
10/01/2020	\$65.28	\$9.47	\$18.35	\$0.00	\$93.10
03/01/2021	\$66.78	\$9.47	\$18.35	\$0.00	\$94.60

#### Apprentice - SPRINKLER FITTER - Local 550 (Section A) Zone 1 Effective Date 03/01/2018

Effect	ive Date - 03/01/2018				Supplemental	
Step	percent	Apprentice Base Wage	Health	Pension	Unemployment	Total Rate
1	35	\$20.22	\$9.12	\$8.90	\$0.00	\$38.24
2	40	\$23.11	\$9.12	\$8.90	\$0.00	\$41.13
3	45	\$26.00	\$9.12	\$8.90	\$0.00	\$44.02
4	50	\$28.89	\$9.12	\$8.90	\$0.00	\$46.91
5	55	\$31.78	\$9.12	\$8.90	\$0.00	\$49.80
6	60	\$34.67	\$9.12	\$10.40	\$0.00	\$54.19
7	65	\$37.56	\$9.12	\$10.40	\$0.00	\$57.08
8	70	\$40.45	\$9.12	\$10.40	\$0.00	\$59.97
9	75	\$43.34	\$9.12	\$10.40	\$0.00	\$62.86
10	80	\$46.22	\$9.12	\$10.40	\$0.00	\$65.74

Effe	ective Date - 10/01/2018				Supplemental		
Stej	p percent	Apprentice Base Wage	Health	Pension	Unemployment	Total Rate	e
1	35	\$20.75	\$9.12	\$8.90	\$0.00	\$38.77	7
2	40	\$23.71	\$9.12	\$8.90	\$0.00	\$41.73	3
3	45	\$26.68	\$9.12	\$8.90	\$0.00	\$44.70	)
4	50	\$29.64	\$9.12	\$8.90	\$0.00	\$47.66	6
5	55	\$32.60	\$9.12	\$8.90	\$0.00	\$50.62	2
6	60	\$35.57	\$9.12	\$10.40	\$0.00	\$55.09	)
7	65	\$38.53	\$9.12	\$10.40	\$0.00	\$58.05	5
8	70	\$41.50	\$9.12	\$10.40	\$0.00	\$61.02	2
9	75	\$44.46	\$9.12	\$10.40	\$0.00	\$63.98	3
10	80	\$47.42	\$9.12	\$10.40	\$0.00	\$66.94	1
Not	es: Apprentice entered prior 9/					— — — — 	
	40/45/50/55/60/65/70/75/8 Steps are 850 hours	80/85					
Apj	orentice to Journeyworker Ra	atio:1:3					
TEAM BOILER O		12/01/2017	\$46.17	\$10.50	\$15.50	\$0.00	\$72.17
For apprentice rates	ee "Apprentice- OPERATING ENGIN	IEERS"					
AMPERS, SELF-P PERATING ENGINEER	ROPELLED OR TRACTOR I S LOCAL 4	DRAWN 12/01/2017	\$46.17	\$10.50	\$15.50	\$0.00	\$72.17
For apprentice rates	ee "Apprentice- OPERATING ENGIN	IEERS"					

**Issue Date:** 03/20/2018

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
TELECOMMUNICATION TECHNICIAN	03/01/2018	\$37.61	\$13.00	\$15.93	\$0.00	\$66.54
ELECTRICIANS LOCAL 103	09/01/2018	\$38.51	\$13.00	\$15.96	\$0.00	\$67.47
	03/01/2019	\$39.40	\$13.00	\$15.98	\$0.00	\$68.38

Effecti	ive Date -	03/01/2018				Supplemental	
Step	percent		Apprentice Base Wage	Health	Pension	Unemployment	Total Rate
1	40		\$15.04	\$13.00	\$0.45	\$0.00	\$28.49
2	40		\$15.04	\$13.00	\$0.45	\$0.00	\$28.49
3	45		\$16.92	\$13.00	\$12.74	\$0.00	\$42.66
4	45		\$16.92	\$13.00	\$12.74	\$0.00	\$42.66
5	50		\$18.81	\$13.00	\$13.03	\$0.00	\$44.84
6	55		\$20.69	\$13.00	\$13.32	\$0.00	\$47.01
7	60		\$22.57	\$13.00	\$13.61	\$0.00	\$49.18
8	65		\$24.45	\$13.00	\$13.90	\$0.00	\$51.35
9	70		\$26.33	\$13.00	\$14.19	\$0.00	\$53.52
10	75		\$28.21	\$13.00	\$14.48	\$0.00	\$55.69

### Apprentice - TELECOMMUNICATION TECHNICIAN - Local 103

Effecti	ve Date -	09/01/2018				Supplemental	
Step	percent		Apprentice Base Wage	Health	Pension	Unemployment	Total Rate
1	40		\$15.40	\$13.00	\$0.46	\$0.00	\$28.86
2	40		\$15.40	\$13.00	\$0.46	\$0.00	\$28.86
3	45		\$17.33	\$13.00	\$12.75	\$0.00	\$43.08
4	45		\$17.33	\$13.00	\$12.75	\$0.00	\$43.08
5	50		\$19.26	\$13.00	\$13.05	\$0.00	\$45.31
6	55		\$21.18	\$13.00	\$13.34	\$0.00	\$47.52
7	60		\$23.11	\$13.00	\$13.62	\$0.00	\$49.73
8	65		\$25.03	\$13.00	\$13.92	\$0.00	\$51.95
9	70		\$26.96	\$13.00	\$14.21	\$0.00	\$54.17
10	75		\$28.88	\$13.00	\$14.50	\$0.00	\$56.38
Notes:							
Appre	ntice to Jo	urneyworker Ratio:1:1					

TERRAZZO FINISHERS	02/01/2018	\$51.00	\$10.75	\$20.03	\$0.00	\$81.78
BRICKLAYERS LOCAL 3 - MARBLE & TILE	08/01/2018	\$52.35	\$10.75	\$20.16	\$0.00	\$83.26
	02/01/2019	\$52.99	\$10.75	\$20.16	\$0.00	\$83.90
	08/01/2019	\$54.34	\$10.75	\$20.30	\$0.00	\$85.39
	02/01/2020	\$54.98	\$10.75	\$20.30	\$0.00	\$86.03
	08/01/2020	\$56.33	\$10.75	\$20.45	\$0.00	\$87.53
	02/01/2021	\$56.97	\$10.75	\$20.45	\$0.00	\$88.17
	08/01/2021	\$58.37	\$10.75	\$20.61	\$0.00	\$89.73
	02/01/2022	\$58.96	\$10.75	\$20.61	\$0.00	\$90.32

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	Effective Date - 02/01/2018				Supplemental			
	Step	percent	Apprentice Base Wage	Health	Pension	Unemployment	Total Rate	;
	1	50	\$25.50	\$10.75	\$20.03	\$0.00	\$56.28	
	2	60	\$30.60	\$10.75	\$20.03	\$0.00	\$61.38	1
	3	70	\$35.70	\$10.75	\$20.03	\$0.00	\$66.48	1
	4	80	\$40.80	\$10.75	\$20.03	\$0.00	\$71.58	1
	5	90	\$45.90	\$10.75	\$20.03	\$0.00	\$76.68	
	Notes							
	Appro	entice to Journeyworker Ratio:1:	3					
EST BORIN		-	12/01/2017	7 \$38.85	\$7.70	\$14.95	\$0.00	\$61.50
ABORERS - FOU	INDATION	NAND MARINE	06/01/2018			\$14.95	\$0.00	\$62.45
			12/01/2018			\$14.95	\$0.00	\$63.40
			06/01/2019			\$14.95	\$0.00	\$64.40
			12/01/2019			\$14.95	\$0.00	\$65.40
			06/01/2020			\$14.95	\$0.00	\$66.39
			12/01/2020			\$14.95	\$0.00	\$67.37
			06/01/2021			\$14.95	\$0.00	\$68.39
			12/01/2021			\$14.95	\$0.00	\$69.40
For apprentic	e rates see	"Apprentice- LABORER"						
		LER HELPER	12/01/2017	7 \$37.57	\$7.70	\$14.95	\$0.00	\$60.22
IBORERS - FOU	NDATION	N AND MARINE	06/01/2018	\$38.52	\$7.70	\$14.95	\$0.00	\$61.17
			12/01/2018	8 \$39.47	\$7.70	\$14.95	\$0.00	\$62.12
			06/01/2019	9 \$40.47	\$7.70	\$14.95	\$0.00	\$63.12
			12/01/2019	9 \$41.47	\$7.70	\$14.95	\$0.00	\$64.12
			06/01/2020	\$42.46	\$7.70	\$14.95	\$0.00	\$65.11
			12/01/2020	\$43.44	\$7.70	\$14.95	\$0.00	\$66.09
			06/01/2021	\$44.46	\$7.70	\$14.95	\$0.00	\$67.11
			12/01/2021	\$45.47	\$7.70	\$14.95	\$0.00	\$68.12
		"Apprentice- LABORER"						
EST BORIN 4borers - fou			12/01/2017	7 \$37.45	\$7.70	\$14.95	\$0.00	\$60.10
			06/01/2018	8 \$38.40	\$7.70	\$14.95	\$0.00	\$61.05
			12/01/2018	\$39.35	\$7.70	\$14.95	\$0.00	\$62.00
			06/01/2019	9 \$40.35	\$7.70	\$14.95	\$0.00	\$63.00
			12/01/2019	9 \$41.35	\$7.70	\$14.95	\$0.00	\$64.00
			06/01/2020	\$42.34	\$7.70	\$14.95	\$0.00	\$64.99
			12/01/2020	\$43.32	\$7.70	\$14.95	\$0.00	\$65.97
			06/01/2021	\$44.34	\$7.70	\$14.95	\$0.00	\$66.99
Ear anna '	a mata	"Appropriate LADORED"	12/01/2021	\$45.35	\$7.70	\$14.95	\$0.00	\$68.00
		"Apprentice- LABORER" BLE STEAM GENERATORS	12/01/2017	7 \$46.17	\$10.50	\$15.50	\$0.00	\$72.17

Apprentice -	TERRAZZO FINISHER - Local 3 Marble & Tile
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**Issue Date:** 03/20/2018

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Classification For apprentice rates see "Apprentice- OPERATING ENGINEERS"	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
TRAILERS FOR EARTH MOVING EQUIPMENT TEAMSTERS JOINT COUNCIL NO. 10 ZONE B	12/01/2016	\$33.02	\$10.91	\$10.89	\$0.00	\$54.82
TUNNEL WORK - COMPRESSED AIR	12/01/2017	\$49.73	\$7.70	\$15.35	\$0.00	\$72.78
LABORERS (COMPRESSED AIR)	06/01/2018	\$50.68	\$7.70	\$15.35	\$0.00	\$73.73
	12/01/2018	\$51.63	\$7.70	\$15.35	\$0.00	\$74.68
	06/01/2019	\$52.63	\$7.70	\$15.35	\$0.00	\$75.68
	12/01/2019	\$53.63	\$7.70	\$15.35	\$0.00	\$76.68
	06/01/2020	\$54.62	\$7.70	\$15.35	\$0.00	\$77.67
	12/01/2020	\$55.60	\$7.70	\$15.35	\$0.00	\$78.65
	06/01/2021	\$56.62	\$7.70	\$15.35	\$0.00	\$79.67
For apprentice rates see "Apprentice- LABORER"	12/01/2021	\$57.63	\$7.70	\$15.35	\$0.00	\$80.68
IUNNEL WORK - COMPRESSED AIR (HAZ. WASTE)	12/01/2017	\$51.73	\$7.70	\$15.35	\$0.00	\$74.78
LABORERS (COMPRESSED AIR)	06/01/2018	\$52.68	\$7.70	\$15.35	\$0.00	\$75.73
	12/01/2018	\$53.63	\$7.70	\$15.35	\$0.00	\$76.68
	06/01/2019	\$54.63	\$7.70	\$15.35	\$0.00	\$77.68
	12/01/2019	\$55.63	\$7.70	\$15.35	\$0.00	\$78.68
	06/01/2020	\$56.62	\$7.70	\$15.35	\$0.00	\$79.67
	12/01/2020	\$57.60	\$7.70	\$15.35	\$0.00	\$80.65
	06/01/2021	\$58.62	\$7.70	\$15.35	\$0.00	\$81.67
	12/01/2021	\$59.63	\$7.70	\$15.35	\$0.00	\$82.68
For apprentice rates see "Apprentice- LABORER"						
IUNNEL WORK - FREE AIR LABORERS (FREE AIR TUNNEL)	12/01/2017	\$41.80	\$7.70	\$15.35	\$0.00	\$64.85
	06/01/2018	\$42.75	\$7.70	\$15.35	\$0.00	\$65.80
	12/01/2018	\$43.70	\$7.70	\$15.35	\$0.00	\$66.75
	06/01/2019	\$44.70	\$7.70	\$15.35	\$0.00	\$67.75
	12/01/2019	\$45.70	\$7.70	\$15.35	\$0.00	\$68.75
	06/01/2020	\$46.69	\$7.70	\$15.35	\$0.00	\$69.74
	12/01/2020	\$47.67	\$7.70	\$15.35	\$0.00	\$70.72
	06/01/2021	\$48.69	\$7.70	\$15.35	\$0.00	\$71.74
For apprentice rates see "Apprentice- LABORER"	12/01/2021	\$49.70	\$7.70	\$15.35	\$0.00	\$72.75
TUNNEL WORK - FREE AIR (HAZ. WASTE)	12/01/2017	\$42.90	\$7.70	\$15.35	\$0.00	\$66.85
ABORERS (FREE AIR TUNNEL)	06/01/2018	\$43.80 \$44.75		\$15.35	\$0.00	\$67.80
	12/01/2018	\$44.75 \$45.70	\$7.70 \$7.70	\$15.35	\$0.00	\$67.80 \$68.75
				\$15.35	\$0.00	
	06/01/2019 12/01/2019	\$46.70 \$47.70	\$7.70 \$7.70	\$15.35	\$0.00 \$0.00	\$69.75 \$70.75
	06/01/2020	\$47.70 \$48.69		\$15.35	\$0.00 \$0.00	\$70.75 \$71.74
	12/01/2020	\$48.69 \$49.67	\$7.70 \$7.70	\$15.35	\$0.00 \$0.00	\$71.74 \$72.72
				\$15.35	\$0.00 \$0.00	\$72.72 \$73.74
	06/01/2021	\$50.69 \$51.70	\$7.70 \$7.70	\$15.35	\$0.00 \$0.00	\$73.74 \$74.75
For apprentice rates see "Apprentice- LABORER"	12/01/2021	\$31./U	\$7.70	φ1 <i>3.33</i>		\$14.1J
VAC-HAUL TEAMSTERS JOINT COUNCIL NO. 10 ZONE B	12/01/2016	\$32.44	\$10.91	\$10.89	\$0.00	\$54.24

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
WAGON DRILL OPERATOR	12/01/2017	\$33.08	\$7.70	\$13.60	\$0.00	\$54.38
LABORERS - ZONE 2	06/01/2018	\$33.92	\$7.70	\$13.60	\$0.00	\$55.22
	12/01/2018	\$34.76	\$7.70	\$13.60	\$0.00	\$56.06
	06/01/2019	\$35.63	\$7.70	\$13.60	\$0.00	\$56.93
	12/01/2019	\$36.49	\$7.70	\$13.60	\$0.00	\$57.79
	06/01/2020	\$37.38	\$7.70	\$13.60	\$0.00	\$58.68
	12/01/2020	\$38.27	\$7.70	\$13.60	\$0.00	\$59.57
	06/01/2021	\$39.19	\$7.70	\$13.60	\$0.00	\$60.49
For apprentice rates see "Apprentice- LABORER"	12/01/2021	\$40.10	\$7.70	\$13.60	\$0.00	\$61.40
WASTE WATER PUMP OPERATOR OPERATING ENGINEERS LOCAL 4	12/01/2017	\$46.63	\$10.50	\$15.50	\$0.00	\$72.63
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
WATER METER INSTALLER	03/01/2018	\$54.69	\$11.57	\$15.76	\$0.00	\$82.02
PLUMBERS & GASFITTERS LOCAL 12	09/01/2018	\$56.19	\$11.57	\$15.76	\$0.00	\$83.52
	03/01/2019	\$57.69	\$11.57	\$15.76	\$0.00	\$85.02
	09/01/2019	\$59.19	\$11.57	\$15.76	\$0.00	\$86.52
	03/01/2020	\$60.69	\$11.57	\$15.76	\$0.00	\$88.02
	09/01/2020	\$62.19	\$11.57	\$15.76	\$0.00	\$89.52
For apprentice rates see "Apprentice- PLUMBER/PIPEFITTER" or "PLUMBER/GAS	03/01/2021 SFITTER"	\$63.69	\$11.57	\$15.76	\$0.00	\$91.02

#### Additional Apprentice Information:

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

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

All steps are six months (1000 hours.)

Ratios are expressed in allowable number of apprentices to journeymen or fraction thereof, unless otherwise specified.

** Multiple ratios are listed in the comment field.

*** APP to JM; 1:1, 2:2, 2:3, 3:4, 4:4, 4:5, 4:6, 5:7, 6:7, 6:8, 6:9, 7:10, 8:10, 8:11, 8:12, 9:13, 10:13, 10:14, etc.

**** APP to JM; 1:1, 1:2, 2:3, 2:4, 3:5, 4:6, 4:7, 5:8, 6:9, 6:10, 7:11, 8:12, 8:13, 9:14, 10:15, 10:16, etc.

### SUPPLEMENTARY CONDITIONS

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# SUPPLEMENTARY CONDITIONS

# PART II - STATE AND LEGAL GOVERNMENT PROVISIONS

State and Local Government provisions included herein, have been selected from those to which specific references have been made elsewhere in the Contract Documents. Each and every other provision of law or clause required by law to be inserted in this Contract shall be deemed to be inserted herein, and the Contract shall be read and enforced as though it were included herein and our provision contrary to such law or clause shall be deemed null and void. If through mistake or otherwise any such provision is not correctly inserted, then upon the application of either party, the Contract shall forthwith be physically amended to make such insertion.

1.0 State Government Provisions were current as of February 6, 2017.

1.1 Contractor and Owner agree that the following provisions of the Commonwealth of Massachusetts apply to the work to be performed under this Contract, and that these provisions supersede any conflicting provisions of said Contract.

1.1.1 CHAP. 30 M.G.L, SECTION 39F

Construction contracts; assignment and subrogation; Subcontractor defined; enforcement of claim for direct payment; deposit, reduction of disputed amounts

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

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.

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.

Each payment made by the Awarding Authority to the General Contractor pursuant to sub paragraphs (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 a 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.

If, within seventy (70) 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 balanced 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 (10) 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 the amount due for each claim made by the General Contractor against the Subcontractor.

(e) Within fifteen (15) 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 a direct payment any amount as provided in part (iii) if the reply is not sworn to, or for which the sworn reply does not contain the detailed breakdown required by 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 sub paragraph.

(f) The Awarding Authority shall forthwith deposit the amount deducted from a direct payment as provided in part (iii) of subparagraph (e) in an 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 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 General 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 General Contractor and in the 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 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 General Contractor. Thereafter the Awarding Authority shall proceed as provided in subparagraph (e), (f), (g) and (h).

(2) Any assignment by a Subcontractor of the rights under this section to a surety company furnishing a bond under the provisions of section twenty nine of chapter one hundred forty nine shall be invalid. The assignment and subrogation rights of the surety to amounts included in a demand for direct payment which are in the possession of the Awarding Authority or which are on deposit pursuant to subparagraph (f) of paragraph (1) shall be subordinate to the rights of all Subcontractors who are entitled to be paid under this section and who have not been paid in full.

(3) "Subcontractor" as used in this section (i) for contracts awarded as provided in sections forty four A to forty four H, inclusive, of chapter one hundred forty nine shall mean a person who files a sub bid and receives a subcontract as a result of that filed sub bid or who is approved by the Awarding Authority in writing as a person performing labor or both performing labor and furnishing materials pursuant to a contract with the General Contractor, (ii) for contracts awarded as provided in Paragraph (a) of section thirty nine M of chapter thirty shall mean a person approved by the Awarding Authority in writing as a person performing labor or both performing labor and furnishing materials pursuant to a contract with the General Contractor, (iii) for contracts awarded as provided in Paragraph (a) of section thirty nine M of chapter thirty shall mean a person approved by the Awarding Authority in writing as a person performing labor or both performing labor and furnishing materials pursuant to a contract with the General Contractor, and (iii) for contracts with the Commonwealth not awarded as provided in forty four A to forty four H, inclusive, of chapter one hundred forty nine shall also mean a person contracting with the General Contractor to supply materials used or employed in a public works project for a price in excess of five thousand dollars (\$5,000.00).

(4) A General Contractor or a Subcontractor shall enforce a claim to any portion of the amount of a demand for direct payment deposited as provided in subparagraph (f) of paragraph (1) by a petition in equity in the superior court against the other and the bank shall not be a necessary party. A Subcontractor shall enforce a claim for direct payment or a right to require a deposit as provided in subparagraph (f) of paragraph (1) by a petition in equity in the superior court against the Awarding Authority and the General Contractor shall not be a necessary party. Upon motion of any party the court shall advance for speedy trial any petition filed as provided in this paragraph. Sections fifty nine and fifty nine B of chapter two hundred thirty one2 shall apply to such petitions. The court shall enter an interlocutory decree upon which execution shall issue for any part of a claim found due pursuant to sections fifty nine and fifty nine B and, upon motion of any party, shall advance for speedy trial the petition to collect the remainder of the claim. Any party aggrieved by such interlocutory decree shall have the right to appeal therefrom as from a final decree. The court shall not consolidate for trial the petition of any Subcontractor with the petition of one or more Subcontractors or the same General Contract unless the court finds that a substantial portion of the evidence of the same events during the course of construction (other than the fact that the claims sought to be consolidated arise under the same General Contract) is applicable to the petitions sought to be consolidated and that such consolidation will prevent unnecessary duplication of evidence. A decree in any such proceeding shall not include interest on the disputed amount deposited in excess of the interest earned for the period of any such deposit. No person except a Subcontractor filing a demand for direct payment for which no funds due the General Contractor are available for direct payment shall have a right to file a petition in court of equity against the Awarding Authority claiming a demand for direct payment is premature and such Subcontractor must file the petition before the Awarding Authority has made a direct payment to the Subcontractor and has made a deposit of the disputed portion as provided in part (iii) of subparagraph (e) and in subparagraph (f) of paragraph (1).

(5) In any petition to collect any claim for which a Subcontractor has filed a demand for direct payment the court shall, upon motion of the General Contractor, reduce by the amount of any deposit of a disputed amount by the Awarding Authority as provided in part (iii) of subparagraph (e) and in subparagraph (f) of paragraph (1) any amount held under a trustee writ or pursuant to a restraining order or injunction.

# 1.1.2 CHAP. 30 M.G.L. SECTION 39G

Completion of public works; semi-final and final estimates; payments; extra work; disputed items

Upon Substantial Completion of the work required by a contract with the Commonwealth, or any agency or political subdivision thereof, for the construction, reconstruction, alteration, remodeling, repair or improvement of public ways, including bridges and other highway structures, sewers and water mains, airports and other public works, the Contractor shall present in writing to the Awarding Authority its certification that the work has been Substantially Completed. Within twenty one (21) days thereafter, the Awarding Authority shall present to the Contractor either a written declaration that the work has been Substantially Complete or unsatisfactory work items required by the contract sufficient to demonstrate that the work has not been Substantially Completed. The Awarding Authority may include with such list a notice setting forth a reasonable time, which shall not in any event be prior to the contract completion date, within which the Contractor must achieve Substantial Completion of the work. In the event that the Awarding Authority fails to respond, by presentation of a written declaration or itemized list as aforesaid, to the Contractor's certification within the twenty one day period, the Contractor's certification shall take effect as the Awarding Authority's declaration that the work has been Substantially Completed.

Within sixty-five (65) days after the effective date of a declaration of a substantial completion, the awarding authority shall prepare and forthwith send to the contractor for acceptance a substantial completion estimate for the quantity and price of the work done and all but one per cent retainage, if held by the awarding authority, on that work, including the quantity, price and all but one per cent retainage, if held by the awarding authority, for the undisputed part of each work item and extra work item in dispute but excluding the disputed part thereof, less the estimated cost of completing all incomplete and unsatisfactory work items and less the total periodic payments made to date for the work. The awarding

authority also shall deduct from the substantial completion estimate an amount equal to the sum of all demands for direct payment filed by subcontractors and not yet paid to subcontractors or deposited in joint accounts pursuant to section thirty-nine F, but no contract subject to said section thirty-nine F shall contain any other provision authorizing the awarding authority to deduct any amount by virtue of claims asserted against the contract by subcontractors, material suppliers or others.

If the Awarding Authority fails to prepare and send to the Contractor any Substantial Completion estimate required by this section on or before the date herein above set forth, the Awarding Authority shall pay to the Contractor interest on the amount which would have been due to the Contractor pursuant to such Substantial Completion estimate at the rate of three percentage points above the rediscount rate then charged by the Federal Reserve Bank of Boston from such date to the date on which the Awarding Authority sends that Substantial Completion estimate to the Contractor for acceptance or to the date of payment therefor, whichever occurs first. The Awarding Authority shall include the amount of such interest in the Substantial Completion Estimate.

Within fifteen (15) days after the effective date of the declaration of Substantial Completion, the Awarding Authority 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 (45) days after the receipt of such list or before the then contract completion date, whichever is later. If the Contractor fails to complete such work within such time, the Awarding Authority may, subsequent to seven (7) days written notice to the Contractor by certified mail, return receipt requested, terminate the contract and complete the incomplete or unsatisfactory work items and charge the cost of same to the Contractor.

Within thirty (30) days after receipt by the awarding authority of a notice from the contractor stating that all of the work required by the contract has been completed, the awarding authority shall prepare and forthwith send to the contractor for acceptance a final estimate for the quantity and price of the work done and all retainage, if held by the awarding authority, on that work less all payments made to date, unless the awarding authority's inspection shows that work items required by the contract remain incomplete or unsatisfactory, or that documentation required by the contract has not been completed. If the awarding authority fails to prepare and send to the contractor the final estimate within thirty (30) days after receipt of notice of completion, the awarding authority shall pay to the contractor interest on the amount which would have been due to the contractor pursuant to such final estimate at the rate hereinabove provided from the thirtieth day after such completion until the date on which the awarding authority sends the final estimate to the contractor for acceptance or the date of payment therefor, whichever occurs first, provided that the awarding authority's inspection shows that no work items required by the contract remain incomplete or unsatisfactory. Interest shall not be paid hereunder on amounts for which interest is required to be paid in connection with the substantial completion estimate as hereinabove provided. The awarding authority shall include the amount of the interest required to be paid hereunder in the final estimate.

The Awarding Authority shall pay the amount due pursuant to any periodic, Substantial Completion or final estimate within thirty five (35) days after receipt of written acceptance for such estimate from the Contractor and shall pay interest on the amount due pursuant to such estimate at the rate hereinabove provided from that thirty-fifth (35th ) day to the date of payment. Within fifteen (15) days, thirty (30) days in the case of the Commonwealth, after receipt from the Contractor, at the place designated by the Awarding Authority, if such place is so designated, of a periodic estimate requesting payment of the amount due for the preceding periodic estimate period, the Awarding Authority shall make a periodic payment to the Contractor for the work performed during the preceding periodic estimate period and for the materials not incorporated in the work but delivered and suitably stored at the site, or at some location agreed upon in writing, to which the Contractor has title or to which a Subcontractor has title and has authorized the Contractor to transfer title to the Awarding Authority, upon certification by the Contractor that he is the lawful owner and that the materials are free from all encumbrances. The Awarding Authority shall include with each such payment interest on the amount due pursuant to such periodic estimate at the rate herein above provided from the due date. In the case of periodic payments, the contracting authority may deduct from its payment a retention based on its estimate of the fair value of its claims against the Contractor, a retention for direct payments to Subcontractors based on demands for same in accordance with the provisions of section thirty nine F, and a retention to secure satisfactory performance of the contractual work not exceeding five per cent (5%) of the approved amount of any periodic payment, and the same right to retention shall apply to bonded Subcontractors entitled to direct payment under section thirty nine F of chapter thirty; provided, that a five per cent value of all items that are planted in the ground shall be deducted from the periodic payments until final acceptance.

No periodic, Substantial Completion or final estimate or acceptance or payment thereof shall bar a Contractor from reserving all rights to dispute the quantity and amount of, or the failure of the Awarding Authority to approve a quantity and amount of, all or part of any work item or extra work item.

Substantial Completion, for the purposes of this section, shall mean either that the work required by the Contract has been completed except for work having a contract price of less than one per cent (1%) of the then adjusted total contract price, or 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 required by the Contract.

# 1.1.3 CHAP. 30 MGL SECTION 39K

Public building construction contracts; payments

Every contract for the construction, reconstruction, alteration, remodeling, repair or demolition of any public building by the Commonwealth, or by any County, City, Town, District, Board, Commission or other public body, when the amount is more than five thousand dollars (\$5,000.00) in the case of the Commonwealth and more than two thousand dollars (\$2,000.00) in the case of any County, City, Town, District, Board, Commission or other public body, shall contain the following paragraph:— Within fifteen (15) days (thirty (30) days in the case of the Commonwealth, including local housing authorities) after receipt from the Contractor, at the place designated by the Awarding Authority if such a place is so designated, of a periodic estimate requesting payment of the amount due for the preceding month, the Awarding Authority will make a periodic payment to the Contractor for the work performed during the preceding month and for the materials not incorporated in the work but delivered and suitably stored at the site (or at some location agreed upon in writing) to which the Contractor has title or to which a Subcontractor has title and has authorized the Contractor to transfer title to the Awarding Authority, upon certification by the contractor that he is the lawful owner and that the materials are free from all encumbrances, but less (1) a retention based on its estimate of the fair value of its claims against the Contractor and less (2) a retention for direct payments to Subcontractors based on demands for same in accordance with the provisions of section thirty nine F, and less (3) a retention not exceeding five per cent (5%) of the approved amount of the periodic payment. After the receipt of a periodic estimate requesting final payment and within sixty five (65) days after (a) the Contractor fully completes the work or Substantially Completes the work so that the value of the work remaining to be done is, in the estimate of

the Awarding Authority, less than one per cent (1%) of the original Contract Price, or (b) the Contractor Substantially Completes the work and the Awarding Authority takes possession for occupancy, whichever occurs first, the Awarding Authority shall pay the Contractor the entire balance due on the contract less (1) a retention based on its estimate of the fair value of its claims against the Contractor and of the cost of completing the incomplete and unsatisfactory items of work and less (2) a retention for direct payments to Subcontractors based on demands for same in accordance with the provisions of section thirty nine F, or based on the record of payments by the Contractor to the Subcontractors under this contract if such record of payment indicates that the Contractor has not paid Subcontractors as provided in section thirty nine F. If the Awarding Authority fails to make payment as herein provided, there shall be added to each such payment daily interest at the rate of three (3) percentage points above the rediscount rate then charged by the Federal Reserve Bank of Boston commencing on the first day after said payment is due and continuing until the payment is delivered or mailed to the Contractor; provided, that no interest shall be due, in any event, on the amount due on a periodic estimate for final payment until fifteen (15) days (twenty four (24) days in the case of the Commonwealth) after receipt of such a periodic estimate from the Contractor, at the place designated by the Awarding Authority if such a place is so designated. The Contractor agrees to pay to each Subcontractor a portion of any such interest paid in accordance with the amount due each Subcontractor.

The Awarding Authority may make changes in any periodic estimate submitted by the Contractor and the payment due on said periodic estimate shall be computed in accordance with the changes so made, but such changes or any requirement for a corrected periodic estimate shall not affect the due date for the periodic payment or the date for the commencement of interest charges on the amount of the periodic payment computed in accordance with the changes made, as provided herein; provided, that the Awarding Authority may, within seven (7) days after receipt, return to the Contractor for correction, any periodic estimate which is not in the required form or which contains computations not arithmetically correct and, in that event, the date of receipt of such periodic estimate shall be the date of receipt of the corrected periodic estimate in proper form and with arithmetically correct computations. The date of receipt of a periodic estimate received on a Saturday shall be the first working day thereafter. The provisions of section thirty nine G shall not apply to any contract for the construction, reconstruction, alteration, remodeling, repair or demolition of any public building to which this section applies.

All periodic estimates shall be submitted to the Awarding Authority, or to its designee as set forth in writing to the Contractor, and the date of receipt by the Awarding Authority or its designee shall be marked on the estimate. All periodic estimates shall contain a separate item for each filed subtrade and each sub subtrade listed in sub bid form as required by Specifications and a column listing the amount paid to each Subcontractor and Sub-Subcontractor as of the date the periodic estimate is filed. The person making payment for the Awarding Authority shall add the daily interest provided for herein to each payment for each day beyond the due date based on the date of receipt marked on the estimate.

A certificate of the Architect to the effect that the Contractor has fully or Substantially Completed the work shall, subject to the provisions of section thirty nine J, be conclusive for the purposes of this section.

Notwithstanding the provisions of this section, at any time after the value of the work remaining to be done is, in the estimation of the awarding authority, less than one per cent (1%) of the adjusted contract price, or the awarding authority has determined that the Contractor has substantially completed the work

and the Awarding Authority has taken possession for occupancy, the Awarding Authority may send to the General Contractor by certified mail, return receipt requested, a complete and final list of all incomplete and unsatisfactory work items, including, for each item on the list, a good faith estimate of the fair and reasonable cost of completing such item. The General Contractor shall then complete all such work items within thirty (30) days of receipt of such list or before the contract completion date, whichever is later. If the General Contractor fails to complete all incomplete and unsatisfactory work items within forty-five (45) days after receipt of such items furnished by the Awarding Authority or before the contract completion date, whichever is later, subsequent to an additional fourteen (14) days' written notice to the General Contractor by certified mail, return receipt requested, the Awarding Authority may terminate the contract and complete the incomplete and unsatisfactory work items and charge the cost of same to the General Contractor and such termination shall be without prejudice to any other rights or remedies the Awarding Authority may have under the contract. The Awarding Authority shall note any such termination in the evaluation form to be filed by the Awarding Authority pursuant to the provisions of section forty-four D of chapter one hundred and forty-nine.

### 1.1.4 CHAP. 30 MGL SECTION 39M

Contracts for construction and materials; manner of awarding

(a) Every contract for the construction, reconstruction, alteration, remodeling or repair of any public work, or for the purchase of any material, as hereinafter defined, by the commonwealth, or political subdivision thereof, or by any county, city, town, district or housing authority that is and estimated by the awarding authority to cost less than \$10,000 dollars shall be obtained through the exercise of sound business practices as defined in section 2 of chapter 30B. The awarding authority shall make and keep a record of each procurement that, at a minimum, shall include the name and address of the person from whom the services were procured. An awarding authority that utilizes a vendor on a statewide contract procured through the operational services division, or a blanket contract procured by the awarding authority pursuant to this section, shall be deemed to have obtained the contract through sound business practices.

Every contract for the construction, reconstruction, alteration, remodeling or repair of any public work, or for the purchase of any material, as hereinafter defined, by the commonwealth, or political subdivision thereof, or by any county, city, town, district or housing authority that is estimated by the awarding authority to cost not less than \$10,000 but not more than \$50,000 shall be awarded to the responsible bidder offering to perform the contract at the lowest price. The awarding authority shall make public notification of the contract and shall seek written responses from no fewer than 3 persons who customarily perform such work. For purposes of this subsection, the term "public notification" shall include, but need not be limited to, posting, at least 2 weeks before the time specified in the notification for the receipt of responses, the contract and scope-of-work statement: (1) on the website of the awarding authority, (2) on the COMMBUYS system administered by the operational services division, (3) in the central register published pursuant to section 20A of chapter 9 and (4) in a conspicuous place in or near the primary office of the awarding authority; provided, however, that if the awarding authority obtains a minimum of 2 written responses from a vendor list established through a blanket contract or a statewide contract procured through the operational services division, and the lowest of those written responses is deemed acceptable to the awarding authority, public notification is not required. The solicitation shall include a scope-of-work statement that defines the work to be performed and provides potential responders with sufficient information regarding the objectives and requirements of the awarding authority and the time period within which the work shall be completed. The awarding authority shall

record the names and addresses of all persons from whom written responses were sought, the names of the persons submitting written responses and the date and amount of each written response.

An awarding authority may utilize a vendor list established through a statewide contract procured through the operational services division to identify 1 or more of the persons from whom it will seek written responses for purposes of this subsection. An awarding authority may also procure a blanket contract to establish a listing of vendors in certain defined categories of work that are under contract to provide services for multiple individual tasks of not more than \$50,000 each, and from whom written responses will be sought. Any such blanket contract procured by the awarding authority shall be procured pursuant to this section or sections 44A to 44J, inclusive, of chapter 149 which are applicable to projects over \$50,000.

Every contract for the construction, reconstruction, alteration, remodeling or repair of any public work, or for the purchase of any material, as hereinafter defined, by the commonwealth, or political subdivision thereof, or by any county, city, town, district or housing authority that is estimated by the awarding authority to cost more than \$50,000, and every contract for the construction, reconstruction, installation, demolition, maintenance or repair of any building by a public agency, as defined by subsection (1) of section 44A of chapter 149, estimated to cost more than \$50,000 but not more than \$150,000, shall be awarded to the lowest eligible responsible bidder on the basis of competitive bids publicly opened and read by the awarding authority forthwith upon expiration of the time for the filing thereof; provided, however, that such awarding authority may reject any and all bids, if it is in the public interest to do so. Every bid for such contract shall be accompanied by a bid deposit in the form of: (1) a bid bond, (2) cash, or (3) a certified check on, or a treasurer's or cashier's check issued by, a responsible bank or trust company, payable to the awarding authority. The amount of the bid deposit shall be 5 per cent of the value of the bid. Any person submitting a bid pursuant to this section shall, on such bid, certify as follows:

The undersigned certifies under 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 paragraph the word "person" shall mean any natural person, joint venture, partnership, corporation or other business or legal entity.

(Name of person signing bid)

# (Company)

This subsection shall not apply to the award of any contract subject to the provisions of sections 44A to 44J, inclusive, of chapter 149 and every such contract shall continue to be awarded as provided therein. In cases of extreme emergency: (1) caused by enemy attack, sabotage or other such hostile actions or (2) resulting from an imminent security threat explosion, fire, flood, earthquake, hurricane, tornado or other such catastrophe, an awarding authority may, without competitive bids and notwithstanding any general or special law, award contracts otherwise subject to this subsection to perform work and to purchase or rent materials and equipment, all as may be necessary for temporary repair and restoration to service of any and all public work in order to preserve the health and safety of persons or property; provided, that this exception shall not apply to any permanent reconstruction, alteration, remodeling or repair of any public work.

(b) Specifications for such contracts, and specifications for contracts awarded pursuant to the provisions of said sections forty-four A to forty-four L of said chapter one hundred and forty-nine, shall be written to provide for full competition for each item of material to be furnished under the contract; except, however, that said specifications may be otherwise written for sound reasons in the public interest stated in writing in the public records of the Awarding Authority or promptly given in writing by the Awarding Authority to anyone making a written request therefor, in either instance such writing to be prepared after reasonable investigation. Every such contract shall provide that an item equal to that named or described in the said specifications may be furnished; and an item shall be considered equal to the item

so named or described if, in the opinion of the Awarding Authority: (1) it is at least equal in quality, durability, appearance, strength and design, (2) it will perform at least equally the function imposed by the general design for the public work being contracted for or the material being purchased, and (3) it conforms substantially, even with deviations, to the detailed requirements for the item in the said specifications. For each item of material the specifications shall provide for either a minimum of three (3) named brands of material or a description of material which can be met by a minimum of three (3) manufacturers or producers, and for the equal of any one of said name or described materials.

(c) The term "lowest responsible and eligible bidder" shall mean the bidder: (1) whose bid is the lowest of those bidders possessing the skill, ability and integrity necessary for the faithful performance of the work; (2) who shall certify, that he is able to furnish labor that can work in harmony with all other elements of labor employed or to be employed in the work; (3) who shall certify that all employees to be employed at the worksite will have successfully completed a course in construction safety and health approved by the United States Occupational Safety and Health Administration that is at least ten (10) hours in duration at the time the employee begins work and who shall furnish documentation of successful completion of said course with the first certified payroll report for each employee; (4) who, where the provisions of section eight B of chapter twenty-nine apply, shall have been determined to be qualified thereunder; and (5) who obtains within ten (10) days of the notification of contract award the security by bond required under section twenty-nine of chapter one hundred and fortynine; provided that for the purposes of this section the term "security by bond" shall mean the bond of a surety company qualified to do business under the laws of the commonwealth and satisfactory to the Awarding Authority; provided further, that if there is more than 1 surety company, the surety companies shall be jointly and severally liable.

(d) The provisions of this section shall not apply (1) to the extent that they prevent the approval of such specifications by any contributing federal agency, (2) to materials purchased under specifications of the state department of highways at prices established by the said department pursuant to advertisement and bidding in connection with work to be performed under the provisions of chapter eighty-one or chapter ninety, (3) to any transaction between the commonwealth and any of its political subdivisions or between the commonwealth and any public service corporation, and (4) to any contract of not more than \$50,000 awarded by a governmental body, as defined by section two of chapter thirty B, in accordance with the provisions of section five of said chapter thirty B; and (5) to any contract solely for the purchase of material awarded by a governmental body, as defined by section 2 of chapter 30B, in accordance with section 5 of said chapter 30B, or procured through the operational services division pursuant to sections 22 and 52 of chapter 7.

The word "material" as used in this section shall mean and include any article, assembly, system, or any component part thereof.

# 1.1.5 CHAP. 30 MGL SECTION 39N

Construction contracts; equitable adjustment in contract price for differing subsurface or latent physical conditions

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 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 shall be modified in writing accordingly.

# 1.1.6 CHAP. 30 MGL SECTION 390

Contracts for construction and materials; suspension, delay or interruption due to order of awarding authority; adjustment in contract price; written claim

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 and, in the event a suspension, delay, interruption or failure to act of the Awarding Authority increases the cost of performance to any Subcontractor, that Subcontractor shall have the same rights against the General Contractor for payment for an increase in the cost of his performance as provisions (a) and (b) give the General Contractor against the Awarding Authority, but nothing in provisions (a) and (b) shall in any way change, modify or alter any other rights which the General Contractor or the Subcontractor may have against each other.

(a) 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 (15) 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 (20) days before the General Contractor notified the Awarding Authority in writing of the act or failure to act involved in the claim.

# 1.1.7 CHAP. 30 MGL SECTION 39P

Contracts for construction and materials; awarding authority's decisions on interpretation of specifications, etc.; time limit; notice

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, or 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 be made promptly and, in any event, no later than thirty (30) 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 (30) 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 (30) day period and the date by which the decision will be made.

1.1.8(a) CHAP. 30 MGL SECTION 39R

Definitions; contract provisions; management and financial statements; enforcement

(a) The words defined herein shall have the meaning stated below whenever they appear in this section:

"Contractor" means any person, corporation, partnership, joint venture, sole proprietorship, or other entity awarded a contract pursuant to sections thirty-eight A 1/2 to thirty-eight O, inclusive, of chapter seven and any contract awarded or executed pursuant to section eleven C of chapter twenty-five A, section thirty-nine M of chapter thirty, or sections forty-four A to forty-four H, inclusive of chapter one hundred and forty-nine which is for an amount or estimated amount greater than one hundred thousand dollars (\$100,000.00).

"Contract" means any contract awarded or executed pursuant to sections thirty-eight A 1/2 to thirty-eight O, inclusive, of chapter seven and any contract awarded or executed pursuant to section eleven C of chapter twenty-five A, section thirty-nine M of chapter thirty, or sections forty-four A through forty-four H, inclusive of chapter one hundred and forty-nine, which is for amount or estimated amount greater than one hundred thousand dollars (\$100,000.00).

(3) "Records" means books of original entry, accounts, checks, bank statements and all other banking documents, correspondence, memoranda, invoices, computer printouts, tapes, discs, papers and other documents or transcribed information of any type, whether expressed in ordinary or machine language.

(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 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 principles and auditing standards for the purpose of expressing a certified opinion thereon, or, in the alternative, a qualified opinion or a declination to express an opinion for stated reasons.

(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 has made and sets forth his 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 therefor shall be stated. An accountant's report shall include as a 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 persons 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 principles and auditing standards.

(b) Subsection (a)(2) hereof notwithstanding, every agreement or contract awarded or executed pursuant to sections thirty-eight A 1/2 to thirty-eight O, inclusive, of chapter seven, or eleven C of chapter twenty-five A, 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 (6) 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 (6) years after final payment, the office of 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

(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 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

(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 with the Awarding Authority 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:

(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 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 accountant's report. Such statements shall be made available to the Awarding Authority upon request.

(e) The Office of Inspector General, the Commissioner of Capital Asset Management and Maintenance and any other Awarding Authority shall enforce the provisions of this section. The Commissioner of Capital Asset Management and Maintenance 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 the 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).

# 1.1.9 CHAP. 149 MGL SECTION 25

Lodging, board and trade of public employees; statute part of employment contract

Every employee in public works 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 therefor, 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.

# 1.1.10 CHAP. 149 MGL SECTION 26

Public works; preference to veterans and citizens; wages

In the employment of mechanics and apprentices, teamsters, chauffeurs and laborers in the construction of public works by the commonwealth, or by a county, town, authority 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 (6) months at the commencement of their employment who are veterans as defined in clause Forty-third of section 7 of chapter 4 and who are qualified to perform the work to which the employment relates and, within such preference, preference shall be given to service-disabled veterans; and secondly, to citizens of the commonwealth generally who have been residents of the commonwealth for at least six (6) 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. Each county, town or district in the construction of public works, or persons contracting or subcontracting for such works, shall give preference to veterans and citizens who are residents of such county, town, authority or district and, within such preference, preference shall be given to servicedisabled veterans. The rate per hour of the wages paid to said mechanics and apprentices, teamsters, chauffeurs and laborers in the construction of public works shall not be less than the rate or rates of wages to be determined by the commissioner as hereinafter provided; provided, that the wages paid to laborers employed on said works shall not be less than those paid to laborers in the municipal service of the town or towns where said works are being constructed; provided, further, that where the same public work is to be constructed in two (2) or more towns, the wages paid to laborers shall not be less than those paid to laborers in the municipal service of the town paying the highest rate; provided, further, that if, in any of the towns where the works are to be constructed, a wage rate or wage rates have been established in

certain trades and occupations by collective agreements or understandings in the private construction industry between organized labor and employers, the rate or rates to be paid on said works shall not be less than the rates so established; provided further, that in towns where no such rate or rates have been so established, the wages paid to mechanics, teamsters, chauffeurs and laborers on public works, shall not be less than the wages paid to the employees in the same trades and occupations by private employers engaged in the construction industry. This section shall also apply to regular employees of the commonwealth or of a county, town, authority or district, when such employees are employed in the construction, addition to or alteration of public buildings for which special appropriations of more than one thousand dollars (\$1,000.00) are provided. Payments by employers to health and welfare plans, pension plans and supplementary unemployment benefit plans under collective bargaining agreements or understandings between organized labor and employers shall be included for the purpose of establishing minimum wage rates as herein provided.

Permanent and temporary laborers employed by the state department of highways and by the metropolitan district commission shall receive such salary or compensation as may be fixed under and in accordance with sections forty-five to fifty inclusive of chapter thirty.

### 1.1.11 CHAP. 149 MGL SECTION 34

Public contracts; stipulation as to hours and days of work; void contracts

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 within the Commonwealth, in the employ of the Contractor, Subcontractor or other person doing or contracting to do the whole or a part of the work contemplated by the contract, shall be required or permitted to work more than eight (8) hours in any one day or more than forty eight (48) hours in any one (1) week, or more than six (6) days in any one (1) 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 (8) hours in any one day, except as aforesaid; provided, that in contracts entered into by the Department of Highways for the construction or reconstruction of highways there may be inserted in said stipulation a provision that said Department, or any Contractor or Subcontractor for said Department, may employ laborers, workmen, mechanics, foremen and inspectors for more than eight (8) hours in any one (1) day in such construction or reconstruction when, in the opinion of the Commissioner, public necessity so requires. Every such contract not containing the aforesaid stipulation shall be null and void.

### 1.1.12 CHAP. 149 MGL SECTION 34A

Contracts for public works; workers' compensation insurance; breach of contract; enforcement and violation of statute

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 (15) 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. An affidavit of any officer, agent or employee of the insurer or of the insured, as the case may be, duly authorized for the purpose, that he has so sent such notice addressed as aforesaid shall be prima facie evidence of the sending thereof as aforesaid. This section shall apply to the legal representative, trustee in bankruptcy, receiver, assignee, trustee and the successor in interest of any such Contractor. The superior court shall have jurisdiction in equity to enforce this section.

Whoever violates any provision of this section shall be punished by a fine of not more than one hundred dollars (\$100.00) or by imprisonment for six 6) months, or both; and, in addition, any Contractor who violates any provision of this section shall be prohibited from contracting, directly or indirectly, with the Commonwealth or any political subdivision thereof, for the construction, alteration, demolition, maintenance or repair of, or addition to, any public works or public building for a period of two years from the date of conviction of said violation.

# 1.1.13 CHAP. 149 MGL SECTION 34B

Contracts for public works; wages for reserve police officer

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 in such City or Town.

1.1.14 CHAP.149 MGL SECTION 44A

Section forty-four A. (1) The words defined in this section shall have the meaning set forth below whenever they appear in sections forty-four A through forty-four H, inclusive, of this chapter unless indicated otherwise or unless the context in which they are used clearly requires a different meaning.

"Commissioner", means the commissioner of the division of capital asset management and maintenance or his designee.

"Public Agency" means a department, agency, board, commission, authority, or other instrumentality of the commonwealth or political subdivision of the commonwealth, or two or more subdivisions thereof but not including the Massachusetts Bay Transportation Authority;

"Responsible" means demonstrably possessing the skill, ability and integrity necessary to faithfully perform the work called for by a particular contract, based upon a determination of competent workmanship and financial soundness in accordance with the provisions of section forty-four D of this chapter;

"Eligible" means able to meet all requirements for bidders or offerors set forth in sections fortyfour A through forty-four H of this chapter and not debarred from bidding under section forty-four C of this chapter or any other applicable law, and who shall certify that he is able to furnish labor that can work in harmony with all other elements of labor employed or to be employed on the work.

"Modular Building", a pre-designed building or units of a pre-designed building assembled and equipped with internal plumbing, electrical or similar systems prior to movement to the site where such units are attached to each other and such building is affixed to a foundation and connected to external utilities; or any portable structure with walls, a floor, and a roof, designed or used for the shelter of persons or property, transportable in one or more sections and affixed to a foundation and connected to external utilities.

"Procurement", buying, purchasing, or otherwise acquiring and installing a modular building, and all functions that pertain to the acquisition and installation of a modular building, including description of requirements, selection and solicitation of sources, preparation and award of contract, and all phases of contract administration.

"Proprietary environmental technology systems", systems, in the Town of Natick, including solid waste related equipment, supporting structures, and buildings, designed, manufactured, and produced under exclusive individual right to sell such product, pertaining to solid waste related environmental protection or remediation. Such systems shall include, but not be limited to, sequential, turnkey, construction management, design/build procurement, and the phasing of such procurement, including approval of design and construction stages as separate or combined phases.

(2)(A) (A) Every contract or procurement for the construction, reconstruction, installation, demolition, maintenance or repair of a building by a public agency estimated to cost less than \$10,000 shall be obtained through the exercise of sound business practices as defined in section 2 of chapter 30B. The public agency shall make and keep a record of each procurement that, at a minimum, shall include the name and address of the person from whom the services were procured. A public agency that utilizes a vendor on a statewide contract procured through the operational services division of the commonwealth, or a blanket contract procured by the public agency pursuant to this subsection, shall be deemed to have obtained the contract through sound business practices.

(B) Every contract for the construction, reconstruction, installation, demolition, maintenance or repair of any building estimated to cost not less than \$10,000 but not more than \$50,000 shall be awarded to the responsible person offering to perform the contract at the lowest price. The public agency shall make public notification of the contract and shall seek written responses from no fewer than 3 persons who customarily perform such work. The solicitation shall include a scope-of-work statement that defines the work to be performed and provides potential responders with sufficient information regarding the objectives and requirements of the public agency and the time period within which the work shall be completed. The public agency shall record the names and addresses of all persons from whom written responses were sought, the names of the persons submitting written responses and the date and amount of each written response. A public agency may utilize a vendor list established through a statewide contract procured through the operational services division to identify 1 or more of the persons from whom it will seek written responses for purposes of this paragraph. A public agency may also procure a blanket contract to establish a listing of vendors in certain defined categories of work that are under contract to provide services for multiple individual tasks of not more than \$50,000 each, and from whom written responses will be sought. Any such blanket contract procured by the awarding authority shall be procured pursuant to either section 39M of chapter 30 or sections 44A to 44J, inclusive, of chapter 149 which are applicable to projects over \$50,000. For purposes of this paragraph, the term "public notification" shall include, but not be limited to, posting at least 2 weeks before the time specified in the notification for the receipt of responses, the contract and scope-of-work statement: (1) on the website of the public agency,

(2) on the COMMBUYS system administered by the operational services division, (3) in the central register published pursuant to section 20A of chapter 9 and (4) in a conspicuous place in or near the primary office of the public agency; provided, however, that if the public agency obtains a minimum of 2 written responses from a vendor list established through a blanket contract or a statewide contract procured through the operational services division, and the lowest of those written responses is deemed acceptable to the public agency, public notification is not required.

(C) Every contract for the construction, reconstruction, installation, demolition, maintenance or repair of any building by a public agency estimated to cost more than \$50,000 but not more than \$150,000, except for a pumping station to be constructed as an integral part of a sewer construction or water construction project bid under the provisions of section 39M of chapter 30, shall be awarded to the lowest responsible and eligible bidder on the basis of competitive bids publicly opened and read in accordance with the procedure set forth in said section 39M of said chapter 30. The term "pumping station" as used in this section shall mean a building or other structure which houses solely pumps and appurtenant electrical and plumbing fixtures.

(D) Every contract for the construction, reconstruction, installation, demolition, maintenance or repair of any building by a public agency estimated to cost more than \$150,000, except for a pumping station to be constructed as an integral part of a sewer construction or water construction project bid under the provisions of section 39M of chapter 30, shall be awarded to the lowest responsible and eligible general bidder on the basis of competitive bids in accordance with the procedure set forth in section 44A to 44H, inclusive.

(E) When the general court has approved the use of an alternative mode of procurement of construction for a project pursuant to section seven E of chapter twenty-nine, the awarding authority responsible for procuring construction services for the project shall follow the policies and procedures of this section and of section forty-four B to 44H, inclusive, to the extent compatible with the mode of construction procurement selected.

(F) Notwithstanding paragraph (E), a public agency may undertake the procurement of modular buildings, in accordance with section forty-four E. A public agency may procure site work for modular buildings, including but not limited to, construction of foundations, installations, and attachment to external utilities, or any portion of site work, either in combination with the procurement of modular buildings pursuant to section 44E or on the basis of competitive bids pursuant to the paragraph (E). Notwithstanding the paragraph (E), a public agency may procure energy management services in accordance with section eleven C of chapter twenty-five A and regulations promulgated thereunder.

(3) The award of every such contract in connection with which approval by an officer, board or agency of the federal government is required shall be made within thirty days, Saturdays, Sundays and legal holidays excluded, after such approval; and the award of every contract subject to this section in connection with which approval by an officer, board or agency of the federal government is not required shall be made within thirty days, Saturdays, Sundays, Sundays and legal holidays excluded, after the opening of the bids therefor. If the bidder selected as the general contractor fails to perform his agreement to execute a contract in accordance with the terms of his bid and furnish a performance bond and also a labor and materials or payment bond as stated in his bid in accordance with section forty-four E, an award shall be made to the next lowest responsible and eligible bidder, subject to the provisions of sections forty-four A to forty-four H, inclusive, of this chapter. The thirty-day time limit shall not be applicable to a second or subsequent award made after expiration of the time limit with the consent of said next lowest responsible

and eligible bidder, and made because the original award made within the time limit was invalid, or because the bidder failed to execute the contract or to provide a performance bond and labor and materials or payment bond.

(4) In cases of extreme emergency, the awarding authority may, with the prior approval of the commissioner, award a contract for that portion of the work necessary to preserve the health or safety of persons or property or to alleviate an imminent security threat on the basis of such competitive bids or proposals as it can obtain in time to care for the extreme emergency and without public opening of the bids or proposals. Where the nature of the emergency prevents the awarding authority from obtaining the prior approval of the commissioner, the awarding authority may contract for the necessary work without said prior approval; provided, however, that the approval of the commissioner shall still be sought at the earliest possible time; and provided, further, that if the commissioner at that time fails to approve the emergency determination the awarding authority shall promptly cease all work for which the emergency determination was denied. In such cases, the contractor shall be entitled to payment for the fair value of the labor and materials furnished prior to cessation of the work.

The commissioner shall maintain a record of all contracts awarded pursuant to this subsection, containing a description of the circumstances and the reasons for the commissioner's determination.

(5) (a) Notwithstanding the provisions of this section or any other general or special law to the contrary, a municipality may enter into a contract for proprietary environmental technology systems as defined in subsection (1) of this section without said contract being subject to the competitive bid process as set forth in sections thirty-eight A1/2 to thirty-eight O, inclusive, of chapter seven; this section and sections forty-four B to forty-four H, inclusive, of this chapter, and section thirty-nine M of chapter thirty; provided that the awarding authority meets the conditions set forth and receives the approvals required in paragraph (b) of this subsection.

(b) Prior to the issuance of any request for proposal with respect to the awarding of any contract pursuant to the provisions of paragraph (a) of this subsection, the awarding authority shall meet or obtain each of the following conditions or required approvals: (1) the municipality shall appoint qualified persons to conduct a thorough review of all available environmental technology, including both proprietary and non-proprietary environmental technology, and if the conclusion of this review is that a contract for proprietary environmental technology systems is in the public interest, such conclusion shall be supported by sound documented reasons in writing available for public inspection; (2) the city council, the board of selectmen, or the town meeting shall take a majority vote finding that it is in the public interest to enter into a contract for proprietary environmental technology systems, as defined in subsection (1) of this section, providing such vote is supported by the conclusion of the review conducted pursuant to condition (1); (3) both the attorney general and the commissioner of the department of environmental protection shall grant written approval; (4) said contract shall be subject to any limitation in the waiver of sections thirty-eight A1/2 to thirty-eight O, inclusive, of chapter seven, sections forty-four A to forty-four H of chapter one hundred and forty-nine, and section thirty-nine M of chapter thirty imposed by either the attorney general or the commissioner of the department of environmental protection as a condition for a grant of approval by said officers; and (5) every proprietary environmental technology systems contract shall be as compatible with sections thirty-eight A to thirty-eight O, inclusive, of chapter seven, sections forty-four A to forty-four H of chapter one hundred and forty-nine, and section thirty-nine M of chapter thirty as is feasible for the procurement of the proprietary environmental technology systems chosen.

(G) Every contract by a state agency or state assisted contract for design, construction, reconstruction, installation, demolition, maintenance or repair shall set forth the participation goals of

minority and women workers to be employed on each such contract and the processes and procedures to ensure compliance with those workforce participation goals, including reporting and enforcement provisions.

# 1.1.15 CHAP.149 MGL SECTION 44G(D)

(D) Every contract subject to section forty-four A shall include specifications for the installation of weather protection and shall require that the contractor shall install the same and that he shall furnish adequate heat in the area so protected during the months of November through March. Standards for such specifications shall be established by the commissioner or his designee.

# INSURANCE CERTIFICATION FORM

This form is to be completed by an authorized representative of each insurance company providing coverages, to verify that contract insurance requirements are provided.

CONTRACT PARAGRAPH NUMBER	DESCRIPTIO I OF COVERA		POLICY NUMBER	LIMITS	LIMIT EXTENDED BY UMBRELLA
	7	WORKMAN'S COM (Contractor as 1			
SC 5.4	Workman's Compens	sation	<u>#</u>	\$	
SC 5.4	Employer's Liability		<u>#</u>		
	<ul><li>a. Each Acciden</li><li>b. Disease Poli</li><li>c. Disease Each</li></ul>	cy Limit		<u>\$</u> \$	
		MMERCIAL GENE			red)
SC 5.4	General Liability		<u>#</u>		
	a. General Aggr	egate		\$	

a.	Gen	eral Aggregate	<u>\$</u>	
b. Each		1 Occurrence	<u>\$</u>	
	1.	Premises/Operations	\$	
	2.	Products/Completed Operation	\$	
	3. Contractual		\$	
	4.	Independent Contractors	\$	
	5.	Broad Form Property Damage	\$	
	6.	Personal Injury	\$	
	7. Medical Expense		\$	
	8.	XCU	<u>\$</u>	

#### AUTOMOTIVE LIABILITY

(Contractor as Named Insured)

a.	Combined Single Limit		<u>#</u>	\$ 
	1.	Scheduled Autos		\$ 
	2.	Hired Autos		\$ 
	3.	Non Owned Autos		\$

## INSURANCE CERTIFICATION FORM (Continued)

CONTRACT PARAGRAPH NUMBER		DESCRIPTION OF COVERAGE	COMPANY LETTER	POLICY NUMBER	LIMITS	LIMIT EXTENDED BY UMBRELLA
	(Cont	EXCES ractor as Named Insu	SS UMBRELLA			Insured)
	a. b.	General Aggregate Each Occurrence		<u>#</u> <u>#</u>	<u>\$</u>	
	(Cont	INS ractor as Named Insu	TALLATION F ared, Owner and		Additional l	Insured)
1	a. b. c.	General Aggregate Each Occurrence Installation Floater		<u>#</u> #	<u>\$</u> \$ \$	
		E	BUILDER'S ALI		A 11'-' 11	

(Contractor as Named Insured, Owner and Engineer as Additional Insured)

a.	General Aggregate	 #	\$ 
b.	Each Occurrence	 <u>#</u>	\$ 
c.	All Risk	 <u>#</u>	\$ 

# OWNER'S PROTECTIVE LIABILITY

(Owner and Engineer as Named Insured)

a.	General Aggregate	 <u>#</u>	\$	
b.	Each Occurrence	 #	<u>\$</u>	

I hereby certify that the information contain herein is accurate to the best of knowledge.

# SIGNATURE

### PRINTED NAME

DATE

PRINTED TITLE

# TOWN OF NATICK, MASSACHUSETTS BOARD OF SELECTMEN

#### CONTRACT NO. W-151

### SOUTH MAIN STREET WATER MAIN CLEANING AND LINING

### CHANGE ORDER FORM

Town Accountant	Date
Certification of Appropriation under M.G.L. c.44, §31C: Adequate funding in cover the total cost of this Change Order is available.	the amount sufficient to
Owner	Date
Contractor	Date
The undersigned agree to the terms of the Change Order.	
This Change Order prepared by Engineer	
This Change Order prepared by	
This Change Order requested by	<u>.</u>
This Change Order checked by Engineer	Date
The extended completion date is	
This Change Order changes the time of completion by calendar Days.	
Total Adjusted Contract Price	\$
This Change Order # Increase/Decrease	\$
Present Contract Price	\$ \$
Original Contract Price Previous Change Orders #	\$ ¢

Change Order Form (continued)

Public Entity	
Project Number	Contract Number:
Change Order Number:	
Contract Title:	
Contractor's Address:	

Description of Change

Reason for Change

Example Calculation Sheet

# (1) Labor

Operator 10 hrs @	35.00/hr.	\$ 450.00 350.00 400.00 672.00	\$ 1,872.00
<ul> <li>(2) Direct Labor Cost (use the agreed Direct Labor Cost)</li> <li>*(30) % of \$1,872</li> <li>*(used for example purport)</li> </ul>	-		561.60
1	5.00/1.f. 500.00 losed)	\$2,250.00 110.00	4,860.00
<ul> <li>(4) Equipment</li> <li>1 Backhoe 10 hrs @ \$14</li> <li>1 Truck crane 10 hrs @ \$</li> </ul>		\$1,400.00 1,800.00	- 3,200.00
Total items 1 thro	ugh 4)		\$ 10,493.60
(5) 15% markup for Overhead, Profi	t		
15% of \$10,493.60			\$ 1,574.04
(6) 5% markup for General Contract (if Subcontractor is involved)			
5% of \$10,493.60			524.68
(7) Credits deductible			- 323.00
		Total Cost	\$ 12,269.32

Reminder: Provide support documentation as necessary i.e. vouchers, correspondence, calculations, Blue Book equipment rental rate printouts, photographs, reports, etc.

# INDEX

# **DIVISION 1 - GENERAL REQUIREMENTS**

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# SECTION 01010

# SUMMARY OF THE WORK

# PART 1 - GENERAL

# 1.1 DESCRIPTION

# A. Work included:

- 1. The Work of this Contract is located in the Town of Natick, MA, at locations on West Central Street, Commonwealth Road (Route 30), Frost Street and North Main Street (Route 27).
- 2. The Work on West Central Street includes the replacement of a six-inch (6") diameter cast iron water main with a new eight-inch (8") and ten-inch (10") diameter ductile iron water mains. In order to minimize impact on the vehicle traffic and to minimize the amount of concrete road sub-base cutting and removal, the Owner has selected the pipe bursting process for a majority of the water main replacement, where shown on the drawings. The remaining replacement, where identified, will be completed through open cut excavation. The total length of six-inch (6") diameter main replacement is approximately four thousand four hundred seventy (4,470) linear feet.
  - a. West Central work also includes replacing approximately one hundred twenty (120) linear feet of one-inch (1") diameter water main with a new eight-inch (8") diameter ductile iron water main.
  - b. The pipe bursting sections of the work require the existing six-inch (6") pipe to be dewatered, cleaned if necessary and inspected with a television camera system design for the application to locate potential bends or unknown gate valves that might cause issues with the process.
  - c. West Central work also includes replacement of one-inch (1"), six-inch (6") and eight-inch (8") diameter water services.
  - d. Work also includes installation and maintenance and removal of temporary water mains as required by the new water main installation.
  - e. Work also includes the abandonment of a ten-inch (10") diameter water main.
  - f. Work also includes furnish and installing hydrant branches where shown on the Contract Documents.
  - g. Pavement restoration consists of pit paving and trench paving. See specifications and drawings for required depths and type.
  - h. Contractor shall also furnish hydrants, delivered to the Owner's Department of Public Works building for future use.
- 3. The Work on Commonwealth Road (Route 30) & Frost Street includes installation of approximately one thousand seven hundred (1,700) linear feet of eight-inch (8") diameter ductile iron water main through a combination of open cut excavation and sliplining process.

