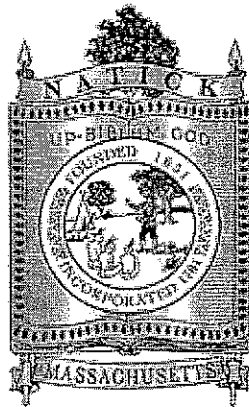


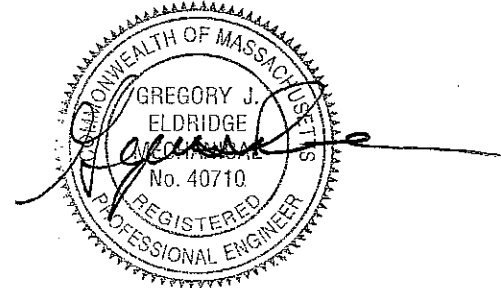
**Town of Natick**  
**Invitation for Bids**  
**Contract No. W-148**  
**Bid**

**WEST CENTRAL, ROUTE 30 WATER MAINS AND  
HEALTH CENTER FORCEMAIN**



**SEALED BIDS will be received at the Procurement Office by:**

**Date:** Thursday, April 19, 2018  
**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 THURSDAY, APRIL 19, 2018, at 11:00 A.M. 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 "BID FOR CONTRACT NO. W-148 WEST CENTRAL, ROUTE 30 WATER MAINS AND HEALTH CENTER FORCEMAIN."

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](mailto: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 WEDNESDAY, MARCH 28, 2018.

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 Bid 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  
Board of Selectmen  
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

CONTRACT NO. W-148  
WEST CENTRAL, ROUTE 30 WATER MAINS  
AND HEALTH CENTER FORCEMAIN

INSTRUCTIONS TO BIDDERS

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## 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 Wednesday, April 19, 2018, at 11:00 A.M., 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 "Bid 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 Bid.

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, 2018.



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, March 28, 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 nonrefundable 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 temporary 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 Bid 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 Bid 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 Bid 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 sub-contractors will be favorably considered by the OWNER, and each Bidder shall include in the space provided in the Bid, 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 after the time specified will not 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 Bid. 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 one hundred percent (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.

**16. 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.

**18. 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 There are 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 is 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 is 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 fourth of July, due to parade.

19.8 For this project, substantially complete shall be considered when all water mains are on-line 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 Notwithstanding 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 Notwithstanding 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 Bid. 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 Bid 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 Bid 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 four hundred and twenty (420) consecutive calendar days thereafter, and will be fully completed within five hundred and twenty (520) consecutive calendar days unless an extension of time is granted. Bidder further agrees to pay as liquidated damages, the sum of Four Hundred Dollars (\$400.00) for each consecutive calendar day thereafter 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

<u>ITEM NO.</u>	<u>DESCRIPTION</u>	<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 5% of the Total Bid)	= \$ _____
2.	For Below Grade Excavation, the unit price of  _____ (Unit Price in Words)  per cubic yards for an estimated quantity of  <u>125 c.y.</u> 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.</u> x \$ _____ (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 \$ _____	= \$ _____



(Unit Price in Figures)

5. For Process Gravel, the unit price of

\_\_\_\_\_  
(Unit Price in Words)

per cubic yards for an estimated quantity of

$$\underline{2,150 \text{ c.y.}} \times \$ \underline{\hspace{2cm}} = \$ \underline{\hspace{2cm}}$$

(Unit Price in Figures)

6. For Ordinary Borrow, the unit price of

\_\_\_\_\_  
(Unit Price in Words)

per cubic yard for an estimated quantity of

$$\underline{1,725 \text{ c.y.}} \times \$ \underline{\hspace{2cm}} = \$ \underline{\hspace{2cm}}$$

(Unit Price in Figures)

7. For Select Borrow, the unit price of

\_\_\_\_\_  
(Unit Price in Words)

per cubic yard for an estimated quantity of

$$\underline{1,850 \text{ c.y.}} \times \$ \underline{\hspace{2cm}} = \$ \underline{\hspace{2cm}}$$

(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

$$\underline{950 \text{ c.y.}} \times \$ \underline{\hspace{2cm}} = \$ \underline{\hspace{2cm}}$$

(Unit Price in Figures)

9. For Temporary Trench Paving, the unit price of

\_\_\_\_\_  
(Unit Price in Words)

per ton for an estimated quantity of

$$\underline{450 \text{ tons}} \times \$ \underline{\hspace{2cm}} = \$ \underline{\hspace{2cm}}$$

(Unit Price in Figures)

10. For Temporary Pit Paving, the unit price of

\_\_\_\_\_  
(Unit Price in Words)

per ton for an estimated quantity of

55 tons x \$ \_\_\_\_\_ = \$ \_\_\_\_\_

11. 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)

12. For Permanent Pit Paving, the unit price of

\_\_\_\_\_  
(Unit Price in Words)

per ton for an estimated quantity of

315 tons. x \$ \_\_\_\_\_ = \$ \_\_\_\_\_  
(Unit Price in Figures)

13. 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)

14. For Bituminous Berm/Curb, the unit price of

\_\_\_\_\_  
(Unit Price in Words)

per linear foot for an estimated quantity of

875 l.f x \$ \_\_\_\_\_ = \$ \_\_\_\_\_  
(Unit Price in Figures)

15. For Granite Curb, the unit price of

\_\_\_\_\_  
(Unit Price in Words)

per linear foot for an estimated quantity of

750 l.f. x \$ \_\_\_\_\_ = \$ \_\_\_\_\_  
(Unit Price in Figures)

16. For Bituminous Sidewalk, the unit price of

\_\_\_\_\_  
(Unit Price in Words)

per linear foot for an estimated quantity of

110 l.f. x \$ \_\_\_\_\_ = \$ \_\_\_\_\_  
(Unit Price in Figures)

17. For Loam and Seed, the unit price of

\_\_\_\_\_  
(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

23 ea 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

- 4 ea. x \$ \_\_\_\_\_ = \$ \_\_\_\_\_  
(Unit Price in Figures)
20. For Solid Sleeves, the unit price of \_\_\_\_\_  
\_\_\_\_\_  
(Unit Price in Words)
- per each for an estimated quantity of
- 53 ea. x \$ \_\_\_\_\_ = \$ \_\_\_\_\_  
(Unit Price in Figures)
21. For Fittings, the unit price of \_\_\_\_\_  
\_\_\_\_\_  
(Unit Price in Words)
- per pounds for an estimated quantity of
- 5,300 lbs x \$ \_\_\_\_\_ = \$ \_\_\_\_\_  
(Unit Price in Figures)
22. For Temporary Water Service, the lump sum price of \_\_\_\_\_  
\_\_\_\_\_  
(Unit Price in Words)
23. For Trenchless Water Service 2-Inch & Smaller, the unit price of \_\_\_\_\_  
\_\_\_\_\_  
(Unit Price in Words)
- per linear foot for an estimated quantity of
- 180 l.f. x \$ \_\_\_\_\_ = \$ \_\_\_\_\_  
(Unit Price in Figures)
24. For Open Cut Water Service 2-Inch & Smaller, the unit price of \_\_\_\_\_  
\_\_\_\_\_  
(Unit Price in Words)
- per linear foot for an estimated quantity of
- 460 l.f. x \$ \_\_\_\_\_ = \$ \_\_\_\_\_  
(Unit Price in Figures)
25. For Open Cut Water Service 6-Inch & Smaller, the unit price of \_\_\_\_\_  
\_\_\_\_\_

(Unit Price in Words)

per linear foot for an estimated quantity of

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

22 ea. x \$ \_\_\_\_\_ = \$ \_\_\_\_\_  
(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

3 ea. x \$ \_\_\_\_\_ = \$ \_\_\_\_\_  
(Unit Price in Figures)

28. For Hydrant Assemblies (WC South Side & Frost Street), the unit price of

\_\_\_\_\_  
(Unit Price in Words)

per each for an estimated quantity of

5 ea. x \$ \_\_\_\_\_ = \$ \_\_\_\_\_  
(Unit Price in Figures)

29. For Furnishing Hydrants, the unit price of

\_\_\_\_\_  
(Unit Price in Words)

per each for an estimated quantity of

12 ea. x \$ \_\_\_\_\_ = \$ \_\_\_\_\_  
(Unit Price in Figures)

30. Bursting 6-Inch and 10-Inch C.I. Pipe, the unit price of

(Unit Price in Words)

per linear foot for an estimated quantity of

4,790 l.f. x \$ \_\_\_\_\_ = \$ \_\_\_\_\_

(Unit Price in Figures)

31. For 6-Inch Ductile Iron Pipe, the unit price of
- \_\_\_\_\_
- (Unit Price in Words)
- per linear foot for an estimated quantity of
- 50 l.f. x \$ \_\_\_\_\_ = \$ \_\_\_\_\_
- (Unit Price in Figures)

32. 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 l.f. x \$ \_\_\_\_\_ = \$ \_\_\_\_\_
- (Unit Price in Figures)

33. For 12-Inch Ductile Iron Pipe, the unit price of
- \_\_\_\_\_
- (Unit Price in Words)
- per linear foot for an estimated quantity of
- 120 l.f. x \$ \_\_\_\_\_ = \$ \_\_\_\_\_
- (Unit Price in Figures)

34. For 8-Inch Sliplining Frost Street, the unit price of
- \_\_\_\_\_
- (Unit Price in Words)
- per linear foot for an estimated quantity of
- 345 l.f. x \$ \_\_\_\_\_ = \$ \_\_\_\_\_
- (Unit Price in Figures)

35. For 12-Inch Sliplining North Main Street, the unit price of

\_\_\_\_\_  
(Unit Price in Words)

per linear foot for an estimated quantity of

155 l.f. x \$ \_\_\_\_\_ = \$ \_\_\_\_\_  
(Unit Price in Figures)

36. For Inspection Pits, the unit price of

\_\_\_\_\_  
(Unit Price in Words)

per cubic yard for an estimated quantity of

75 c.y. x \$ \_\_\_\_\_ = \$ \_\_\_\_\_  
(Unit Price in Figures)

37. For Miscellaneous Pits, the unit price of

\_\_\_\_\_  
(Unit Price in Words)

per cubic yard for an estimated quantity of

35 c.y. x \$ \_\_\_\_\_ = \$ \_\_\_\_\_  
(Unit Price in Figures)

38. For Environmental Controls, the lump sum price of

\_\_\_\_\_  
(Lump Sum Price in Words)

39. 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

1,290 l.f. x \$ \_\_\_\_\_ = \$ \_\_\_\_\_  
(Unit Price in Figures)

40. 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

1,390 l.f. 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

2 ea. 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

340 l.f. x \$ \_\_\_\_\_ = \$ \_\_\_\_\_  
(Unit Price in Figures)

46. For Electronic Message Boards, the unit price of

\_\_\_\_\_



(Unit Price in Words)

per day for an estimated quantity of

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

2,800 l.f. x \$ \_\_\_\_\_ = \$ \_\_\_\_\_  
(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)

TOTAL 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.