- The pipe sliplining segment, from STA 1,100 to STA 1,440, involves cleaning and tv'ing the existing 18" diameter steel sleeve under the Mass. Turnpike (Route 90), and pushing a ductile iron water main through the sleeve.
- 4. The Work on North Main Street (Route 27) includes the replacement of a 10" diameter cast iron sewer forcemain with a new twelve-inch (12") diameter ductile iron forcemain. In order to minimize impact on the vehicle traffic, the Owner has selected pipe bursting and sliplining process for portions of the forcemain replacement, where shown on the drawings. The remaining replacement, where identified, will be completed through open cut excavation. The total length of teninch (10") diameter main replacement is approximately one thousand six hundred seventy-five (1,675) linear feet.
  - a. Work also includes installation and maintenance and removal of temporary forcemain by-pass system as required by the new water main installation.
  - b. Work includes the cutting and removal of an abandoned twenty inch (20") cast iron water main to facilitate the open cut installation. In addition, the abandoned twenty inch (20") cast iron water main under Worcester Road (Route 9) will be utilized as sleeve for the installation of the new twelve (12)-inch ductile iron forcemain, approximately one hundred twenty (120) linear feet. The twenty inch (20") cast iron water main must be dewatered and cleaned to remove potential sludge that may impact the siplining process. The use of the abandoned water main will require the cutting and installation of twenty inch (20") diameter MJ caps at the North Main and Bacon Street intersection.
  - c. Work also includes the replacement of an existing 1 ¹/₂" water service on Route 27. The existing service is connected to the twenty-inch (20") water main, which will be abandoned under this project. The new service will connect to the existing twelve inch (12") diameter water main and will include corporation and curb stops installation.
- B. Traffic Management Plan
  - 1. A majority of the work is located within high volume vehicle traveled roadways, Route 135 (West Central Street), Route 30 (Commonwealth Road) and Route 27 (North Main Street). In addition sections of the work in North Main Street is within a section of the MassHighway system.
  - 2. Included in with the specifications and drawings are minimum requirements for traffic control devices, with assumptions as to how the work will be completed. Actual work logistics completed by the Contractor that may require alternative signage as required by the Owner, Police Departmental the MassDOT shall be implemented by the Contractor.

# END OF SECTION

# SECTION 01015

# PRICE ADJUSTMENTS FOR SPECIFIC MATERIALS

### PART 1 - GENERAL

### 1.1 DESCRIPTION

- A. In accordance with the requirements of Chapter 30, Section 38A of the General Laws of Massachusetts municipal contracts for water and sewer projects bid under Chapter 30 Section 39M shall include a price adjustment clause for each of the following: fuel, both diesel and gasoline; liquid asphalt; and Portland cement contained in cast-in-place concrete.
  - 1. Payment or Credit shall be applied to the monthly Application for Partial Payment and Application for Final Payment.
  - 2. Compliance with this provision is required; there is no "opting-in" or "opting-out"
  - 3. Price adjustments will only be made if the variance is 5% or more. A variance can result in the Period Price being either higher or lower than the Contractor's Price. Once a 5% difference has been reached, the adjustment will apply.
  - 4. No adjustment will be paid for work done beyond the extended completion date of any contract unless the Awarding Authority has approved an extension of Contract Time for the Contract.
  - 5. Should the Contractor fail to submit delivery documentation as specified in this section, the Owner may calculate the price adjustment using alternative methods and include a credit for the Owners additional expense of estimating these values.
- B. This Contract is subject to Price Adjustments based on cost increases and cost decreases for <u>diesel fuel</u> per gallon and <u>gasoline</u> is per gallon. Price Adjustments shall be based on monthly price listings as provided by AAA's Daily Fuel Gauge Report <u>http://fuelgaugereport.aaa.com</u>, Massachusetts Average, for diesel fuel and regular grade gasoline.
- C. This Contract is subject to Price Adjustments based on cost increases and cost decreases for <u>liquid asphalt</u>, per ton. **Price Adjustments** shall be based on monthly price listings as provided by ENR Engineering News Record, Construction Economics <u>http://enr.construction.com/economics/current_costs</u>, Material Price Index, Boston, for Asphalt, Paving PG58
- D. This Contract is subject to Price Adjustments based on cost increases and cost decreases for <u>Portland cement</u>, per ton. **Price Adjustments** shall be based on monthly price listings as provided by ENR Engineering News Record, Construction Economics <u>http://enr.construction.com/economics/current_costs</u>, Material Price Index, Boston for Portland cement.

# 1.2 SPECIAL PROVISIONS

- A. MONTHLY PRICE ADJUSTMENT FOR DIESEL FUEL AND GASOLINE: This adjustment will provide for either additional compensation to the Contractor or repayment to the Owner, depending on an increase or decrease in the average price of diesel or gasoline. This adjustment will be based on actual on-site fuel utilized during the Contract.
  - 1. <u>Base Price</u>: Base Price of diesel fuel is \$2.981 and regular unleaded gasoline is \$2.574 shall be utilizing the AAA Daily Fuel Gauge Report web site, which includes State Tax.
  - 2. <u>Period Price:</u> Period Price will be the prices listed on AAA website on the first business day of a given month.
  - 3. <u>Total Gallons</u> will be the actual substantiated monthly quantity of fuel used for onsite equipment during the work period from start through the extended time of completion date, reported on a monthly basis.
  - 4. <u>The Price Adjustment</u> will be determined by calculating the price difference between the Base Price (remains constant) and the Period Price (varies monthly), and if that increase or decrease is greater than 5% for that period, the gallons verified for on-site use that period multiplied by the cost difference between the Base Price and the Period Price for that period.
  - 5. It shall be the Contractor's responsibility to provide a summary with backup receipts at the end of each month, which are to include date of purchase, gallons of fuel, type of fuel and company from which the fuel was purchased.

Example Calculation – Diesel Fuel

Base Price	Period Price	Difference	% Change	Change $\geq 5\%$
<u>AAA</u>	<u>AAA</u>	Per Gallon	<u>+ Or -</u>	
\$3.50	\$3.75	+ \$0.25	7%	Yes

Contractor's Substantiated Monthly Adjustment

Total	Difference	Price
Gallons	Per Gallon	Adjustment
1000	+ \$0.25	+ \$250.00

- B. MONTHLY PRICE ADJUSTMENT FOR ASPHALT CEMENT: The Price Adjustment applies only to the actual virgin liquid asphalt content in the mixture placed on the project.
  - 1. <u>Base Price</u>: Base Price of liquid asphalt is \$+396.42 per ton utilizing the ENR Material Price Index.
  - 2. <u>Period Price:</u> Period Price of liquid asphalt will be referenced to the first report of the month listed on the ENR website for a given month.
  - 3. <u>Total Tons</u> will be derived from the actual substantiated tonnage slips for the month(s) material is delivered.

- 4. <u>The Price Adjustment</u> will be determined by multiplying the price difference between the Base Price (remains constant) and the Period Price (varies monthly) times the number of tons of asphaltic paving placed during each monthly period times the percentage of liquid asphalt content. The calculations will use the midpoint of the specified content range for liquid asphalt (bitumen) content specified by the contract documents for the material delivered.
- 5. It shall be the Contractor's responsibility to provide a summary with backup tonnage slips at the end of each month, which are to include date of purchase, type of asphaltic paving and company from which the mixture was purchased.

Example Calculation – Asphalt Cement

Base Price	Period Price	Difference	% Change	Change $\geq 5\%$
<u>ENR</u>	ENR	<u>Per Ton</u>	<u>+ Or -</u>	
\$415.71	\$392.18	- \$23.53	5.6%	Yes

Contractor's Substantiated Monthly Adjustment

1000 tons of binder course mix at 4.5 to 5.5% liquid asphalt (bitumen) content

Total Tons	Asphalt Content	Total Tons	Difference Per Ton	Price Adjustment
Mix	%	Asphalt		
1000	5%	50	- \$23.53	- \$1,176.50

- C. MONTHLY PRICE ADJUSTMENT FOR PORTLAND CEMENT: The Price Adjustment applies only to the actual Portland cement content in the mixture placed on the project.
  - 1. <u>Base Price</u>: Base Price of Portland cement is \$122.89 per ton utilizing the ENR Material Price Index.
  - 2. <u>Period Price:</u> Period Price of Portland cement will be referenced to the first report of the month on the ENR website for a given month.
  - 3. <u>Total Tons</u> will be derived from the actual substantiated cubic yardage or tonnage slips for the month(s) material is delivered.
  - 4. <u>The Price Adjustment</u> will be a separate payment item and will be determined by multiplying the price difference between the Base Price (remains constant) and the Period Price (varies monthly) times the number of cubic yards of concrete mix delivered during each monthly period times the Portland cement content in tons per cubic yard. The calculations will use the minimum Portland cement content specified by the contract documents for the material delivered.
  - 5. It shall be the Contractor's responsibility to provide a summary with backup delivery slips at the end of each month, which are to include date of purchase, type of concrete mix and company from which the concrete was purchased. Site mixed concrete shall be based upon the weight of the dry product delivered and used, adjusted to Portland cement content if necessary.

## Example Calculation – Portland Cement

Base Price	Period Price	Difference	% Change	Change
<u>ENR</u>	ENR	<u>Per Ton</u>	<u>+ Or -</u>	> <u>5%</u>
\$95.50	\$110.00	+ \$14.50	15.2%	Yes

Contractor's Substantiated Monthly Adjustment

100 cubic yards of Class A concrete mix at 0.26 tons (520 pounds) of Portland cement per cubic yard

Total Mix CY	Cement Content tons/CY	Total Tons Cement	Difference Per Ton	Price Adjustment
100	.26	26	+ \$14.50	+ \$377

## END OF SECTION

#### SECTION 01025

## MEASUREMENT AND PAYMENT

## PART 1 - GENERAL

#### 1.01 DESCRIPTION

- A. Purpose: The purpose of this section is to define the method of measurement and payment for each of the unit prices or lump sums listed in the Bid.
  - 1. The Contractor shall thoroughly review the work required for each payment item.
  - 2. The Contractor shall have included in his various bid items an amount to cover costs for additional work which may be necessary to construct in close proximity to Underground Facilities, services, poles, and other facilities which may exist. The discovery of an Underground Facility not shown on Contract Drawings during construction shall not constitute automatic initiation of a Change Order, and the additional work required to cross or pass this Underground Facility must be substantial, in the opinion of the Owner/Engineer for consideration for additional payment.
- B. Related Work:
  - 1. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division 1 thru Division 3 of these Specifications.

## 1.02 PAYMENT LIMITS

A. Trench Payment Limits

The measurements for trench payment limits shall be used for the volume of material used to refill trenches, computing excavation below grade, and pavement quantities.

- 1. Classification of Excavation:
  - i. All excavation will be classified as either earth or rock. Rock excavation shall be igneous, sedimentary, metamorphic, and conglomerate rock, which must be drilled and blasted, broken, or ripped by an excavator, boulders one (1) cubic yard or more in volume, as defined in 02227, and concrete masonry or stone masonry. All other materials encountered in the excavations will be classified as earth.
- 2. Lines of Excavation:
  - i. All excavation shall be made in such a manner and to such widths as will give ample room for properly installing, building and inspecting pipelines and structures they are to contain.
  - ii. The width of trenches shall be sufficient to allow thorough compacting of the refill adjacent to the lower quarters of the pipe or structures. At pipe joints, such additional width and depth shall be excavated as necessary to give ample room for properly making and inspecting the pipe joints. Trench

width at the level of the top of the pipe shall be kept as narrow as practicable for the proper execution of pipe laying and backfill.

- iii. Trench width payment limits in earth and rock trenches containing one pipe shall be measured within vertical lines, to the actual width excavated, but shall not exceed a width of four (4) feet for 6" diameter pipe and five (5') feet for 8" diameter and larger pipe. Boulders excavated within the width limits for rock trenches will be paid for at the total volume removed, under the Rock and Boulder Removal item, but only if larger than 1 cubic yard.
- iv. The above specified trench limits shall be used for computing the volume of the purchased material if necessary, to refill trenches from grade to the bottom of roadway sub-base material including below grade excavation and refill, and shall be referred to as "excavation and refill payment limits" hereinafter in this Contract. Any excavation or refilling beyond these limits made necessary by the Contractor's method of construction shall not be eligible for payment. If additional width beyond above specified limits, or below grade excavation is ordered by the Engineer, the width ordered will be considered for payment, as will the refill material.
- v. Earth excavation for pipeline trenches from the existing ground surface to grade shall not be paid for separately, and all costs for this excavation shall be included in the unit prices paid for the various pipe items.
- vi. The maximum payment width limits for gravel sub-base in the trench area shall be as follows:

#### GRAVEL SUB-BASE LIMITS

PIPE DEPTH	6" and Smaller Pipe	8",10" & 12" Pipe
	WIDTH LIMITS	WIDTH LIMITS
0-8 feet	5.5 feet	6.5 feet
8-12 feet	6.5 feet	7.5 feet
>12 feet	7.5 feet	8.5 feet

- B. Pavement Payment Limits
  - 1. Payment to be measured as written under the appropriate pavement item.
    - i. A 5% service factor shall be allowed if a comparison between measurements and delivery slips indicate that additional material was placed. If a comparison between delivery slips and measurements indicate less material was placed, the slip quantity shall be used for payment. The Contractor shall submit to the Engineer one (1) copy of the certified weight delivery slips for all asphaltic concrete used in the Work.
  - 2. The maximum payment width limits for pavement resurfacing within existing roadway shall be as follows:

	TEMPORARY	PERMANENT
<u>PIPE DEPTH</u>	WIDTH LIMITS	WIDTH LIMITS
0-8 feet	6.5 feet	8.5 feet
8-12 feet	7.5 feet	9.5 feet
> 12 feet	8.5 feet	10.5 feet

3. Width exception: If trench pavement limits are reached and the remaining existing

pavement width on either side of trench is less than 3 feet, then the pavement width limit will be extended to the edge of the existing road pavement for each side meeting this exception. All costs for removing remaining pavement shall be included under the trench base pavement item.

#### 1.03 PAYMENT ITEMS

Payment	
Item Number	Description
1.	Mobilization
2	Excavation Below Grade
3.	Test Pits
4.	Rock and Boulder Removal
5.	Process Gravel
6.	Ordinary Borrow
7.	Select Borrow
8.	Cast-in-Place Concrete Sidewalk
9.	Temporary Trench Paving
10.	Temporary Pit Paving
11.	Permanent Trench Resurfacing
12.	Permanent Pit Paving
13.	Dust Control
14.	Bituminous Berm/Curb
15.	Granite Curb
16.	Bituminous Sidewalk
17.	Loam and Seed
18.	6 and 8-Inch Gate Valves
19.	10 and 12-Inch Gate Valves
20.	Solid Sleeves
21.	Fittings
22.	Temporary Water Service
23.	Trenchless Water Services (2-inch + Smaller)
24.	Open Cut Water Services (2-inch + Smaller)
25.	Open Cut Water Services (6-inch + Larger)
26.	Small Service Valves
27.	Hydrant Assemblies (North Side)
28.	Hydrant Assemblies (South Side + Frost St)
29.	Furnishing Hydrants
30.	Bursting 6-Inch and 10-InchC.I. Pipe
31.	6-Inch Ductile Iron Pipe
32.	8-Inch and 10-Inch Ductile Iron Pipe
33.	12-Inch Ductile Iron Pipe
34.	8-Inch Slip Line Frost Street
35.	12-Inch Slip Line North Main
36.	Inspection Pits
37.	Miscellaneous Pits
38.	Environmental Controls

39.	Open Cut 10-Inch and 12-Inch Pipe
40.	Open Cut 8-Inch Water Main West Central
41.	Open Cut 8-Inch Water Main Rt. 30
42.	Forcemain & Air Release Manholes
43.	Forcemain Sewer Connection
44.	Sewer By-Pass
45.	Drain Replacement
46.	Electronic Message Boards
47.	Line Painting
48.	Traffic Management
49.	Cold Plane West Central Street

## 1.04 (ITEM 1) MOBILIZATION

- A. Measurement
  - 1. Measurement of Mobilization costs shall be on a lump sum basis with 80% at time of start of work upon providing bonds and insurance permits, approval of submittals, and for satisfactory completion of the set up at the site and storage yard, including transportation of materials and equipment, 15% at mid-point of construction upon satisfactory completion of maintenance program, and the final 5% upon satisfactory completion of the storage yard cleanup and removal of equipment.

## B. Payment

- 1. Payment for Mobilization shall be made at the lump sum price under Item No. 1 in the Agreement. The price shall be full compensation for all costs associated with Mobilization including but not limited to bonds and insurance, Contractor administration, transportation of equipment and materials to the construction site, if necessary, paying all costs associated with obtaining land for storage yard, obtaining of all permits, set up of storage yard, maintenance of same, and removal of equipment and materials upon completion of work.
- 2. It is the Contractor's responsibility for obtaining and maintaining a storage and staging area at no additional cost.
- 3. The total bid price for Mobilization shall not exceed 5% of the total remaining bid items.

## 1.05 (ITEM 2) EXCAVATION BELOW GRADE

- A. Measurement
  - 1. Measurement of Excavation Below Grade shall be taken to the lines and grades actually excavated or as ordered, and within the trench width limits specified in this Section. If the trench bottom is excavated below normal grade through error by the Contractor, or if improper dewatering disturbs the sub-grade and additional excavation in the trench is required, such removal and replacement of material will not be measured for payment.

#### B. Payment

1. Payment for Excavation Below Grade shall be made at the unit price per cubic yard

under Item No. 2 in the Agreement. The price shall be full compensation for all costs associated with Excavation Below Grade, including but not limited to labor and equipment to complete the work, excavation, shoring, bracing, plating, dewatering, removal and disposal of unsuitable material, and replacement and compaction of the refill material. Refill material, if purchased, shall be payable under the ordinary borrow item.

2. This item shall apply if unsuitable or soft bottom is found at pipe grade and not through the fault of the Contractor. It is agreed that such unsuitable foundation material is recognized as characteristic in the type of construction under this Contract and that the unit prices for Excavation Below Grade fulfill the applicable requirements of Section 39N of Chapter 30 of the Massachusetts General Laws (Ter. Edition) and will be used for reimbursement to the Contractor for such excavation.

## 1.06 (ITEM 3) TEST PITS

- A. Measurement
  - 1. Measurement for Test Pits shall be taken to the lines and grades actually excavated, as directed by the Engineer.
- B. Payment
  - 1. Payment for Test Pits shall be made at the unit price per cubic yard under Item No. 3 in the Agreement. The price shall be full compensation for all costs associated with Test Pits, including but not limited to test pit excavation by machine or hand, pavement cutting, dewatering, shoring, plating, backfilling and compaction of backfill, disposal of unsuitable material, as specified herein or reasonably implied. In general, the width of the test pit shall be kept at a minimum width.
  - 2. Payment for Test Pits shall be only as directed by the Owner or Engineer for locations of existing utilities.

# 1.07 (ITEM 4) ROCK AND BOULDER REMOVAL

- A. Measurement
  - 1. Rocks and Boulders encountered within the trench which can be removed and disposed of without the use of explosives shall be removed and measured on the surface in three dimensions to determine volume.
- B. Payment
  - 1. Payment for Rock and Boulder Removal shall be made at the unit price per cubic yard under Item No. 4 in the Agreement. The price shall be full compensation for all costs associated with Rock and Boulder Removal, including but not limited to rock excavation by machine or hand, without use of explosives, and disposal.
  - 2. Only Rocks and Boulders larger than one (1) cubic yard will be considered for payment under this item. Rocks and Boulders smaller than one (1) cubic yard will be classified as earth excavation and not subject to payment under this item.
  - 3. Disintegrated rock which can be removed without the use of explosives or heavy power ripping and boulders smaller in volume than one (1) cubic yard will not be considered for payment under this item, and shall be classified as earth excavation.

- 4. Broken ledge from previous blasting operations by prior contracting, removed without heavy ripping, will be considered earth excavation and all costs associated will be paid for under the various pipe item.
- 5. Reinforced concrete road sub-case on West Central Street will not be considered as rock. All costs associated with cutting , removing, hauling, and disposal of the concrete road sub-base shall be included in the applicable pipe items.

# 1.08 (ITEM 5) PROCESS GRAVEL

- A. Measurement
  - 1. Measurement for Process Gravel shall be the actual quantity placed and compacted within the trench limits specified in section 1.2 of this specification section, where ordered by the Owner. Volume shall be calculated from certified weight slips, using a weight to volume conversion factor of 2,800 lbs to 1 cubic yard.
  - 2. Contractor shall submit to the Engineer one (1) copy of the certified weight delivery slips for all Process Gravel used in the Work.
- B. Payment
  - 1. Payment for Process Gravel shall be made at the unit price per cubic yard under Item No. 5 in the Agreement. The price shall be full compensation for all costs associated with Process Gravel, including but not limited to furnishing, hauling, placing, and compacting Process Gravel, as specified herein or reasonably implied.
  - 2. No allowance will be made for loss from consolidation of material and all costs associated with re-grading or adding additional gravel for road sub-base due to trench settlement will not be eligible for payment.
  - 3. Process Gravel placed in excess of the trench limits due to Contractor's construction methods, without prior approval of the Engineer, will not be eligible for payment.

## 1.09 (ITEM 6) ORDINARY BORROW

- A. Measurement
  - 1. Measurement for Ordinary Borrow shall be the actual quantity furnished, placed, and compacted within the trench limits in Section 1.2 of this specifications section, where ordered by the Owner. Truck measurement will not be permitted.
- B. Payment
  - 1. Payment for Ordinary Borrow shall be made at the unit price per cubic yard under Item No. 6 in the Agreement. The price shall be full compensation for all costs associated with Ordinary Borrow, including but not limited to furnishing, hauling, placing, and compacting Ordinary Borrow, as specified herein or reasonably implied.
  - 2. Surplus excavated material obtained from construction sites within the limits of this Contract, used for Ordinary Borrow backfill, will not be eligible for payment. Costs for transporting, placing, and consolidating such surplus material shall be included in the unit price for installing pipe.

3. No allowance will be made for loss from consolidation of material.

# 1.10 (ITEM 7) SELECT BORROW

- A. Measurement
  - 1. Measurement for Select Borrow shall be the actual quantity furnished, placed, and compacted within the trench limits in Section 1.2 of this specifications section, where ordered by the Owner.
- B. Payment
  - 1. Payment for Select Borrow shall be made at the unit price per cubic yard under Item No. 7 in the Agreement. The price shall be full compensation for all costs associated with Select Borrow, including but not limited to furnishing, hauling, placing, and compacting Select Borrow, as specified herein or reasonably implied.
  - 2. Surplus excavated material obtained from construction sites within the limits of this Contract, used for Select Borrow backfill, will not be eligible for payment. Costs for transporting, placing, and consolidating such surplus material shall be included in the unit price for installing pipe.
  - 3. Surplus material obtained from construction sites within the limits of this Contract may be used for Select Borrow if soil and sieve analysis verifies the material will meet the specifications for Select Borrow under Section 02221, and approved by the Engineer and Owner, Further, representative soil and sieve analysis shall be repeated throughout the project when observed changes in material occur.
  - 4. No allowance will be made for loss from consolidation of material.

# 1.11 (ITEM 8) CAST-IN-PLACE CONCRETE

- A. Measurement
  - 1. Measurement for Cast-in-Place Concrete shall be the actual quantity placed and finished.

## B. Payment

- 1. Payment for Cast-in-Place Concrete shall be made at the unit price per cubic yard under Item No. 8 in the Agreement. The price shall be full compensation for all costs associated with Cast-in-Place Concrete, including but not limited to furnishing, placing, reinforcing where required, and finishing concrete, expansion joints, forms, and pipe supports.
- 2. Concrete required for sidewalk replacement shall be included for payment under this item.
- 3. Precast concrete sections for hydrant and valve support shall not be considered for payment under this item.

# 1.12 (ITEM 9 AND 10) TEMPORARY TRENCH AND PIT PAVING

- A. Measurement
  - 1. Measurement for Temporary Trench and Pit Paving shall be calculated by multiplying the actual surface area (square yards) paved, not to exceed the Pavement Payment Limits as specified under this Specification, times the

compacted depth of pavement, times a factor of 0.060 for a conversion to ton basis.

- 2. Temporary Trench Paving to be 2 inches in depth.
- 3. Contractor shall submit to the Engineer one (1) copy of the certified weight delivery slips for all asphaltic concrete used in the Work.
- B. Payment
  - 1. Payment for Temporary Trench and Pit Paving shall be made at the unit price per ton under Item No. 9 and No. 10 in the Agreement. The price shall be full compensation for all costs associated with Temporary Trench and Pit Paving, including but not limited to removal of loose asphaltic concrete, hauling and disposal, trench preparation, furnishing pavement mix, placing, grading, and compacting asphaltic concrete, and valve box and rim adjustments as needed.
  - 2. Pavement placed beyond the specified limits under Pavement Payment Limits in this Specification, without prior approval of the Owner and due to the Contractor's operations, shall not be eligible for payment.
  - 3. Additional asphalt needed for roadway patching, as requested by Owner, will be considered for payment under this item.

## 1.13 (ITEM 11 AND 12) PERMANENT TRENCH AND PIT RESURFACING

- A. Measurement
  - 1. Measurement for Permanent Trench and Pit Resurfacing shall be calculated by multiplying the actual surface area (square yards) paved, not to exceed the Pavement Payment Limits as specified under this Specification, times the compacted depth of pavement, times a factor of 0.060 for a conversion to ton basis.
  - 2. Contractor shall submit to the Engineer one (1) copy of the certified weight delivery slips for all asphaltic concrete used in the Work.
- B. Payment
  - 1. Payment for Permanent Trench and Pit Resurfacing shall be made at the unit price per ton under Item No. 11 and No. 12 in the Agreement. The price shall be full compensation for all costs associated with Permanent Trench and Pit Resurfacing, including but not limited to cutting existing pavement, asphaltic concrete removal, hauling and disposal, tack coat, sand seal, joint and crack sealer, placing, grading, and compacting asphaltic concrete, and valve box and frame adjustments as needed.
  - 2. Pavement placed beyond the specified limits under Pavement Payment Limits in this Specification, without prior approval of the Owner and due to the Contractor's operations, shall not be eligible for payment.

# 1.14 (ITEM 13) DUST CONTROL

- A. Measurement
  - 1. Measurement for payment of dust control treatment shall be by CWT (100 pound measure), for the actual quantity placed.

## B. Payment

1. Payment for dust control treatment shall be made at the unit price per one hundred

(100) lbs. spread under Item No. 13 in the Agreement. The price shall be full compensation for all costs associated with furnishing and placing treatment for dust control.

2. If Contractor has been instructed by the Engineer to install resurfacing but has failed to comply with this instruction and conditions require additional applications, these additional applications shall not be eligible for payment.

## 1.15 (ITEM 14) BITUMINOUS BERM/CURB

- A. Measurement
  - 1. Measurement of Bituminous Berm/Curb shall be for the actual amount of bituminous curb installed, as directed by the Engineer, in linear feet.
- B. Payment
  - 1. Payment for Bituminous Berm/Curb shall be made at the unit price per linear foot under Item No. 14 in the Agreement. The bid price shall be full compensation for all costs associated with a complete installation including but not limited to excavation, backfilling, and compacting, hauling and disposal of damaged material, furnishing and placing of 1-inch bituminous leveling base course and bituminous concrete berm with a berm machine, and all labor necessary for the first class installation of bituminous curb as specified or reasonably implied.
  - 2. Bituminous curb outside the payment limits damaged due to Contractor's negligence shall be replaced by Contractor and will not be eligible for payment. Non-machined formed berm shall not be eligible for payment.

# 1.16 (ITEM 15) GRANITE CURB

- A. Measurement
  - 1. Measurement of Granite Curb will be for the actual amount of granite curb removed, reinstalled, and placed, as directed by the Engineer, in linear feet.
- B. Payment
  - 1. Payment for Granite Curb shall be made at the unit price per linear foot under Item No. 15 in the Agreement, where damaged by construction or directed by the Owner. The bid price shall be full compensation for all costs associated with a complete installation, including but not limited to, excavation, backfilling, and compacting, removal, hauling, and disposal of damaged material, and the labor necessary for the first class installation of a new granite curb, concrete facing and the mortaring of all joints as specified or reasonably implied.
  - 2. Granite curb damaged outside payment limits or due to Contractor's negligence shall be replaced by Contractor and will not be eligible for payment.

# 1.17 (ITEM 16) BITUMINOUS SIDEWALK REPLACEMENT

- A. Measurement
  - 1. Measurement for payment of bituminous sidewalk replacement will be for the amount actually placed, as directed by the Engineer.

- B. Payment
  - 1. Payment for bituminous sidewalk replacement shall be made at the unit price per linear foot, within the payment limits as escribed in 1.2 Pavement Limits s determined by the Engineer, under Item No. 16 in the Agreement. The price shall be full compensation for all costs for work, including removal and disposal of existing pavement to straight parallel lines furnishing, installing and compacting bituminous concrete and all labor and equipment necessary to complete the work as specified, directed by the Engineer, or reasonably implied.
  - 2. Sidewalk outside the payment limits damaged by the Contractor's negligence shall be replaced by the Contractor and will not be eligible for payment.

# 1.18 (ITEM 17) LOAM AND SEED

# A. Measurement

- 1. Measurement for Loam and Seed shall be the actual area covered, in square yards.
- B. Payment
  - 1. Payment for Loam and Seed shall be made at the unit price per square yard under Item No. 17 in the Agreement. The price shall be full compensation for all labor, materials, and equipment incidental thereto for furnishing, hauling and placing loam and spreading seed, lime and fertilizer.
  - 2. Disturbed areas beyond right of ways, or disturbed for Contractor's convenience, shall be restored at the Contractor's expense.
  - 3. The Contractor shall be responsible for periodic water applications and reseeding all areas which do not take. All costs shall be included under this item.

# 1.19 (ITEM 18 & 19) 6-INCH AND 8-INCH GATE VALVES, 10-INCH AND 12-INCH GATE VALVES

# A. Measurement

- 1. Measurement for 6-Inch, 8-Inch, 10-Inch, and 12-Inch Gate Valves shall be for each Gate Valve furnished and installed as shown on the Drawings or as directed by the Owner.
- B. Payment
  - 1. Payment for 6-Inch, 8-Inch, 10-Inch and 12-Inch Gate Valves shall be made at the unit price per each under Item No. 18 and 19, respectively, in the Agreement. The price shall be full compensation for all costs associated with furnishing and installing Gate Vales, including but not limited to setting, supporting, and joint assembly, cleaning, furnishing, and adjustment of valve boxes, and the furnishing and operation of all equipment, tools, and labor necessary for the first class installation of main line gate valves.
  - 2. Excavation and backfilling of pits to install Gate Valves are not included under this item. Gate valves for hydrant assemblies are not included under this item.
  - 3. Gate valve locations may be moved depending on bursting pit locations and Owner approval. Contractor to provide a plan showing proposed bursting pit locations prior to the start of work.

## 1.20 (ITEM 20) SOLID SLEEVES

## A. Measurement

- 1. Measurement for Solid Sleeves shall be for each Solid Sleeve furnished and installed as shown on the Drawings or as directed by the Owner.
- B. Payment
  - 1. Payment for Solid Sleeves shall be made at the unit price per each under Item No. 20 in the Agreement. The price shall be full compensation for all costs associated with Solid Sleeves, including but not limited to furnishing, setting, supporting, mechanical joint assembly, retainer gland installation, adjustment of sleeve, and the furnishing and operation of all equipment, tools, and labor necessary for the first class installation of Solid Sleeves.
  - 2. Solid Sleeves shall be provided where feasible (at proposed ductile iron pipe and where cast iron pipe O.D. permits); they require full restraint. For work at oversized cast iron pipe where excessive grinding of wall thickness to fit sleeve is required, in the opinion of the engineer, Solid Sleeves are not an option, the Contractor shall furnish and install a dresser type coupling threaded to a gate valve or fitting at no additional cost.

## 1.21 (ITEM 21) FITTINGS

- A. Measurement
  - 1. Measurement for Fittings shall be per pound of body weight, excluding the weight of the accessories, such as gaskets, glands, and stainless steel nuts and bolts.

## B. Payment

- 1. Payment for Fittings shall be made at the unit price per pound under Item No. 21 in the Agreement. The price shall be full compensation for all costs associated with a complete installation, including but not limited to furnishing, setting, supporting, and joint assembly, and the furnishing and operation of all equipment, tools, and labor necessary for the first-class installation of Fittings.
- 2. Costs associated with retainer glands, joint glands, gaskets, and nuts and bolts shall be included in the cost per pound of fitting body weight.
- 3. Anchor tees for hydrants to be paid for under the Hydrant Branch item.

# 1.22 (ITEM 22) TEMPORARY WATER SERVICE

## A. Measurement

1. Measurement for payment of Temporary Water Service shall be on a lump sum basis with 60% satisfactory completion of the setup of temporary water bypass, and the final 40% upon satisfactory completion of the temporary water bypass cleanup and removal of equipment.

## B. Payment

1. Payment for Temporary Water Service shall be made at the lump sum contract price under Item No. 22 in the Agreement. The price shall be full compensation for

all work and costs associated with Temporary Water Service including but not limited to furnishing, installing (including excavation, shoring, backfilling, and compaction of individual temporary service connections), disinfection, testing, maintaining, and removing a complete temporary water supply and fire protection for dwellings and businesses affected by the work.

- 2. All fire connections shall be approved by and meet the requirements of the Fire Chief.
- 3. At all service connections and couplings, an attached traffic cone shall be provided for safety.
- 4. Restoration of driveways and/or lawns by gravel, paving, and/or loam and seed application shall be paid for under their respective items.

## 1.23 (ITEM 23) TRENCHLESS WATER SERVICES (2-INCH + SMALLER)

- A. Measurement
  - 1. Measurement for payment of Trenchless Water Services (2-Inch + Smaller) shall be the length in linear feet from the main to the curb stop along the centerline of the pipe, as shown on the Drawings or directed by the Owner.
- B. Payment
  - 1. Payment for furnishing and installing Trenchless Water Services (2-Inch + Smaller) shall be made at the price per linear foot under Item 23 in the Agreement. The price shall be full compensation for all costs associated with a complete installation, including but not limited to excavation at the water main and curb stop, shoring, backfill and compaction of pits, cutting, removal, hauling, and disposing pavement, cutting and capping abandoned service lines (where required) connecting to existing service pipe (where required), PE pipe, fittings, joint assembly, and cleaning, furnishing, and installation of hardware.
  - 2. Payment to remove and re-set granite curb stone and repair of asphaltic sidewalk, shall be included under appropriate items.
  - 3. All Costs to furnish and install curb stop and box and corporation including tapping of the main shall be included in the Small Service Valve item.
  - 4. All costs associated with temporary water service to the building shall be included in Temporary Water Service Item No. 22.

# 1.24 (ITEM 24) OPEN CUT WATER SERVICES (2-INCH + SMALLER)

- A. Measurement
  - 1. Measurement for payment of Open Cut Water Services (2-Inch + Smaller) shall be the length in linear feet from the main to the curb stop along the centerline of the pipe, as shown on the Drawings or directed by the Owner.
- B. Payment
  - 1. Payment for furnishing and installing Open Cut Water Services (2-Inch + Smaller) shall be made at the price per linear foot under Item 24 in the Agreement. The price shall be full compensation for all costs associated with a complete installation, including but not limited to trench excavation, concrete sub-base cutting, removal and disposal, shoring, backfilling, and compaction, cutting, removal, hauling, and

disposing pavement, cutting and capping abandoned service lines (where required), connecting to existing service pipe (where required), PE pipe, and fittings, joint assembly, and cleaning, furnishing, and installation of hardware.

- 2. Contractor will not be allowed to close West Central roadway, alternating traffic must be maintained. All costs associated with completing half of the replacement and then the second half shall be included in this item. All costs associated with completing the work at night, Contractor's decision, there will be no additional costs for night time work.
- 3. Payment to remove and re-set granite curb stone and repair of asphaltic sidewalk, if disturbed, shall be included under appropriate items.
- 4. Costs to furnish and install curb stop and box and corporation including tapping of the main shall be included in the Small Service Valve item.
- 5. All costs associated with temporary water service to the building shall be included in the Temporary Water Item 22.

# 1.25 (ITEM 25) OPEN CUT WATER SERVICES (6-INCH + LARGER)

- A. Measurement
  - 1. Measurement for payment of Open Cut Water Services (6-Inch + Larger) shall be the length in linear feet from the main to the service valve along the centerline of the pipe, as shown on the Drawings or directed by the Owner.
- B. Payment
  - 1. Payment for furnishing and installing Open Cut Water Services (6-Inch + Larger) shall be made at the price per linear foot under Item 25 in the Agreement. The price shall be full compensation for all costs associated with a complete installation, including but not limited to trench excavation, concrete sub-base, cutting, removal and disposal, shoring, backfilling and compaction, cutting, removal, hauling, and disposing pavement, connection to new water main, ductile iron pipe, joint assembly, disinfection and pressure testing, and cleaning, furnishing, and installation of hardware.
  - 2. Contractor will not be allowed to close West Central roadway, alternating traffic must be maintained. All costs associated with completing half of the replacement and then the second half shall be included in this item. All costs associated with completing the work at night, Contractor's decision, there will be no additional costs for night time work.
  - 3. Payment to remove and re-set granite curb stone and repair of asphaltic sidewalk, if disturbed, shall be included under appropriate items
  - 4. Payment for pavement, valves and fittings to be included in the appropriate items.
  - 5. All costs associated with temporary water service to the building shall be included in Item 22.
  - 6. All costs associated with crossing concrete duct bank and drains on North side of West Central Street and cutting, de-watering and capping 10-CI water where necessary to install North side services shall be included in this item, with the exception of the 10" caps, which will be paid under the fitting item.

# 1.26 (ITEM 26) SMALL SERVICE VALVES

- A. Measurement
  - 1. Measurement for payment of Small Service Valves in Frost and West Central Street shall be per each set installed as directed by the Owner.
- B. Payment
  - 1. Payment for furnishing and installing Small Water Service Valves shall be made at the unit price under Item 26 in the Agreement. The price shall be full compensation for all costs associated with a complete curb-stop and corporation installation, including but not limited to tapping new water main and joint assembly.
  - 2. Payment to remove and re-set granite curb stone and repair of asphaltic sidewalk shall be paid under the appropriate items, if disturbed. Excavation, back filling, and compaction shall be included in the appropriate water service installation item. All other associated work shall be included in the appropriate water service item.

## 1.27 (ITEM 27 AND 28) HYDRANT BRANCHES (NORTH SIDE, SOUTH SIDE AND ROUTE 30))

- A. Measurement
  - 1. Measurement for Hydrant Branches (North Side Item 27) Hydrant Branches (South Side Item 28) and Hydrant Branches (Route 30 Item 28) shall be per each hydrant branch installed.
- B. Payment
  - 1. Payment for Hydrant Branches shall be made at the unit price per each under Items No. 27 and 28 in the Agreement. The price shall be full compensation for all labor, materials, and equipment incidental thereto for a complete installation, including but not limited to pavement cutting and removal, concrete sub-base, removal and disposal, excavation, backfill, and compaction, removal and disposal of existing hydrant branch piping, valves (as necessary), hydrant, and fittings, furnishing and installing anchor tee, 6-inch gate valve and box, stainless steel nuts and bolts, 6-inch ductile iron pipe, hydrant, concrete thrust blocks, and fittings, and placing crushed stone drain.
  - 2. All costs associated with crossing concrete duct bank on North side of West Central Street and cutting, de-watering and capping 10-CI water main where necessary to install North side hydrant branches shall be included in this item, with the exception of the caps, which would be paid under the fittings item.

## 1.28 (ITEM 29) FURNISHING HYDRANTS

- A. Measurement
  - 1. Measurement for Furnishing Hydrants shall be per each hydrant furnished and delivered to the Town of Natick DPW yard.
- B. Payment
  - 1. Payment for Furnishing Hydrants shall be made at the unit price per each hydrant under Item No. 29 in the Agreement. The price shall be full compensation for furnishing, transporting, and delivering hydrants to the Town of Natick DPW yard.

#### 1.29 (ITEM 30) BURSTING 6-INCH AND 10-INCH C.I. PIPE

- A. Measurement
  - 1. Measurement for Bursting 6-Inch Water Main and 10-Inch Sewer Forcemain C.I. Pipe shall be in linear feet along the centerline of pipe burst, without deduction for fittings.
- B. Payment
  - Payment for Bursting 6-inch water main and 10-inch C.I. sewer forcemain Pipe shall be made at the unit price per linear foot under Item No. 30 in the Agreement. The price shall be full compensation for all labor, materials, and equipment incidental thereto for trenchless replacement of the CI Pipe with ductile iron pipe through pipe bursting including but not limited to cutting, removal, hauling, and disposal of pavement, excavation to grade, shoring and bracing for required bursting and receiving pit, protection of above and below ground utilities and structures, complete dewatering systems, cutting, bursting, draining, removal, and disposal of existing water main and appurtenances as necessary, furnishing and installing new ductile iron pipe and accessories, hauling, stockpiling, placement and compaction of backfill, and hauling and disposal of surplus material. Replacement water pipe and appurtenances to be connected to the existing water main, pressure tested, bacteria tested, and flushed.
  - 2. Pits required for bursting machine and pipe insertion shall be included under this item. In general, the width of the bursting pits shall be kept at a minimum width and length.
  - 3. Closed circuit television (CCTV) of the existing CI pipe to determine locations of fittings, bends, services, etc. as necessary to be included under this item.

## 1.30 (ITEM 31,32 AND 33) 6-INCH 8-INCH, 10-INCH AND 12-INCH D.I. PIPE

- A. Measurement
  - 1. Measurement for 6-Inch (Item 31), 8-Inch and 10-Inch (Item 32), and 12-inch (Item 33) Ductile Iron Pipe installed in pits shall be in linear feet along the centerline of pipe installed, without deduction for fittings and valves.
- B. Payment
  - 1. Payment for 6-Inch, 8-Inch, and 10-Inch and 12-Inch Ductile Iron Pipe shall be made at the unit price per linear foot under Item No. 31, 32, and 33, respectively, in the Agreement. The price shall be full compensation for all costs associated with protection of above and below ground utilities and structures, cutting, furnishing and installing new ductile iron pipe and accessories. Newly installed water pipe and appurtenances to be connected to the new and existing water main, pressure tested, bacteria tested, and flushed.
  - 2. Excavation and backfilling and associated materials to be included under the appropriate items, such as the Miscellaneous Pit item.

## 1.31 (ITEM 34) 8-INCH SLIPLINING FROST SHEET

- A. Measurement
  - 1. Measurement for 8-Inch Sliplining shall be in linear feet along the centerline of pipe installed, without deduction for fittings.

## B. Payment

- 1. Payment for 8-Inch Sliplining Pipe shall be made at the unit price per linear foot under Item No. 34 in the Agreement. The price shall be full compensation for all costs associated with protection of above and below ground utilities and structures, complete dewatering systems, draining of existing sleeve and appurtenances as necessary, cleaning existing steel sleeve in preparation for slip-lining, furnishing and installing new Ductile Iron pipe and accessories, slip-lining pipe into existing steel sleeve. Newly installed water pipe and appurtenances to be connected to the existing water main, pressure tested, bacteria tested, and flushed.
- 2. All costs associated with excavation and backfill, compaction, shoring of pits to complete Slipline work shall be included in this item.
- 3. Work to remove and dispose of stockpile of cut trees and debris on Frost Street North side of Mass Pike shall be included under this item.

# 1.32 (ITEM 35) 12-INCH SLIPLINING NORTH MAIN

- A. Measurement
  - 1. Measurement for 12-Inch Sliplining shall be in linear feet along the centerline of pipe installed, without deduction for fittings.
- B. Payment
  - 1. Payment for 12-Inch Sliplining in North Main Street shall be made at the unit price per linear foot under Item No. 34 in the Agreement. The price shall be full compensation for all costs associated with protection of above and below ground utilities and structures, complete dewatering systems, draining of existing sleeve and appurtenances as necessary, cleaning existing ductile iron pipe in preparation for slip-lining, furnishing and installing new Ductile Iron pipe and accessories, sliplining pipe into existing sleeve. Newly installed pipe and appurtenances to be connected to the existing station forcemain and sewer manhole and pressure tested, bacteria tested, and flushed.
  - 2. All costs associated with excavation and backfill, compaction, shoring of pits to complete Slipline work shall be included in this item.

## 1.33 (ITEM 36) INSPECTION PITS

- A. Measurement
  - 1. Measurement for Inspection Pits shall be taken to the lines and grades actually excavated, as directed by the Engineer.
- B. Payment
  - 1. Payment for Inspection Pits shall be made at the unit price per cubic yard under Item No. 36 in the Agreement. The price shall be full compensation for all costs associated with Inspection Pits, including but not limited to inspection pit excavation by machine or hand, pavement cutting, dewatering, shoring, plating, backfilling and compaction of backfill, as specified herein or reasonably implied. In general, the width of the inspection pit shall be kept at a minimum width.
  - 2. Payment for Inspection Pits shall be only as directed by the Owner or Engineer for

monitoring utilities during pipe bursting activities. Engineer to monitor soil movement to determine if additional Inspection Pits will be required.

# 1.34 (ITEM 37) MISCELLANEOUS PITS

- A. Measurement
  - 1. Measurement for Miscellaneous Pits shall be taken to the lines and grades actually excavated, as directed by the Engineer.
- B. Payment
  - 1. Payment for Miscellaneous Pits shall be made at the unit price per cubic yard under Item No. 37 in the Agreement. The price shall be full compensation for all costs associated with completing Miscellaneous Pits, including but not limited to excavation by machine or hand, concrete road sub-base and pavement cutting and removal, dewatering, shoring, plating, backfilling and compaction of backfill, as specified herein or reasonably implied. In general, the width of the inspection pit shall be kept at a minimum width.
  - 2. Payment under this item to include pits for removing fitting and gate valves if necessary prior to pipe bursting, and other pits as directed by the Engineer.
  - 3. Pits to remove existing meter pits and to abandon existing water service at the Town of Wayland water main shall be included under this item.
  - 4. Pits to remove/abandon 6-inch water main on Kendall Lane shall be included under this item.
  - 5. Pits to expose utilities crossing over or within 2 feet under or adjacent to existing pipe prior to pipe bursting shall be included in Item 36 Inspection Pits.
  - 6. Test pits, bursting pits, and pits to replace water services, forcemain services and hydrant connections are not included under this item, and shall be paid for under their respective items.

## 1.35 (ITEM 38) ENVIRONMENTAL CONTROLS

## A. Measurement

- 1. Measurement for Environmental Controls shall be the complete implementation of Environmental Controls in compliance with these specifications.
- B. Payment
  - 1. Payment for Environmental Controls shall be made at the lump sum price under Item No. 38 in the Agreement. The price shall be full compensation for all labor, materials, and equipment associated with Environmental Controls, including but not limited to placement, maintenance, and cleanup of the filter sock, and catch basin silt baskets where directed by the Owner or Engineer, and the placement, maintenance, and disposal of dewatering discharge.

# 1.36 (ITEM 39) OPEN CUT 10-INCH AND 12-INCH PIPE

- A. Measurement
  - 1. Measurement for Open Cut 10-inch Water Main and 12-Inch Sewer Main shall be measured along the centerline of the pipe without deductions for values and fittings

cut on West Central Street and North Main Street.

- B. Payment
  - 1. Payment for Open Cut 10-inch Water Main and 12-Inch Sewer Main shall be made at the linear foot price under Item No. 39 in the Agreement. The price shall be full compensation for all costs, including but not limited to cutting, removal, hauling, and disposal of pavement and concrete sub-base, excavation to grade, shoring and bracing of trenches, protection of above and below ground utilities and structures, complete dewatering systems, cutting, draining, removal, and disposal of existing water and sewer pipe and appurtenances as necessary, furnishing and installing new ductile iron pipe and accessories, hauling, stockpiling, placement and compaction of backfill, and hauling and disposal of surplus material, connections to existing water mains and sewer mains, pressure testing, bacteria testing, and flushing.
  - 2. All costs associated with connecting the proposed 10-inch ductile iron water pipe to proposed 8-inch ductile iron water pipe on West Central Street (STA 24+30 and STA 27+00), and to existing 10-inch cast iron pipe on Newfield Drive (STA 24+30), and to existing 10-inch cast iron pipe on Boden Lane (STA 27+00), to be included under this item.
  - 3. All costs associated with furnishing select and ordinary borrow, process gravel, fittings, solid sleeves, gate valves and pavement to be included in the appropriate items.
  - 4. All costs associated with cutting trees and brush and removal and disposal for the 12-Inch forcemain pipe installation in Route 9 exit ramp island shall be included in this item.
  - 5. If the 10-Inch pipe bursting fails, due to soil conditions or existing utilities prohibit the bursting process, not due to Contractor's equipment failures, then open cut replacement of that section shall be paid under this item.
  - 6. Additional costs associated with the change to night-time work for completing the 12" forcemain across the shopping center driveways, limited to potential wage adjustments for overtime and limited work hours will be reviewed as additional costs by the Owner. If approved the additional cost will be covered under a change order. Related traffic control devices will not be considered as additional costs.

# 1.37 (ITEM 40) OPEN CUT 8-INCH WATER MAIN WEST CENTRAL

- A. Measurement
  - 1. Measurement for Open Cut 8-inch Water Main shall be measured along the centerline of the pipe without deductions for valves and fittings for the 8-inch water main approximately between STA 44+75 on West Central Street to STA 45+95 on Homeward Avenue.
- B. Payment
  - 1. Payment for Open Cut 8-inch Water Main shall be made at the unit price under Item No. 40 in the Agreement. The price shall be full compensation for all costs including but not limited to cutting, removal, hauling, and disposal of pavement and concrete sub-base, excavation to grade, shoring and bracing of trenches, protection of above and below ground utilities and structures, complete dewatering systems, cutting, draining, removal, and disposal of existing water main and

appurtenances as necessary, furnishing and installing new 8-inch ductile iron pipe and accessories, hauling, stockpiling, placement, and compaction of surplus backfill, and hauling and disposal of surplus material. Replacement water pipe and appurtenances to be connected to the existing water main, pressure tested, bacteria tested, and flushed.

- 2. All costs associated with connecting the proposed 8-inch ductile iron pipe to proposed 8-inch ductile iron pipe on West Central Street (STA 44+75) and removal of cap and connecting to existing 8-inch ductile iron pipe on Homeward Road (STA 45+95) to be included under this item.
- 3. All costs associated with furnishing select and ordinary borrow, and process gravel to be included under the appropriate items.
- 4. Payment for fittings and gate valves are not included under this item.
- 5. If a 6-Inch pipe bursting section fails, not due to Contactors operation, due to soil conditions or other issues as approved by the Owner, Contractor to replace that section(s) under this item.
- 6. If Contractor chooses to complete this work at night, no additional costs will be approved.

# 1.38 (ITEM 41) OPEN CUT 8-INCH WATER MAIN ROUTE 30 & FROST STREET

## A. Measurement

- 1. Measurement for Open Cut 8-inch Water Main in Route 30 and Frost Street shall be measured along the centerline of the pipe without deductions for valves and fittings.
- B. Payment
  - 1. Payment for Open Cut 8-inch Water Main shall be made at the unit price under Item No. 40 in the Agreement. The price shall be full compensation for all costs including but not limited to cutting, removal, hauling, and disposal of pavement and concrete sub-base, excavation to grade, shoring and bracing of trenches, protection of above and below ground utilities and structures, complete dewatering systems, cutting, draining, removal, and disposal of existing water main and appurtenances as necessary, furnishing and installing new 8-inch ductile iron pipe and accessories, hauling, stockpiling, placement, and compaction of surplus backfill, and hauling and disposal of surplus material. Replacement water pipe and appurtenances to be connected to the existing water main, pressure tested, bacteria tested, and flushed.
  - 2. All costs associated with furnishing select and ordinary borrow, process gravel, fittings and gate valves to be included under the appropriate items.
  - 3. If Contractor chooses to complete this work at night, no additional costs will be approved.

# 1.39 (ITEM 42) FORCEMAIN & AIR RELEASE MANHOLES

- A. Measurement
  - 1. Measurement for sewer forcemain manhole and air release manhole in North Main Street shall be made when both manholes are installed.

## B. Payment

- 1. Payment for sewer forcemain transition manhole and air release manhole installation shall be made at the lump sum price under Item No. 42 in the Agreement. The price shall be full compensation for all costs associated with furnishing and installing new pre-cast concrete forcemain transition manhole and air release manhole, including but not limited to 15" gravity sewer connections, by-pass pumping of gravity sewer, concrete plug and 10" MJ cap on 10" forcemain in existing transition manhole, excavation to bottom of grade, protection of above and below ground utilities and structures, complete dewatering system, fittings and concrete encasement, boots for connecting all pipes (existing or new), brick inverts, frame and covers, bedding material, disposal of surplus material, support of walls of excavation, connections to new and existing pipe, grade adjustment of frame, cleanup of construction area, and all other work and materials necessary for a first-class installation as herein specified or reasonably implied.
- 2. All costs associated with furnishing and installing new forcemain fittings inside the new transition manhole shall be included in this item.
- 3. All costs associated with removal and disposal of the 15" asbestos cement pipe shall be included in this item.
- 4. All costs associated with removing existing manual air release valve and furnishing and installing automatic air release valve, manhole, fittings and all other appurtenant work shall be included under this item.

## 1.40 (ITEM 43) FORCEMAIN SEWER CONNECTION

- A. Measurement
  - 1. Measurement of forcemain sewer connection in North Main Street shall be for each completed.

# B. Payment

- 1. Payment for forcemain sewer service pipe connection to new forcemain shall be made at the unit price per each completed under Item No. 43 in the Agreement. The price shall be full compensation for a complete installation included but not limited to cutting, removal, hauling and disposal of pavement, trench excavation to grade, protection of above and below ground facilities and structures, handling asbestos cement pipe, complete dewatering systems, 12x4 and 12x6 MJ tee and 6" and 4" gate valves, 4" and 6" couplings, 4" and 6" D.I. pipe, pipe and accessories, removal and disposal of existing service pipe, connection to existing service with dresser type coupling, bedding material, hauling and disposal of surplus material, placement, compaction and maintenance of backfill material including transportation of excess material from other sites on project to be used as backfill, shoring and bracing of trenches, steel shoring boxes, clean-up of construction area, and the furnishing and operation of all equipment, tools, and labor necessary for the first class installation of piping, as herein specified or reasonably implied.
- 2. Excavation below grade and rock excavation will be paid for separately under the appropriate contract items.
- 3. Any damaged pipe sections due to Contractor's construction methods including floatation will be removed and replaced at his own expense.

- 4. If excess material from other Construction sites within this Contract is approved material for backfilling, all costs for transporting, placing and compacting the approved material shall be included in this Item.
- 5. All costs for furnishing and placing bedding material from grade to 6-inches above crown shall be included in this Item.

## 1.41 (ITEM 44) BYPASS SEWER

- A. Measurement
  - 1. Measurement for furnishing, installing and maintaining completed forcemain bypass system for bypassing wastewater flows from the existing Health Center sewage pump station and the two office buildings connected to the existing forcemain around the project and to a receiving gravity sewer manhole shall be made on the lump sum basis.
- B. Payment
  - 1. Payment for furnishing, installing and maintaining a complete bypass systems and bypassing the wastewater flow shall be made at the lump sum price under Item No. 44 in the Agreement. The price shall be full compensation for all work associated with including but not limited to the excavation, backfill, connecting to existing station piping, connecting to the two existing office building sewer service lines, connecting to an existing gravity sewer manhole, inserting plugs all pipe, valves, fittings, pumps (where necessary) and all labor, equipment and materials necessary for completion of the bypasses.
  - 2. All costs associated with trenching by-pass pipe across roads and driveways and temporary pavement over pipe shall be included in this item.
- 1.42 (ITEM 45) DRAIN REPLACEMENT Where approved by Owner and Engineer
  - A. Measurement
    - 1. Measurement for storm drain replacement will be along the horizontal centerline of the pipe and measurement will be to the nearest tenth of a foot.
  - B. Payment
    - 1. Payment for drain replacement shall be made at the unit price per linear foot for all depths under Item No. 45 in the Agreement. The price shall be full compensation for a complete installation included but not limited to cutting, removal, hauling and disposal of concrete road sub-base and pavement, trench excavation to grade, cutting, removal, hauling and disposal of existing RCP drain, and disposal of surplus material, where required by utility installation and where indicated on the Drawings, protection of above and below ground facilities and structures, complete dewatering systems, new RCP drain, and accessories, placement, compaction and maintenance of backfill material including transportation of excess material from other sites on project to be used as backfill, shoring and bracing of trenches, steel shoring boxes, furnishing and display of detour signs, lighted caution horses or barriers, barricades, temporary bridging, testing, clean-up of construction area, and the furnishing and operation of all equipment, tools, and labor necessary for the first class installation of piping, as herein specified or reasonably implied.

- 2. Payment for drain replacement will be for approved replacement. Drain, crossing trenches, which are in good shape (Owner's opinion), and are removed by Contractor for convenience will not be eligible for payment under this item. All costs for convenience drain replacement shall be included in the sewer pipe force main pipe and water main items. All costs for supporting and crossing under drains shall be included the appropriate pipe items.
- 3. All costs associated with maintaining storm water during work shall be included under this item.
- 4. If excess material from other Construction sites within this Contract is approved material for backfilling, all costs for transporting, placing and compacting the approved material shall be included in this Item.
- 5. All costs for furnishing and placing bedding material from grade to 12-inches above crown shall be included in this Item.
- 6. All costs associated with connecting to existing or new catch basins or manholes including cutting, coring, patching and purging shall be included in this item.

# 1.43 (ITEM 46) ELECTRONIC MESSAGE BOARDS

- A. Measurement
  - 1. Measurement for Electronic Message Boards shall be the number of days that electronic message boards are provided for traffic management as directed by the Owner.
- B. Payment
  - 1. Payment for Electronic Message Boards shall be made at the bid price per day under Bid Item No. 46 in the Agreement. The price shall be full compensation for all labor, materials, and equipment incidental thereto for providing, programming, maintaining, and removing electronic message boards.
  - 2. When an Electronic Message Board is required, it will be maintained on the site for a minimum of seven (7) days for each occasion, in some cases the board may remain for duration of the work, depending on traffic flows.
  - 3. It is possible, depending on Contactors scheduling, that one, two or three signs may be required, one on each site at the same time.

# 1.44 (ITEM 47) LINE PAINTING

- A. Measurement
  - 1. Measurement for payment of pavement markings will be for the length of line actually placed, as directed by the Engineer. Cross walk lines will be measured for each individual line painted.
- B. Payment
  - 1. Payment for pavement markings shall be made at the unit price per linear foot measure as determined by the Engineer under Item No. 47 in the Agreement. The price shall be full compensation for all costs for this work, including material, labor and equipment necessary to complete the work as specified, directed by the Engineer or reasonably implied.
  - 2. Line painting to include white fog lines, double yellow lines, stop lines, cross walk

lines and turning arrow lines.

## 1.45 (ITEM 48) TRAFFIC MANAGEMENT

- A Measurement 1. Measu
  - Measurement of traffic management shall be made at the following percentages:
    - a. West Central 25%
    - b. Frost Street 15%
    - c. Health Center 60%
- B. Payment
  - 1. Payment for traffic management shall be made at the lump sum price under Item No. 48 in the appropriate percentage for each. The price shall be full compensation for furnishing, installing, maintaining and removing all traffic control devices as specified and shown on the drawings, required by Massachusetts Highway Department and Natick Police Department. Work shall include but not be limited to display of construction signs, detour signs, lighted caution horses or barrels, barricades, concrete "Jersey" barriers including set-up, maintenance and removal.
  - 2. The drawings and specifications detail the minimum requirements for the Traffic Management Plant for each project area. If additional devices are required due to the Contractors approach to the project, then all costs associated shall be included under this item.
  - 3. Route 9 and Route 27 ramp closures and related detours, are included on the traffic management drawings, in case they are needed to complete the work. The Owner would like to avoid closing Route 9 ramps if at all possible, due to traffic volume All costs associated with providing the traffic control devices as detailed in the specifications and drawings shall be included in this item.
  - 4. If Contractor chooses to complete work at night or on a weekend, other than as required by the specifications and drawings, no additional costs will be considered for traffic management.
  - 5. If the pipe bursting is not possible across the Shopping Center driveway on route 27 due to utilities or soil conditions, Contractor will be required to open cut the 12" forcemain across the major shopping center driveway at night, no additional costs will be considered for traffic management.

# 1.46 (ITEM 49) FOR TRENCH COLD PLANE WEST CENTRAL

- A. Measurement
  - 1. Measurement for payment of trench cold plane will be for the actually square yards planed, as directed by the Engineer.
- B. Payment
  - 1. Payment for pavement cold plane in West Central Street shall be made at the unit price per square yard measure as determined by the Engineer under Item No. 49 in the Agreement. The price shall be full compensation for all costs for this work, including material, labor and equipment necessary to complete the work as specified, directed by the Engineer or reasonably implied including but not limited

to cold plane to the desired depth removal of cold plane material and sweeping of the pavement to remove remaining cold plane dust, protection of the trench until the permanent pavement is installed.

2. Trenches to receive cold plane work are located in West Central and include bursting pits, miscellaneous pits, test pits, inspection pits, services trenches and hydrant trenches.

# END OF SECTION

#### SECTION 01036

## CHANGES IN CONTRACT WORK, COST OR TIME

#### PART 1 - GENERAL

#### 1.1 DESCRIPTION

- A. Work Included: Contractor shall make such changes in the Work, in the Contract Sum, in the Contract Time of Completion, or any combination thereof, as are described in a Written Amendment, Change Order or Work Change Directive, signed by Owner and issued after execution of the Contract, in accordance with the provisions of this Section, Articles 10, 11, and 12 of the General Conditions, and amendments contained in the Supplemental Conditions.
- B. Owner reserves the right to at any time order additions, deletions, or revisions in the Work, which shall be authorized by Written Amendment, a Change Order, a Work Change Directive, or a Field Order, and Contractor shall promptly proceed with the Work involved.
- C. If Owner or Contractor are unable to agree as to the extent, if any, of an adjustment in the Contract Price or an adjustment in the Contract Times that should be allowed as the result of a Work Change Directive, a claim may be made in accordance with the provisions of Article 10 of the General Conditions.
- D. Upon receipt of any such document, Contractor shall promptly proceed with the Work involved which is to be performed under the applicable conditions of the Contract Documents, unless otherwise specifically provided.
- E. See a full definition of the above in the General Conditions, Article 1, Definitions.

#### 1.2 QUALITY ASSURANCE

- A. Within Contractor's quality assurance program, Contractor shall include such measures as are needed to assure familiarity of Contractor's staff and employees with these procedures for processing Change Order data.
- B. Contractor shall conduct all Work in a first-class, workmanlike manner, and he/she shall use reasonable and appropriate care and skill in the performance of the Work under this Section.

## 1.3 CONTRACT PRICE

- A. The Contract Price constitutes the total compensation (subject to authorized adjustments) payable to Contractor for performing the Work. All duties, responsibilities, and obligations assigned to or undertaken by Contractor shall be at Contractor's expense without change in the Contract Price.
- B. The Contract Price may only be changed by a Change Order or a Written Amendment.

#### 1.4 PROCESS FOR INITIATING AND FINALIZING A CHANGE IN CONTRACT PRICE

- A. Any claim for an adjustment in the Contract Price by either party to the Contract shall be based upon written notice delivered by the party making the claim to the other party and Engineer promptly after the start of the occurrence or event giving rise to the claim, and stating the general nature of the claim.
- B. Notice shall be accompanied by claimant's written statement that the adjustment claimed covers all known amounts to which the claimant is entitled as a result of said occurrence or event.
- C. Documentation of the costs for the Work shall be prepared and submitted in accordance with the provisions of Article 11 of the General Conditions and as amended in the Supplementary Conditions of this Contract.
- D. Once the extent of changed Work and compensation amount is finalized in accordance with the provisions of Article 11 of the General Conditions as amended in the Supplementary Conditions, a Change Order Form, as included in Section 00810, with the documentation attached shall be prepared by Engineer and submitted to both parties for review and signing.
- E. Contractor's disagreement with the Change Order shall in no way relieve him/her from the responsibility to immediately proceed with the change as indicated in the Change Order, and to seek settlement of the dispute under the pertinent provisions of this Contract.
- F. Any delay in the completion of the Work associated with a disagreement in the amount of the Change Order shall not constitute a viable reason for granting an extension of time.
- G. No claim for an adjustment in the Contract Price shall be valid unless it is submitted in accordance with the provisions above and those of Article 11 of the General Conditions as amended in the Supplementary Conditions of this Contract.

## 1.5 PROCESS FOR INITIATING AND FINALIZING A CHANGE IN CONTRACT TIME

- A. Any claim for an adjustment in the Contract Time shall be made by a Change Order or Written Amendment, shall be based upon written notice delivered by the party making the claim to the other party and Engineer promptly after the start of the occurrence or event giving rise to the claim, and stating the general nature of the claim.
- B. Notice shall be accompanied by claimant's written statement that the adjustment claimed is the entire adjustment to which the claimant has reason to believe it is entitled as a result of the occurrence of said event.
- C. Once the extent of changed Contract Time, if any, is prepared in accordance with the provisions of Article 12 of the General Conditions, a Change Order shall be prepared for review and signing by both parties.
- D. Contractor's disagreement with the refusal to grant a requested extension in the Contract Time shall in no way relieve him/her from the responsibility to proceed immediately with the Work, and to seek settlement of the dispute under the pertinent provisions of this Contract. Any delay in the completion of the Work shall not constitute a viable reason for granting an extension of time.
- E. No claim for an adjustment in the Contract Time shall be valid if it is not submitted in accordance with the provisions above, as well as those of Article 12 of the General Conditions as supplemented in the Supplementary Conditions of this Contract.

# END OF SECTION

## SECTION 01050

## FIELD ENGINEERING

## PART 1 - GENERAL

## 1.1 DESCRIPTION

- A. Work Included: Provide such field engineering services as are required for proper completion of the Work including, but not necessarily limited to:
  - 1. Establishing and maintaining lines and levels.
  - 2. Structural design of shores, forms, and similar items provided by the Contractor as part of his means and methods of construction.
- B. Related Work:
  - 1. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division 1 of these Specifications.
  - 2. Additional requirements for field engineering also may be described in other sections of these Specifications.

## 1.2 QUALITY ASSURANCE

- A. Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the Work of this Section.
- B. The Contractor shall conduct all work in a first-class workmanlike manner, and he/she shall use reasonable and appropriate care and skill in the performance of the Work under this Section.

## 1.3 PROCEDURES

- A. In addition to procedures directed by the Contractor for proper performance of the Contractor's responsibilities:
  - 1. Locate and protect control points before starting work on the site.
  - 2. Preserve permanent reference points during progress of the Work.
  - 3. Verification of all reference points. If a discrepancy is found, promptly notify Engineer.
  - 4. Promptly advise the Engineer when a reference point is lost or destroyed, or requires relocation because of changes in the Work.

## 1.4 SURVEY REQUIREMENTS

A. Contractor shall establish a minimum of two (2) permanent benchmarks on site, reference to data established by survey control points.

- B. Contractor to establish and maintain elevation lines and levels. Locate and lay out by instrumentation and similar appropriate means:
  - 1. Site improvements, including pavements, stakes for grading, fill, and topsoil placement, utility locations, slopes, and invert elevations.
  - 2. Grid or axis for structures.
  - 3. Controlling lines and levels required for mechanical and electrical trades.

# END OF SECTION

#### SECTION 01065

## UNDERGROUND FACILITIES

#### PART 1 - GENERAL

#### 1.1 DESCRIPTION

- A. Work Included: In the performance of the Work of this Contract, the Contractor shall take all the preventative measures to ensure the safety of all the underground facilities encountered. See General Conditions for definition of Underground Facilities.
- B. Related Work:
  - 1. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division 1 of these Specifications.
  - 2. Section 02221 Trenching, Backfilling and Compacting

#### 1.2 QUALITY ASSURANCE

- A. Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specific requirements and the methods needed for proper performance of the Work of this Section.
- B. The Contractor shall conduct all work in a first-class workmanlike manner, and he/she shall use reasonable and appropriate care and skill in the performance of the Work under this Section.

## 1.3 DEFINITIONS

A. The words "facilities" and "utilities" as used in these specifications are synonymous.

#### 1.4 UNDERGROUND FACILITIES

- A. It shall be the Contractors responsibility to contact "Dig Safe" and any other utility company not covered under "Dig Safe", for accurate field locations prior to construction, so that the underground facility may be avoided during the operation of the excavating equipment.
  - 1. The Contractor shall familiarize himself with Massachusetts General Law, Chapter 82, Section 40.