STATEMENT OF EXPERIENCE: The undersigned as Bidder declares that he has successfully accomplished similar pipe bursting work in the following places:

1. 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 \_\_\_\_\_

2. 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 \_\_\_\_\_

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 \_\_\_\_\_

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 & 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 \_\_\_\_\_

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 Bid Deposit 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 awarding authority. The amount of such Bid Deposit shall be five percent (5%) of the value of the Bid. 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\_\_

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

## 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

I, \_\_\_\_\_ certify that I am the \_\_\_\_\_ of the corporation named as Bidder in the Bid included herein; that \_\_\_\_\_, who signed said Bid on behalf of the Bidder was then \_\_\_\_\_ of said corporation; that I know his signature; that his signature thereon is genuine and that said Bid was duly signed, sealed and executed for and in behalf of said corporation by authority of its governing 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

By: \_\_\_\_\_

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 Individual)

\_\_\_\_\_  
(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

\_\_\_\_\_ 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 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 \_\_\_\_\_  
Signature

\_\_\_\_\_  
Printed Name

\_\_\_\_\_  
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 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

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

<u>ITEM NO.</u>	<u>DESCRIPTION</u>	<u>QUANTITY</u>	<u>UNIT PRICE</u>	<u>AMOUNT</u>
1.	Mobilization	1 L.S.	\$ _____	\$ _____

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	\$ _____	\$ _____
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.	\$ _____	\$ _____
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.	\$ _____	\$ _____
20. Solid Sleeves	53	EA.	\$ _____	\$ _____
21. Fittings	5,300	LBS	\$ _____	\$ _____
22. Temporary Water Service	1	L.S.	\$ _____	\$ _____
23. Trenchless Water Service 2"	180	L.F.	\$ _____	\$ _____
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.	\$ _____	\$ _____
27. Hydrant Assemblies WC North Side	3	EA.	\$ _____	\$ _____
28. Hydrant Ass. WC South & Frost	5	EA	\$ _____	\$ _____
29. Furnishing Hydrants	12	EA.	\$ _____	\$ _____
30. Bursting 6" & 10" pipe	4,790	L.F.	\$ _____	\$ _____
31. For 6" DI Pipe	50	L.F.	\$ _____	\$ _____
32. For 8" and 10" DI Pipe	250	L.F.	\$ _____	\$ _____
33. For 12" DI Pipe	120	L.F.	\$ _____	\$ _____
34. For 8 inch Slipling Frost Street	345	L.F.	\$ _____	\$ _____
35. For 12 inch Slipling Frost Street	155	L.F.	\$ _____	\$ _____
36. For Inspection Pits	75	C.Y.	\$ _____	\$ _____
37. For Miscellaneous Pits	35	C.Y.	\$ _____	\$ _____
38. For Environmental Controls	1	L.S.	\$ _____	\$ _____
39. Open Cut 10" & 12" Pipe	1,290	L.F.	\$ _____	\$ _____
40. Open Cut 8" WC Water Mains	120	L.F.	\$ _____	\$ _____
41. Open Cut 8" Water Main Route 30	1,390	L.F.	\$ _____	\$ _____
42. Forcemain & Air Release SMH	1	L.S.	\$ _____	\$ _____
43. Forcemain Sewer Connections	2	EA.	\$ _____	\$ _____
44. For Sewer By-Pass	1	L.S.	\$ _____	\$ _____
45. For Drain Replacement	340	L.F.	\$ _____	\$ _____
46. For Electronic Message Board	90	Days	\$ _____	\$ _____
47. For Line Painting	2,800	L.F.	\$ _____	\$ _____
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 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 4.2 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

\_\_\_\_\_  
Printed Name of CONTRACTOR

The Natick Board of Selectmen

\_\_\_\_\_  
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



CONTRACT NO. W-148  
WEST CENTRAL, ROUTE 30 WATER MAINS  
AND HEALTH CENTER FORCEMAIN  
**CERTIFICATE OF CORPORATE AUTHORIZATION**

I, \_\_\_\_\_, Clerk of \_\_\_\_\_, a \_\_\_\_\_ corporation organized pursuant to \_\_\_\_\_ state law, which maintains its principal office at \_\_\_\_\_ hereby certify that at a meeting of the Board of Directors of \_\_\_\_\_ (the "Corporation") duly held on \_\_\_\_\_, \_\_\_\_\_, at which  
**(Date must be earlier than Lease)**

A quorum was present and voting throughout, the following vote was duly passed and is now in full force and effect:

"VOTED: That \_\_\_\_\_ be and hereby is

**(Name of Officer authorized to sign for Corporation)**

authorized, directed and empowered for, in the name and on behalf of this Corporation to sign seal with the corporate seal, execute, acknowledge and deliver all contracts, bonds and other obligations of the Corporation, with the Town of Natick, acting by and through the Town of Natick, Massachusetts, 13 East Central Street, Natick, MA 01760; the execution of any such contract, lease, bond or obligation by such

\_\_\_\_\_  
**(Name of Officer)** to be valid and binding upon this Corporation for all purposes, and that a certificate of the Clerk of this Corporation setting forth this vote shall be delivered to the Town of Natick.

I further certify that

\_\_\_\_\_  
**(Name of Officer)**

is duly elected \_\_\_\_\_ of said Corporation.

**(Title)**

Signed: \_\_\_\_\_

**Printed Name:**

**Printed Title:** (Clerk- Secretary)

Date: \_\_\_\_\_

Place of Business: \_\_\_\_\_

AFFIX CORPORATE SEAL

COUNTERSIGNATURE: \_\_\_\_\_

*(Name and Title of Officer)*

Date: \_\_\_\_\_

*In the event that the clerk or Secretary is the same person as the Officer authorized to sign that contract or other instrument for the Corporation, this certificate must be countersigned by another officer of the Corporation.*

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

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 \_\_\_\_\_, 2018, on or before \_\_\_\_\_, 2018. 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 one hundred and sixty (160) consecutive calendar days from Contract start on this form. You are to complete all West Central finish paving Work within three hundred and fifty (350) consecutive calendar days from the Contract start on this form. You are to substantially complete the Health Center forcemain Work within four hundred and twenty (420) consecutive calendar days from Contract start on this form. You are to complete all Health Center finish paving Work within five hundred and twenty (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: Town of Natick,  
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)

a \_\_\_\_\_hereinafter called PRINCIPAL and (Corporation, Partnership, or Individual)

\_\_\_\_\_  
(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)

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 \_\_\_\_\_ day of \_\_\_\_\_, 20 \_\_\_\_.

ATTEST:

\_\_\_\_\_  
Principal

\_\_\_\_\_  
(Principal Secretary)

(SEAL)(s)

By \_\_\_\_\_  
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.



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)

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)

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 \_\_\_\_\_ 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 one (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 \_\_\_\_.

ATTEST:

\_\_\_\_\_  
Principal

\_\_\_\_\_  
(Principal Secretary)

(SEAL)(s)

By \_\_\_\_\_  
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

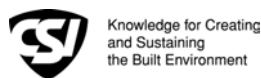
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The Associated General Contractors of America



Construction Specifications Institute

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1420 King Street, Alexandria, VA 22314

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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.

**→** Indicates a paragraph(s) has/have been inserted.

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## GENERAL CONDITIONS

### ARTICLE 1 - DEFINITIONS AND TERMINOLOGY

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#### 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.

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

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 adjectives "reasonable," "suitable," "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

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### 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.



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

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##### 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 *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

(unless such an interpretation of the provisions of the Contract Documents would result in violation of such Law or Regulation).

### 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 60-day 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.

#### 4.02 *Subsurface and Physical Conditions*

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 conclusions.~~

#### ~~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~~

~~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 anyone 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, 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 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 claims-made 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 mischief, earthquake, collapse, 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 certificates 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, partners, employees, agents, 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, partners, employees, 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 covering 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 circumstances. 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

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 appropriate agreement between Contractor and 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, 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 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, 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 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 Draw~~

~~ings 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~~

~~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

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### 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.

## 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 undisclosed 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

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### 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~~

~~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 claimed is the entire adjustment to which the claimant 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.

~~c. 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, expeditors, 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.

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;~~

~~c. 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

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### 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

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~~

~~c. 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~~

~~c. 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;~~

~~c. 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;~~

~~c. 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.c 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 certificate 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 certificate 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;~~

~~c. 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~~

~~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

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### 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);~~

~~2. 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 15.02.C.~~

#### ~~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~~

~~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 shall govern. In case of conflict between the provisions of the Contract Documents and the 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 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:	Addenda--later date to take precedence
Fourth Priority:	Supplementary General Conditions
Fifth Priority:	General Conditions
Sixth Priority:	Division 1, General Requirements
Seventh Priority:	Technical Specifications
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 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/Completed Operations	\$2,000,000.
3. Personal Injury	\$1,000,000.
4. Medical Expense	\$ 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
2. Employer's Liability  
Each Accident \$1,000,000.  
Disease Policy Limit \$1,000,000.  
Disease Each Employee \$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-B In paragraph 6.05-B of the General Conditions, in the sixth line, insert “in advance, in writing,” between “approved” and “by”.

SC 6.05-F Add the following language to the end of paragraph 6.05-F of the General 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. Chapter 149, 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, 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.

#### 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 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 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 certified thereon that an appropriation in the amount of such order is available therefore; but such certificate shall not be construed as an admission by the 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-12.01 In paragraph 12.01-A of the General Conditions, last line, delete "10.05" and insert in its place "10.03".

SC-12.01 Delete 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 Contractor proposes a Progress Schedule indicating a date of Substantial Completion which is earlier than the Contract Time, the Contractor shall not be entitled to additional payment or compensation of any kind if, for any reason, the full Contract Time is required to achieve Substantial Completion of the Work.

12.02-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, §39O 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 interest-bearing 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 Sub-subparagraph. A demand made after the first day of the month following that for which the Subcontractor performed or furnished the labor and materials for which the Subcontractor seeks payment shall be valid even if delivered or mailed prior to the time payment was due on a periodic estimate from the Contractor. Thereafter the 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 39O."

#### 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 administering 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, 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.

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  
**Contract Number:** 446 **City/Town:** NATICK  
**Description of Work:** Work for this project: install approx. 5,875 LF of 8" water main, open cut installation of 330 LF of 10" water main & 1675 LF of 12" sewer forcemain all through sliplining & pipe bursting.  
**Job Location:** West Central Street & Route 30

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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	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
<b>Construction</b>						
(2 AXLE) DRIVER - EQUIPMENT <i>TEAMSTERS JOINT COUNCIL NO. 10 ZONE B</i>	12/01/2016	\$32.15	\$10.91	\$10.89	\$0.00	\$53.95
(3 AXLE) DRIVER - EQUIPMENT <i>TEAMSTERS JOINT COUNCIL NO. 10 ZONE B</i>	12/01/2016	\$32.22	\$10.91	\$10.89	\$0.00	\$54.02
(4 & 5 AXLE) DRIVER - EQUIPMENT <i>TEAMSTERS JOINT COUNCIL NO. 10 ZONE B</i>	12/01/2016	\$32.34	\$10.91	\$10.89	\$0.00	\$54.14
ADS/SUBMERSIBLE PILOT <i>PILE DRIVER LOCAL 56 (ZONE 1)</i>	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
	08/01/2019	\$102.78	\$9.90	\$21.15	\$0.00	\$133.83
For apprentice rates see "Apprentice- PILE DRIVER"						
AIR TRACK OPERATOR <i>LABORERS - ZONE 2</i>	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
	12/01/2021	\$40.60	\$7.70	\$13.60	\$0.00	\$61.90
For apprentice rates see "Apprentice- LABORER"						
ASBESTOS REMOVER - PIPE / MECH. EQUIPT. <i>HEAT &amp; FROST INSULATORS LOCAL 6 (BOSTON)</i>	12/01/2017	\$35.90	\$11.50	\$7.10	\$0.00	\$54.50
	06/01/2018	\$36.90	\$11.50	\$7.10	\$0.00	\$55.50
	12/01/2018	\$37.90	\$11.50	\$7.10	\$0.00	\$56.50
	06/01/2019	\$38.90	\$11.50	\$7.10	\$0.00	\$57.50
	12/01/2019	\$39.90	\$11.50	\$7.10	\$0.00	\$58.50
	06/01/2020	\$40.90	\$11.50	\$7.10	\$0.00	\$59.50
	12/01/2020	\$41.90	\$11.50	\$7.10	\$0.00	\$60.50
ASPHALT RAKER <i>LABORERS - ZONE 2</i>	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
	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 <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2017	\$46.63	\$10.50	\$15.50	\$0.00	\$72.63
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
BACKHOE/FRONT-END LOADER <i>OPERATING ENGINEERS LOCAL 4</i>	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 <i>LABORERS - ZONE 2</i>	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
	12/01/2021	\$40.10	\$7.70	\$13.60	\$0.00	\$61.40
For apprentice rates see "Apprentice- LABORER"						
BLOCK PAVER, RAMMER / CURB SETTER <i>LABORERS - ZONE 2</i>	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
	12/01/2021	\$40.60	\$7.70	\$13.60	\$0.00	\$61.90
For apprentice rates see "Apprentice- LABORER"						
BOILER MAKER <i>BOILERMAKERS LOCAL 29</i>	01/01/2017	\$42.92	\$6.97	\$16.21	\$0.00	\$66.10

**Apprentice - BOILERMAKER - Local 29**

**Effective Date - 01/01/2017**

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

**Notes:**

**Apprentice to Journeyworker Ratio:1:5**

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
BRICK/STONE/ARTIFICIAL MASONRY (INCL. MASONRY WATERPROOFING) <i>BRICKLAYERS LOCAL 3 (LOWELL)</i>	03/01/2018	\$49.96	\$10.75	\$19.43	\$0.00	\$80.14
	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**

**Effective Date - 03/01/2018**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental 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

**Effective Date - 08/01/2018**

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

**Notes:**

**Apprentice to Journeyworker Ratio:1:5**

BULLDOZER/GRADER/SCRAPER <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2017	\$46.17	\$10.50	\$15.50	\$0.00	\$72.17
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
CAISSON & UNDERPINNING BOTTOM MAN <i>LABORERS - FOUNDATION AND MARINE</i>	12/01/2017	\$38.60	\$7.70	\$14.95	\$0.00	\$61.25
	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 <i>LABORERS - FOUNDATION AND MARINE</i>	12/01/2017	\$37.45	\$7.70	\$14.95	\$0.00	\$60.10
	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 <i>LABORERS - FOUNDATION AND MARINE</i>	12/01/2017	\$37.45	\$7.70	\$14.95	\$0.00	\$60.10
	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 <i>LABORERS - ZONE 2</i>	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
	12/01/2021	\$40.10	\$7.70	\$13.60	\$0.00	\$61.40
For apprentice rates see "Apprentice- LABORER"						
CARPENTER <i>CARPENTERS -ZONE 2 (Eastern Massachusetts)</i>	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

**Classification**
**Effective Date**
**Base Wage**
**Health**
**Pension**
**Supplemental  
Unemployment**
**Total Rate**
**Apprentice - CARPENTER - Zone 2 Eastern MA**
**Effective Date - 03/01/2018**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental 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

**Effective Date - 09/01/2018**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental 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:**

% Indentured After 10/1/17; 45/45/55/55/70/70/80/80  
Step 1&2 \$29.76/ 3&4 \$35.45/ 5&6 \$52.14/ 7&8 \$57.89

**Apprentice to Journeyworker Ratio:1:5**

CARPENTER WOOD FRAME	10/01/2017	\$26.25	\$7.07	\$7.86	\$0.00	\$41.18
CARPENTERS -ZONE 2 (Wood Frame)	04/01/2018	\$26.67	\$7.07	\$7.86	\$0.00	\$41.60
	10/01/2018	\$27.09	\$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.

**Classification**
**Effective Date**
**Base Wage**
**Health**
**Pension**
**Supplemental  
Unemployment**
**Total Rate**
**Apprentice - CARPENTER (Wood Frame) - Zone 2**
**Effective Date - 10/01/2017**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental 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

**Effective Date - 04/01/2018**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental 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
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

**Notes:**

% Indentured After 10/1/17; 45/45/55/55/70/70/80/80  
Step 1&2 \$18.88/ 3&4 \$26.26/ 5&6 \$33.31/ 7&8 \$35.93

**Apprentice to Journeyworker Ratio:1:5**

CARPENTER WOOD FRAME (All Other Work) CARPENTERS -ZONE 2 (Wood Frame)	06/01/2016	\$25.32	\$9.80	\$16.82	\$0.00	\$51.94
CEMENT MASONRY/PLASTERING BRICKLAYERS LOCAL 3 (LOWELL)	01/01/2018	\$41.67	\$12.35	\$22.41	\$0.30	\$76.73
	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

**Classification**

**Effective Date   Base Wage   Health   Pension   Supplemental Unemployment   Total Rate**

**Apprentice - CEMENT MASONRY/PLASTERING - Lowell**
**Effective Date - 01/01/2018**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental 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	\$29.17	\$12.35	\$19.41	\$0.30	\$61.23
5	75	\$31.25	\$12.35	\$20.41	\$0.30	\$64.31
6	80	\$33.34	\$12.35	\$21.41	\$0.30	\$67.40
7	90	\$37.50	\$12.35	\$22.41	\$0.30	\$72.56

**Effective Date - 07/01/2018**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental 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:**

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

**Apprentice to Journeyworker Ratio:1:3**

CHAIN SAW 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"						
CLAM SHELLS/SLURRY BUCKETS/HEADING MACHINES	12/01/2017	\$47.63	\$10.50	\$15.50	\$0.00	\$73.63
OPERATING ENGINEERS LOCAL 4						
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
COMPRESSOR OPERATOR	12/01/2017	\$31.80	\$10.50	\$15.50	\$0.00	\$57.80
OPERATING ENGINEERS LOCAL 4						
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
DELEADER (BRIDGE)	01/01/2017	\$51.41	\$7.85	\$16.10	\$0.00	\$75.36
PAINTERS LOCAL 35 - ZONE 2						

**Apprentice - PAINTER Local 35 - BRIDGES/TANKS**

**Effective Date - 01/01/2017**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$25.71	\$7.85	\$0.00	\$0.00	\$33.56
2	55	\$28.28	\$7.85	\$3.66	\$0.00	\$39.79
3	60	\$30.85	\$7.85	\$3.99	\$0.00	\$42.69
4	65	\$33.42	\$7.85	\$4.32	\$0.00	\$45.59
5	70	\$35.99	\$7.85	\$14.11	\$0.00	\$57.95
6	75	\$38.56	\$7.85	\$14.44	\$0.00	\$60.85
7	80	\$41.13	\$7.85	\$14.77	\$0.00	\$63.75
8	90	\$46.27	\$7.85	\$15.44	\$0.00	\$69.56

**Notes:**

Steps are 750 hrs.