# 1.5 PROTECTION OF UNDERGROUND FACILITIES

- A. All existing water pipes and services, gas pipes, electric and telephone conduits, sewers, drains or other underground facilities which are uncovered by the excavation and which do not, in the opinion of the Engineer, require to be changed in location, shall be carefully supported and protected from injury by the Contractor. The Contractor shall be responsible for notifying all underground facility companies of actual damage, suspected disturbance, or any other condition associated with said underground facility, which could remotely result in a leak or break.
  - 1. If the Contractor causes damage to any of the underground facilities during his construction process, and the locations supplied by the various utility companies and departments were "reasonably accurate" (hereinafter defined), the Contractor shall be liable for all costs incurred to repair or replace the damage.
  - 2. For this contract the terminology "reasonably accurate" shall mean within a distance of 4 feet, in any direction, from the location mark supplied by the particular underground facility company or department.

## 1.6 RELOCATION OF UNDERGROUND FACILITIES

- A. Whenever it becomes necessary, in the opinion of the Engineer, to change the location of any underground facility uncovered by the excavation and not otherwise provided for in these Specifications, the Contractor shall do the whole or such portions of making such changes as the Engineer may direct, such Work to be paid for under a Change Order. In removing existing pipes which, in the opinion of the Engineer, are in condition to justify relaying, the Contractor will be held responsible and shall pay for any unnecessary breakage, except that necessary in cutting in at the points of disconnection.
- B. The Contractor shall provide assistance as required to any utility company or department which has to relocate an underground facility due to conflict with the Work of this Contract.

## 1.7 OBSTRUCTION OF FLOWS

A. The Contractor shall provide suitable temporary channels for the flow of all water courses and shall hold the Owner harmless against all claims for damage growing out of obstruction of the flow in sewers, drains or gutters.

## END OF SECTION

#### SECTION 01080

#### ELECTRONIC VARIABLE MESSAGE SIGN/TRAFFIC MANAGEMENT PLAN

#### PART 1 - GENERAL

#### 1.1 DESCRIPTION

- A. Work Included: The transportation of all equipment to the site, set-up, programming, protection, maintenance, and removal each time the Owner requests the installation of the portable changeable message sign. Contractor shall also be responsible for traffic management, including construction signage as required, and for protecting vehicles and pedestrian traffic. All messages displayed shall be approved by Owner.
- B. Related Work:
  - 1. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division 1 of these Specifications.

#### 1.2 QUALITY ASSURANCE

- A. Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the Work of this Section.
- B. The Contractor shall conduct all work in a first-class workmanlike manner, and he/she shall use reasonable and appropriate care and skill in the performance of the Work under this Section.

## 1.3 SUBMITTALS

A. Comply with pertinent provisions of Section 01340.

#### 1.4 PRODUCT HANDLING

A. Comply with pertinent provisions of Section 01610.

## PART 2 - PRODUCTS

#### 2.1 PORTABLE CHANGEABLE MESSAGE SIGN

- A. The portable changeable message sign shall be capable of performing all functions at ambient temperatures ranging from  $-30^{\circ}$ F to 165°F. There shall be no degradation of operation due to fog, rain or snow.
- B. Message board shall be as follows:
  - 1. Type: The display shall be LED.
  - 2. Size: The message board shall have a minimum height of 48 inches, maximum height 72 inches and a minimum width of 60 inches, maximum width of 72 inches.
  - 3. Colors: The display shall be either fluorescent yellow or ITE amber.
  - 4. Lines: The signboard shall have the capability of displaying at least three (3) lines of 12-inch characters with 1 to 9 characters per line.
  - 5. Visibility and viewing angle: The sign shall be visible from a minimum distance of 300 feet with a viewing angle or no less than 30 degrees. The sign shall be either internally or externally illuminated for nighttime visibility.
- C. Operator Interface shall consist of a means of creating and controlling the on-site display message(s) with each sign. The operator interface shall contain, at a minimum, the following:
  - 1. Controller (CPU).
  - 2. Lockable weatherproof enclosure for interface components.
  - 3. Operator's display terminal with keyboard, providing a full screen display to allow the operator to preview the message content and format before it is sent to the sign panel. The keyboard shall be of a standard design.
- D. Controller shall possess, at a minimum, the following features:
  - 1. Full 64K user memory, minimum or as required for the project messages.
  - 2. Changeable message flash rate capability.
  - 3. A minimum of 24-hour battery back-up.
  - 4. Password activation software shall be available.
  - 5. Capacity to store a minimum of 199 pre-defined messages and a minimum of 50 user-created messages (not to exceed 32K).
- E. Power Supply shall consist of the following:
  - 1. A battery with solar charging.
  - 2. The power supply shall have a cover for weather protection and shall be lockable for security.

## 2.2 TRAFFIC MANAGEMENT SIGNS

- A. All traffic management signs shall be in accordance with the Manual on Uniform Traffic Control Devices. At a minimum, see drawings for typical traffic control signs.
- B. All other traffic control devices/signs (i.e., reflectorized drums with flashing lights) provided for normal operations shall also be provided.
- C. All signs shall be approved by the Owner and shall be in accordance with the contract drawings.
- PART 3 EXECUTION

#### 3.1 GENERAL

A. The changeable message sign shall be installed and operational for a 7 day period on a minimum of three separate occasions, and be positioned at the direction of the Owner. All other signs shall be used during the entire period of construction. The Contractor shall be responsible for the maintenance of such devices and appurtenances, throughout its use on the project with no additional compensation thereof. Should the units be found to be defective in any way, they shall be replaced immediately at the Contractor's expense.

#### 3.2 INSTALLATION AND OPERATION

- A. The Contractor shall be responsible for furnishing, programming, installing, and operating the portable changeable message sign for a period, at a minimum, as required by the Owner.
- B. The Work under this Section includes delivery to required site, set-up of various messages and work required to insure the message sign will operate to the satisfaction of the Owner from 6:00 A.M. to 9:00 P.M. on the days designated by the Owner.
- C. Once the "message sign" is removed from the site, permanent signs indicating "CONSTRUCTION AHEAD. TO AVOID DELAY, SEEK ALTERNATE ROUTES" shall replace the electronic variable message sign.

#### 2.3 TRAINING

A. Contractor to provide the Owner with appropriate training on the unit to allow the Owner to revise the message only.

## END OF SECTION

#### SECTION 01092

#### ABBREVIATIONS

#### PART 1 - GENERAL

#### 1.1 DESCRIPTION

- A. Listing of Abbreviations: The listing of abbreviations in this Specification Section represent the Standard Organization named.
- B. Related Work:
  - 1. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division 1 of these Specifications:
  - 2. All related Specification Sections shall be used in conjunction with this Section.

#### 1.2 QUALITY ASSURANCE

- A. For products or workmanship specified by association, trade, or Federal Standards, comply with requirements of the Standard, except when more stringent requirements are specified or are required by applicable codes.
- B. Conform to reference standard by date of issue current on date for receiving bids.
- C. See Article 3, par 3.3 of the General Conditions.
- D. The Contractor shall conduct all work in a first-class workmanlike manner, and he/she shall use reasonable and appropriate care and skill in the performance of the Work under this Section.

#### 1.3 LISTING OF STANDARD ORGANIZATIONS AND THEIR ABBREVIATIONS:

AA	- Aluminum Association
AAN	- American Association of Nurserymen
AASHTO	- American Association of State Highway and Transportation Officials
ACI	- American Concrete Institute
ADC	- Air Diffusion Council
AGA	- American Gas Association
AHDGA	- American Hot Dip Galvanizers Association
AI	- Asphalt Institute
AIA	- American Institute of Architects
AISC	- American Institute of Steel Construction
AISI	- American Iron and Steel Institute
ANSI	- American National Standards Institute
APA	- American Plywood Association

API	- American Petroleum Institute
ASCE	- American Society of Civil Engineers
ASHRAE	- American Society of Heating, Refrigerating, and Air Conditioning Engineers
ASIIKAL	- American Society of Mechanical Engineers
ASTM	- American Society of Testing and Materials
AWPA	- American Wood Preservers Association
AWS AWWA	- American Welding Society
	- American Water Works Association
BIA	- Brick Institute of America
CRSI	- Concrete Reinforcing Steel Institute
CSA	- Canadian Standards Association
DEP	- Department of Environmental Protection
DHI	- Door and Hardware Institute
DIPRA	- Ductile Iron Pipe Research Association
EJCDC	- Engineers Joint Contract Documents Committee
EPA	- Environmental Protection Agency
FM	- Factory Mutual System
Fed. Spec.	- Federal Specification
HI	- Hydraulic Institute
IEEE	- Institute of Electrical and Electronics Engineers
ISA	- Instrument Society of America
MIA	- Masonry Institute of America
MIL	- Military Specification
MSBC	- Massachusetts State Building Code
MSS	- Manufacturers Standardization Society of the Valve and Fitting Industry
NAAMM	- National Association of Architectural Metal Manufacturers
NCMA	- National Concrete Masonry Association
NEC	- National Electrical Code
NEMA	- National Electrical Manufacturers Association
NFPA	- National Fire Protection Association
NRCA	- National Roofing Contractors Association
OSHA	- Occupational Safety and Health Administration
PCA	- Portland Cement Association
PCI	- Prestressed Concrete Institute
PPI	- Plastic Pipe Institute
PS	- Product Standard of the National Bureau of Standards
SDI	- Steel Door Institute
SIGMA	- Sealed Insulating Glass Manufacturers
SMACNA	- Sheet Metal and Air Conditioning Contractors National Association
SPI	- Society of the Plastics Industry
SSPC	- Steel Structures Painting Council
TCA	- Tile Council of America
TPI	- Truss Plate Institute
UL	- Underwriters Laboratories

### PROJECT MEETINGS

### PART 1 - GENERAL

### 1.1 DESCRIPTION

- A. Work Included: To enable orderly review during progress of the Work, and to provide for systematic discussion of problems, the Engineer will conduct project meetings throughout the construction period.
- B. Related Work:
  - 1. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division 1 of these Specifications.
  - 2. The Contractor's relations with his subcontractors and materials suppliers, and discussions relative thereto, are the Contractor's responsibility and normally are not part of project meetings content.

### 1.2 QUALITY ASSURANCE

- A. For those persons designated by the Contractor to attend and participate in project meetings, provide required authority to commit the Contractor to solutions agreed upon in the project meetings.
- B. The Contractor shall conduct all work in a first-class workmanlike manner, and he/she shall use reasonable and appropriate care and skill in the performance of the Work under this Section.

### 1.3 SUBMITTALS

- A. Agenda Items: To the maximum extent practicable, advise the Engineer at least 24 hours in advance of project meetings regarding items to be added to the agenda.
- B. Minutes:
  - 1. The Engineer will compile minutes of each project meeting, and will furnish three (3) copies to the Contractor and required copies to the Owner.
  - 2. Recipients of copies may make and distribute such other copies as they wish.

PART 2 - PRODUCTS - No products are required in this Section.

### PART 3 - EXECUTION

#### 3.1 MEETING SCHEDULE

- A. Except as noted below for Pre-construction Meeting, project meetings will be held bi-weekly if work progress warrants.
- B. Coordinate as necessary to establish mutually acceptable schedule for meetings.

### 3.2 MEETING LOCATION

A. The Engineer will establish meeting location. To the maximum extent practicable, meetings will be held at the job site.

### 3.3 PRE-CONSTRUCTION MEETING

- A. Pre-construction Meeting will be scheduled to be held within 15 working days after the Owner has issued the Notice to Proceed.
  - 1. Provide attendance by authorized representatives of the Contractor and major subcontractors.
  - 2. The Engineer will advise other interested parties, including the Owner, and request their attendance.
- B. Minimum Agenda: Data will be distributed and discussed on at least the following items:
  - 1. Organizational arrangement of Contractor's forces and personnel, and those of subcontractors, materials suppliers, and Engineer.
  - 2. Channels and procedures for communications.
  - 3. Construction schedule, including sequence of critical work.
  - 4. Contract Documents, including distribution of required copies of original Documents and revisions.
  - 5. Processing of Shop Drawings and other data submitted to the Engineer for review.
  - 6. Processing of Bulletins, field decisions, and Change Orders.
  - 7. Rules and regulations governing performance of the Work; and
  - 8. Procedures for security, quality control, housekeeping, and related matters.

#### 3.4 PROJECT MEETINGS

- A. Attendance:
  - 1. To the maximum extent practicable, assign the same person or persons to represent the Contractor at project meetings throughout progress of the Work.
  - 2. Subcontractors, materials suppliers, and others may be invited to attend those project meetings in which their aspect of the Work is involved.
- B. Minimum Agenda:
  - 1. Review, revise as necessary, and approve minutes of previous meetings.
  - 2. Review progress of the Work since last meeting, including status of submittals for approval.
  - 3. Identify problems which impede planned progress.

- 4. Develop corrective measures and procedures to regain planned schedule.
- 5. Complete other current business.
- C. Revisions to Minutes:
  - 1. Unless published minutes are challenged in writing prior to the next regularly scheduled progress meeting, they will be accepted as properly stating the activities and decisions of the meeting.
  - 2. Persons challenging published minutes shall reproduce and distribute copies of the challenge to all indicated recipients of the particular set of minutes.
  - 3. Challenge to minutes shall be settled as priority portions of "old business" at the next regularly scheduled meeting.

## CONSTRUCTION SCHEDULES

### PART 1 - GENERAL

### 1.1 SUMMARY

- A. Work Included: To assure adequate planning and execution of the Work so that the Work is completed within the number of calendar days allowed in the Contract, and to assist the Engineer in appraising the reasonableness of the proposed schedule and evaluating progress of the Work, prepare and maintain the schedules and reports described in this Section.
- B. Related Work:
  - 1. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Divisions 1 thru 3 of these Specifications.
  - 2. Preliminary Schedules: General Conditions Sections 2.05-2.07
  - 3. Progress Schedules: General Conditions Section 6.04
  - 4. Change of Schedule: General Conditions Sections 12.02-12.03
  - 5. Failure to Adhere to Schedule: General Conditions Section 15.02
- C. The Construction period shall be that as indicated in the Agreement Section of this Contract.
- D. In accordance with Par. 17.02 of the General Conditions, when calculating any period of time referred to in the Contract Documents by days, it will be computed to exclude the first and include the last day of such period. If the last day of any such period falls on a Saturday or Sunday, or on a day made a legal holiday by the law of the applicable jurisdiction, such day will be omitted from the computation.
- E. For purposes of this Contract, a calendar day of 24 hours measured from midnight to the next midnight will constitute a day.

### 1.2 QUALITY ASSURANCE

- A. Employ a scheduler who is thoroughly trained and experienced in compiling construction schedule data, and in preparing and issuing periodic reports as required.
- B. Perform data preparation, analysis, charting, and updating in accordance with standards approved by the Engineer.
- C. Reliance upon the approved schedule:

- 1. The construction schedule as approved by the Engineer will be an integral part of the Contract and will establish interim completion dates for the various activities under the Contract.
- 2. Should any activity not be completed within 10 days after the stated scheduled date, the Engineer may request the reason for the delay in schedule from the Contractor. The Contractor shall supply the requested information and the steps which he intends to take to get back on schedule.
- 3. It is expressly understood and agreed that failure by the Engineer to exercise the option either to order the Contractor to expedite an activity or to expedite the activity by other means shall not be considered to set a precedent for any other activities.
- D. The Contractor shall conduct all work in a first-class workmanlike manner, and he/she shall use reasonable and appropriate care and skill in the performance of the Work under this Section.

# 1.3 SUBMITTALS

- A. Comply with pertinent provisions of Section 01340.
- B. Preliminary Analysis: Within 10 calendar days after the Contractor has received the Owner's Notice to Proceed, submit one (1) electronic copy of a preliminary construction schedule prepared in accordance with Par. 3.1 of this Section.
- C. Construction Schedule: Within 30 calendar days after the Contractor has received the Owner's Notice to Proceed, submit one (1) electronic copy and four (4) printed copies of a construction schedule prepared in accordance with Par. 3.2 of this Section.
- D. Periodic Reports: On the first working day of every month following the submittal described in Par. 1.3.C. above, submit one (1) electronic copy and four (4) printed copies of the updated construction schedule in accordance with Par. 3.3 of this Section.

# PART 2 - PRODUCTS

# 2.1 CONSTRUCTION ANALYSIS

- A. Graphically show by bar-chart, or by other means acceptable to the Engineer, the order and interdependence of all activities necessary to complete the Work, and the sequence in which each activity is to be accomplished, as planned by the Contractor and his project field superintendent, in coordination with all subcontractors whose work is shown on the diagram.
- B. Include, but do not necessarily limit indicated activities to:
  - 1. Project mobilization;
  - 2. Submittal and approval of Shop Drawings and Samples;
  - 3. Procurement of equipment and critical materials;
  - 4. Fabrication of special material and equipment, and its installation and testing;

- 5. Final cleanup;
- 6. Final inspecting and testing; and
- 7. All activities by the Engineer that affect progress, require dates for completion, or both, for all and each part of the Work.

### PART 3 - EXECUTION

### 3.1 PRELIMINARY ANALYSIS

- A. Show all activities of the Contractor under this Work for the period between receipt of Notice to Proceed and submittal of construction schedule.
- B. Show the Contractor's general approach to remainder of the Work.
- C. Show cost of all activities scheduled for performance before submittal and approval of the construction schedule.
- D. Submit in accordance with Par. 1.3.B. of this Section.

### 3.2 CONSTRUCTION SCHEDULE

- A. Within 30 calendar days from receipt of Notice to Proceed, complete the construction analysis in preliminary form, meet with the Engineer, review contents of the proposed construction schedule, and make all revisions agreed upon.
- B. Submit in accordance with Par. 1.3.C. of this Section.

### 3.3 PERIODIC REPORTS

- A. Update the approved construction schedule.
  - 1. Indicate "actual" progress in percent completion for each activity.
  - 2. Provide written narrative summary of revisions causing delay in the program, and an explanation of corrective actions taken or proposed.
- B. Submit in accordance with Par. 1.3.D. of this Section.

### 3.4 **REVISIONS**

A. Make only those revisions to approved construction schedule as are approved in advance by the Engineer.

### SUBMITTALS AND SUBSTITUTIONS

#### PART 1 - GENERAL

#### 1.1 DESCRIPTION

- A. Work Included: Make submittals required by the Contract Documents, and revise and resubmit as necessary to establish compliance with the Contract Document requirements.
- B. Related Work:
  - 1. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Divisions 1 thru 3 of these Specifications.
- C. Work Not Included:
  - 1. Submittals not required under this Contract will not be reviewed by the Engineer.
  - 2. The Contractor may require his subcontractors to provide drawings, setting diagrams, and similar information to help coordinate the Work, but such data shall remain between the Contractor and his subcontractors and will not be reviewed by the Engineer unless specifically called for within the Contract Documents.

#### 1.2 QUALITY ASSURANCE

- A. Coordination of Submittals:
  - 1. Prior to each submittal, carefully review and coordinate all aspects of each item being submitted.
  - 2. Verify that each item and the submittal for its conformity in all respects with the specified requirements.
  - 3. By affixing the Contractor's signature to each submittal, certify that this coordination has been performed.
- B. Substitutions:
  - 1. The Contract is based on the standards of quality established in the Contract Documents. Substitutions will be considered only when they meet those standards of quality.
  - 2. Do not substitute materials, equipment, or methods unless such substitution has been specifically approved in writing for this Work by the Engineer.
- C. "Or equal":
  - 1. Where the phrase "or equal" or "or equal as approved by the Engineer" occurs in the Contract Documents, see Par. 6.05 of the General Conditions.
  - 2. The decision of the Engineer shall be final.

D. The Contractor shall conduct all work in a first-class workmanlike manner, and he/she shall use reasonable and appropriate care and skill in the performance of the Work under this Section.

### 1.3 SUBMITTALS

A. Make submittals of Shop Drawings, samples, substitution requests, and other items in accordance with the provisions of this Section.

### PART 2 - PRODUCTS

### 2.1 SHOP DRAWINGS

- A. Scale and Measurements: Make Shop Drawings accurately to a scale sufficiently large to show all pertinent aspects of the item and its method of connection to the Work.
- B. Types of Prints Required:
  - 1. Submit Shop Drawings in the form of six (6) blackline prints of each sheet.
  - 2. Blueprints will not be acceptable.
- C. Review comments of the Engineer will be shown on the blackline print when it is returned to the Contractor. The Contractor may make and distribute such copies as are required for his purposes.

### 2.2 MANUFACTURERS' LITERATURE

A. Where contents of submitted literature from manufacturers includes data for more than one size, model, or other, clearly indicate which portion of the content is being submitted for review.

## 2.3 SAMPLES

- A. Provide Sample(s) identical to the precise article proposed to be provided. Identify as described under Par. 3.1 in this Section.
- B. Number of Samples Required:
  - 1. Unless otherwise specified, submit Samples in the quantity which is required to be returned, plus one (1) which will be retained by the Engineer.
  - 2. By prearrangement in specific cases, a single Sample may be submitted for review and, when approved, be installed in the Work at a location agreed upon by the Engineer.

### 2.4 COLORS AND PATTERNS

A. Unless the precise color and pattern is specifically called out in the Contract Documents, and whenever a choice of color or pattern is available in the specified products, submit accurate color and pattern charts to the Engineer for selection.

### PART 3 - EXECUTION

### 3.1 IDENTIFICATION OF SUBMITTALS

- A. Consecutively number all submittals.
  - 1. When material is submitted for any reason, transmit under a new letter of transmittal and with a new transmittal number.
  - 2. On resubmittals, cite the original submittal number and date for reference.
- B. Accompany each submittal with a letter of transmittal showing all information required for identification and checking.
- C. On at least the first page of each submittal, and elsewhere as required for positive identification, show the submittal number in which the item was included.
- D. Maintain an accurate submittal log for the duration of the Work, showing current status of all submittals at all times. Make the submittal log available to the Engineer for his review upon request.

### 3.2 GROUPING OF SUBMITTALS

- A. Unless otherwise specified, make submittals in groups containing all associated items to assure that information is available for checking each item when it is received.
  - 1. Partial submittals may be rejected as not complying with the provisions of the Contract.
  - 2. The Contractor may be held liable for delays so occasioned.

#### 3.3 TIMING OF SUBMITTALS

- A. Make submittals in accordance with the schedule listed under the submittal paragraph of each Section of this document which requires submittals. The materials and equipment that need to be included in the submittals are listed, but not limited to, those indicated in the submittal paragraph of each Section of the document.
- B. Make submittals far enough in advance of scheduled dates for installation to provide time required for reviews, for securing necessary approvals, for possible revisions and resubmittals, and for placing orders and securing delivery.
- C. In scheduling, allow at least twenty (20) working days for review by the Engineer following his receipt of the submittal.

### 3.4 ENGINEER'S REVIEW

A. Review by the Engineer does not relieve the Contractor from responsibility for errors which may exist in the submitted data.

- B. Revisions:
  - 1. Make revisions required by the Engineer.
  - 2. If the Contractor considers any required revision to be a change, he shall so notify the Engineer as provided for in Paragraph 10.05 of the General Conditions.
  - 3. Make only those revisions directed or approved by the Engineer.
  - 4. Revise previous submittal drawings or data and resubmit, as specified for the initial submittal.

## TESTING LABORATORY SERVICES

### PART 1 - GENERAL

### 1.1 DESCRIPTION

- A. Work Included:
  - 1. Cooperate with the Owner's testing agency and all others responsible for testing and inspecting the Work.
  - 2. Provide such other testing and inspecting as are specified to be furnished by the Contractor in this Section and/or elsewhere in the Contract Documents.
- B. Related Work:
  - 1. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division 1 of these Specifications.
  - 2. Requirements for testing may be described in various Sections of these Specifications.
  - 3. Where no testing requirements are described, but the Owner decides that testing is required, the Owner may require such testing to be performed under current pertinent standards for testing. Payment for such testing will be made as described in this Section.
- C. Work Not Included:
  - 1. Payment for compaction testing will be the responsibility of the Owner.
  - 2. Selection of testing laboratory: The Owner will select a pre-qualified independent testing laboratory.

#### 1.2 QUALITY ASSURANCE

- A. The testing laboratory will be qualified to the Owner's approval, in accordance with ASTM E329.
- B. Testing, when required, will be in accordance with all pertinent codes and regulations, and with selected standards of the American Society for Testing and Materials.
- C. The Contractor shall conduct all work in a first-class workmanlike manner, and he/she shall use reasonable and appropriate care and skill in the performance of the Work under this Section.

#### 1.3 PRODUCT HANDLING

A. Comply with pertinent provisions of Section 01610.

B. Promptly process and distribute required copies of test reports and related instructions to assure necessary re-testing and replacement of materials with the least possible delay in progress of the Work.

### PART 2 - PRODUCTS

# 2.1 PAYMENT FOR TESTING

- A. Initial Services:
  - 1. The Owner will pay for initial and follow up compaction testing services requested by the Engineer. Contractor to pay for subsequent testing of the same area if failure of compaction results continue.
- B. Retesting: When initial test and follow-up test indicate noncompliance with the Contract Documents, subsequent retesting occasioned by the noncompliance shall be performed by the same testing agency, and costs thereof shall be paid in full by Contractor.
- C. Contractor to pay for all bacteriological testing on water mains.
- D. Contractor to pay for all pipe pressure testing.

## 2.2 CODE COMPLIANCE TESTING

A. Inspections and tests required by codes or ordinances, or by a plan approval authority, and which are made by a legally constituted authority, shall be the responsibility of and shall be paid for by the Contractor, unless otherwise provided in the Contract Documents.

### 2.3 CONTRACTOR'S CONVENIENCE TESTING

A. Inspecting and testing performed exclusively for the Contractor's convenience shall be the sole responsibility of the Contractor.

### PART 3 - EXECUTION

# 3.1 COOPERATION WITH TESTING LABORATORY

A. Representatives of the testing laboratory shall have access to the Work at all times and at all locations where the Work is in progress. Provide facilities for such access to enable the laboratory to perform its functions properly.

### 3.2 TAKING SPECIMENS

A. All specimens and samples for testing, unless otherwise provided in the Contract Documents, shall be taken by the testing personnel. All sampling equipment and personnel will be provided by the testing laboratory. All deliveries of specimens and samples to the testing laboratory will be performed by the testing laboratory.

## 3.3 SCHEDULES FOR TESTING

- A. Establishing Schedule:
  - 1. By advance discussion with the testing laboratory selected by the Owner, determine the time required for the laboratory to perform its tests and to issue each of its findings.
- B. Revising Schedule: When changes of construction schedule are necessary during construction, coordinate all such changes with the testing laboratory as required.
- C. Adherence to Schedule: When the testing laboratory is requested to test, but is prevented from testing or taking specimens due to incompleteness of the Work, all extra charges for testing attributable to the delay may be back charged to the Contractor.

### TEMPORARY FACILITIES

### PART 1 - GENERAL

### 1.1 DESCRIPTION

- A. Work Included: Provide temporary facilities and controls needed for the Work including, but not necessarily limited to:
  - 1. Sanitary facilities;
  - 2. Enclosures such as tarpaulins, barricades, and canopies;
  - 3. Temporary fencing of the construction site.
- B. Related Work:
  - 1. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division 1 of these Specifications.
  - 2. Except that equipment furnished by subcontractors shall comply with requirements of pertinent safety regulations, such equipment normally furnished by the individual trades in execution of their own portions of the Work are not part of this Section.
  - 3. Permanent installation and hookup of the various utility lines are described in other Sections.

#### 1.2 PRODUCT HANDLING

A. Maintain temporary facilities and controls in proper and safe condition throughout progress of the Work.

### PART 2 - PRODUCTS

#### 2.1 SANITARY FACILITIES

A. Sanitary conveniences, properly screened from public observation, for the use of all persons employed on the Work and beginning with the first persons engaged in preliminary operations, shall be provided and maintained by the Contractor in sufficient numbers through the completion of the Work.

## 2.2 WEATHER PROTECTION

- A. 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 and be 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 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°F at the working surface. This provision does not supersede any specific requirements for methods of construction and/or curing of materials.
- B. Installation of weather protection and heating devices shall comply with all safety regulations including provisions for adequate ventilation and fire protection devices.
- C. The total cost of all weather protection inclusive of all materials, labor, equipment and incidentals required shall be included in the contract price. The cost shall include all work required to furnish, maintain, and remove all temporary enclosures and temporary heating systems required for weather protection.

### PART 3 - EXECUTION

### 3.1 MAINTENANCE AND REMOVAL

- A. Maintain temporary facilities and controls as long as needed for safe and proper completion of the Work.
- B. Remove such temporary facilities and controls as rapidly as progress of the Work will permit, or as directed by the Engineer.

### MOBILIZATION

### PART 1 - GENERAL

#### 1.1 DESCRIPTION

- A. Work Included: Ordering and receipt of all materials, neat stockpiling of such materials, delivery and setup of all construction equipment, and cleanup of stockpile area upon completion of construction.
- B. Related Work:
  - 1. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division 1 thru Divisions 3 of these Specifications.

### 1.2 QUALITY ASSURANCE

- A. Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the Work of this Section.
- B. The Contractor shall conduct all work in a first-class workmanlike manner, and he/she shall use reasonable and appropriate care and skill in the performance of the Work under this Section.

#### 1.3 SUBMITTALS

A. None required under this Section.

#### 1.4 PRODUCT HANDLING

- A. Comply with pertinent provisions of Section 01610
- PART 2 PRODUCTS -Not Used

### PART 3 - EXECUTION

### 3.1 STORAGE AREA

- A. It shall be the Contractor's sole responsibility to procure and maintain, either by purchase or rental, any property or easement necessary to provide suitable and adequate storage space for tools, materials and equipment during the progress of the Work if existing project sites are not adequate. The storage or marshalling area obtained by the Contractor shall in no way obstruct or interfere with pedestrian or vehicular movement, and shall not occupy any space within the public right-of-way, except with specific permission from the Owner. The storage area shall be kept in a neat and orderly fashion at all times and shall not be allowed to become a public nuisance.
- B. The Contractor shall remove all excess materials, stockpiles, and equipment from storage sites, sweep rake and generally dress area to condition satisfactory to property Owner upon completion of Contract.
  - 1. The Owner shall not be a party to negotiations related to acquisition of area for storage, or cleanup of same.

#### 3.2 EQUIPMENT

A. The Contractor shall transport all equipment to the site and set up operations to a condition satisfactory to proceed with the intended construction, and upon completion, remove same.

#### 3.3 PROJECT MAINTENANCE

A. The Contractor shall properly maintain the project and storage area during the life of the Contract, and upon completion of work, dismantle storage area and provide general cleanup along the project site.

### TREE AND PLANT PROTECTION

#### PART 1 - GENERAL

#### 1.1 DESCRIPTION

A. The Contractor shall conduct his operations so as to minimize disturbances to ground surfaces in the vicinity of trees and plants that have not been proposed for removal to allow access for the Work of this project, and shall minimize disturbances to the trees and plants not selected for removal in the Contract area.

#### PART 2 - MATERIALS - OMITTED

#### PART 3 - EXECUTION

#### 3.1 TREES

- A. The Contractor shall enclose the trunks of lawn trees and cultivated shrubs adjacent to his work not to be cut, with substantial wooden boxes of such height as may be necessary to protect them from injury from piled material, from equipment, from his operations, or otherwise due to his work. Excavating machinery shall be of suitable type and be operated with care to prevent injury to trees not to be cut and particularly to overhanging branches and limbs.
- B. Branches, limbs, and roots shall not be cut except by permission of the Engineer. All cutting shall be smoothly and neatly done without splitting or crushing. In case of cutting or unavoidable injury to branches, limbs and trunks of trees, the cut or injured portions, shall be neatly trimmed and covered with an application of grafting wax or tree healing paint as directed.
- C. Small trees, which could be transplanted, may be removed by careful hand digging and placing root system within a burlap container. These trees shall be temporarily planted or stored and maintained by the Contractor to be replanted upon completion of pipe structure installation.

#### 3.2 HEDGES, SHRUBS, AND PLANTS

A. Cultivated hedges, shrubs, and plants which might be injured by the Contractor's operations shall be protected by suitable means or shall be dug up and temporarily replanted and maintained. After the construction operations have been substantially completed, they shall be replanted in their original positions and cared for until growth is re-established.

### 3.3 REPLACEMENT

A. If trees, cultivated hedges, shrubs and plants are injured to such a degree as to affect their growth or diminish their beauty or screening effectiveness, they shall be replaced by items of kind and quality at least equal to the kind and quality existing at the start of the Work.

### PROTECTION OF PROPERTY

#### PART 1 - GENERAL

#### 1.1 DESCRIPTION

- A. The Contractor shall provide all necessary protection of existing property to prevent any damage to property adjacent to the construction.
- PART 2 PRODUCTS No products are required in this Section.

#### PART 3 - EXECUTION

### 3.1 PROTECTION OF PROPERTY

- A. The Contractor shall exercise extreme caution while working close to existing shrubs, trees, walls, lawns and other property adjacent to the construction.
  - 1. Contractor shall replace any and all property which was damaged or destroyed as a result of his operations or because of his failure to protect them in a manner which would prevent damage.
  - 2. Property which has been damaged and replaced shall be equal or better than original in quality and workmanship to the damaged property and shall be subject to the approval of the property Owner.
  - 3. Mailboxes, signs, and fences adjacent to or on location of construction shall be carefully removed and temporarily set, to be replaced in original position upon completion of trenching and backfill.
  - 4. Branches which interfere with construction may be removed, only upon approval of the Engineer.
    - a. Limbs and branches shall be trimmed off neatly and cleanly, close to the trunk of the tree or to its main branch. The cut surfaces shall be coated with an approved tree wound coating.
  - 5. Where pipeline installation is in close proximity to utility poles, it shall be the Contractor's responsibility to contact the utility company, and assist in supporting the pole during construction. Any costs associated with pole support shall be paid by the Contractor.

## UNIFORMED POLICE OFFICERS

### PART 1 - GENERAL

#### 1.1 DESCRIPTION

A. The Contractor shall make all arrangements with the Police Department for the services of Uniformed Police Officers.

#### PART 2 - PRODUCTS

#### 2.1 UNIFORMED POLICE OFFICERS

A. The Police Safety Officer will assign Uniformed Police Officers from the department in the quantity and at the location(s) as determined to be necessary by the Police Department.

#### PART 3 - EXECUTION

#### 3.1 ARRANGEMENTS

- A. The Contractor shall make all arrangements with the Police Safety Officer for the services of Uniformed Police Officers. If, in the opinion of the Police Department, Uniformed Police Officers are required for the protection of persons and control of traffic, the Contractor shall be responsible for making all arrangements with the Police Safety Officer as may be required.
- B. Contractor to schedule the details in advance to ensure details are available. The Police Department requires a minimum of 48-hour notice for scheduling a detail, however that will not guarantee a detail is available, due to other projects requiring details. It is recommended that the Contractor schedule the details on a weekly basis.
- C. If the Contractor does not request details on a weekly basis, ahead of time, and a detail is not available, the Owner is not responsible for loss production costs of the Contractor if they are not allowed to work on the street.
- D. All time in excess of 8 hours per day shall be pre-approved by the Owner.

### 3.2 PAYMENT

A. The Owner shall pay for all Uniformed Police Officers.

B. If the Contractor fails to cancel a scheduled detail and the Police Department submits a bill, the Contractor will be responsible for paying that bill without reimbursement form the Owner.

### CONTROL OF MATERIALS

### PART 1 - GENERAL

### 1.1 APPROVAL OF MATERIALS

- A. Unless otherwise specified, only new materials and equipment shall be incorporated in the work. All materials and equipment furnished by the Contractor shall be subject to the inspection and approval of the Engineer. No material shall be delivered to the Work without prior approval of the Engineer.
- B. As specified in Section 01340, the Contractor shall submit to the Engineer data relating to materials and equipment he proposes to furnish for the Work. Such data shall be in sufficient detail to enable the Engineer to identify the particular product and to form an opinion as to its conformity to the Specifications.
- C. Facilities and labor for handling and inspection of all materials and equipment shall be furnished by the Contractor. If the Engineer requires, either prior to beginning or during the progress of the Work, the Contractor shall submit additional samples or materials for such special tests as may be necessary to demonstrate that they conform to the Specifications. Such samples shall be furnished, stored, packed, and shipped as directed at the Contractor's expense. Except as otherwise noted, the Owner will make arrangements for and pay for the tests.
- D. Any delay of approval resulting from the Contractor's failure to submit samples or data promptly shall not be used as a basis of claim against the Owner or the Engineer.
- E. In order to demonstrate the proficiency of workmen or to facilitate the choice among several textures, types, finishes, and surfaces, the Contractor shall provide such samples of workmanship or finish as may be required.
- F. The materials and equipment used on the Work shall correspond to the approved samples or other data.

#### 1.2 HANDLING AND STORAGE OF MATERIALS

A. All materials and equipment to be incorporated in the Work shall be handled and stored by the manufacturer, fabricator, supplier, and Contractor before, during, and after shipment in a manner to prevent warping, twisting, bending, breaking chipping, rusting, and any injury, theft, or damage of any kind whatsoever to the material or equipment.

- B. Cement and lime shall be stored under a roof and off the ground and shall be kept completely dry at all times. All structural, miscellaneous, and reinforcing steel shall be stored off the ground to prevent accumulations of dirt or grease, and in a position to prevent accumulations of dirt or grease, and in a position to prevent accumulation of standing water and to minimize rusting. Beams shall be stored with the webs vertical. Precast concrete shall be handled and stored in a manner to prevent accumulations of dirt, standing water, staining, chipping, or cracking. Brick, block, and similar masonry products shall be handled and stored in a manner to reduce breakage, chipping, cracking, and spalling to a minimum.
- C. All mechanical equipment subject to corrosive damage by the atmosphere if stored outdoors (even though covered by canvas) shall be stored in a building to prevent injury. The building may be a temporary structure on the site or elsewhere, but it must be satisfactory to the Engineer.
- D. All materials which, in the opinion of the Engineer, have become so damaged as to be unfit for the use intended or specified shall be promptly removed from the site of the Work, and the Contractor shall receive no compensation for the damaged material or its removal.

## PRODUCT HANDLING

### PART 1 - GENERAL

### 1.1 DESCRIPTION

- A. Work Included: Protect products scheduled for use in the Work by means including, but not necessarily limited to, those described in this Section.
- B. Related Work:
  - 1. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division 1 of these Specifications.
  - 2. Additional procedures also may be prescribed in other Sections of these Specifications.
- C. Only new materials and equipment shall be incorporated into the Work.

### 1.2 QUALITY ASSURANCE

- A. Include within the Contractor's quality assurance program such procedures as are required to assure full protection of work and materials.
- B. The Contractor shall conduct all work in a first-class workmanlike manner, and he/she shall use reasonable and appropriate care and skill in the performance of the Work under this Section.

#### 1.3 MANUFACTURERS' RECOMMENDATIONS

A. Except as otherwise approved by the Engineer, determine and comply with manufacturers' recommendations on product handling, storage, and protection.

#### 1.4 PACKAGING

- A. Deliver products to the job site in their manufacturer's original container, with labels intact and legible.
  - 1. Maintain packaged materials with seals unbroken and labels intact until time of use.
  - 2. Promptly remove damaged material and unsuitable items from the job site, and promptly replace with material meeting the specified requirements, at no additional cost to the Owner.
- B. The Engineer may reject as non-complying such material and products that do not bear identification satisfactory to the Engineer as to manufacturer, grade, quality, and other pertinent information.

## 1.5 **PROTECTION**

- A. All materials shall be stored at the project site in a neat and safe manner, properly protected from damage from traffic or equipment.
- B. Any material stored on site shall be safely stockpiled and properly barricaded to prevent a hazard to vehicular or pedestrian traffic.

### 1.6 REPAIRS AND REPLACEMENTS

- A. In event of damage, promptly make replacements and repairs to the approval of the Engineer and at no additional cost to the Owner.
- B. Additional time required to secure replacements and to make repairs will not be considered by the Engineer to justify an extension in the Contract Time of Completion.

# CONTRACT CLOSEOUT

### PART 1 - GENERAL

### 1.1 DESCRIPTION

- A. Work Included: Provide an orderly and efficient transfer of the completed Work to the Owner.
- B. Related Work:
  - 1. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division 1 of these Specifications.
  - 2. "Substantial Completion" is defined in Par. 1.45 of the General Conditions.

### 1.2 QUALITY ASSURANCE

- A. Prior to requesting inspection by the Engineer, use adequate means to assure that the Work is completed in accordance with the specified requirements and is ready for the requested inspection.
- B. The Contractor shall conduct all work in a first-class workmanlike manner, and he/she shall use reasonable and appropriate care and skill in the performance of the Work under this Section.

#### 1.3 PROCEDURES

- A. Substantial Completion:
  - 1. Within a reasonable time after receipt of the request to inspect, the Engineer will inspect to determine status of completion.
  - 2. Should the Engineer determine that the work is not substantially complete:
    - a. The Engineer promptly will so notify the Contractor, in writing, giving the reasons therefore.
    - b. Remedy the deficiencies and notify the Engineer when ready for reinspection.
    - c. The Engineer will reinspect the Work.
  - 3. When Owner concurs that the Work is substantially complete:
    - a. The Owner will prepare a "Certificate of Substantial Completion", on AIA Form G704, accompanied by the Contractor's list of items to be completed, as verified by the Engineer.
    - b. The Engineer will submit the Certificate to the Owner and to the Contractor for their written acceptance of the responsibilities assigned to them in the Certificate.

- B. Final Completion:
  - 1. Verify that the Work is complete.
  - 2. Certify that:
    - a. Contract Documents have been reviewed;
    - b. Work has been inspected for compliance with the Contract Documents;
    - c. Work has been completed in accordance with the Contract Documents;
    - d. Equipment and systems have been tested as required, and are operational;
    - e. Work is completed and ready for final inspection.
  - 3. The Engineer will make an inspection to verify status of completion.
  - 4. Should the Owner determine that the Work is incomplete or defective:
    - a. The Engineer promptly will so notify the Contractor, in writing, listing the incomplete or defective work.
    - b. Remedy the deficiencies promptly and notify the Engineer when ready for reinspection.
  - 5. When the engineer determines that the Work is acceptable under the Contract Documents, he will request the Contractor to make closeout submittals.
- C. Closeout submittals include, but are not necessarily limited to:
  - 1. Operation and maintenance manuals for items so listed in pertinent other sections of these Specifications, and for other items when so directed by the Engineer;
  - 2. Warranties and bonds;
  - 3. Spare parts and materials extra stock;
  - 4. Evidence of compliance with requirements of governmental agencies having jurisdiction including, but not necessarily limited to:
    - a. Certificates of Inspection;
    - b. Certificates of Occupancy;
  - 5. Certificates of Insurance for products and completed operations;
  - 6. Evidence of payment and release of leans;
  - 7. List of subcontractors, service organizations, and principal vendors, including names, addresses, and telephone numbers where they can be reached for emergency service at all times including nights, weekends, and holidays.

### 1.4 INSTRUCTION

A. Instruct the Owner's personnel in proper operation and maintenance of systems, equipment, and similar items which were provided as part of the Work.

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## CLEARING

### PART 1 - GENERAL

### 1.1 DESCRIPTION

- A. Work Included: Clear and grub the locus of the proposed pipelines to the limits shown on the Drawings and as required by the Contract Documents.
- B. Related Work:
  - 1. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division 1 of these Specifications.
  - 2. Section 02221 Trenching, Backfilling and Compacting

### 1.2 QUALITY ASSURANCE

- A. Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the Work of this Section.
- B. Use equipment adequate in size, capacity, and numbers to accomplish the Work of this Section in a timely manner.
- C. The Contractor shall conduct all work in a first-class workmanlike manner, and he/she shall use reasonable and appropriate care and skill in the performance of the Work under this Section.

#### PART 2 - PRODUCTS - NOT USED

#### PART 3 - EXECUTION

#### 3.1 SURFACE CONDITIONS

- A. Examine the areas and conditions under which work of this Section will be performed. Correct conditions detrimental to timely and proper completion of the Work. Do not proceed until unsatisfactory conditions are corrected.
- B. Flag limits of clearing.

### 3.2 **PROTECTION**

- A. Protect existing utilities indicated or made known.
- B. Protect trees and shrubs, where indicated to remain, by providing a fence around the tree or shrub at its drip line and of sufficient height so trees and shrubs will not be damaged.
- C. All areas not designated to be cleared shall be protected from damage. Clearing operations shall be conducted so that cut trees are felled within the property boundaries and existing trees, designated to remain, are protected from damage.
- D. Protect control points, benchmarks, and existing work from damage.
- E. Maintain access to the site at all times.

### 3.3 CLEARING

- A. Within the area to be cleared:
  - 1. Fell trees and brush.
  - 2. Remove and dispose of all wood.
  - 3. Remove all stumps.
  - 4. Clean out roots 1-inch in diameter and larger to a depth of at least 12 inches below the existing ground surface.

#### 3.4 CONSERVATION OF TOPSOIL

- A. After the area has been cleared of vegetation, strip the existing topsoil.
- B. Stockpile in an area clear of new construction.
- C. Maintain the stockpile in a manner which will not obstruct the natural flow of drainage.
  - 1. Maintain stockpile free from debris and trash.
  - 2. Keep the topsoil damp to prevent dust.

#### 3.5 REMOVAL AND DISPOSAL

- A. All debris, trees, shrubs, brush, roots, stumps, etc. cleared and grubbed from the site shall be removed from the site and disposed of in accordance with all local and Commonwealth of Massachusetts regulations.
- B. Burning and/or burial of cleared and grubbed material on the site shall not be permitted.

### 3.6 UTILITIES

A. Coordinate with utility companies and agencies as required.

### DEWATERING

### PART 1 - GENERAL

#### 1.1 DESCRIPTION

A. Work Included: It is not anticipated that groundwater will be at levels where it will require dewatering for the trench work, with the exception of the trench approaching the North side of the MassPike sliplining sleeve. The is a wetlands west of this area at a lower elevation, depending on precipitation events prior to work, will dictate whether dewatering will be necessary. If it is encountered the contractor shall furnish, operate and maintain, as incidental to the project, dewatering equipment for the control, collection and disposal of ground and surface water where necessary to complete the Work.

#### B. Related Work:

1. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division 1 of these Specifications.

#### 1.2 QUALITY ASSURANCE

- A. Use adequate numbers of skilled workers who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specific requirements and the methods needed for performance of the Work of this Section.
- B. Use equipment adequate in size, capacity, and numbers to accomplish the Work of this Section in a timely manner.
- C. In addition to complying with requirements of governmental agencies having jurisdiction, comply with the directions of the Engineer.
- D. The Contractor shall conduct all work in a first-class workmanlike manner, and he/she shall use reasonable and appropriate care and skill in the performance of the Work under this Section.

#### 1.3 SUBMITTALS

- A. Contractor's Dewatering Plan, including proposed areas for drainage disposal and treatment, shall be available if groundwater is encountered.
- B. Include in the Dewatering Plan, the following:
  - 1. Types and sizes of ground water control systems to be used, including backup power and equipment.

- 2. Provisions for water treatment and disposal to meet the requirements of all applicable codes.
- 3. Provisions for limiting siltation.
- 4. Location plan showing recharge pits, discharge piping or channels, and all other discharge components.
- C. Receipt by the Engineer of the Contractor's plan for dewatering shall not obligate the Engineer or Owner for the sufficiency of the Contractor's plan. The Contractor shall be solely responsible for the means, methods, and adequacy of the dewatering system.

## 1.4 PRODUCT HANDLING

A. Comply with pertinent provisions of Section 01610.

## 1.5 COORDINATION

A. Coordinate the Work of this Section with suppliers and any public agencies which may affect or be affected by the Work of this Section to insure the uninterrupted completion of this work.

## PART 2 - PRODUCTS

## 2.1 MATERIALS

A. Piping, plumbing equipment and all other materials and equipment required to provide dewatering of excavations shall be suitable for the intended purposes. Standby pumping units shall be maintained at the site to be used in case of failure of the primary pumping units.

### PART 3 - EXECUTION

### 3.1 PERFORMANCE

- A. General:
  - 1. Grade and ditch the site as necessary to direct surface runoff away from open excavations and subgrade surfaces.
  - 2. Keep excavations and site construction areas free from standing water.
  - 3. Thoroughly brace or otherwise protect against floatation all pipelines and structures which are not stable.
  - 4. Collect water entering the excavation from surface runoff in shallow ditches around the perimeter of the excavation, drain to sumps and pump from the excavation to maintain a bottom free from standing water.

- 5. Conduct dewatering in such a manner as to preserve the undisturbed bearing capacity of the subgrade soils at proposed bottom of excavation. Maintain the groundwater level at least 1-foot below the excavation bottom at all times. An unstable or "pumping" subgrade will indicate that dewatering is not adequate and additional dewatering will be required. Construct well or sump installations with proper sand filters to prevent drawing of finer grained soil from the surrounding ground.
- 6. Take all additional precautions to prevent uplift of any structure during construction.
- 7. If the material at the bottom of the trench becomes unstable due to an inadequate dewatering system installed by the Contractor, and additional depth of excavation and bedding material is required, this additional work will not be eligible for payment and shall be done at the Contractor's expense.
- B. Dewatering System
  - 1. Special dewatering may be required for the utility installations.
  - 2. Install and maintain one (1) groundwater observation well inside the excavation to measure the groundwater level to ensure conformance with the requirements of these Specifications. Construction will not be allowed until the Engineer is satisfied that the above provisions are met.
- C. Disposal of Water
  - 1. Dispose of water pumped or drained from the construction trench in a suitable manner to avoid public nuisance, injury to public health, damage to public and private property and damage to the Work completed or in progress.
  - 2. Dispose of drainage so that flow or seepage back into the excavated area will be prevented. Disposal areas shall be approved by the Owner.
  - 3. Monitor the effluent from the pump discharge and from sedimentation basins. Limit the turbidity to no more than 15 NTU.
  - 4. Contractor is responsible for all treatment options necessary to attain the discharge requirement including but not limited to decant basins, siltation collection bags, chemicals and chemical treatment equipment and conventional treatment chemicals and equipment. Do not place the treatment process within 25 feet of a bordering vegetated wetland.
  - 5. Contractor is responsible for obtaining an NPDES Permit, if required.
- D. Damage
  - 1. Any damage resulting from the dewatering operations or the failure of the Contractor to maintain the Work in a suitably dry condition shall be repaired by the Contractor at no additional cost to the Owner.

### SHORING

### PART 1 - GENERAL

### 1.1 DESCRIPTION

- A. Work Included: Provide shoring at excavations and elsewhere as required to protect workmen, materials, existing utilities, adjacent structures, other properties, and the public against collapse, cave in, or settlements.
- B. Related Work:
  - 1. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division 1 of these Specifications.
  - 2. As established in the General Condition of the Contract, the Contractor is solely responsible for means and methods of construction and for the sequences and procedures to be used.

#### 1.2 QUALITY ASSURANCE

- A. Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the Work of this Section.
- B. The Contractor shall not perform excavations in unstable ground and shall employ a positive means of containing the unstable ground behind shoring before excavation may proceed.
- C. Employ a qualified engineer, properly permitted to provide such services at the location of the Work, to design the shoring system(s) and to inspect and report on the quality of its construction.
- D. In addition to complying with requirements of governmental agencies having jurisdiction, comply with the directions of the Engineer.
- E. The Contractor shall conduct all work in a first-class workmanlike manner, and he/she shall use reasonable and appropriate care and skill in the performance of the Work under this Section.

#### 1.3 SUBMITTALS

A. Comply with pertinent provisions of Section 01340.

- B. Product Data: Within fifteen (15) calendar days after the Contractor has received the Owner's Notice to Proceed, submit:
  - 1. Certified shoring design to Engineer for record purposes only.

## PART 2 - PRODUCTS

### 2.1 DESIGN

- A. Design a shoring system which will safely support and adequately prevent collapse of adjacent materials and which will permit construction of the Work to the arrangement shown on the Drawings.
- B. All shoring shall be designed to support all vertical and lateral loads imposed on the system during construction.
- C. Secure all needed approvals, including those of governmental agencies having jurisdiction and of adjacent property owners if required, at no additional cost to the Owner.

### 2.2 MATERIALS

A. Provide materials of all kinds as required for execution of the approved shoring system.

### PART 3 - EXECUTION

#### 3.1 SURFACE CONDITIONS

A. Examine the areas and conditions under which work of this Section will be performed. Correct conditions detrimental to timely and proper completion of the Work. Do not proceed until unsatisfactory conditions are corrected.

#### 3.2 INSTALLATION

A. Construct and install the shoring system in strict accordance with the design Engineer's requirements.

### TRENCHING, BACKFILLING AND COMPACTING

#### PART 1 - GENERAL

#### 1.1 DESCRIPTION

- A. Work Included: The Contractor shall conduct all excavation and backfilling required for the Work, including site mobilization and demobilization, roadway trenching, furnishing lighted caution horses, fences and/or barriers, barrels, barricades, temporary bridging, cutting, removal, and proper disposal of pavement, providing and maintaining basic traffic control devices, excavation in earth and rock for all structures and pipelines, removal and disposal of all unsuitable material, provide required process gravel and select borrow where ordered, trimming and removal of trees, bushes, and brush, disposal of surplus material, shoring, bracing, and sheeting, dewatering systems, backfilling, compaction, and maintenance of backfill material, protection of existing above and below ground facilities, removal and replacement of signs, fences, mailboxes, and guardrails, protection of existing pavements, repairing of broken or disturbed water, sewer, or storm drain piping and structures caused by the Contractor's operations, and all other incidental work necessary to provide the space for the construction of the Work of this Contract, in accordance with the Contract Documents.
- B. Related Work:
  - 1. Documents affecting work of this Section include, but are not limited to, General Conditions, Supplementary Conditions, and Sections in Division 1 of these Specifications.
  - 2. Section 02227 Rock Removal
  - 3. Section 02490 Loam, Seed, and Sod
  - 4. Section 02513 Asphaltic Concrete Paving
  - 5. Section 02705 Pipe Bursting
  - 6. Section 02708 Sliplining Existing Steel Sleeve

#### 1.2 QUALITY ASSURANCE

- A. Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the Work of this Section.
- B. Use equipment appropriate in size, capacity, and numbers to accomplish the Work of this Section in a timely manner.
- C. Comply with all the requirements of the Local and State regulatory agencies which pertain to this Section.

D. The Contractor shall conduct all work in a first-class workmanlike manner, and he/she shall use reasonable and appropriate care and skill in the performance of the Work under this Section.

## 1.3 SUBMITTALS

A. Comply with pertinent provisions of Section 01340.

## 1.4 PRODUCT HANDLING

A. Comply with pertinent provisions of Section 01610.

## 1.5 COORDINATION

- A. Coordinate the Work of this Section in a manner to minimize the impact upon the local businesses and residents.
- B. Coordinate the Work of this Section with suppliers, trades, and any public agencies which may affect or be affected by the Work of this Section to insure the uninterrupted completion of this Work including, but not limited to, the Fire and Police Departments, School Bus Company, US Postal Service, Highway Department, Rubbage Disposal Service, etc.

### 1.6 PERMITS

A. The Contractor shall obtain a roadway opening permit and trench permit for all work and notify the responsible Public Works Department at least 7 days before any excavation takes place within the roadway.

## 1.7 CLASSIFICATION OF EXCAVATION

- A. All excavation shall be classified as either earth or rock. Rock excavation shall be solid ledge rock, stone masonry or boulders one (1) cubic yard or more in volume. All other materials excavated shall be classified as earth.
  - 1. Concrete road sub-base on west Central will not be considered as Rock

## PART 2 - PRODUCTS

## 2.1 MATERIALS

A. Fill and Backfill Materials:

- 1. Ordinary Borrow: Shall be a friable material consisting of stone, sand, and silt with no objects larger than 7 inches in diameter and no more than 30 percent by weight finer than No. 200 sieve, and be free of pavement, trash, loam, ice, snow, tree stumps, and roots. This material must be conducive to proper compaction by the methods to be utilized under this Contract. Excavated trench material from on-site sources which meets these specifications in the Owner's opinion shall be used for Ordinary Borrow trench refill.
- 2. Select Borrow: Shall be a friable material consisting of a nature of stone, sand, and silt with no objects larger than 3 inches in diameter and no more than 30 percent by weight finer than No. 200 sieve, and be free of pavement, trash, loam, ice, snow, tree stumps, and roots. This material must be conducive to proper compaction by the methods to be utilized under this Contract. Excavated trench material from onsite sources which meets these specifications in the Owner's opinion shall be used for Select Borrow trench refill.
- 3. Process Gravel: Shall consist of hard durable sand and gravel, be free from ice and snow, roots, sods, rubbish, and other deleterious or organic matter in compliance with M1.03.1 of the MassDOT Division III Material specifications and as further details herein. Maximum stone size shall be 3 inches (greatest dimension). In addition, it shall conform to the following gradation requirements:

<u>Sieve Size</u>	Percent Passing	
	<u>Maximum</u>	<u>Minimum</u>
3-inch	-	100
1 ¹ /2-inch	100	70
¹ /4-inch	85	50
No. 4	60	30
No. 200	10	-

- a. Representative soil and sieve analysis shall be performed to verify that the materials comply with the above Specifications and shall be repeated throughout the project when observed changes in materials occur or contamination with other materials is observed.
- 4. Sand Borrow: Shall consist of clean inert, hard, durable grains of quartz or other durable rock, free from pavement, trash, loam, ice, snow, tree stumps, and roots, with no objects larger than 1-inch in diameter and no more than 10 percent by weight finer than No. 200 sieve. This material must be conducive to proper compaction by the methods to be utilized under this Contract. In addition, it shall conform to the following gradation requirements:

Sieve Size	Percent Passing	
	<u>Maximum</u>	<u>Minimum</u>
1-inch	-	100
¹ /2-inch	100	85
No. 4	100	60
No. 16	80	35

No. 50	55	10
No. 200	10	0

- a. Excavated material from on-site sources which meets these specifications in the Owner's opinion shall be used as Sand Borrow refill.
- 5. Crushed Stone: Shall consist of durable crushed stone or durable crushed gravel stone, washed, free from ice and snow, stone dust, sand, clay, loam, or other deleterious material. The crushed stone shall be uniformly blended and conform to the following:

Sieve Size	Percent Passing	
	<u>Minimum</u>	<u>Maximum</u>
5/8 -inch	-	100
¹ /2-inch	85	100
3/8-inch	15	45
No. 4	0	15
No. 8	0	5

- 6. Riprap: Provide riprap for slope protection (where specified on the Drawings) which is sound, durable rock and is angular in shape.
  - a. Stone size shall be based on a D50-10-inch average mix, i.e., 50% shall be greater than 10 inches and 50% will be smaller than 10 inches. Generally, the large stones shall be 1.5 greater in width and 2.25 greater in depth than the average 10-inch size specified.
  - b. Riprap shall be placed on a layer of filter or geotextile fabric specified elsewhere in this Section.
  - c. Voids of the riprap should be filled or chinked with the 50% of the smaller rock of the D50 mix and ³/₄-inch crushed stone.
- 7. Controlled Density Fill (if ordered): Shall consist of Portland cement, fly ash, sand and water. Shall be of Type 2E mix in accordance with Massachusetts Highway Department Specification M4.08.0. The ingredients shall comply with the following:

Portland Cement	AASHTO M85
Fly Ash	AASHTO M295, Class F
Sand	M4.02.02
Air Entraining Admixtures	M4.02.05

## PART 3 - EXECUTION

#### 3.1 TRENCH EXCAVATION

A. The Contractor shall make all excavation in earth and in rock, necessary or incidental to the proposed construction under the terms of this Contract and as herein specified or indicated on the Contract Drawings.

- 1. Pipe installation shall be accomplished by open cut method, sliplining and pipe bursting or as otherwise stipulated in the Contract.
- 2. All excavation shall be made in such manner and to such widths as will give ample room for properly installing, constructing, and inspecting pipelines and structures they are to contain.
- 3. The area around all structures shall be sufficient in width to permit the use of mechanical compactors to easily be walked around the structure for the full height of the trench. If this cannot be accomplished, alternate means of compacting around these zones must be demonstrated to the satisfaction of the Engineer.
- 4. The Contractor shall be responsible for notifying Dig Safe, the Natick Department of Public Works, and the Owner for field markouts of all utilities, and the Contractor shall plan ahead in the layout of mains, cross connections, repair trenches, pits, and services to avoid these utilities wherever possible.
- 5. Test pits may be required ahead of construction to confirm location of existing utilities.
- 6. The width of trenches shall be sufficient to allow thorough compacting of the refill adjacent to the lower quarters of the pipe. At pipe joints, such additional width and depth shall be excavated as is necessary to give ample room for properly making and inspecting the pipe joints.
- 7. Bottom of trenches in earth shall be excavated reasonably flat and to a depth sufficient to allow the bottom of the water main pipe barrel to rest on relatively undisturbed earth. Blocking is not required under straight lengths of pipe, but the Contractor shall excavate bell holes, by hand, to receive the bell end of the pipe, and to insure that the pipe will be suitably bedded.
- 8. If rock is encountered, bottom of trenches shall be excavated to a smooth bottom free of major projections, providing a minimum of 12 inches clearance with bottom and sides of pipe, refilled with compacted Select Borrow.
- 9. Bracing and support of all trench excavation shall meet all requirements of local and State ordinances and OSHA regulations. Sheeting and bracing, or the use of steel support box, shall be used where required to maintain a safe working condition and provide protection from collapse of the trench walls, undermining of existing pavement, damage to the pipe line appurtenances installed under this Contract, and existing Underground Facilities.
- 10. Excavation in close proximity to the edge of existing pavements and curbings shall be controlled to minimize damage or disturbance to the pavement and curbing system.

## 3.2 TRENCH EXCAVATION IN PAVED ROADWAYS

A. In excavating trenches in roadways having an improved Type I asphaltic concrete pavement, the Contractor shall cut pavement twice; once prior to excavation, and again prior to permanent resurfacing, with the exception of West Central Street, where there is a concrete road sub-base, where only one cut is required. The first cut may be made using a water-cooled abrasive saw, pneumatic chisel, pavement grinding equipment, or a wheel cutter attached to a front-end loader, conditions permitting. The second and final cut for existing Type I asphaltic concrete shall be made with a water-cooled abrasive saw or pavement grinding equipment. In all cases, a trial section shall be cut to indicate the performance of the equipment to be utilized.

## 3.3 UNSUITABLE MATERIAL

- A. All pipes and structures are to be laid on stable foundation. If material at grade is determined to be unsuitable by the Engineer, the Contractor shall excavate a further depth and/or width, and refill with an approved material. Refill material shall be process gravel or crushed stone as determined by the Owner. Payment width limits shall be the same as specified for trench excavation, unless an additional width of trench is ordered by the Engineer.
  - 1. Any excavation in excess of the amount ordered by the Engineer shall be backfilled and compacted with an approved granular material, at the Contractors expense.

## 3.4 ROCK REMOVAL

A. See Specification Section 02227.

## 3.5 DEWATERING

- A. Groundwater is not anticipated on this project, however if encountered, the Contractor shall provide an adequate method of groundwater control, such as pumps or a well point system, to maintain the groundwater level below the bottom of the trench or excavation during the construction period, in such manner as not to interfere with the progress of the Work or cause damage to adjacent Underground Facilities or property.
  - 1. Contractor shall take precaution to prevent the pumping of fines, soil erosion, and the damage of adjacent properties and facilities due to his dewatering application.
  - 2. Contractor shall prevent the flotation of any facilities by maintaining a continuous operation of the dewatering system.
  - 3. If material at the bottom of the trench becomes unstable due to an inadequate dewatering system installed by the Contractor, and additional depth of excavation and bedding material is required, this additional work will not be eligible for payment and shall be done at the expense of the Contractor.

## 3.6 BACKFILLING AND COMPACTING

- A. Backfill shall be placed in uniform 6-inch layers. Each layer of select borrow shall be graded relatively level and thoroughly compacted to a 95% dry density by tamping or vibrating with hand or mechanical compacting equipment around the pipe to 8-inches above the pipe. The remainder of the backfill shall be placed in 6-inch layers, graded relatively level and compacted with hydraulic rammers or other satisfactory compaction equipment.
  - 1. Care shall be taken to compact the backfill materials throughout the full width of the excavation and beneath all pipes and around all structures.
  - 2. The backfilling of trenches shall proceed as soon as the laying of the pipe(s) or installation of the structure(s) will allow. Compaction of initial backfill over the pipe shall be accomplished so as not to cause damage to the underlying pipe. Equipment used for compacting in this zone shall be by use of small vibratory plate compactor making at least three (3) passes.

- 3. The remainder of backfill to 18-inches below the surface in paved areas and to 6inches below the surface in landscaped/shoulder areas) shall be ordinary borrow placed in 6")-inch layers, leveled and mechanically compacted with hydraulic rammers, tamping rollers, sheep foot rollers, pneumatic tire rollers, or vibratory rollers which are conducive to the material being compacted.
- 4. In wetland restoration areas, top 18 inches to be set aside and returned to top of trench.
- 5. Any pavement falling, caving, or entering the trench during backfilling operations shall be removed before backfilling operations are permitted to continue.
- 6. The top 18 inches of trench refill in paved areas shall be process gravel placed in 6inch layers and compacted by hydraulic rammers, plate compactors, or rollers.
- 7. The top 6 inches of trench refill in landscaped/shoulder areas shall be loam installed in accordance with Section 02490, or process gravel, as ordered by the Owner.
- 8. When ordered by Owner, the Contractor shall place controlled density fill from 8 inches over the pipe to the roadway surface to be protected with steel plates until cured, and to be later excavated to the depth of the asphaltic concrete to be placed.
- 9. Safety at the construction site shall entirely be the responsibility of the Contractor. Prior to the end of each day, the Contractor shall backfill the trench or plate the open area and move all equipment off the road by 4:00 P.M.
- 10. In the event that the leaving of steel trench plates overnight causes a safety hazard in the opinion of the Owner, Police, or MassDOT, the Contractor shall be required to backfill the trench completely at the end of each workday and move all equipment off of paved surfaces.
- 11. All ordinary borrow and select borrow for trench backfilling shall be obtained from the excavated trench material at the site, or excess material from other construction sites within this Contract if possible. If this material is not available, the Contractor shall furnish same under the appropriate contract item.
- 12. All rock and boulders shall be kept separate from the excavated earth and properly disposed of by the Contractor. No excavated rock or boulders shall be used as backfill in the pipe trench.
- 13. All excavated pavements shall be kept separate from the excavated earth and properly disposed of by the Contractor. No excavated pavements shall be used as backfill in the pipe trenches.
- 14. If undermining of the roadway occurs during excavation, the overhanging section of the road will be removed in order for adequate compaction as specified herein can be accomplished. After backfill and compaction is achieved, the remaining edge of road at the trench will be cut back 12 inches to straight lines parallel to the trench before final trench paving is undertaken.
- B. Compacting of Backfill
  - 1. Alternate methods to those specified above for trench compaction within local roadways will only be considered by the Owner if the Contractor can demonstrate to the Owner and Department of Public Works that the method proposed will achieve the 95% dry density required.
- C. Backfilling of service lateral trenches shall include compacted sand borrow to 8 inches over service pipe.

## 3.7 SURPLUS MATERIAL

A. Upon completion of the backfilling of the trenches, if there is surplus material not satisfactory for refill or which cannot be utilized at other sites within this Contract at that time, All surplus material shall become the property of the Contractor for disposal at locations of his choice.

## 3.8 LOAMED AND GRASSED AREAS

A. Loamed and grassed areas which are disturbed by the Contractor's operation shall be restored to a condition comparable or better than originally found. Replacement loam shall be installed in accordance with Section 02490.

## 3.9 CURB AND SIDEWALK AREAS

- A. Curbings and sidewalks which are disturbed by the Contractor's operation shall be restored to a condition comparable or better than originally found.
- B. All sidewalks to remain passable at all times, where possible. Contractor shall provide proper signage and alternative walking paths if a sidewalk is not passable.
- C. Contractor shall limit downtime for sidewalks.

## 3.10 TEST PIT EXCAVATION

A. Test pits shall be excavated where ordered by the Engineer or Owner to locate existing Underground Facilities to allow proper alignment of piping.

## 3.11 BASIC PROTECTION OF TRAFFIC

- A. The Contractor shall conduct his work so as to interfere as little as possible with public travel, and shall give property owners the opportunity to enter and leave the premises.
   Free access shall be provided at all times to existing water gates and fire hydrants in the vicinity of the Work.
  - 1. The Contractor must protect all open excavations, both during and beyond working hours, with lighted barricades, horses, and/or reflecting barrels, cones, etc. The Contractor shall be entirely responsible for the safety of the public and work force in the immediate area of construction.
  - 2. All lighted barricades, horses, barrels, cones, signs, and other traffic devices must be highly visible, properly placed, and maintained in that condition and location by the Contractor.
  - 3. Steel plates for trenches shall be a minimum of 1-inch thickness. All edges and corners of steel plates shall be cold patched. If, in the opinion of the Owner, Police or MassDOT, steel plates may cause vehicle damage, Contractor shall secure plates to the existing roadway surface by pinning
  - 4. Pedestrian traffic shall be maintained throughout construction, through alternative walking paths where necessary..
- B. Emergency Equipment

1. The Contractor shall conduct his operations in a manner that insures access to all areas in the vicinity of the construction by emergency vehicles and equipment, and shall immediately assist any emergency vehicles to pass the construction site.

## 3.12 PROTECTION OF PROPERTY

- A. The Contractor shall exercise extreme caution while working close to existing Underground Facilities, curb and sidewalks, asphaltic concrete and concrete pavement, highway guards, utility poles, signs, mailboxes, shrubs, trees, walls, lawns, and other property adjacent to the construction.
  - 1. Contractor shall replace any and all property which was damaged or destroyed as a result of his operations or because of his failure to protect them in a manner which would prevent damage.
  - 2. Property which has been damaged and replaced shall be equal in quality and workmanship to the damaged property and shall be subject to the approval of the property Owner.
  - 3. Branches which interfere with construction may be removed, only upon approval of the Owner.
    - a. Limbs and branches shall be trimmed off neatly and cleanly, close to the trunk of the tree or to its main branch.
  - 4. Where pipeline installation is in close proximity to utility poles, it shall be the Contractor's responsibility to contact the utility company and assist in supporting the pole during construction. Any costs associated with pole support shall be paid by the Contractor.
  - 5. Where pipeline installation requires the removal and replacement of mailboxes, signs, shrubs, timber retaining walls, fences, posts, etc., the Contractor shall remove the item and carefully stockpile it adjacent to the construction site. Once pipeline is installed, the item shall be immediately reinstalled in a professional manner to provide a first class installation.

## 3.13 UNIFORMED POLICE OFFICERS

A. See Section 01570.

## 3.14 CLEANUP

- A. Cleanup shall be divided into two phases, initial and final.
  - 1. Initial cleanup shall be daily and follow the construction, and shall never follow further than 50 linear feet from either side of the actual construction site. Initial cleanup shall include, but not be limited to, picking up of all surplus equipment and materials, picking of trash, and dressing up of all roadway trench surfaces prior to replacement of pavement.
  - 2. Final cleanup shall be completed at the time when all permanent resurfacing will be installed. Contractor shall remove all surplus construction materials and temporary structures, and restore all areas disturbed by his operations to a condition at least equal to condition prior to construction and to the satisfaction of the Engineer.

## 3.15 PLACEMENT OF CONTROLLED DENSITY FILL (CDF) (If Ordered)

- A. The following applies to all trenches where controlled density fill is ordered by the Owner:
  - 1. The Contractor shall place controlled density fill from 8 inches above the pipe to the roadway surface, plate the trench, and let cure for 24 hours. Pinning of the plates may be necessary in high traffic areas.
  - 2. No plates may be left-in-place over the weekend and the Contractor shall schedule the Work accordingly.
- B. If CDF is ordered by the Owner, payment shall be by Change Order.
- 3.16 FILTER FABRIC (If Ordered)
  - A. The Contractor shall furnish and install rolled sheets of filter fabric where shown on the Drawings or as directed by the Owner.
  - B. The fabric shall be constructed on two (2) types of continuous filament fibers, one polypropylene and the other being a hetero-filament, comprised of a polypropylene core covered with a nylon sheet. The filaments shall be heat bonded and fabric shall be delivered in rolls covered with black plastic. The material will act as a filter, allowing the passage of water but preventing the migration of fine material into the bedding material.
  - C. If filter fabric is ordered by Owner, payment shall be made by Change Order.

## FACILITIES

### PART 1 - GENERAL

#### 1.1 DESCRIPTION

- A. Work Included: In the performance of the Work of this Contract, the Contractor shall take all the preventative measures to insure the safety of all facilities encountered.
- B. Related Work:
  - 1. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division 1 of these Specifications.

### 1.2 QUALITY ASSURANCE

- A. Use adequate numbers of skilled workers who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specific requirements and the methods needed for proper performance of the Work of this Section.
- B. Use equipment adequate in size, capacity, and numbers to accomplish the Work of this Section in a timely manner.
- C. In addition to complying with requirements of governmental agencies having jurisdiction, comply with the directions of the Engineer.
- D. The Contractor shall conduct all work in a first-class workmanlike manner, and he/she shall use reasonable and appropriate care and skill in the performance of the Work under this Section.

#### 1.3 DEFINITIONS

- A. The words "facilities" and "utilities", as used in these Specifications, are synonymous.
- B. Underground Facilities include, but are not limited to, all pipelines, conduits, ducts, cables, wires, manholes, vaults, tanks, tunnels, or other facilities or attachments, and any casements containing such facilities which have been installed underground to furnish any of the following services or materials:
  - 1. Drinking Water
  - 2. Wastewater
  - 3. Storm Water
  - 4. Electricity
  - 5. Gases
  - 6. Steam

- 7. Liquid Petroleum Products
- 8. Telephone
- 9. Communications
- 10. Cable Television
- 11. Traffic Control
- 12. Fire Prevention
- 13. Security
- 14. Irrigation
- C. <u>Municipal</u> Underground Facilities shall include all underground facilities owned or controlled by a Municipal Department or entity, such as a City, Town, or District water or sewer department, electric department, department of public works, or other similar department.
- D. <u>Private</u> Underground Facilities shall include all underground facilities not owned or controlled by a Municipal Department or entity, such as private water or sewer services, electric systems, gas or liquid petroleum systems, telephone and communication systems, cable television systems, irrigation systems, fire prevention and security systems, traffic control systems, and other similar private systems.

## 1.4 SUBMITTALS

- A. Refer to Section 01340.
- B. Contractor shall submit plans for excavation support and underpinning designed by a licensed Professional Engineer registered in the state of Massachusetts.
- PART 2 PRODUCTS NOT USED

## PART 3 - EXECUTION

## 3.1 UNDERGROUND FACILITIES

- A. It shall be the Contractor's responsibility to contact "Dig Safe," (1-800-344-7233) and any other utility company not covered under "Dig Safe", for accurate field locations prior to construction, so that the underground facility may be avoided during the operation of the excavating equipment.
  - 1. The Contractor shall familiarize himself/herself with Massachusetts General Law, Chapter 82, Section 40.
- B. It shall be the Contractor's responsibility to contact all local utility departments, including but not limited to, those existing such as the water and sewer departments, the public works department, the highway department, the local electric department, etc.

## 3.2 PROTECTION OF UNDERGROUND FACILITIES

- A. All underground facilities, including but not limited to, water pipes and services, gas pipes, electric, telephone, and cable conduits and conductors, sewers and drains which are uncovered by the excavation and which do not, in the opinion of the Owner and Engineer, require to be changed in location, shall be carefully supported and protected from injury by the Contractor. The Contractor shall be responsible for notifying all underground facility companies of actual damage, suspected disturbance, or any other condition associated with said underground facility which could remotely result in a leak, break, or disturbance to service, or other occurrence which could precipitate a danger or inconvenience to the public in the future.
  - 1. The Contractor shall make arrangements with the individual agencies and departments for accurate field locations of all Underground Facilities within the construction area, prior to excavation.
  - 2. If the Contractor causes damage to any of the <u>Municipal</u> Underground Facilities during his/her construction process, and the locations supplied by the various departments were reasonably accurate, it shall be the Contractor's responsibility to make the necessary repairs to the satisfaction of that particular department. The Contractor may make arrangements for the repair work to be done with the authorized representative of said <u>Municipal</u> Underground Facility, with all costs for repair work to be paid for or directly invoiced to the Contractor.
  - 3. For this Contract, the terminology "reasonably accurate" shall mean within a distance of 4 feet, in any direction, from the location mark supplied by the particular Underground Facility Company or department.
  - 4. If damage is done to these specific <u>Municipal</u> Underground Facilities by the Contractor, and the actual location in the ground was beyond the "reasonably accurate" limits as marked and provided, in the opinion of the Owner and Engineer, and that the Contractor took the necessary precautions knowing that an Underground Facility existed within the area, the repair work will either be completed by the appropriate department, or by the Contractor, in which case the additional work will be paid for under a Change Order.
  - 5. If damage is done to <u>Private</u> Underground Facilities, the Contractor shall immediately notify the utility company or owner and provide all assistance as required.

## 3.3 PROTECTION OF UTILITY POLES

A. The Contractor shall be responsible for making all arrangements with the appropriate utility company for protection and temporary support of utility poles as needed during construction. The Contractor shall be responsible for any costs associated thereto.

## 3.4 PROTECTION OF PRIVATE PROPERTY

A. The Contractor shall use extreme care while working close to existing shrubs, trees, markers, walls, and other property adjacent to the construction location. If the potential for damage exists, the Contractor may request of the Engineer permission to remove the object and replace same to a condition equal to or better than original. B. Mailboxes, signs, and fences adjacent to or on location of construction shall be carefully removed and temporarily set, to be replaced in original position upon completion of trenching and backfill.

## 3.5 RELOCATION OF MUNICIPAL UNDERGROUND FACILITIES

- A. Whenever it becomes necessary, in the opinion of the Engineer and Owner, that a <u>Municipal</u> Underground Facility cannot be avoided in the intended construction, the Owner may order the Contractor to relocate or alter the facility under a Written Amendment or Change Order to the Contract.
- B. In removing existing pipes which, in the opinion of the Owner, are in condition to justify relaying, the Contractor will be held responsible and shall pay for any unnecessary breakage, except that necessary in cutting-in at the points of disconnection.

## 3.6 RELOCATION OF PRIVATE UNDERGROUND FACILITIES

- A. Whenever it becomes necessary in the opinion of the Owner and Engineer, that a <u>Private</u> Underground Facility cannot be avoided in the intended construction, the Owner will deal directly with the utility company in making arrangements for the necessary adjustments or relocation, and pay costs incurred in the Work or charged by the private utility company. The Contractor shall be required to adjust his operations to avoid this location while the negotiations are ongoing, and until the Work is completed.
  - 1. There shall be no additional compensation to the Contractor for the delay or operations adjustment unless such is substantial in nature and time. Thus in this case the occurrence shall not be considered a differing site condition as defined under MGL Chapter 30, Section 39N.
- B. The Contractor shall provide assistance as required to any utility company or department which has to relocate an underground facility due to conflict with the Work of this Contract.
  - 1. Depending upon the extent of assistance and time involved, the Contractor may request compensation through the Change Order process, which will be evaluated based upon the conditions and the documentation provided.

## 3.7 OBSTRUCTION OF FLOWS

A. The Contractor shall provide suitable temporary channels for the flow of all water courses and shall hold the Owner harmless against all claims for damage growing out of obstruction of the flow in sewers, drains, or gutters, or because of injury to gas, water, or other pipes, conduits, or fixtures relating to the same, and he/she shall give sufficient notice to the proprietors of such pipes or fixtures in time to permit them to cooperate in protecting their property.

## ROCK REMOVAL

### PART 1 - GENERAL

### 1.1 DESCRIPTION

- A. Work Included: Remove all rock encountered while excavating for structures, roadways, or facility trenches as required by the Contract Documents.
  - 1. Rock removal is not anticipated on this project. However, if rock is encountered per definition in this section, Contractor will be reimbursed through the payment item for removal, hauling and disposal costs.
- B. Related Work:
  - 1. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division 1 of these Specifications.
  - 2. Section 02221 Trenching, Backfilling and Compacting

### 1.2 QUALITY ASSURANCE

- A. Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the Work of this Section.
- B. In addition to complying with requirements of governmental agencies having jurisdiction, comply with the directions of the Engineer.
- C. The Contractor shall conduct all work in a first-class workmanlike manner, and he/she shall use reasonable and appropriate care and skill in the performance of the Work under this Section.

### 1.3 DEFINITIONS

- A. Rock Excavation: Rock which requires explosives, wedging or an impact hammer for its removal. Concrete which meets the above definition shall be classified as rock.
- B. Boulders, slabs or other single pieces of material encountered which is less than one (1) cubic yard shall not be considered rock.

## 1.4 SUBMITTALS

- A. Refer to Section 01340.
- B. If rock is encountered, Contractor shall submit plans for proposed pre-blast survey.

## PART 2 - PRODUCTS - NOT USED

### PART 3 - EXECUTION

#### 3.1 NOTIFICATION

A. When rock is encountered, the material shall be uncovered and the Engineer notified. The Contractor shall provide the Engineer with cross sections of the rock surface. The Engineer shall be present when the cross sections of the rock are made. No payment will be made for any rock removed prior to cross-sectioning as described above.

#### 3.2 LIMITS OF EXCAVATION IN ROCK

- A. Excavation in rock shall be performed so that no projection shall come within vertical planes 12 inches outside of the structure being built or 12 inches below the bottom of the structure base slab and footings.
- B. In trenches, the rock shall be removed to the limits shown on the typical trench section. Where excavation is carried beyond the above-determined limits, the additional space shall be refilled at the Contractor's expense with concrete or other specified materials.

#### 3.3 BLASTING

- A. Pre-Blast Survey: Prior to any blasting, the Contractor shall submit a pre-blast survey. The survey shall satisfy the insurance requirements of the Contractor and be acceptable to the Contractor's insurance carrier, as well as provide data to assess damages to personal property and real estate due to blasting operations. The survey shall be complete as warranted by the nature of the Work.
- B. Take all precautions necessary to warn or protect any individuals exposed to his operations. Such precautions shall include but not be restricted to the following:
  - 1. Present written certificate of insurance showing evidence that his insurance includes coverage for blasting operations before doing any blasting work.
  - 2. Make necessary arrangements as may be required by the applicable Federal, State, County or Municipal codes, rules, regulations and laws, and shall be responsible for compliance.
    - a. The Contractor shall be required to obtain a permit from the local authorities to perform blasting operations. The Engineer shall be notified in writing that such permit has been obtained.
  - 3. Schedules for blasting shall be thoroughly coordinated with the proper authorities, Federal, State, and Local. No blasting will be done unless the Contractor has notified all concerned parties that he may blast. The Contractor shall also notify any commercial installation in the immediate area whose operations or instrumentation may be affected by blasting, at least 24 hours prior to blasting operations.

- 4. Seismographic recordings shall be made of all blasting operations on the project by a qualified testing agency hired and coordinated by the Contractor. A copy of these recordings shall be made available to the Owner.
- 5. Blasting shall be done by experienced powdermen or persons who are licensed or otherwise authorized to use explosives.
- 6. The Contractor shall be fully responsible for damages caused by his blasting operation.

## 3.4 DISPOSAL AND REPLACING OF ROCK

- A. Excavated rock shall not be used as trench refill unless processed with other materials to meet specific gradation requirements of fill materials specified in Section 02221 Trenching, Backfilling and Compacting.
- B. Remove and dispose of all pieces of rock which are not suitable for use in other parts of the Work. Rock disposed of by transportation to spoil areas is to be replaced by surplus excavation obtained elsewhere on the site, insofar as it is available.
- C. Contractor shall be responsible for obtaining spoil locations and the removal of all excess rock from the site.
- D. If rock below limits of excavation is shattered by blasting, caused by holes drilled too deep, or too heavy charges of explosives, or any other circumstance due to blasting, and if such shattered rock does not provide suitable foundation, the rock shall be removed and the excavation refilled with process gravel at the expense of the Contractor.

### ASBESTOS CEMENT PIPE REMOVAL

#### PART 1 - GENERAL

#### 1.1 DESCRIPTION

- A. Work Included: The work under this section shall include all special work associated with excavation, de-watering, cutting, removal and disposal of asbestos cement pipe from select locations indicated in the Contract Documents.
- B. It shall be the Contractor's responsibility to perform the work of this section in compliance with all State and Federal Asbestos Regulations. The Contractor shall provide the services of a Division of Occupational Safety (DOS) licensed Asbestos Abatement Sub-Contractor. who shall be responsible for creating and submitting a site-specific Asbestos Abatement Plan, performing all in-trench cutting and containment of AC pipe, performing all secondary containment and preparation for transport and disposal with required labeling, placarding and documentation (Waste Shipment Record), performing all necessary permitting applications and notifications including Massachusetts Department of Environmental Protection (MassDEP), DOS and the receiving permitted landfill. The Asbestos Abatement Contractor must send a copy of the WSR to the Owner within 35 days of receipt of materials at the receiving facility.
- C. Alternatively, the Contractor can proceed with the AC Pipe abatement under the MassDEP "Asbestos Cement Pipe Guidance Document And Conditional Enforcement Discretion" dated May 22, 2015. The Contractor must provide the qualified workers responsible for performing all in-trench cutting and containment of AC pipe, performing all secondary containment and preparation for transport and disposal with required labeling, placarding and documentation (Waste Shipment Record), performing all necessary permitting applications and notifications including Massachusetts Department of Environmental Protection (MassDEP), DOS and the receiving permitted landfill. The Asbestos Abatement Contractor must send a copy of the WSR to the Owner within 35 days of receipt of materials at the receiving facility.
- D. Related work:
  - 1. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Divisions 1 through 3 of these Specifications.

#### 1.2 QUALITY ASSURANCE

A. Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this Section.

## ASBESTOS CEMENT PIPE REMOVAL

- B. The Contractor shall conduct all work in a first-class workmanlike manner, and he/she shall use reasonable and appropriate care and skill in the performance of the work under this Section.
- C. The removal of asbestos-containing materials shall be performed in accordance with all applicable Federal and State Asbestos Regulations.
- D. If the General Contractor will utilize the services of an Asbestos Abatement Sub-Contractor, they shall submit the following information for Owner/Engineer review:
  - 1. Demonstrate experience on asbestos abatement projects by the submission of a list of three(3) previous asbestos removal projects; names, addresses, and phone numbers of purchasers of service; location of projects; dates projects were performed.
  - 2. An officer of the company must sign a statement containing the following information:
    - a. Record of any citations issued by Federal, State or Local regulatory agencies relating to asbestos abatement activity. Projects, dates, and resolution must be included.
    - b. Situations in which an asbestos-related contract has been terminated including projects, dates, and reason(s) for termination.
    - c. Listing of any asbestos-related legal proceeding/claims in which the Contractor (or employees scheduled to participate) are currently involved. Include descriptions of role, issue, and resolution to date.
  - 3. Summary of his training program and/or a list of EPA approved training certification courses that his employees have attended (include name of course and presenter of the course).
  - 4. Summary of his written respiratory protection program which is in compliance with OSHA regulations. A copy of this program shall be made available to the Owner.
  - 5. Proof the Contractor has an established medical surveillance program in compliance with 29 CFR 1926.1101. A statement must be submitted that all personnel participate in a medical surveillance program.
  - 6. The name, training and/or certification of the air monitoring supervisor.

# 1.3 SUBMITTALS

- A. Comply with pertinent provisions of Section 01340.
- B. Product data: Within 35 calendar days after the Contractor has received the Owner's Notice to Proceed, submit:
  - 1. Site-specific Asbestos Abatement Plan, including; containment, handling, storage and transport methods, licenses and certifications for asbestos abatement personnel, name and certifications of transporter and name/location of permitted receiving landfill. Manufacturer's technical data sheets on proposed materials to be used including; containment and storage materials and appurtenances (glove bags, polyethylene sheeting, storage containers, labels, etc.).

# ASBESTOS CEMENT PIPE REMOVAL

- 2. Written description of proposed methods for by-pass pumping of existing gravity sewer in accordance with Section .
- 3. Written description of proposed methods and materials used in grouting of existing force main sections to be abandoned in place.
- 4. Manufacturer's specifications and other data needed to prove compliance with the specified requirements.

## 1.4 PRODUCT HANDLING

A. Comply with pertinent provisions of Section 01610.

## PART 2 - PRODUCTS

## 2.1 ASBESTOS ABATEMENT

- A. Provide products as listed in site-specific Asbestos Abatement Plan and otherwise consistent with the work of this section.
- B. Polyethylene sheeting/bagging Utilized for containment, containment lining and or bagging shall be opaque white or black in color, 6 mil fire retardant polyethylene.

## PART 3 - EXECUTION

## 3.1 REGULATIONS

- A. The Contractor shall comply with all Federal and Commonwealth of Massachusetts Asbestos Regulations and will follow EPA and DOS requirements. A partial list of pertinent Asbestos Regulations includes but may not be limited to:
  - 1. Occupational Safety and Health Administration (OSHA); the applicable sections of 29 CFR 1910 and 29 CFR 1926.
  - 2. Department of Transportation (DOT); title 49, section 173.1090.
  - 3. Environmental Protection Agency (EPA); National Emissions Standards for Hazardous Air Pollutants (NESHAP); 40 CFR Part 61, Subpart M.
  - 4. MassDEP; 310 CMR 4.00; 310 CMR 7.00, 7.09(5), 7.15; 310 CMR 16.00; 310 CMR 19.061; 310 CMR 40.00.
  - 5. Division of Occupational Safety (DOS) of the Department of Labor and Workforce Development; 453 CMR 6.00.
  - 6. Local Board of Health;
  - 7. In all cases where federal, state and/or local guidelines overlap, the most stringent requirement shall govern.
- B. The Contractor shall remove, transport, and dispose of the asbestos waste materials from the job site in compliance with all EPA regulations, and in accordance with these Specifications, the Contractor shall be responsible for obtaining the approval of the waste disposal site, and for documenting all waste disposed at this facility.

C. The Contractor shall have a copy of the pertinent OSHA standards, EPA regulations, and CERCLA waste spill phone numbers at the job site and shall make them available upon request.

## 3.2 PERMITS AND NOTIFICATIONS

A. The Contractor shall secure the necessary permits and MassDEP and DOS notification in conjunction with asbestos removal, hauling sand disposal and provide timely notification of such actions as may be required by federal, state, regional and local authorities. Notification will be sent 20 days prior to commencement of work. Copies of all permits and notifications will be provided to the Owner and Engineer.

## 3.3 WATER

A. Generally, water shall be provided from nearby hydrant(s) by Owner for construction use and wetting of AC pipe and asbestos containing materials (ACM).

## 3.4 ACCEPTANCE/COMPLETION DATA

A. The Asbestos Abatement Contractor must send a copy of all Waste Shipment Records (WSR) generated by the work of this project to the Owner/Engineer within 35 days.

## 3.5 AC PIPE REMOVAL

- A. AC Sewer Pipe handling:
  - 1. Existing AC pipe cutting and removal shall be performed by Asbestos Abatement Sub-Contractor or laborer's meeting the requirements outlined in the MassDEP guidance Document previously mentioned in this section. All loose pipe section shall be properly handled and disposed as per the site-specific Asbestos Abatement Plan.
  - 2. <u>Crushing-in-place of AC pipe is a violation of State and Federal Asbestos</u> <u>Regulations</u>.

### ENVIRONMENTAL CONTROLS

#### PART 1 - GENERAL

#### 1.1 DESCRIPTION

A. Work Included: Provide environmental controls as required by the Contract Documents.

### B. Related work:

- 1. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division 1 of these Specifications.
- 2. All related Specification Sections shall be used in conjunction with this Section

### 1.2 DEFINITIONS

A. Resource Areas: Those areas, conditions or features which, when disturbed by construction activities, create an adverse environmental impact. Such areas include, but are not necessarily limited to densely wooded areas, wetland areas, streams, brooks, rivers, and other water crossings and steep slopes.

#### 1.3 SUBMITTALS

- A. Comply with pertinent provisions of Section 01340.
- B. The items under this Section that require submittals are listed, but not limited to the following:
  - Filter Sock.
     Catch Basin Curb Sack.
- C. Manufacturer's specifications, cut sheets and installation instructions shall be clearly marked with specific product, size, material and other defining characteristics denoted to provide compliance with specified requirements.
- D. The Contractor shall assemble and send six (6) copies of the items listed above to the Engineer in a timely fashion, but in no event later than the date that will ensure receipt by the Engineer within thirty-five days of the Contractor's receipt of the Notice to Proceed.

#### 1.4 PRODUCT HANDLING

A. Comply with pertinent provisions of Section 01610.

#### PART 2 - PRODUCTS

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## 2.1 FILTER SOCK

- A. Filter sock shall be a continuous tubular, 100% cotton fiber knitted mesh netting material filled with compost. For the purposes of specifying the type and quality of product, the Filter Sock described under this Section is based on Filtrexx BioSoxx, as manufactured by Filtrexx International, LLC, Grafton, Ohio. Products of equal material quality and performance that meet the requirements of this specification may be considered.
  - 1. Minimum diameter Filter Sock shall be 12"

## 2.2 FILTER SOCK COMPOST MATERIALS

- A. Compost used for the Filter Sock shall be weed free and derived from a welldecomposed source of organic matter. The compost shall be produced using an aerobic composting process meeting CFR 503 regulations, including time and temperature data indicating effective weed seed, pathogen and insect larvae kill. The compost shall be free of any refuse, contaminates or other materials toxic to plant growth. Non-composted products will not be accepted. Test methods for the items below should follow USCC TMECC guidelines for laboratory procedures:
  - 1. pH 5.0-8.0 in accordance with TMECC 04.11-A, "Electrometric pH Determinations for Compost".
  - 2. Particle size 99% passing a 2" sieve and a minimum of 60% greater than the 3/8" sieve, in accordance with TMECC 02.02-B, "Sample Sieving for Aggregate Size Classification".
  - 3. Moisture content of less than 60% in accordance with standardized test methods for moisture determination.
  - 4. Material shall be relatively free (< 1% by dry weight) of inert or foreign man made materials.
  - 5. A sample shall be submitted to the engineer for approval prior to being used and must comply with all local, state and federal regulations.

## 2.3 FILTER SOCK POSTS

A. Posts shall be of wood or steel and a minimum of 3 feet long. Wood posts shall be nominal 2" x 2". Steel posts shall be round or U, T, or C-shaped with a minimum weight of 1.3 lbs/FT, and have projections for fastening. Installed at a downward 450 angle behind the tubing on the wetland side, do not puncture through the tubing.

## 2.4 CATCH BASIN CURB SACK

A. Sewn geotextile fabric enclosing a porous structure in the form of a cylindrical tube place in front and extending beyond the inlet the inlet opening on both sides and shall a geotextile fabric sack attached, designed to fit the opening of the catch basin or drop inlet and to hang underneath the grate and into the catch basin.

- B. Shall have lifting straps to allow manual inspection.
- C. Shall utilize an orange monofilament fabric.
- D. Provide Dandy Curb Sack, as manufactured by Dandy Products Inc., Westerville, OH, or approved equal.

#### 2.5 OTHER MATERIALS

A. Provide other materials, not specifically described but required for a complete installation, as selected by the Contractor, subject to the approval of the Engineer.

#### PART 3 - EXECUTION

#### 3.1 SEDIMENTATION AND EROSION CONTROL

- A. Plan and execute all operations, particularly those associated with excavation and backfilling, in such a manner as to minimize the amount of excavated and exposed fill or other foreign material that is washed or otherwise carried beyond the Limits of Work.
- B. Provide filter sock, and other materials as necessary for sedimentation and erosion control to limit wash out into streams, brooks and wetlands.
- C. In the event of sedimentation or siltation prevention measures used by the Contractor prove to be inadequate, the Contractor shall adjust his operations to the extent necessary to prevent any such sedimentation or siltation from occurring.
- D. Sediment laden water that is being pumped from the trenches or excavations shall not be pumped directly into water courses. Sedimentation basins of filter fabric, crushed stone, wire fencing and silt socks or dewatering bags, other means shall be used for this purpose.

### 3.2 FILTER SOCK

- A. Filter Sock will be placed at locations indicated on the plans, as directed by the Engineer or Owner. Shall be installed parallel to the base of the slope of other affected areas and perpendicular to sheet flow. In extreme conditions (i.e. 2:1 slopes) or when sheet flows to the area from a parcel above the work zone, a second sock shall be constructed at the top of the slope in order to dissipate flows.
- B. Filter Socks (12" 18" in diameter) may be used in direct flow situations, within runoff channels not to exceed 3 feet in depth. Filter Socks (18" -24" in diameter) should be used for anything larger.

- C. The Contractor shall maintain the Sock in a functional condition at all times and it shall be routinely inspected.
- D. Where the Filter Sock requires repair, it will be routinely repaired.
- E. The Contractor shall remove sediment collected at the base of the Filter Sock when it reaches .5 of the exposed height of the Sock, or as directed by the Engineer. Alternatively, rather than create a soil disturbing, activity, the Engineer may call for additional Socks to be added at areas of high sedimentation, placed immediately on top of the existing sediment laden Filter Sock.
- F. The Filter Sock will be left in place, as determined by the Engineer.
- G. Contractor is responsible for establishing a working erosion control system and may with approval of the Engineer, work outside the minimum construction requirements as needed.
- H. Where the Filter Sock deteriorates or fails, it will be repaired or replaced with a more effective alternative.
- I. Contractor is required to be a certified Filter Sock Installer. Certification shall be considered current if appropriate identification is shown during time of bid or at time of application.

## 3.3 CATCH BASIN SILT BASKETS

- A. Catch basin silt baskets to be installed in all catch basins with the project limits to prevent potential silt running down pavement and into catch basin and drains.
- B. Contactor shall periodically clean out silt baskets tor remove silt and debris.
- C. Contractor shall clean out all silt baskets before any rain storm.

## 3.4 PROTECTION OF AIR RESOURCES

- A. During the progress of 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 Owner decides that it is necessary to use calcium chloride for more effective dust control then the Contractor shall furnish and apply the material as directed.
- B. Calcium chloride shall be commercial grade, furnished in 100-pound, 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 per application.
- C. Burning of rubbish and waste material on the site shall not be permitted.

## 3.5 COMPLIANCE

- A. The construction project shall be in compliance with all Federal, State and Local laws with respect to hazardous materials.
- B. All clean up and disposal operations shall comply with all applicable Federal, State, and Local statutes, regulations and ordinances and anti-pollution laws.
- C. Comply with all requirements of all applicable Federal, State, and Local regulations and all permits issued for the Contract.

### BYPASS PUMPING OF MAIN LINE WASTEWATER

### PART 1 - GENERAL

#### 1.1 DESCRIPTION

- A. Work included: Contractor to provide by-pass pumping of gravity sewer segments scheduled for replacement.
  - 1. The design, installation, operation, maintenance and removal of the temporary pumping system shall be the Contractor's responsibility.
    - a. The Contractor shall employ the services of a Vendor that specializes in the design and operation of temporary bypassing pumping systems.
    - b. The Contractor's vendor shall provide at least five (5) references of projects of similar size and complexity in wastewater applications performed by the Vendor within the past three years within New England.
    - c. The Contractor's vendor shall provide all labor, materials, equipment, required to install, operate and maintain a bypass pumping system for the purpose of diverting the existing wastewater flow around the work areas as necessary during construction including but not limited to, fuel or energy costs, plugs, pumps, reserve equipment, piping, hoses and all other equipment normally associated with a bypass pumping system with a backup pump.
  - 2. The bypass system shall be set up to operate only during the Contractor's normal working hours.
- B. Related Work:
  - 1. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division 1 of these Specifications.
  - 2. Section 01610 Product Handling
  - 3. Section 02605 Precast Concrete Sanitary Sewer Manholes
  - 4. Section 02730 Sanitary Sewer Piping
- C. Submittals: The Contractor shall prepare with the bypass pumping vendor a specified detailed description of the proposed pumping system. References shall be included with the submittal.
- D. The Contractor shall submit to the Engineer detailed plans and description outlining all provisions and precautions to be taken by the Contractor regarding the handling of existing wastewater flows.

- 1. This plan must be specific and complete, including such items as schedules, locations, elevations, capacities of equipment, material and all other incidental items necessary and/or required to insure proper protection of the facilities, including protection of the access and bypass pumping locations from damage due to the discharge flows, and compliance with the requirements and permit conditions specified in these contract Documents.
- E. The plan shall include but not limited to details of the following:
  - 1. Staging areas for pumps.
  - 2. Sewer plugging method and types of plugs.
  - 3. Number, size, material, location and method of installation of suction piping.
  - 4. Number, size, material, method of installation and location of installation of discharge piping.
  - 5. Bypass pump sizes, capacity, number of each, and size to be on site and fuel requirements.
  - 6. Calculations of static lift, friction losses, and flow velocity (pump curves showing pump operating range shall be submitted).
  - 7. System curve with suction lift performance.
  - 8. Standby power generator size, location.
  - 9. Downstream discharge plan.
  - 10. Method of protecting discharge manholes or structures from erosion and damage.
  - 11. Sections showing suction and discharge pipe depth, embedment, select fill and special backfill.
  - 12. Method of noise control for each pump and/or generator, at specific locations i.e., residential/non-residential areas.
  - 13. Any temporary pipe supports and anchoring required.
  - 14. Design plans and computation for access to bypass pumping locations indicated on the Drawings.
  - 15. Calculations for selection of bypass pumping pipe size.
  - 16. Schedule for installation of and maintenance of bypass pumping lines.
- F. Contractor shall submit his proposed plan of operation, including method, location and list of equipment to be utilized for bypass pumping for approval by the Owner prior to start of work.

## 1.2 QUALITY ASSURANCE

- A. Demonstrate the bypass pumping equipment is automated and is capable of functioning without the assistance of an operator. The vendor shall have a minimum experience of 10 years designing and supplying wastewater bypass systems.
- B. Demonstrate the pumping equipment can operate for an extended period of time running dry. After this period of time, the pump shall have the capability of pulling 25-inch Hg vacuum without adjustment or repair.
- C. Demonstrate sufficient inventory to perform normal rentals, including this project and maintain at least 100% reserve equipment for this project for immediate delivery.

- D. Demonstrate sufficient service and repair parts in stock to fulfill any service or repair of all rental equipment within three hours of any service call.
- E. Demonstrate sufficient service staff and trucks to mobilize to repair or service equipment within one hour of a service call, twenty-four hours per day, seven days per week.
- F. The vendor shall provide a list of phone and pager numbers to call for twenty-four hour service.
- G. The bypass system, including all pumps, pipe, hose, valves, and fittings, shall be provided by one vendor. The fusion of any pipe or the bypass system shall be provided by the vendor. All hydraulic calculations and drawings required by the submittals shall be provided by the vendor and stamped by a Professional Engineer licensed in the State of Massachusetts.
- H. Use adequate numbers of skilled workers who are trained and experienced in the necessary crafts and who are familiar with the specified requirements and the methods needed for proper performance of the work.
- I. The Contractor shall conduct all work in a first-class workmanlike manner, and he/she shall use reasonable and appropriate care and skill in the performance of the work under this Section.

## 1.3 COORDINATION

A. Coordinate the work of this Section with suppliers, trades and any public agencies which may affect or be affected by the work of this Section to insure the uninterrupted completion of this work.

## PART 2 - PRODUCTS

## 2.1 EQUIPMENT

- A. Pumps used shall be centrifugal end suction, fully automatic self-priming pumps that do not require the use of foot valves, vacuum pumps, diaphragm pumps, or isolation valves in the priming system.
  - 1. Pumps must be sized to accommodate peak flows anticipated within the main piping system with a minimum safety factor of 1.5.
  - 2. Pumps used must be constructed to allow dry running for long periods of time to accommodate the cyclical nature of wastewater flows.
  - 3. Pumps shall immediately develop 25-inch Hg vacuum and must have a priming chamber with a float assembly that automatically disengages the priming system, so not to discharge any fluid onto the ground.
  - 4. Pumps must be able to handle a 3-inch solid.
  - 5. Hydraulic submersible or Wellpoint type pumps are prohibited.

- B. Seals shall be high-pressure, mechanical self-adjusting type with silicon carbide faces capable of withstanding suction pressures to 150 psi running.
  - 1. The mechanical seal shall be cooled and lubricated in an oil bath reservoir, requiring no maintenance or adjustment.
  - 2. Pump shall be capable of running dry, with no damage, for extended periods of time.
  - 3. All metal parts shall be of stainless steel.
  - 4. Elastomers shall be Viton.
  - 5. The complete pump shall be manufactured to meet ISO 9002 certifications.
- C. The primary pumps(s) may be electric or diesel powered.
- D. The Contractor shall provide the necessary start/stop controls for each pump.
- E. The Contractor shall include one standby pump of each size to be maintained onsite and a standby power source.
- F. Pumps shall not be connected by a common suction manifold.
  - 1. The use of PVC or steel pipe with Dresser couplings will not be accepted.
  - 2. All pipe or hose will be rated for 25-Inch Hg vacuum.
- G. In order to prevent the accidental spillage of flows, all discharge systems must be constructed of high-density polyethylene pipe with fused joints or quick disconnect pipe with positive restrained joints, and leak proof connections.
  - 1. Discharge hose will only be allowed by specific permission of the Engineer.
  - 2. PVC pipe with glued joints, aluminum "irrigation pipe", steel pipe or PVC pipe with Dresser couplings will not be accepted.
  - 3. All joints must be 100% restrained.
  - 4. All discharge pipes must have a minimum working pressure of 50 psi.
- H. All piping materials will be fused, high-density polyethylene pipe, acceptable quick disconnect pipe, or flanged composite pressure class hose. SDR of discharge piping shall be suitable for the calculated discharge pressures. The vendor fusing the pipe must have a minimum of 5 years experience fusing HDPE pipe of the same diameter required for the project.

# 2.2 SYSTEM DESCRIPTION

- A. Design Requirements;
  - 1. Bypass pumping systems shall have sufficient capacity to pump a peak flow equal to or greater than the flows being directed by a factor of 1.5.
  - 2. The Contractor shall provide all pipeline plugs, pumps of adequate size to handle peak flow, and temporary discharge piping to ensure that the total flow of the main can be safely diverted. Bypass pumping systems shall be capable of being operated twenty-four (24) hours per day in the advent a daily switchover cannot be accomplished.

- 3. The Contractor shall have adequate standby equipment available and ready for immediate operation and use in the event of an emergency or breakdown.
- 4. One standby pump for each size pump utilized shall be installed at the mainline flow bypassing locations, ready for use in the event of primary pump failure.
- 5. Bypass pumping system shall be capable of bypassing the flow around the work area and of releasing any amount of flow up to full available flow into the work area as necessary for satisfactory performance of work.
- 6. The Contractor shall make all necessary arrangements for bypassing pumping during the time when the pumping system is shut down for any reason.
- 7. Unless otherwise approved by the Owner, liquid velocity shall be limited to:
  - a. Suction piping 10 fps maximum
  - b. Discharge piping 12 fps maximum
- 8. The bypass pumping and piping systems shall be sized based on the following table of flows plus a factor of 1.5 percent.

Segment	Estimated Peak Rate
	(gpm)
Gravity sewer only	120
Gravity sewer with Health Center forcemain	1,020

## B. Performance Requirements:

- 1. It is essential to the operation of the existing sewerage systems that there is no interruption in the flow of sewage throughout the duration of the project.
- 2. To this end, the Contractor shall provide, maintain, and operate all temporary facilities, such as dams, plugs, pumping equipment (both primary and standby units as required), conduits, all necessary power and all other labor and equipment necessary to intercept the sewage flow before it reaches the point where it would interfere with his work, carry it past his work and return it to the exiting sewer downstream of this work.
- 3. The Contractor shall provide all necessary means to safely convey the sewage past the work area. The Contractor will not be permitted to stop or impede the main flows under any circumstances.
- 4. The Contractor shall maintain sewer flow around the work area in a manner that will not cause surcharging of sewers, damage to sewers and that will protect public and private property from damage and flooding.
- 5. The bypass system shall not require excavation to reduce the suction lift without the specific approval of the Engineer prior to the bid.
- 6. The Contractor shall protect water resources, wetlands, and other natural resources in accordance with the appropriate project permits.
- 7. The Contractor shall be responsible to meet noise requirements (65 DbA @50 feet). All diesel driven primary, standby pumps or generators shall be sound attenuated.
- 8. Suction and discharge hoses and piping shall be correctly sized and free from leaks to prevent discharge of wastewater to the surface.
- 9. Plugs shall be correctly sized and manufactured for this intended use.

### PART 3 - EXECUTION

#### 3.1 PREPARATION

- A. Precautions:
  - 1. Contractor is responsible for locating any existing utilities in the area the Contractor selects to locate the bypass pipelines.
    - a. The Contractor shall locate his bypass pipelines to minimize any disturbances to existing utilities and shall obtain approval of the pipeline locations from the Owner and Engineer.
- B. During all bypass pumping operations, the Contractor shall protect the existing sewer lines from damage inflicted by any equipment. The Contractor shall be responsible for all physical damage to the existing facilities caused by human or mechanical failure.

### 3.2 FIELD QUALITY CONTROL AND MAINTENANCE

- A. Test:
  - 1. The Contractor shall perform leakage and pressure tests of the bypass pumping discharge piping using clean water prior to actual operation. The Engineer will be given twenty-four (24) hours notice prior to testing.
- B. Prior to start of work, Contractor shall setup bypass pumping and reserve pumping equipment and conduct a pumping test for a duration of 4-hours to ensure that the equipment is capable of continuous operation and of adequate capacity to handle flows exceeding anticipated by a factor of 1.5
- C. Inspection:
  - 1. The Contractor shall inspect the bypass pumping system regularly (every 2-hours) to ensure that the system is working correctly.
- D. Maintenance Service:
  - 1. The Contractor shall insure that the temporary pumping system is properly maintained and a responsible operator shall be on hand at all times when pumps are operating.
- E. Extra Materials:
  - 1. Spare parts for pumps and piping shall be kept on site as required.
  - 2. Adequate hoisting equipment for each pump and accessories shall be maintained on the site.

#### 3.3 INSTALLATION AND REMOVAL

A. The Contractor shall remove manhole sections or make connections to the existing sewer and construct temporary bypass pumping structures only at the access locations indicated on the Drawings and as many as may be required to provide adequate suction conduit.

- B. The Contractor shall make connections to the existing sewer and construct temporary bypass pumping structures only at locations approved by the submittals.
- C. When relocating the bypass pipe to a new location, Contractor shall flush the by-pass piping and pumps with clean water. No discharge or spillage of sewage upon streets, sidewalks, grass or dirt areas or into drainage systems, brooks, streams, ponds, lakes, etc. will be permitted.
- D. Plugging or blocking of sewage flows shall incorporate primary and secondary plugging devices. When plugging or blocking is no longer needed for performance and acceptance of work, it is to be removed in a manner that permits the sewage flows to slowly return to normal without surge, to prevent surcharging or causing other major disturbances downstream.
- E. When working inside a manhole or force main, the Contractor shall exercise caution and comply with OSHA requirements when working in the presence of sewer gases, combustible oxygen-deficient atmospheres, and confined spaces.
- F. The pipeline must be located off streets and sidewalks and on shoulders of the roads. When the bypass pipeline crosses local streets and private driveways, the Contractor must place the bypass pipelines in trenches and cover with temporary pavement or use temporary road crossings. Adhere to any and all applicable project permits.
- G. Upon completion of the bypass pumping operations, and after the receipt of written permission from the Engineer, the contractor shall remove all the piping, restore all structures, pipelines and property to pre-construction condition, and restore all pavement surfaces. Adhere to any and all applicable project permits.
- H. The Contractor will set up manhole plugs, bags and pump suction hoses prior to the start of excavation and pipe laying activities each day.
- I. At the end of pipe laying activities each day, the Contractor shall reconnect the existing sewer to the newly installed sewer pipe by means of PVC pipe and closure pieces of sizes to accommodate the sewer being replaced.
- J. Bags and plugs in the upstream manhole shall be removed and the bypass pump shut down for the evening.

### BYPASS PUMPING OF FORCEMAIN WASTEWATER

### PART 1 - GENERAL

#### 1.1 DESCRIPTION

- A. Work included: Contractor to provide by-pass pumping of forcemain pipe scheduled for replacement.
- B. The Contractor must submit a plan for the proposed by-pass pumping methodology and equipment for approval. Contractor has two options for the by-pass; utilizing station pumps with an aboveground by-pass pipe or installing temporary pumps and an aboveground by-pass piping system.
  - 1. The design, installation, operation, maintenance and removal of the temporary bypass system shall be the Contractor's responsibility.
  - 2. If temporary pumps option is proposed, the Contractor shall employ the services of a Vendor that specializes in the design and operation of temporary bypassing pumping systems.
    - a. The Contractor's vendor shall provide at least five (5) references of projects of similar size and complexity in wastewater applications performed by the Vendor within the past three years within New England.
    - b. The Contractor's vendor shall provide all labor, materials, equipment, required to install, operate and maintain a bypass pumping system for the purpose of diverting the existing wastewater flow around the work areas as necessary during construction including but not limited to, fuel or energy costs, plugs, pumps, reserve equipment, piping, hoses and all other equipment normally associated with a bypass pumping system with a backup pump.

#### C. Related Work:

- 1. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division 1 of these Specifications.
- 2. Section 01610 Product Handling
- 3. Section 02610 Ductile Iron Pipe, Fittings and Appurtenances

## 1.2 SUBMITTALS

A. Contractor shall submit a sewer bypass plan for review by Owner and Engineer. The bypass plan shall clearly identify Contractor's method to minimize impact to residences. Plan shall include procedures for handling a failure of the bypass piping.

- B. The Contractor shall prepare with the bypass pumping vendor a specified detailed description of the proposed pumping system. References shall be included with the submittal.
- C. The Contractor shall submit to the Engineer detailed plans and description outlining all provisions and precautions to be taken by the Contractor regarding the handling of existing wastewater flows.
  - 1. This plan must be specific and complete, including such items as schedules, locations, elevations, capacities of equipment, material and all other incidental items necessary and/or required to insure proper protection of the facilities, including protection of the access and bypass pumping locations from damage due to the discharge flows, and compliance with the requirements and permit conditions specified in these contract Documents.
- D. The plan shall include but not limited to details of the following:
  - 1. Staging areas for pumps, if temporary pumps are to be utilized.
  - 2. Sewer plugging method and types of plugs.
  - 3. Number, size, material, location and method of installation of suction piping.
  - 4. Number, size, material, method of installation and location of installation of discharge piping.
  - 5. Bypass pump sizes, capacity, number of each, and size to be on site and fuel requirements.
  - 6. Calculations of static lift, friction losses, and flow velocity (pump curves showing I
  - 7. If station pumps are to be utilized, calculations showing that the station pumps will perform as designed through the temporary by-pass piping.
  - 8. System curve with suction lift performance.
  - 9. Standby power generator size, location.
  - 10. Downstream discharge plan.
  - 11. Method of protecting discharge manholes or structures from erosion and damage.
  - 12. Sections showing suction and discharge pipe depth, embedment, select fill and special backfill.
  - 13. Method of noise control for each pump and/or generator.
  - 14. Any temporary pipe supports and anchoring required.
  - 15. Design plans and computation for access to bypass pumping locations indicated on the Drawings.
  - 16. Calculations for selection of bypass pumping pipe size.
  - 17. Schedule for installation of and maintenance of bypass pumping lines.
- E. Contractor shall submit his proposed plan of operation, including method, location and list of equipment to be utilized for bypass pumping for approval by the Owner prior to start of work.

# 1.3 QUALITY ASSURANCE

A. Demonstrate the bypass pumping equipment is automated and is capable of functioning without the assistance of an operator. The vendor shall have a minimum experience of 10 years designing and supplying wastewater bypass systems.

- B. Demonstrate the pumping equipment can operate for an extended period of time running dry. After this period of time, the pump shall have the capability of pulling 25-inch Hg vacuum without adjustment or repair.
- C. Demonstrate sufficient inventory to perform normal rentals, including this project and maintain at least 100% reserve equipment for this project for immediate delivery.
- D. Demonstrate sufficient service and repair parts in stock to fulfill any service or repair of all rental equipment within three hours of any service call.
- E. Demonstrate sufficient service staff and trucks to mobilize to repair or service equipment within one hour of a service call, twenty-four hours per day, seven days per week.
- F. The vendor shall provide a list of phone and pager numbers to call for twenty-four hour service.
- G. The bypass system, including all pumps, pipe, hose, valves, and fittings, shall be provided by one vendor. All hydraulic calculations and drawings required by the submittals shall be provided by the vendor and stamped by a Professional Engineer licensed in the State of Massachusetts.
- H. Use adequate numbers of skilled workers who are trained and experienced in the necessary crafts and who are familiar with the specified requirements and the methods needed for proper performance of the work.
- I. The Contractor shall conduct all work in a first-class workmanlike manner, and he/she shall use reasonable and appropriate care and skill in the performance of the work under this Section.

## 1.4 COORDINATION

A. Coordinate the work of this Section with suppliers, trades and any public agencies which may affect or be affected by the work of this Section to insure the uninterrupted completion of this work.

# PART 2 - PRODUCTS

# 2.1 EQUIPMENT

- A. Temporary pumps, if utilized, shall be centrifugal end suction, fully automatic self-priming pumps that do not require the use of foot valves, vacuum pumps, diaphragm pumps, or isolation valves in the priming system.
  - 1. Pumps must be sized to accommodate peak flows anticipated within the main piping system with a minimum safety factor of 1.5.
  - 2. Pumps used must be constructed to allow dry running for long periods of time to accommodate the cyclical nature of wastewater flows.

- 3. Pumps shall immediately develop 25-inch Hg vacuum and must have a priming chamber with a float assembly that automatically disengages the priming system, so not to discharge any fluid onto the ground.
- 4. Pumps must be able to handle a 3-inch solid.
- 5. Hydraulic submersible or Wellpoint type pumps are prohibited.
- 6. Seals shall be high-pressure, mechanical self-adjusting type with silicon carbide faces capable of withstanding suction pressures to 150 psi running.
  - a. The mechanical seal shall be cooled and lubricated in an oil bath reservoir, requiring no maintenance or adjustment.
  - b. Pump shall be capable of running dry, with no damage, for extended periods of time.
  - c. The complete pump shall be manufactured to meet ISO 9002 certifications.
- B. The primary pumps(s) may be electric or diesel powered.
  - 1. The Contractor shall provide the necessary start/stop controls for each pump.
- C. The Contractor shall include one standby pump of each size to be maintained onsite and a standby power source.
  - 1. Standby pumps shall be connected, suction and discharge, and controls included to automatically start the secondary pump on failure of the primary pump.
- D. Contractor to provide an operating Alarm System to monitor the gravity sewer and temporary pumps, to alert the contractor and the town that the primary pump ahs failed and or the gravity sewer is surcharged.
  - 1. Alarm system to include a telephone call out package designed to call the Town's operator and the Contractor 24/7.
- E. Suction piping
  - 1. Pumps shall not be connected by a common suction manifold, where possible.
  - 2. The use of PVC or steel pipe with Dresser couplings will not be accepted.
  - 3. All pipe or hose will be rated for 25-Inch Hg vacuum.

# 2.2 TEMPORARY BYPASS PIPE AND FITTINGS

- A. Temporary By-Pass Pipe
  - 1. The preferred pipe for temporary by-pass is HDPE pipe conforming to the requirements of ASTM F 714, AWWA C906-99.
  - 2. Alternative pipes will be considered as detailed later in this section.
  - 3. Temporary HDPE bypass system shall be capable of withstanding system discharge pressure and H20 loading at driveway and roadway crossings.
  - 4. Connections between HDPE pipe segments to be thermal butt fused or by an approved mechanical quick connect fitting.
  - 5. Coring of existing discharge manhole or removing of cone section for temporary bypass discharge pipe shall be completed by the contractor if manhole is in a traveled way.

- 6. Bypass system shall be in successful operation for minimum of four (4) hours before existing force main may be taken off line.
- 7. Owner shall approve bypass system layout.
- 8. The Contractor shall effectively work with and provide protection to the public with regard to the temporary piping system installed.
- 9. Lights, barricades and signs shall be placed to ensure safety at the location(s) of temporary piping.
- 10. In order to prevent the accidental spillage of flows, all discharge systems must be constructed of high-density polyethylene pipe with fused joints or quick disconnect pipe with positive restrained joints, and leak proof connections.
- 11. PVC pipe with glued joints, aluminum "irrigation pipe", steel pipe or PVC pipe with Dresser couplings will not be accepted.
- 12. All discharge pipes must have a minimum working pressure of 50 psi.
- 13. All force main connections shall be made using flanged composite hose with a working pressure of 150 psi.
- B. All piping materials will be fused, high-density polyethylene pipe, acceptable quick disconnect pipe. SDR of discharge piping shall be suitable for the calculated discharge pressures. The fusing personal must have a minimum of 5 years experience fusing HDPE pipe of the same diameter required for the project.

# 2.3 MATERIALS

A. Provide other materials not specifically described but required for a complete and proper installation, as selected by the Contractor subject to the approval of the Engineer.

# 2.4 SYSTEM DESCRIPTION

# A. Design Requirements;

- 1. Bypass system shall have sufficient capacity to handle a peak flow equal to or greater than the flows being directed by a factor of 1.5.
- 2. The Contractor shall provide all pipeline plugs, pumps of adequate size to handle peak flow, and temporary discharge piping to ensure that the total flow of the main can be safely diverted. Bypass systems shall be capable of being operated twenty-four (24) hours per day.
- 3. The Contractor shall have adequate standby equipment available and ready for immediate operation and use in the event of an emergency or breakdown.
- 4. If pumps are utilized then one standby pump for each size pump utilized shall be installed at the mainline flow bypassing locations, ready for use in the event of primary pump failure.
- 5. The Contractor shall have a plan in place to avoid surcharging the gravity sewer in case the bypassing system is down for any time duration. The plan must be submitted for approval.
- Unless otherwise approved by the Owner, liquid velocity shall be limited to:
   a. Suction piping 10 fps maximum

b. Discharge piping

#### 12 fps maximum

7. The bypass systems shall be sized based on the following table of flows plus a factor of 1.5 percent.

Segment	Pump Rate At Station (gpm)
Health Center Pump Station pumps	900 @ 32 ft tdh
Office Building 4" connections	50

- B. Performance Requirements:
  - 1. It is essential to the operation of the existing sewerage systems that there is no interruption in the flow of sewage throughout the duration of the project.
  - 2. To this end, the Contractor shall provide, maintain, and operate all temporary facilities, such as dams, plugs, pumping equipment (both primary and standby units as required), conduits, all necessary power and all other labor and equipment necessary to intercept the sewage flow before it reaches the point where it would interfere with his work, carry it past his work and return it to the exiting sewer downstream of this work.
  - 3. The Contractor shall provide all necessary means to safely convey the sewage past the work area. The Contractor will not be permitted to stop or impede the main flows from the pump station under any circumstances.
  - 4. The Contractor shall maintain sewer flow around the work area in a manner that will not cause surcharging of sewers, damage to sewers or pump station and that will protect public and private property from damage and flooding.
  - 5. The Contractor shall protect water resources, wetlands, and other natural resources in accordance with the appropriate project permits.
  - 6. The Contractor shall be responsible to meet noise requirements (65 DbA @50 feet). All diesel driven primary, standby pumps and generators shall be sound attenuated.
  - 7. Suction and discharge hoses and piping shall be correctly sized and free from leaks to prevent discharge of wastewater to the surface.
  - 8. Plugs shall be correctly sized and manufactured for this intended use.
  - 9. If Contractor utilizes bypass pumps, then the pumping system shall contain the following minimum controls at a minimum.
    - a. Auto priming primary and standby pumps, both pumps must be connected to piping system for automatic switch over
    - b. Auto start of standby pump on failure of primary pump
    - c. Alarm dialer for callout of high water level, primary pump failure and standby pump failure. Dialer to call pump company, contractor and Town's on-call personal.

# PART 3 - EXECUTION

## 3.1 PREPARATION

- A. Precautions:
  - 1. Contractor is responsible for locating any existing utilities in the area the Contractor selects to locate the bypass pipelines.
    - a. The Contractor shall locate his bypass pipelines to minimize any disturbances to existing utilities and shall obtain approval of the pipeline locations from the Owner and Engineer.
- B. During all bypass pumping operations, the Contractor shall protect the existing sewer lines, pump station, force main, and all gravity sewer lines from damage inflicted by any equipment. The Contractor shall be responsible for all physical damage to the existing facilities caused by human or mechanical failure.

# 3.2 FIELD QUALITY CONTROL AND MAINTENANCE

- A. Test: The Contractor shall perform leakage and pressure tests of the bypass pumping discharge piping using clean water prior to actual operation.
  - 1. The Engineer will be given twenty-four (24) hours notice prior to testing.
- B. Prior to start of work, Contractor shall setup bypass pumping and reserve pumping equipment and conduct a pumping test for a duration of 4-hours to ensure that the equipment is capable of continuous operation and of adequate capacity to handle flows exceeding anticipated by a factor of 1.5
- C. Inspection:
  - 1. The Contractor shall inspect the bypass system regularly (every 2-hours during work hours) to ensure that the system is working correctly.
- D. Maintenance Service:
  - 1. The Contractor shall insure that the temporary pumping system is properly maintained and a responsible operator shall be on hand at all times when pumps are operating.
  - 2. Contractor to maintain on site repair couplings for all pipes and fittings.
- E. Extra Materials:
  - 1. Spare parts for pumps and piping shall be kept on site as required.
  - 2. Adequate hoisting equipment for each pump and accessories shall be maintained on the site.
- F. Contractor is responsible for all costs associated with furnishing, maintain g and removing the complete by-pas system, including but not limited to all equipment purchase and lease, hauling, set-up, energy costs (fuel and electrical power).

## 3.3 INSTALLATION AND REMOVAL

- A. Contractor shall furnish, install, maintain and remove bypass system of adequate size to satisfactorily re-direct pump station discharge for the full time required to install and pressure test the new Health center pump station 12-inch force main system.
- B. The Contractor shall remove manhole sections or make connections to the existing sewer and construct temporary bypass pumping structures as many as may be required to provide adequate suction conduit. The temporary bypass piping shall be laid in locations satisfactory to the Engineer, where it will cause the least obstruction, and is less likely to be damaged.
- C. Contractor will be to cover any exposed clamps and bolts used to connect bypass piping.
- D. At driveway and roadway crossings, a narrow trench shall be cut in the paving and the temporary pipe placed with top of pipe 2-inches below the surface and resurfacing placed above it.
- E. Cold patch may be used as temporary resurfacing at driveway and roadway crossings.
- F. The location, method of placing, materials employed and the sanitary precautions shall by full satisfactory to the Owner.
- G. Plugging or blocking of sewage flows shall incorporate primary and secondary plugging devices. When plugging or blocking is no longer needed for performance and acceptance of work, it is to be removed in a manner that permits the sewage flows to slowly return to normal without surge, to prevent surcharging or causing other major disturbances downstream.
- H. When working inside a manhole, the Contractor shall exercise caution and comply with OSHA requirements when working in the presence of sewer gases, combustible oxygen-deficient atmospheres, and confined spaces.
- I. The pipeline must be located off streets and sidewalks and on shoulders of the roads. When the bypass pipeline crosses local streets and private driveways, the Contractor must place the bypass pipelines in trenches and cover with temporary pavement or use temporary road crossings. Adhere to any and all applicable project permits.
  - 1. If a driveway geometry will allow the by-pass pipe to be installed on grade and a cold patch ramp installed without negative impact to pedestrians and car traffic. This will be at the opinion of the Owner.

# 3.4 BYPASS FAILURE

- A. In the event that the sewer bypass system is compromised and a sanitary sewer overflow (SSO) results, the Contractor is responsible to stop the SSO within 30 minutes.
- B. The Contractor is responsible to notify the Owner of any SSO's that result from a bypass failure.

# 3.5 REMOVAL AND CLEAN UP

- A. Upon completion of the bypass pumping operations, and after the receipt of written permission from the Engineer, the contractor shall remove all the piping, restore all structures, pipelines and property to pre-construction condition, and restore all pavement surfaces. Adhere to any and all applicable project permits.
- B. Prior to disconnecting the by-pass pumps and pipe for removal, the entire length of the bypass pipe must be flushed clean with clean water to remove wastewater and debris in pipe. No wastewater will be allowed to run into streets or private property.
- C. Piping trenches shall be backfilled, compacted and topped with 2-inches of dense binder material for trench settlement period between completion of force main installation and final trench resurfacing.
  - 1. All temporary piping trenches to be permanent pavement as specified for forcemain trenches.

# END OF SECTION

#### SECTION 02490

## LOAM AND SEED

#### PART 1 - GENERAL

#### 1.1 DESCRIPTION

- A. Work Included: Place loam, finish grade, apply lime, fertilizer and seed to all the disturbed lawn areas under the Work of this Contract as specified herein.
- B. Related Work:
  - 1. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division 1 of these Specifications.

#### 1.2 QUALITY ASSURANCE

- A. Use adequate numbers of skilled workers who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for performance of the Work of this Section.
- B. Use equipment adequate in size, capacity, and numbers to accomplish the Work of this Section.
- C. In addition to complying with requirements of governmental agencies having jurisdiction, comply with the directions of the Engineer.
- D. If the results of the hydraulic seeding operation are unsatisfactory, the method shall be abandoned and seeding will be required by sowing method.
- E. The Contractor shall conduct all work in a first-class workmanlike manner, and he/she shall use reasonable and appropriate care and skill in the performance of the Work under this Section.

#### 1.3 SUBMITTALS

- A. Comply with pertinent provisions of Section 01340.
- B. Product data: Within thirty (30) calendar days after the Contractor has received the Owner's Notice to Proceed, submit:
  - 1. Complete materials list of items proposed to be provided under this Section.
  - 2. Schedule for seeding and fertilizing.

#### 1.4 PRODUCT HANDLING

- A. Comply with pertinent provisions of Section 01610.
- B. Immediately remove from the site, materials which are not true to name and do not comply with the specified requirements, and promptly replace materials meeting the specified requirements.

#### PART 2 - PRODUCTS

#### 2.1 FERTILIZER

- A. Provide commercial blended 10-20-10 fertilizer delivered to the site in bags labeled with the manufacturer's guaranteed analysis.
  - 1. At least 40% of the nitrogen in the fertilizer used shall be in slowly available (organic) form.

#### 2.2 LIME

- A. Lime shall be ground limestone containing not less than 85% calcium and magnesium carbonates.
  - 1. Shall be ground to such fineness that at least 50% will pass through a No. 100 sieve and at least 90% shall pass through a No. 20 sieve.

#### 2.3 GRASS SEED

- A. General: Provide grass seed which is:
  - 1. Free from noxious weed seeds, and re-cleaned;
  - 2. Grade A recent crop seed;
  - 3. Treated with appropriate fungicide at time of mixing;
  - 4. Delivered to the site in sealed containers with dealer's guaranteed analysis.
- B. Proportions by weight (Level Areas)
  - 1. Creeping Red Fescue 60 percent
  - 2. Red Top 20 percent
  - 3.Kentucky Blue- 20 percent
- C. Proportions by weight (Slopes)
  - 1. Creeping Red Fescue 40 percent
  - 2. Perennial Ryegrass 30 percent
  - 3. Red Clover 10 percent
  - 4. Winter Rye 15 percent
- D. Within wetland areas (inside BVW where approved by Owner)
  - 1. New England Erosion Control/Restoration Mix for Detention Basins and Moist as furnished by New England Wetland Plants, Inc., Amherst, MA.

# 2.4 LOAM

- A. Loam shall be a mixture of sand, silt, and clay particles as to exhibit sandy and clay-like properties, in and about equal proportions.
  - 1. Shall be free to stumps, roots, heavy or stiff clay, stones larger than 1-inch in diameter, lumps, coarse sand, noxious weeds, sticks, brush, or litter.
  - 2. Shall be obtained from previously excavated materials, stockpiled for this use, or material furnished by Contractor.

## 2.5 OTHER MATERIALS

A. Provide other materials, not specifically described but required for a complete installation, as selected by the Contractor, subject to the approval of the Engineer.

## PART 3 - EXECUTION

## 3.1 SURFACE CONDITIONS

A. Examine the areas and conditions under which work of this Section will be performed. Correct all conditions detrimental to timely completion of the Work. Do not proceed until unsatisfactory conditions are corrected.

## 3.2 SPREADING LOAM

- A. Loam shall be placed and prepared by spading or harrowing and raking with iron rakes to a compacted depth of 6 inches.
  - 1. All large lumps, stones, sticks, and roots shall be removed and disposed of by the Contractor.

## 3.3 SEEDING

- A. Preparation
  - 1. Grade seedbeds, thoroughly removing ridges and depressions, and make smooth, continuous, firm planes that ensure proper drainage.
  - 2. Remove soil lumps, rocks, sticks, and other deleterious material.

## B. Lime

1.

Apply the approved lime at the rate of 1,000 lbs. of ground limestone per 1,000 sq. ft. of lawn area. Work into the top 3-4 inches.

## C. Fertilizing

1. Apply the specified fertilizer at the rate of 18 lbs. per 1,000 sq. ft., or as required by manufacturer, raking lightly into the soil.

## D. Sowing

- 1. Sow with a seeder designed for the purpose.
- 2. Sow at the rate of 5 lbs. per 1,000 sq. ft., or as recommended by manufacturer.

- 3. Promptly after seeding, wet the seedbed thoroughly, and keep all areas moist throughout the germination period.
- E. As soon as seed is sown, it shall be covered with a thin layer of loam and rolled.
- F. Protect seeded areas by erecting temporary fences, barriers, signs, and similar protection as necessary to prevent trampling.

## 3.4 MAINTENANCE

- A. The Contractor shall:
  - 1. Keep all seeded and sodded areas watered.
  - 2. Re-seed all areas which do not take.
  - 3. Replace any sections which die during guarantee period.
  - 4. Repair any washouts and re-fertilize and reseed.

# 3.5 GUARANTEE PERIOD

A. All seeded areas shall be guaranteed by the Contractor for not less than one (1) full year from the date of substantial completion.

# END OF SECTION

## SECTION 02513

#### ASPHALTIC CONCRETE PAVING

#### PART 1 - GENERAL

#### 1.1 DESCRIPTION

- A. Work Included: Provide asphaltic concrete paving, berms, trench infra-red treatment, pavement markings, calcium chloride, grade adjustment of valve boxes and castings and preparation of the trench as required by the Contract Documents.
- B. Related Work:
  - 1. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division 1 of these Specifications.
  - 2. Section 02221 Trenching, Backfilling and Compacting
  - 3. Section 02579 Casting Adjustment

#### 1.2 QUALITY ASSURANCE

- A. Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this Section.
- B. Comply with pertinent provisions of the following except as may be modified herein.
  - 1. Massachusetts Highway Department, Standard Specifications, for Highways and Bridges of the Commonwealth of Massachusetts latest edition, including all addenda.
- C. The Contractor shall conduct all work in a professional manner, and he/she shall use reasonable and appropriate care and skill in the performance of the Work under this Section.