**Apprentice to Journeyworker Ratio:1:1**

DEMO: ADZEMAN	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"

DEMO: BACKHOE/LOADER/HAMMER OPERATOR	12/01/2017	\$38.65	\$7.70	\$14.75	\$0.00	\$61.10
LABORERS - ZONE 2	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
	12/01/2019	\$42.55	\$7.70	\$14.75	\$0.00	\$65.00

For apprentice rates see "Apprentice- LABORER"

DEMO: BURNERS	12/01/2017	\$38.40	\$7.70	\$14.75	\$0.00	\$60.85
LABORERS - ZONE 2	06/01/2018	\$39.35	\$7.70	\$14.75	\$0.00	\$61.80
	12/01/2018	\$40.30	\$7.70	\$14.75	\$0.00	\$62.75
	06/01/2019	\$41.30	\$7.70	\$14.75	\$0.00	\$63.75
	12/01/2019	\$42.30	\$7.70	\$14.75	\$0.00	\$64.75

For apprentice rates see "Apprentice- LABORER"

DEMO: CONCRETE CUTTER/SAWYER	12/01/2017	\$38.65	\$7.70	\$14.75	\$0.00	\$61.10
LABORERS - ZONE 2	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
	12/01/2019	\$42.55	\$7.70	\$14.75	\$0.00	\$65.00

For apprentice rates see "Apprentice- LABORER"

DEMO: JACKHAMMER OPERATOR	12/01/2017	\$38.40	\$7.70	\$14.75	\$0.00	\$60.85
LABORERS - ZONE 2	06/01/2018	\$39.35	\$7.70	\$14.75	\$0.00	\$61.80
	12/01/2018	\$40.30	\$7.70	\$14.75	\$0.00	\$62.75
	06/01/2019	\$41.30	\$7.70	\$14.75	\$0.00	\$63.75
	12/01/2019	\$42.30	\$7.70	\$14.75	\$0.00	\$64.75

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	12/01/2017	\$46.17	\$10.50	\$15.50	\$0.00	\$72.17
OPERATING ENGINEERS LOCAL 4						
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	08/01/2017	\$44.27	\$9.90	\$21.15	\$0.00	\$75.32
PILE DRIVER LOCAL 56 (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)	08/01/2017	\$66.41	\$9.90	\$21.15	\$0.00	\$97.46
PILE DRIVER LOCAL 56 (ZONE 1)	08/01/2018	\$69.86	\$9.90	\$21.15	\$0.00	\$100.91
	08/01/2019	\$73.41	\$9.90	\$21.15	\$0.00	\$104.46
For apprentice rates see "Apprentice- PILE DRIVER"						
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



**Classification**

Effective Date    Base Wage    Health    Pension    Supplemental  
Unemployment    Total Rate

**Apprentice - ELECTRICIAN - Local 103**
**Effective Date - 03/01/2018**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental 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

**Effective Date - 09/01/2018**

Step	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: :**

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

**Apprentice to Journeyworker Ratio:2:3\*\*\***

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

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
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**Apprentice - ELEVATOR CONSTRUCTOR - Local 4**

**Effective Date - 01/01/2017**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$27.93	\$15.28	\$0.00	\$0.00	\$43.21
2	55	\$30.72	\$15.28	\$15.71	\$0.00	\$61.71
3	65	\$36.31	\$15.28	\$15.71	\$0.00	\$67.30
4	70	\$39.10	\$15.28	\$15.71	\$0.00	\$70.09
5	80	\$44.69	\$15.28	\$15.71	\$0.00	\$75.68

**Notes:**

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

**Apprentice to Journeyworker Ratio:1:1**

ELEVATOR CONSTRUCTOR HELPER <i>ELEVATOR CONSTRUCTORS LOCAL 4</i>	01/01/2017	\$39.10	\$15.28	\$15.71	\$0.00	\$70.09
For apprentice rates see "Apprentice - ELEVATOR CONSTRUCTOR"						
FENCE & GUARD RAIL ERECTOR <i>LABORERS - ZONE 2</i>	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
	12/01/2021	\$40.10	\$7.70	\$13.60	\$0.00	\$61.40
For apprentice rates see "Apprentice- LABORER"						
FIELD ENG.INST.PERSON-BLDG,SITE,HVY/HWY <i>OPERATING ENGINEERS LOCAL 4</i>	11/01/2017	\$42.88	\$10.00	\$15.25	\$0.00	\$68.13
	05/01/2018	\$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>OPERATING ENGINEERS LOCAL 4</i>	11/01/2017	\$44.34	\$10.00	\$15.25	\$0.00	\$69.59
	05/01/2018	\$45.06	\$10.00	\$15.25	\$0.00	\$70.31
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
FIELD ENG.ROD PERSON-BLDG,SITE,HVY/HWY <i>OPERATING ENGINEERS LOCAL 4</i>	11/01/2017	\$22.83	\$10.00	\$15.25	\$0.00	\$48.08
	05/01/2018	\$23.26	\$10.00	\$15.25	\$0.00	\$48.51
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
FIRE ALARM INSTALLER <i>ELECTRICIANS LOCAL 103</i>	03/01/2018	\$50.15	\$13.00	\$17.85	\$0.00	\$81.00
	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"						
FIRE ALARM REPAIR / MAINTENANCE / COMMISSIONING <i>ELECTRICIANS LOCAL 103</i>	03/01/2018	\$37.61	\$13.00	\$15.93	\$0.00	\$66.54
	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
For apprentice rates see "Apprentice- TELECOMMUNICATIONS TECHNICIAN"						
FIREMAN (ASST. ENGINEER) <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2017	\$38.57	\$10.50	\$15.50	\$0.00	\$64.57
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
FLAGGER & SIGNALER <i>LABORERS - ZONE 2</i>	12/01/2017	\$21.50	\$7.70	\$13.60	\$0.00	\$42.80
	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
	12/01/2021	\$24.50	\$7.70	\$13.60	\$0.00	\$45.80
For apprentice rates see "Apprentice- LABORER"						
FLOORCOVERER <i>FLOORCOVERERS LOCAL 2168 ZONE 1</i>	03/01/2016	\$42.13	\$9.80	\$17.62	\$0.00	\$69.55

**Apprentice - FLOORCOVERER - Local 2168 Zone 1**

**Effective Date -** 03/01/2016

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

**Notes:** Steps are 750 hrs.  
 % After 09/1/17; 45/45/55/55/70/70/80/80 (1500hr Steps)  
 Step 1&2 \$30.55/ 3&4 \$36.49/ 5&6 \$53.33/ 7&8 \$59.33

**Apprentice to Journeyworker Ratio:1:1**

FORK LIFT/CHERRY PICKER <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2017	\$46.63	\$10.50	\$15.50	\$0.00	\$72.63
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
GENERATOR/LIGHTING PLANT/HEATERS <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2017	\$31.80	\$10.50	\$15.50	\$0.00	\$57.80
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
GLAZIER (GLASS PLANK/AIR BARRIER/INTERIOR SYSTEMS) <i>GLAZIERS LOCAL 35 (ZONE 2)</i>	01/01/2017	\$40.91	\$7.85	\$16.10	\$0.00	\$64.86

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
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**Apprentice - GLAZIER - Local 35 Zone 2**

**Effective Date -** 01/01/2017

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental 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.

**Apprentice to Journeyworker Ratio:1:1**

HOISTING ENGINEER/CRANES/GRADALLS OPERATING ENGINEERS LOCAL 4	12/01/2017	\$46.63	\$10.50	\$15.50	\$0.00	\$72.63
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**Apprentice - OPERATING ENGINEERS - Local 4**

**Effective Date -** 12/01/2017

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental 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:**

**Apprentice to Journeyworker Ratio:1:6**

HVAC (DUCTWORK) SHEETMETAL WORKERS LOCAL 17 - A	02/01/2018	\$44.11	\$12.20	\$24.12	\$2.41	\$82.84
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For apprentice rates see "Apprentice- SHEET METAL WORKER"

HVAC (ELECTRICAL CONTROLS) ELECTRICIANS LOCAL 103	03/01/2018	\$50.15	\$13.00	\$17.85	\$0.00	\$81.00
	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"

HVAC (TESTING AND BALANCING - AIR) SHEETMETAL WORKERS LOCAL 17 - A	02/01/2018	\$44.11	\$12.20	\$24.12	\$2.41	\$82.84
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For apprentice rates see "Apprentice- SHEET METAL WORKER"

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
HVAC (TESTING AND BALANCING -WATER) <i>PIPEFITTERS LOCAL 537</i>	03/01/2017	\$51.19	\$9.70	\$18.14	\$0.00	\$79.03
For apprentice rates see "Apprentice- PIPEFITTER" or "PLUMBER/PIPEFITTER"						
HVAC MECHANIC <i>PIPEFITTERS LOCAL 537</i>	03/01/2017	\$51.19	\$9.70	\$18.14	\$0.00	\$79.03
For apprentice rates see "Apprentice- PIPEFITTER" or "PLUMBER/PIPEFITTER"						
HYDRAULIC DRILLS <i>LABORERS - ZONE 2</i>	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"						
INSULATOR (PIPES & TANKS) <i>HEAT &amp; FROST INSULATORS LOCAL 6 (BOSTON)</i>	09/01/2017	\$47.09	\$11.75	\$14.20	\$0.00	\$73.04
	09/01/2018	\$49.34	\$11.75	\$14.20	\$0.00	\$75.29
	09/01/2019	\$51.84	\$11.75	\$14.20	\$0.00	\$77.79

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

**Effective Date -** 09/01/2017

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$23.55	\$11.75	\$10.45	\$0.00	\$45.75
2	60	\$28.25	\$11.75	\$11.20	\$0.00	\$51.20
3	70	\$32.96	\$11.75	\$11.95	\$0.00	\$56.66
4	80	\$37.67	\$11.75	\$12.70	\$0.00	\$62.12

**Effective Date -** 09/01/2018

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental 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

**Apprentice to Journeyworker Ratio:1:4**

IRONWORKER/WELDER <i>IRONWORKERS LOCAL 7 (BOSTON AREA)</i>	03/16/2017	\$44.65	\$7.80	\$20.85	\$0.00	\$73.30
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**Classification**

**Effective Date    Base Wage    Health    Pension    Supplemental  
Unemployment    Total Rate**

**Apprentice - IRONWORKER - Local 7 Boston**

**Effective Date - 03/16/2017**

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

**Notes:**

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

**Apprentice to Journeyworker Ratio:\*\***

JACKHAMMER & PAVING BREAKER OPERATOR	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	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

**Classification**
**Effective Date**
**Base Wage**
**Health**
**Pension**
**Supplemental  
Unemployment**
**Total Rate**
**Apprentice - LABORER - Zone 2**
**Effective 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

**Effective Date - 06/01/2018**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental 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:**
**Apprentice to Journeyworker Ratio:1:5**
**LABORER: CARPENTER TENDER**
*LABORERS - ZONE 2*

12/01/2017	\$32.83	\$7.70	\$13.60	\$0.00	\$54.13
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

For apprentice rates see "Apprentice- LABORER"

**LABORER: CEMENT FINISHER TENDER**
*LABORERS - ZONE 2*

12/01/2017	\$32.83	\$7.70	\$13.60	\$0.00	\$54.13
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

For apprentice rates see "Apprentice- LABORER"

**LABORER: HAZARDOUS WASTE/ASBESTOS REMOVER**
*LABORERS - ZONE 2*

12/01/2017	\$33.03	\$7.70	\$13.55	\$0.00	\$54.28
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
12/01/2019	\$36.44	\$7.70	\$13.55	\$0.00	\$57.69

For apprentice rates see "Apprentice- LABORER"

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
LABORER: MASON TENDER <i>LABORERS - ZONE 2</i>	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
	12/01/2021	\$40.10	\$7.70	\$13.60	\$0.00	\$61.40
For apprentice rates see "Apprentice- LABORER"						
LABORER: MULTI-TRADE TENDER <i>LABORERS - ZONE 2</i>	12/01/2017	\$32.83	\$7.70	\$13.60	\$0.00	\$54.13
	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
For apprentice rates see "Apprentice- LABORER"						
LABORER: TREE REMOVER <i>LABORERS - ZONE 2</i>	12/01/2017	\$32.83	\$7.70	\$13.60	\$0.00	\$54.13
	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
This classification applies to all tree work associated with the removal of standing trees, and trimming and removal of branches and limbs when the work is not done for a utility company for the purpose of operation, maintenance or repair of utility company equipment. For apprentice rates see "Apprentice- LABORER"						
LASER BEAM OPERATOR <i>LABORERS - ZONE 2</i>	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
	12/01/2021	\$40.10	\$7.70	\$13.60	\$0.00	\$61.40
For apprentice rates see "Apprentice- LABORER"						



Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
MARBLE & TILE FINISHERS <i>BRICKLAYERS LOCAL 3 - MARBLE &amp; TILE</i>	02/01/2018	\$39.82	\$10.75	\$18.34	\$0.00	\$68.91
	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**

**Effective Date -** 02/01/2018

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental 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

Step	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

**Notes:**

**Apprentice to Journeyworker Ratio:1:3**

MARBLE MASONS, TILELAYERS & TERRAZZO MECH <i>BRICKLAYERS LOCAL 3 - MARBLE &amp; TILE</i>	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

**Classification**
**Effective Date**
**Base Wage**
**Health**
**Pension**
**Supplemental  
Unemployment**
**Total Rate**
**Apprentice - MARBLE-TILE-TERRAZZO MECHANIC - Local 3 Marble & Tile**
**Effective Date - 02/01/2018**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$26.05	\$10.75	\$20.03	\$0.00	\$56.83
2	60	\$31.26	\$10.75	\$20.03	\$0.00	\$62.04
3	70	\$36.47	\$10.75	\$20.03	\$0.00	\$67.25
4	80	\$41.68	\$10.75	\$20.03	\$0.00	\$72.46
5	90	\$46.89	\$10.75	\$20.03	\$0.00	\$77.67

**Effective Date - 08/01/2018**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$26.73	\$10.75	\$20.16	\$0.00	\$57.64
2	60	\$32.07	\$10.75	\$20.16	\$0.00	\$62.98
3	70	\$37.42	\$10.75	\$20.16	\$0.00	\$68.33
4	80	\$42.76	\$10.75	\$20.16	\$0.00	\$73.67
5	90	\$48.11	\$10.75	\$20.16	\$0.00	\$79.02

**Notes:**
**Apprentice to Journeyworker Ratio:1:5**

MECH. SWEEPER OPERATOR (ON CONST. SITES) OPERATING ENGINEERS LOCAL 4	12/01/2017	\$46.17	\$10.50	\$15.50	\$0.00	\$72.17
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
MECHANICS MAINTENANCE OPERATING ENGINEERS LOCAL 4	12/01/2017	\$46.17	\$10.50	\$15.50	\$0.00	\$72.17
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
MILLWRIGHT (Zone 2) MILLWRIGHTS LOCAL 1121 - Zone 2	10/01/2017	\$36.32	\$9.90	\$18.50	\$0.00	\$64.72
	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

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
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**Apprentice - MILLWRIGHT - Local 1121 Zone 2**

**Effective Date -** 10/01/2017

Step	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

**Effective Date -** 04/01/2018

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental 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

**Apprentice to Journeyworker Ratio:1:5**

MORTAR MIXER 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
	12/01/2021	\$40.10	\$7.70	\$13.60	\$0.00	\$61.40
For apprentice rates see "Apprentice- LABORER"						
OILER (OTHER THAN TRUCK CRANES,GRADALLS) OPERATING ENGINEERS LOCAL 4	12/01/2017	\$23.24	\$10.50	\$15.50	\$0.00	\$49.24
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
OILER (TRUCK CRANES, GRADALLS) OPERATING ENGINEERS LOCAL 4	12/01/2017	\$27.40	\$10.50	\$15.50	\$0.00	\$53.40
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
OTHER POWER DRIVEN EQUIPMENT - CLASS II OPERATING ENGINEERS LOCAL 4	12/01/2017	\$46.17	\$10.50	\$15.50	\$0.00	\$72.17
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
PAINTER (BRIDGES/TANKS) PAINTERS LOCAL 35 - ZONE 2	01/01/2017	\$51.41	\$7.85	\$16.10	\$0.00	\$75.36

**Apprentice - PAINTER Local 35 - BRIDGES/TANKS****Effective Date -** 01/01/2017

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$25.71	\$7.85	\$0.00	\$0.00	\$33.56
2	55	\$28.28	\$7.85	\$3.66	\$0.00	\$39.79
3	60	\$30.85	\$7.85	\$3.99	\$0.00	\$42.69
4	65	\$33.42	\$7.85	\$4.32	\$0.00	\$45.59
5	70	\$35.99	\$7.85	\$14.11	\$0.00	\$57.95
6	75	\$38.56	\$7.85	\$14.44	\$0.00	\$60.85
7	80	\$41.13	\$7.85	\$14.77	\$0.00	\$63.75
8	90	\$46.27	\$7.85	\$15.44	\$0.00	\$69.56

**Notes:**

Steps are 750 hrs.

**Apprentice to Journeyworker Ratio:1:1**

PAINTER (SPRAY OR SANDBLAST, NEW) *	01/01/2017	\$42.31	\$7.85	\$16.10	\$0.00	\$66.26
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\* If 30% or more of surfaces to be painted are new construction,

NEW paint rate shall be used. *PAINTERS LOCAL 35 - ZONE 2***Apprentice - PAINTER Local 35 Zone 2 - Spray/Sandblast - New****Effective Date -** 01/01/2017

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental 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 are 750 hrs.

**Apprentice to Journeyworker Ratio:1:1**

PAINTER (SPRAY OR SANDBLAST, REPAINT)	01/01/2017	\$40.37	\$7.85	\$16.10	\$0.00	\$64.32
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*PAINTERS LOCAL 35 - ZONE 2*

**Apprentice - PAINTER Local 35 Zone 2 - Spray/Sandblast - Repaint****Effective Date -** 01/01/2017

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental 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
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

**Notes:**

Steps are 750 hrs.

**Apprentice to Journeyworker Ratio:1:1**

PAINTER (TRAFFIC MARKINGS)

LABORERS - ZONE 2

12/01/2017	\$32.83	\$7.70	\$13.60	\$0.00	\$54.13
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

For Apprentice rates see "Apprentice- LABORER"

PAINTER / TAPER (BRUSH, NEW) \*

\* If 30% or more of surfaces to be painted are new construction,  
NEW paint rate shall be used. PAINTERS LOCAL 35 - ZONE 2

01/01/2017	\$40.91	\$7.85	\$16.10	\$0.00	\$64.86
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Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
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**Apprentice - PAINTER - Local 35 Zone 2 - BRUSH NEW**

**Effective Date -** 01/01/2017

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental 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.