#### 1.3 SUBMITTALS

- A. Comply with pertinent provisions of Section 01340.
- B. Product Data: Within fifteen (15) calendar days after the Contractor has received the Owner's Notice to Proceed, submit:
  - 1. Materials list of items proposed to be provided under this Section.

#### 1.4 PRODUCT HANDLING

A. Comply with pertinent provisions of Section 01610.

#### PART 2 - PRODUCTS

#### 2.1 MATERIALS

- A. Gravel Sub-base Processed Gravel
  1. Shall be as specified in Section 02221.
- B. Asphaltic Concrete paving for temporary and permanent trenches and pits shall be class I asphaltic concrete conforming to Sections 420, 460, and M3 of the Massachusetts Standard Specifications.
- C. Asphalt Tack coat shall consist of either emulsified asphalt, grade RS-1 conforming to Section M3.03.1, or cutback asphalt, grade RC-70 or RC-250 conforming to Section M3.02.0 of the Massachusetts Standard Specifications.
- D. Pavement marking paint shall be fast drying type (P-226) conforming to Section M7.01.10 or M7.01.11, (Fast Drying White or Yellow Traffic Paint) of the above-mentioned Specifications.
- E. Joint and crack sealer This material shall meet MassDOT Standard M3.05.4 Hot Applied Bituminous Concrete Crack Sealer conforming to requirements in Federal Specification SS-S-1401

#### PART 3 - EXECUTION

#### 3.1 SURFACE CONDITIONS

A. Examine the areas and conditions under which work of this Section will be performed. Correct conditions detrimental to timely and proper completion of the Work. Do not proceed until unsatisfactory conditions are corrected.

#### 3.2 FINAL PREPARATION OF SUBGRADES

- A. Place gravel subgrade to depths indicated on the Drawings and compact by the methods specified in Section 02221.
  - 1. Remove all loose materials from the compacted base prior to placing the asphaltic concrete pavement.

#### 3.3 GENERAL

- A. All asphaltic concrete thickness referred to herein are compacted thickness.
- B. No asphaltic concrete shall be placed when the air temperature is below 40°F, or when the material on which the mixtures are to be placed contain frost.

- C. No permanent resurfacing shall be placed in roadways after November 15 or before April 1, unless permission to do so is granted in writing by the Owner. Roadway construction work which will require paving after the closing of the "hot-mix" plants shall be paved with "cold mix".
- D. Minimum temperature of asphaltic concrete after spreading and prior to compaction shall be 225°F, and any mixture below this temperature shall be removed from site and will not be eligible for payment.
- E. In conformance with Section 460.61 of the Massachusetts Highway Department Standard Specifications, the temperature of the mixture, within a tolerance of  $\pm 15^{\circ}$ F, when delivered to the project site, will be given by the temperature of the base upon which the mix is placed as follows:

Base Temp	1-1/2"	2"	3" or
<u>(°F)</u>			Greater
35-40	305	295	280
40-50	300	285	275
50-60	295	280	270
60-70	285	275	265
70-80	280	270	265
80-90	270	265	260
90+	265	260	255

- F. The Contractor shall notify all utility companies four (4) weeks in advance of resurfacing, as to the number and location of covers and boxes which require adjustment prior to placement of top course asphaltic concrete.
- G. The Contractor shall submit to the Engineer, one (1) copy of each certified weight slip received for all asphaltic concrete delivered and utilized on the project.
- H. The Owner expressly reserves the right to eliminate any or all items of this Section from the Contract and to accomplish such work by other means at its discretion, and the Contractor shall do only such work as may be ordered by the Owner.
- I. Maintain asphaltic concrete under this Contract during the guarantee period of one (1) year. Promptly refill and repave all areas which have settled or are otherwise unsatisfactory for traffic.

## 3.4 TEMPORARY PAVEMENT

- A. Contractor to provide a 2-inch compacted depth temporary pavement in trenches, after completing trench backfill and compaction including process gravel sub-base at the end of each week.
- B. Contractor to provide a 2-inch compacted depth temporary pavement in pits, after completing trench backfill and compaction including process gravel sub-base that have been backfilled.

# 3.5 PLACEMENT OF PERMANENT ASPHALTIC CONCRETE PAVING Frost Street and Commonwealth Road (Route 30)

- A. Permanent Trench Resurfacing: After a minimum of 90 days after temporary pavement installation or one winter season, Contractor to remove temporary pavement and install permanent trench pavement.
  - 1. Edges of the trenches shall be cut back in a neat true line, 12 inches outside all limits of the excavation with a water cooled abrasive saw.
  - 2. Process gravel shall be removed to the appropriate depth and compacted.
  - 3. Edges of the existing pavement shall be brushed clean and the specified tack coat applied.
  - 4. Pavement shall be placed as follows
    - a. Install Binder Course asphaltic concrete paving to a compacted thickness of 3 ¹/₂ inches,
    - b. Install Top Course asphaltic concrete paving to a compacted thickness of 1  $\frac{1}{2}$  inches.
  - 5. The equipment used for spreading and finishing shall be a mechanical self-powered paver capable for spreading and finishing the mixture true to line, grade, width and crown by means of fully automated controls for both longitudinal and transverse slope.
  - 6.
  - 7. Compaction shall be accomplished with a self-propelled roller with a weight of approximately 285 lbs. per inch of roller width.
  - 8. Tack coat shall be applied in conformance with Section 460.62 of the Massachusetts Highway Department Standard Specifications to all existing pavement edges prior to each course of trench pavement installation.
  - 9. Existing castings to be adjusted to final grade.
  - 10. Trench binder course resurfacing shall be maintained by the Contractor until permanent top course resurfacing is placed.
  - 11. Where trench base course paving is at the edge of the traveled way, gravel backup material shall be installed to prevent damage to the new edges.
- B. Joint and Crack Seal
  - 1. The butt edges of all permanent resurfacing shall be sealed with a 6-inch wide continuous strip of joint and crack sealer as specified and completely covered with sand.

# 3.6 PLACEMENT OF PERMANENT ASPHALTIC CONCRETE PAVING West Central

- A. Permanent Trench Base Courses of Resurfacing: Contractor shall remove temporary pavement in the trenches and pits and install permanent trench base course pavement.
  - 1. Edges of trenches that are not straight due to side trench wall undermining shall be cut back in a neat true line, 12 inches outside all limits of the excavation with a water cooled abrasive saw. The existing concrete sub-base should minimize required cut-backs, unless the bituminous pavement has cracked away and is no longer a straight parallel line to the trench.

- 2. Edges of the existing pavement shall be brushed clean and the specified tack coat applied.
- 3. Pavement shall be placed as follows
  - a. Install Base Course asphaltic concrete paving to a compacted thickness of 4 ¹/₂ inches, in two courses
  - b. Install Binder Course asphaltic concrete paving to a compacted thickness of 4-1/2-inches, in two courses.
- 4. The equipment used for spreading and finishing shall be a mechanical self-powered paver capable for spreading and finishing the mixture true to line, grade, width and crown by means of fully automated controls for both longitudinal and transverse slope.
- 5. Compaction shall be accomplished with a self-propelled roller with a weight of approximately 285 lbs. per inch of roller width.
- 6. Tack coat shall be applied in conformance with Section 460.62 of the Massachusetts Highway Department Standard Specifications to all existing pavement edges prior to trench pavement installation.
- 7. Existing castings to be adjusted to final grade.
- 8. Trench base and binder course resurfacing shall be maintained by the Contractor until permanent top course resurfacing is placed.
- 9. Where trench base course paving is at the edge of the traveled way, gravel backup material shall be installed to prevent damage to the new edges.
- B. Sand Seal
  - 1. The butt edges and keyway joints of all permanent resurfacing shall be sealed with a six (6) inch wide continuous strip of RS-1 completely covered with sand.
- C. Permanent Trench Top Courses of Resurfacing: After one winter season with the permanent trench base and binder course pavement, Contractor shall cold plane the trenches and pits extending beyond 12" on each side and ends to a depth of 1 -1/2" and install permanent trench top pavement.
  - 1. The roadway surface shall be cold planed to a depth of 1 ¹/₂-inches. The width of the surface to be cold planed shall extend 1-foot beyond either side of the trench, unless specified otherwise on the Drawings or in the Specifications.
  - 2. Edges around roadway structures shall be cold planed using a smaller machine designed for this use.
  - 3. If during the cold plane operation, bare spots (road base gravel) are revealed, the Contractor shall cut out these areas to a depth of 6-inches, then 3-inches of compacted base and 3-inches of compacted binder shall be installed to make-up for the deficits.
  - The finished cold planed, trimmed and repaired surfaces shall be swept clean of all debris immediately after cold plane work and again just prior to resurfacing.
     Leaves must be continuously cleaned off the surface prior to installing the finished course.
  - 5. In all cold planning sections, all casting or roadway structures shall be raised and adjusted to the new finished roadway surface, where necessary.
  - 6. Apply a full width tack coat with a spray applicator on all existing pavement prior to overlay paving and top course paving in pulverized section. No drizzling from tack containers will be allowed.

- 7. Tack coat shall be applied in conformance with Section 460.62 of the Massachusetts Highway Department Standard Specifications to all existing pavement edges and cold plane surfaces prior to pavement installation. At a minimum, tack coat shall be applied full width of surface receiving pavement at the rate of 0.25 gallons per square yard. The contact surfaces of curbings, castings and other structures shall be painted with a tack coat.
- 8. Pavement shall be placed as follows
  - a. Install Top Course asphaltic concrete paving to a compacted thickness of 1 ¹/₂ inches,
- 9. The equipment used for spreading and finishing shall be a mechanical self-powered paver capable for spreading and finishing the mixture true to line, grade, width and crown by means of fully automated controls for both longitudinal and transverse slope.
- 10. Compaction shall be accomplished with a self-propelled roller with a weight of approximately 285 lbs. per inch of roller width.
- D. Joint and Crack Seal
  - 1. The butt edges of all permanent resurfacing shall be sealed with a 6-inch wide continuous strip of joint and crack sealer as specified and completely covered with sand.

# 3.7 PLACEMENT OF PERMANENT ASPHALTIC CONCRETE PAVING North Main Street

- A. Permanent Trench Base Course Resurfacing: After one winter season, Contractor shall remove temporary pavement and install permanent trench pavement.
  - 1. Edges of the North Main Street trenches and pits shall be cut back in a neat true line, 12 inches outside all limits of the excavation with a water cooled abrasive saw.
  - 2. Process gravel sub-base shall be removed to the proper depth and compacted.
  - 3. Edges of the existing pavement shall be brushed clean and the specified tack coat applied.
  - 4. Pavement shall be placed as follows
    - a. Install Base Course asphaltic concrete paving to a compacted thickness of 4 ¹/₂ inches,
    - b. Install Binder Course asphaltic concrete paving to a compacted thickness of 3inches,
    - c. Install Top Course asphaltic concrete paving to a compacted thickness of 1  $\frac{1}{2}$  inches.
  - 5. The equipment used for spreading and finishing shall be a mechanical self-powered paver capable for spreading and finishing the mixture true to line, grade, width and crown by means of fully automated controls for both longitudinal and transverse slope.
  - 6. Compaction shall be accomplished with a self-propelled roller with a weight of approximately 285 lbs. per inch of roller width.

- 7. Tack coat shall be applied in conformance with Section 460.62 of the Massachusetts Highway Department Standard Specifications to all existing pavement edges prior to trench pavement installation. At a minimum, tack coat shall be applied full width of surface receiving pavement at the rate of 0.25 gallons per square yard. The contact surfaces of curbings, castings and other structures shall be painted with a tack coat.
- 8. Existing castings to be adjusted to final grade.
- 9. Trench base and binder course resurfacing shall be maintained by the Contractor until permanent top course resurfacing is placed.
- 10. Where trench base course paving is at the edge of the traveled way, gravel backup material shall be installed to prevent damage to the new edges.

# 3.8 UNACCEPTABLE CASTING ADJUSTMENTS

A. Any structures or castings which are not flush with the new finished roadway top course pavement surface shall be cutout re-leveled, resurfaced and infrared heat treated to make an invisible patch.

## 3.9 CASTING ADJUSTMENTS

A. See Section 02579 Casting Adjustment

## 3.10 BERMS

- A. Existing bituminous berms or curbs specified below:
  - 1. Berms shall be Class I asphaltic concrete Type I-1 in accordance with the details of design as shown and specified in the Contract Documents.
  - 2. A level bituminous base course at least 2 inches in thickness shall be provided prior to the installation of the berm.
  - 3. The mixture shall be placed and compacted with a machine acceptable and approved by the Engineer for the type of berm required. Forming berm by hand shall not be allowed.

## 3.11 DUST CONTROL TREATMENT

- A. Calcium chloride shall be applied only upon the direction of the Engineer.
  - 1. The roadway shall be swept clean and calcium chloride spread at a uniform rate over the gravel trench surface.

# 3.12 PAVEMENT MARKINGS

- A. Pavement markings shall be applied to replace damaged or removed sections or at locations directed by the Engineer.
- B. The following is a general listing of pavement markings and locations.
  - 1. West Central Street includes the following markings
    - a. White fog lines both sides of roadway,
    - b. Double yellow line middle of roadway
    - c. Left turn arrow at the Mill Intersection,

- d. White lane divider at the Mill Street intersection
- e. White cross walk on each side street
- f. White cross walk across West Central at three locations
- 2. Route 30 includes the following markings
  - a. White Fog lines both side of road,
  - b. Double yellow line middle of roadway
- 3. North Main Street (Route 27) includes the following markings,
  - a. White fog lines all roadways,
  - b. Double yellow line middle of roadway, all roads,
  - c. White Stop line at all intersections.
  - d. Two right turn arrows at the Northbound lane turning into the Shopping Center, with "ONLY" between the two,
  - e. Cross walk across North Main Street, south of the shopping center entrance,
  - f. Cross walk across Rutledge road,
  - g. Four yellow lines and cross lines in North Main Street adjacent to the Route 9 Westbound exit ramp onto North Main Street northbound,
  - h. White lines denoting Route 9 Eastbound exit ramp onto North Main Street Southbound.
- C. The following procedures shall be followed for application of pavement markings.
  - 1. Pavement shall have been in place 48 hours prior to the application of pavement markings.
  - 2. The surface shall be prepared to accept the application in compliance with the paint manufacturer's requirements.
  - 3. Shall be applied to a dry film thickness of 15-mils.
  - 4. The temperature of the pavement shall be between  $40^{\circ}$ F and  $120^{\circ}$ F.
  - 5. No thinners are to be used for the pavement markings.
  - 6. The equipment used for the application of Pavement Markings, shall be of standard commercial manufacture. All other equipment and devices necessary for the application of Pavement Markings and protection thereof and for the protection of the traveling public, shall be as usually required for work of this type, and shall be furnished by the Contractor.
  - 7. Pavement markings shall be either a single or double continuous line or broken line, 4 inches wide as directed by the Engineer.
  - 8. If for any reason material is spilled or tracked on the pavement or any markings applied by the Contractor in the Engineer's judgment fail to conform because of a deviation from the desired pattern the Contractor shall remove such material by a method that is not injurious to the roadway surface and is acceptable to the Engineer, clean the roadway surface and prepare the surface for a reapplication of the pavement markings.

# END OF SECTION

#### SECTION 02514

#### **GRANITE CURBSTONE**

#### PART 1 - GENERAL

#### 1.1 DESCRIPTION

- A. Work Includes: Remove and reset granite curbstone and install curb inlets as required by the Contract Documents.
- B. Related Work:
  - 1. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division 1 of these Specifications.
  - 2. Section 02513 Asphaltic Concrete Paving
  - 3. Section 02726 Frames and Covers/Grates
  - 4. Section 03300 Cast-in-Place Concrete

#### 1.2 QUALITY ASSURANCE

- A. Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this Section.
- B. Comply with pertinent provisions of the following except as may be modified herein.
  - 1. Department of Public Works, Standard Specifications, for Highways and Bridges of the Commonwealth of Massachusetts latest edition, including all addenda.
- C. The Contractor shall conduct all work in a first-class workmanlike manner, and he/she shall use reasonable and appropriate care and skill in the performance of the work under this Section.

## 1.3 SUBMITTALS

A. None required.

#### 1.4 PRODUCT HANDLING

A. Comply with pertinent provisions of Section 01610.

#### PART 2 - PRODUCTS

## 2.1 GRANITE CURBING

- A. The intention is to utilize the existing granite curb stones and curb inlets removed during the project for re-installation. If the curb is broken prior to the work of the contractor then a new curb stone shall be provided. Costs associated with furnishing a new curb stone will be considered under a change order.
- B. If a stone must be replaced it shall be a granite curb stone meeting the Mass Highway Standard, six (6)-feet in length, eighteen (18)-inches in depth, and at least 6-inches wide at the top and bottom.
- C. Curb inlets, if required to be replaced, shall be Mass Highway Standard with the following attributes:
  - 1. A gutter mouth at least three (3)-inches in depth and at least two (2)-feet in length shall be cut in the front face of the stone.
  - 2. Granite curb inlets shall match the adjacent curbing in color.
  - 3. Curbs shall be six (6)-feet in length, eighteen (18)-inches in depth, six (6)-inches wide at top and at least six (6)-inches wide at bottom.
- D. Returns shall be vertical curbing cut on a two (2)-foot radius with a six (6)-inch width. Returns shall be placed at each end of the granite curbing installation.

## PART 3 - EXECUTION

## 3.1 REMOVAL OF EXISTING GRANITE CURBSTONE

- A. Existing granite curbstone shall be removed and placed in an area directed by the Owner.
  - 1. If they are stacked, wood blocking shall be placed between them.
  - 2. Granite curbing which is damaged by the Contractor shall be replaced with new granite curbstone of the same quality and appearance at the Contractor's expense.

## 3.2 INSTALLATION OF GRANITE CURBSTONE

- A. Curbing shall be aligned within roadway gutter as shown on the Drawings.
  - 1. Joints shall be grouted.
  - 2. Concrete shall be placed against curbside of the curbing up to bottom of pavement area.
  - 3. Backside of curbing shall be backfilled with bank gravel as specified in Section 02221.
  - 4. Any curbing which settles or is not in alignment with curbing which was not reset shall be removed and reinstalled.

# 3.3 INSTALLATION OF GRANITE CURB INLETS

- A. Proposed granite curb inlets shall be aligned horizontally and vertically with existing curbing.
  - 1. Trench for curb shall be excavated to a width of eighteen (18)-inches, and a depth of six (6)-inches below the bottom of the curbstone.
  - 2. Foundation for curb inlet shall consist of a full bed of cement mortar on the supporting back wall of the catch basin and a minimum of six (6)-inches of compacted gravel on each side to support the overhang.
  - 3. Backside of curbing shall be backfilled with select borrow as specified in Section 02221.

## END OF SECTION

#### SECTION 02579

## CASTING ADJUSTMENT

#### PART 1 - GENERAL

#### 1.1 DESCRIPTION

- A. Work Included: Adjust to finish grade castings whose finish grade has been altered by the construction, as required by the Contract Documents.
- B. Related Work:
  - 1. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division 1 of these Specifications.
  - 2. Section 02221 Trenching, Backfilling and Compacting
  - 3. Section 02513 Asphaltic Concrete Paving
  - 4. Section 03300 Cast-in-Place Concrete

## 1.2 QUALITY ASSURANCE

- A. Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this Section.
- B. The Contractor shall conduct all work in a first-class workmanlike manner, and he/she shall use reasonable and appropriate care and skill in the performance of the work under this section.

#### 1.3 SUBMITTALS

A. None required.

#### 1.4 PRODUCT HANDLING

A. Comply with pertinent provisions of Section 01610.

## PART 2 - PRODUCTS

#### 2.1 MATERIALS

A. Concrete: See Specification Section 03300.

## PART 3 - EXECUTION

## 3.1 CONDITIONS

A. Examine the areas and conditions under which work of this Section will be performed. Correct conditions detrimental to timely and proper completion of the Work. Do not proceed until unsatisfactory conditions are corrected.

#### 3.2 CASTING ADJUSTMENTS

- A. In roadway areas, where permanent resurfacing is to be applied, existing gate boxes, manhole and catch basin frames shall be adjusted to the grade of the new pavement.
  - 1. A neat line shall be cut in the pavement around the existing frames.
  - 2. The material: Gravel, pavement and concrete collar (if there) shall be removed down to six (6)-inches below the frame.
  - 3. The casting is to be freed from its existing grout bed and shimmed with steel shims of the appropriate thickness, at a minimum of four (4) alternate locations, so as to ensure that the casting will not rock. The casting is then to be set into a full bed of grout and a concrete collar placed around the frame, up to within three (3)-inches of the existing pavement.
  - 4. The frame shall be protected from damage from traffic until the concrete has taken a firm set.
  - 5. Frames and covers which are not on the same plane as the final grade shall be reset.

## END OF SECTION

#### SECTION 02605

#### PRECAST CONCRETE SANITARY SEWER MANHOLES

#### PART 1 - GENERAL

#### 1.1 DESCRIPTION

A. Work included: Provide precast concrete manholes as required by the Contract Documents.

#### B. Related work:

- 1. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division 1 of these Specifications.
- 2. Section 02221 Trenching, Backfilling and Compacting
- 3. Section 02641 Sewer Valves
- 4. Section 02726 Frames, Covers and Grates

#### 1.2 SUBMITTALS

- A. Comply with pertinent provisions of Section 01340.
- B. Product data: Within 30 calendar days after the Contractor has received the Owner's Notice to Proceed, submit:
  - 1. Materials list of items proposed to be provided under this Section;
  - 2. Manufacturer's specifications and other data needed to prove compliance with the specified requirements.

#### 1.3 QUALITY ASSURANCE

- A. Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this Section.
- B. The Contractor shall conduct all work in a first-class workmanlike manner, and he/she shall use reasonable and appropriate care and skill in the performance of the work under this Section.

#### 1.4 PRODUCT HANDLING

- A. Comply with pertinent provisions of Section 01610.
- B. Delivery, storage, and handling:

- 1. Deliver the work of this Section to the job site in such quantities and at such times as to assure the continuity of construction.
- 2. Store units at the job site in a manner to prevent physical damage, and in a manner to keep markings visible.
- 3. Lift and support the units only at designated lifting points or supporting points.

# PART 2 - PRODUCTS

#### 2.1 DESIGN

- A. Precast concrete manhole sections shall conform to:
  - 1. ASTM-C478 Specification for Precast Reinforced Concrete Manhole Sections.
  - 2. PCI 116
  - 3. CRSI "Manual of Standard Practice"
  - 4. In the event of conflict between or among standards, the more stringent provision shall govern unless directed otherwise by the Engineer.

## 2.2 PRECAST CONCRETE SECTIONS

## A. General

- 1. Wall thickness shall not be less than five (5) inches for a 48-inch diameter reinforced section, six (6) inches for a 60-inch reinforced section and seven (7) inches for a 72-inch diameter reinforced section.
- 2. All sections shall have tongue and grove joints.
- 3. Concrete compressive strength shall be 5000 psi after 28 days.
- 4. Precast concrete barrel sections with precast top slabs and precast concrete transition sections shall be designed for a minimum of H-20 loading plus the weight of the soil above.
- 5. The date of manufacture and the name and trademark of the manufacturer shall be clearly marked on the inside of each precast section.
- 6. Precast concrete bases shall be constructed and installed as shown on the Drawings. The thickness of the bottom slab of the precast bases shall not be less than the manhole barrel sections or top slab whichever is greater.
- 7. Allow 6-inches from inside bottom base to lowest core opening.

# 2.3 JOINTS

- A. Precast Sections
  - 1. Tongue and groove joints of precast sections shall be sealed with an "O"-ring conforming to ASTM C443 or a flexible joint sealant such as Kent Seal No. 2 or equal.

## 2.4 BRICK MASONRY

A. Manhole invert and table

- 1. Bricks shall be straight and true and shall comply with the latest specifications of the ASTM for Sewer Brick, Grade SS (made from clay) C32: The mean of five (5) absorption tests shall not exceed eight (8) percent. No individual brick shall exceed eleven (11) percent. Bricks for leveling manhole frames shall comply with ASTM C62, grade SW.
- 2. Brick for invert shall be laid on edge with tight joints. Brick for table and grade adjustment shall be laid flat.
- 3. Table to be constructed to an elevation even with the top of the pipe. Table shall slope up from the invert to the sidewalls.

# 2.5 MORTAR

- A. For use in the brickwork
  - 1. Composed of one (1) part Type II Portland cement conforming to ASTM C150 to two (2) parts sand.
  - 2. For each bag of cement, a small amount (not to exceed 10% by weight) of hydrated lime may be added. Lime shall conform with ASTM C207, Type N.

# 2.6 MASONRY SAND

A. Shall comply with ASTM C144.2.

# 2.7 MANHOLE FRAMES AND COVERS

A. Shall be as specified in Section 02726.

## 2.8 MANHOLE STEPS

- A. Manhole steps shall be aluminum alloy 6061 T6, extruded, safety-type cast-in-place in the barrel and dome sections. The portion of step imbedded in concrete, plus 2 inches, shall be coated with aluminum oxide.
  - 1. Steps shall be fourteen inches (14") wide.
  - 2. Steps shall be cast-in-place.
  - 3. Steps shall be set at twelve inches (12") on center.

# 2.9 CONNECTIONS TO MANHOLE

- A. Connections to the precast structures shall be accomplished by the following:
  - 1. "Kor-N-Seal" joint with stainless steel clamp.
  - 2. "Lock Joint Flexible Manhole Sleeve" shall be cast into the manhole base section. Strap shall be stainless steel.
  - 3. A fixed connection at the precast structure shall not be allowed.

## 2.10 OTHER MATERIALS

A. Provide other materials, not specifically described but required for a complete and proper installation, as selected by the Contractor subject to the approval of the Engineer.

## PART 3 - EXECUTION

## 3.1 CONDITIONS

A. Examine the areas and conditions under which work of this Section will be performed. Correct conditions detrimental to timely and proper completion of the Work. Do not proceed until unsatisfactory conditions are corrected.

# 3.2 PRECAST INSTALLATION

- A. Work shall be protected against flooding and flotation.
  - 1. Precast base of the structure to be placed on a compacted six (6) inch layer of screened gravel.
  - 2. Precast barrel sections shall be set vertical with all sections in true alignment and joints sealed watertight.
  - 3. Grade at the top of the precast manhole shall be such to allow a maximum of twelve (12) inches of brickwork to bring the frame and cover to finish work.
  - 4. Grout all lifting holes with non-shrink grout.

# 3.3 MANHOLE PIPE CONNECTIONS

A. Shall be as stated in Paragraph 2.9 of this Section.

## 3.4 BRICKWORK

- A. Inverts and Tables
  - 1. Inverts shall not be constructed until manhole is in place and inlet/outlet pipes are installed and backfilled. Build invert tight to incoming/outgoing pipes.
  - 2. Inverts shall be constructed to provide a smooth uninterrupted flow channel and shall correspond to the lower half of the pipe.
    - a. The channel walls will be full height of the largest pipe diameter.
    - b. The channel will be the full width of the pipe diameter entering or exiting the manhole, transitioning in width to conform to inlet and outlet pipes.
    - c. All bricks making up the invert will be laid on their narrowest edge parallel to the channel.
    - d. Mortar joints shall be closely butted together.
  - 3. The table will be constructed so water flows back into the flow channel. Pitch table 1-inch to back wall of manhole.
  - 4. Entire table and invert to be constructed of solid brick. No sand or stone will be allowed below brick. Mortar or concrete fill may be used but not in the form of dry pack.

5. When completed, the entire table shall be parged with mortar and a burlap bag will be used to rub or bag the surfaces clear of excess mortar.

## 3.5 MANHOLE FRAME AND COVER

- A. Shall be set in a full bed of mortar on the grade adjusting brick course.
  - 1. Shall be set to the finish grade.
  - 2. Frames and covers which are not on the same plane as the final grade are to be reset.

## 3.6 CLEANING

A. All new manholes shall be thoroughly cleaned of all silt, debris and foreign matter of any kind, prior to final inspection.

# END OF SECTION

#### SECTION 02610

#### DUCTILE IRON PIPE, FITTINGS, AND APPURTENANCES

#### PART 1 - GENERAL

#### 1.1 DESCRIPTION

A. Work Included: Provide all ductile iron pipe, fittings, and appurtenances for water mains as required by the Contract Documents.

#### B. Related Work:

- 1. Documents affecting work of this section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division 1 of these Specifications.
- 2. Section 02221 Trenching, Excavation and Backfilling
- 3. Section 02705 Pipe Bursting
- 4. Section 02640 Valves and Service Brass
- 5. Section 02708 Slip-lining Existing Sleeve

#### 1.2 QUALITY ASSURANCE

- A. Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the Work of this Section.
- B. The Contractor shall conduct all work in a first-class workmanlike manner, and he/she shall use reasonable and appropriate care and skill in the performance of the Work under this Section.

#### 1.3 SUBMITTALS

- A. Comply with pertinent provisions of Section 01340.
- B. Product Data: Within twenty (20) calendar days after the Contractor has received the Owner's Notice to Proceed, submit:
  - 1. Materials list of items proposed to be provided under this Section
  - 2. Manufacturer's specifications and other data needed to provide compliance with the specified requirements.

#### 1.4 PRODUCT HANDLING

A. Comply with pertinent provisions of Section 01610.

- 1. Material shall be handled so as to avoid damage, with particular attention being given to loading, transporting, and unloading pipe and accessories. Under no circumstances shall pipe or accessories be unloaded by dumping or dropping onto the ground or stockpile. All material shall be lowered by ropes, chains, tongs, derricks, or other suitable equipment.
- 2. Pipe shall not be stored on private property without consent of the property owner, and all pipe shall be properly braced and clocked to prevent injury due to rolling or collapse of pipe.

# PART 2 - PRODUCTS

# 2.1 DUCTILE IRON PIPE

- A. Ductile Iron Water Main and Forcemain Pipe
  - 1. Shall be Class 52 with push on joint meeting the requirements of ANSI/AWWA C151/A21.51-17 or latest revisions thereto.
  - 2. All water main pipe shall be double cement lined, with an asphaltic seal coat meeting the requirements of ANSI/AWWA C104/A21.4-16 or latest revision thereto.
  - 3. All forcemain pipe interior shall be double cement lined with an asphaltic seal coat, with the exception of the last twenty (20) linear feet from the proposed transition sewer manhole, with an asphaltic seal coat meeting the requirements of ANSI/AWWA C104/A21.4-16 or latest revision thereto.
  - 4. The interior surfaces of the last twenty feet (20ft) of the forcemain pipe prior to the sewer manhole, shall be fusion-bonded epoxy coated in accordance with ANSI.AWWA C116., equal to Protecto 401 Ceramic Epoxy Lining by American Pipe.
  - 5. Pipe exterior shall be coated with an approved asphaltic coating, approximately 1mil in thickness, meeting the requirements of ANSI/AWWA C151/A21.51-17 or latest revision thereto.
  - 6. Rubber gasketed joint shall meet the requirements of ANSI/AWWA C111/A21.11-17 or latest revisions thereto.
- B. Ductile Iron Pipe for Pipe Bursting and Sliplining
  - 1. Shall be Class 52 with restrained push-on joint meeting the requirements of ANSI/AWWA C151/A21.51-17, or latest revisions thereto. Pipe shall be TR Flex manufactured by US Pipe, or approved equal.
  - 2. Pipe thickness shall be in accordance with ANSI/AWWA C150/A21.50-14 or latest revision thereto.
  - 3. Shall be double cement lined with an asphaltic seal coat meeting the requirements of ANSI/AWWA C104/A21.4-16 or latest revision thereto. Exterior of pipe shall be asphalt coated in accordance with ANSI/AWWA C151/A21.51-17 or latest revision thereto.
  - 4. Push-on joints and rubber gaskets shall meet the requirements of ANSI/AWWA C111/A21.11-17 or latest revisions thereto.

- a. Ductile iron locking segments, inserted through a slot (or slots) in the bell face, provide a positive axial lock between the bell interior surface and a retainer weldment on the spigot end of the pipe.
- b. TR Flex Pipe and Fittings utilize the conventional TYTON Gaskets.
- c. Restraint joint of field cut pipe shall be provided with US Pipe's TR Flex Gripper Ring, TR Flex pipe field weldments, or approved equal.

# 2.2 FITTINGS

- A. Ductile Iron Water Main and Forcemain Fittings
  - 1. Fitting shall be manufactured of ductile iron mechanical joint, all bell, compact design rated for 350 psi.
  - 2. All fittings, with the exception of the bends prior to the forcemain transition sewer manhole, shall include cement mortar lining and seal coat, and exterior shall be asphalt coated in accordance with ANSI/AWWA C153/A21.53-11 or latest revision thereto.
  - 3. The forcemain bends between the sliplining pit (south side of Route 9) and the transition sewer manhole and inside the sewer manhole shall include an exterior asphalt coating in accordance with ANSI/AWWA C153/A21.53-11 or latest revision thereto and the interior shall have a fusion-bonded epoxy coated in accordance with ANSI.AWWA C116, equal to Protecto 401 Ceramic Epoxy Lining by American Pipe.
  - 4. Fittings that are not presently manufactured to the compact design, but are manufactured to meet or exceed the requirements of ANSI/AWWA C110/A21.10-12 or latest revision thereto may be utilized.
  - 5. Mechanical joint shall meet or exceed the requirements of ANSI/AWWA C111/A21.11-17 or latest revision thereto.
  - 6. Mechanical joints shall include retainer gland equal to Megalug.
- B. Restrained Push-On Ductile Iron Water Main Fittings for Pipe Bursting
  - 1. Fitting shall be manufactured of ductile iron restraint joint equal to U.S. Pipe's TR-FLEX fittings, all bell, compact design rated for 350 psi.
  - 2. Fittings shall include cement mortar lining and seal coat in accordance with ANSI/AWWA C104/A21.4-16. Exterior shall be asphalt coated in accordance with ANSI/AWWA C153/A21.53-11 of latest revision thereto.
  - 3. Fittings that are not presently manufactured to the compact design, but are manufactured to meet or exceed the requirements of ANSI/AWWA C110/A21.10-12 or latest revision thereto may be utilized.
  - 4. Mechanical joint shall meet or exceed the requirements of ANSI/AWWA C111/A21.11-17 or latest revision thereto.
- C. Restrained Push-On Ductile Iron Water Main Fittings at Highway Crossings
  - 1. Fitting shall be manufactured of ductile iron restraint joint equal to U.S. Pipe's TR-FLEX fittings, all bell, compact design rated for 350 psi.
  - 2. Fittings shall include cement mortar lining and seal coat in accordance with ANSI/AWWA C104/A21.4-16. Exterior shall be asphalt coated in accordance with ANSI/AWWA C153/A21.53-11 of latest revision thereto.

- 3. Fittings that are not presently manufactured to the compact design, but are manufactured to meet or exceed the requirements of ANSI/AWWA C110/A21.10-12 or latest revision thereto may be utilized.
- 4. Mechanical joint shall meet or exceed the requirements of ANSI/AWWA C111/A21.11-17 or latest revision thereto.

# 2.3 SPECIAL FITTINGS

- A. Retainer glands shall be "Sigma One Lok", Sigma Corporation, Megalug or approved equal.
- B. Solid sleeves shall be ductile iron with mechanical joint, long body style meeting or exceeding the requirements of ANSI/AWWA C110/A21.10-12 or latest revision thereto.
  - 1. Solid sleeves shall be a minimum of 12 inches in length.
  - 2. A fully restrained coupling may be substituted for solid sleeves in use with oversized or cast iron pipe.
  - 3. Sleeves or couplings without integrated restraint shall not be considered.
- C. Plugs or caps shall be ductile iron with mechanical joint and retainer feature.

# 2.4 PIPE STRAPS

- A. Pipe strap to be equal to B3180FL flush mount B-line pipe strap by Eaton.1. Strap to be electro-galvanized.
- B. Anchors to be equal to Hilti stainless steel wedge anchors.

## PART 3 - EXECUTION

## 3.1 SURFACE CONDITIONS

A. Examine the areas and conditions under which work of this Section will be performed. Correct conditions detrimental to timely and proper completion of the Work. Do not proceed until unsatisfactory conditions are corrected.

## 3.2 FIELD MEASUREMENTS

A. Make necessary measurements in the field to assure precise fit of items.

# 3.3 INSTALLATION

- A. Trench, backfill and compact for the Work of this Section in strict accordance with pertinent provisions of Section 02221 of these Specifications.
- B. Protect pipe and fittings during handling against shocks and free fall. Remove extraneous material from the pipe and fitting interior.

# 3.4 PIPE LAYING

## A. Ductile Iron Pipe and Fittings

- 1. Lay ductile iron pipe and fittings in accordance with the requirements of ANSI/AWWA C600-17 except as may be otherwise provided in this Specification.
- 2. Pipe cutting shall be done by machine, leaving a smooth cut at right angles to the axis of the pipe and the cement lining shall be undamaged.
- 3. All bends, tees, caps, plugs, and hydrants shall be provided with reaction or thrust blocking and retainer glands.
- 4. When pipe laying is not in progress, the open end of the pipe(s) shall be closed by a suitable pipe cap or plug to prevent the entry of dirt, stones or ground water into the line.
- 5. The cut end of a pipe which is being made-up into a push-on-joint shall have its cut end beveled to prevent damage to the gasket during assembly of the joint.
- 6. Install retainer glands where specified in this Section and where shown on the Contract Drawings in accordance with the manufacturer's recommended installation instructions.
- B. Connections at Existing Water Mains
  - 1. The exact location and size of the existing water mains shall be determined by test pit excavations as directed by the Engineer.
  - 2. Once uncovered, the Contractor shall prepare the pipe for the proposed connection. Care shall be taken in alignment of the new piping and fittings, to keep deflection within the manufacturer's allowable tolerances.
  - 3. Couplings shall be utilized for connecting new pipe to existing.
- C. Pipe Bursting
  - 1. Pipe installed using the pipe bursting method shall be in accordance with Section 02705.
- D. Sliplining Pipe Installation
  - 1. Sliplining process shall be in accordance with Section 02708.

# 3.5 PIPE AND FITTING JOINT ASSEMBLY

- A. Mechanical Joints
  - 1. Megalug retainer glands are to be installed on all mechanical joints.
  - 2. Clean pipe end and socket, and apply a soapy water solution or lubricant as provided by the pipe manufacturer.
  - 3. Place gland on plain end with lip extension toward plain end, followed by gasket with narrow side toward plain end.
  - 4. Insert pipe into socket and press gasket firmly and evenly into gasket recess.
  - 5. Push gland toward socket and center, installing bolts and nuts hand tight.
  - 6. Align pipe at this time, taking care to keep deflection within 5% of the pipe length or per manufacturer's recommendations, whichever is less.
  - 7. Tighten bolts in alternating sequence utilizing a torque wrench, maintaining the same distance between the gland and face of flange during the process.
  - 8. Torque bolts to a range of 75 to 90 foot-pounds.

- B. Push-on Joints
  - 1. Thoroughly clean groove and bell socket of pipe and fitting, along with plain end of mating pipe.
  - 2. Make a small loop in gasket and insert into socket, making sure the gasket faces the correct direction.
  - 3. Apply a lubricant to plain end of pipe and gasket, provided by pipe manufacturer and applied as per manufacturer's recommendations.
  - 4. Push beveled plain end of pipe into bell, keeping pipe straight during installation and making deflection after insertion to complete.
  - 5. Maintain deflection within 5% of the pipe length or per manufacturer's recommendations, whichever is less.

# 3.6 FLUSHING

A. All sections of piping installed shall be flushed prior to pressure testing by partially opening and closing valves and hydrants several times under expected line pressure, with flow velocities adequate to flush foreign material from valves and hydrants.

## 3.7 HYDROSTATIC TESTING- WATER MAIN AND FORCEMAIN

- A. Pressure Test: Hydrostatic testing shall be in compliance with ANSI/AWWA C600-17 or latest revision thereto. After the pipe has been installed, pipe or any valved section thereof shall be subject to a hydrostatic pressure of at least 1.5 times the working pressure , at the point of testing.
  - 1. Pressure shall not be less than 1.25 times the working pressure at the highest point along the test section and not less than 1.5 times the working pressure at the lowest elevation of the test section.
  - 2. Test shall not be made until all reaction and thrust blocking has achieved their strength, a minimum of seven (7) days after they were cast.
  - 3. Duration of test shall be two (2) hours.
  - 4. Test pressure shall not vary by more than  $\pm 5$  psi.
  - 5. Each section of pipeline shall be slowly filled with water, with the specified test pressure, measured at the point of lowest elevation, applied by means of a pump connection to the pipe in a manner satisfactory to the Engineer. The pump, pipe connection, gauges, and all necessary apparatus shall be furnished by the Contractor.
  - 6. During the filling of the pipe and before applying the specified test pressure, all air shall be expelled from the pipeline. At all points of high elevation, the Contractor shall install corporation cocks so that air can be expelled as the pipe is filled with water. After all air has been expelled, the corporation cocks shall be closed and the test pressure applied. At the conclusion of the pressure test, the corporation cocks shall be removed and plugged or left in place at the discretion of the Owner.
- B. Leakage Test: Leakage shall be defined as the quantity of water that must be supplied into the pipe to maintain pressure within  $\pm 5$  psi of the specified test pressure after the air has been expelled and the pipe filled with water. Leakage shall not be measured by a drop in pressure in a test section over a period of time.

1. No pipe installation shall be accepted if the leakage is greater than that determined by the following formula:

 $L = (S * D * P^{0.5})/148,000$ 

where: L = allowable leakage, in gallons per hour.

- S = the length of pipe tested, in feet.
- D = the nominal diameter of the pipe, in inches.
- P = the average test pressure during the leakage test, in psi.
- 2. Should any test of a section of pipe line disclose leakage greater than permitted, the Contractor shall at his own expense locate and repair the defects until repeated pressure test yields a leakage value within the allowable limit.
- 3. The Contractor shall provide the Engineer with a written report on the pressure test, to include the date, time, location, stations, pressure, quantity of water applied during test, size of pipe, etc.
- C. Notification: The Engineer and the Owner shall be notified, in writing, at least 48 hours prior to the hydrostatic testing of the pipeline.

# 3.8 DISINFECTION – WATER MAINS AND WATER SERVICES >2"

- A. Disinfection and sampling shall be in compliance with ANSI/AWWA 651-14 or latest revision thereto. The pipelines shall be disinfected by application of chlorine either as calcium hypochlorite or liquid sodium hypochlorite in an amount to produce a solution of 25 p.p.m., for a contact period of 24 hours, and afterward, flushed until the chlorine residual is reduced to system residual. Chlorine dosage shall be applied by pumping into the line to be treated, a sufficient amount of chlorine solution, which, when mixed with water in the pipeline, will meet the required concentration. The mixture shall be pumped through the section being treated and shall be discharged and monitored at a point farthest from the point of introduction of the chlorine. When the solution reaches the required concentration of 25 p.p.m., the pump and discharge valve shall be closed and the liquid left in the section being chlorinated for 24 hours.
  - 1. The chlorine solution used for disinfecting the new water line shall be discharged from the water main and into a tanker truck, where the solution may be neutralized and then properly disposed of.
  - 2. Alternatively, a chlorine neutralizer can be utilized on the hydrant discharge for discharging to the ground surface, provided the chlorine residual leaving the diffuser is at or below water system chlorine residual.
  - 3. If a hydrant connection is not available to be used for discharging the chlorine solution from the new line, a temporary blow-off connection shall be installed for that purpose. Upon completion of the disinfection process, the blow-off connection shall be removed.
  - 4. The Contractor shall furnish all materials and equipment for the sterilization of the mains, but the Water Department will furnish necessary assistance in flushing and the operation of gate valves.
  - 5. The Contractor shall obtain a water sample from the disinfected line an analyzed for coliform bacteria and HPC and Background bacteria.
    - a. Sample bottles shall be obtained from a State DEP approved laboratory.
    - b. Samples shall be collected and analyzed in accordance with the applicable AWWA standard.

- c. Two samples for each section of main tested shall be taken. The first sample taken 16-24 hours after the chlorine was flushed from the water main. The second shall be taken 16-24 hours after the first sample.
- d. Collected samples are to be immediately delivered to the laboratory for analysis for Coliform Bacteria, Background bacteria and Heterotrophic Plate Count (HPC).
- e. A copy of the laboratory report shall be submitted to the Engineer.
- f. If the analysis indicates the presence of coliform bacteria, the water main shall be disinfected again and the analysis repeated.
- g. If the analysis indicates no coliform bacteria but HPC or Background bacteria is greater than 500, then the Contractor has the option of flushing and resampling or repeating the disinfection process and resampling.
- h. The process shall be repeated until the analysis indicates no coliform bacteria and HPC & Background are below 500 count.

## SERVICE TUBING

### PART 1 - GENERAL

#### 1.1 DESCRIPTION

- A. Work Included: Furnish and install service tubing as required by the Contract Documents.
- B. Related Work:
  - 1. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division 1 of these Specifications.
  - 2. Section 02221 Trenching, Backfilling, and Compaction
  - 3. Section 02640 Valves and Service Brass

#### 1.2 QUALITY ASSURANCE

- A. Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the Work of this Section.
- B. Use equipment adequate in size, capacity, and numbers to accomplish the Work of this Section in a timely manner.
- C. In addition to complying with requirements of governmental agencies having jurisdiction, comply with the directions of the Engineer.
- D. The Contractor shall conduct all work in a first-class workmanlike manner, and he/she shall use reasonable and appropriate care and skill in the performance of the Work under this Section.

#### 1.3 SUBMITTALS

- A. Comply with pertinent provisions of Section 01340.
- B. Product Data: Within fifteen (15) calendar days after the Contractor has received the Owner's Notice to Proceed, submit:
  - 1. Materials list of items proposed to be provided under this Section.
  - 2. Manufacturer's specifications and other data needed to prove compliance with the specified requirements.

#### 1.4 PRODUCT HANDLING

A. Comply with pertinent provisions of Section 01610.

### PART 2 - PRODUCTS

### 2.1 SERVICE TUBING

- A. Service tubing shall be blue, polyethylene (PE) 4710 water tubing, pressure class 250 psi. Tubing shall meet or exceed the requirements for ASTM D2737 and ANSI/AWWA C901-08, or latest revisions thereto, and be NSF/ANSI 61 certified. Shall be Ultra-Pure Blue 4710 CTS SDR 9 tubing as manufactured by Silver-Line Plastics, or approved equal.
- B. Services shall match existing service diameter, but have a minimum of 1-inch in diameter.
- C. Stainless steel inserts shall be used with the tubing at all joints.
- D. Fittings shall be compression joint type on inlet and outlet.

#### 2.2 INSULATION

A. Provide 2-inch closed cell polystyrene, as manufactured by Dow ('Blue Styrofoam') as directed by Owner, if determined to be necessary due to bury depth, following excavation of service. All butt joint seams shall be overlapped with 2-inch piece of insulation over seam.

#### PART 3 - EXECUTION

#### 3.1 SURFACE CONDITIONS

A. Examine the areas and conditions under which work of this Section will be performed. Correct conditions detrimental to timely and proper completion of the Work. Do not proceed until unsatisfactory conditions are corrected.

#### 3.2 FIELD MEASUREMENTS

A. Make necessary measurements in the field to assure precise fit of items.

#### 3.3 INSTALLATION

A. Excavation, backfill, and compaction for the Work of this Section in strict accordance with pertinent provisions of Section 02221.

#### 3.4 PIPE LAYING

- A. Temporary water service
  - 1. If in the opinion of the property owner, water service downtime required to replace water service requires a temporary water service to the building, especially on the 10" cast iron main side of the road, then contractor to setup temporary service and make all arrangements with property owner.

- 2. Contactor to work with each property owner to minimize water service downtime and to select appropriate time of day to make water service connections.
- B. Service Tubing Trenchless Construction (Preferred Method)
  - 1. Contractor shall replace existing water service with new 1-inch or 2-inch polyethylene tubing using trenchless construction methods.
  - 2. Trenchless is preferred on West Central to minimize traffic impact and amount of concrete road sub-base to be removed on project.
  - 3. Once Contractor has made appropriate arrangements with property owner regarding water supply downtime or temporary water service setup, Contractor to start water service replacement.
  - 4. Existing corporation and curb stop shall be closed.
  - 5. Contractor shall connect new tubing to existing tubing with appropriate pulling device or utilize a small diameter directional drill to drill through the existing water service.
  - 6. Tubing shall be connected to the new curb stop and adaptor, and compression joints tightened.
  - 7. Contractor to install a short length of new tubing from the new curb stop for connection to existing service, utilize a 1-inch x ³/₄-inch reducer if necessary, and compression joints tightened.
- C. Service Tubing Open Cut Construction
  - 1. Provide new service through open cut excavation where trenchless method was not successful.
  - 2. The tubing shall be connected to the new corporation and the compression joint tightened.
  - 3. Contractor to install a 2" diameter PVC pipe to act as a sleeve across the road, starting 3 feet from corporation and ending 3 feet prior to curb stop. Trench across road shall be backfilled prior to pulling the service to reduce time trenches are open in West Central Street.
  - 4. Tubing shall be carefully inserted in sleeve. Care shall be taken to insure against kinks or crushed areas.
  - 5. Backfill around and to 1 foot over pipe at main and curb stop shall not contain stones greater than 1-inch diameter.
  - 6. Existing corporation shall be closed and unused existing tubing removed.
  - 7. Tubing shall be connected to the new service curb stop and corporation.
  - 8. Contractor to install a short length of new tubing from the new curb stop for connection to existing service, utilize a 1-inch x ³/₄-inch reducer if necessary, and compression joints tightened.

## 3.5 SERVICE ACTIVATION

A. Prior to changing new service line, Contractor shall notify Water Department to have Water Department employees on site to remove water meter in dwelling and flush new service line to prevent plugging of meter and strainers.

### VALVES AND SERVICE BRASS

#### PART 1 - GENERAL

#### 1.1 DESCRIPTION

- A. Work Included: Furnish and install valves on the water distribution piping system as specified in this Section and as shown on the Contract Drawings.
- B. Related Work:
  - 1. Documents affecting work of this Section include, but are not limited to, General Conditions, Supplementary Conditions, and Sections in Division 1 of the Specifications.

#### 1.2 QUALITY ASSURANCE

- A. Use adequate numbers of skilled workers who are trained and experienced in the crafts and who are familiar with the specified requirements and the methods needed for performance of the Work.
- B. The Contractor shall conduct all work in a first-class workmanlike manner, and he/she shall use reasonable and appropriate care and skill in the performance of the Work under this Section.

#### 1.3 SUBMITTALS

- A. Comply with pertinent provisions of Section 01340.
- B. Product Data: Within twenty (20) calendar days after the Contractor has received the Owner's Notice to Proceed, submit:
  - 1. Materials list of items proposed to be provided under this Section;
  - 2. Manufacturer's specifications and other data needed to provide compliance with the specified requirements.

#### 1.4 PRODUCT HANDLING

A. Comply with pertinent provisions of Section 01610.

### PART 2 - PRODUCTS

#### 2.1 MATERIALS

- A. Gate Valves for Buried Service
  - 1. Gate valves on all water mains and hydrant branches 16 inches or less in diameter shall be of the resilient seated wedge type with ductile iron body.
  - 2. Shall meet or exceed the requirements of ANSI/AWWA C515 or latest revision thereto.
  - 3. Ends shall be mechanical joint conforming to ANSI/AWWA C111/A21.17 or latest revision thereto.
  - 4. Valve shall be of the non-rising stem type with O-ring stem seals.
  - 5. Shall have a 2-inch square operating nut and shall turn clockwise (right) to open.
  - 6. Valves shall be rated for 350 psi maximum working pressure and 700 psi static pressure test.
  - 7. Shall be fully coated on interior and exterior surfaces in accordance with AWWA C550, with a minimum dry film thickness of 10 mils; up to 60 mils for epoxy-resin coatings.
  - 8. Tapping valve and sleeve specified in Section 02610 Ductile Iron Pipe, Fittings, and Appurtenances.
  - 9. Valves shall be as manufactured by Waterhouse, Mueller model A-2361-20.
  - 10. All exterior nuts and bolts shall be stainless steel with 5/8-inch minimum diameter.
- B. Valve Boxes
  - 1. Shall be cast iron with a cast iron cover. The word "water" shall be cast into the cover in raised letters.
  - 2. Valve box barrel shall not be less than  $5-\frac{1}{4}$  inches in diameter.
  - 3. Shall be two-piece sliding type, providing a minimum overlap of 6 inches.
  - 4. The lower section shall enclose the operating nut and stuffing box of the valve.
  - 5. The valve box shall not transmit shock or stress to the valve.
- C. Corporation Stops
  - 1. Service corporation stops shall be 1-inch or 2-inch in size (unless otherwise directed), constructed of "no lead" or "lead free" alloy brass and meeting or exceeding the latest requirements of ANSI/AWWA C800-14 or latest revisions thereto. Outlet connections shall be suitable for CTS O.D. polyethylene service tubing. Corporation shall be H-15008 as manufactured by Mueller Co., or approved equal.
  - 2. All corporation stops shall have the manufacturer's name or trademark integrally stamped or cast on it. Anchor marking identifying the "no lead" brass alloy shall be cast or stamped on the corporation.
- D. Curb Stops

- Curb stops shall be 1-inch or 2-inch in size (unless directed otherwise), shall turn clockwise (right) to open, shall be constructed of "no lead" or "lead free" alloy brass (including drain), and meeting or exceeding the latest requirement of ANSI-AWWA C800-14, or latest revisions thereto. Curb stop shall be suitable for CTS O.D. polyethylene service tubing connections at both ends. Curb stops shall be H-15209N as manufactured by Mueller Co., or approved equal.
- 2. All curb stops shall have the manufacturer's name or trademark integrally stamped or cast on it. Anchor marking identifying the "no lead" brass alloy shall be cast or stamped on the curb stop.
- E. Fittings
  - 1. 1-inch and 2-inch fittings shall be constructed of "no lead" or "lead free" alloy brass with compression joints. Reducer bushings shall be compression by thread style, typically 1-inch by ³/₄-inch.
  - 2. Shall meet or exceed the latest requirement of ANSI-AWWA C800-14, or latest revisions thereto.
- F. Curb Boxes
  - 1. Shall be Buffalo-type recessed lid with pentagon bolt, adjustable sliding type for 5foot bury, and of USA manufacture.
  - 2. Service box shall include a rod and a centering rod guide or ring.

## PART 3 - EXECUTION

### 3.1 SURFACE CONDITIONS

A. Examine the areas and conditions under which work of this Section will be performed. Correct conditions detrimental to timely and proper completion of the Work. Do not proceed until unsatisfactory conditions are corrected.

### 3.2 FIELD MEASUREMENTS

A. Make necessary measurements in the field to assure precise fit of items.

## 3.3 INSTALLATION

- A. Excavation, backfill, and compaction for the Work of this Section in strict accordance with pertinent provisions of these Specifications.
- B. Gate Valves: Shall be set and aligned plumb, supported by a flat stone or solid concrete block, with mechanical joint tightened. Backfill shall be carefully placed and compacted to prevent movement of valve.
  - 1. Valve box shall be set plumb and centered over operating nut, and supported in this position during backfilling and compaction.
  - 2. Box shall be set initially flush with the temporary surface and again adjusted just prior to placement of the base course of asphaltic concrete with a concrete collar.

- 3. Prior to placement of the final top course of asphaltic concrete, the box shall be cleaned of all debris and checked for plumb and centering over operating nut.
  - a. If out of plumb, box shall be excavated and reset to plumb.

### SEWER VALVES

#### PART 1 - GENERAL

#### 1.1 DESCRIPTION

- A. Work included: Furnish and install air release valve on the Health Center pump station forcemain as specified in this Section and as shown on the Contract Drawings.
- B. Related Work:
  - 1. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Divisions 1, 2 and 3 of these Specifications.
  - 2. Section 02221 Trenching, Backfilling, and Compacting
  - 3. Section 02605 Precast Concrete Sanitary Sewer Manholes
  - 4. Section 02610 Ductile Iron Pipe, Fittings, and Appurtenances

#### 1.2 QUALITY ASSURANCE

- A. Use adequate numbers of skilled workers who are trained and experienced in the crafts and who are familiar with the specified requirements and the methods needed for performance of the work.
- B. The Contractor shall conduct all work in a first-class workmanlike manner, and he/she shall use reasonable and appropriate care and skill in the performance of the work under this section.

#### 1.3 SUBMITTALS

- A. Comply with pertinent provisions of Section 01340.
- B. Product data: Within 30 calendar days after the Contractor has received the Owner's Notice to Proceed, submit:
  - 1. Materials list of items proposed to be provided under this Section;
  - 2. Manufacturer's specifications and other data needed to provide compliance with the specified requirements.

### 1.4 PRODUCT HANDLING

A. Comply with pertinent provisions of Section 01610

#### PART 2 - PRODUCTS

NAT-385/Contract No. S-147 S 2/14/2017

## 2.1 MATERIALS

- A. Air Release Valves: The valves shall be an APCO400, Valmatic-VM 48 or an approved equal:
  - 1. Valve construction shall be 1/2-inch NPT outlet or connections and a stainless steel body, top and inlet flange or equivalent.
  - 2. 5/16-inch orifice with valve sealing faces of stainless steel and Buna-N rubber
  - 3. Valves which use a needle valve to seal the orifice will not be acceptable.
- B. Corporation
  - 1. Air release valve to be installed on a 2" diameter corporation tapped into the Class 52 ductile iron pipe.
- C. Ball Valve
  - 1. Contractor to furnish one-piece brass ball valve with threaded connection for pipe connection between air release valve and ball valve and connection between ball valve and corporation.

### PART 3 - EXECUTION

### 3.1 SURFACE CONDITIONS

A. Examine the areas and conditions under which work of this Section will be performed. Correct conditions detrimental to timely and proper completion of the Work. Do not proceed until unsatisfactory conditions are corrected.

### 3.2 FIELD MEASUREMENTS

A. Make necessary measurements in the field to assure precise fit of items.

## 3.3 INSTALLATION

A. Excavation, backfill, and compaction for the work of this Section in strict accordance with pertinent provisions of these Specifications.

## HYDRANTS

### PART 1 - GENERAL

#### 1.1 DESCRIPTION

- A. Work Included:
  - 1. Furnish and install hydrants where shown on the Contract Documents.
  - 2. Furnish an additional ten (10) hydrants, delivered to the Owner's Department of Public Works building for future use.
- B. Related Work:
  - 1. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Divisions 1, 2 and 3 of these Specifications.
  - 2. Section 02221 Trenching, Backfilling, and Compacting
  - 3. Section 02610 Ductile Iron Pipe, Fittings, and Appurtenances

#### 1.2 QUALITY ASSURANCE

- A. Use adequate numbers of skilled workers who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the Work of this Section.
- B. Use equipment adequate in size, capacity, and numbers to accomplish the Work of this Section in a timely manner.
- C. In addition to complying with requirements of governmental agencies having jurisdiction, comply with the directions of the Engineer.
- D. The Contractor shall conduct all work in a first-class workmanlike manner, and he/she shall use reasonable and appropriate care and skill in the performance of the Work under this Section.

#### 1.3 SUBMITTALS

- A. Comply with pertinent provisions of Section 01340.
- B. Product Data: Within fifteen (15) calendar days after the Contractor has received the Owner's Notice to Proceed, submit:
  - 1. Materials list of items proposed to be provided under this Section.
  - 2. Manufacturer's specifications and other data needed to provide compliance with the specified requirements.

### 1.4 PRODUCT HANDLING

A. Comply with pertinent provisions of Section 01610.

## PART 2 - PRODUCTS

### 2.1 HYDRANTS

- A. Hydrants shall meet or exceed the requirements of ANSI/AWWA C502-14 or latest revision thereto, and shall be equal to Mueller Super Centurion model, or approved equal.
  - 1. Barrel sections shall be  $5-\frac{1}{4}$ -inch diameter.
  - 2. Main valve shall be  $5-\frac{1}{4}$ -inch diameter.
  - 3. Two (2)  $2-\frac{1}{2}$ -inch hose nozzles.
  - 4. One (1)  $4-\frac{1}{2}$ -inch pumper outlet.
  - 5. Replaceable brass nozzles.
  - 6. Breakaway flange placed at ground level.
  - 7. Mechanical joint shoe.
  - 8. Open right (clockwise).
  - 9. Shall be designed for a 4-1/2-foot depth of bury.
  - 10. Hydrants shall be factory painted red.
  - 11. Hydrant shall be self-draining.
  - 12. Hydrants shall have a rated AWWA working pressure of 250 psig and shall close with the pressure. Prior to shipment, hydrants shall be tested at the point of manufacture at 500 psig. The pressure rating, manufacturer's name, point of manufacture and valve opening size shall be marked on the upper barrel.
  - 13. The manufacturer shall provide drawings and an affidavit of compliance of the specifications detailed herein.
  - 14. Hydrants shall have a 1-¹/₂-inch pentagon bronze operating nuts and 6-inch diameter mechanical joint inlet connection. Nozzles shall be retained by a ductile iron collar. Retention of the nozzle by set screws is not allowed. Caps shall be furnished with non-kink chains.
  - 15. All hydrant flange bolts and nuts shall be stainless steel. Bolts shall be metric . Hydrant bolting materials shall comply with the applicable portions of Section 4.11 of ANSI/AWWA C502 requiring compliance with ASME B18.2.1. All bolted connections shall be limited to one (1) nut for each bolt. Multiple nuts to achieve a connection with any single bolt will not be allowed.
  - 16. Hydrant shall be coated inside and out with a two-part epoxy coating. Upper hydrant barrel shall be coated with a polyurethane enamel over-coat. Lower hydrant barrel shall be coated with an asphalt varnish.
  - 17. Hydrants shall be supplied with a traffic break feature employing a two-part flange. Hydrants shall be provided with a compression-type rubber main valve that closes with water pressure for positive sealing. The bronze seat ring shall be threaded into mating bronze drain ring and able to be removed from above ground for easy field repair.
  - 18. Rod threads shall be lubricated such that the threads are bathed in an oil lubricant each time the hydrant is operated. Lubrication system shall be sealed with a minimum of two (2) O-rings to help prevent contact of the water by the lubricant.

## 2.2 HYDRANT EXTENSION

- A. Extension Kit: If required to meet grade on site.
  - 1. Shall be provided by the hydrant manufacturer.
  - 2. Length shall be as needed.
  - 3. To insure proper fit and tolerances, all extensions shall be manufactured by the original hydrant manufacturer. Aftermarket extensions and/or parts will not be allowed.

#### PART 3 - EXECUTION

#### 3.1 SURFACE CONDITIONS

A. Examine the areas and condition under which work of this Section will be performed. Correct conditions detrimental to timely and proper completion of the Work. Do not proceed until unsatisfactory conditions are corrected.

#### 3.2 FIELD MEASUREMENTS

A. Make necessary measurements in the field to assure precise fit of items.

#### 3.3 PROPOSED HYDRANT LOCATIONS

- A. All new hydrant locations shown on the Contract Drawings shall be subject to field location approval by the Owner.
- B. Existing hydrants shall be removed and disposed of by the Contractor.

### 3.4 INSTALLATION

- A. Trench, backfill, and compaction for the Work of this Section in strict accordance with pertinent provisions of Section 02221 of these Specifications.
- B. The new hydrant branch shall generally be positioned near the sideline of the roadway layout, and in a location that is not vulnerable to traffic damage, and in a location where flushing can be performed without damage to adjacent property.
- C. The hydrant shall be set upon a flat stone or concrete plate.
- D. The hydrant drainage pit shall be approximately 3 feet in diameter and filled with compacted crushed stone. While backfilling, place additional crushed stone to at least 6 inches above the hydrant drain ports, as shown on the Contract Drawings.
- E. Thrust blocking shall be placed behind the shoe of the hydrants, taking care not to block the drain outlets.

- F. Joint restraints shall be used at all joints between the shut-off valve up to and including the hydrant.
- G. The hydrant shall be set plumb and to the proper grade and shall remain properly supported until it is backfilled.
- H. The Contractor shall provide hydrant extensions, if necessary, to meet grade.
- I. After the hydrant has been set, it shall be entirely draped with burlap and remain covered until the water distribution system has been accepted and put into service.

### PIPE BURSTING

### PART 1 - GENERAL

#### 1.1 DESCRIPTION

A. Work Included: Provide all equipment, labor, and materials necessary to burst cast iron water main pipe as required by the Contract Documents.

#### B. Related Work:

- 1. Documents affecting work of this section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division 1 of these Specifications.
- 2. Section 02221 Trenching, Excavation and Backfilling
- 3. Section 02610 Ductile Iron Pipe, Fittings, and Appurtenances
- 4. Section 02640 Valves and Service Brass

#### 1.2 QUALITY ASSURANCE

- A. Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the Work of this Section.
  - 1. Contractor shall provide certification of training endorsed by the manufacturer of the pipe bursting equipment.
- B. Use equipment adequate in size, capacity, and numbers to accomplish the Work of this Section in a timely manner.
- C. The Contractor shall conduct all work in a first-class workmanlike manner, and he/she shall use reasonable and appropriate care and skill in the performance of the Work under this Section.

#### 1.3 SUBMITTALS

- A. Comply with pertinent provisions of Section 01340.
- B. The Contractor shall submit a plan to the Engineer on a marked-up copy of the project drawings showing the Contractor's construction phasing and plans at the pre-construction meeting. Plan details should include:
  - 1. Pit locations for pipe insertion and burst machine location;
  - 2. Pit locations for service reconnects;
  - 3. Distances of each pull.

- C. Product Data: Within twenty (20) calendar days after the Contractor has received the Owner's Notice to Proceed, submit:
  - 1. Materials list of items proposed to be provided under this Section
  - 2. Manufacturer's specifications and other data needed to provide compliance with the specified requirements.

## 1.4 PRODUCT HANDLING

- A. Comply with pertinent provisions of Section 01610.
  - 1. Material shall be handled so as to avoid damage, with particular attention being given to loading, transporting, and unloading pipe and accessories. Under no circumstances shall pipe or accessories be unloaded by dumping or dropping onto the ground or stockpile. All material shall be lowered by ropes, chains, tongs, derricks, or other suitable equipment.
  - 2. Pipe shall not be stored on private property without consent of the property owner, and all pipe shall be properly braced and clocked to prevent injury due to rolling or collapse of pipe.

## PART 2 - PRODUCTS

## 2.1 DUCTILE IRON PIPE

A. Pipe shall be TR Flex ductile iron pipe, or approved equal, as described in Section 02610.

### 2.2 FITTINGS

A. Fittings shall be as described in Section 02610.

### PART 3 - EXECUTION

### 3.1 SURFACE CONDITIONS

A. Examine the areas and conditions under which work of this Section will be performed. Correct conditions detrimental to timely and proper completion of the Work. Do not proceed until unsatisfactory conditions are corrected.

### 3.2 FIELD MEASUREMENTS

A. Make necessary measurements in the field to assure precise fit of items.

## 3.3 INSTALLATION

A. Utilities intersecting the pipe to be burst shall be exposed prior to commencement of bursting. Damage to utilities and the resulting repair, temporary service cost, etc. shall be borne by the Contractor.

- 1. Locations that are specifically required shall include but not be limited to the following.
  - a. Utilities crossing above the pipe to be bursted.
  - b. Utilities crossing below the pipe to be bursted and are within two (2) feet
- B. Trenching, backfill and compaction for the Work of this Section in strict accordance with pertinent provisions of Section 02221 of these Specifications. All excavations shall be properly sheeted/shored in accordance with Section 02151 of these Specifications. The Contractor shall be responsible for any damage resulting from improper shoring.
- C. Protect pipe and fittings during handling against shocks and free fall. Remove extraneous material from the pipe and fitting interior.
- D. The Contractor shall use the minimum necessary number of pits for machine and pipe insertion to most efficiently accomplish the Work.

### 3.4 BURSTING PIPE INSTALLATION

A. The specified TR-Flex pipe shall be lowered into the piping pit and attached to the pipe bursting equipment. As the pipe advances into the burst pipe, additional sections of pipe are to be connected in accordance with the pipe manufactures instructions.

#### 3.5 BURSTING OPERATION

- A. Bursting and receiving pits shall be shored in accordance with Section 02151 of these Specifications.
- B. It is anticipated that a "mud or grout" will not be required to prevent burst hole collapse.
- C. The host pipe shall be cut using a saw or similar device to produce a clean, square face for the bursting machine to bear against. A sufficient length of host pipe shall be removed to accommodate the bursting machine.
- D. The rod centerline of the bursting machine must be positioned at the approximate center of the host pipe.
- E. Rod Payout
  - 1. Rod payout is the process of assembling a string of rods and pushing them through the interior of the host pipe from the burst pit to the insertion put in a step-wise manner.
  - 2. Rod threads shall be cleaned of foreign matter prior to assembly.
  - 3. The operator shall count the rods during payout or monitor the quantity of rods per box to be aware of the distance between the bursting machine and the lead end of the rod string.
  - 4. The lead and second rod shall be painted so as to give notice to the burst machine operator the position of the burst tooling.

- 5. Thrust force of the bursting machine shall be monitored by the Contractor. Should an unexpected sudden and/or significant increase in thrust force occur, the process shall be halted. The Contractor shall evaluate if an offset, obstruction, or other features exist, and take appropriate action to remedy the cause.
- 6. Workmen shall not enter the insertion put when the rod string is nearing the pit. A workman shall be in visual or radio contact with the bursting machine operator so as to have the payout operation halted in a position that allows attachment of the burst tooling.
  - a. Cast iron host pipe anticipated to be free of ductile iron repair sections or dresser style couplings may use a conical burst head with a single or double longitudinal blade.
  - b. Cast iron host pipe with ductile iron repair sections or dresser style couplings require the use of a rolling blade cutter (slitter) ahead of the conical expander.
- F. Burst Tooling and Attachment
  - 1. The burst tooling shall be attached to the rod through a removable pin joint to allow the tooling to pivot at least 46 degrees to the rod axis.
  - 2. Burst head diameter must be a minimum of 15% over-size to the outside diameter of the product pipe. A greater outside diameter allows for reduced pipe friction, increases bursting forces pushed, and increases solid pipe placement.
  - 3. The product pipe shall be attached to the burst tooling with a swivel that permits rotation to relieve torsional stress on the product pipe.
  - 4. Burst head shall slide on the rod string such that the rear of the burst head overlaps the forward end of the product pipe to eliminate the chance of damage to the product pipe.
- G. Pullback
  - 1. Prior to commencement of pullback, visual or radio contact shall be established between observers stationed adjacent to the insertion pit, the bursting machine operator, and a product pipe observer stationed along the length of the product pipe to watch for product pipe entanglement with above-ground obstructions.
  - 2. The bursting machine operator will begin the pullback with the approval of the insertion pit observer. Progress will be made at a slow rate until the observer sees the burst tooling has completely entered the host pipe.
  - 3. Pipe progress will be monitored for the first 20 feet of pullback by the insertion pit observer and the product pipe observer.
  - 4. An observer in radio or visual contact with the bursting machine operator shall monitor and control movement of the bursting tool at utility crossing pits.
  - 5. Should the bursting machine become out of square to the host pipe during operation, the shoring shall be reworked according to Section 02151 of these Specifications.
- H. Tooling Removal
  - 1. Burst machine operator shall note rod count and anticipate entry of painted rods into the burst pit. As the pin joint connection nears the bursting machine forward face, the operation is to be halted. Load on the forward face is relieved by slightly reversing the rod direction.

2. The bursting machine shore plate is to be removed, allowing the tooling to enter a cage or the hull of the bursting machine. The tooling string will be disassembled and removed, in sections if necessary, until the product pipe face has been pulled beyond the face of the burst pit. The distance past the face of the burst pit shall be at the discretion of the Contractor anticipating the length required for connection.

## 3.6 FLUSHING

A. All sections of piping installed shall be flushed prior to pressure testing by partially opening and closing valves and hydrants several times under expected line pressure, with flow velocities adequate to flush foreign material from valves and hydrants.

## 3.7 TESTING

A. Testing of the water main shall be in accordance with Section 02610.

### SLIP-LINING EXISTING SLEEVE

#### PART 1 - GENERAL

#### 1.1 DESCRIPTION

- A. Work Included: The Contractor shall provide all labor, materials, tools, and equipment necessary to slip-line the designated existing 18-inch steel pipe and 20-inch cast iron pipe with ductile iron pipe, including but not limited to all connections to the proposed 8-inch ductile iron water main and 12-inch ductile iron sewer forcemain, insertion and withdrawal pits, and all other work required for a compete installation.
- B. Related Work:
  - 1. Document affecting work of this section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division 1 or these Specifications.
  - 2. Section 02221 Trenching, Backfilling, and Compacting
  - 3. Section 02610 Ductile Iron Pipe, Fittings, and Appurtenances

#### 1.2 QUALITY ASSURANCE

- A. Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed with documented slip-lining experience for proper performance of the work of this Section.
- B. Use equipment adequate in size, capacity, and numbers to accomplish the work of this Section in a timely manner.
- C. In addition to complying with requirements of governmental agencies having jurisdiction, comply with the directions of the Engineer.
- D. All necessary trench shoring design calculations and drawings shall be stamped by a professional engineer in the State of Massachusetts.
- E. The Contractor shall conduct all work in a first-class workmanlike manner, and he/she shall use reasonable and appropriate care and skill in the performance of the work under this Section.

#### 1.3 SUBMITTALS

A. Comply with pertinent provisions of Section 01340.

- B. Product Data: Within fifteen (15) calendar days after the Contractor has received the Owner's Notice to Proceed, submit:
  - 1. Completed materials list of items proposed to be provided under this Section.
  - 2. Shoring design
- C. Prior to beginning work, the Contractor must submit to the Engineer a general work plan outlining the procedure and schedule to be used to execute the project.

### 1.4 PRODUCT HANDLING

A. Comply with pertinent provisions of Section 01610.

#### 1.5 COORDINATION

- A. Coordinate the Work of this Section with suppliers, trades and any public agencies which may affect or be affected by the Work of this Section to insure the uninterrupted completion of this Work.
- B. Prior to start of Work, the Contractor shall notify all businesses within the area to inform them of his intended schedule and work methods to insure that such methods will not cause unduly disruptions to their places of business.

### PART 2 - PRODUCTS

### 2.1 DUCTILE IRON PIPE

A. Pipe shall be U.S. Pipe TR Flex ductile iron pipe, or approved equal, as described in Section 02610.

### 2.2 FITTINGS

A. Fittings shall be U.S. Pipe TR Flex ductile iron fittings, or approved equal, as described in Section 02610.

### 2.3 SAND FILL FOR ANNUAL SPACE

- A. Sand used for filling the annual space between the sleeve and carrier pipe shall meet or exceed the following.
  - 1. Sand Borrow: Shall consist of clean inert, hard, durable grains of quartz or other durable rock, free from pavement, trash, loam, ice, snow, tree stumps, and roots, with no objects larger than 1-inch in diameter and no more than 10% by weight finer than No. 200 sieve. This material must be conducive to proper compaction by the methods to be utilized under this Contract. In addition, it shall conform to the following gradation requirements:

Sieve Size

Percent Passing Maximum Minimum

1-inch	-	-
¹ /2-inch	100	85
No. 4	100	60
No. 16	80	35
No. 50	55	10
No. 200	10	0

#### 2.4 PREMANUFACTURED PIPE INSULATION

- A. Insulation: Shall be closed cell polyurethane havING the following physical properties;
  - a. Minimum Density (lb/Ft3) 2.1- ASTM D-1622
  - b. K factor (BTU/Hr-Ft2 oF/in) 0.147- ASTM C-518
  - c. 90-95% Closed Cell- ASTM D-2856
- B. Exterior Casing: Shall be seamless, High Density Polyethylene (HDPE) ASTM D-1248 with the following physical properties;

Ultimate Elongation 850%

Resin Type III, Grade P34

Tensile Yield Strength 3300 psi

Tangent Flexural Modulus 175,000 psi

- a. ASTM D-638-
- b. ASTM D-638-
- c. ASTM D-3350-
- d. ASTM D-790-
- e. Tape Style Casings will not be accepted.
- C. Field Joints (straight): Provide the following;
  - a. High Density Polyethylene (HDPE) Rockshield
  - b. Spiral wrapped Polyken Tape
- D. Field Joints (at fittings): Provide the following;
  - a. Urethane Fitting Cover
  - b. PVC Cover
  - c. Spiral wrapped Polyken Tape

#### 1.2 FIELD APPLIED PIPE INSULATION

A. Foamed-in-place closed cell polyurethane which completely fills the annular space between the carrier pipe and pipe insulation or carrier pipe and sleeve. The insulation shall have the following physical properties:

1.	Minimum Density (lb/Ft ³ ): 2.1	ASTM D-1622
2.	K factor (BTU/Hr-Ft ² °F/in): 0.147	ASTM C-518
3.	90-95% Closed Cell	ASTM D-2856

#### 1.3 POLYETHYLENE ENCASEMENT

- A. Shall be 8 mil thick and meet all requirements of ANSI/AWWA-C105/A21.5-10, or latest revisions thereto.
- B. Shall be placed around all ductile iron pipe within sleeve limits.

#### PART 2 - EXECUTION

### 2.1 TELEVISION INSPECTION

A. Prior to ordering any materials or scheduling any work, the Contractor will be required to perform a television inspection of the existing steel pipe for the purpose of determining if existing conditions are suitable for the use of the proposed slip-lining process and to ensure that no bends exist within the existing steel pipe to be slip-lined.

### 2.2 DEWATERING

- A. Contractor shall be responsible for complete dewatering of the existing steel pipe prior to conducting any work.
- B. All water removed from the pipe shall be discharged in a way and to an area which will not create traffic hazards, be a nuisance to, obstruct or create damage to any businesses, roadways or areas surrounding the work area.

#### 2.3 SURFACE CONDITIONS

A. Examine the areas and conditions under which work of this Section will be performed. Correct conditions detrimental to timely and proper completion of the Work. Do not proceed until satisfactory conditions are corrected.

#### 2.4 INSTALLATION

#### A. Excavation

- 1. Trenching, backfill, and compaction for the Work of this Section in strict accordance with pertinent provisions of Section 0221 of these Specifications.
- 2. Insertion pits shall be excavated at each end of the existing sleeves for insertion of new ductile iron pipe.
  - a. Water main sleeve sliplining pits may require removal of the Mass Turnpike fence to facilitate excavation. Contractor shall store removed fence sections, install temporary fence to maintain Mass. Turnpike property security and reinstall fencing once sliplining process is completed.
- 3. The Contractor shall be responsible for performing a television inspection of the existing sleeves to ensure there are no unsatisfactory pipe conditions exist. The Contractor shall also be responsible for clearing the line of obstructions, solids, or water that will prevent the insertion of new ductile iron pipe.
- 4. The Contractor shall coordinate all working conditions, pulling or pushing distances, and stringing of ductile iron pipe in a way so as to minimize the disruption of traffic, residences, and business establishments.
- B. Carrier Pipe Installation
  - 1. Installation of ductile iron pipe shall be in accordance with Section 02610 and ANSI/AWWA C600-17, or latest revisions thereto.
  - 2. All ductile iron pipe shall be encased in polyethylene to create a continuous encasement, in accordance with ANSI/AWWA C105/A21.5-10, or latest revisions thereto.

- 3. Chocks, skids, or spacers shall be attached to the ductile iron pipe to keep the pipe centered in the sleeve and to prevent damage during installation. Metal-to-metal contact must be avoided.
- 4. Contractor to fill the annual space between the ductile iron carrier pipe and the sleeve with sand to prevent movement. Pressure grouting of the entire annular space between the pipeline and casing pipe is not recommended unless grouting pressure is controlled to pressures below that which could cause buckling failure of the pipeline.
- 5. Contractor shall install 15- feet of premanufactured insulation around the carrier pipe, extending 12-feet out from each sleeve end of the 8-inch water pipe sliplining limits.
- 6. The last 3-feet of interstitial space between the sleeve and the pre-manufactured insulating foam, on each end of the water sliplining limits, shall be sealed with insulating foam and grouted at the ends prior to completing final connections to provide a positive seal of the annual space.
- 7. The last 5-feet of interstitial space between the sleeve and the carrier pipe, on each end of the forcemain sliplining limits, shall be sealed with insulating foam and grouted at the ends prior to completing final connections to provide a positive seal of the annual space.

# 2.5 TESTING

A. Testing of the water main and forcemain shall be in accordance with Section 02610.

## FRAMES, COVERS & GRATES

### PART 1 - GENERAL

### 1.1 DESDESCRIPTION

- A. Work included: Provide frames and coverS as required by the Contract Documents.
- B. Related work:
  - 1. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division 1 of these Specifications.
  - 2. Section 02579 Casting Adjustment
  - 3. Section 02605 Precast Concrete Sanitary Sewer Manholes

### 1.2 QUALITY ASSURANCE

- A. Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this Section.
- B. The Contractor shall conduct all work in a first-class workmanlike manner, and he/she shall use reasonable and appropriate care and skill in the performance of the work under this Section.

### 1.3 SUBMITTALS

- A. Comply with pertinent provisions of Section 01340.
- B. Product data: Within 35 calendar days after the Contractor has received the Owner's Notice to Proceed, submit:
  - 1. Materials list of items proposed to be provided under this Section.
  - 2. Manufacturer's specifications, catalog cuts, and other data to demonstrate compliance with the specified requirements.
  - 3. Manufacturer's recommended installation procedures which, when approved by the Engineer, will become the basis for accepting or rejecting actual installation procedures used on the Work.

### 1.4 PRODUCT HANDLING

A. Comply with pertinent provisions of Section 01610.

### PART 2 - PRODUCTS

#### 2.1 SEWER FRAMES AND COVERS

- A. Frames and covers shall be model 1258 Frame & 1258A1 Cover as manufactured by EJ Group.
  - 1. Clear opening shall be a minimum of 24-inches.
  - 2. Diamond surface design with three (3) inch lettering reading "S".
  - 3. Weight: Set weight minimum to be 490 pounds and cover weight to be minimum 200 pounds.
  - 4. Height: 8 inches
  - 5. H20 wheel loading.
  - 6. Frame and cover shall include ASTM A48 certification.

#### PART 3 - INSTALLATION

#### 3.1 FRAMES AND COVERS

- A. Shall be set in a full bed of mortar on the grade adjusting brick course.
  - 1. Shall be set level to the finish grade.
  - 2. Once frame is set level, Contractor to pour a concrete collar around frame, extending over top of flange, approximately 4-inches.

## SANITARY SEWER PIPING

#### PART 1 - GENERAL

#### 1.1 DESCRIPTION

- A. Work Included: Provide all equipment, labor and materials required to remove existing sewer piping and install new SDR35 PVC piping and accessories, including but not limited to excavation, removal and disposal of existing asbestos cement pipe, manhole, bedding, alignment equipment, service pipe and adapters, backfill with grading and compaction, cleaning and testing as required by the Contract Documents.
- B. Related Work:
  - 1. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division 1 thru Division 3 of these Specifications.
  - 2. Section 02229 Asbestos Cement Pipe Removal
  - 3. Section 02322 Bypass Pumping of Main Line Wastewater

#### 1.2 QUALITY ASSURANCE

- A. Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this Section.
- B. The Contractor shall conduct all work in a first-class workmanlike manner, and he/she shall use reasonable and appropriate care and skill in the performance of the work under this Section.

#### 1.3 SUBMITTALS

- A. Refer to Section 01340.
- B. The Contractor shall provide a certification, acceptable to the Engineer, from the manufacturer that all pipe delivered to the job conforms to the requirements for joint tightness, flexural and crushing strength, and chemical requirements of the applicable ASTM and ANSI specifications.
- C. Product data
  - 1. Within 35 calendar days after the Contractor has received the Owner's Notice to Proceed, submit manufacturers' data and installation instructions for proprietary materials including pipe and all fittings, including adaptor for service pipe connection.

### 1.4 PRODUCT HANDLING

- A. The Contractor shall comply with the following provisions.
  - 1. Pipe shall not be stored on private property without consent of the Property Owner, and all pipe shall be properly braced and blocked to prevent injury due to rolling or collapse of pile.
  - 2. PVC pipe must be straight barrel and deflection prior to installation is not to exceed 1/16-inch per 2-foot length. Pipe not meeting this requirement shall not be installed and shall be removed from construction site.
  - 3. Care shall be taken to stack PVC pipe properly, and if stored for a period exceeding 60 days and exposed to the ultra-violet rays of the sun, pipe shall be covered with canvas or other opaque material, and provision for the circulation of air beneath covering shall be provided.

### PART 2 - PRODUCTS

### 2.1 PIPE AND FITTINGS

1.

- A. Gravity Main Line Piping
  - Polyvinylchloride Pipe
    - Main sewer pipe shall be Poly (vinyl chloride) (PVC), made by a manufacturer of established reputation, meeting the requirements of ASTM F-679 or latest revision thereto with a pipe diameter to wall thickness ratio (SDR) of 35. Maximum pipe length shall be 13-feet with elastomeric ring meeting the requirements of ASTM F-477 or latest revision thereto, with bell and spigot style joint, meeting the requirements of ASTM D3212, or latest revision thereto. Pipe shall be sized as indicated on the Contract Drawings.

#### PART 3 - EXECUTION

### 3.1 SURFACE CONDITIONS

- A. Examine the areas and condition under which work of this Section will be performed. Correct conditions detrimental to timely and proper completion of the Work. Do not proceed until unsatisfactory conditions are corrected.
- 3.2 FIELD MEASUREMENTS
  - A. Make necessary measurements in the field to assure precise fit of items.
- 3.3 INSTALLATION

- A. Excavation, backfill and compaction shall be in strict accordance with pertinent provisions of Section 02221.
- B. All provisions for bypass pumping must be in place and tested in accordance with Section 02322 prior to start of excavation for pipe replacement.
- C. Protect all pipe and fittings during handling against shocks and free fall. All pipe, fittings and accessories shall be inspected for defects prior to lowering them into the trench.

## 3.4 PIPE REMOVAL

- A. Contractor shall excavate to the existing pipe, maintaining trench width at a minimum at top of pipe. The existing asbestos cement pipe shall be removed in accordance with section 02229.
  - 1. Contractor shall properly dispose of all removed piping and fittings.
  - 2. Contractor shall pay special attention for cutting, removal and disposal of AC (asbestos cement) sewer pipe.

## 3.5 NEW PIPE INSTALLATION

- A. Pipe shall be carefully laid to the lines and grades as shown on the Contract Drawings or as established by the Engineer. The Contractor shall provide laser beam aligning equipment for use in pipe laying.
  - 1. All pipe is to be laid on a solid foundation. Should the material at grade prove unsatisfactory for a suitable foundation, additional depth shall be excavated in compliance with Section 02221, paragraph 3.3.
  - 2. The bottom of the trench for all sewer pipe shall be excavated to a flat grade, four (4) inches below the pipe invert for trenches in earth and six (6) inches in rock. Washed stone bedding material shall be placed and graded to accept pipe.
  - 3. Immediately prior to jointing, the spigot, bell and gasket shall be thoroughly cleaned and a factory approved lubricant applied. Extreme care shall be exercised during the jointing process, to insure that the pipe is in the correct position within the bell. Pullers, or other types of mechanical equipment shall not be used.
  - 4. Pipe shall be installed to grade and additional washed stone shall be placed and compacted to 12-inches above crown of the pipe. Bedding material shall be carefully and lightly tamped under, around and over pipe to provide uniform support.
  - 5. The remainder of trench backfill shall be as specified in Section 02221.
  - 6. No pipe shall be laid in water and water shall not be permitted to rise in the trench until all pipes have been securely bedded, jointed, and backfilling has progressed to an elevation at least two (2) feet above the top of the pipe.
  - 7. Temporary plugs shall be installed in open ends of pipe to prevent silt from washing into pipe during construction, and open ends of the pipe shall be closed with suitable plugs upon suspension of the work for any reason.

8. Pipe to manhole joint shall be the A-Lok or Kor-N-Seal rubber boot type, with a minimum of one stainless steel clamp per joint. Silicone compound shall be applied to interior of boot, in a continuous bead at clamp location, just prior to insertion of pipe.

## 3.6 CLEANING

A. After laying of the pipe is completed, the interior of the sewer pipe shall be thoroughly cleaned from construction debris. Pipeline shall be flushed to remove any foreign matter, with bulkheads placed at strategic locations to prevent wash of undesirable material through completed sections of the system. All pipes shall be lamped by the Contractor under observation of Engineer.

# 3.7 INSPECTION

A. All PVC main pipe shall be checked for deflection after backfilling and compaction is complete. The pipeline to be checked shall be thoroughly cleaned and visually inspected.

#### TEMPORARY BYPASS PIPING WITH SERVICE HOSES

#### PART 1 - GENERAL

#### 1.1 DESCRIPTION

- A. Work Included: The Contractor shall provide temporary bypass pipe with service hoses to all areas affected by water main replacement.
- B. Related Work:
  - 1. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division 1 of these Specifications.

#### 1.2 QUALITY ASSURANCE

- A. Use adequate numbers of skilled workers who are thoroughly trained and experienced in cleaning and lining pipelines and who are completely familiar with the specific requirements and methods needed for performance of the Work of this Section.
- B. Use equipment adequate in size, capacity, and numbers to accomplish the Work of this Section in a timely manner.
- C. In addition to complying with requirements of governmental agencies having jurisdiction, comply with the directions of the Engineer.
- D. The Contractor shall conduct all work in a professional manner and he/she shall use reasonable and appropriate care and skill in the performance of the Work under this Section.

#### 1.3 SUBMITTALS

- A. Comply with pertinent provisions of Section 01340.
- B. Product Data: Within fifteen (15) calendar days after the Contractor has received the Owner's Notice to Proceed, submit:
  - 1. Description of piping material.
  - 2. Proposed timeline of when bypass piping is to be placed for the project phases.
  - 3. Proposed bypass layout plan with pipe sizes and temporary hydrants shown.

## PART 2 - PRODUCTS

### 2.1 TEMPORARY BYPASS PIPE WITH SERVICE HOSE

- A. Temporary bypass piping shall not be of materials that compromise water quality, shall be fully adequate to withstand the pressures and all conditions of use and shall include 4-inch temporary hydrants provided at all locations of existing hydrants taken out of service.
  - 1. All temporary bypass piping shall conform to the same standards as permanent piping.
  - 2. The pipe and/or hose must be designated or certified for potable/residential water use and must meet NSF Standard 61 certification and/or AWWA Standards.
  - 3. Disinfection of temporary pipes and hoses must be performed in accordance with AWWA Standards.
  - 4. The recommended pipe materials are as follows:
    - a. Ductile iron pipe
    - b. Steel pipe
    - c. Plastic pipe:
      - i. Polyvinyl chloride (PVC) pressure pipe
      - ii. Standard polyethylene (PE) pressure pipe and tubing, ¹/₂-inch through 3-inch
      - iii. Standard polyethylene-aluminum-polyethylene and cross linked polyethylene-aluminum
      - iv. Molecularly oriented polyvinyl chloride (PVCO) pressure pipe, 4inch through 12-inch
- B. Temporary bypass piping shall be provided on each side of the street for the entire length of the street. Temporary bypass piping shall also be provided on each side of side streets, where required.
- C. Temporary service shall be provided through one of the following methods, and as directed by the Owner:
  - 1. Connection made outside the building at a sill cock (not an option if backflow device is present).
  - 2. Connection made inside the building at a service meter.
  - 3. Connection made in a pit at the street at the curb stop (house side). Excavation and restoration of the pit will be paid for by unit items.
    - a. This method shall be required, if when a connection is made at a sill cock or service meter, it is discovered the curb stop leaks (while effectively backfed). Additionally, the curb stop/box shall be replaced.
    - b. The Owner reserves the right to direct the Contractor to make the connection in a pit at the street and replace the curb stop/box on a case-by-case basis.
- D. Water service lines shall be flushed prior to returning to permanent service.
- E. The Contractor shall be responsible for maintaining all temporary service lines from the roadway to the connection points at the curb stops.

- F. The pipe and other materials shall provide adequate water tightness, and care shall be exercised throughout the installation of the temporary pipe and making up of all temporary connections to avoid any possible pollution of any mains or services, or contamination of the temporary bypass pipe itself.
- G. The Contractor shall chlorinate, dechlorinate, and flush all temporary pipe and hose to prevent contamination, prior to initiating temporary service.
- H. The temporary pipe will be activated only after negative bacteriological results are obtained, based upon samples and analysis provided by the Contractor.
- I. The Contractor shall adequately work and provide protection to the public associated with the temporary piping system installed.
- J. Lights, barricades and signs shall be placed to insure safety at the location of the temporary piping.

### 2.2 MATERIALS

- A. Restraint for existing gate valves should be provided as detailed in the drawings and shall include at a minimum friction clamps, four (4) 304 SS ³/₄" threaded rods per each existing gate valve, and 304 SS hardware.
  - 1. The intent is to fully restrain existing gate valves acting as a line stop where work is occurring in or near the pit.
- B. Provide other materials not specifically described but required for a complete and proper installation, as selected by the Contractor subject to the approval of the Engineer.

#### PART 3 - EXECUTION

#### 3.1 DEWATERING PIPES

- A. The Contractor shall dewater all pipe lines prior to starting the Work, drain all low spots, make all excavations at locations required to facilitate the Work, and take special precautions to prevent the possibility of any water entering the sections in which men are working.
- B. The operation of all valves in connection with work under this Contract shall be done by the Owner unless specified or otherwise directed by the Owner. Contractor shall notify the Water Department Superintendent 48 hours in advance of when any shutdown is required. Contractor shall schedule for and allow 48 hours before shutdown is achieved.

C. Where valves within the scope of work are inaccessible due to a cover of asphalt or concrete, or tilted and/or broken gate box, the Contractor shall be responsible for raising the box to existing grade or fixing or replacing the gate box. This shall include a permanent surface repair and asphalt to conform to the original road surface.

### 3.2 EMERGENCY SHUT-DOWNS

- A. In cases of emergencies, the Owner reserves the right to suspend the water main replacement operations at any time or times necessary and to require the Contractor promptly to restore the water main to service.
- B. The Owner will make every effort to avoid such suspension and, if such suspensions are unavoidable, will limit them to the shortest possible time.
- C. Should any suspensions be effected for the above reason, the Contractor will be allowed extensions of time equal to the delay caused thereby, but he will not be allowed any additional compensation for any losses or damages sustained or alleged to have sustained as a result of such suspensions, except for the actual extra expenses as approved by the Owner.

#### 3.3 CUTTING OR OPENING PIPES

- A. Every effort must be made to prevent foreign material or sludge from entering lines adjacent to the Work.
- B. Open ends of pipe shall be temporarily sealed with mechanical caps or plugs at all times when not being worked on.
- C. Openings in the pipes shall be made by cutting out existing joints on pipes, or cutting the pipe square and true by hand or machine or removing existing couplings.
- D. At openings adjacent to sections under pressure or in service, the Contractor shall install blocking to prevent motion of the closed ends or valves during the time the pipe is open.

#### 3.4 REPAIRING PIPES

- A. The Contractor shall make watertight all openings made in the pipelines.
- B. Closures shall be made with new ductile iron cement lined pipe, Class 52 minimum thickness, and with new couplings of approved design.
- C. New couplings and fittings used shall be poly-wrapped with 8-mil polyethylene after installation to resist corrosion.

## 3.5 SERVICES, LATERALS, AND BRANCHES

- A. Contractor shall be responsible for cleaning debris to insure it does not interfere with the operations of valves, services, laterals, blow offs, etc.
- B. All side lines, services, hydrant connections, etc. must be back flushed into the main immediately after construction and then the main flushed before it is put into service.
- C. The Contractor shall work with the Owner making arrangements to enter homes/businesses to back flush services once construction is complete, if required.

### 3.6 CLEANING UP

- A. Contractor shall exercise responsible precautions to prevent contamination of the pipeline.
- B. During the course of the Work, keep the site condition of the operations as clean and neat as possible.
- C. At the conclusion of the Work, remove and haul away any surplus material, broken pavement, lumber, equipment, and any other refuse remaining from construction operations, and leave the entire site of the Work in a neat and orderly condition.
- D. Satisfactorily repair or restore any driveways, walks, culverts, pipes, fences, walls, poles, posts, curbs, or other property damaged and shall leave them in condition equal to that which existed at the beginning of this Contract.

### 3.7 CHLORINATION OF WATER MAINS

- A. Chlorinate bypass piping in accordance with the AWWA Manual C651, "AWWA Standard for Disinfecting Water Mains".
- B. All materials, equipment, labor, and chlorine shall be furnished by the Contractor.
- C. The entire procedure of chlorinating the pipes shall be discussed in advance of the time the Work is to be done, and the methods employed shall be fully satisfactory to the Owner.
- D. The disinfection shall be accomplished by pumping a chlorine solution into the pipe at a dose concentration of 25 mg/l.
- E. After the 24-hour retainer period, the treated water shall have a residual of not less than 10 mg/l. Once verified, chlorinated water shall be flushed from the main until the chlorine concentration in the water leaving the main is no higher than in the system or less than 1.5 mg/l.
- F. Solution must be dechlorinated prior to disposal.

- G. After final flushing and before the water main is placed in service, a sample or samples shall be collected from the end of the line and tested for bacteriologic quality and shall show the absence of coliform organisms. In the case of mains exceeding 1,200 feet, samples shall be collected along the length of the line as well as the end of the line. The samples shall be collected by the Contractor, with microbiological analysis by a laboratory satisfactory to Owner.
- H. If the initial disinfection fails to produce satisfactory results, the procedure shall be repeated at the Contractor's expense until satisfactory results have been obtained.
- I. Special procedures may be outlined by the Owner where the above-outlined method is not practicable. The entire procedure of chlorinating the mains shall be such as to prevent flows of water from a section exposed to possible contamination to a section of pipe which has been completed and chlorinated. Should such water from a contaminated section be allowed to enter a previously chlorinated section as a result of the Contractor's negligence or through necessity caused by failure of the Contractor to properly schedule his work, the section or sections of pipe thus affected shall be re-chlorinated at the Contractor's own expense. Any temporary connection to the mains or other facilities required to accomplish the chlorination as just described shall be at the Contractor's expense. Any temporary connections shall be properly abandoned, as determined by the Owner, at the Contractor's expense.

## 3.8 TEMPORARY BYPASS PIPE WITH SERVICE HOSES

- A. General
  - 1. Contractor shall furnish, install, maintain, and remove bypass pipes of the size required to provide adequate supply and satisfactory service to all dwellings, shops, etc., serviced by the mains to be replaced, whether occupied at the time or not. For 1 ¹/₂-inch service lines, a minimum ³/₄-inch bypass service hose shall be used.
  - 2. The bypass pipes shall be tied into the house service at the curb box by the Contractor, or as specified by the Owner.
  - 3. Without additional compensation, Contractor shall also furnish, install, maintain, and remove service hoses or pipe, of approved size, to service all consumers from gated connections on said bypass pipe.
  - 4. The Contractor shall be responsible for maintaining all temporary service lines from the roadway to the connection points at each dwelling.
- B. Installation
  - 1. The temporary bypass pipe shall be laid in locations satisfactory to the Owner where it will cause the least obstruction, and is less likely to be damaged.
  - 2. Contractor will be required to cover clamps and bolts used to connect the bypass arrangement.
  - 3. Cover material will be cold patch, sand bags, or any other material acceptable to the Owner.
  - 4. At driveways, provision shall be made to permit driving over the temporary pipe by the use of cold patch or other material to form a ramp on each side of the pipe.

- 5. If the temporary bypass crosses any street, a narrow trench shall be cut in the paving and the temporary pipe placed just below the surface with temporary surfacing above it, or other satisfactory arrangements shall be made.
- 6. The location, method placing, materials employed, and the sanitary precautions shall be fully satisfactory to the Owner.
- C. Removal and Cleaning Up
  - 1. At the conclusion of the use of temporary bypass pipes and service hoses, they shall be removed and hauled away by the Contractor and any connections which have previously been interrupted shall be completely restored by him/her in full compliance with the precautions which are required to prevent the possibility of contamination.

#### END OF SECTION

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#### **DIVISION 3 - CONCRETE**

Section

Subject

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03300

Cast-In-Place Concrete

03300-1 thru 03300-4

#### SECTION 03300

#### CAST-IN-PLACE CONCRETE

#### PART 1 - GENERAL

#### 1.1 DESCRIPTION

- A. Work Included: Provide all the cast-in-place concrete as required by the Contract Documents including but not limited to, form work, reinforcing and finishing, thrust blocking, or other purposes, as directed by the Engineer.
- B. Related Work:
  - 1. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division 1 of these Specifications.

#### 1.2 QUALITY ASSURANCE

- A. Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the Work of this Section.
- B. The Contractor shall conduct all work in a first-class workmanlike manner, and he/she shall use reasonable and appropriate care and skill in the performance of the Work under this Section.

#### 1.3 SUBMITTALS

A. None required under this Section.

#### 1.4 PRODUCT HANDLING

A. Bags of cement shall be stored in a dry area which is protected from the weather.

#### PART 2 - PRODUCTS

#### 2.1 CEMENT

A. Provide a standard brand of Portland cement complying with ASTM C150, type II, low alkali. Do not change the brand of cement during progress of the Work except as approved in writing by the Engineer.

#### 2.2 AGGREGATES

- A. General:
  - 1. Provide hard rock aggregate complying with ASTM C33, with additional attributes as specified herein.
- B. Fine Aggregate:
  - 1. Fine aggregate shall consist of washed inert natural sand conforming to the requirements of ASTM Specifications C-33, and the following detailed requirements:

<u>Sieve No.</u>	<b>Retained</b>
4	0.5%
16	25-40
50	70-87
100	93-97

- C. Coarse Aggregates:
  - 1. Provide coarse aggregate consisting of clean, hard, fine-grained, sound crushed rock or washed gravel, conforming to the requirements of ASTM Specification C-33.
  - 2. Use coarse aggregate of the largest practicable size for each condition of placement, subject to the following maximum size limitations:
    - a. 2-inch for plain concrete
      - 1-inch for reinforced sections 10 inches and over in thickness 3/4-inch for reinforced sections less than 10 inches in thickness
    - 3. Grade combined aggregates within the following limits:

Sieve Size	Percentage by weight passing sieve:										
or Inch Size	<u>1-1/2" aggi</u>	regate:	<u>1" aggrega</u>	te:	<u>3/4" aggregate:</u>						
in Inches:	Min:	Max:	Min:	Max:	Min:	Max:					
1-1/2"	95										
1"	75	90	90	100							
3/4"	55	77	70	90	90	100					
3/8"	40	55	45	65	60	80					
No. 4	30	40	31	47	40	60					
No. 8	22	35	23	40	30	45					
No. 30	10	20	10	23	13	23					
No. 50	2	8	2	10	5	15					
No. 100	0	3	0	3	0	5					

#### 2.3 WATER

A. Use only water which is clean and free from deleterious amounts of acid, alkali, salt, and organic matter.

#### 2.4 REINFORCEMENT MATERIALS AND ACCESSORIES

- A. Bars:
  - 1. Provide deformed billet steel bars complying with ASTM A615, using grades shown on the Drawings.
  - 2. Where grades are not shown on the Drawings, use grade 60.
- B. Steel Wire:
  - 1. Comply with ASTM A82.
  - 2. For tie wire, comply with Fed Spec QQ-W-461, annealed steel, black, 16 gauge minimum.
- C. Welded Wire Fabric:
  - 1. Provide welded steel, complying with ASTM A185.

#### PART 3 - EXECUTION

#### 3.1 CONCRETE MIXING

- A. Class A Concrete
  - 1. Class A concrete shall have a minimum compressive strength, at 28 days, of 3,500 psi, with a maximum water content of 6.4 gal./100 lbs. and a minimum cement content of 520 lbs./cubic yard.

#### B. Class B Concrete

- 1. Class B concrete shall have a minimum compressive strength at 28 days of 2,500 psi, with a maximum water content of 7.4 gal./100 lbs. and a minimum cement content of 430 lbs./cubic yard. Class B concrete may be mixed on site using a 1:2.5:5 mix and made with no less than 4.5 bags of cement per cubic yard.
- C. Ready Mix Concrete 1. Ready mixed concrete shall comply with ASTM C94.
  - 1. Ready mixed concrete shan compry with A

#### 3.2 REINFORCEMENT

A. Reinforcing shall be placed as shown and specified in the Contract Documents.

#### 3.3 PLACEMENT OF CONCRETE

- A. Concrete shall be carefully placed to ensure dense, compact concrete. Concrete shall be thoroughly spaded or vibrated into position without disturbance of pipelines or other materials.
  - 1. Concrete shall be placed with as little slump as practicable.
  - 2. The pipe shall be securely braced, both vertically and horizontally, if it is to be encased, to prevent flotation.
  - 3. The sides of thrust blocks shall be formed.
  - 4. Concrete shall not be placed over bolts or nuts so as to prevent the removal of the joint glands.
  - 5. Backfill shall not be placed on the concrete until the concrete has set firm.

#### END OF SECTION

#### INDEX

#### <u>APPENDIX</u>

West Central Boring Logs

Route 30 Boring Logs

Frost Street Boring Logs



DRILLER:			INSPECTOR:			
SITE LOCATION		CLIENT	START DATE	HOLE NO.	TOTAL DEPTH	WATER TABLE
9 Frost Street		Haley & Ward	12/13/17	SB-1	7'	N/A
Natick, MA		63 Great Road	FINISH DATE	WELL TYPE	WELL DEPTH	HOLE TYPE
		Maynard, MA	12/13/17	No well	No well	Probe
Sample Hammer	140 lb	Drop 30"	Drive Hammer	300 lb D	rop 24"	

Sample	Depth of	Casing	Depth	in Feet	Blows Per 6" on spoon with	Recovery	SOIL DESCRIPTION
Number	Sample	Blows	From	To	Spoon with Hammer		
			0"				
S-1	0'-5'						Dry, brown/fine sand, some inorganic silt
				5'			
			5'				
S-2	5'-7'						Dry, fine/med. sand, trace med./coarse gravel & inorganic silt
				7'			
							End of B-1/Refusal at 8'
							No well installed
							No water upon completion
		ļ					

PENETRATIO	ENETRATION RESISTANCE				TIONS USED:	REMARKS:			
	ling 30" on 2" O.D. Se <u>Density (Blows/ft.)</u> 0-4 5-9 10-29	ampler <u>Cohesive Consistency</u> very soft soft medium stiff	<u>v (Blows/ft)</u> 0-2 2-4 5-8	Trace: Little: Some:	0% to 10% 10% to 20% 20% to 35%	•	The stratification lines represent the approximate boundary between soil types and the transition may be gradual. Water level readings have been made in the drill holes of		
dense very dense	30-49 59+	stiff Very stiff Hard	9-15 16-30 31+	And:	35% to 50%		times and under conditions stated on the boring logs. Fluctuations in the level of the groundwater may occur due to other factors than those present at the time measurements were made.		



DRILLER:			INSPECTOR:			
SITE LOCATION		CLIENT	START DATE	HOLE NO.	TOTAL DEPTH	WATER TABLE
Frost St. & 427/433		Haley & Ward	12/13/17	SB-2	10'	NA
Commonwealth Rd.						
Natick, MA		63 Great Road	FINISH DATE	WELL TYPE	WELL DEPTH	HOLE TYPE
		Maynard, MA	12/13/17	No well	No well	Probe
Sample Hammer	140 lb	Drop 30"	Drive Hammer	300 lb D	prop 24"	

Sample	Depth of Sample	Casing		in Feet	Blows Per 6" on spoon with	Recovery	SOIL DESCRIPTION
Number	Sample	Blows	From	To	Hammer		
			0"				
S-1	0'-5'						Dry, fine/med. sand, trace to some inorganic silt, trace med/coarse
							gravel
S-2	5'-10'						
				10'			
							End of B-2 at 10'
							No well installed
							No water upon completion
				ļ			
				ļ			
				ļ			

PENETRATIO	PENETRATION RESISTANCE					REMARKS:			
	ling 30" on 2" O.D. S <u>ensity (Blows/ft.)</u> 0-4 5-9 10-29 30-49 59+	ampler <u>Cohesive Consistency</u> very soft soft medium stiff stiff Very stiff Hard	<u>y (Blows/ft)</u> 0-2 2-4 5-8 9-15 16-30 31+	Trace: Little: Some: And:	0% to 10% 10% to 20% 20% to 35% 35% to 50%	•	The stratification lines represent the approximate boundary between soil types and the transition may be gradual. Water level readings have been made in the drill holes of times and under conditions stated on the boring logs. Fluctuations in the level of the groundwater may occur due to other factors than those present at the time measurements were made.		



DRILLEF	R:					<b>INSPECTOR:</b>							
SITE LOO	CATION		CLIENT			START DATE		HOLE NO.	TOTAL DEPTH	WATER TABL			
Hse 466/46	68 Commonw	ealth Rd.	Haley & Wa	ard		12/13/17		SB-3	7'	NA			
Natick, M	A		63 Great Ro	oad		FINISH DATE	FINISH DATE		WELL DEPTH	HOLE TYPE			
			Maynard, M	1A		12/13/17		No well	No well	Probe			
Sample Ha	ammer	140 lb	Dro	p 30"		Drive Hammer		300 lb Drop 24"					
Sample	Depth of	Casing	Depth	in Feet	Blows Per 6" spoon with		SOII	DESCRIPTION					
Number	Sample	Blows	From	To	Hammer								
			0"										
S-1	0'-5'								to some some inorgan	nic silt, trace			
S-2	5'-7'						med	coarse gravel					
3-2	5-1			7'									
				,									
							End	of B-3/Refusal at 10 ³	,				
							No v	vell installed					
							No v	vater upon completio	n				
				1	1								
	•	•	•	•	*	*	•						

PENETRATIO	N RESISTANCE			PROPORT	IONS USED:	REN	MARKS:
140 LB. Wt.fall	ing 30" on 2" O.D. Sam	pler		Trace:	0% to 10%	•	The stratification lines represent the approximate
Cohesionless D very loose	ensity (Blows/ft.) 0-4	Cohesive Consistency very soft	<u>/ (Blows/ft)</u> 0-2	Little:	10% to 20%		boundary between soil types and the transition may be gradual.
loose	5-9	soft	2-4	Some:	20% to 35%		
medium dense dense very dense	10-29 30-49 59+	medium stiff stiff Very stiff Hard	5-8 9-15 16-30 31+	And:	35% to 50%	•	Water level readings have been made in the drill holes of times and under conditions stated on the boring logs. Fluctuations in the level of the groundwater may occur due to other factors than those present at the time measurements were made.



DRILLEF	R:					<b>INSPECTOR:</b>				
SITE LO			CLIENT			START DATE		TOTAL DEPTH	WATER TABLE	
Hse 466/4	33 Commonw	ealth Rd.	Haley & W	ard		12/13/17		SB-4	7'	NA
Natick, M	ÍA		63 Great Ro	oad		FINISH DATE		WELL TYPE	WELL DEPTH	HOLE TYPE
			Maynard, M			12/13/17		No well	No well	Probe
Sample H	ammer	140 lb	Dro	op 30"		Drive Hammer		300 lb D	rop 24"	
Sample	Depth of	Casing		in Feet	Blows Per 6" spoon with		SOII	DESCRIPTION		
Number	Sample	Blows	From	To	Hammer					
			0"							
S-1	0'-5'						Dm	Fine/med cand come	inorganic silt, trace to	some med/coorse
5-1	0-5						grav		morganie sin, trace t	some med/coarse
S-2	5'-7'			7'			0			
							End	of B-4/Refusal at 7'		
								vell installed vater upon completion		
							INO V	vater upon completion	1	
	l	I								
PENETRA	ATION RESIS	TANCE			F	PROPORTIONS US	ED.	REMARKS:		

PENETRATIO	ENETRATION RESISTANCE				TIONS USED:	REMARKS:		
140 LB. Wt.fall	ling 30" on 2" O.D. San	npler		Trace:	0% to 10%	•	The stratification lines represent the approximate	
Cohesionless D very loose	ensity (Blows/ft.) 0-4	Cohesive Consistency very soft	<u>/ (Blows/ft)</u> 0-2	Little:	10% to 20%		boundary between soil types and the transition may be gradual.	
loose	5-9	soft	2-4	Some:	20% to 35%			
medium dense dense very dense	10-29 30-49 59+	medium stiff stiff Very stiff Hard	5-8 9-15 16-30 31+	And:	35% to 50%	•	Water level readings have been made in the drill holes of times and under conditions stated on the boring logs. Fluctuations in the level of the groundwater may occur due to other factors than those present at the time measurements were made.	



DRILLEF						INSPECTOR:							
SITE LOO			CLIENT			START DATE		HOLE NO.	TOTAL DEPTH	WATER TABLE			
Hse 466/43	33 Commonw	ealth Rd.	Haley & W	ard		12/13/17		SB-5	10'	NA			
Natick, M	ÍA		63 Great Ro	oad		FINISH DATE		WELL TYPE	WELL DEPTH	HOLE TYPE			
			Maynard, MA			12/13/17	12/13/17 No well No well						
Sample H	ammer	140 lb	Dro	Drop 30"		Drive Hammer		300 lb D	rop 24"				
. <u> </u>	T	-			T								
Sample	Depth of	Casing		in Feet	Blows Per 6" spoon with		SOII	L DESCRIPTION					
Number	Sample	Blows	From	To	Hammer								
<u> </u>	<b>AN 71</b>		0"				P	<i>~</i> / 1 1		1/ 1			
S-1	0"-5'			5'			Dry,	fine/med sand, some	inorganic silt, trace me	ed/coarse gravel			
			5'	3									
S-2	5'-10'		3				Dry	fine/coarse sand som	e med/coarse gravel, t	race inorganic silt			
52	5 10			10'			Diy,	line/course saile, soil	ie mea/course graver, t	face morganic sin			
								of B-5at 10'					
								vell installed					
							No v	vater upon completion	1				
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PENETRA	ATION RESIS	STANCE			I	PROPORTIONS USE	ED:	REMARKS:					

N RESISTANCE			PROPORT	IONS USED:	REN	MARKS:
ing 30" on 2" O.D. Sa	mpler		Trace:	0% to 10%	•	The stratification lines represent the approximate
			Little:	10% to 20%		boundary between soil types and the transition may be gradual.
5-9	soft	2-4	Some:	20% to 35%		graduai.
10-29	medium stiff	5-8			•	Water level readings have been made in the drill holes of
30-49	stiff	9-15	And:	35% to 50%		times and under conditions stated on the boring logs.
59+	Very stiff	16-30				Fluctuations in the level of the groundwater may occur
	Hard	31+				due to other factors than those present at the time measurements were made.
	ensity (Blows/ft.) 0-4 5-9 10-29 30-49	ling 30" on 2" O.D. Samplerensity (Blows/ft.)Cohesive Consistency0-4very soft5-9soft10-29medium stiff30-49stiff59+Very stiff	ling 30" on 2" O.D. Samplerensity (Blows/ft.)Cohesive Consistency (Blows/ft)0-4very soft0-4very soft5-9soft2-410-2910-29medium stiff5-9stiff9-1559+Very stiff16-30	ling 30" on 2" O.D. SamplerTrace:ensity (Blows/ft.)Cohesive Consistency (Blows/ft)Little:0-4very soft0-25-9soft2-410-29medium stiff5-830-49stiff9-1559+Very stiff16-30	Ing 30" on 2" O.D. Sampler     Trace:     0% to 10%       0-4     very soft     0-2       5-9     soft     2-4       10-29     medium stiff     5-8       30-49     stiff     9-15       59+     Very stiff     16-30	ling 30" on 2" O.D. Sampler     Trace:     0% to 10%       ensity (Blows/ft.)     Cohesive Consistency (Blows/ft)     Little:     10% to 20%       5-9     soft     2-4       10-29     medium stiff     5-8       30-49     stiff     9-15       59+     Very stiff     16-30



DRILLEF	<b>₹</b> :					<b>INSPECTOR:</b>				
SITE LO	CATION		CLIENT			START DATE		HOLE NO.	TOTAL DEPTH	WATER TABLE
Hse 466/4	33 Commonw	vealth Rd.	Haley & Wa	ard		12/13/17		SB-6	10'	NA
Natick, M	ĺΑ		63 Great Ro	oad		FINISH DATE		WELL DEPTH	HOLE TYPE	
			Maynard, M			12/13/17		No well	No well	Probe
Sample H	ammer	140 lb	Dro	p 30"	Drive Hammer		300 lb D	rop 24"		
Sample	Depth of	Casing	Depth	in Feet	Blows Per 6" spoon with		SOII	DESCRIPTION		
Number	Sample	Blows	From	To	Hammer					
			0"							
S-1	0"-5'								o some inorganic silt,	trace med/coarse
S-2	5'-10'						grav	el		
5-2	5-10			10'						
				- · ·						
	1							of B-6 at 10'		
								vater upon completion	1	
							No v	vell installed		
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DENETD	TION RESIS	TANCE			р	PROPORTIONS USE	D.	DEMADVS		

PENETRATIO	N RESISTANCE			PROPORT	FIONS USED:	REN	MARKS:
140 LB. Wt.fall	ing 30" on 2" O.D. Sam	pler		Trace:	0% to 10%	•	The stratification lines represent the approximate
Cohesionless D very loose	ensity (Blows/ft.) 0-4	Cohesive Consistency very soft	<u>/ (Blows/ft)</u> 0-2	Little:	10% to 20%		boundary between soil types and the transition may be gradual.
loose medium dense	5-9 10-29	soft medium stiff	2-4 5-8	Some:	20% to 35%		
dense very dense	30-49 59+	stiff Very stiff Hard	9-15 16-30 31+	And:	35% to 50%	•	Water level readings have been made in the drill holes of times and under conditions stated on the boring logs. Fluctuations in the level of the groundwater may occur due to other factors than those present at the time measurements were made.



DRILLEF						INSPECTOR:							
SITE LOO	CATION		CLIENT			START DATE		HOLE NO.	TOTAL DEPTH	WATER TABLE			
Hse 283/2	81 West Cent	ral St.	Haley & Wa	ard		12/13/17		S B-7	10'	NA			
Natick, M	A		63 Great Ro	ad		FINISH DATE		WELL TYPE	WELL DEPTH	HOLE TYPE			
			Maynard, M			12/13/17	Probe						
Sample H	Sample Hammer140 lbDrop 30"				Drive Hammer		300 lb D	rop 24"					
Sample	Depth of	Casing		in Feet	Blows Per 6" spoon with		SOII	DESCRIPTION					
Number	Sample	Blows	From	To	Hammer								
			0"										
S-1	0"-5'						Dry,	fine/med. sand, some	inorganic silt				
S-2	5'-10'												
5-2	5-10			10'									
								of B-7 at 10'					
								vell installed					
							No v	vater upon completior	1				
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PENETRA	TION RESIS	TANCE			1	PROPORTIONS USE	ED:	REMARKS:					
		<b>au</b> o <b>b</b>	~ 1		-	Trace: 0% to 1	0%						

PENEIRATIO	N RESISTANCE			PROPORT	IONS USED:	REN	MARKS:
	ling 30" on 2" O.D. San	1	(D)	Trace:	0% to 10%	•	The stratification lines represent the approximate
Cohesionless D very loose	ensity (Blows/ft.) 0-4	Cohesive Consistency very soft	<u>(Blows/ft)</u> 0-2	Little:	10% to 20%		boundary between soil types and the transition may be gradual.
loose	5-9	soft	2-4	Some:	20% to 35%		
medium dense	10-29	medium stiff	5-8			•	Water level readings have been made in the drill holes of
dense	30-49	stiff	9-15	And:	35% to 50%		times and under conditions stated on the boring logs.
very dense	59+	Very stiff	16-30				Fluctuations in the level of the groundwater may occur
		Hard	31+				due to other factors than those present at the time
							measurements were made.



DRILLEF					INSPECTOR:							
SITE LOO	CATION		CLIENT			START DATE		HOLE NO.	TOTAL DEPTH	WATER TABLE		
Hse 289 V	Vest Central S	it.	Haley & W	ard		12/13/17		SB-8	6"	NA		
Natick, M	A		63 Great Road			FINISH DATE		WELL TYPE	WELL DEPTH	HOLE TYPE		
			Maynard, MA			12/13/17		No well	No well	Probe		
Sample H	ammer				Drive Hammer		300 lb D	rop 24"				
Sample	Depth of	Casing	Depth	in Feet	Blows Per 6"		SOI	L DESCRIPTION				
Number	Sample	Blows	From	To	spoon with Hammer	1						
			0"									
S-1	0"-6"											
				6"								
							B-8/	Refusal at 6"/2 attempt	ots			
					-							
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<u> </u>												
PENETRA	TION RESIS	TANCE			1	PROPORTIONS USI	ED:	REMARKS:				

PENETRATIO	N RESISTANCE			PROPOR	TIONS USED:	REN	MARKS:
140 LB. Wt.fall	ling 30" on 2" O.D. Sar	mpler		Trace:	0% to 10%	•	The stratification lines represent the approximate
Cohesionless D very loose	ensity (Blows/ft.) 0-4	Cohesive Consistency very soft	<u>y (Blows/ft)</u> 0-2	Little:	10% to 20%		boundary between soil types and the transition may be gradual.
loose	5-9	soft	2-4	Some:	20% to 35%		
medium dense dense	10-29 30-49	medium stiff stiff	5-8 9-15	And:	35% to 50%	•	Water level readings have been made in the drill holes of times and under conditions stated on the boring logs.
very dense	59+	Very stiff Hard	16-30 31+				Fluctuations in the level of the groundwater may occur due to other factors than those present at the time measurements were made.



DRILLER:		INSPECTOR:			
SITE LOCATION	CLIENT	START DATE	HOLE NO.	TOTAL DEPTH	WATER TABLE
Hse 297/295 West Central St.	Haley & Ward	12/13/17	SB-9	6"	NA
Natick, MA	63 Great Road	FINISH DATE	WELL TYPE	WELL DEPTH	HOLE TYPE
	Maynard, MA	12/13/17	No well	No well	Probe
Sample Hammer 140 lb	Drop 30"	Drive Hammer	300 lb D	rop 24"	

Sample	Depth of Sample	Casing	Depth	in Feet	Blows Per 6" on spoon with Hammer	Recovery	SOIL DESCRIPTION
Number	Sample	Blows	From	To	Hammer		
			0"				
S-1	0"-6"						
				6"			
							B-9/Refusal at 6"/2 attempts
	-						
	+						

PENETRATIO	N RESISTANCE			PROPORTIONS USED:		REMARKS:		
	ling 30" on 2" O.D. Sa	1		Trace:	0% to 10%	•	The stratification lines represent the approximate	
Cohesionless D very loose	ensity (Blows/ft.) 0-4	Cohesive Consistency very soft	<u>/ (Blows/ft)</u> 0-2	Little:	10% to 20%		boundary between soil types and the transition may be gradual.	
loose	5-9	soft	2-4	Some:	20% to 35%			
medium dense dense very dense	10-29 30-49 59+	medium stiff stiff Very stiff Hard	5-8 9-15 16-30 31+	And:	35% to 50%	•	Water level readings have been made in the drill holes of times and under conditions stated on the boring logs. Fluctuations in the level of the groundwater may occur due to other factors than those present at the time measurements were made.	

#### ADDENDUM NO. 1

#### DATED

#### APRIL 16, 2018

#### NATICK, MASSACHUSETTS BOARD OF SELECTMEN

#### CONTRACT NO. W-148

#### WEST CENTRAL, ROUTE 30 WATER MAINS AND HEALTH CENTER FORCEMAIN

#### TO ALL BIDDERS OF RECORD:

This Addendum shall be part of the Contract Documents as provided in the Instructions to Bidders of Contract No. W-148. Acknowledgment of receipt of the Addendum shall be made by inserting its number on Page 00300-1 of the Bid Form. Failure to do so may subject the bidder to disqualification.

The Bid Opening scheduled for Thursday April, 19, 2018 has been rescheduled for Wednesday April 25, 2018, 11:00 am at the Natick Department of Public Works, 75 West Street, Natick MA 01760.

#### ADDENDUM NO. 2

#### DATED

#### APRIL 18, 2018

#### NATICK, MASSACHUSETTS BOARD OF SELECTMEN

#### CONTRACT NO. W-148

#### WEST CENTRAL, ROUTE 30 WATER MAINS AND HEALTH CENTER FORCEMAIN

#### TO ALL BIDDERS OF RECORD:

This Addendum shall be part of the Contract Documents as provided in the Instructions to Bidders of Contract No. W-148. Acknowledgment of receipt of the Addendum shall be made by inserting its number on Page 00300-1 of the Bid Form. Failure to do so may subject the bidder to disqualification.

#### Section 00510 Agreement Page 4 Contract Item 49

Delete "For Trench Infra-Red" and insert "For Cold Plane West Central Street"

#### Section 01025 Measurement and Payment Page 15 Par. 1.30 A.

Insert "miscellaneous" prior to "pits.

#### Section 01025 Measurement and Payment Page 16 Par. 1.32 B.

Delete "under Item No. 34." in the first sentence and Insert "under Item No. 35."

#### Section 01025 Measurement and Payment Page 19 Par. 1.38 B.

Delete "under Item No. 40." in the first sentence and Insert "under Item No. 41."

**Change in Scope West Central Street:** The scope for the West Central water main replacement has been changed from pipe bursting of the 6" CI water main to open cut replacement of the 6" CI water main with new 8" DI water main. Eliminate all specification and drawing references to pipe bursting water main.

The West Central pipe bursting scope revision and paving scope changes (see additional information later in addendum) will require adjustment to the following payment item quantities in Bid Section and Agreement section.

Item 5: Process Gravel 2,150 CY Item 6 Ordinary Borrow 1,725 C.Y. Item 7 Select Borrow 1,850 C.Y. Item 9 Temporary Trench Paving 450 Tons Item 10 Temporary Pit Paving 55 Tons change to 3,900 C.Y. change to 1,800 C.Y. change to 1,950 C.Y. change to 1,000 Tons change to 30 Tons

ADDENDUM NO. 2 Page 1 of 4

Item 11 Permanent Trench Paving 2,290 Tons	change to 4,050 Tons
Item 12 Permanent Pit Paving 315 Tons	change to 130 Tons
Item 20 Solid Sleeve 53 EA.	change to 18 EA.
Item 30 Bursting 6" & 10" 4,790 L.F.	change to Bursting 10" C.I. Pipe 615 L.F.
Item 32 For 8" & 10" DI Pipe 250 L.F.	change to 75 L.F.
Item 36 Inspection Pits 75 C.Y.	change to 30 C.Y.
Item 37 For Miscellaneous Pits 35 C.Y.	change to 32 C.Y.
Item 40 Open Cut 8" Water Mains 120 L.F.	change to 4,575 L.F.
Item 49 For Cold Plane West Central 2,500 S.F.	change to 6,600 S.Y.

**Change in Scope for Health Center Forcemain:** The scope change allows the use of an alternative material, High Density Polyethylene (HDPE), for the pipe bursting, sliplining segments and the open cut segments of the forcemain pipe replacement project. Open cut segments can remain Ductile Iron pipe whiles using HDPE for the other segments. No changes are required in the payment items.

### Change in Paving Scope for West Central and Health Center: Adjust specifications as noted below and drawings where required.

#### Section 02513 Asphaltic Concrete Paving, Page 5 Par. 3.6A.3.a.

**Delete "**4 ¹/₂"" and **Insert** "4" (two separate lifts of 2")" for base Course asphaltic concrete paving.

#### Section 02513 Asphaltic Concrete Paving, Page 5 Par. 3.6A.3.b.

**Delete** b. and **Insert** "Install 1 ¹/₂" bituminous concrete Type I-1 binder course paving and 1 ¹/₂" bituminous concrete Type I-1 top course paving

#### Section 02513 Asphaltic Concrete Paving, Page 6 Par. 3.7A.4.a.

**Delete "**4 ¹/₂"" and **Insert** "4(two separate lifts of 2")" for base Course asphaltic concrete paving.

#### Section 02513 Asphaltic Concrete Paving, Page 6 Par. 3.7A.4.b.

**Delete** "3inches" and **Insert** "1¹/₂" bituminous concrete Type I-1 binder course paving"

#### Section 02708 Page 2 Sliplining Existing Sleeves

**Insert** the following paragraphs after 2.2. FITTINGS, Adjust remaining paragraph numbers sequentially. Adjust drawings to reflect elimination of pipe bursting.

#### 2.3 HIGH DENSITY POLYETHYLENE PIPE

- A. Alternative pipe for Health Center Forcemain sliplining, pipe bursting and open cut shall be high density polyethylene pipe (HDPE).
- B. Shall meet the performance of ASTM D-1248 and D-3350 standards for Type III High Density Polyethylene (HDPE),
- C. Pipe shall be Disco Pipe 4000 DIPS as manufactured by Performance Pipe or approved equal with

ADDENDUM NO. 2 Page 2 of 4

- D. Shall be 12-inch nominal diameter pipe, DR 17, working pressure rating of 125 psi, minimum wall thickness of 0.776 inches, in compliance with ASTM F714, 445574C ASTM D3350 Cell Classification and PE4710 material.
- *E.* Shall be chemically resistant to withstand external exposure to soil bacteria and any chemical attack which may be due to materials in the surrounding ground or wastewater carried by the pipe.

#### 2.4 HIGH DENSITY POLYETHYLENE FITTINGS

A. Contractor to utilize mechanical joint fused adaptor for connection to proposed ductile iron pipe. Fittings shall be manufactured by the same manufacturer and of the same materials as the HDPE pipe.

#### Section 02708 Page 5 Sliplining Existing Sleeve- Par 2.4 B. 3. & 4.

Insert "HDPE pipe" after the words "ductile iron pipe"

#### Section 02708 Page 5 Sliplining Existing Sleeves

**Insert** the following paragraphs after 2.4 INSTALLATION. Adjust remaining paragraph numbers sequentially. Adjust drawings and specifications to reflect the optional use of HDPE pipe for the pipe bursting, sliplining and open cut segments of the Health Center Forcemain replacement project.

#### 2.4 HDPE PIPE JOINING

- A. HDPE pipe joining shall be by the butt fusion method. Personal performing the Butt fusion process must have a minimum of 5-years experience in the process.
- B. Fusion process must follow manufacturers recommendations.
- *C.* The manufacturer or their certified representative must conduct a site visit to observe the first several Butt fusions for approval.
- D. Any fusions completed outside the manufactures recommendations, in the opinion of the Engineer shall be cut out and the fusion repeated.

#### 2.5 HDPE/DUCTILE IRON CONNECTION FITTING

A. The mechanical joint flange adapter assembly shall include the necessary ductile iron backup flange, gasket, T-bolts, tie bolts, threaded rods, retainer glands, and accessories, as shown on the Contract Drawings.

#### 2.6 CONNECTION TO TRANSMISSION MAIN

- A. A HDPE flange adapter suitable for connection to a 12-inch mechanical joint fitting, shall be butt fused to each end of the HDPE pipe.
- B. Two (2) full lengths of 12-inch mechanical joint Class 52 ductile iron pipe shall be connected to the 12-inch mechanical joint fitting attached to the flange adapter assembly of the HDPE piping, with joint makeup in compliance with the manufacturers standards.
- C. Retainer glands shall be installed on each mechanical joint.

D. The flanged bell end of the second length of mechanical joint pipe shall be connected to the spigot end of one full length of 12-inch ductile iron push-on joint pipe with a restraint gasket in the joint.

**Drawing No. 8 Concrete sidewalk detail: Delete** "#6 @ 6" O.C.. WWF" and **insert** "6x6 WWF W1.4xW1.4"

Drawing No. 3, 4 & 5: Delete references to pipe busting and insert "open cut"

# MassDOT Permit additional restriction for work in North Main Street: MassHighway limits starts at STA 4+25 and continues south on Rt27 to approximately 50 feet north of House #173. Water service replacement for House #176/180 is outside the MassHighway limits, however the following restrictions still apply with the exception of CDF backfill.

- 1. No metal traffic control barrels are allowed in the highway Layout.
- 2. Equipment cannot enter roadway, MassHighway or Town roadway prior to 9:30 am and all equipment must be off the travelled way by 3:30 pm, unless Contractor requests and receives approval from the town and MassDOT.
- 3. All equipment must be off the roadway by 12:00 pm the day before a holiday and not enter the roadway until 12:00 pm the day after a holiday.
- 4. Excavation in existing ramp for temporary by-pass piping cannot occur on Saturdays. This work must be completed at night between 9:00 pm and 5:00 am, unless Contractor requests and receives approval from the Town and MassDOT.
- 5. The forcemain service trenches in paved roadways must be backfilled with Type 2E Flowable (Excavatable) Controlled Density Fill. CDF must be brought to within seven (7) inches of the existing grade and the trench shall be plated overnight. CDF must be batched at a concrete plant and meeting the following requirements.

	nerete plant and meeting the i	ono wing requirements.
a.	Portland Cement:	Meeting AASHTO M85
b.	Fly Ash:	Meeting AASHTO M4.05.02
c.	Sand:	Meeting M4.02.02
d.	Water:	Meeting M4.02.05
e.	Air Entraining Admixtures:	Meeting M4.02.05
f.	Compressive Strength:	28 days = 30-80psi
		90 days = 100 psi
g.	Slump:	10-12 inches
-	-	

#### ADDENDUM NO. 3

#### DATED

#### APRIL 20, 2018

#### NATICK, MASSACHUSETTS BOARD OF SELECTMEN

#### CONTRACT NO. W-148

#### WEST CENTRAL, ROUTE 30 WATER MAINS AND HEALTH CENTER FORCEMAIN

#### TO ALL BIDDERS OF RECORD:

This Addendum shall be part of the Contract Documents as provided in the Instructions to Bidders of Contract No. W-148. Acknowledgment of receipt of the Addendum shall be made by inserting its number on Page 00300-1 of the Bid Form. Failure to do so may subject the bidder to disqualification.

**Clarification Statement**: House #281 & 283 West Central Street are new construction houses with new water services installed across the roadway to the 6" water main. Work under this contract will not require replacement of the two water services. It will require reconnection of the PE water service to the new 8" water main.

**Ledge Statement**: During the installation of the new water services for House #381 & 283 ledge around the 6" water main was observed. The ledge required a jack hammer to remove the ledge to allow tapping the 6" water main for the new corporations. With this information we are adding a ledge removal quantity. The ledge item will provide compensation for mechanical removal of the ledge under and on each side of the 6" water main to facilitate the installation of the 8" water main. The locations that may have ledge is between STA 34+00 to 4+00.

#### Section 00300 BID

**Items have been revised per Addendum No. 2 and the addition of a ledge item. Delete** pages 00300-1 through 00300-25 and **Insert** the attached pages 00300-1 through 00300-25.

#### Section 00510 Agreement, Page 4

Insert the following after Contract Item No. 49.

"50. For Ledge Removal	66	C.Y.	\$	\$	"
------------------------	----	------	----	----	---

#### Section 01025 Measurement and Payment, Page 4

Insert the following after Contract Item No. 49.