**Apprentice to Journeyworker Ratio:1:1**

PAINTER / TAPER (BRUSH, REPAINT)	01/01/2017	\$38.97	\$7.85	\$16.10	\$0.00	\$62.92
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PAINTERS LOCAL 35 - ZONE 2

**Apprentice - PAINTER Local 35 Zone 2 - BRUSH REPAINT**

**Effective Date -** 01/01/2017

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$19.49	\$7.85	\$0.00	\$0.00	\$27.34
2	55	\$21.43	\$7.85	\$3.66	\$0.00	\$32.94
3	60	\$23.38	\$7.85	\$3.99	\$0.00	\$35.22
4	65	\$25.33	\$7.85	\$4.32	\$0.00	\$37.50
5	70	\$27.28	\$7.85	\$14.11	\$0.00	\$49.24
6	75	\$29.23	\$7.85	\$14.44	\$0.00	\$51.52
7	80	\$31.18	\$7.85	\$14.77	\$0.00	\$53.80
8	90	\$35.07	\$7.85	\$15.44	\$0.00	\$58.36

**Notes:**

Steps are 750 hrs.

**Apprentice to Journeyworker Ratio:1:1**

PANEL & PICKUP TRUCKS DRIVER	12/01/2012	\$30.28	\$9.07	\$8.00	\$0.00	\$47.35
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TEAMSTERS JOINT COUNCIL NO. 10 ZONE B

PIER AND DOCK CONSTRUCTOR (UNDERPINNING AND DECK)	08/01/2017	\$44.27	\$9.90	\$21.15	\$0.00	\$75.32
PILE DRIVER LOCAL 56 (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"

PILE DRIVER	08/01/2017	\$44.27	\$9.90	\$21.15	\$0.00	\$75.32
PILE DRIVER LOCAL 56 (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

**Apprentice - PILE DRIVER - Local 56 Zone 1****Effective Date - 08/01/2017**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental 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

**Effective Date - 08/01/2018**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
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

**Notes:****Apprentice to Journeyworker Ratio:1:5**

PIPEFITTER &amp; STEAMFITTER

03/01/2017

\$51.19

\$9.70

\$18.14

\$0.00

\$79.03

PIPEFITTERS LOCAL 537

**Apprentice - PIPEFITTER - Local 537****Effective Date - 03/01/2017**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	\$20.48	\$9.70	\$7.50	\$0.00	\$37.68
2	45	\$23.04	\$9.70	\$18.14	\$0.00	\$50.88
3	60	\$30.71	\$9.70	\$18.14	\$0.00	\$58.55
4	70	\$35.83	\$9.70	\$18.14	\$0.00	\$63.67
5	80	\$40.95	\$9.70	\$18.14	\$0.00	\$68.79

**Notes:**

\*\* 1:3; 3:15; 1:10 thereafter / Steps are 1 yr.

Refrig/AC Mechanic \*\*1:1;1:2;2:4;3:6;4:8;5:10;6:12;7:14;8:17;9:20;10:23(Max)

**Apprentice to Journeyworker Ratio:\*\***

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

Effective Date - 03/01/2018

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental 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

Effective Date - 09/01/2018

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental 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 1 yr  
Step4 with lic\$61.00, Step5 with lic\$67.99

Apprentice to Journeyworker Ratio:\*\*

PNEUMATIC CONTROLS (TEMP.)	03/01/2017	\$51.19	\$9.70	\$18.14	\$0.00	\$79.03
PIPEFITTERS LOCAL 537						

For apprentice rates see "Apprentice- PIPEFITTER" or "PLUMBER/PIPEFITTER"



Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
PNEUMATIC DRILL/TOOL OPERATOR <i>LABORERS - ZONE 2</i>	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
	12/01/2021	\$40.10	\$7.70	\$13.60	\$0.00	\$61.40
For apprentice rates see "Apprentice- LABORER"						
POWDERMAN & BLASTER <i>LABORERS - ZONE 2</i>	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 <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2017	\$46.63	\$10.50	\$15.50	\$0.00	\$72.63
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
PUMP OPERATOR (CONCRETE) <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2017	\$46.63	\$10.50	\$15.50	\$0.00	\$72.63
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
PUMP OPERATOR (DEWATERING, OTHER) <i>OPERATING ENGINEERS LOCAL 4</i>	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 <i>TEAMSTERS LOCAL 25c</i>	07/01/2017	\$29.48	\$8.48	\$9.72	\$0.00	\$47.68
RECLAIMERS <i>OPERATING ENGINEERS LOCAL 4</i>	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 <i>LABORERS - ZONE 2</i>	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
	12/01/2021	\$40.10	\$7.70	\$13.60	\$0.00	\$61.40
For apprentice rates see "Apprentice- LABORER"						
ROLLER/SPREADER/MULCHING MACHINE <i>OPERATING ENGINEERS LOCAL 4</i>	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.Roofing Waterproofing &Roofing Damproofg) <i>ROOFERS LOCAL 33</i>	02/01/2018	\$42.36	\$11.35	\$14.80	\$0.00	\$68.51
	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

**Apprentice - ROOFER - Local 33**

**Effective Date -** 02/01/2018

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental 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

**Effective Date -** 08/01/2018

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental 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  
Step 1 is 2000 hrs.; Steps 2-5 are 1000 hrs.  
(Hot Pitch Mechanics' receive \$1.00 hr. above ROOFER)

**Apprentice to Journeyworker Ratio:\*\***

ROOFER SLATE / TILE / PRECAST CONCRETE <i>ROOFERS LOCAL 33</i>	02/01/2018	\$42.61	\$11.35	\$14.80	\$0.00	\$68.76
	08/01/2018	\$43.71	\$11.35	\$14.80	\$0.00	\$69.86
	02/01/2019	\$44.86	\$11.35	\$14.80	\$0.00	\$71.01
For apprentice rates see "Apprentice- ROOFER"						
SHEETMETAL WORKER <i>SHEETMETAL WORKERS LOCAL 17 - A</i>	02/01/2018	\$44.11	\$12.20	\$24.12	\$2.41	\$82.84

**Classification**
**Effective Date**
**Base Wage**
**Health**
**Pension**
**Supplemental  
Unemployment**
**Total Rate**
**Apprentice - SHEET METAL WORKER - Local 17-A**
**Effective Date - 02/01/2018**

Step	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.

**Apprentice to Journeyworker Ratio:1:4**

SIGN ERECTOR

PAINTERS LOCAL 35 - ZONE 2

06/01/2013

\$25.81

\$7.07

\$7.05

\$0.00

\$39.93

**Apprentice - SIGN ERECTOR - Local 35 Zone 2**
**Effective Date - 06/01/2013**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$12.91	\$7.07	\$0.00	\$0.00	\$19.98
2	55	\$14.20	\$7.07	\$2.45	\$0.00	\$23.72
3	60	\$15.49	\$7.07	\$2.45	\$0.00	\$25.01
4	65	\$16.78	\$7.07	\$2.45	\$0.00	\$26.30
5	70	\$18.07	\$7.07	\$7.05	\$0.00	\$32.19
6	75	\$19.36	\$7.07	\$7.05	\$0.00	\$33.48
7	80	\$20.65	\$7.07	\$7.05	\$0.00	\$34.77
8	85	\$21.94	\$7.07	\$7.05	\$0.00	\$36.06
9	90	\$23.23	\$7.07	\$7.05	\$0.00	\$37.35

**Notes:**

Steps are 4 mos.

**Apprentice to Journeyworker Ratio:1:1**

SPECIALIZED EARTH MOVING EQUIP &lt; 35 TONS

TEAMSTERS JOINT COUNCIL NO. 10 ZONE B

12/01/2016

\$32.44

\$10.91

\$10.89

\$0.00

\$54.24

SPECIALIZED EARTH MOVING EQUIP &gt; 35 TONS

TEAMSTERS JOINT COUNCIL NO. 10 ZONE B

12/01/2016

\$32.73

\$10.91

\$10.89

\$0.00

\$54.53

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
SPRINKLER FITTER	03/01/2018	\$57.78	\$9.12	\$18.15	\$0.00	\$85.05
<i>SPRINKLER FITTERS LOCAL 550 - (Section A) Zone 1</i>	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

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental 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

**Effective Date -** 10/01/2018

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
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

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

**Apprentice to Journeyworker Ratio:1:3**

STEAM BOILER OPERATOR	12/01/2017	\$46.17	\$10.50	\$15.50	\$0.00	\$72.17
<i>OPERATING ENGINEERS LOCAL 4</i>						
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
TAMPERS, SELF-PROPELLED OR TRACTOR DRAWN	12/01/2017	\$46.17	\$10.50	\$15.50	\$0.00	\$72.17
<i>OPERATING ENGINEERS LOCAL 4</i>						
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						

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
<i>ELECTRICIANS LOCAL 103</i>	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

**Apprentice - TELECOMMUNICATION TECHNICIAN - Local 103**

**Effective Date - 03/01/2018**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental 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

**Effective Date - 09/01/2018**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental 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:**

**Apprentice to Journeyworker Ratio:1:1**

TERRAZZO FINISHERS	02/01/2018	\$51.00	\$10.75	\$20.03	\$0.00	\$81.78
<i>BRICKLAYERS LOCAL 3 - MARBLE &amp; TILE</i>	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

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
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**Apprentice - TERRAZZO FINISHER - Local 3 Marble & Tile**

**Effective Date -** 02/01/2018

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental 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
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:**