"50. Ledge Removal"

#### Section 01025 Measurement and Payment, Page 24

**Insert** the following after Par. 1.46.B.2.

#### "1.46 ROCK EXCAVATION WITHOUT EXPLOSIVES (ITEM 50)

- A. Measurement
  - 1. Ledge encountered within the trench, which can be removed and disposed of without heavy ripping or use of a power hammer shall be removed and measured on the surface in three dimensions to determine volume.
  - 2. If ledge removal is required to provide a minimum of 12" on each side and 6" below the new 8" water main, valves, fittings and taps, will be paid as measured in the trench.
- B. Payment
  - 1. Payment for ledge excavation requiring heavy ripping by the excavator or power hammer shall be made at the unit contract price per cubic yard under Item No. 50 in the Agreement. The unit price shall be full compensation for all costs associated with ledge excavation and disposal.
  - 2. Disintegrated rock which can be removed without the use of heavy ripping or power hammer and boulders smaller in volume than one (1) cubic yard will not be considered for payment under this item, and shall be classified as earth excavation.
  - 3. Broken ledge from previous blasting operations, removed without heavy ripping or power hammer will be considered earth excavation and all costs associated will be paid for under the various pipe item."

# CONTRACT NO. W-148 WEST CENTRAL, RT. 30 WATER MAINS AND HEALTH CENTER FORCEMAIN

# **BOARD OF SELECTMEN**

JONATHAN H. FREEDMAN, CHAIRMAN SUSAN G. SALAMOFF, VICE CHAIRMAN RICHARD P. JENNETT, JR., CLERK MICHAEL J. HICKEY, JR. AMY K. MISTROT

# **ACTING TOWN ADMINISTRATOR**

WILLIAM CHENARD

# **DIRECTOR OF PUBLIC WORKS**

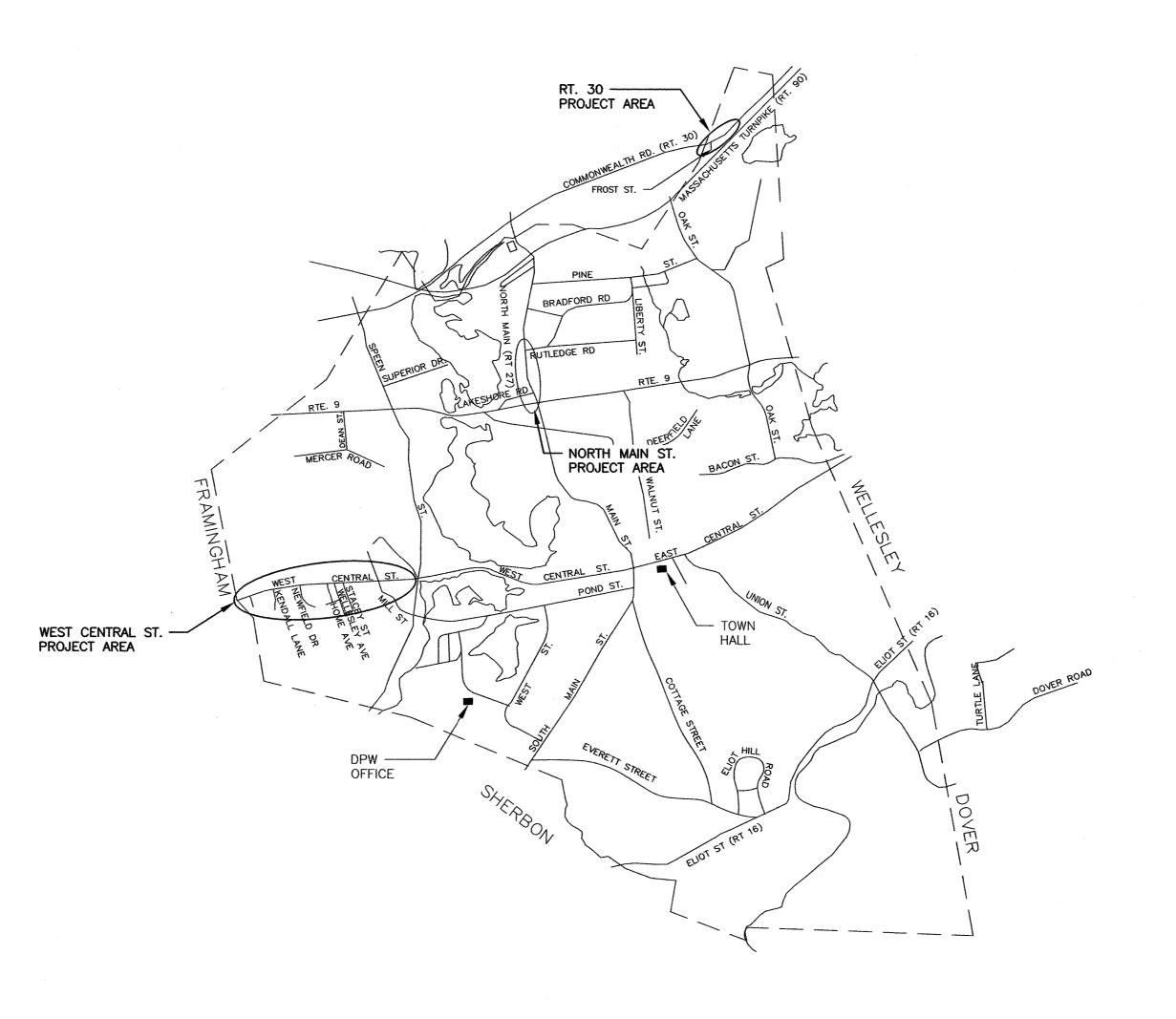
JEREMY MARSETTE

## WATER AND SEWER SUPERINTENDENT

ANTHONY COMEAU

HALEY AND WARD, INC. ENGINEERS MAYNARD, MASSACHUSETTS

# TOWN OF NATICK, MASSACHUSETTS **BOARD OF SELECTMEN**



DWG. NO.

**INDEX** 

SHEET NO.	DRAWING NO.	DRAWING NAME
- 1	1	COVER SHEET
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3	3	WEST CENTRAL ST. STA. 0+00 TO 22+55
4	4	WEST CENTRAL ST. STA. 2+55 TO 29+05
5	5	WEST CENTRAL ST. STA. 29+05 TO 46+00
6	6	WATER SYSTEM OVERVIEW MAP FOR BYPASS PIPING
7	7	RT. 30 AND FROST ST. STA. 0+00 TO 17+15
8	8	WATER MAIN INSTALLATION DETAILS
9	9	NORTH MAIN FORCEMAIN 0+00 TO 8+00
10	10	NORTH MAIN FORCEMAIN 8+00 TO END
11	11	NORTH MAIN WATER MISCELLANEOUS WORK
12	12	FORCEMAIN INSTALLATION DETAILS
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17	17	TEMPORARY TRAFFIC MANAGEMENT PLANS
18	18	TEMPORARY TRAFFIC MANAGEMENT PLANS
19	19	TEMPORARY TRAFFIC MANAGEMENT PLANS
20	20	TEMPORARY TRAFFIC MANAGEMENT PLANS
21	21	TEMPORARY TRAFFIC MANAGEMENT PLANS

#### **GENERAL NOTES:**

- 1. THE WORK UNDER THE CONTRACT DOCUMENTS IS LOCATED WITHIN THE LAYOUTS OF THE PUBLIC WAYS IDENTIFIED ON THE DRAWINGS.
- 2. THE CONTRACTOR TO VIDEO TAPE ALL EXISTING CONDITIONS AT ALL PROJECT SITES PRIOR TO CONSTRUCTION INCLUDING EDGE OF ROAD, SIDEWALKS AND CURBS, LAWN AREAS, WALLS AND FENCES PER SECTION 01550.
- 3. ALL FITTINGS TO BE RESTRAINED JOINTS AND PROVIDED WITH THRUST BLOCKS.
- 4. CONTRACTOR SHALL MAKE ARRANGEMENTS WITH THE UTILITY COMPANY TO SUPPORT UTILITY POLES WHILE EXCAVATING ADJACENT TO POLES. ALL COSTS ASSOCIATED WITH POLE SUPPORT TO BE INCLUDED IN PIPE ITEM.
- 5. CONTRACTOR SHALL OBTAIN ROAD OPENING PERMIT, TRENCH SAFETY PERMIT AND NOTIFY DIG-SAFE AT 1-888-DIG-SAFE (1-888-344-7233) AT LEAST 72 HOURS PRIOR TO EXCAVATION.
- 5.1. CONTRACTOR IS TO BE RESPONSIBLE FOR CONFIRMING ALL UTILITY MARK-OUTS PRIOR TO START OF EXCAVATION INCLUDING NOTIFICATION OF DIG-SAFE AND NATICK ENGINEERING DEPARTMENT.
- 6. ALL UTILITIES AND SERVICES ARE SHOWN TO INDICATE THEIR PRESENCE ONLY, ACTUAL LOCATIONS WILL BE MARKED OUT IN FIELD THROUGH DIG-SAFE MARK OUT AND NATICK ENGINEERING MARK OUT.
- 6.1. WATER AND SEWER UTILITIES ARE THE PROPERTY OF THE TOWN OF NATICK. LOCATION OF WATER AND SEWER SERVICES AND MAINS IDENTIFIED ON PLANS ARE APPROXIMATE, ACTUAL LOCATIONS WILL BE MARKED OUT BY THE TOWN PRIOR TO START OF CONSTRUCTION. CONTRACTOR TO MAINTAIN MARKINGS THROUGHOUT CONSTRUCTION.
- 6.2. CONTRACTOR TO ASSUME EACH HOUSE HAS A WATER AND SEWER SERVICE WHERE THERE IS A WATER MAIN OR SEWER MAIN IN FRONT OF THE HOUSE.
- 6.3. ALL DAMAGE TO EXISTING WATER AND SEWER SERVICES CAUSED BY CONTRACTOR'S OPERATIONS WILL BE THE RESPONSIBILITY OF THE CONTRACTOR.
- 6.4. ANY CONTRACTOR DAMAGE TO EXISTING WATER AND SEWER SERVICES WILL REQUIRE REPLACEMENT WITH NEW MATERIALS TO A MINIMUM OF 2' OUTSIDE THE MAIN LINE TRENCH.
- 7. CONTRACTOR TO ASSUME EACH HOUSE HAS A GAS SERVICE WHERE THERE IS A GAS MAIN IN FRONT OF EACH HOUSE. DIG-SAFE MARK-OUT WILL CONFIRM LOCATION OF GAS SERVICES.
- 8. THE CONTRACTOR SHALL PROTECT EXISTING UNDERGROUND UTILITIES.
- 9. GAS MAINS ARE ASSUMED TO HAVE 2-3 FEET OF COVER. THE EXISTING WATER SEWER AND FORCEMAINS ARE ASSUMED TO HAVE 5 TO 6 FEET OF COVER, ELECTRIC DUCT BANKS ASSUMED TO HAVE 2-3 FEET OF COVER, UNLESS OTHERWISE NOTED. OR CROSSING UNDER UTILITIES.
- 10. THE CONTRACTOR SHALL NOTIFY THE ENGINEER OF ANY WATER AND SEWER SERVICES THAT ARE IN CONFLICT WITH THE WORK.
- 11. ALL TRENCHES AND TEST PITS MUST BE BACKFILLED OR COVERED WITH PINNED BEVELED STEEL PLATES DURING NON-WORKING HOURS.
- 12. THE CONTRACTOR MUST MAINTAIN THE FLOW OF TRAFFIC AT ALL TIMES AND IS RESPONSIBLE FOR SCHEDULING POLICE DETAILS. SEE TRAFFIC CONTROL NOTES.
- 13. OVERHEAD WIRES EXISTING WITHIN THE PROJECT SITE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING THE WIRES WHERE NECESSARY. ALL OVERHEAD WIRES ARE NOT SHOWN ON DRAWINGS TO MAINTAIN CLARITY.
- 14. CONTRACTOR TO MITIGATE PROPERTY OWNER'S ACCESS TO AND FROM THEIR DRIVEWAYS WHEN TRENCHING IN FRONT OF DRIVEWAY. IT IS IMPORTANT TO MINIMIZE IMPACT TO DRIVEWAYS BOTH DURING BUSINESS HOURS AND AFTER HOURS AND WEEKENDS.
- 15. CONTRACTOR TO UTILIZE A LICENSED HAZARDOUS WASTE CONTRACTOR TO CUT, REMOVE AND DISPOSE OF THE AC PIPE EXPECTED AT THE NEW FORCEMAIN TRANSMISSION SEWER MANHOLE. SEE CONTRACT SPECIFICATIONS FOR FURTHER REQUIREMENTS.
- 16. SEE DETAIL DRAWING FOR TRENCH RESTORATION WORK.
- 17. ALL EXISTING WATER MAIN PIPE IS CAST IRON UNLESS OTHERWISE NOTED.
- 18. CONTRACTOR SHALL FURNISH AND INSTALL STEEL PLATES SIZED TO PROTECT TRENCHES FROM HEAVY VEHICLE TRAFFIC WHEN WORK IS NOT OCCURRING IN TRENCH. CONTRACTOR SHALL PIN DOWN EDGES OF PLATES TO PREVENT VEHICLE DAMAGE OR INSTALL "COLD-PATCH" AROUND EDGES OF PLATES TO PREVENT VEHICLE DAMAGE. IF PLATES BOUNCE UNDER VEHICLE TRAFFIC THEN PLATES MUST BE PINNED.
- 19. WEST CENTRAL ROAD STRUCTURE INCLUDES APPROXIMATELY 5"-7" THICK BITUMINOUS PAVEMENT OVER A 8" PLUS REINFORCED CONCRETE ROAD SUB-BASE. ROUTE 30 ROAD STRUCTURE INCLUDES APPROXIMATELY 4" THICK BITUMINOUS PAVEMENT OVER A PROCESS GRAVEL ROAD SUB-BASE. FROST STREET ROAD STRUCTURE INCLUDES APPROXIMATELY 4" THICK BITUMINOUS PAVEMENT OVER A PROCESS GRAVEL ROAD SUB-BASE. NORTH MAIN STREET ROAD STRUCTURE INCLUDES APPROXIMATELY 6"-8" THICK BITUMINOUS PAVEMENT OVER A PROCESS GRAVEL ROAD SUB-BASE.
- 20. CONTRACTOR TO TAKE ALL PRECAUTIONS TO AVOID DAMAGE TO EXISTING LANDSCAPING DURING CONSTRUCTION, AS WHERE DAMAGED CONTRACTOR TO RETURN AREA TO ORIGINAL OR BETTER CONDITION.
- 21. SEE BORING LOGS IN APPENDIX OF CONTRACT FOR SOIL AND GROUNDWATER CONDITIONS.
- 22. ALL EXISTING STRUCTURES INCLUDING MAIL BOXES, PAPER BOXES AND FENCING, IF DAMAGED OR REMOVED DURING CONSTRUCTION, MUST BE RE-INSTALLED IF APPROVED BY OWNER/ENGINEER OR REPLACED WITH NEW MATERIALS.
- 23. CONTRACTOR SHALL NOTIFY ALL BUSINESS AND RESIDENTS OF PLANNED CONSTRUCTION DAILY TO ALLOW ALL VEHICLES TO BE LOCATED OFF THE CONSTRUCTION SITE, WHERE NECESSARY, ACCESS DRIVEWAY FOR SHOPPING CENTER ON NORTH MAIN STREET MUST NOT BE CLOSED DURING THEIR BUSINESS HOURS. ALL WORK REQUIRED TO BLOCK DRIVEWAY MUST BE COMPLETED AFTER 12:00 AM.
- 24. CONTRACTOR WILL NOT BE ALLOWED TO CUT AND REMOVE EXISTING UTILITIES TO ALLOW INSTALLATION OF NEW FORCEMAIN, UNLESS EXISTING UTILITY IS IN POOR CONDITION AS APPROVED BY OWNER. IT IS ANTICIPATED THAT SOME WATER SERVICES ARE ABOVE THE EXISTING FORCEMAIN. SEWER SERVICES ARE ASSUMED TO BE CLAY.
- 25. ANY CONTRACTOR DAMAGE TO NATICK EXISTING UTILITY SERVICES WILL REQUIRE REPLACEMENT WITH NEW MATERIALS TO A MINIMUM OF 2' OUTSIDE THE MAIN LINE TRENCH.

#### TRAFFIC MANAGEMENT NOTES:

- 1. THE CONTRACTOR MUST ALLOW THE FLOW OF TRAFFIC, 2-WAY TRAFFIC IS PREFERRED OR ALTERNATING DIRECTIONS AT ALL TIMES AND IS RESPONSIBLE FOR SCHEDULING POLICE DETAILS. SEE TRAFFIC MANAGEMENT DRAWINGS FOR ADDITIONAL REQUIREMENTS
- 2. CONTRACTOR TO MITIGATE PROPERTY OWNER'S ACCESS TO AND FROM THEIR DRIVEWAYS WHEN TRENCHING IN FRONT OF DRIVEWAY. IT IS IMPORTANT TO MINIMIZE IMPACT TO DRIVEWAYS BOTH DURING BUSINESS HOURS AND AFTER HOURS AND WEEKENDS.
- 3. CONTINUOUS TWO LANE TRAFFIC IS PREFERRED ON WEST CENTRAL STREET FOR THE WATER MAIN WORK. WEST CENTRAL STREET WATER SERVICE INSTALLATION WILL REQUIRE ONE LANE ALTERNATING TRAFFIC AT ALL TIMES.
- 4. SEE THE TRAFFIC MANAGEMENT DRAWINGS AND DRAWING 9 AND 10 FOR ADDITIONAL TRAFFIC MANAGEMENT REQUIREMENTS AND NOTES FOR THE HEALTH CENTER PROJECT.
- COMPLETE SHUT DOWN OF ANY ROADWAY WILL NOT BE ALLOWED. WITH THE EXCEPTION OF ROUTE 9 RAMPS WHERE SPECIFIED AND APPROVED BY THE OWNER AND MASSDOT. THIS WORK WOULD BE COMPLETED DURING NIGHTTIME WORK OR SATURDAYS.
- 6. CONTRACTOR TO FURNISH AND SETUP ELECTRONIC MESSAGE BOARDS AS REQUIRED BY CONTRACT DOCUMENTS, AT A MINIMUM OF TWO WEEKS PRIOR TO START OF WORK IN EACH PROJECT LOCATION.
- 7. CONTRACTOR TO INSTALL CONSTRUCTION SIGNAGE IN ACCORDANCE WITH CONTRACT DOCUMENTS AND MASSDOT TRAFFIC CONTROL, INCLUDING BUT NOT LIMITED TO CONSTRUCTION AHEAD SIGNS, POLICE DETAIL AHEAD, CONSTRUCTION BARRELS, CONES ETC.. ALL IN ACCORDANCE WITH THE SPECIFICATIONS AND DRAWINGS.
- 8. CONTRACTOR'S OPERATIONS SHALL BE SUCH THAT EMERGENCY VEHICLES CAN HAVE ACCESS TO ALL PROPERTIES AND BUILDINGS. COMMERCIAL AND RESIDENTIAL CONTRACTOR TO MITIGATE PROPERTY OWNER'S ACCESS TO AND FROM THEIR DRIVEWAYS WHEN TRENCHING IN FRONT OF DRIVEWAY.
- 9. IT IS IMPORTANT TO MINIMIZE IMPACT TO DRIVEWAYS BOTH DURING BUSINESS HOURS AND AFTER HOURS AND WEEKENDS.

#### ENVIRONMENTAL CONTROLS:

- 1. CONSERVATION COMMISSION'S AUTHORIZATION DOES NOT RELIEVE THE CONTRACTOR OR ANY OTHER PERSON OF THE NECESSITY OF COMPLYING WITH ALL OTHER APPLICABLE FEDERAL, STATE, OR LOCAL STATUTES, ORDINANCES, BYLAWS OR REGULATIONS.
- 2. CONTRACTOR SHALL TAKE APPROPRIATE MEASURES TO ENSURE THAT SEDIMENT-LADEN WATER. IF DEWATERING IS REQUIRED, IS APPROPRIATELY SETTLED PRIOR TO DISCHARGE TOWARDS RESOURCE AREAS IN ACCORDANCE WITH ALL APPLICABLE PERMITS, BY-LAWS, STANDARDS AND GUIDELINES.
- 3. PESTICIDES AND HERBICIDES SHALL NOT BE USED WITHIN THE BUFFER ZONE OF ANY WETLAND RESOURCE AREA OR WITHIN THE 200-FOOT RIVERFRONT PROTECTION AREA.
- 4. THE PROPOSED ACTIVITY SHALL COMPLY WITH THE PLANS AS PREPARED BY HALEY AND WARD, INC. ANY PROPOSED OR EXECUTED CHANGES MADE IN THE PLANS SHALL NOT BE MADE UNTIL THE CONTRACTOR HAS INQUIRED, IN WRITING, AND ENGINEER AND OR CONSERVATION COMMISSION HAS FORMALLY MADE A DETERMINATION AS TO THE NATURE OF THE CHANGE OR CHANGES.
- 5. PRIOR TO ANY WORK BEING DONE ON THE PROJECT SITE, THE CONTRACTOR SHALL INFORM THE OWNER AND ENGINEER, IN WRITING, OF THE NAMES, ADDRESSES, BUSINESS AND HOME PHONE NUMBERS OF BOTH THE PROJECT SUPERVISOR WHO WILL BE RESPONSIBLE FOR ENSURING ON-SITE COMPLIANCE WITH THE THE ENVIRONMENTAL CONTROLS. THE CONTRACTOR SHALL ALSO NOTIFY THE OWNER AND ENGINEER IN WRITING OF ANY CHANGES IN THIS INFORMATION.
- 6. ACCEPTED ENGINEERING AND CONSTRUCTION STANDARDS AND PROCEDURES SHALL BE FOLLOWED IN THE COMPLETION OF THIS PROJECT.
- 7. MEMBERS OF THE COMMISSION OR THEIR AGENTS SHALL HAVE THE RIGHT TO ENTER UPON AND INSPECT THE PREMISES TO EVALUATE THE ENVIRONMENTAL CONTROL.
- 8. A COPY OF THE CONSTRUCTION PLANS, SHALL BE ON SITE UPON COMMENCEMENT OF ANY SITE WORK AND MADE AVAILABLE TO ANY PERSON DOING WORK ON THE SITE.
- 9. THE CONTRACTOR SHALL ACT WITHIN 12 HOURS TO CONTROL ANY EROSION PROBLEMS THAT OCCUR ON THE SITE. ANY EROSION PREVENTION AND SEDIMENTATION PROTECTION MEASURES FOUND NECESSARY BY THE COMMISSION DURING CONSTRUCTION SHALL BE IMPLEMENTED AT THE DIRECTION OF THE COMMISSION OR ITS AGENT.
- 10. PRIOR TO THE COMMENCEMENT OF THE WORK ON THE PROJECT SITE, THE FILTER SOCK LINE SHALL BE INSTALLED AND INSPECTED BY THE CONSERVATION COMMISSION AS SHOWN ON THE PROJECT PLANS.
- 11. PRIOR TO ANY EXCAVATION ON THE PROJECT SITE, ANY CATCH BASIN POTENTIALLY RECEIVING RUNOFF FROM THE PROJECT SITE SHALL BE PROTECTED WITH A SILT BASKET TO ENSURE THAT RUNOFF FROM THE SITE DOES NOT CONVEY SEDIMENT INTO THE DRAINAGE SYSTEM. THE CONTRACTOR SHALL TAKE ADDITIONAL STEPS REQUIRED TO PREVENT THE MOVEMENT OF SEDIMENT FROM THE SITE.
- 12. THE EROSION CONTROLS SPECIFIED ON THE PROJECT PLANS SHALL NOT BE REMOVED UNTIL SUCH TIME AS THE ENTIRE SITE IS PERMANENTLY STABILIZED AND THE OWNER OR CONSERVATION COMMISSION HAS APPROVED THE REMOVAL. THIS SHALL MEAN THAT ALL DISTURBED AREAS HAVE BEEN COVERED BY BUILDING, PAVEMENT AND/OR COMPLETELY VEGETATED. IF THE APPLICANT INTENDS TO REMOVE THE EROSION CONTROLS PRIOR TO THE EVENTS AS STATED ABOVE, THE CONTRACTOR SHALL MAKE A WRITTEN REQUEST TO THE ENGINEER.
- 13. AS SOON AS POSSIBLE DURING CONSTRUCTION, ALL DISTURBED UPLAND AREAS WITHIN 100-FEET OF ANY RESOURCE AREA SHALL BE BROUGHT TO FINAL FINISHED GRADE AND STABILIZED PERMANENTLY AGAINST EROSION. THIS SHALL BE DONE EITHER BY SOD, OR BY LOAMING, SEEDING, AND MULCHING. STABILIZATION WILL BE CONSIDERED COMPLETE ONCE THE SURFACE SHOWS COMPLETE VEGETATIVE COVER. BARE GROUND THAT CANNOT BE PERMANENTLY STABILIZED WITHIN THIRTY (30) DAYS SHALL BE STABILIZED BY TEMPORARY MEASURES AS MAY BE REQUIRED BY THE NATICK CONSERVATION COMMISSION.
- 14. EXCEPT AS HEREIN NOTED. THERE SHALL BE NO STOCKPILING OF SOIL OR BRUSH OR ANY OTHER MATERIALS WITHIN THE BUFFER ZONE OF ANY RESOURCE AREA UNLESS IT IS ISOLATED WITHIN THE PAVED ROADWAY AND WILL BE IMMEDIATELY BACKFILLED ONCE THE PIPE IS INSTALLED.
- 15. DURING AND AFTER WORK ON THIS PROJECT. THERE SHALL BE NO DISCHARGE OR SPILLAGE OF FUEL, OIL, OR OTHER POLLUTANTS INTO ANY RESOURCE AREA OR BUFFER ZONE. THE APPLICANT SHALL TAKE ALL REASONABLE PRECAUTIONS TO PREVENT THE RELEASE OF POLLUTANTS BY IGNORANCE, ACCIDENT OR VANDALISM.
- 16. NO STORAGE OF PETROLEUM PRODUCTS (MOTOR OIL, GASOLINE, OR DIESEL FUEL) SHALL BE ALLOWED WITHIN 100-FEET OF ANY WETLAND RESOURCE AREA ON THE SITE AT ANY TIME. NO MOTORIZED VEHICLES SHALL BE STORED WITHIN 100-FEET OF ANY RESOURCE AREA. AT THE CONCLUSION OF THE WORK DAY, ALL MOTORIZED VEHICLES AND MOTORIZED EQUIPMENT SHALL BE REMOVED FROM ALL BUFFER ZONE AREAS.

#### WATER MAIN NOTES:

1. VALVE REPLACEMENT MAY BE REQUIRED TO ACHIEVE POSITIVE SHUTDOWN OF SIDE STREET CONNECTIONS. ALL COSTS ASSOCIATED WITH THESE MISCELLANEOUS PITS SHALL BE MEASURED AND PAID FOR UNDER THE MISCELLANEOUS PIT ITEM. VALVE, PIPE, FITTINGS, SOIL AND PAVEMENT TO BE PAID UNDER THE APPROPRIATE ITEMS.

2. ALL VALVES SHALL BE EPOXY COATED WITH STAINLESS STEEL HARDWARE.

3. WATER SERVICE GATE TIE CARDS WILL BE AVAILABLE TO THE CONTRACTOR UPON AWARD OF THE CONTRACT.

- 4. ALL FITTINGS AND VALVES ARE TO BE FULLY RESTRAINED, THRUST BLOCKED AND SUPPORTED. FITTING AND VALVE RESTRAINT SHALL BE "MEGA-LUG" "FOR D.I. PIPE OR "GRIP RING" FOR C.I. PIPE IN ALL INSTALLED LOCATIONS. WHERE NECESSARY CONTRACTOR SHALL USE FOSTER ADAPTERS TO ANCHOR ADDITIONAL VALVES TO TEES.
- 5. SOLID SLEEVES SHALL BE PROVIDED WHERE FEASIBLE (AT PROPOSED DUCTILE IRON PIPE AND WHERE CAST IRON PIPE O.D. PERMITS): THEY REQUIRE FULL RESTRAINT. FOR WORK AT OVERSIZED CAST IRON PIPE WHERE SOLID SLEEVES ARE NOT AN OPTION, IN THE OPINION OF THE ENGINEER THAT GRINDING THICK SPOTS IS NOT FEASIBLE TO FIT SLEEVE ALTERNATIVE COUPLINGS MAY BE PROVIDED AS OUTLINED IN SECTION 02610, BUT ALSO REQUIRE FULL RESTRAINT.

6. REPLACEMENT HYDRANTS SHALL NOT BLOCK DRIVEWAYS AND SHALL HAVE NO BENDS.

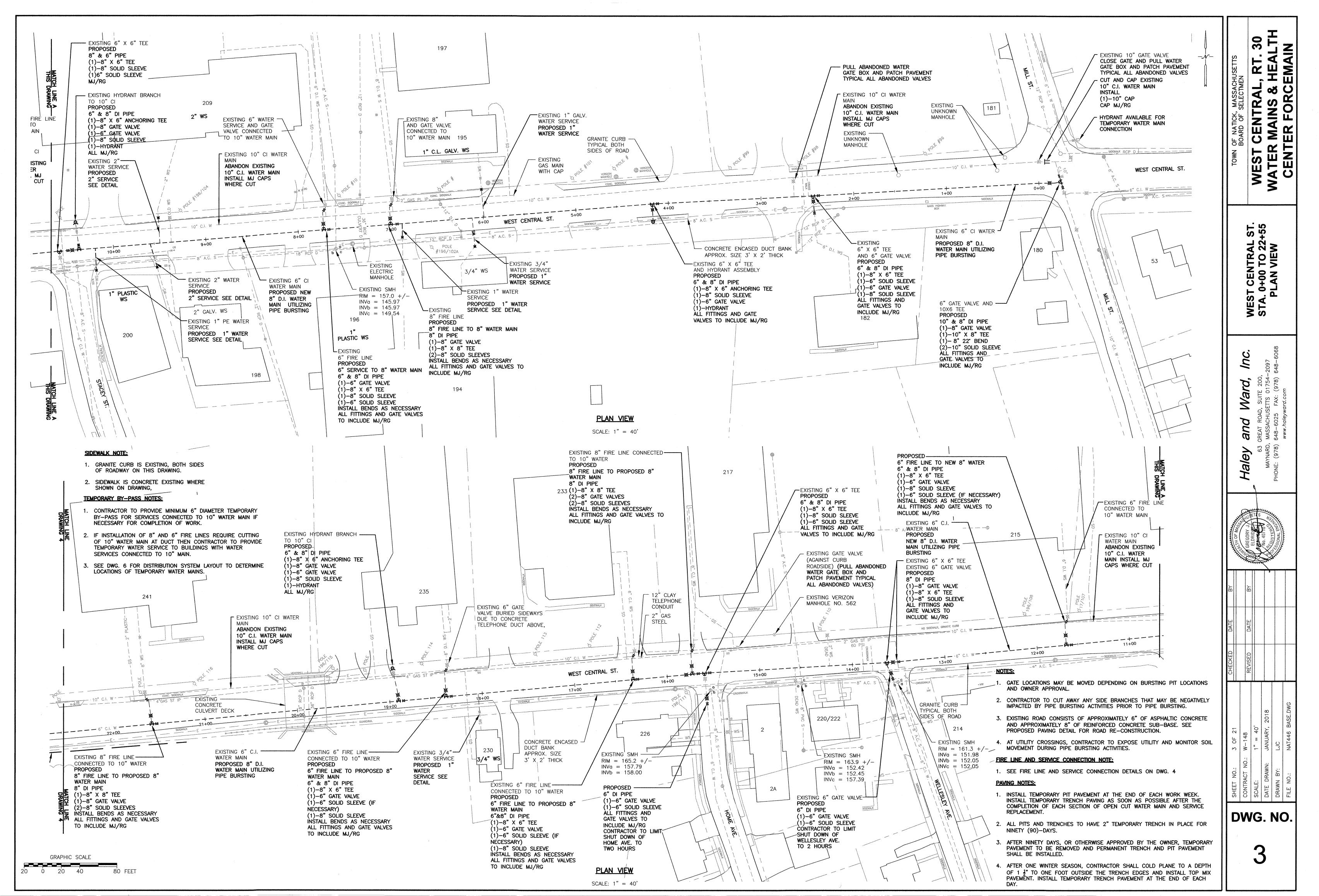
#### 7. WATER SERVICE NOTES:

- 7.1. TEMPORARY BYPASS PIPING SHALL BE PROVIDED ON EACH SIDE OF ALL STREETS. 7.2. TEMPORARY SERVICE SHALL BE PROVIDED THROUGH ONE OF THE FOLLOWING METHODS, AND AS DIRECTED BY THE OWNER:
- 7.2.1. CONNECTION MADE OUTSIDE THE BUILDING AT A SILL COCK (NOT AN OPTION IF BACKFLOW DEVICE IS PRESENT).
- 7.2.2. CONNECTION MADE INSIDE THE BUILDING AT A SERVICE METER.
- 7.2.3. CONNECTION MADE IN A PIT AT THE STREET AT THE CURB STOP (HOUSE SIDE). EXCAVATION AND RESTORATION OF THE PIT WILL BE PAID FOR BY UNIT ITEMS. 7.2.3.1. THIS METHOD SHALL BE REQUIRED, IF A CONNECTION IS MADE AT A SILL COCK OR SERVICE METER, IT IS DISCOVERED THE CURB STOP LEAKS (WHILE EFFECTIVELY BACKFED). ADDITIONALLY, THE CURB STOP/BOX
- SHALL BE REPLACED. 7.2.3.2. THE OWNER RESERVES THE RIGHT TO DIRECT THE CONTRACTOR TO MAKE THE CONNECTION IN A PIT AT
- THE STREET AND REPLACE THE CURB STOP/BOX ON A CASE BY CASE BASIS. 7.3. CONTRACTOR SHALL PROVIDE WATER SERVICE TUBING AND FITTINGS TO REESTABLISH SERVICE CONNECTIONS AFTER NEW WATER MAIN IS PLACED IN SERVICE. 7.4. SERVICE LINES SHALL BE FLUSHED PRIOR TO RETURNING TO PERMANENT SERVICE.
- 8. CONTRACTOR SHALL NOTIFY WATER DEPARTMENT SUPERINTENDENT 48 HOURS IN ADVANCE OF WHEN ANY SHUTDOWN IS REQUIRED. WATER DEPARTMENT PERSONNEL WILL OPERATE GATE VALVES TO ACHIEVE SHUTDOWN. CONTRACTOR TO SCHEDULE FOR AND ALLOW 48 HOURS BEFORE SHUT DOWN IS ACHIEVED.
- 9. TEST PITS FOR UTILITY INVESTIGATION SHALL BE AS DIRECTED BY OWNER OR ENGINEER.
- 10. FIRE LINES AND SIX INCH DIAMETER WATER SERVICES TO BUSINESSES SHALL BE INSTALLED FROM THE NEW WATER MAIN TO THE PROPERTY LINE, CAPPED, AND SUPPORTED FOR BACTERIA AND PRESSURE TESTING. ONCE TESTING IS COMPLETE AND ACCEPTED, CONTRACTOR TO REMOVE CAP AND CONNECT TO EXISTING SERVICE.

#### PIPE BURSTING NOTES:

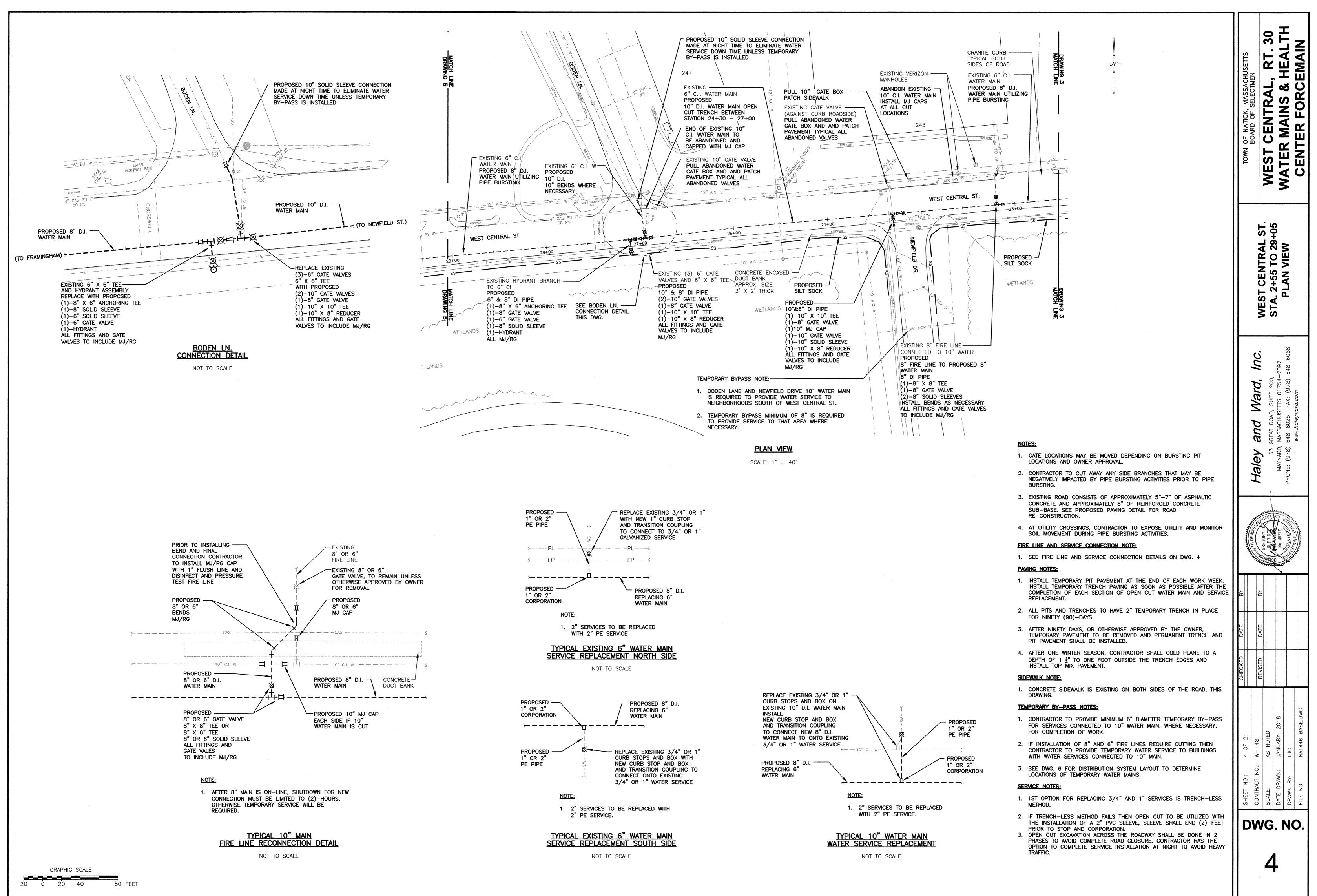
- 1. CONTRACTOR SHALL EXCAVATED AT UTILITIES IN CLOSE PROXIMITY TO THE PIPE THAT WILL BE BURST, TO AVOID DAMAGE TO THOSE UTILITIES DURING THE PIPE BURSTING OPERATION. ALL COSTS ASSOCIATED WITH THESE PITS SHALL BE MEASURED AND PAID FOR UNDER THE INSPECTION PIT ITEM. VALVE, PIPE, FITTINGS, SOIL AND PAVEMENT TO BE PAID UNDER THE APPROPRIATE ITEMS.
- 2. ONCE A SECTION FOR PIPE BURSTING IS DE-WATERED, THE CONTRACTOR SHALL INSPECT THE INTERIOR WITH A REMOTE CONTROLLED CAMERA SYSTEM TO LOCATE POTENTIAL BLOCKAGES OR ITEMS THAT WOULD PREVENT A SUCCESSFUL PIPE BURSTING.
- 3. CONTRACTOR IS RESPONSIBLE FOR LAYING OUT THE LOCATIONS AND SPACING OF THE PIPE BURSTING PITS. WHICH ARE TO BE INCLUDED IN THE COST OF THE PIPE BURSTING, WITH THE EXCEPTION OF VALVES, PIPE, FITTINGS, SOIL AND PAVEMENT WHICH ARE TO BE PAID FOR UNDER THE APPROPRIATE ITEMS.

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ABBREVIATIONS			<i>Inc.</i> 2097 648-6068
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CI = CAST IRON CL = CEMENT LINED			μ λ α Ω Ω Ω Ω λ ζ Δ Δ Δ Δ Δ Δ Δ Δ Δ Δ Δ Δ Δ
CMP = CORRUGATED METAL PIPE			and BREAT ROA MASSACHU 648-6025 <i>www.haley</i>
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DMH = DRAIN MANHOLES EOP = EDGE OF PAVEMENT			<b>Haley</b> MAYNARD, ONE: (978)
EOF = EDGE OF PAVEMENT			Hal MA PHONE:
GALV. = GALVANIZED IRON			
GRNT = GRANITE CURB			
GS = GAS SERVICE HDPE = HIGH DENSITY POLYETHYLEN	IF		Jun HUSETIS
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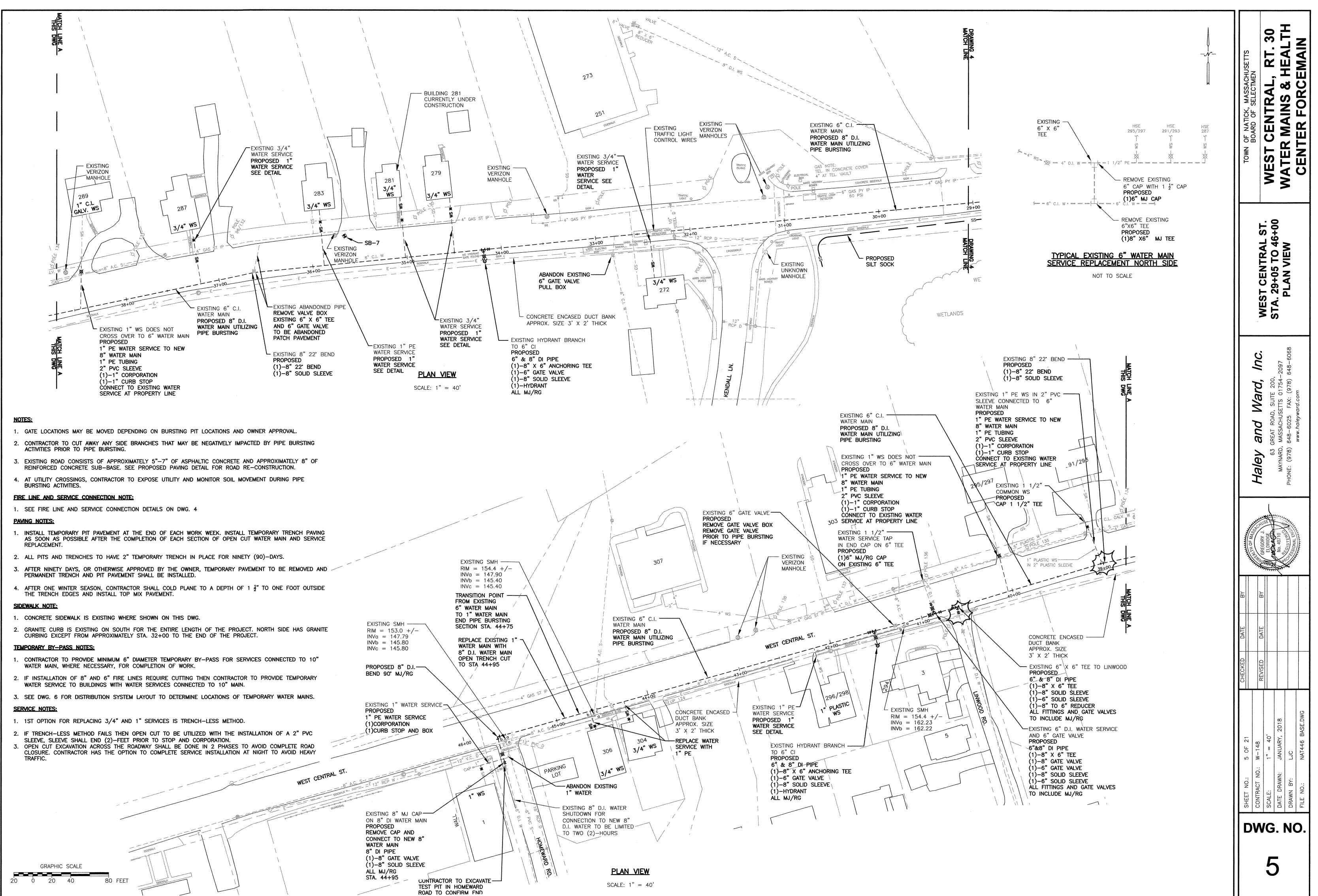


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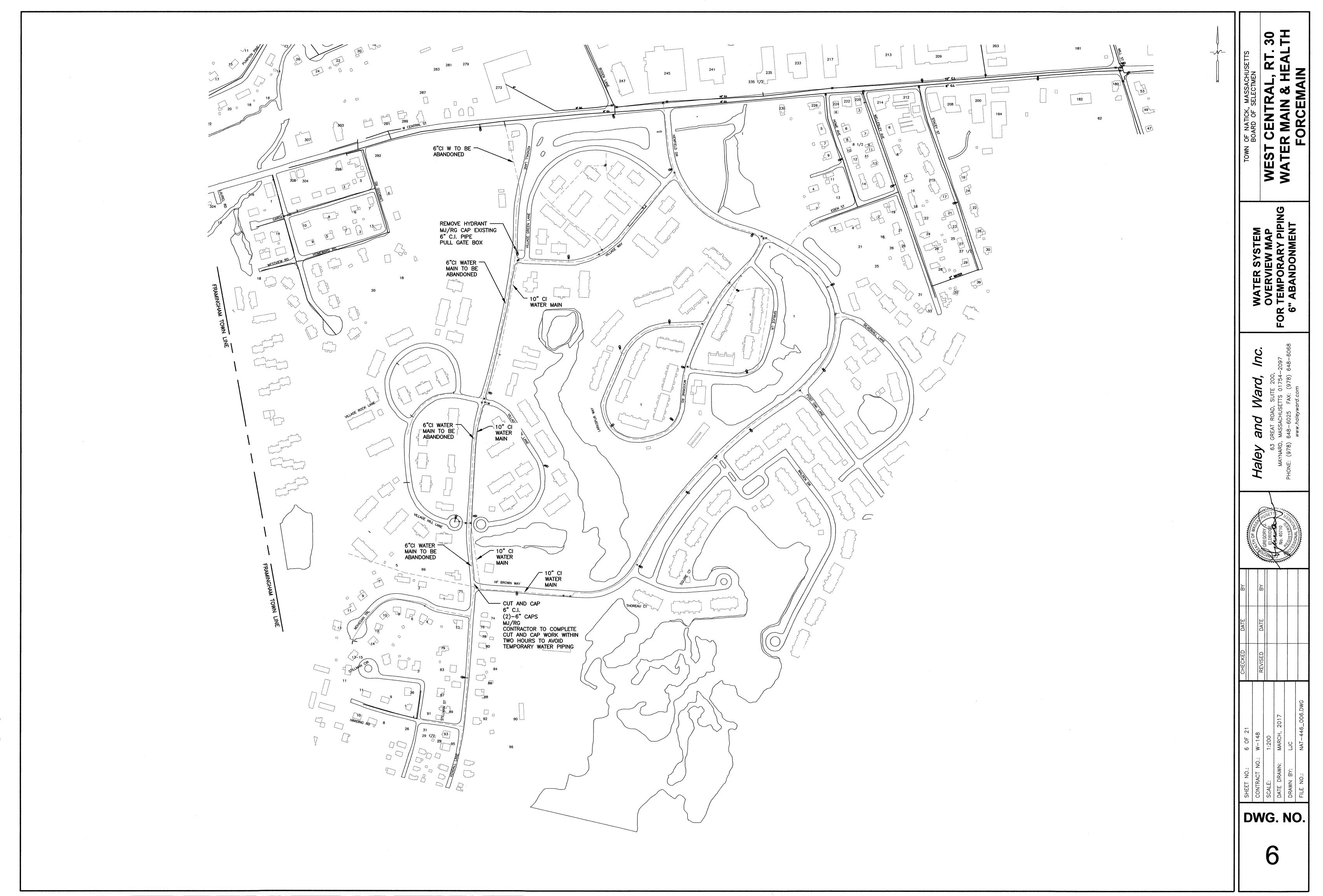
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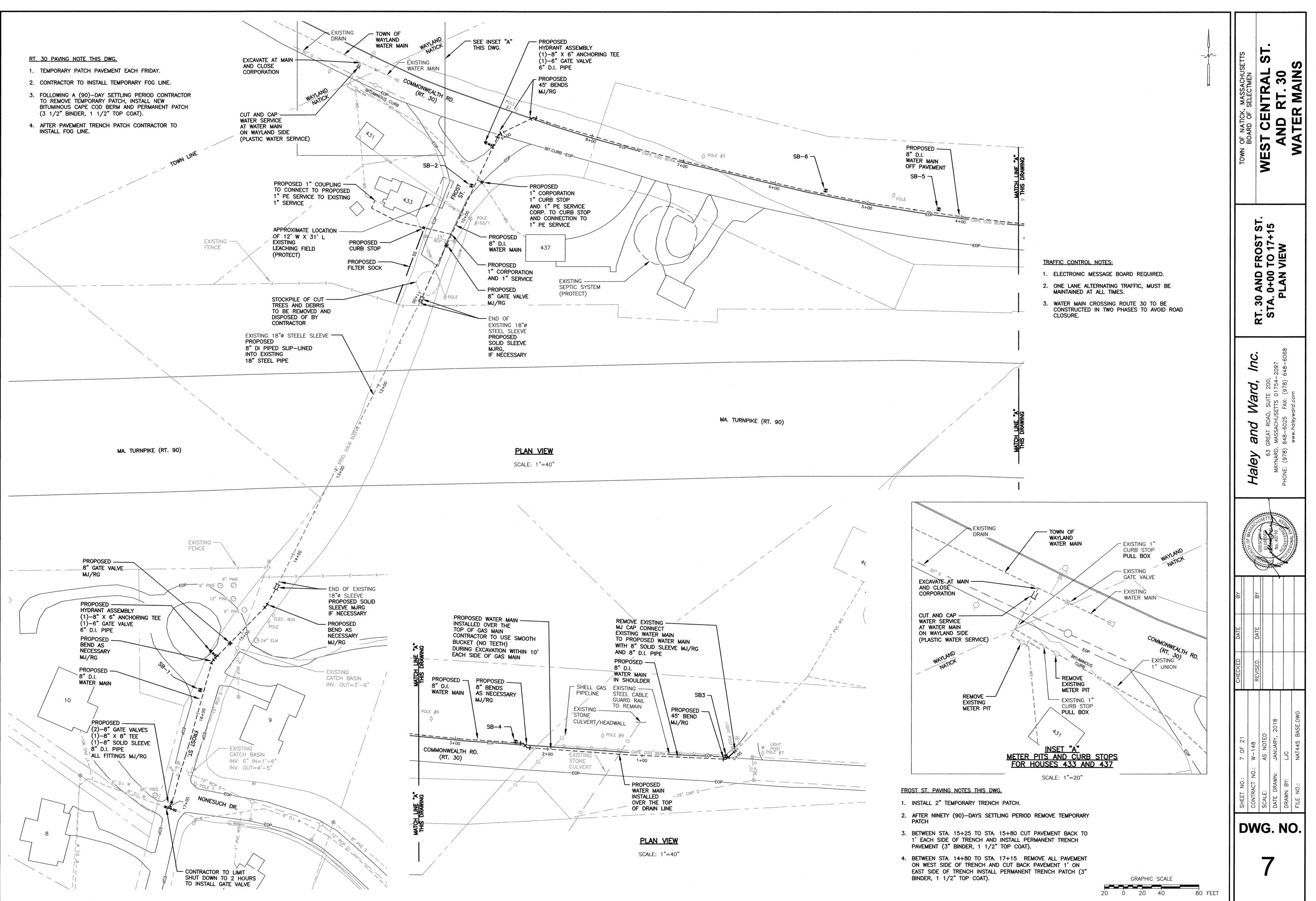


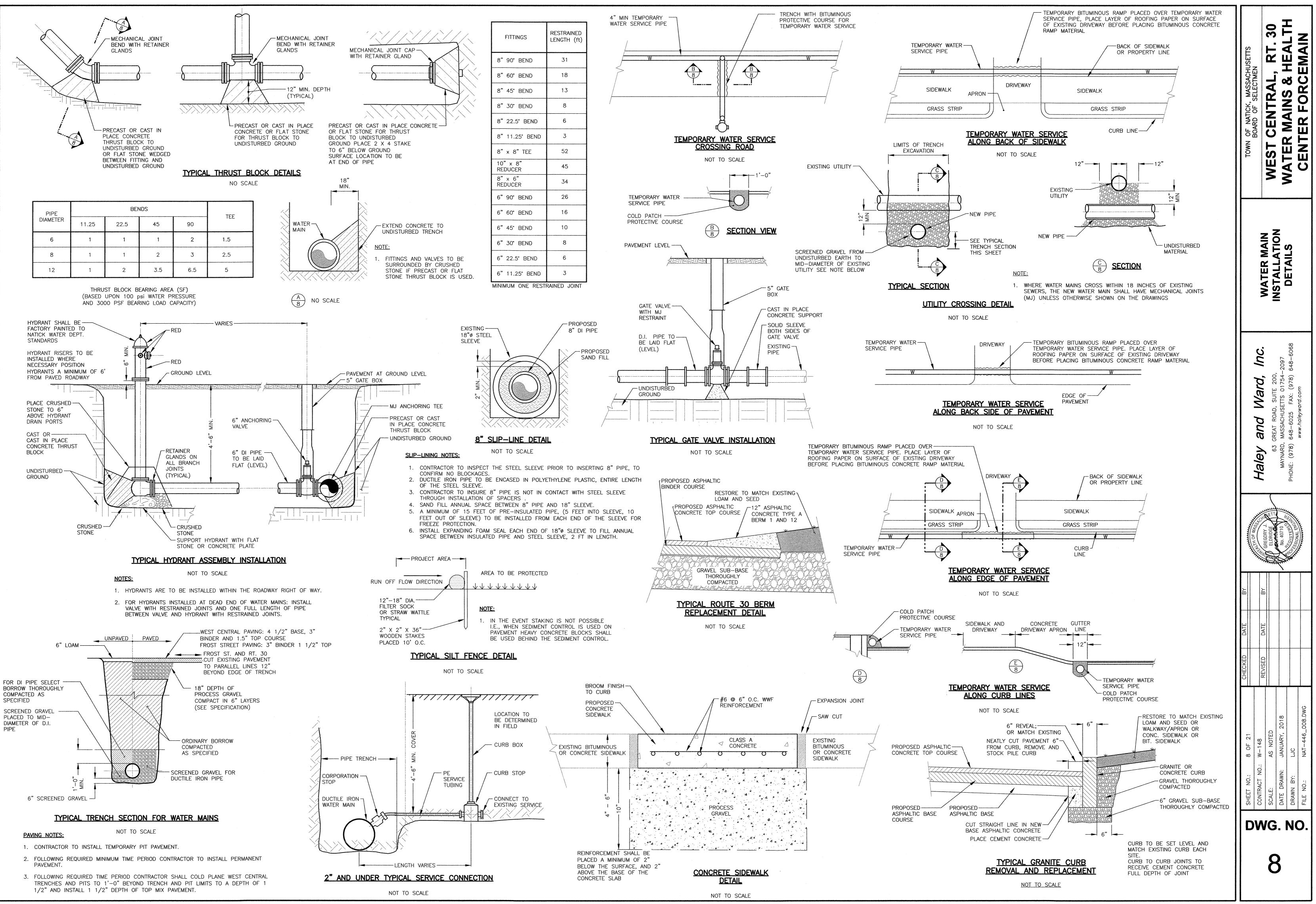
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#### TRAFFIC MANAGEMENT NOTES FOR ALL OF THE FORCEMAIN REPLACEMENT PROJECT:

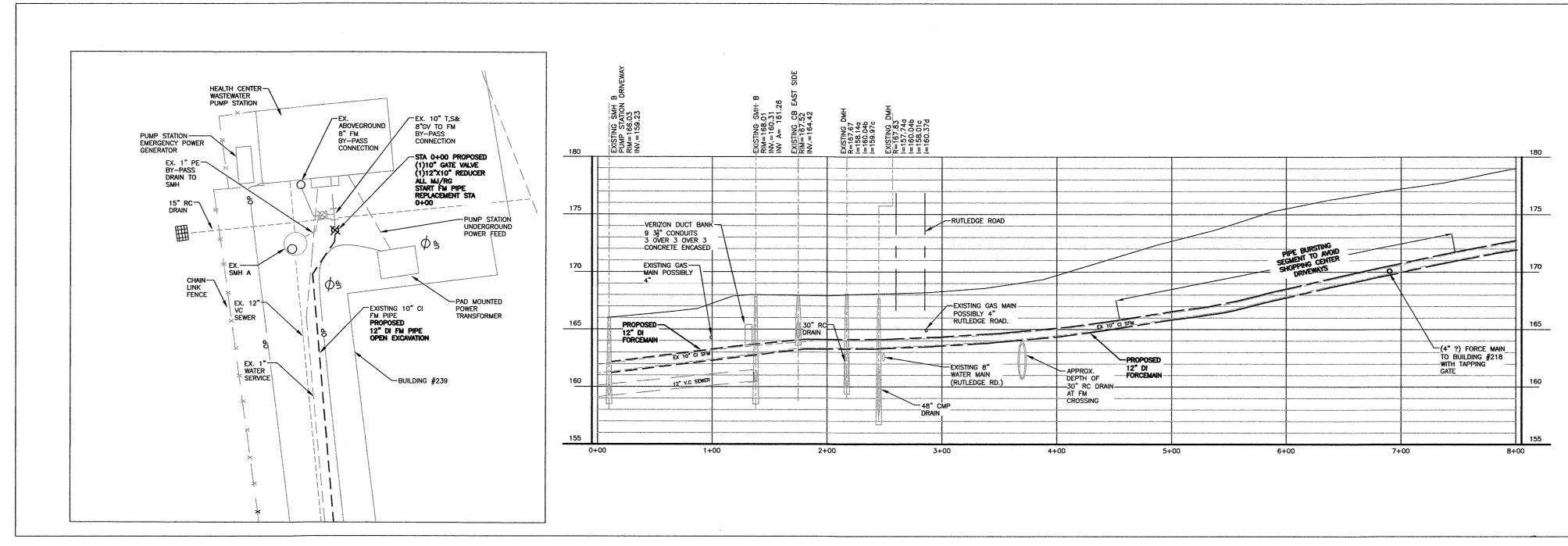
- SEE TRAFFIC MANAGEMENT PLAN DRAWINGS FOR TYPICAL TRAFFIC MANAGEMENT DEVICES AND SIGNS AND APPROVED DETOURS.
- . THE DESIGN IS BASED ON ALLOWING FREE FLOWING TRAFFIC WHERE POSSIBLE.
- . THE FOLLOWING ARE RESTRICTIONS FOR TRAFFIC CONTROL.
- 3.1. RUTLEDGE ROAD LEADS TO A SCHOOL BUILDING. ROAD MUST BE OPEN TO ONE WAY TRAFFIC: "IN" DURING MORNING HOURS, "OUT" DURING AFTERNOON HOURS, TO ALLOW BUS TRAFFIC DURING SCHOOL HOURS. WHEN SCHOOL IS OFF FOR THE SUMMER ROAD CLOSURE MAY BE CONSIDERED, ADDITIONAL SIGNS FOR THE DETOUR, IF APPROVED BY THE OWNER, SHALL BE INCLUDED IN THE LUMP SUM TRAFFIC MANAGEMENT ITEM.
- 3.2. NORTH MAIN STREET NORTHBOUND AND SOUTHBOUND LANES MUST BE MAINTAINED AT ALL TIMES WHERE POSSIBLE. THE KNOWN EXCEPTION IS DURING THE OPEN CUT REPLACEMENT SECTION, STA 1+50 TO 3+00. IN THIS SECTION ONE LANE ALTERNATING TRAFFIC MUST BE MAINTAINED. AT NO TIME WILL BOTH LANES BE BLOCKED FROM VEHICLE TRAFFIC.
- CONTRACTOR TO FURNISH, INSTALL AND MAINTAIN REQUIRED TRAFFIC CONTROL DEVICES AT ALL TIMES DURING THE PROJECT
- 4.1. SIGNS THAT ARE NOT APPLICABLE AT ANY TIME DURING THE PROJECT, MUST BE REMOVED OR COVERED, TO AVOID CONFUSION BY DRIVERS.
- ROAD CLOSURES MUST BE AVOIDED, UNLESS THE OWNER AND OR MASSDOT APPROVES OTHERWISE. THE DESIGN ASSUMES THE FOLLOWING RAMP CLOSURES.
- 5.1. SHORT DURATION CLOSURE (4 HOURS OR LESS) ROUTE 9 EXIT RAMP HEADING SOUTH ON ROUTE 27 TO ALLOW INSTALLATION OF TEMPORARY BUY-PASS PIPE, MUST BE COMPLETE ON SATURDAY OR AFTER 10 PM DURING THE WEEKDAYS.
- 5.2. SHORT DURATION CLOSURE (4 HOURS OR LESS) ROUTE 9 ENTRANCE RAMP FROM ROUTE 27 SOUTHBOUND TO ALLOW INSTALLATION OF OF TEMPORARY BY-PASS PIPING. MUST BE COMPLETE ON SATURDAY OR AFTER 10 PM ON WEEKDAYS.
- 5.3. ROUTE 9 EXIT RAMP ONTO ROUTE 27 NORTHBOUND. DURING THE SEWER REPLACEMENT STA 7+00 TO 11+00 (INCLUDES PIPE BURSTING SEGMENT) MUST BE COMPLETE ON SATURDAY OR AFTER 10 PM ON WEEKDAYS.
- CONTRACTOR SHALL FURNISH ELECTRONIC MESSAGE BOARD AS REQUIRED BY THE CONTRACT DOCUMENTS. IN GENERAL THE SIGN MUST BE INSTALLED MINIMUM OF 2 WEEKS PRIOR TO START OF CONSTRUCTION, AND AT TIMES DURING THE PROJECT AS REQUIRED BY THE OWNER.
- PEDESTRIAN TRAFFIC MUST ALSO BE PROTECTED BY THE CONTRACTOR'S OPERATION. ALTERNATIVE SIDEWALK MUST BE PROVIDED BY THE CONTRACTOR WHERE EXISTING SIDEWALKS ARE REMOVED DURING THE PROJECT. APPROPRIATE SIGNS MUST BE INSTALLED IDENTIFYING THE ALTERNATIVE SIDEWALK AND THE CLOSED SIDEWALK.

#### WASTEWATER BY-PASS NOTES FOR THE FORCEMAIN REPLACEMENT PROJECT:

- 1. DURING FORCE MAIN REPLACEMENT, CONTRACTOR TO INSTALL ALL REQUIRED BYPASS PIPING, PUMPS IF NECESSARY, TO CARRY WASTEWATER FROM THE HEALTH CENTER PUMP STATION TO AN EXISTING GRAVITY SEWER ON NORTH MAIN
- STREET OR AS SELECTED BY THE CONTRACTOR. 1.1. IN ADDITION TO THE FORCEMAIN, THERE ARE TWO SEWER SERVICES CONNECTED TO THE FORCEMAIN. CONTRACTOR SHALL INSTALL BY-PASS TO ALLOW THE TWO BUILDING'S PUMP STATIONS TO DISCHARGE INTO THE TEMPORARY BY-PASS MAIN.
- 2. DURING SMH INSTALLATION, CONTRACTOR TO INSTALL ALL REQUIRED BYPASS PIPING AND PUMPS TO CARRY WASTEWATER FROM THE EXISTING GRAVITY SMH TO AN EXISTING DOWNSTREAM GRAVITY SEWER MANHOLE ON NORTH MAIN STREET OR AS SELECTED BY THE CONTRACTOR.
- 3. THE CONTRACTOR SHALL BE REQUIRED TO SUBMIT TO THE ENGINEER FOR APPROVAL, ALL PROVISIONS SET FORTH IN SECTION 02322 "BY-PASS PUMPING OF MAIN LINE WASTEWATER" AND SECTION 02325 "BY-PASS PUMPING OF FORCEMAIN WASTEWATER" OF THE SPECIFICATIONS AND TO SETUP, TEST AND MAINTAIN A BY-PASS PUMP AND PIPING SYSTEM OF SIZES AND CAPACITIES TO MEET ALL OF THE REQUIREMENTS OF THE SPECIFICATIONS REFERENCED ABOVE. BEFORE ANY EXCAVATION AND SEWER MAIN REPLACEMENT WILL BE ALLOWED TO BEGIN.
- 4. BY-PASS PUMPING SYSTEM SHALL BE INSTALLED AND TESTED AS REQUIRED BY THE CONTRACT DOCUMENTS PRIOR TO EXCAVATING FOR NEW FORCEMAIN. CONTRACTOR TO PREPARE AND SUBMIT FOR APPROVAL A BY-PASS EMERGENCY ACTION PLAN FOR BY-PASS SYSTEM FAILURES.
- 5. ALL BYPASS PIPING TO BE RECESSED INTO PAVEMENT AT ALL STREET CROSSINGS AND BUSINESS DRIVEWAY CROSSINGS. ALL RESIDENTIAL HOUSE DRIVEWAY CROSSINGS TO BE RAMPED WITH COLD PATCH, PROVIDED THE RAMP ALLOWS EASY ACCESS BY CARS WITHOUT POTENTIAL DAMAGE TO CARS. IF DRIVEWAY COLD PATCH RAMP IS TOO HIGH FOR CARS CONTRACTOR TO BURY BY-PASS PIPE BELOW THESE DRIVEWAYS.
- 6. FLOWING OF WASTEWATER ACROSS SEWER TRENCH, DISPOSAL OF WASTEWATER OVERLAND INTO WETLAND AREAS OR INTO DRAINAGE SYSTEM WILL NOT BE PERMITTED.
- 7. CONTRACTOR TO RECEIVE APPROVAL FOR BY-PASS PIPING DE-WATERING AND DISASSEMBLY. CONCENTRATION ON NOT ALLOWING WASTEWATER TO FLOW OVER THE GROUND IS IMPERATIVE. PIPING SYSTEM MUST BE FLUSHED TO A SEWER, WITH CLEAN WATER TO REMOVE WASTEWATER AND SEDIMENTS FROM THE WASTEWATER.

#### NORTH MAIN STREET PROJECT WORK CONSTRAINT:

1. DUE TO FOURTH OF JULY PARADE, NO ROADWAY PLATES, UN-PAVED TRENCHES, EQUIPMENT OR BY-PASS PIPING SHALL BE IN ROADWAY OR ALONG PROPERTY LINES, BETWEEN JULY 1ST AND JULY 5TH.