**Apprentice to Journeyworker Ratio:1:3**

TEST BORING DRILLER	12/01/2017	\$38.85	\$7.70	\$14.95	\$0.00	\$61.50
LABORERS - FOUNDATION AND MARINE	06/01/2018	\$39.80	\$7.70	\$14.95	\$0.00	\$62.45
	12/01/2018	\$40.75	\$7.70	\$14.95	\$0.00	\$63.40
	06/01/2019	\$41.75	\$7.70	\$14.95	\$0.00	\$64.40
	12/01/2019	\$42.75	\$7.70	\$14.95	\$0.00	\$65.40
	06/01/2020	\$43.74	\$7.70	\$14.95	\$0.00	\$66.39
	12/01/2020	\$44.72	\$7.70	\$14.95	\$0.00	\$67.37
	06/01/2021	\$45.74	\$7.70	\$14.95	\$0.00	\$68.39
	12/01/2021	\$46.75	\$7.70	\$14.95	\$0.00	\$69.40

For apprentice rates see "Apprentice- LABORER"

TEST BORING DRILLER HELPER	12/01/2017	\$37.57	\$7.70	\$14.95	\$0.00	\$60.22
LABORERS - FOUNDATION AND MARINE	06/01/2018	\$38.52	\$7.70	\$14.95	\$0.00	\$61.17
	12/01/2018	\$39.47	\$7.70	\$14.95	\$0.00	\$62.12
	06/01/2019	\$40.47	\$7.70	\$14.95	\$0.00	\$63.12
	12/01/2019	\$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

For apprentice rates see "Apprentice- LABORER"

TEST BORING 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"

TRACTORS/PORTABLE STEAM GENERATORS	12/01/2017	\$46.17	\$10.50	\$15.50	\$0.00	\$72.17
OPERATING ENGINEERS LOCAL 4						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
TRAILERS FOR EARTH MOVING EQUIPMENT <i>TEAMSTERS JOINT COUNCIL NO. 10 ZONE B</i>	12/01/2016	\$33.02	\$10.91	\$10.89	\$0.00	\$54.82
TUNNEL WORK - COMPRESSED AIR <i>LABORERS (COMPRESSED AIR)</i>						
	12/01/2017	\$49.73	\$7.70	\$15.35	\$0.00	\$72.78
	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
	12/01/2021	\$57.63	\$7.70	\$15.35	\$0.00	\$80.68
For apprentice rates see "Apprentice- LABORER"						
TUNNEL WORK - COMPRESSED AIR (HAZ. WASTE) <i>LABORERS (COMPRESSED AIR)</i>	12/01/2017	\$51.73	\$7.70	\$15.35	\$0.00	\$74.78
	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"						
TUNNEL WORK - FREE AIR <i>LABORERS (FREE AIR TUNNEL)</i>	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
	12/01/2021	\$49.70	\$7.70	\$15.35	\$0.00	\$72.75
For apprentice rates see "Apprentice- LABORER"						
TUNNEL WORK - FREE AIR (HAZ. WASTE) <i>LABORERS (FREE AIR TUNNEL)</i>	12/01/2017	\$43.80	\$7.70	\$15.35	\$0.00	\$66.85
	06/01/2018	\$44.75	\$7.70	\$15.35	\$0.00	\$67.80
	12/01/2018	\$45.70	\$7.70	\$15.35	\$0.00	\$68.75
	06/01/2019	\$46.70	\$7.70	\$15.35	\$0.00	\$69.75
	12/01/2019	\$47.70	\$7.70	\$15.35	\$0.00	\$70.75
	06/01/2020	\$48.69	\$7.70	\$15.35	\$0.00	\$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	\$51.70	\$7.70	\$15.35	\$0.00	\$74.75
For apprentice rates see "Apprentice- LABORER"						
VAC-HAUL <i>TEAMSTERS JOINT COUNCIL NO. 10 ZONE B</i>	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 <i>LABORERS - ZONE 2</i>	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
	12/01/2021	\$40.10	\$7.70	\$13.60	\$0.00	\$61.40
For apprentice rates see "Apprentice- LABORER"						
WASTE WATER PUMP OPERATOR <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2017	\$46.63	\$10.50	\$15.50	\$0.00	\$72.63
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
WATER METER INSTALLER <i>PLUMBERS &amp; GASFITTERS LOCAL 12</i>	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/GASFITTER"						

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 subparagraphs (a) and (b) of this paragraph for the labor performed and the materials furnished by a Subcontractor shall be made to the General Contractor for the account of that Subcontractor; and the Awarding Authority shall take reasonable steps to compel the General Contractor to make each such payment to each such Subcontractor. If the Awarding Authority has received a demand for direct

payment from a Subcontractor for any amount which has already been included in a payment to the General Contractor or which is to be included in 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, 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 one<sup>2</sup> 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 Completed or an itemized list of incomplete or unsatisfactory work items required by the contract sufficient to demonstrate that the work has not been Substantially Completed. The 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 forty-nine; 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 price and the contract shall be modified in writing accordingly.

#### 1.1.6 CHAP. 30 MGL SECTION 39O

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 service-disabled 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 forty-four 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 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	DESCRIPTION OF COVERAGE	COMPANY LETTER	POLICY NUMBER	LIMITS	LIMIT EXTENDED BY UMBRELLA
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### WORKMAN'S COMPENSATION (Contractor as Insured)

SC 5.4	Workman's Compensation	_____	# _____	\$ _____	_____
SC 5.4	Employer's Liability	_____	# _____		
	a. Each Accident			\$ _____	_____
	b. Disease Policy Limit			\$ _____	_____
	c. Disease Each Employee			\$ _____	_____

### COMMERCIAL GENERAL LIABILITY (Contractor as Insured, Owner and Engineer as Additional Insured)

SC 5.4	General Liability	_____	# _____		
	a. General Aggregate			\$ _____	_____
	b. Each Occurrence			\$ _____	_____
	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			\$ _____	_____

### AUTOMOTIVE LIABILITY (Contractor as Named Insured)

a.	Combined Single Limit	_____	# _____	\$ _____	_____
	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
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EXCESS UMBRELLA LIABILITY

(Contractor as Named Insured, Owner and Engineer as Additional Insured)

a.	General Aggregate	_____	# _____	\$ _____	_____
b.	Each Occurrence	_____	# _____	\$ _____	_____

INSTALLATION FLOATER

(Contractor as Named Insured, Owner and Engineer as Additional Insured)

a.	General Aggregate	_____	# _____	\$ _____	_____
b.	Each Occurrence	_____	# _____	\$ _____	_____
c.	Installation Floater	_____	# _____	\$ _____	_____

BUILDER'S ALL RISK

(Contractor as Named Insured, Owner and Engineer as Additional Insured)

a.	General Aggregate	_____	# _____	\$ _____	_____
b.	Each Occurrence	_____	# _____	\$ _____	_____
c.	All Risk	_____	# _____	\$ _____	_____

OWNER'S PROTECTIVE LIABILITY

(Owner and Engineer as Named Insured)

a.	General Aggregate	_____	# _____	\$ _____	_____
b.	Each Occurrence	_____	# _____	\$ _____	_____

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

Original Contract Price	\$ _____
Previous Change Orders #	\$ _____
Present Contract Price	\$ _____
This Change Order #    Increase/Decrease	\$ _____

Total Adjusted Contract Price	\$ _____
-------------------------------	----------

This Change Order changes the time of completion by \_\_\_\_ calendar Days.

The extended completion date is \_\_\_\_\_

This Change Order checked by _____	_____
Engineer	Date

This Change Order requested by \_\_\_\_\_

This Change Order prepared by _____	_____
Engineer	

The undersigned agree to the terms of the Change Order.

_____ Contractor	_____ Date
---------------------	---------------

_____ Owner	_____ Date
----------------	---------------

Certification of Appropriation under M.G.L. c.44, §31C: Adequate funding in the amount sufficient to cover the total cost of this Change Order is available.

_____ Town Accountant	_____ Date
--------------------------	---------------

Change Order Form (continued)

Public Entity \_\_\_\_\_

Project Number \_\_\_\_\_

Contract Number: \_\_\_\_\_

Change Order Number: \_\_\_\_\_

Contract Title: \_\_\_\_\_

Owner's Name: \_\_\_\_\_

Owner's Address: \_\_\_\_\_

Contractor's Name: \_\_\_\_\_

Contractor's Address: \_\_\_\_\_

Description of Change

Reason for Change

Example Calculation Sheet

(1)	Labor		
	Foreman	10 hrs @ \$45.00/hr.	\$ 450.00
	Engineer	10 hrs @ 35.00/hr.	350.00
	Operator	10 hrs @ 40.00/hr.	400.00
	Laborers	24 hrs @ 28.00/hr.	672.00
			\$ 1,872.00
(2)	Direct Labor Cost (use the agreed upon Direct Labor Cost) *(30) % of \$1,872 *(used for example purposes only)		561.60
(3)	Materials & Freight		
	150 l.f. of 12" pipe @ \$15.00/l.f.	\$2,250.00	
	15 v.f. precast SMH	2,500.00	
	Freight (slip #      Enclosed)	110.00	
			4,860.00
(4)	Equipment		
	1 Backhoe 10 hrs @ \$140.00/hr.	\$1,400.00	
	1 Truck crane 10 hrs @ \$180.00/hr.	1,800.00	
			- 3,200.00
	Total items 1 through 4)		\$ 10,493.60
(5)	15% markup for Overhead, Profit		
	15% of \$10,493.60		\$ 1,574.04
(6)	5% markup for General Contractor (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

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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.

- a. The pipe sliplining segment, from STA 1,100 to STA 1,440, involves cleaning and tving 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 ten-inch (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 sliplining 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 diesel fuel per gallon and gasoline is per gallon. **Price Adjustments** shall be based on monthly price listings as provided by AAA’s Daily Fuel Gauge Report <http://fuelgaugereport.aaa.com>, 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 liquid asphalt, per ton. **Price Adjustments** shall be based on monthly price listings as provided by ENR Engineering News Record, Construction Economics [http://enr.construction.com/economics/current\\_costs](http://enr.construction.com/economics/current_costs), Material Price Index, Boston, for Asphalt, Paving PG58
- D. This Contract is subject to Price Adjustments based on cost increases and cost decreases for Portland cement, per ton. **Price Adjustments** shall be based on monthly price listings as provided by ENR Engineering News Record, Construction Economics [http://enr.construction.com/economics/current\\_costs](http://enr.construction.com/economics/current_costs), 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. Base Price: 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. Period Price: Period Price will be the prices listed on AAA website on the first business day of a given month.
  3. Total Gallons will be the actual substantiated monthly quantity of fuel used for on-site equipment during the work period from start through the extended time of completion date, reported on a monthly basis.
  4. The Price Adjustment 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 <u>AAA</u>	Period Price <u>AAA</u>	Difference <u>Per Gallon</u>	% Change <u>+ Or -</u>	Change <u>≥ 5%</u>
\$3.50	\$3.75	+ \$0.25	7%	Yes

### Contractor's Substantiated Monthly Adjustment

Total Gallons	Difference Per Gallon	Price 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. Base Price: Base Price of liquid asphalt is \$+396.42 per ton utilizing the ENR Material Price Index.
  2. Period Price: 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. Total Tons will be derived from the actual substantiated tonnage slips for the month(s) material is delivered.



4. The Price Adjustment 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

<u>Base Price</u> <u>ENR</u>	<u>Period Price</u> <u>ENR</u>	<u>Difference</u> <u>Per Ton</u>	<u>% Change</u> <u>+ Or -</u>	<u>Change</u> <u>&gt; 5%</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

<u>Total</u> <u>Tons</u> <u>Mix</u>	<u>Asphalt</u> <u>Content</u> <u>%</u>	<u>Total</u> <u>Tons</u> <u>Asphalt</u>	<u>Difference</u> <u>Per Ton</u>	<u>Price</u> <u>Adjustment</u>
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. Base Price: Base Price of Portland cement is \$122.89 per ton utilizing the ENR Material Price Index.
  2. Period Price: Period Price of Portland cement will be referenced to the first report of the month on the ENR website for a given month.
  3. Total Tons will be derived from the actual substantiated cubic yardage or tonnage slips for the month(s) material is delivered.
  4. The Price Adjustment 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

<u>Base Price</u> <u>ENR</u>	<u>Period Price</u> <u>ENR</u>	<u>Difference</u> <u>Per Ton</u>	<u>% Change</u> <u>+ Or -</u>	<u>Change</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

<u>Total</u> <u>Mix</u> <u>CY</u>	<u>Cement</u> <u>Content</u> <u>tons/CY</u>	<u>Total</u> <u>Tons</u> <u>Cement</u>	<u>Difference</u> <u>Per Ton</u>	<u>Price</u> <u>Adjustment</u>
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

<u>PIPE DEPTH</u>	<u>6" and Smaller Pipe WIDTH LIMITS</u>	<u>8", 10" &amp; 12" Pipe WIDTH LIMITS</u>
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:

<u>PIPE DEPTH</u>	<u>TEMPORARY WIDTH LIMITS</u>	<u>PERMANENT WIDTH LIMITS</u>
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

<u>Payment Item Number</u>	<u>Description</u>
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-Inch C.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-base 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 described 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
  - 1. 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, slip-lining 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 valves 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 Contractors 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, bypass 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 Contractors 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. 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°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
ASME	- American Society of Mechanical Engineers
ASTM	- American Society of Testing and Materials
AWPA	- American Wood Preservers Association
AWS	- American Welding Society
AWWA	- 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

END OF SECTION

## SECTION 01200

### 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.

END OF SECTION

## SECTION 01310

### 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.

END OF SECTION

## SECTION 01340

### 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 re-submittals, 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.

END OF SECTION



## SECTION 01410

### 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.

END OF SECTION

## SECTION 01500

### 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.

END OF SECTION

## SECTION 01505

### 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.

END OF SECTION

## SECTION 01532

### 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.

END OF SECTION

## SECTION 01535

### 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.

END OF SECTION

## SECTION 01570

### 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 from the Owner.

END OF SECTION

## SECTION 01601

### 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.

END OF SECTION

## SECTION 01610

### 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.

END OF SECTION



## SECTION 01700

### 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 liens;
  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.

END OF SECTION

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## SECTION 02110

### 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.

END OF SECTION

## SECTION 02140

### 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.

END OF SECTION



## SECTION 02151

### 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.

END OF SECTION

## SECTION 02221

### 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 on-site 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>	<u>Percent Passing</u>	
	<u>Maximum</u>	<u>Minimum</u>
3-inch	-	100
1 ½-inch	100	70
¾-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:

<u>Sieve Size</u>	<u>Percent Passing</u>	
	<u>Maximum</u>	<u>Minimum</u>
1-inch	-	100
½-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:

<u>Sieve Size</u>	<u>Percent Passing</u>	
	<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 curbs 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 6-inches 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 6-inch 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. Curbs 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, hoses, 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, hoses, 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.

END OF SECTION

## SECTION 02225

### 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. Municipal 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. Private 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 Municipal 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 Municipal 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 Municipal 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 Private 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 Municipal 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 Private 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.

END OF SECTION



## SECTION 02227

### 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.

END OF SECTION

## SECTION 02229

### 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.

- 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.).

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 and 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. Crushing-in-place of AC pipe is a violation of State and Federal Asbestos Regulations.

END OF SECTION

## SECTION 02275

### 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:
  - 1. Filter Sock.
  - 2. 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



## 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 Filtrex BioSocks, as manufactured by Filtrex 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 well-decomposed 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, contaminants 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 45o 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 to 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.

END OF SECTION

## SECTION 02322

### 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.

<u>Segment</u>	<u>Estimated Peak Rate</u> (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.

END OF SECTION

## SECTION 02325

### 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 by-pass 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 has 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 H2O 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.
  6. 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.

<u>Segment</u>	<u>Pump Rate At Station</u> (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, maintaining and removing the complete by-pass 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 be fully 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 by-pass 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  $\pm 15^\circ\text{F}$ , 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 (°F)	1-1/2"	2"	3" or 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 ½ inches,
    - b. Install Top Course asphaltic concrete paving to a compacted thickness of 1 ½ 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 ½ 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 ½-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.
4. 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 curbing, 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 ½ 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 ½ inches,
  - b. Install Binder Course asphaltic concrete paving to a compacted thickness of 3 inches,
  - c. Install Top Course asphaltic concrete paving to a compacted thickness of 1 ½ 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 curbs, 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°F and 120°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 groove 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 1-mil 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 and analyze 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.

END OF SECTION

## SECTION 02611

### 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  $\frac{3}{4}$ -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  $\frac{3}{4}$ -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.

END OF SECTION

## SECTION 02640

### 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 5-1/4 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

1. 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 ¾-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 5-foot 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.

END OF SECTION

## SECTION 02641

### 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

## 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.

END OF SECTION

## SECTION 02645

### 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 5-1/4-inch diameter.
  - 2. Main valve shall be 5-1/4-inch diameter.
  - 3. Two (2) 2-1/2-inch hose nozzles.
  - 4. One (1) 4-1/2-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.

END OF SECTION

## SECTION 02705

### 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 pit 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.

END OF SECTION

## SECTION 02708

### 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 complete 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	-	-
½-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/Ft<sup>3</sup>) 2.1- ASTM D-1622
  - b. K factor (BTU/Hr-Ft<sup>2</sup> 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;
  - a. ASTM D-638- Ultimate Elongation 850%
  - b. ASTM D-638- Tensile Yield Strength 3300 psi
  - c. ASTM D-3350- Resin Type III, Grade P34
  - d. ASTM D-790- Tangent Flexural Modulus 175,000 psi
  - 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<sup>3</sup>): 2.1 ASTM D-1622
  - 2. K factor (BTU/Hr-Ft<sup>2</sup> °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 re-install 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.

END OF SECTION

## SECTION 02726

### FRAMES, COVERS & GRATES

#### PART 1 - GENERAL

##### 1.1 DESCRIPTION

- 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.

END OF SECTION

## SECTION 02730

### 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

- A. Gravity Main Line Piping
  - 1. Polyvinylchloride Pipe
    - a. 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.

END OF SECTION

## SECTION 02766

### 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, ½-inch through 3-inch
      - iii. Standard polyethylene-aluminum-polyethylene and cross linked polyethylene-aluminum
      - iv. Molecularly oriented polyvinyl chloride (PVCO) pressure pipe, 4-inch 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  $\frac{3}{4}$ " 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 ½-inch service lines, a minimum ¾-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

## INDEX

### DIVISION 3 - CONCRETE

<u>Section</u>	<u>Subject</u>	<u>Page</u>
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>	<u>Retained</u>
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 or Inch Size in Inches:	Percentage by weight passing sieve:					
	<u>1-1/2" aggregate:</u>		<u>1" aggregate:</u>		<u>3/4" aggregate:</u>	
	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.

### 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

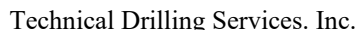
## APPENDIX

West Central Boring Logs

Route 30 Boring Logs

Frost Street Boring Logs





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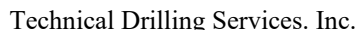












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PENETRATION RESISTANCE				PROPORTIONS USED:		REMARKS:
140 LB. Wt.falling 30” on 2” O.D. Sampler				Trace:	0% to 10%	
<u>Cohesionless Density (Blows/ft.)</u>		<u>Cohesive Consistency (Blows/ft)</u>		Little:	10% to 20%	
very loose	0-4	very soft	0-2	Some:	20% to 35%	
loose	5-9	soft	2-4			
medium dense	10-29	medium stiff	5-8	And:	35% to 50%	
dense	30-49	stiff	9-15			
very dense	59+	Very stiff	16-30			
		Hard	31+			