HEALTH CENTER PUMP STATION SITE PLAN

SCALE: 1'' = 10'

PUMP STATION

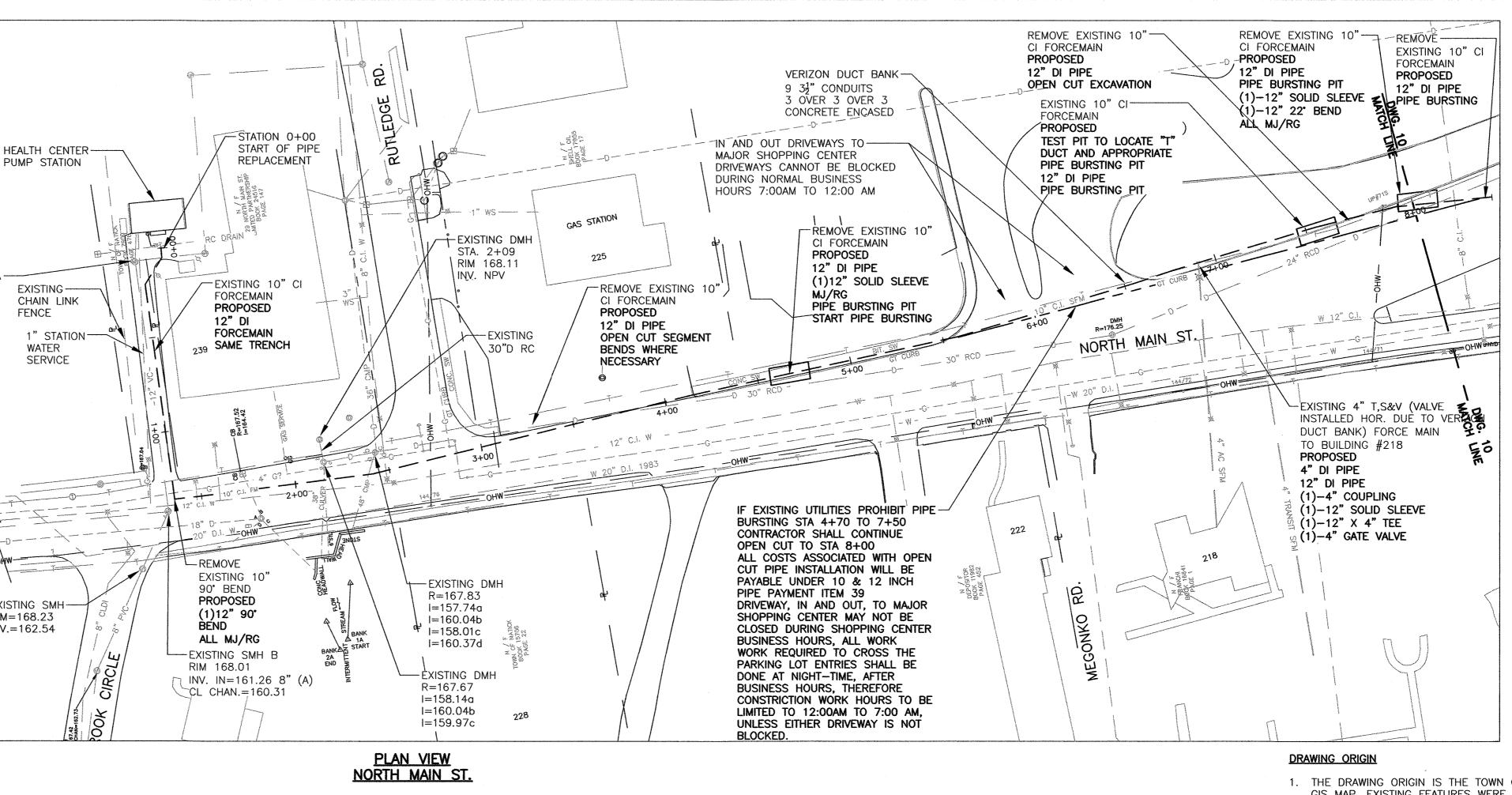
FENCE WATER SERVICE

EXISTING SMH A-

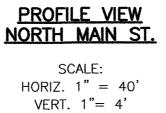
RIM 166.03

INV. 159.23

EXISTING SMH-RIM=168.23 INV.=162.54

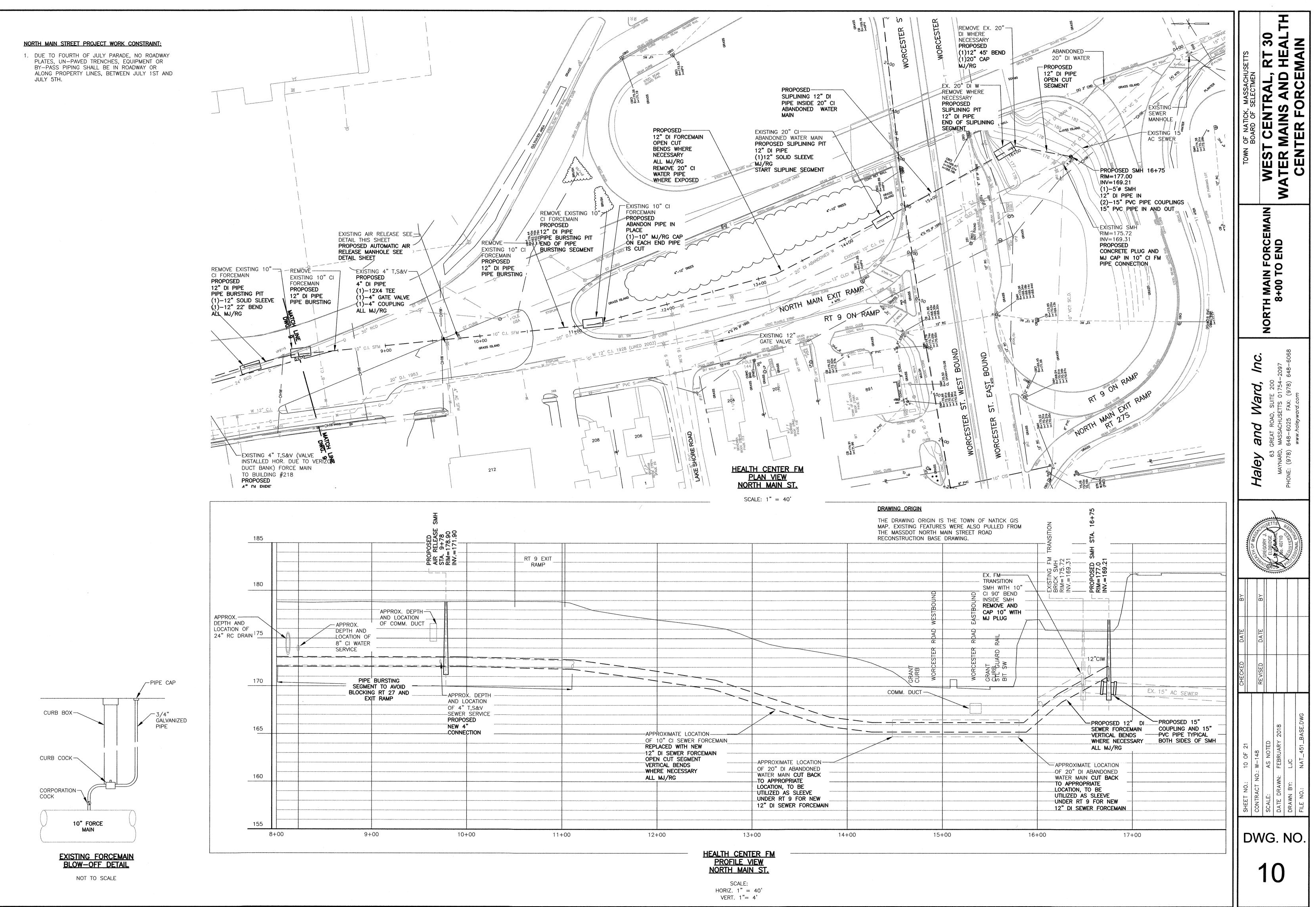


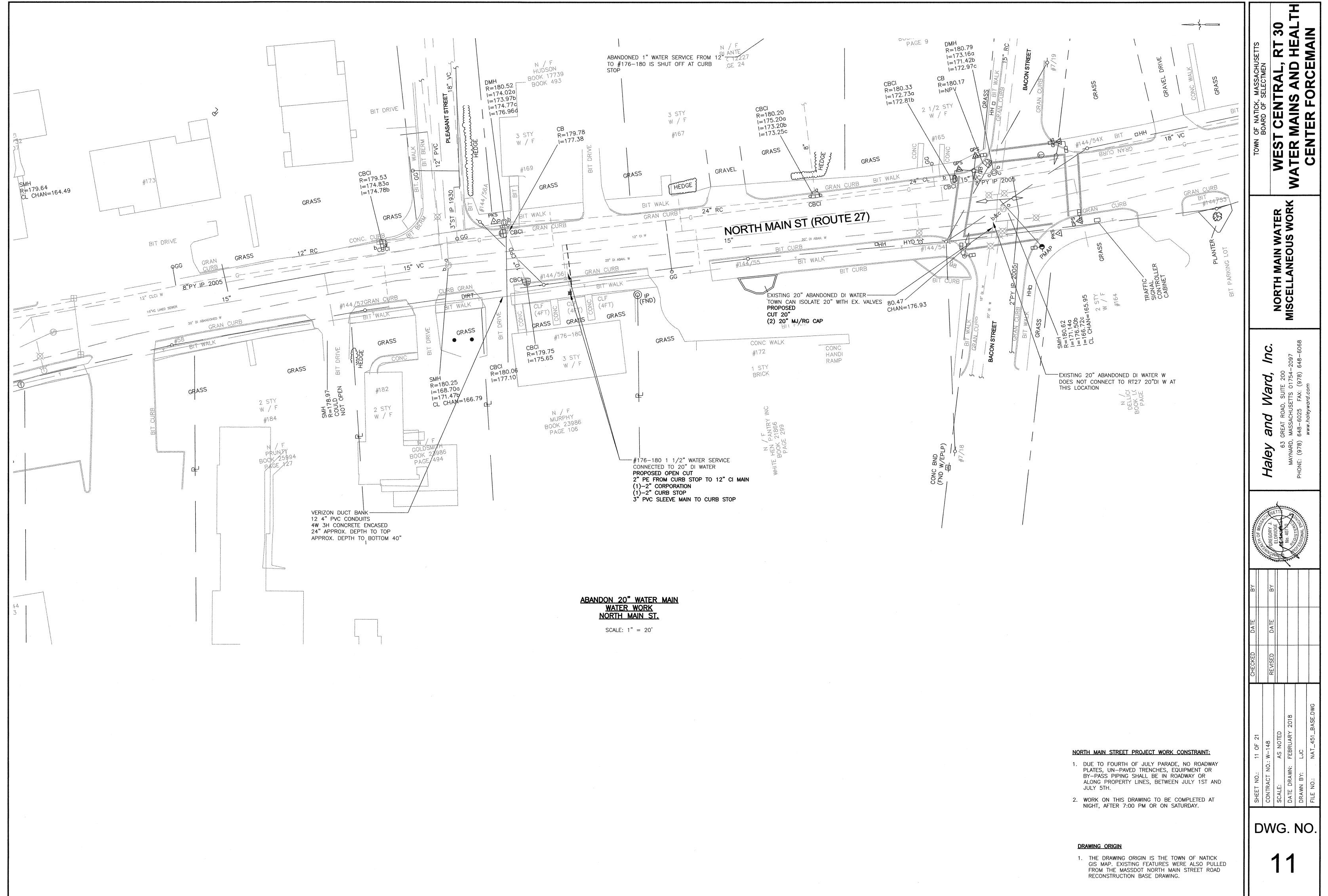
SCALE: 1'' = 40'



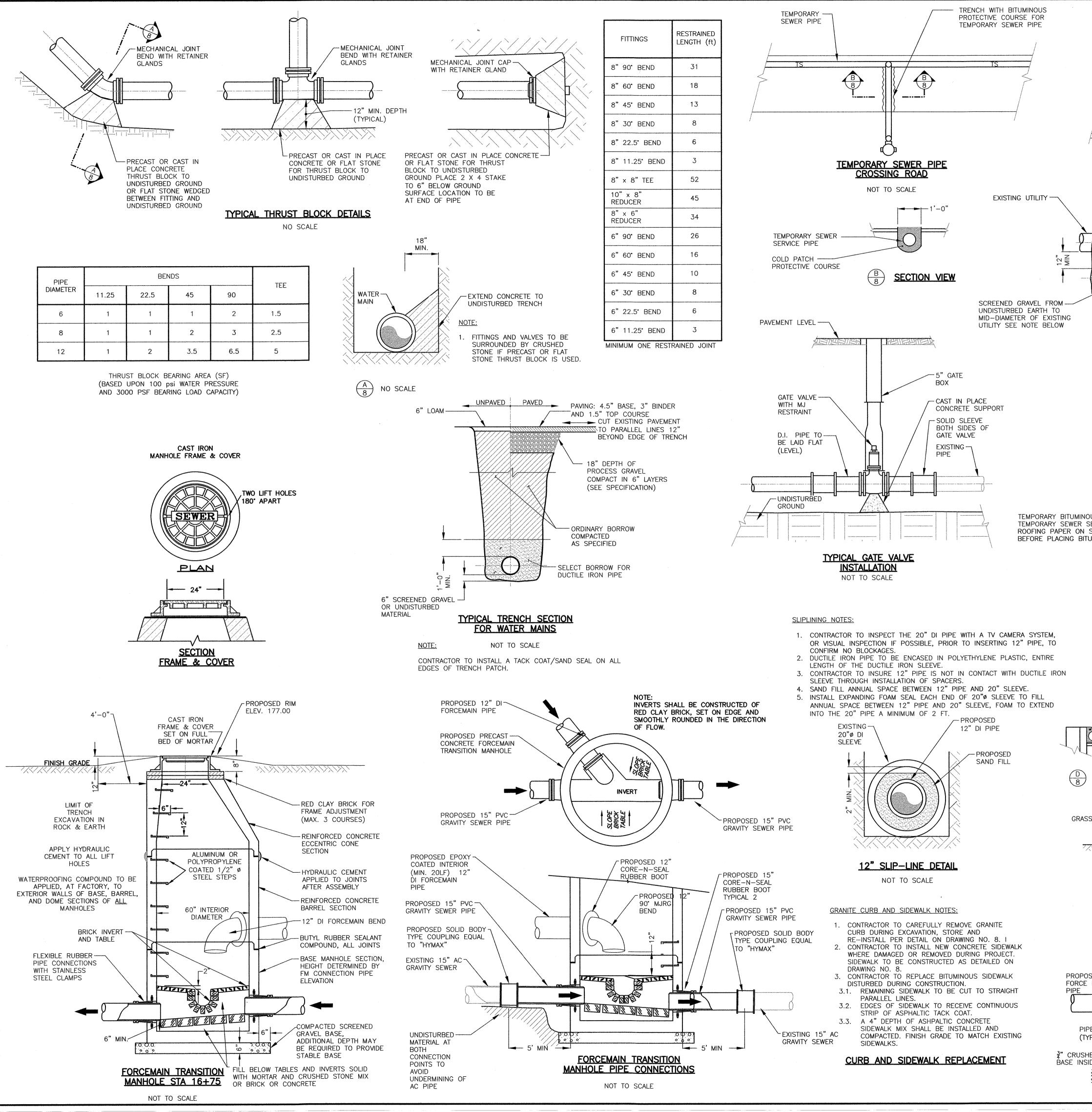
1. THE DRAWING ORIGIN IS THE TOWN OF NATICK GIS MAP. EXISTING FEATURES WERE ALSO PULLED FROM THE MASSDOT NORTH MAIN STREET ROAD RECONSTRUCTION BASE DRAWING.



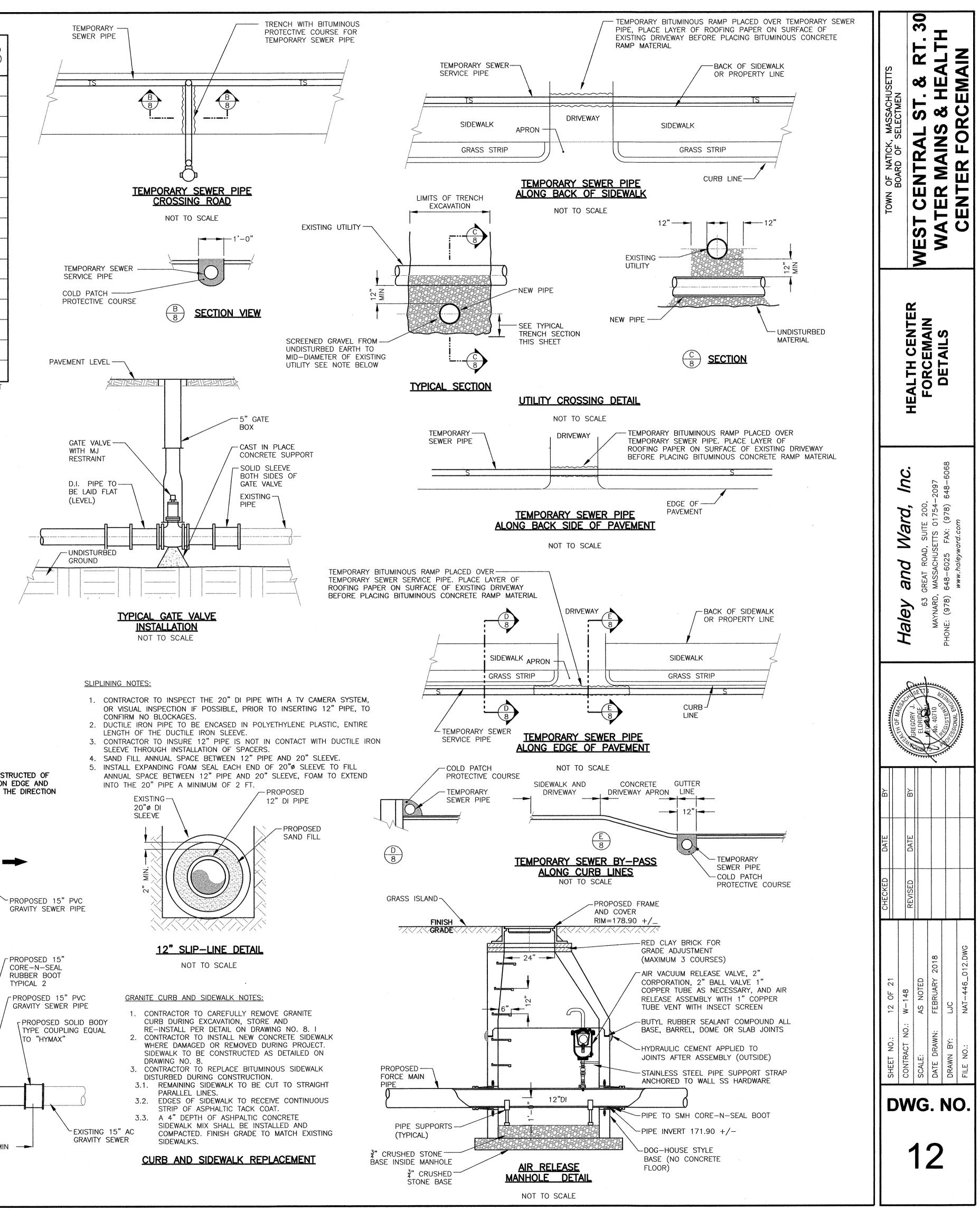




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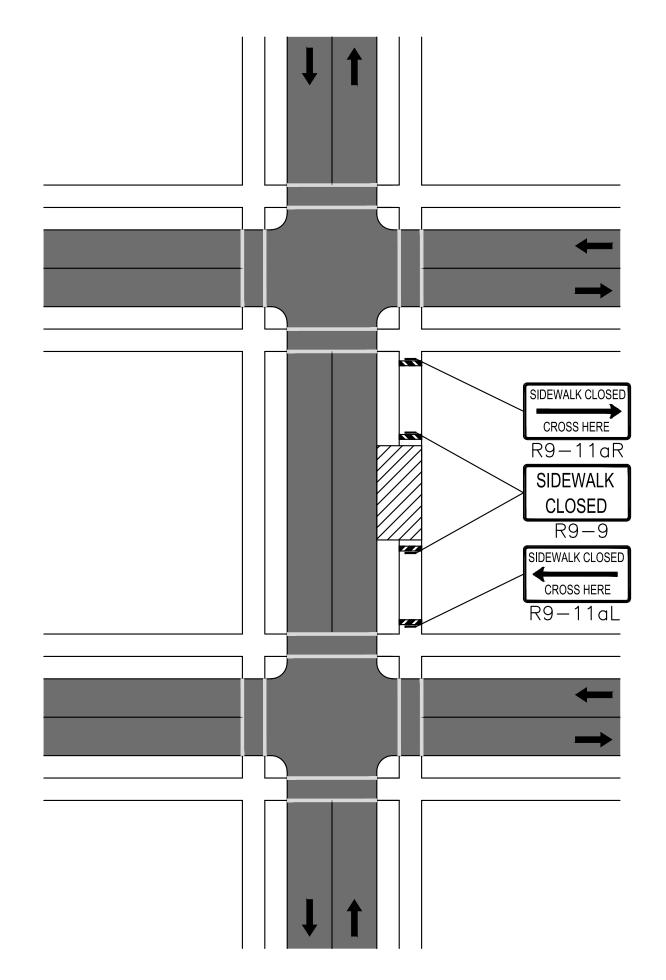


FITTINGS	RESTRAINED LENGTH (ft)
8"90° BEND	31
8"60° BEND	18
8" 45° BEND	13
8" 30° BEND	8
8" 22.5" BEND	6
8"11.25° BEND	3
8" × 8" TEE	52
10" x 8" REDUCER	45
8" × 6" REDUCER	34
6"90 BEND	26
6"60° BEND	16
6"45° BEND	10
6" 30° BEND	8
6"22.5°BEND	6
6" 11.25° BEND	3



#### **TEMPORARY TRAFFIC CONTROL NOTES:**

- MINIMUM LANE WIDTH OF 11 FEET SHALL BE MAINTAINED ALL THE TIME.
- THE CONTRACTOR SHALL COORDINATE APPROVAL OF ANY CHANGES TO THE TEMPORARY TRAFFIC CONTROL PLAN WITH MASSACHUSETTS DEPARTMENT OF TRANSPORTATION (MASSDOT) PRIOR TO CONSTRUCTION ACTIVITIES. THE CONTRACTOR SHALL ALSO NOTIFY MASSDOT AND THE TOWN OF NATICK THREE (3) WEEKS IN ADVANCE OF PLACING TEMPORARY TRAFFIC CONTROL SIGNS.
- THESE PLANS ARE NOT INTENDED TO LIMIT THE CONTRACTOR'S APPROACH TO SCHEDULE THE WORK BUT TO OUTLINE ONE WAY OF PROGRESSING. THE CONTRACTOR IS EXPECTED TO USE KNOWLEDGE AND EXPERIENCE TO PERFORM THE WORK IN THE MOST EFFICIENT AND SAFE MANNER IN COMPLIANCE WITH THE DRAWINGS AND SPECIFICATIONS.
- PLACE ALL SAFETY DEVICES AND CONSTRUCTION SIGNING BEFORE ACTUAL CONSTRUCTION WORK BEGINS. 4.
- DISTANCES ARE A GUIDE AND MAY BE ADJUSTED BASED ON FIELD CONDITIONS WITH THE APPROVAL OF THE ENGINEER. 5.
- WHEN EXISTING SIGNS ARE NO LONGER APPLICABLE THEY SHALL BE TEMPORARILY COVERED DURING CONSTRUCTION OR REMOVED AND RESET UPON 6. COMPLETION OF CONSTRUCTION. THE COST SHALL BE INCIDENTAL TO THE CONTRACT.
- ALL SIGNS SHALL BE REFLECTORIZED, WITH REFLECTIVE SHEETING CONFORMING TO M9.30.0. ALL SIGN COLORS SHALL BE PER THE CONSTRUCTION SIGN 7. SUMMARY TABLE AND CURRENT MUTCD.
- SIGNS AND SIGN SUPPORTS LOCATED ON OR NEAR THE TRAVELED WAY MUST PASS THE CRITERIA SET FORTH IN THE NCHRP 350 REPORT. 8.
- CONTRACTOR SHALL RECORD EXISTING PAVEMENT MARKINGS AND RESTORE ALL MARKINGS TO EXISTING CONDITIONS AT THE CONCLUSION OF CONSTRUCTION 9 AT EACH LOCATION.
- 10. ALL TRAFFIC CONTROL DEVICES SHALL BE REMOVED IMMEDIATELY WHEN NO LONGER NEEDED.
- 11. UNLESS OTHERWISE NOTED, ALL PAVEMENT MARKINGS, SIGNS AND OTHER TRAFFIC EQUIPMENT REMOVED OR DAMAGED AS A RESULT OF THE CONTRACTOR'S OPERATIONS SHALL BE REPLACED IN CONFORMANCE WITH THE CONTRACT DOCUMENTS.
- 12. CONTRACTOR SHALL INSTALL, RENEW, AND MAINTAIN ALL TRAFFIC CONTROL DEVICES AS SHOWN ON THE DRAWINGS IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.
- 13. ACCESS/EGRESS TO ALL ABUTTERS SHALL BE MAINTAINED AT ALL TIMES DURING CONSTRUCTION.
- 14. THE CONTRACTOR SHALL MAINTAIN ADA COMPLIANT ACCESS AT ALL TIMES INCLUDING PEDESTRIAN GUIDANCE SYSTEMS. ALL PEDESTRIAN DETOURS OR BYPASSES SHALL BE ADA COMPLIANT WITH PROPER BARRICADES, RAILINGS, RAMPS, SIGNS, ETC. 15. CONTRACTOR SHALL MAINTAIN EMERGENCY PASSAGE AT ALL TIMES TO BUILDINGS WITHIN AND ADJACENT TO THE PROJECT LIMITS AS WELL AS A LARGER AREA IF AFFECTED BY CONSTRUCTION CONDITIONS. CONTRACTOR SHALL MAINTAIN 24 HOUR EMERGENCY VEHICLE ACCESS TO CONSTRUCTION AREAS.
- 16. CONTRACTOR SHALL COORDINATE WITH ABUTTERS FOR THE PROPOSED WORK AND SHALL NOTIFY EACH ABUTTER AT LEAST 24 HOURS IN ADVANCE OF THE START OF THE WORK THAT WILL REQUIRE TEMPORARY CLOSURE OF ACCESS TO THEIR PROPERTY.
- 17. THE CONTRACTOR SHALL COORDINATE THE WORK WITH ALL ABUTTING PROJECTS.



IF A MINIMUM WIDTH OF 48" OF SOLID SMOOTH UNOBSTRUCTED SURFACE NOTE: REMAINS ALONG THE WORK AREA THEN THE DETAIL CAN BE DISREGARDED DELINEATION OF THE WORK AREA WILL STILL BE REQUIRED. AII PEDESTRIAN DETOUR ROUTES SHALL BE ADA/MAAB COMPLIANT IN THEIR ENTIRETY.

GRANITE CURB 6" REVEAL(TYP)

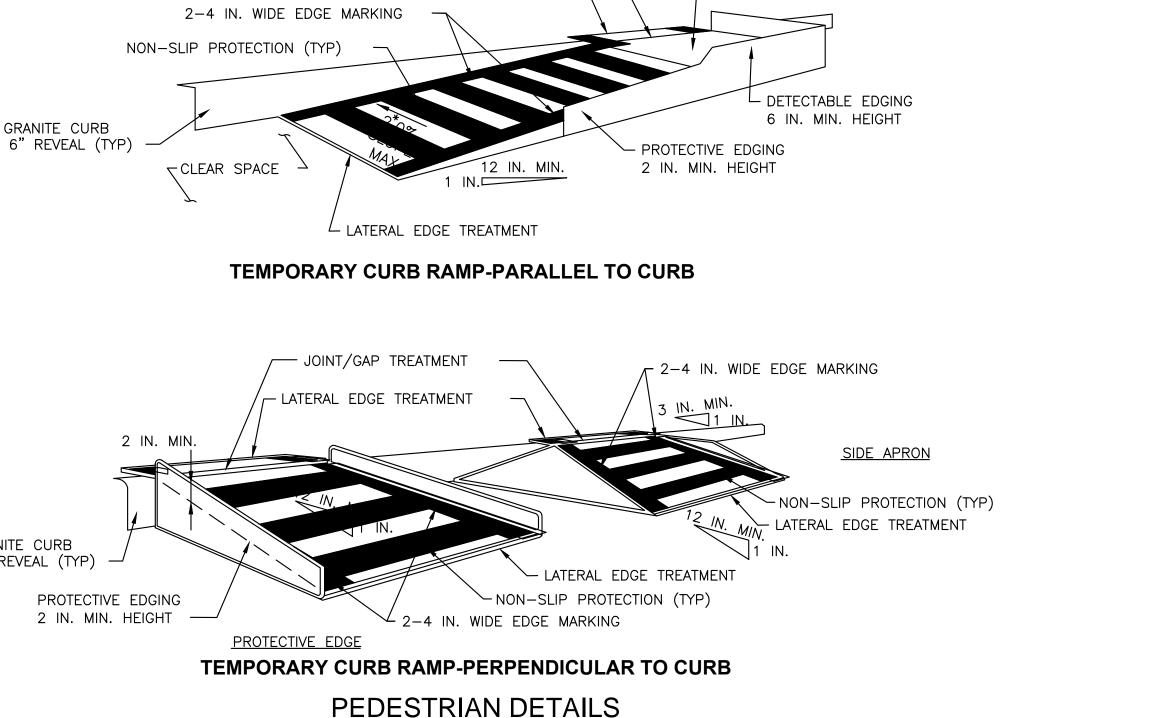
NOTES:

OR MORE.

(TURNS)

MAX CROSS-SLOPE.

#### SIDEWALK CLOSED WITHOUT DETOUR



EDGING SHOULD BE CONSIDERED WHEN THE CURB RAMPS OR LANDING PLATFORMS HAVE A VERTICAL DROP OF 3 IN.

3. DETECTABLE EDGING WITH 6 IN. MINIMUM HEIGHT AND

4. CURB RAMPS AND LANDINGS SHOULD HAVE A 1:50 (2%)

CONTRASTING COLOR SHALL BE INSTALLED ON ALL CURB

RAMP LANDINGS WHERE THE WALKWAY CHANGES DIRECTION

- 1. CURB RAMPS SHALL BE 60 IN. MINIMUM WIDTH WITH A FIRM, STABLE AND NON-SLIP SURFACE. 2. PROTECTIVE EDGING WITH A 2 IN. MINIMUM HEIGHT SHALL BE INSTALLED WHEN THE CURB RAMP OR LANDING PLATFORM HAS A VERTICAL DROP OF 6 IN. OR GREATER OR HAS A SIDE APRON SLOP STEEPER THAN 1:3 (33%). PROTECTIVE
- 5. CLEAR SPACE OF 48x48 IN. MINIMUM SHALL BE PROVIDED
- ABOVE AND BELOW THE CURB RAMP.

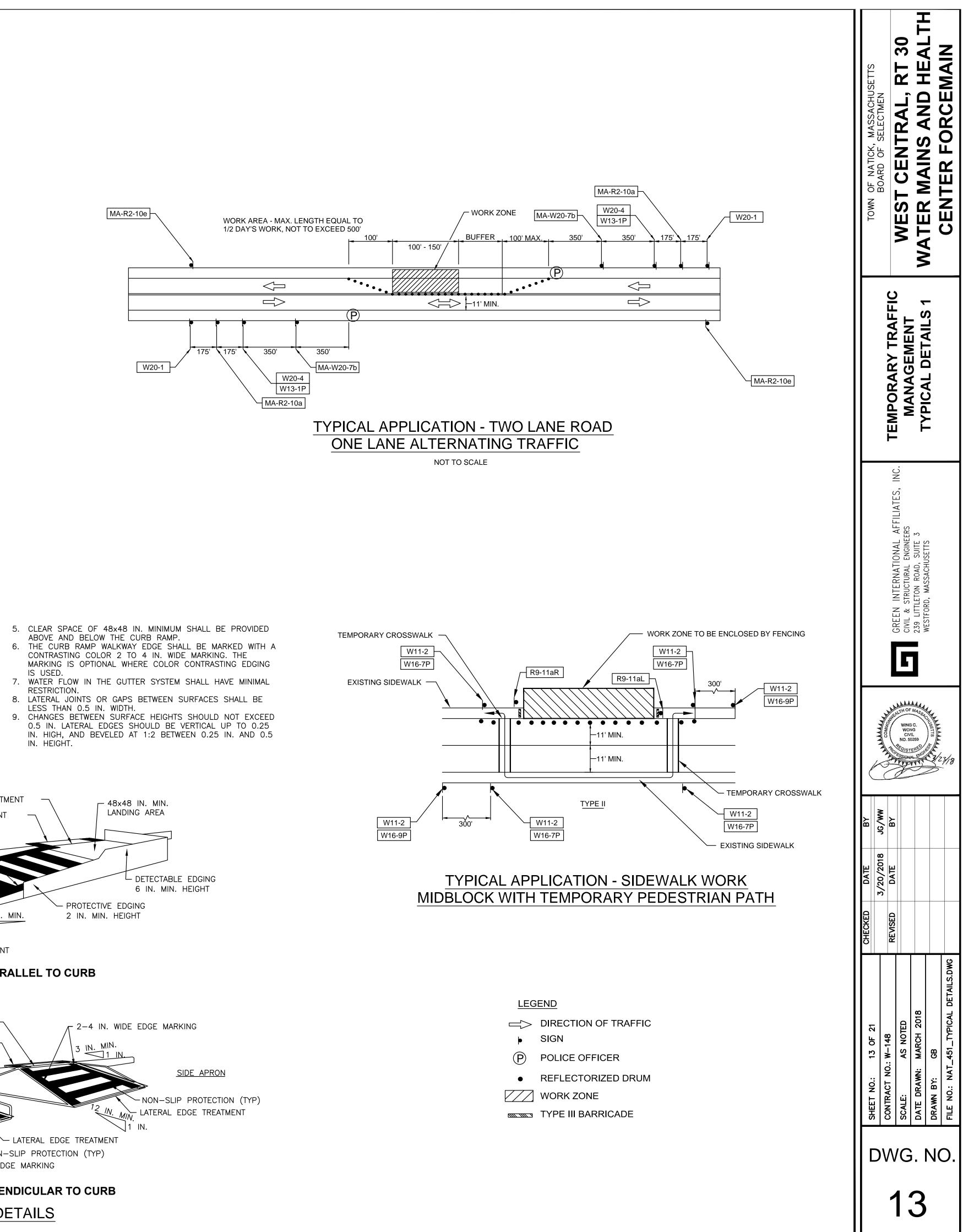
IS USED.

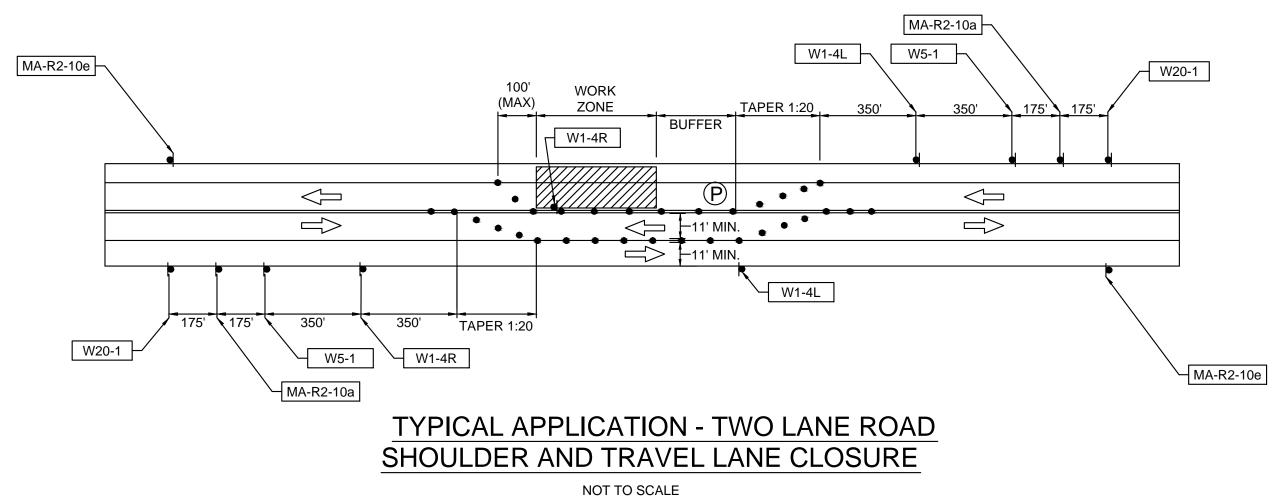
**RESTRICTION** 

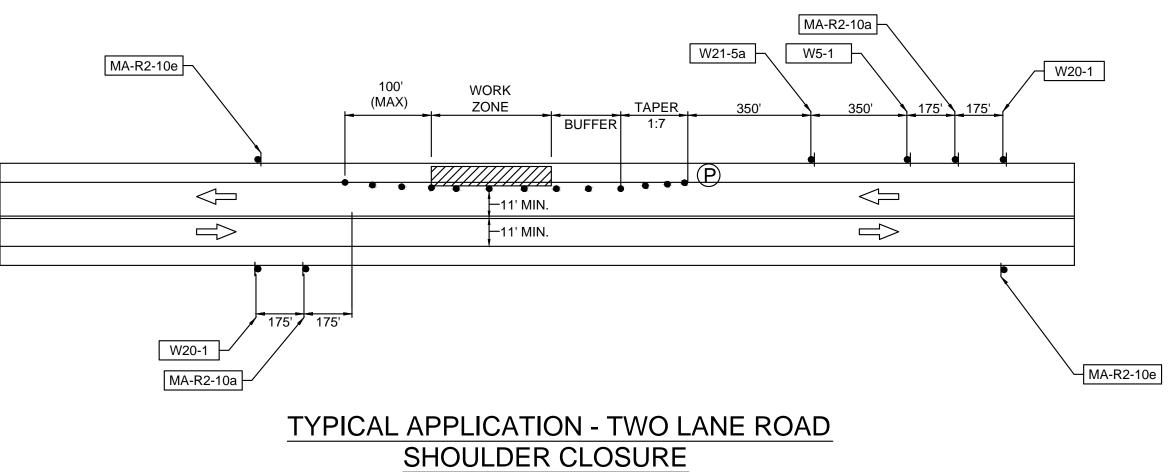
IN. HEIGHT.

JOINT/GAP TREATMENT

LATERAL EDGE TREATMENT

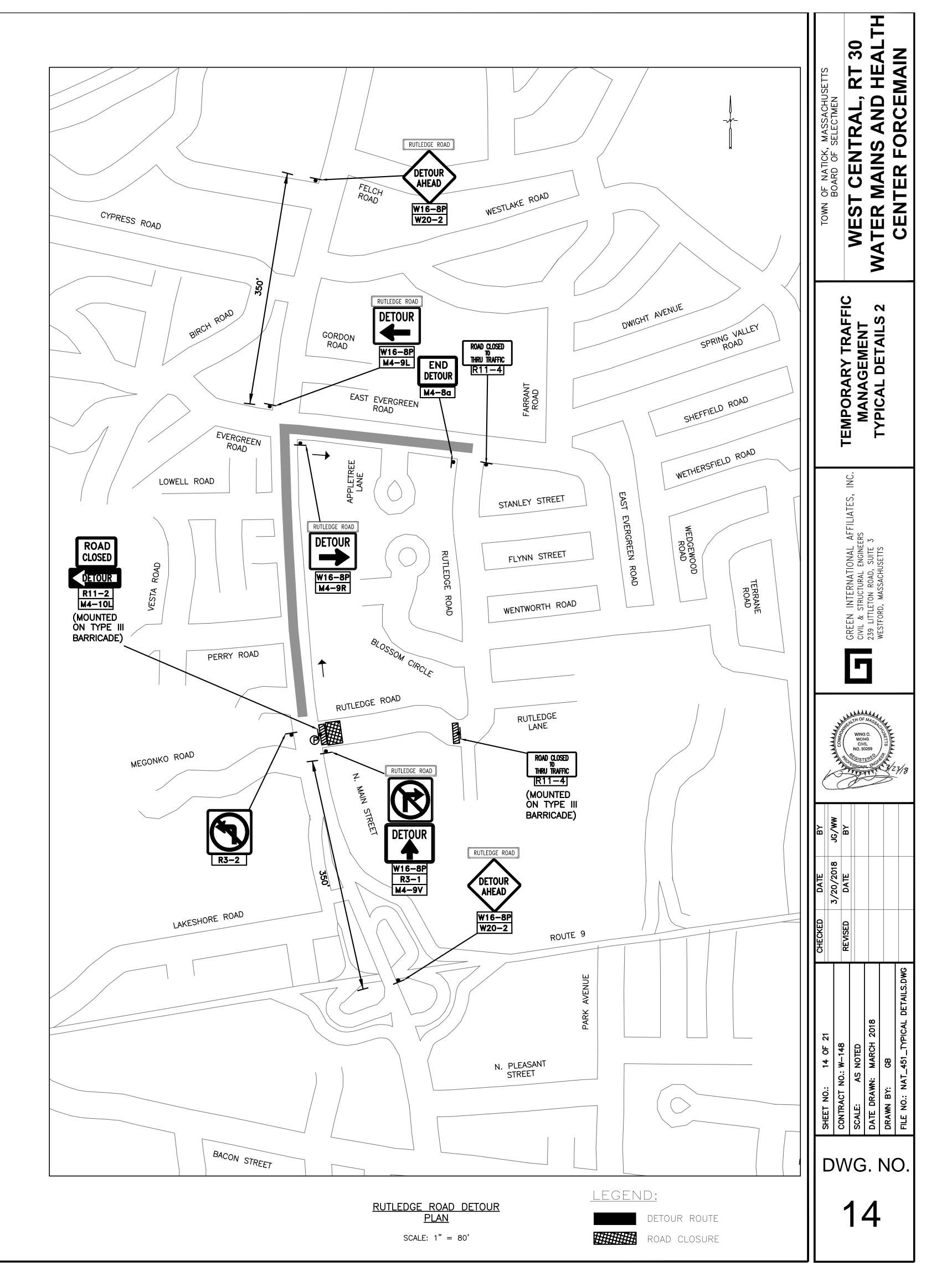


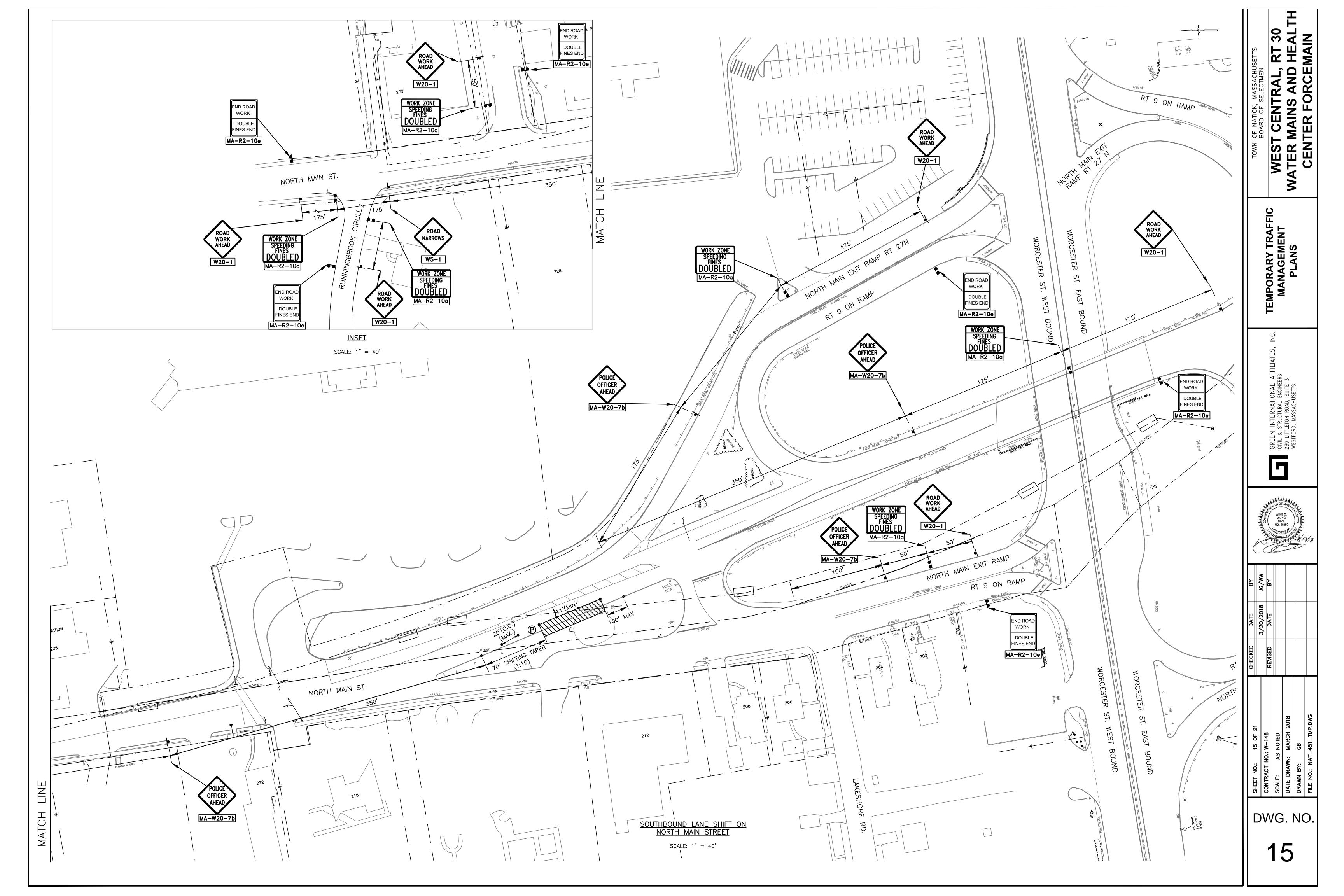


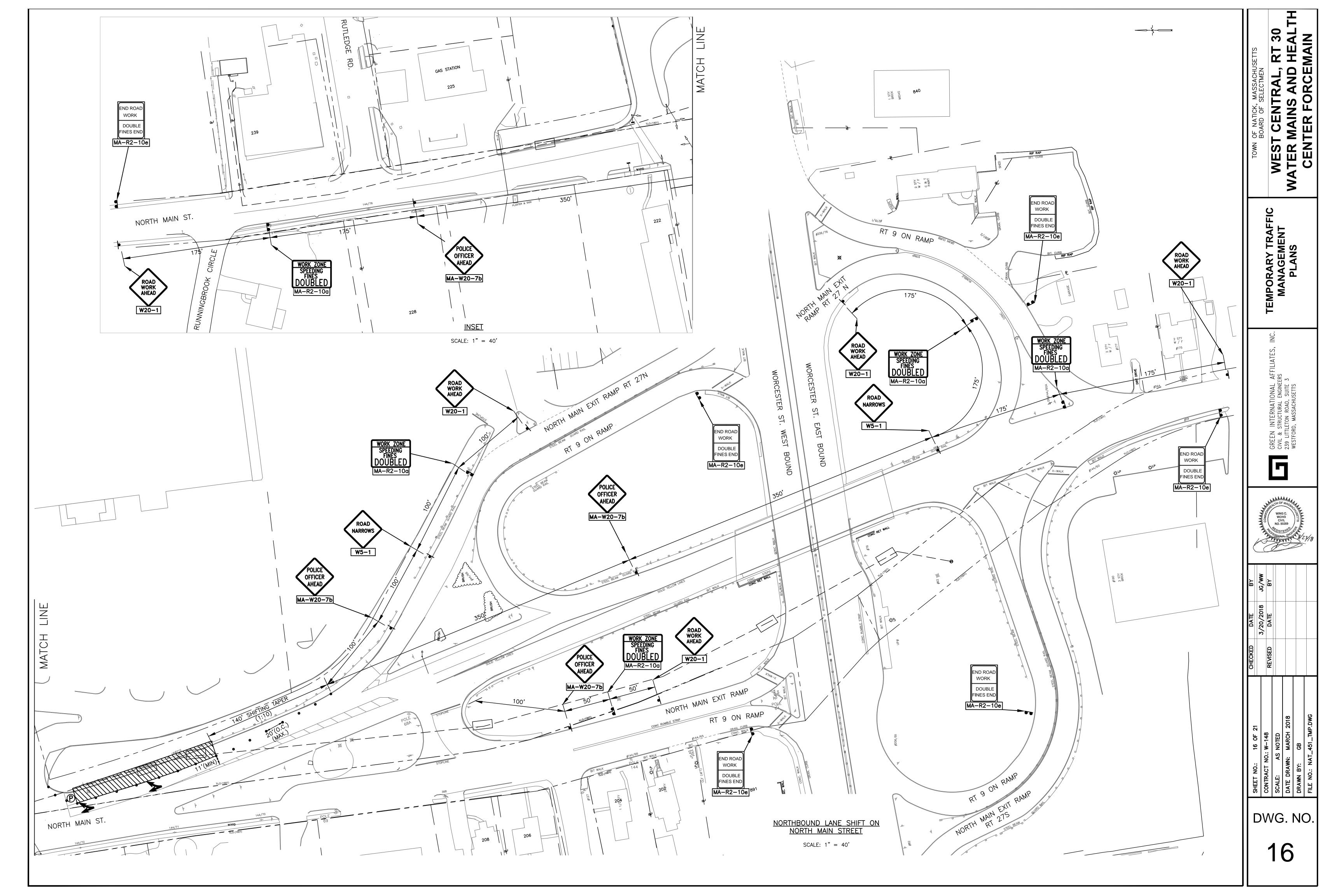


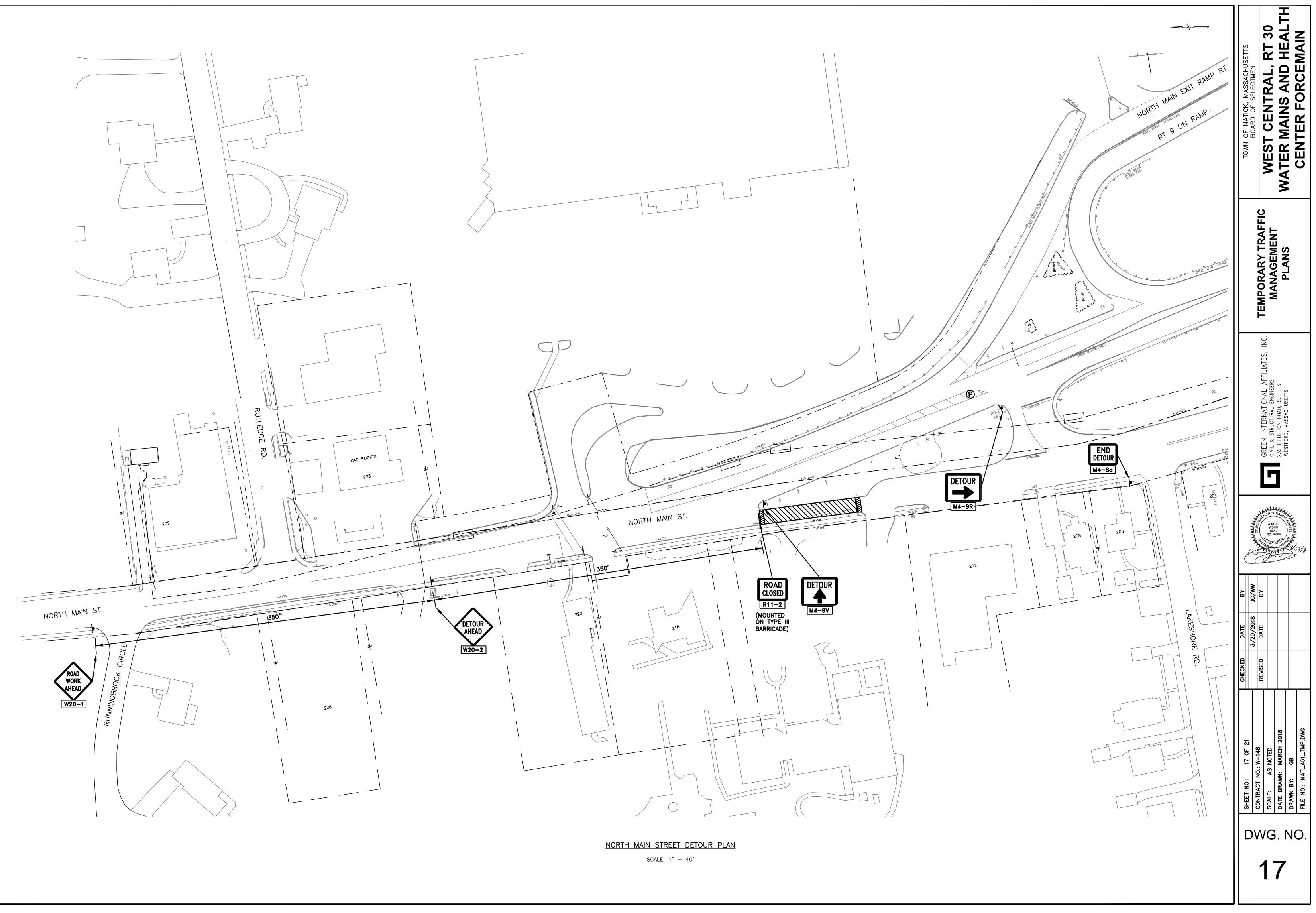
NOT TO SCALE

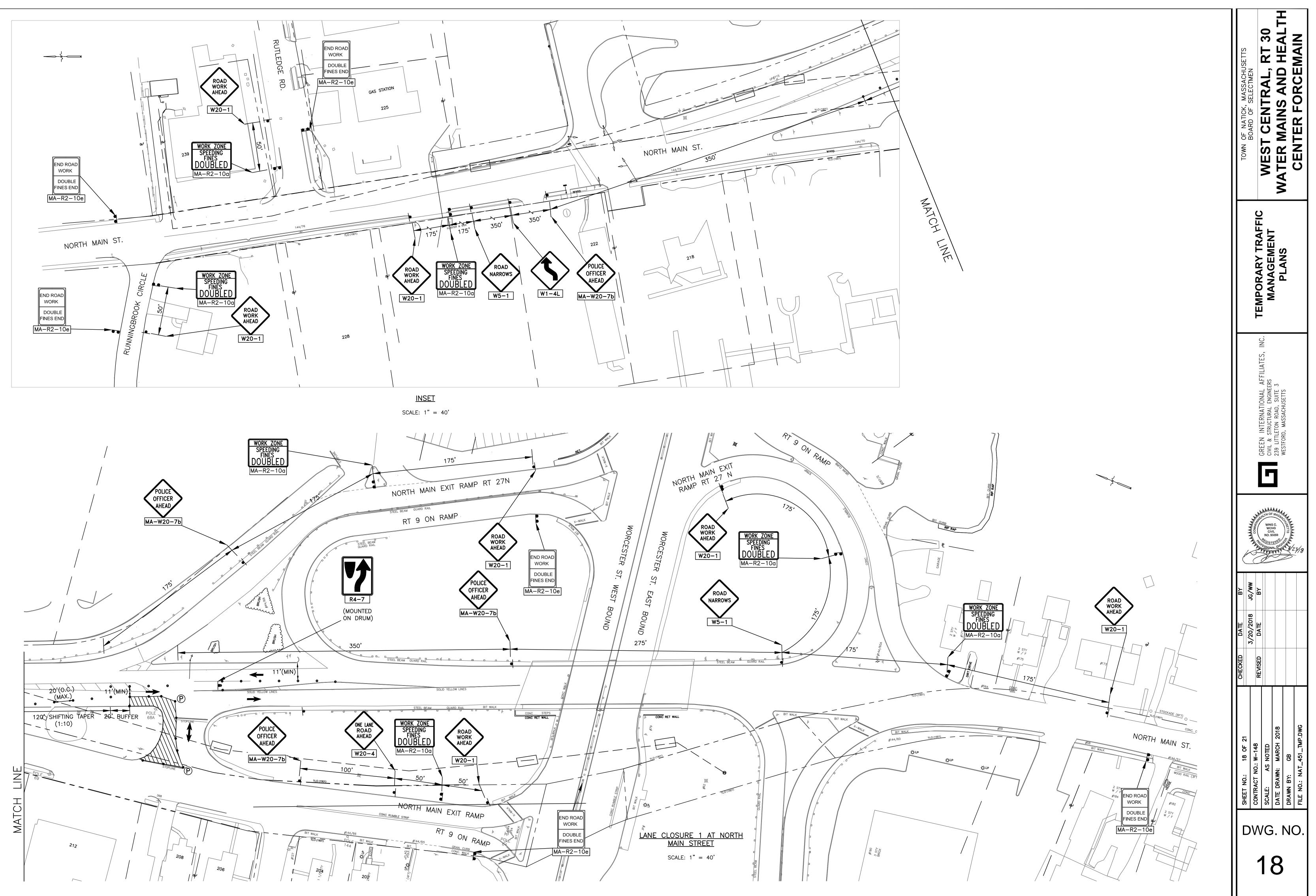


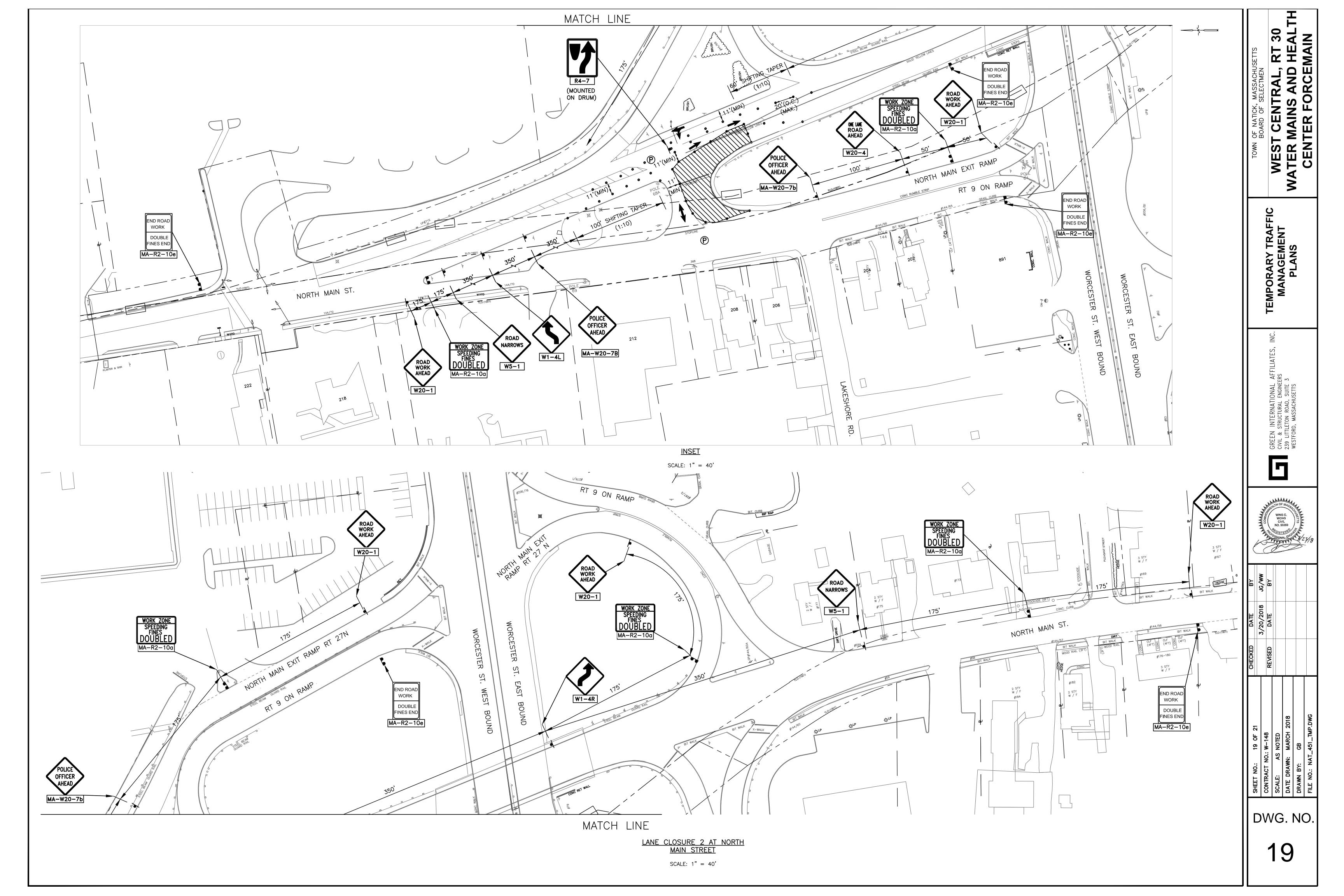


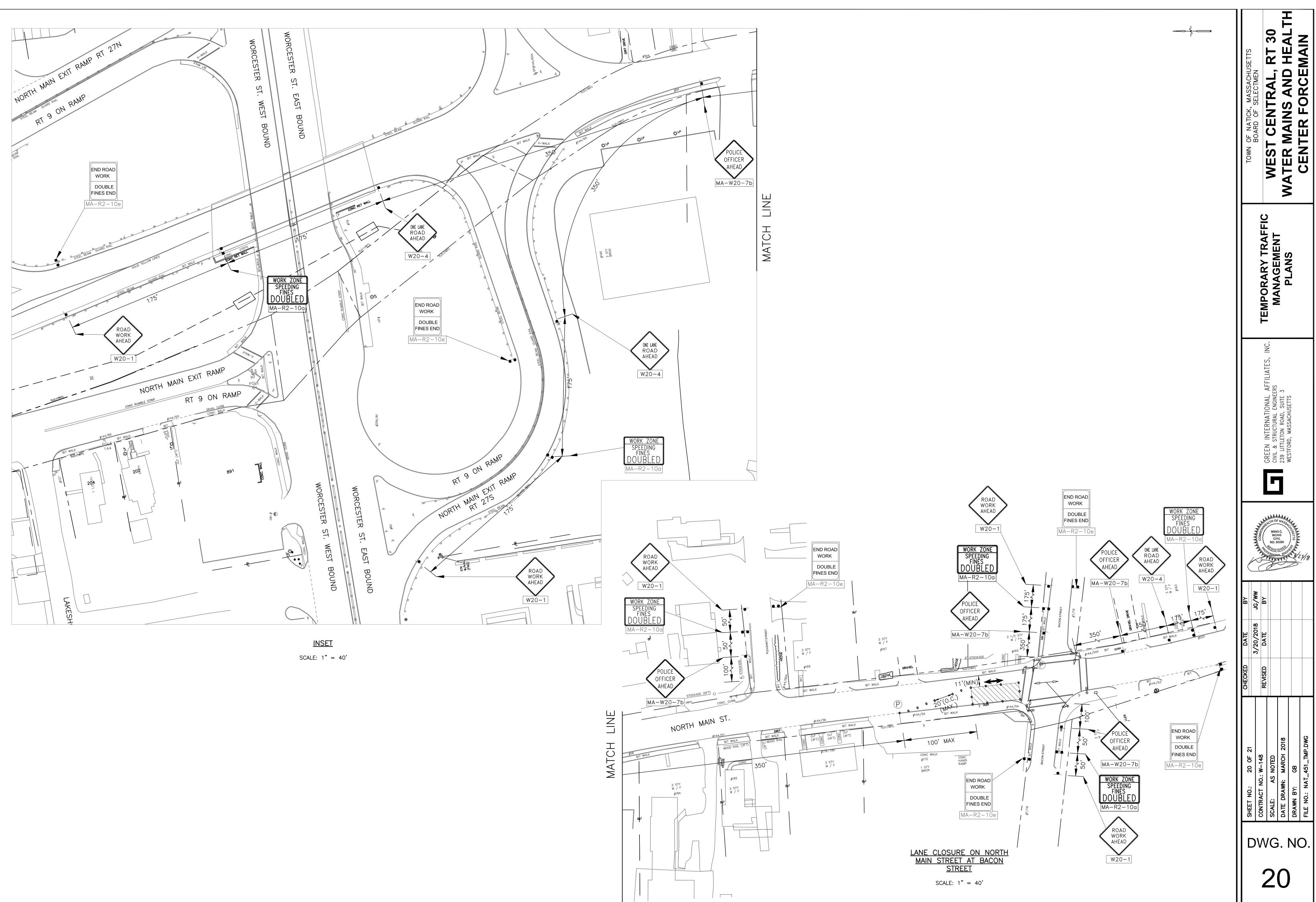


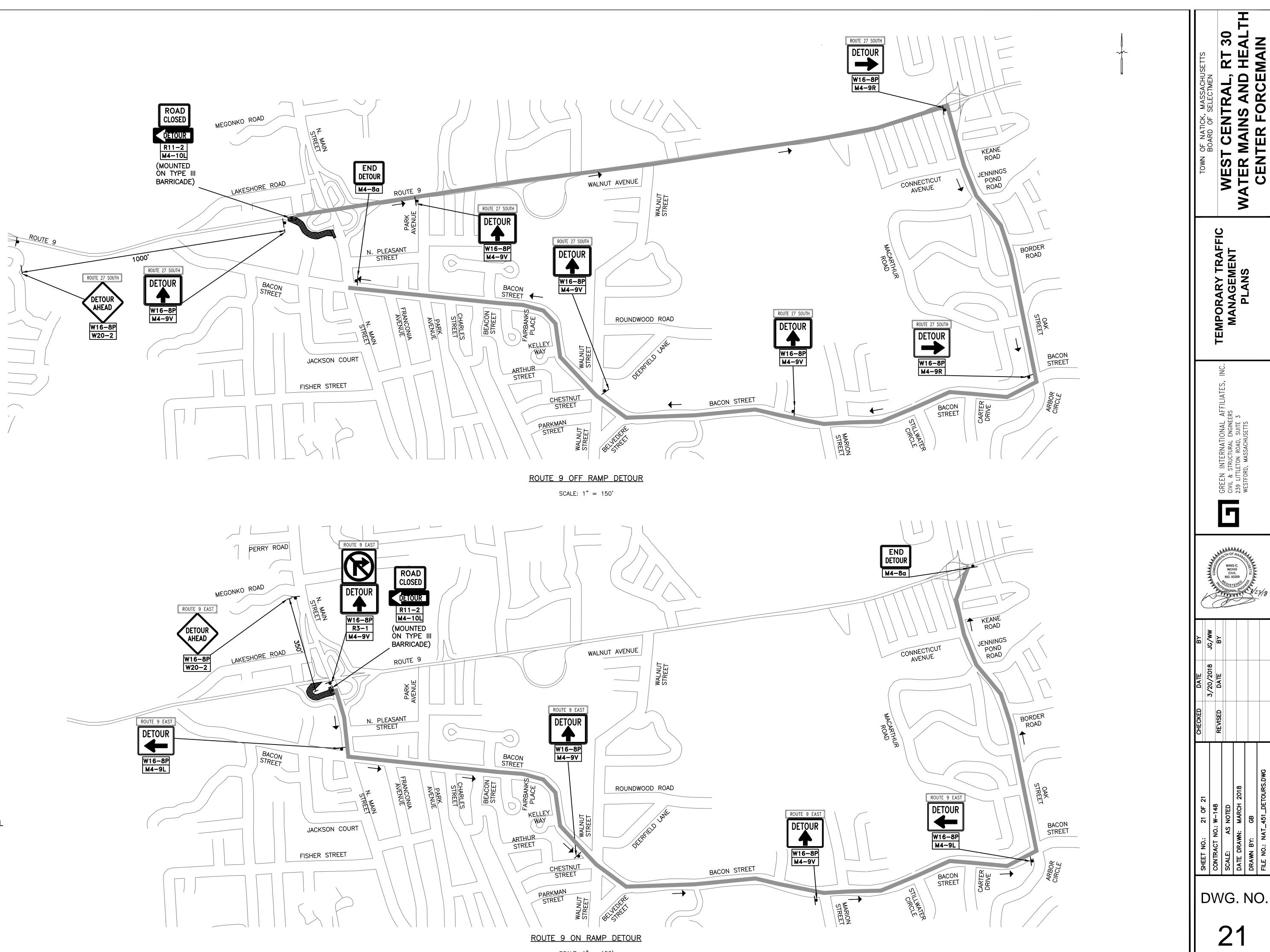














#### <u>NOTE:</u>

WORK ON THIS SHEET SHALL BE DONE DURING NIGHT HOURS.



DETOUR ROUTE ROAD CLOSURE

SCALE: 1" = 150'

ITEM TITLE: Lookout Farm Site Visit ITEM SUMMARY: