BID DOCUMENTS

FOR

VARIOUS STREETS 2020 SANITARY, SURFACE, AND COMBINED SEWERS REHABILITATION PROJECT

CONTRACT NO.: S20-4

BID NO.: 7459-W1

DEPARTMENT OF PUBLIC WORKS & PARKS

ENGINEERING DIVISION

CITY OF WORCESTER, MASSACHUSETTS

PREPARED BY

WESTON & SAMPSON ENGINEERS, INC.

SEPTEMBER 2020

Digitally signed by
Donald G. Gallucci, PE
Date: 2020.08.31
07:14:33-04'00'

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BID PREPARED BY: WESTON & SAMPSON ENGINEERS, INC.
55 Walkers Brook Drive, Suite 100
Reading, MA 01867

BID REVIEWED BY: _____
CHRISTOPHER P. GAGNE, P.E.
Assistant Director – Contract Construction

APPROVED BY: _____
K. RUSSELL ADAMS, P.E.
Assistant Commissioner of Public Works & Parks

BID ADMINISTERED BY: _____
CHRISTOPHER J. GAGLIASTRO, MCPPO
Purchasing Director

PURCHASING DIVISION
CITY OF WORCESTER
MASSACHUSETTS 01608-1895
ROOM 201 - CITY HALL, 455 MAIN ST.
PHONE (508) 799-1220

SEALED BID INVITATION
(Labor, - Filed Sub-Bids NOT Required)
M.G.L. Chapter 30, §39M /
M.G.L. Chapter 149, s.44A (C)

SEALED BID NO. 7459-W1
DATE: August 31, 2020
CITY OF WORCESTER **Christopher J. Gagliastro, MCPPO** **Purchasing Agent**
Buyer: Christopher Gagliastro

All bids are subject to the terms and conditions and specificity herein set forth.

COMPLETE FORM FOR GENERAL BID (ENCLOSED) MUST BE SUBMITTED IN A SEALED ENVELOPE:

DATE: September 23, 2020 TIME: 10:00 A.M. LOCAL TIME

PLACE: Purchasing Division, Room 201, City Hall, Worcester, Massachusetts

MARK SEALED ENVELOPE **"Sealed Bid No. 7459-W1, Sewer Lining (S20-4) / DPW & Parks"**

The name and address of the bidder must appear in the upper left-hand corner of the envelope. The City of Worcester is not responsible for bids not properly marked.

A COMPLETE BID PACKAGE SUBMISSION CONSISTS OF THE FOLLOWING:

- Form for General Bid (81 – 86, & Unit Pricing Pages)
- Bid Security (5% of Total Bid)
- Forms required by City Policies & Programs

OTHER CONDITIONS:

- Please go to (www.worcesterma.gov) to review bid results.
- All questions **must** be referred in writing to Chris Gagliastro via e-mail at gagliastroc@worcesterma.gov

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ARTICLE 101: INSTRUCTIONS TO BIDDERS

SECTION 1 - INTRODUCTION; DEFINITIONS

1.1 In accordance with an Advertisement for Bids, the City of Worcester (the "Owner") has invited bids for the project described in the specifications contained herein.

1.2 These Instructions to Bidders (the "Instructions") are intended to assist bidders in the preparation of their bids, to call attention to various legal requirements and to set forth certain conditions upon which bids are submitted and received.

1.3 The award of the contract is governed by Chapter 30, s. 39M of the Massachusetts General Laws. Certain provisions of the foregoing statute and of other applicable statutes are summarized in these Instructions. Whenever these Instructions or any other contract documents set forth or summarize applicable statutory provisions, whether or not the statutes have been specifically referred to, such summaries are for convenience only, do not purport to be complete or correct as summaries of any particular material, and shall in no respect supersede, expand or limit rights or duties of the Owner or bidders in matters governed by the statute.

1.4 The following definitions shall apply in these Instructions and in the other Contract Documents:

1) The term "bidding documents" shall include the Advertisement for Bids, these Instructions, the bid forms, contract forms and other Contract Documents bound herewith, the Drawings, the Specifications, and all Addenda issued prior to receipt of bids.

2) The terms "Addenda" and "Addendum" shall mean written documents and/or drawings issued by the Owner prior to execution of the contract which supplement, modify, correct, explain or interpret the bidding documents.

3) All definitions set forth in the Conditions of the Contract or the other Contract Documents as therein defined are applicable to these Instructions and to the other bidding documents

4) On any project for the construction, reconstruction, installation, demolition, maintenance or repair of any building, or public work, to be funded in whole or in part by city funds, or funds which, in accordance with a federal or state grant, program, or otherwise, the city expends or administers, or any such project to which the city is a signatory to the contract therefore, the provisions of this section shall apply and the same shall be referenced in every invitation to bid for such project and,

the following paragraphs shall be contained in every resulting contract there from: “It shall be a material breach of this contract if the contractor and each subcontractor shall not at all times adhere to the provisions of § 1A(e)(9) of chapter nine of the Revised Ordinances of the city by limiting their on- site, noise producing construction and related work to the hours specified by said ordinance”.

5) The director of purchasing, commissioner of code enforcement and the head of any department shall have the authority to adopt any rules and regulations they deem necessary to implement this subsection with respect to contracts generally and the head of the department awarding any such contract shall have the authority to adopt any rules and regulations he or she deems necessary to implement this subsection with respect to any particular project.

SECTION 2 - AVAILABILITY OF CONTRACT DOCUMENTS

2.1 Each person requesting Contract Documents including bid forms, plans and specifications shall proceed as directed in the Advertisement for Bids.

SECTION 3 - EXAMINATION OF SITE AND CONTRACT DOCUMENTS; PRE-BID CONFERENCE

3.1 Before submitting a bid, each bidder must: (a) thoroughly examine the Contract Documents (b) visit the site to fully examine and acquaint himself with local conditions that may in any manner affect cost, progress, or performance of the Work, (c) familiarize himself with federal, state and local laws, ordinances, rules and regulations that may in any manner affect cost, progress or performance of the Work, and (d) study and carefully correlate his observations with the requirements of the Contract Documents. Failure of a bidder to visit the site and acquaint himself with the Contract Documents or to attend the pre-bid conference, if any, shall in no way relieve the bidder from any obligation with respect to his bid.

3.2 On request, the Owner will provide each bidder access to the site to conduct such reasonable investigations and tests as such bidder deems necessary to prepare his bid.

3.3 Each bidder shall promptly notify the Contracting Officer of any ambiguity, inconsistency or error he may discover upon examination of the Contract Documents, the site or other local conditions. Whenever the title “Contracting Officer” is referenced it shall be interpreted as follows: Purchasing Director, City of Worcester. The submission of a bid will constitute a representation by the bidder that he has complied with every requirement of this Section 3 and that the Contract Documents are sufficient in scope and detail to indicate and convey understanding of all terms and conditions for performance of the work of this contract.

SECTION 4 - ADDENDA AND INTERPRETATION OF CONTRACT DOCUMENTS

4.1 All questions and requests for clarifications or interpretations of the meaning of the Contract Documents shall be in writing, addressed to the Purchasing Department, City of Worcester, and to be given consideration must be received at least five (5) days prior to the date fixed for opening of bids.

4.2 Clarifications or such interpretations and any supplemental instructions or forms, if issued, will be issued in the form of written Addenda and when possible, not later than two days before the date fixed for opening of bids. Each bidder shall be responsible for determining that he has received all Addenda issued, and failure of any bidder to receive any such Addendum shall not relieve such bidder from any obligation under its bid as submitted.

4.3 All Addenda so issued shall become part of the Contract Documents.

4.4. Oral clarifications or interpretations will be of no legal effect. The Owner will not be responsible for, and no bidder may rely upon or use as the basis of a claim against the Owner or the Owner's agent, any information, explanation or interpretation of the Contract Documents rendered in any fashion except as herein provided.

SECTION 5 - WAGE RATES

5.1 Minimum rates of wages for work performed under this contract will be as predetermined by the state Department of Labor and Workforce Development, in accordance with the provisions of Sections 27 of Chapter 149 of the Massachusetts General Laws.

5.2 Section 27B of said Chapter 149 provides record-keeping requirements for contractors and subcontractors with respect to employees, hours, wages and other matters.

5.3 Bidders' attention is called to Section 148 of Chapter 149 of the Massachusetts General Laws, relating to the weekly payment of wages.

SECTION 6 - SALES TAX

6.1 Section 6(f) of Chapter 54H of the Massachusetts General Laws exempts from Massachusetts sales tax, building materials and supplies to be used in the project, and bidders shall not include in their bids any amount therefor. The number of the certificate granted by the Commissioner of Revenue for use in obtaining the exemption may be obtained from the City of Worcester.

SECTION 7 - PREPARATION AND SUBMISSION OF BIDS

7.1 Each bid shall be submitted upon the bid forms furnished by the Owner, copies of which are bound with the bid documents. The bid forms shall be submitted, as bound, with the balance of the Contract Documents. All blank spaces shall be filled in, in ink or typewritten, in words or figures. The bid prices for each item on the bid forms shall be stated in both words and figures. Where itemized lump sum or unit prices are called for, all such prices shall be provided by the bidder. In the event of a discrepancy between prices written in words and prices written in figures, the written words shall govern. In the event of a discrepancy between the indicated sum of any column of figures and the correct sum thereof, the correct sum shall govern. The bid shall state the legal name of the bidder and shall be signed in ink by a person or persons legally authorized to bind the bidder to a contract. The name and title of the person or persons signing the bid shall be typed or printed below the signatures.

7.2 Each bid and the bid deposit (described below) shall be submitted to the Owner at the place stated in the Advertisement for Bids in a sealed opaque envelope bearing on the outside the name of the bidder, his address and the title of the project for which the bid is submitted. If forwarded by mail, the sealed bid and the bid deposit shall be enclosed in an envelope with the notation "BID ENCLOSED" on the face and addressed as indicated in the Advertisement for Bids.

7.3 Section 39L of Chapter 30 of the Massachusetts General Laws prohibits the Owner from entering into a contract for this work with, and shall not approve as a subcontractor furnishing labor and materials for a part of any such work, a foreign corporation which has not filed with the Owner, a certificate of the state secretary stating that such corporation has complied with M.G.L. c. 181, sections 3 and 5. Therefore, every Foreign Corporation must furnish a certified copy of its Certificate of Registration that has been duly filed with the state secretary's office. Any bid, general or sub, of a foreign corporation submitted without a Certificate may be rejected pursuant to Section 11.

SECTION 8 - RECEIPT OF BIDS

8.1 All bidders are cautioned to allow ample time for transmittal of bids. Bidders are solely responsible for delivery to and receipt by the Owner of bids at the place stated in the advertisement for Bids. Bids received after the specified time or at other than the specified location will not be accepted or recognized. The time of receipt will determine the acceptability of mailed bids, regardless of postmark.

8.2 Any bid may be withdrawn by the bidder or his duly authorized representative by written notice received by the Owner at the address for receipt of bids specified in the Advertisement for Bids prior to the time scheduled for the opening of such bids or authorized postponement thereof. No bid may be withdrawn for sixty (60) days, Saturdays, Sundays and legal holidays excluded, after the opening of general bids. No telephone or telegraphic bid, change in bid or withdrawal of bid

will be received or recognized. A bid may be amended or modified only by withdrawing the bid and resubmitting another bid prior to the time for the opening of bids.

8.3 Bids will be opened and read publicly at the place and time stated in the Advertisement for Bids or the authorized postponement thereof. Bidders or their authorized representatives are invited to be present.

SECTION 9 - BID DEPOSIT

9.1 Each bid must be accompanied by a bid deposit in the form of a bid bond, or a certified check on, or a treasurer's or cashier check issued by, a responsible bank or trust company, payable to the City of Worcester. A bid bond shall be

a) in form satisfactory to the Owner substantially conforming to the sample contained in the Contract Documents,
b) with a surety company qualified to do business (licensed) in the Commonwealth of Massachusetts and satisfactory to the Owner, and
c) conditioned upon the faithful performance by the principal of the agreements contained in the bid. The bid deposit shall be in the amount of 5% of the value of the bid.

SECTION 10 - REJECTION OF BIDS

10.1 The Owner shall reject every general bid which is not accompanied by the required bid deposit, or which otherwise does not conform to the statutory requirements or the bid documents.

10.2 The Owner reserves the right to reject any and all general bids which contains erasures, alterations, additions, errors or irregularities of any kind, or which contains proposed prices for any class or item of work which are, in the judgment of the Owner, substantially less or more than the actual cost to complete the work; provided, however, that the Owner reserves the right to waive any and all informalities as to form. Matters as to substance shall not be waived.

SECTION 11 - AWARD OF CONTRACT

11.1 The general contract will be awarded to the lowest responsible and eligible general bidder complying with the conditions and requirements provided in these Instructions, the bid forms and the other bid documents.

11.2 Award of the contract will be made within ninety (90) days, Saturdays, Sundays and legal holidays excluded, after (i) the opening of the bids or (ii) the

receipt by the Owner of any approvals necessary from federal or state agencies in connection with the project, whichever is later.

11.3 The successful bidder will be notified in writing, by mail or otherwise, that his bid has been accepted and that he has been awarded the contract. The successful bidder shall execute the contract and furnish the required bonds, at the offices of the Owner within five (5) days, Saturdays, Sundays and legal holidays excluded, after presentation of the contract to him or notice to him that the contract is ready for execution.

11.4 If the bidder selected as the general contractor fails to perform his agreement to execute the contract in accordance with the terms of his bid and furnish a performance bond and also a labor and materials payment bond as stated in his bid, the award will be made to the next lowest responsible and eligible general bidder.

SECTION 12 - CERTIFICATES AND DOCUMENTS TO BE FURNISHED UPON EXECUTION OF THE CONTRACT

12.1 Pursuant to Sections 49A of Chapter 62C of the Massachusetts General Laws the contractor must certify that it has complied with all laws of the Commonwealth of Massachusetts relating to taxes. A form of certificate for this purpose is included in the Contract Documents.

12.2 Prior to commencement of work, the contractor must furnish to the Owner certificates evidencing required insurance coverage in accordance with the provisions of the insurance requirements contained in the Supplementary Conditions of the Contract.

12.3 The affidavit of compliance with certain laws of the Commonwealth relating to corporations, and evidence of corporate authority with respect to execution of the contract documents on behalf of the contractor, on the form contained in the bidding documents, must be furnished by the contractor to the Owner at the time of execution of the contract.

12.4 A performance bond and a labor and materials payment bond, each in the amount of the contract sum, must be furnished by the general contractor as stated in the bid form. Such bonds must be on the forms contained in the bid documents and must be executed and delivered to the Owner at the time of execution of the contract. Each attorney-in-fact who executes such a bond on behalf of the surety must affix thereto a certified and current copy of his power of attorney.

SECTION 13 - MINORITY/WOMEN BUSINESS ENTERPRISE PROGRAM

13.1 The Owner has established goals for the participation of minority and women contractors and subcontractors on all City projects. In furtherance thereof, the City of Worcester's Supplemental Equal Employment Opportunity Anti-Discrimination and Affirmative Action Program is included in the Bidding Documents, and all bidders shall comply with the requirements set forth therein.

ARTICLE 102:
GENERAL CONDITIONS OF THE CONTRACT FOR CONSTRUCTION

SECTION 1
GENERAL PROVISIONS

1.1 DEFINITIONS

1.1.1 THE CONTRACT DOCUMENTS

The Contract Documents consist of the Owner-Contractor Agreement, the Conditions of the Contract (General, Supplementary and other Conditions), Performance Bond, Payment Bond, Vote of Corporation, Information to Bidders, Bid Proposal, the Drawings, the Specifications, and all Addenda issued prior to and all Modifications issued after execution of the Contract. A Modification is (1) a written amendment to the Contract signed by both parties, (2) a Change Order, (3) a written interpretation issued by the Contracting Officer pursuant to Subparagraph 2.2.3, or (4) a written order for a minor change in the Work issued by the Contracting Officer pursuant to Paragraph 12.3. The Contract Documents do not include Bidding Documents such as, sample forms, or portions of Addenda relating to any of these, or any other documents, unless specifically enumerated in the Owner-Contractor Agreement. The Drawings of this Contract shall be as listed on the cover sheet of the Drawings, as applicable. The Specifications of this Contract shall be listed on the Index to the Technical Specifications. In the event of any conflict among the Contract Documents, the Documents shall be construed according to the following priorities: Highest Priority - Modifications, Second Priority-Agreement, Third Priority - Addenda-later date to take precedence, Fourth Priority - Special Requirements, Fifth Priority - Special Conditions, Sixth Priority - Supplementary General Conditions, Seventh Priority - General Conditions, Eighth Priority - Specifications, Ninth Priority - Drawings.

1.1.2 THE CONTRACT

The Contract Documents form the Contract for Construction. This Contract represents the entire and integrated agreement between the parties hereto and supersedes all prior negotiations, representations, or agreements, either written or oral. The Contract may be amended or modified only by a Modification as defined in Subparagraph 1.1.1. These General Conditions, wherever applicable, shall be construed consistent with, and terms of the Owner-Contractor Agreement, provided further however, that the terms of such Agreement shall take

precedence, as provided in Subparagraph 1.1.1. Except for the special agreements in Paragraph 4.18, nothing contained in the Contract Documents shall be construed to create any contractual relationship of any kind between the Architect and the Contractor. Nothing contained in the Contract Documents shall create any contractual relationship between the Owner or the Architect and any Subcontractor or Sub-subcontractor.

1.1.3 THE WORK

The Work comprises the completed construction required by the Contract Documents and includes all labor necessary to produce such construction, and all materials and equipment incorporated or to be incorporated in such construction.

1.1.4 THE PROJECT

The Project is the total construction of which the Work performed under the Contract Documents may be the whole or a part.

1.2 EXECUTION, CORRELATION AND INTENT

1.2.1 The Contract Documents shall be signed in not less than duplicate by the Owner and the Contractor.

1.2.2 By executing the Contract, the Contractor represents that he has visited the site, familiarized himself with the local conditions under which the Work is to be performed, and correlated his observations with the requirements of the Contract Documents.

1.2.3 The intent of the Contract Documents is to include all items necessary for the proper execution and completion of the Work. The Contract Documents are complementary, and what is required by any one shall be as binding as if required by all. Work not covered in the Contract Documents will not be required unless it is consistent therewith and is reasonably inferable therefrom as being necessary to produce the intended results. Words and abbreviations which have well-known technical or trade meanings are used in the Contract Documents in accordance with such recognized meanings. All work mentioned or indicated in the Contract Documents shall be performed by the Contractor as part of this Contract unless it is specifically indicated in the Contract Documents that such work is to be done by others. 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 and/or materials unless otherwise directed by written addendum to the Contract.

1.2.4 The organization of the Specifications into divisions, sections and articles, and the arrangement of Drawings shall not control the Contractor in dividing the Work among Subcontractors or in establishing the extent of Work to be performed by any trade. The Contractor and all Subcontractors shall refer to all of the

Drawings, including those showing primarily the work of the mechanical, electrical and other specialized trades, and to all of the Sections of the Specifications, and shall perform all work reasonably inferable therefrom as being necessary to produce the indicated results.

1.2.5 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.

1.2.6 Where codes, 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.

1.2.7 Where no explicit quality or standards for materials or workmanship are established for work, such work is to be of good quality for the intended use and consistent with the quality of the surrounding work and of the construction of the Project generally.

1.2.8 All manufactured articles, materials, and equipment shall be applied, installed, connected, erected, used, cleaned, and conditioned in accordance with the manufacturer's written or printed directions and instructions unless otherwise indicated in the Contract Documents.

1.2.9 Any test boring or soil test information included with the Contract Documents or otherwise made accessible to the Contractor was obtained by the Owner or Architect for use by the Architect in the design. The Owner and Architect do not hold out such information to the Contractor as an accurate or approximate indication of subsurface conditions, and no claim for extra cost or extension of time resulting from a reliance by the Contractor on such information shall be allowed except as provided in M.G.L. c. 30, section 39N.

1.3 OWNERSHIP AND USE OF DOCUMENTS

1.3.1 All Drawings and Specifications furnished by the Architect, and all copies thereof and the copyright therein, are the property of the Architect or the Owner. They are to be used only with respect to this Project and are not to be used on any other project. With the exception of one contract set for each party to the Contract, such documents are to be returned or suitably accounted for to the Architect on request at the completion of the Work. Submission or distribution to meet official regulatory requirements or for other purposes in connection with the Project is not to be construed as publication in derogation of the Architect's or Owner's common law copyright or other reserved rights.

SECTION 2
ARCHITECT

2.1 DEFINITION

2.1.1 The term Architect refers to either, (a) a professionally licensed architect, engineer, or landscape architect, hired or used by the City, or in the absence of thereof, (b) the Contracting Officer identified in the Instruction to Bidders. The Architect is referred to throughout the Contract Documents as if singular in number and masculine in gender.

2.2 ADMINISTRATION OF THE CONTRACT

2.2.1 The Architect will provide administration of the Contract as herein described and pursuant to the terms of the contract between the Architect and the Owner.

2.2.2 The Architect will be the Owner's representative during construction and until final payment is due. The Architect will advise and consult with the Owner. The Owner's instructions to the Contractor shall be forwarded through the Architect. The Architect will have the authority to act on behalf of the Owner only to the extent provided in the Contract Documents and the Design Services Agreement between the two, unless otherwise modified by written instrument in accordance with Subparagraph 2.2.17.

2.2.3 The Architect will visit the site at intervals appropriate to the stage of construction to familiarize himself generally with the progress and quality of the Work and to determine in general if the Work is proceeding in accordance with the Contract Documents. However, the Architect will not be required to make exhaustive or continuous on-site inspections to check the quality or quantity of the Work. On the basis of his on-site observations as an architect, he will keep the Owner informed of the progress of the Work, and will endeavor to guard the Owner against defects and deficiencies in the Work of the Contractor.

2.2.4 The Architect will not be responsible for and will not have control or charge of construction means, methods, techniques, sequences or procedures, or for safety precautions and programs in connection with the Work, and he will not be responsible for the Contractor's failure to carry out the Work in accordance with the Contract Documents. The Architect will not be responsible for or have control or charge over the acts or omissions of the Contractor, Subcontractors, or any of their agents or employees, or any other persons performing any of the Work.

2.2.5 The Architect shall at all times have access to the Work wherever it is in preparation and progress. The Contractor shall provide facilities for such access so the Architect may perform his functions under the Contract Documents.

2.2.6 Based on the Architect's observations and an evaluation of the Contractor's Applications for Payment, the Architect will determine the amounts owing to the Contractor and will certify Certificates for Payment in such amounts, as provided in Paragraph 9.4.

2.2.7 The Architect will be the interpreter of the requirements of the Contract Documents and the judge of the performance thereunder by both the Owner and Contractor.

2.2.8 The Architect will render interpretations necessary for the proper execution or progress of the Work, with reasonable promptness and in accordance with M.G.L. c. 30, section 39P, or any lesser time limit agreed upon. Either party to the Contract may make written request to the Architect for such interpretations.

2.2.9 Claims, disputes and other matters in question between the Contractor and the Owner relating to the execution of progress of the Work or the interpretation of the Contract Documents shall be referred initially to the Architect for decision, which he will render in writing within a reasonable time.

2.2.10 All interpretations and decisions of the Architect shall be consistent with the intent of and reasonably inferable from the Contract Documents and will be in writing or in the form of drawings. In his capacity as interpreter and judge, he will endeavor to secure faithful performance by both the Owner and the Contractor, will not show partiality to either, and will not be liable for the result of any interpretation or decision rendered in good faith, and in the absence of negligence, in such capacity.

2.2.11 The Architect's decisions in matters relating to artistic effect will be final if consistent with the intent of the Contract Documents.

2.2.12 The Architect will have authority to reject Work that does not conform to the Contract Documents. Whenever, in his opinion, he considers it necessary or advisable for the implementation of the intent of the Contract Documents, he will have authority to require special inspection or testing of the Work in accordance with Subparagraph 7.7.2, whether or not such Work be then fabricated, installed or completed. However, neither the Architect's authority to act under this Subparagraph 2.2.12 nor any decision made by him in good faith either to exercise or not to exercise such authority, shall give rise to any duty or responsibility of the Architect to the Contractor, any Subcontractor, any of their agents or employees, or any other person performing any of the Work.

2.2.13 The Architect will review and approve or take other appropriate action upon Contractor's submittals such as Shop Drawings, Product Data and Samples, but only for conformance with the design concept of the Work and with the information given in the Contract Documents. Such action shall be taken with reasonable promptness so as to cause no delay. The Architect's approval of a special item shall not indicate approval of an assembly of which the item is a component.

2.2.14 The Architect will prepare Change Orders in accordance with Article 12, and will have authority to order minor changes in the Work as provided in Subparagraph 12.3.1.

2.2.15 The Architect will conduct inspections to determine the dates of Substantial Completion and final completion, will receive and forward to the Owner for the Owner's review written warranties and related documents required by the Contract and assembled by the Contractor, and will issue a final Certificate of Payment upon compliance with the requirements of Paragraph 9.9.

2.2.16 If the Owner and Architect agree, the Architect will provide one or more Project Representatives to assist the Architect in carrying out his responsibilities at the site. The duties, responsibilities and limitations of authority of any such Project Representative shall be as set forth in an exhibit to be incorporated in the Contract Documents.

2.2.17 The duties, responsibilities, and limitations of authority of the Architect as the Owner's representative during construction, as set forth in the Contract Documents and the contract between the two, will not be modified or extended without consent of the Owner and the Architect.

2.2.18 In case of the termination of the employment of the Architect, the Owner shall appoint an architect against whom the Contractor makes no reasonable objection whose status under the Contract Documents shall be the same as that of the former architect.

SECTION 3
OWNER

3.1 DEFINITION

3.1.1 The term Owner means the city of Worcester.

INFORMATION AND SERVICES REQUIRED OF THE OWNER

3.2.1 The Owner shall, at the time of execution of the Owner-Contractor Agreement, furnish the certification of adequate appropriation pursuant to M. G. L. Chapter 44, section 31C of the General Laws.

3.2.2 The Owner shall furnish existing surveys, if any, describing the physical characteristics, legal limitations and utility locations for the site of the Project, and a legal description of the site.

3.2.3 Except as provided in Subparagraph 4.7.1, the Owner shall secure and pay for necessary approvals, easements, assessments and charges required for the construction, use or occupancy of permanent structures or for permanent changes in existing facilities.

3.2.4 Information or services under the Owner's control shall be furnished by the Owner with reasonable promptness after receipt from the Contractor of a written request for such information or services.

3.2.5 Unless otherwise provided in the Contract Documents, the Contractor will be furnished, free of charge, three (3) copies of Drawings and Specifications reasonably necessary for the execution of the Work.

3.2.6 The Owner shall forward all instructions to the Contractor through the Architect.

3.2.7 The foregoing are in addition to other duties and responsibilities of the Owner enumerated herein and especially those in respect to Work by Owner or by Separate Contractors, Payments and Completion, and Insurance in Articles 6, 9 and 11 respectively.

3.3 OWNER'S RIGHT TO STOP THE WORK

3.3.1 If the Contractor fails to correct defective Work as required by Paragraph 13.2 or persistently fails to carry out the Work in accordance with the Contract Documents, the Owner, by a written order signed personally or by an agent specifically so empowered by the Owner in writing, may order the Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, this right of the Owner to stop the Work shall not give rise to any duty on the part of the Owner to exercise this right for the benefit of the Contractor or any other person or entity, except to the extent required by Subparagraph 6.1.3.

3.4 OWNER'S RIGHT TO CARRY OUT THE WORK

3.4.1 If the Contractor defaults or neglects to carry out the Work in accordance with the Contract Documents and fails within seven days after receipt of written notice from the Owner to commence and continue correction of such default or neglect with diligence and promptness, the Owner may, without prejudice to any other remedy he may have, make good such deficiencies. In such case an appropriate Change Order shall be issued deducting from the payments then or thereafter due the Contractor the cost of correcting such deficiencies, including compensation for the Architect's additional services made necessary by such default, neglect or failure. Such action by the Owner and the amount charged to the Contractor are both subject to prior notice being given to the Architect by the Owner. If the payments then or thereafter due the Contractor are not sufficient to cover such amount, the Contractor shall pay the difference to the Owner.

SECTION 4
CONTRACTOR

4.1 DEFINITION

4.1.1 The Contractor is the person or entity identified as such in the Owner-Contractor Agreement and is referred to throughout the Contract Documents as if

singular in number and masculine in gender. The term Contractor means the Contractor or his authorized representative.

4.2 REVIEW OF CONTRACT DOCUMENTS

4.2.1 Before starting the Work, and at frequent intervals during the progress thereof, the Contractor shall carefully study and compare the Agreement, Conditions of the Contract, Drawings, Specifications, Addenda and other Contract Documents and shall at once report to the Architect any error, inconsistency or omission he may discover. Any necessary change shall be ordered as provided in Article 12, subject to the requirements of paragraph 1.2 and other provisions of the Contract Documents. If the Contractor proceeds with the Work without such notice to the Architect, having discovered such errors, inconsistencies or omissions, or if by reasonably study of the Contract Documents he could have discovered such, the Contractor shall bear all costs arising therefrom.

4.2.2 The Contractor shall give the Architect timely notice of any additional design drawings, specifications, or instructions required to define the Work in greater detail, or to permit the proper progress of the Work.

4.2.3 The Contractor shall not proceed with any Work not clearly and consistently defined in detail in the Contract Documents, but shall request additional drawings or instructions from the Architect as provided in subparagraph 4.2.2. If the Contractor proceeds with such Work without obtaining further drawings or instructions, he shall correct Work incorrectly done at his own expense.

SUPERVISION AND CONSTRUCTION PROCEDURES

4.3.1 The Contractor shall supervise and direct the Work, using his best skill and attention. He shall be solely responsible for all construction means, methods, techniques, sequences and procedures and for coordinating all portions of the Work under the Contract.

4.3.2 The Contractor shall be responsible to the Owner for the acts and omissions of his employees, Subcontractors and their agents and employees, and other persons performing any of the Work under a contract with the Contractor.

4.3.3 The Contractor shall not be relieved from his obligations to perform the Work in accordance with the Contract Documents either by the activities or duties of the Architect in his administration of the Contract, or by inspections, tests or approvals required or performed under Paragraph 7.7 by persons other than the Contractor.

4.3.4 Where the Contract Documents refer to particular construction means, methods, techniques, sequences or procedures or indicate or imply that such are to be used in the Work, such mention is intended only to indicate that the operations of the Contractor shall be as to produce at least the quality of work implied by the operations described, but the actual determination of whether or not

the described operations may be safely and suitably employed on the Work shall be the responsibility of the Contractor, who shall notify the Architect in writing of the actual means, methods, techniques, sequences or procedures which will be employed on the Work, if these differ from those mentioned in the Contract Documents. All loss, damage, or liability, or cost of correcting defective work arising from the employment of any construction means, methods, techniques, sequences or procedures shall be borne by the Contractor, notwithstanding that such construction means, methods, techniques, sequences or procedures are referred to, indicated or implied by the Contract Documents, unless the Contractor has given timely notice to the Architect in writing that such means, methods, techniques, sequences or procedures are not safe or suitable, and the Contractor has then been instructed in writing by the Owner to proceed at the Owner's risk.

4.4 LABOR AND MATERIALS

4.4.1 Unless otherwise provided in the Contract Documents, the Contractor shall provide and pay for all labor, materials, equipment, tools, construction equipment and machinery, water, heat, utilities, transportation, and other facilities and services necessary for the proper execution and completion of the Work, whether temporary or permanent and whether or not incorporated or to be incorporated in the Work. The word 'provide' shall mean furnish and install complete, including connections, unless otherwise specified.

4.4.2 The Contractor shall at all times enforce strict discipline and good order among his employees and shall not employ on the Work any unfit person or anyone not skilled in the task assigned to him.

4.5 WARRANTY

4.5.1 The Contractor warrants to the Owner and the Architect that all materials and equipment furnished under this Contract will be new and of recent manufacture unless otherwise specified, and that all Work will be of good quality, free from faults and defects and in conformance with the Contract Documents. All Work not conforming to these requirements, including substitutions not properly approved and authorized, may be considered defective.

4.5.2 The Contractor shall be responsible for determining that all materials furnished for the Work meet all requirements of the Contract Documents. The Architect may require the Contractor to produce reasonable evidence that a material meets such requirements, such as certified reports of past tests by qualified testing laboratories, reports of studies by qualified experts, or other evidence which, in the opinion of the Architect, would lead to a reasonable certainty that any material used, or proposed to be used, in the Work meets the requirements of the Contract Documents. All such data shall be furnished at the Contractor's expense. This provision shall not require the Contractor to pay for periodic testing of different batches of the same material, unless such testing is specifically required by the Contract Documents to be performed at the Contractor's expense.

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

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

4.5.5 The Contract Documents are intended to produce a completed project of consistent character and quality of design. All components of the project have been selected to have a coordinated design in relation to the overall appearance. The Architect shall judge the design and appearance of proposed substitutes on the basis of their suitability in relation to the overall design of the project, as well as for their intrinsic merits. The Architect will not approve as equal to materials specified proposed substitutes which, in his opinion, would be out of character, obtrusive, or otherwise inconsistent with the character or quality of design of the project. In order to permit coordinated design of color and finishes the Contractor shall, if required by the Architect, furnish the substituted material in any color, finish, texture, or pattern that would have been available from the manufacturer originally specified, at no additional cost to the Owner.

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

4.5.7 The warranty provided in this paragraph 4.5 shall be in addition to and not in limitation of any other warranty required by the Contract Documents or otherwise prescribed by law.

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

4.6 TAXES

4.6.1 The Contractor shall pay all sales, consumer, use and other similar taxes for the Work or portions thereof provided by the Contractor which are legally enacted at the time bids are received, whether or not yet effective.

4.6.2 IMPORTANT TAX NOTE: This project, being constructed for a political subdivision of the Commonwealth of Massachusetts, is exempt from certain taxes. It is therefore required that the Contractor and all Subcontractors purchasing taxable goods covered by the governing tax codes make known to suppliers the tax-exempt status of the institution in order that such taxes will not appear in the Contract Sum. The Owner will provide the necessary evidence and certificates of its tax exemption upon request of those concerned. The most applicable taxes concerned are:

a. Federal Excise Taxes as applied to articles which are taxable under Chapter 12 of the Internal Revenue Code of l954, as amended.

b. Commonwealth of Massachusetts Sales tax.

4.7 PERMITS, FEES AND NOTICES

4.7.1 Unless otherwise provided in the Contract Documents, the Contractor shall secure and pay for the building permit and for all other permits and governmental fees, licenses and inspections necessary for the proper execution and completion of the Work which are customarily secured after execution of the Contract and which are legally required at the time the bids are received.

4.7.2 The Contractor shall give all notices and comply with all laws, ordinances, rules, regulations, and lawful orders of any public authority bearing on the performance of the Work.

4.7.3 It is not the responsibility of the Contractor to make certain the Contract Documents are in accordance with the applicable laws, statutes, building codes and regulations. If the Contractor observes that any of the Contract Documents are at variance therewith in any respect, he shall promptly notify the Architect in writing, and any necessary changes shall be accomplished by appropriate Modification.

4.7.4 If the Contractor performs any Work knowing it to be contrary to such laws, ordinances, rules and regulations, and without such notice to the Architect, he shall assume full responsibility therefore and shall bear all costs attributable thereto.

4.8 ALLOWANCES

4.8.1. The Contract shall include in the Contract Sum all allowances stated in the Contract Documents. Items covered by these allowances shall be supplied for such amounts and by such persons as the Owner may direct, but the Contractor will not be required to employ persons against whom he makes a reasonable objection. Note, however, that the use of such allowances are prohibited in any contract or work subject to the provisions of M.G.L. c. 149, section 44A.

4.8.2 Unless otherwise provided in the Contract Documents:

.1 these allowances shall cover the cost to the Contractor, less any applicable trade discount, of the materials and equipment required by the allowance delivered at the site, and all applicable taxes;

.2 the Contractor's costs for unloading and handling of the site, labor, installation costs, overhead, profit and other expenses contemplated for the original allowance shall be included in the Contract Sum and not in the allowance;

.3 whenever the cost is more than or less than the allowance, the Contract Sum shall be adjusted accordingly by Change Order, the amount of which will recognize changes, if any, in handling costs on the site, labor, installation costs, overhead, profit and other expenses.

4.9 SUPERINTENDENCE

4.9.1 The Contractor shall employ one (1) competent superintendent who shall be in attendance at the Project site full time during the progress of the Work until the date of substantial completion, and for such additional time thereafter as the Architect may determine to be necessary for the expeditious completion of the Work. The superintendent shall represent the Contractor and all communications given to the superintendent shall be as binding as if given to the Contractor. Important communications shall be confirmed in writing. Other communications shall be so confirmed on written request in each case.

4.9.2 The Contractor shall retain a competent Registered Professional Engineer or Registered Land Surveyor, registered in the Commonwealth of Massachusetts, acceptable to the Architect, who shall establish, where necessary, the exterior lines and required elevations of all buildings and structures to be erected on the site and shall establish sufficient lines and grades for the construction of associated work such as, but not limited to, layout, utilities and site grading. The Engineer or Land Surveyor shall certify as to the actual location of the constructed facilities in relation to property lines, building lines, easements, and other restrictive boundaries and shall establish survey control points onsite.

4.9.3 The Contractor shall establish the grades, lines, levels, and necessary layout required by the various subcontractors in laying out their work.

4.9.4 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 installation of work and the storage of materials.

4.10 PROGRESS SCHEDULE

4.10.1 The Contractor shall prepare and submit to the Landscape Architect a progress schedule as described in subparagraphs 8.2.3 through 8.2.9.

4.11 DOCUMENTS AND SAMPLES AT THE SITE

4.11.1 The Contractor shall maintain at the site for the Owner the record copy of all Drawings, Specifications, Addenda, Change Orders and other Modifications, in good order and marked currently to record all changes made during construction, and approved Shop Drawings, Product Data and Samples. These shall be available to the Architect and shall be delivered to him for the Owner upon completion of the Work.

4.11.2 Refer to Specifications Section entitled CONTRACT CLOSEOUT, for additional requirements for Record Drawings and Maintenance and Operating Manuals.

4.12 SHOP DRAWINGS, PRODUCT DATA AND SAMPLES

4.12.1 Shop Drawings are drawings, diagrams, schedules and other data specially prepared for the Work by the Contractor or any Subcontractor, manufacturer, supplier or distributor to illustrate some portion of the Work.

4.12.2 Product Data are illustrations, standard schedules, performance charts, instructions, brochures, diagrams and other information furnished by the Contractor to illustrate a material, product or system for some portion of the Work.

4.12.3 Samples are physical examples that illustrate materials, equipment or workmanship and establish standards by which the Work will be judged.

4.12.4 The Contractor shall review, approve and submit, with reasonable promptness and in such sequence as to cause no delay in the Work or in the work of the Owner or any separate contractor, all Shop Drawings, Product Data and Samples required by the Contract Documents.

4.12.5 By approving and submitting Shop Drawings, Product Data, and, Samples, the Contractor thereby represents that he has determined and verified all dimensions, quantities, field dimensions, relations to existing work, coordination with work to be installed later, coordination with information on previously accepted Shop Drawings, Product Data, or Samples and verification of compliance with all the requirements of the Contract Documents. The accuracy of all such information is the responsibility of the Contractor. In reviewing Shop Drawings, Product Data, and Samples, the Architect shall be entitled to rely upon the Contractor's representation that such information is correct and accurate.

4.12.6 The Contractor shall not be relieved of responsibility for any deviation from the requirements of the Contract Documents by the Architect's approval of Shop Drawings, Product Data or Samples under Subparagraph 2.2.14 unless the Contractor has specifically informed the Architect in writing of such deviation at the time of submission and the Architect has given written approval to the specific deviation. The Contractor shall not be relieved from responsibility for errors or omissions in the Shop Drawings, Product Data or Samples by the Architect's approval thereof.

4.12.7 The Contractor shall direct specific attention, in writing or on resubmitted Shop Drawings, Product Data or Samples, to revisions other than those requested by the Architect on previous submittals. Unless such written notice has been given, the Architect's approval of a resubmitted Shop Drawing, Product Data, or Sample shall not constitute approval of any changes not requested on the prior submittal.

4.12.8 No portion of the Work requiring submission of a Shop Drawing, Product Data or Sample shall be commenced until the submittal has been approved by the Architect as provided in Subparagraph 2.2.14. All such portions of the Work shall be in accordance with approved submittals.

4.12.9 Refer to Specifications Section entitled, SUBMITTALS, for additional requirements.

4.13 USE OF SITE

4.13.1 The right of possession of the premises and the improvements made thereon by the Contractor shall remain at all times in the Owner. The Contractor's right of entry and use thereof arises solely from the permission granted by the Owner under the Contract Documents. The Contractor shall confine his apparatus, the storage of materials and the operations of his workmen to limits indicated by law, ordinances, the Contract Documents and permits and/or directions by the Architect and shall not unreasonably encumber the premises with his materials.

4.14 CUTTING AND PATCHING WORK

4.14.1 The Contractor shall be responsible for all cutting, fitting or patching that may be required to complete the Work or to make its several parts fit together properly.

4.14.2 The Contractor shall not damage or endanger any portion of the Work or the work of the Owner or any separate contractors by cutting, patching or otherwise altering any work, or by excavation. The Contractor shall not cut or otherwise alter the work of the Owner or any separate contractor except with the written consent of the Owner and such separate contractor. The Contractor shall not unreasonably withhold from the Owner or any separate contractor his consent to cutting or otherwise altering the Work.

4.15 CLEANING UP

4.15.1 The Contractor at all times shall keep the premises free from accumulation of waste materials or rubbish caused by his operations. At the completion of the Work he shall remove all his waste materials and rubbish form and about the Project as well as all his tools, construction equipment, machinery and surplus materials. Immediately prior to the Architect's inspection for Substantial Completion, the Contractor shall completely clean the premises. Concrete and ceramic surfaces shall be cleaned and washed. Resilient coverings shall be cleaned, waxed and buffed. Woodwork shall be dusted and cleaned. Sash, fixtures, and equipment shall be thoroughly cleaned. Stains, spots, dust, marks and smears shall be removed from all surfaces. Hardware and all metal surfaces shall be cleaned and polished. Glass and plastic surfaces shall be thoroughly

cleaned by professional window cleaners. All damaged, broken or scratched glass or plastic shall be replaced by the Contractor at this expense.

4.15.2 If the Contractor fails to clean up at the completion of the Work, the Owner may do so as provided in Paragraph 3.4 and the cost thereof shall be charged to the Contractor.

4.15.3 Refer to Specifications Section entitled, PROJECT CLOSEOUT, for additional requirements.

4.16 COMMUNICATIONS

4.16.1 The Contractor shall forward all communications to the Owner through the Architect.

4.17 ROYALTIES AND PATENTS

4.17.1 The Contractor shall pay all royalties and license fees. He shall defend all suits or claims for infringement of any patent rights and shall save the Owner harmless from loss on account thereof, except that the Architect shall be responsible for all such loss when a particular design, process or the product of a particular manufacturer or manufacturers is specified, but if the Contractor has reason to believe that the design, process or product specified is an infringement of a patent, he shall be responsible for such loss unless he promptly gives such information to the Architect.

4.18 INDEMNIFICATION

4.18.1 To the fullest extent permitted by law, the Contractor shall indemnify and hold harmless the Architect and its agents and employees from and against all claims, damages, losses and expenses, including but not limited to attorney's fees, arising out of or resulting from the performance of the Work, provided that any such claim, damage, loss or expense (1) 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 and (2) is caused in whole or in part by any negligent act or omission of the Contractor, any Subcontractor, anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable, regardless of whether or not it is caused in part by a party indemnified hereunder. Such obligation shall not be construed to negate, abridge, or otherwise reduce any other right or obligation of indemnity which would otherwise exist as to any party or person described in this Paragraph 4.18.

4.18.2 In any and all claims against the Architect or any of his agents or employees, by any employee of the Contractor, any Subcontractor, anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable, the indemnification obligation under this Paragraph 4.18 shall

not be limited in any way by any limitation on the amount or type of damages, compensation or benefits payable by or for the Contractor or any Subcontractor under workers' or workmen's compensation acts, disability benefit acts or other employee benefit acts.

4.18.3 The obligations of the Contractor under this Paragraph 4.18 shall not extend to the liability of the Architect, his agents or employees, arising out of (1) the preparation or approval of maps, drawings, opinions, reports, surveys, change orders, designs or specifications, or (2) the giving of or the failure to give directions or instructions by the Architect, his agents or employees provided, such giving or failure to give is the primary cause of the injury or damage.

SECTION 5
SUBCONTRACTORS

5.1 DEFINITION

5.1.1 A Subcontractor is a person or entity who has a direct contract with the Contractor to perform any of the Work at the site and as further defined by M.G.L. c. 30, section 39F(3). The term Subcontractor is referred to throughout the Contract Documents as if singular in number and masculine in gender and means a Subcontractor or his authorized representative. The term Subcontractor does not include any separate contractor or his subcontractors.

5.1.2 A Sub-subcontractor is a person or entity who has a direct or indirect contact with a Subcontractor to perform any of the Work at the site. The term Sub-subcontractor is referred to throughout the Contract Documents as if singular in number and masculine in gender and means a Sub-subcontractor or an authorized representative thereof.

5.2 AWARD OF SUBCONTRACTS AND OTHER CONTRACTS FOR PORTIONS OF THE WORK

5.2.1 Unless otherwise required by the Contract Documents or the Bidding Documents, the Contractor, as soon as practicable after the award of the Contract, shall furnish to the Owner and the Architect, in writing, the names of the persons or entities (including those who are to furnish materials or equipment fabricated to a special design) proposed for each of the principal portions of the Work. The Architect will promptly reply to the Contractor in writing stating whether or not the Owner or the Architect, after due investigation, has reasonable objection to any such proposed person or entity. Failure of the Owner or Architect to reply promptly shall constitute notice of no reasonable objection.

5.2.2 The Contractor shall not contract with any such proposed person or entity to which the Owner or the Architect has made reasonable objection under the provisions of Subparagraph 5.2.1. The Contractor shall not be required to contract with anyone to whom he has a reasonable objection.

5.2.3 If the Owner or the Architect has reasonable objection to any such proposed person or entity, the Contractor shall submit a substitute to whom the Owner or the Architect has no reasonable objection, and the Contract Sum shall be increased or decreased by the difference in cost occasioned by such substitution and an appropriate Change Order shall be issued; however no increase in the Contract Sum shall be allowed for any such substitution unless the Contractor has acted promptly and responsively in submitting names as required by Subparagraph 5.2.1

5.2.4 The Contractor shall make no substitution for any Subcontractor, person or entity previously selected if the Owner or Architect makes reasonable objection to such substitution.

5.3 SUBCONTRACTUAL RELATIONS

5.3.1 By an appropriate agreement, written where legally required for validity, the Contractor shall require each Subcontractor, to the extent of the Work to be performed by the Subcontractor, to be bound to the Contractor by the terms of the Contract Documents, and to assume to the Contractor all the obligations and responsibilities which the Contractor, by these Documents, assumes toward the Owner and the Architect. Said agreement shall preserve and protect the rights of the Owner and the Architect under the Contract Documents with respect to the Work to be performed by the Subcontractor so that the subcontracting thereof will not prejudice such rights, and shall allow to the Subcontractor, unless specifically provided otherwise in the Contractor-Subcontractor agreement, the benefit of all rights, remedies and redress against the Contractor that the Contractor, by these Documents, has against the Owner. Where appropriate, the Contractor shall require each Subcontractor to enter into similar agreements with his Sub-subcontractors. The Contractor shall make available to each proposed Subcontractor, prior to the execution of the Subcontract, copies of the Contract Documents to which the Subcontractor will be bound by this Paragraph 5.3, and identify to the Subcontractor any terms and conditions of the proposed Subcontract which may be at variance with the Contract Documents. Each Subcontractor shall similarly make copies of such Documents available to his Sub-subcontractors.

SECTION 6
WORK BY OWNER OR BY SEPARATE CONTRACTORS

6.1 OWNER'S RIGHT TO PERFORM WORK AND TO AWARD SEPARATE CONTRACTS

6.1.1 The Owner reserves the right to perform work related to the Project with his own forces, and to award separate contracts in connection with other portions of the Project or other work on the site under these or similar Conditions of the Contract. If the Contractor claims that delay or additional cost is involved because of such action by the Owner, he shall make such claim as provided elsewhere in the Contract Documents.

6.1.2 When separate contracts are awarded for different portions of the Project or other work on the site, the term Contractor in the Contract Documents in each case shall mean the Contractor who executes each separate Owner-Contractor Agreement.

6.1.3 The Owner will provide for the coordination of the work of his own forces and of each separate contractor with the Work of the Contractor, who shall cooperate therewith as provided in Paragraph 6.2.

6.1.4 The Contractor shall permit the Owner to place and install as much equipment during the progress of the work as is possible before the completion of the various parts of the work, and agrees that such placing and the installation of equipment shall not in any way evidence the completion of the work or any portion of it, nor shall it signify the Owner's completion of the work or any portion thereof.

6.2 MUTUAL RESPONSIBILITY

6.2.1 The Contractor shall afford the Owner and separate contractors reasonable opportunity for the introduction and storage of their materials and equipment and the execution of their work, and shall connect and coordinate his Work with theirs as required by the Contract Documents.

6.2.2 If any part of the Contractor's Work depends for proper execution or results upon the work of the Owner or any separate contractor, the Contractor shall, prior to proceeding with the Work, promptly report to the Architect any apparent discrepancies or defects in such other work that render it unsuitable for such proper execution and results. Failure of the Contractor so to report shall constitute an acceptance of the Owner's or separate contractors' work as fit and proper to receive his Work, except as to defects which may subsequently become apparent in such work by others.

6.2.3 Any costs caused by defective or ill-timed work shall be borne by the party responsible therefor.

6.2.4 Should the Contractor wrongfully cause damage to the work or property of the Owner, or to other work on the site, the Contractor shall promptly remedy such damages as provided in Subparagraph 10.2.5.

6.2.5 Should the Contractor wrongfully cause damage to the work or property of any separate contractor, the Contractor shall upon due notice promptly attempt to settle with such other contractor by agreement, or otherwise to resolve the dispute. If such separate contractor sues the Owner on account of any damage alleged to have been caused by the Contractor, the Owner shall notify the Contractor.

6.3 OWNER'S RIGHT TO CLEAN UP

6.3.1 If a dispute arises between the Contractor and separate contractors as to their responsibility for cleaning up as required by Paragraph 4.15, the Owner may clean up and charge the cost thereof to the contractors responsible therefor as the Architect shall determine to be just.

SECTION 7
MISCELLANEOUS PROVISIONS

7.1 GOVERNING LAW

7.1.1 The Contract shall be governed by the law of the Commonwealth of Massachusetts.

7.2 SUCCESSORS AND ASSIGNS

7.2.1 The Owner and the Contractor each binds himself, his partners, successors, assigns and legal representatives to the other party hereto and to the partners, successors, assigns and legal representatives of such other party with respect to all covenants, agreements, and obligations contained in the Contract Documents. Neither party to the Contract shall assign the Contract or sublet it as a whole without the written consent of the other, nor shall the Contractor assign any moneys due or to become due to him hereunder, without the previous written consent of the Owner.

7.2.2 If, after making final payment, the Owner conveys to a third party any building or other improvement constructed under the Contract, any rights with respect to the property so conveyed which the Owner may have against the Contractor under Article 13 or by virtue of claims which, under the terms of subparagraph 9.9.4, are reserved to the Owner after the making and acceptance of final payment, shall automatically transfer to such third party.

7.3 WRITTEN NOTICE

7.3.1 Written notice shall be deemed to have been duly served if delivered in person to an authorized representative of the person or entity for whom it was

intended, or if delivered at or sent by registered or certified mail or by telegraph to the address of such person or entity set forth in the Agreement or in a subsequent written notice.

7.4 CONSENT OR WAIVER

7.4.1 No consent or waiver, express or implied, by the Owner or the Architect to, or of, any breach of any covenant, condition or duty of the Contractor shall be construed as a consent to or waiver of any other breach of the same or any other covenant, condition or duty.

7.5 PERFORMANCE BOND AND LABOR AND MATERIAL PAYMENT BOND

7.5.1 The Owner shall have the right to require the Contractor to furnish bonds covering the faithful performance of the Contract and the payment of all obligations arising thereunder if and as required in the Bidding Documents or in the Contract Documents.

7.6 RIGHTS AND REMEDIES

7.6.1 The duties and obligations imposed by the Contract Documents and the rights and remedies available thereunder shall be in addition to and not a limitation of any duties, obligations, rights and remedies otherwise imposed or available by law.

7.7 TESTS

7.7.1 If the Contract Documents, laws, ordinances, rules, regulations or orders of any public authority having jurisdiction require any portion of the Work to be inspected, tested or approved, the Contractor shall give the Architect timely notice of its readiness so the Architect may observe such inspection, testing or approval. The Contractor shall bear all costs of such inspections, tests or approvals conducted by public authorities. Unless otherwise provided, the Owner shall bear all costs of other inspections, tests or approvals.

7.7.2 If the Architect determines that any Work requires special inspection, testing, or approval which Subparagraph 7.7.1 does not include, he will, upon written authorization from the Owner, instruct the Contractor to order such special inspection, testing or approval, and the Contractor shall give notice as provided in Subparagraph 7.7.1. If such special inspection or testing reveals a failure of the Work to comply with the requirements of the Contract Documents, the Contractor shall bear all costs thereof, including compensation for the Architect's additional services made necessary by such failure, otherwise the Owner shall bear such costs, and an appropriate Change Order shall be issued.

7.7.3 The Contractor shall obtain and deliver promptly to the Architect any occupancy permit or any certificates of final inspection of any part of his work or

operating permits for any mechanical apparatus, such as elevators, escalators, boilers, air compressors, etc., which may be required by law to permit full use and occupancy of the premises by the Owner. Receipt of such permits or certificates by the Architect shall be a condition precedent to Substantial Completion of the Work.

SECTION 8
TIME

8.1 DEFINITIONS

8.1.1 Unless otherwise provided, the Contract Time is the period of time allotted in the Contract Documents for Substantial Completion of the Work as defined in Subparagraph 8.1.3, including authorized adjustments thereto.

8.1.2 The date of commencement of the Work is the date established in a notice to proceed. If there is no notice to proceed, it shall be the date of the Owner-Contractor Agreement or such other date as may be established therein.

8.1.3 The Date of Substantial Completion of the Work or designated portion thereof is the Date certified by the Architect when construction is sufficiently complete, in accordance with the Contract Documents, so the Owner can occupy or utilize the Work or designated portion thereof for the use for which it is intended and only minor items which can be corrected or completed without substantial interference with the Owner's use of the Work remain to be corrected or completed.

8.1.4 The term day as used in the Contract Documents shall mean calendar day unless otherwise specifically designated.

8.1.5 The term "working day" shall mean any calendar day except Saturdays, Sundays, and legal holidays at the place of the project.

8.2 PROGRESS AND COMPLETION

8.2.1 All time limits stated in the Contract Documents are of the essence of the Contract.

8.2.2 The Contractor shall begin the Work on the date of commencement as defined in Subparagraph 8.1.2. He shall carry the Work forward expeditiously with adequate forces and shall achieve Substantial Completion within the Contract Time.

8.2.3 Within two weeks after award of the Contract, the Contractor shall submit to the Architect 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.

8.2.4 The Progress Schedule shall be based on an orderly progression of the Work, allowing adequate time for each operation, and leading to a reasonable certainty of Substantial Completion by the date established in the Agreement. The Progress Schedule will be reviewed by the Architect for compliance with the requirements of this article and will be accepted by him or returned to the Contractor for revision and re-submittal. Unless specifically required by law, no payment under this Contract shall be due until the Progress Schedule has been approved by the Architect.

8.2.5 If in any Application for Payment the total value of the completed Work in place, as certified by the Architect, is less than 90% of the total value of the Work in place estimated in the Progress Schedule, the Owner may, at his option, require the Contractor to accelerate the progress of the work without cost to the Owner by increasing the work force or hours of work, or by other reasonable means approved by the Architect.

8.2.6 If each of three successive applications, as certified by the Architect, indicate that the actual work completed is less than 90% of the values estimated in the Progress Schedule to be completed by the respective dates, the Owner may at his option, treat the Contractor's delinquency as a default justifying the Owner to initiate a termination of the Contract.

8.2.7 If the Architect has determined that the Contractor should be permitted to extend the time for completion, as provided in paragraph 8.3, 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 pro-rata.

8.2.8 If the Contractor fails to submit any Application for Payment in any month, the Architect shall, for the purpose of this evaluation of progress, certify separately to the actual value of the work in place and completed as of the first of the month, to the best of his knowledge.

8.2.9 Nothing herein shall limit the Owner's right to liquidated or other damages for delays by the Contractor or to any other remedy which he may possess under other provisions of the Contract Documents or by law.

8.3 DELAYS AND EXTENSIONS OF TIME

8.3.1 Any delay and subsequent request for an extension of time shall be governed by M.G.L. c. 30, section 39(O) and the Owner-Contractor Agreement.

8.3.2 No work shall be suspended without the written permission of the Owner or his representative.

8.3.3 If no agreement is made stating the dates upon which interpretations as provided in Subparagraph 2.2.8 shall be furnished, then no claim for delay shall be allowed on account of failure to furnish such interpretations until thirty days after written request is made for them, and not then unless such claim is reasonable.

8.3.4 This Paragraph 8.3 does not exclude the recovery of damages for delay by either party under other provisions of the Contract Documents.

SECTION 9
PAYMENTS AND COMPLETION

9.1.1 The Contract Sum is stated in the Owner-Contractor Agreement and, including authorized adjustments thereto, is the total amount payable by the Owner to the Contractor for the performance of the Work under the Contract Documents.

9.2 SCHEDULE OF VALUES

9.2.1 Before the first Application for Payment, the Contractor shall submit to the Architect a schedule of values allocated to the various portions of the Work, prepared in such form and supported by such data to substantiate its accuracy as the Architect may require and shall be revised if later found by the Architect to be inaccurate. This schedule, unless objected to by the Architect, shall be used only as a basis for the Contractor's Applications for Payment.

9.3 APPLICATIONS FOR PAYMENT

9.3.1 At least ten days before the date for each progress payment, the Contractor shall submit to the Architect an itemized Application for Payment notarized if required, supported by such data substantiating the Contractor's right to payment as the Owner or the Architect may require, and reflecting retainage, if any, as provided in Supplemental General Conditions-Part I, Article I, Paragraph 1.8 or 1.9; whichever is applicable. The format and number of copies of such Applications for Payment shall be as directed by the Architect.

9.3.2 Unless otherwise provided in the Contract Documents, payments will be made on account of materials or equipment not incorporated in the Work but delivered and suitably stored at the site and, if approved in advance by the Owner,

payments may similarly be made for materials or equipment suitably stored at some other location agreed upon in writing. Payments for materials or equipment stored on or off the site shall be conditioned upon submission by the Contractor of bills of sale or such other procedures satisfactory to the Owner to establish the Owner's title to such materials or equipment or otherwise protect the Owner's interest, including applicable insurance and transportation to the site for those materials and equipment stored off the site. The Contractor shall reimburse the Owner for any loss or damage to such unincorporated materials or equipment not covered by insurance.

9.3.3 The Contractor warrants that title to all Work, materials and equipment covered by an Application for Payment will pass to the Owner either by incorporation in the construction or upon the receipt of payment by the Contractor, whichever occurs first, free and clear of all liens, claims, security interests or encumbrances, hereinafter referred to in this Article 9 as "liens". The Contractor further agrees that the submission of any Application for Payment shall conclusively be deemed to waive all liens with respect to said work, materials and labor to which the Contractor then may be entitled; provided, however, that in no event shall such waiver of lien rights waive right to payment for said Work, materials and labor.

9.3.4 Each Application for Payment or periodic estimate requesting payment must be accompanied by a certificate from each subcontractor stating that he has been paid all amounts due him on the basis of the previous periodic payment to the Contractor, or else stating the amount not so paid and the reason for the discrepancy. In the event of any such discrepancy, the Contractor shall be required to furnish his own written explanation.

9.4 CERTIFICATES FOR PAYMENT

9.4.1 The Architect will, within seven days after the receipt of the Contractor's Application for Payment, either certify a Certificate for Payment to the Owner, with a copy to the Contractor, for such amount as the Architect determines is properly due, or notify the Contractor in writing his reasons for withholding certification of a Certificate as provided in Subparagraph 9.6.1.

9.4.2 The certification of a Certificate for Payment will constitute a representation by the Architect to the Owner, based on his observations at the site as provided in Subparagraph 2.2.3 and the data comprising the Application for Payment, that the Work has progressed to the point indicated; that, to the best of his knowledge, information and belief, the quality of the Work is in accordance with the Contract Documents (subject to an evaluation of the Work for conformance with the Contract Documents upon Substantial Completion, to the results of any subsequent tests required by or performed under the Contract Documents, to minor deviations from the Contract Documents correctable prior to completion, and to any specific qualifications stated in his Certificate); and that the Contractor is entitled to payment in the amount certified. However, by certifying a Certificate

for Payment, the Architect shall not thereby be deemed to represent that he has made exhaustive or continuous on-site inspections to check the quality or quantity of the Work or that he has reviewed the construction means, methods, techniques, sequences or procedures, or that he has made any examination to ascertain how or for what purpose the Contractor has used the moneys previously paid on account of the Contract.

9.5 PROGRESS PAYMENTS

9.5.1 After the Architect has certified a Certificate for Payment, the Owner shall make payment in the manner and within the time provided in the Contract Documents.

9.5.2 The Contractor shall promptly pay each Subcontractor upon receipt of payment from the Owner, out of the amount paid to the Contractor on account of such Subcontractor's Work, the amount to which said Subcontractor is entitled, reflecting the percentage actually retained, if any, from payments to the Contractor on account of such Subcontractor's Work. The Contractor shall, by an appropriate agreement with each Subcontractor, require each Subcontractor to make payments to his Sub-subcontractors in similar manner.

9.5.3 The Architect may, on request and at his discretion, furnish to any Subcontractor, if practicable, information regarding the percentages of completion or the amounts applied for by the Contractor and the action taken thereon by the Architect on account of Work done by such Subcontractor.

9.5.4 Neither the Owner nor the Architect shall have any obligation to pay or to see the payment of any moneys to any Subcontractor except as may otherwise be required by law.

9.5.5 No Certificate for a progress payment, nor any progress payment, nor any partial or entire use or occupancy of the Project by the Owner, shall constitute an acceptance of any Work not in accordance with the Contract Documents.

9.6 PAYMENTS WITHHELD

9.6.1 The Architect may decline to certify payment, in whole or in part, to the extent reasonably necessary to protect the Owner, if in his/her opinion he/she is unable to make representations to the Owner as provided in Subparagraph 9.4.2. If the Architect is unable to make representations to the Owner as provided in Subparagraph 9.4.2 and to certify payment in the amount of the Application, he/she will notify the Contractor as provided in Subparagraph 9.4.1. If the Contractor and the Architect cannot agree on a revised amount, the Architect will promptly certify a Certificate for Payment for the amount for which he/she is able to make such representations to the Owner. The Architect may also decline to certify payment or because of subsequently discovered evidence or subsequent observations, he may nullify the whole or any part of any Certificate for Payment

previously certified, to such extent as may be necessary in his/her opinion to protect the Owner from loss because of:

1. defective Work not remedied

2. third party claims filed or reasonable evidence indicating probable filing of such claims,

3. failure of the Contractor to make payments properly to subcontractors or for labor, materials or equipment

4. reasonable evidence that the Work cannot be completed for the unpaid balance of the Contract Sum,

5. damage to the Owner,

6. reasonable evidence that the Work will not be completed within the Contract Time or

7. persistent failure to carry out the Work in accordance with the Contract Documents

8. failure of mechanical trades or electrical trades subcontractors to comply with mandatory requirements for maintaining record drawings. The Contractor shall be required to check record drawings each month. Written confirmation that the record drawings are "up-to-date" shall be required by the Architect before approval of the Contractor's monthly payment requisition will be considered.

9.6.2 When the above grounds in Subparagraph 9.6.1 are removed, payment shall be made for amounts withheld because of them.

9.7 FAILURE OF PAYMENT

9.7.1 If the Architect does not certify a Certificate for Payment, through no fault of the Contractor, within seven days after receipt of the Contractor's Application for Payment, or if the Owner does not pay the Contractor as required by the Contract Documents any amount certified by the Architect, then the Contractor may, upon seven additional days written notice to the Owner and the Architect, stop the Work until payment of the amount owing has been received.

9.8 SUBSTANTIAL COMPLETION

9.8.1 When the Contractor considers that the Work, or a portion thereof designated in the Contract Documents for separate completion, is substantially complete as defined in subparagraph 8.1.3, the Contractor shall submit to the Architect (1) a list of items to be completed or corrected, and (2) all special

warranties required by the Contract Documents endorsed by the Contractor and in a form reasonably acceptable to the Architect. The failure to include any items on the list mentioned in the preceding sentence does not alter the responsibility of the Contractor to complete all Work in accordance with the Contract Documents. When the Architect on the basis of an inspection determines that the Work or designed portion thereof is substantially complete, and when the Contractor has submitted to the Architect the special warranties, as provided in the first sentence of this subparagraph, the Architect will then certify a Certificate of Substantial Completion which shall establish the Date of Substantial Completion, shall state the responsibilities of the Owner and the Contractor for security, maintenance, heat, utilities, damage to the Work, and insurance, and shall fix the time within which the Contractor shall complete the items listed therein. Warranties required by the Contract Documents shall commence on the Date of Substantial Completion of the Work or designated portion thereof unless otherwise provided in the Certificate of Substantial Completion. The Certificate of Substantial Completion shall be submitted to the Owner and the Contractor for their written acceptance of the responsibilities assigned to them in such Certificate.

9.8.2 Upon Substantial Completion of the Work or designated portion thereof and upon application by the Contractor and certification by the Architect, the Owner shall make payment, reflecting adjustment in retainage, if any, for such Work or portion thereof, as provided in the Contract Documents.

9.9 FINAL COMPLETION AND FINAL PAYMENT

9.9.1 Upon receipt of written notice that the Work is ready for final inspection and acceptance and upon receipt of a final Application for Payment, the Architect will promptly make such inspection and, when he finds the Work acceptable under the Contract Documents and the Contract fully performed, he will promptly certify a final Certificate of Payment stating that to the best of his knowledge, information and belief, and on the basis of his observations and inspections, the Work has been completed in accordance with the terms and conditions of the Contract Documents and that the entire balance found to be due the Contractor, and noted in said final Certificate, is due and payable. The Architect's certification of the final Certificate for Payment will constitute a further representation that the conditions precedent to the Contractor's being entitled to final payment as set forth in Subparagraph 9.9.2 have been fulfilled.

9.9.2 Unless otherwise required by applicable law, neither the final payment nor the remaining retained percentage shall become due until the Contractor submits to the Architect (1) an affidavit that all payrolls, bills for materials and equipment, and other indebtedness connected with the Work for which the Owner or his property might in any way be responsible, have been paid or otherwise satisfied, (2) consent of surety, if any, to final payment and (3), if required by the Owner, other data establishing payment or satisfaction of all such obligations, such as receipts, releases and waivers of liens, arising out of the Contract, to the extent and in such form as may be designated by the Owner. If the Contractor fails to

furnish such releases or waivers as the Owner reasonably requires to satisfy that there are not outstanding claims, the Owner may require the Contractor, as a condition of final payment, to furnish a bond satisfactory to the Owner to indemnify the Owner against any such claims.

9.9.3 If, after Substantial Completion of the Work, final completion thereof is materially delayed through no fault of the Contractor or by the issuance of Change Orders affecting final completion, and the Architect so confirms, the Owners shall, upon application by the Contractor and certification by the Architect, 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 for Work not fully completed or corrected is less than the retainage stipulated in the Contract Documents, and if bonds have been furnished as provided in Paragraph 7.5., 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 the Contractor to the Architect prior to certification of 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.

9.9.4 The making of final payment shall constitute a waiver of all claims by the Owner except those arising from: (1) unsettled claims under the Bonds required elsewhere in the Contract Documents, (2) faulty or defective Work appearing after Substantial Completion, (3) failure of the Work to comply with the requirements of the Contract Documents, or (4) terms of any special warranties required by the Contract Documents.

9.9.5 The acceptance of final payment shall constitute a waiver of all claims by the Contractor except those previously made in writing and identified by the Contractor as unsettled at the time of the final Application for Payment.

SECTION 10
PROTECTION OF PERSONS AND PROPERTY

10.1 SAFETY PRECAUTIONS AND PROGRAMS

10.1.1 The Contractor shall be responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the Work.

10.2 SAFETY OF PERSONS AND PROPERTY

10.2.1 The Contractor shall take all reasonable precautions for the safety of, and shall provide all reasonable protection to prevent damage, injury or loss to: (1) all employees on the Work and all other persons who may be affected thereby; (2) all the Work and all materials and equipment to be incorporated therein, whether in storage on or off the site, under the care, custody or control of the Contractor or any of his Subcontractors or Sub-subcontractors; and (3) other property at the site or adjacent thereto, including trees, shrubs, lawns, walks, pavements,

roadways, structures and utilities not designated for removal, relocation or replacement in the course of construction.

10.2.2 The Contractor shall give all notices and comply with all applicable laws, ordinances, rules, regulations and lawful orders of any public authority bearing on the safety of persons or property or their protection from damage, injury or loss.

10.2.3 The Contractor shall erect and maintain, as required by existing conditions and progress of the Work, all reasonable safeguards for safety and protection, including posting danger signs and other warnings against hazards, promulgating safety regulations and notifying owners and users of adjacent utilities.

10.2.4 When the use or storage of explosives or other hazardous materials or equipment is necessary for the execution of the Work, the Contractor shall exercise the utmost care and shall carry on such activities under the supervision of properly qualified personnel.

10.2.5 The Contractor shall promptly remedy all damage or loss (other than damage or loss insured under Paragraph 11.3) to any property referred to in Clause 10.2.1.2 and 10.2.1.3 caused in whole or in part by the Contractor, any Subcontractor, any Sub-subcontractor, or anyone directly or indirectly employed by any of them, or by anyone whose acts any of them may be liable and for which the Contractor is responsible under Clauses 10.2.1.2 and 10.2.1.3, except damage or loss attributable to the acts or omissions of the Owner or Architect or anyone directly or indirectly employed by either by of them, or by anyone for whose acts either of them may be liable, and not attributable to the fault or negligence of the Contractor. The foregoing obligations of the Contractor are in addition to his obligations under Paragraph 4.18.

10.2.6 The Contractor shall designate a responsible member of his organization at the site whose duty shall be the prevention of accidents. This person shall be the Contractor's superintendent unless otherwise designed by the Contractor in writing to the Owner and the Architect.

10.2.7 The Contractor shall not load or permit any part of the Work to be loaded so as to endanger its safety.

10.3 EMERGENCIES

10.3.1 In any emergency affecting the safety of persons or property, the Contractor shall act, at his discretion, to prevent threatened damage, injury or loss. Any additional compensation or extension of time claimed by the Contractor on account of emergency work shall be determined as provided in Article 12 for the Changes in the Work.

SECTION 11
INSURANCE

11.1 CONTRACTOR'S LIABILITY INSURANCE

11.1.1 The Contractor shall purchase and maintain in a company or companies to which the Owner has no reasonable objection, such insurance as will protect him from claims set forth below which may arise out of or result from the Contractor's operations under the Contract whether such operations be by himself or by any Subcontractor or anyone directly or indirectly employed by any of them, or by anyone for whose acts any of them may be liable:

1) claims under workers' or workmen's compensation, disability benefit and other similar employee benefit acts;

2) claims for damages because of bodily injury, occupations sickness or disease, or death of his or her employees

3) claims for damages because of bodily injury, sickness or disease, or death of any person other than his or her employees

4) claims for damages insured by usual personal injury liability coverage which are sustained (1) by any person as a result of an offense directly or indirectly related to the employment of such person by the contractor or, 92) by any other person;

5) claims for damages, other than to the Work itself, because of injury to or destruction of tangible property, 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

11.1.2 The insurance required by subparagraph 11.1.1 shall include all major divisions of coverage, and shall be on a comprehensive general basis including Premises and Operations (including X-C-U), Owner's and Contractor's Protective Products and Completed Operations, and Owned, Non-owned, and Hired Motor Vehicles. Such insurance shall be written for not less than any limits of liability required by law or those set forth below, whichever is greater.

1. Workmen's Compensation -Statutory/Employers Liability $500,000.

2. Commercial General Liability - Per Occurrence / Aggregate $1,000.000 / 2,000,000

3. Automobile Liability – Combined Single Limit

4. Bodily Injury & Property Damage combined single limit of $ 1,000,000 (all owned, hired and non-owned autos).

5. Excess / Umbrella Liability – Per Occurrence / Aggregate $ 1,000,000 / $ 1,000,000

6. Independent Contractors -Same limits as above

7. Products and Completed Operations -Same limits as above commencing with issuance of final Certificate of Payment.

8. Contractual Liability - Same limits as above.

11.1.3 The insurance required by Subparagraph 11.1.1 shall include contractual liability insurance applicable to the Contractor's obligations under Paragraph 4.18.

11.1.4 Certificates of Insurance acceptable to the Owner shall be filed with the Owner. These Certificates shall contain a provision that coverages afforded under the policies will not be canceled until at least thirty days prior written notice has been given to the Owner.

11.1.4.1 These certificates shall set forth evidence of all coverage required by 11.1.1, 11.1.2 and 11.1.3. The Contractor shall furnish to the Owner copies of any endorsements that are subsequently issued amending limits of coverage.

11.2 OWNER'S LIABILITY INSURANCE

11.2.1 The Owner shall be responsible for maintaining his own liability insurance and, at his option, may purchase and maintain such insurance as will protect him against claims which may arise from operations under the Contract.

11.3 PROPERTY INSURANCE

11.3.1 The Contractor shall purchase and maintain property insurance upon the entire Work at the site to the full insurable value thereof. This insurance shall include the interests of the Owner, the Contractor, Subcontractors and Sub-subcontractors in the Work and shall insure against the perils of fire and extended coverage and shall include "all risk" insurance for physical loss or damage including, without duplication of coverage, theft, vandalism and malicious mischief.

11.3.2 The Owner shall purchase and maintain such boiler and machinery insurance as may be required by the Contract Documents or by law. This

insurance shall include the interests of the Owner, the Contractor, Subcontractors and Sub-subcontractors in the Work.

11.3.3 Any loss insured under Subparagraph 11.3.1 is to be adjusted with the Contractor and made payable to the Contractor as trustee for the insureds, as their interests may appear, subject to the requirements of any applicable mortgagee clause and of Subparagraph 11.3.8.

11.3.4. The Contractor shall pay each Subcontractor a just share of any insurance moneys received by the Contractor, and by appropriate agreement, written where legally required for validity, shall require each Subcontractor to make payments to his Sub-subcontractors in similar manner.

11.3.5 The Contractor shall file a copy of all policies with the Owner before an exposure to loss may occur.

11.3.6 The Owner and Contractor waive all rights against (1) each other and the Subcontractors, Sub-subcontractors, agents and employees each of the other, and (2) the Architect and separate contractors, if any, and their subcontractors, sub-subcontractors, agents and employees, for damages caused by fire or other perils to the extent covered by insurance obtained pursuant to this Paragraph 11.3 or any other property insurance applicable to the Work, except such rights as they may have to the proceeds of such insurance held by the Contractor as trustee. The foregoing waiver afforded the Architect, his agents and employees shall not extend to the liability imposed by Subparagraph 4.18.3. The Owner or the Contractor, as appropriate, shall require of the Architect, separate contractors, Subcontractors, and Sub-subcontractors by appropriate agreements, written where legally required for validity, similar waivers each in favor of all other parties enumerated in this Subparagraph 11.3.6.

11.3.7 If required in writing by any party in interest, the Contractor as trustee shall, upon the occurrence of an insured loss, give bond for the proper performance of his duties. He shall deposit in a separate account any money so received, and he shall distribute it in accordance with such agreement as the parties in interest may reach or in accordance with the direction of a court of competent jurisdiction.

11.3.8 The Contractor as trustee shall have power to adjust and settle any loss with the insurers unless one of the parties in interest shall object in writing within five days after the occurrence of loss to the Contractor's exercise of this power. If such objection be made, the Contractor as trustee shall make settlement with the insurers in accordance with the direction of a court of competent jurisdiction.

11.4 LOSS OF USE INSURANCE

11.4.1 The Owner, at his option, may purchase and maintain such insurance as will insure him against loss of use of his property due to fire or other hazards, however caused. The Owner waives all rights of action against the Contractor for loss of use of his property including consequential losses due to fire or other hazards however caused, to the extent covered by insurance under this Paragraph 11.4.

SECTION 12
CHANGES IN THE WORK

12.1 CHANGE ORDERS

12.1.1 The Owner, without invalidating the Contract, may order changes in the Work within the general scope of the Contract consisting of additions, deletions or other revisions, the Contract Sum and the Contract Time being adjusted accordingly. All such changes in the Work shall be authorized by Change Order, and shall be performed under the applicable conditions of the Contract Documents.

12.1.2 A Change Order is a written order to the Contractor signed by the Owner and the Architect, issued after execution of the Contract, authorizing or directing a change in the Work and/or an adjustment in the Contract Sum or the Contract Time, or both. The Contract Sum and the Contract Time may be changed only by Change Order. A Change Order signed by the Contractor indicates his agreement with the terms thereof, including the adjustment in the Contract Sum and/or the Contract Time.

12.1.3 If the Contractor does not agree with the terms of the Change Order, the Contractor shall return the unsigned Change Order to the Owner. In such event, the Work, Contract Sum and /or Contract Time shall be adjusted as reflected in the Change Order, subject to the Contractor's rights under M.G.L. Chapter 30, Section 39J, but in no event shall the Contractor refuse to perform the Work as modified by the Change Order.

12.2 CLAIMS FOR ADDITIONAL COST

12.2.1 If the Contractor claims that any instructions or orders, whether oral, written, drawings, or otherwise, involve extra cost or time, and such instructions or orders are not accompanied by a written acknowledgment by the Owner that extra payment will be made or time extended, he shall promptly so notify the Owner in writing and shall not proceed with the work until he has received a further written order to proceed; except, as provided in Paragraph 10.3, in the case of an emergency affecting life or property.

12.2.2 Upon receipt from the Contractor of a written notice of claim as provided in Paragraph 12.2.1, the Architect shall review such claim, and if he determines that any work in dispute should proceed, he shall issue to the Contractor a written order, signed by the Owner, (1) to proceed, which shall approve or deny the Contractor's claim, in whole or in part, or (2) to proceed subject to a later determination by the Architect of the Contractor's right to extra payment.

12.2.3 To the extent that the Architect, when issuing the written order to proceed described in 12.2.2, approves the Contractor's claim, the Contract Sum and/or Contract Time shall be adjusted by Change Order. If the Architect, when issuing his written order to proceed denies, in whole or in part, the Contractor's claim, the Contractor shall proceed with the work without delay, subject to the Contractor's rights under M.G.L. Chapter 30, Section 39J. If the Architect, when issuing his written order to proceed, instructs the Contractor to proceed with the work subject to a later determination by the Architect of the Contractor's right to extra payment or time, the Contractor shall proceed with the Work without delay.

12.3 MINOR CHANGES IN THE WORK

12.3.1 The Architect shall have the authority to order minor changes in the Work that do not involve an adjustment in the Contract Sum or an extension of the Contract Time, and are not inconsistent with the intent of the Contract Documents. Such changes shall be effected by written order, and shall be binding on the Owner and the Contractor. The Contractor shall carry out such written orders promptly.

12.4 EQUITABLE ADJUSTMENTS

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

1) fixed price basis, provided that the price shall be inclusive of items 3(a) through 3(d), below, and shall be computed in accordance with those provisions.

2) 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 adjustments.

3) Time and materials basis, based upon a not to exceed, predetermined set amount to be subsequently adjusted on the basis of actual costs comprised of items (a) through (d) below:

    a) the costs at prevailing rates for direct labor, material and use of equipment;

b) plus, the costs of Worker's Compensation Insurance, Liability Insurance, Federal Social Security and Massachusetts Unemployment Compensation; or as an alternative, the Contractor may elect to add a flat twenty-five (25%) percent to the total labor rate in (a), above;

c) plus ten (10) percent of (a), above, for overhead, superintendence and profit which will be paid to the Contractor for the work of the Contractor and all subcontractors. The contracting parties referred to in this subparagraph shall agree upon the distribution of the ten (10) percent as a matter of contract between each other;

d) plus actual direct premium costs of payment and performance bonds required of the Contractor provided there would be an appropriate credit for premiums for a credit change order

e) if the extra work requires the use of heavy equipment, cranes and hoisting equipment, and special tools not on site and not originally required to be used upon the work, then the cost of transportation to and from the work site, not exceeding 100 miles, shall be included. The cost of extra work shall not include any cost or rental of small tools, buildings, or nay portion of the time of the Contractor's management or office personnel, or any allowance for use of capital.

12.4.2 If the net change is an addition to the Contract Sum, it shall include the Contractor's overhead, superintendence and profit. On any change that involves a net credit, no allowance for overhead superintendence and profit shall be figured. For any change that does not include labor performed or materials installed in the Project, there will be no markup for the contractor's overhead, superintendence, and profit, notwithstanding any net increase in the Contract Sum. Charges for small tools known as "tools of the trade" are not to be computed in the amount of an equitable change.

SECTION 13
UNCOVERING AND CORRECTION OF WORK

13.1 UNCOVERING OF WORK

13.1.1 If any portion of the Work should be covered contrary to the request of the Architect or to requirements specifically expressed in the Contract Documents, it must, if required in writing by the Architect, be uncovered for his observation and shall be replaced at the Contractor's expense.

13.1.2 If any other portion of the Work has been covered which the Architect has not specifically requested to observe prior to being covered, the Architect, with the approval of the Owner, may request to see such Work and it shall be uncovered by the Contractor. If such Work be found in accordance with the Contract

Documents, the cost of uncovering and replacement shall, by appropriate Change Order, be charged to the Owner. If such Work be found not in accordance with the Contract Documents, the Contractor shall pay such costs unless it is found that this condition was caused by the Owner or a separate contractor as provided in Article 6, in which event the Owner shall be responsible.

13.2 CORRECTION OF WORK

13.2.1 The Contractor shall promptly correct all Work rejected by the Architect as defective or as failing to conform to the Contract Documents whether observed before or after Substantial Completion and whether or not fabricated, installed or completed. The Contractor shall bear all costs of correcting such rejected Work, including compensation for the Architect's additional services made necessary thereby and any costs, loss, or damages to the Owner resulting from such failure or defect.

13.2.2 If, within one year after the Date of Substantial Completion of the Work or designated portion thereof or within one year after acceptance by the Owner of designated equipment or within such longer period of time as may be prescribed by law or by the terms of any applicable special warranty required by the Contract Documents, any of the Work is found to be defective or not in accordance with the Contract Documents, the Contractor shall correct it promptly after receipt of a written notice from the Owner to do so unless the Owner has previously given the Contractor a written acceptance of such condition. This obligation shall survive termination of the Contract. The Owner shall give such notice promptly after discovery of the condition.

13.2.3 The Contractor shall remove from the site all portions of the Work which are defective or non-conforming and which have not been corrected under Subparagraphs 4.5.1, 13.2.1, and 13.2.2, unless removal is waived by the Owner.

13.2.4 If the Contractor fails to correct defective or nonconforming Work as provided in Subparagraphs 4.5.1, 13.2.1, and 13.2.2, the Owner may correct it in accordance with Paragraph 3.4.

13.2.5 If the Contractor does not proceed with the correction of such defective or non-conforming Work within a reasonable time fixed by written notice from the Architect, the Owner may remove it and may store the materials or equipment at the expense of the Contractor. If the Contractor does not pay the cost of such removal and storage within ten days thereafter, the Owner may upon ten additional days written notice, sell such Work at auction or at private sale and shall account for the net proceeds thereof, after deducting all the costs that should have been borne by the Contractor, including compensation for the Architect's additional services made necessary thereby. If such proceeds of sale do not cover all costs which the Contractor should have borne, the difference shall be charged to the Contractor and an appropriate Change Order shall be issued. If the payments then

or thereafter due the Contractor are not sufficient to cover such amount, the Contractor shall pay the difference to the Owner.

13.2.6 The Contractor shall bear the cost of making good all work of the Owner or separate contractors destroyed or damaged by such correction or removal.

13.2.7 Nothing contained in this Paragraph 13.2 shall be construed to establish a period of limitation with respect to any other obligation which the Contractor might have under the Contract Documents, including Paragraph 4.5 hereof. The establishment of the time period of one year after the Date of Substantial Completion or such longer period of time as may be prescribed by law or by the terms of any warranty required by the Contract Documents relates only to the specific obligation of the Contractor to correct the Work, and has no relationship to the time within which his obligation to comply with the Contract Documents may be sought to be enforced, nor to the time within which proceedings may be commenced to establish the Contractor's liability with respect to his obligations other than specifically to correct the Work.

13.3 ACCEPTANCE OF DEFECTIVE OR NON-CONFORMING WORK

13.3.1 If the Owner prefers to accept defective or non-conforming Work, he may do so instead of requiring its removal and correction, in which case a Change Order will be issued to reflect a reduction in the Contract Sum where appropriate and equitable. Such adjustment shall be effected whether or not final payment has been made.

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SUPPLEMENTARY GENERAL CONDITIONS – PART I
STATUTORY PROVISIONS FOR MASSACHUSETTS
PUBLIC CONSTRUCTION CONTRACTS

The following provisions are required by or are intended to be consistent with requirements of Massachusetts statutes governing public construction contracts in the Commonwealth of Massachusetts (hereinafter referred by statute to be included herein shall be deemed to be so included. In addition, the parties recognize that other rights, duties, and obligations with respect to public construction contracts are provided for in the Contract Documents. In case of conflict between the provisions of these Supplementary General Conditions and other provisions in the Contract Documents, the provisions of these Supplementary General Conditions shall govern. In case of conflict between the provisions of these Supplementary General Conditions and the provisions of any applicable statute, the statutory provisions shall govern. Where the term "awarding authority" appears in the following paragraphs, it shall be taken as meaning the Owner.

ARTICLE 1 – PAYMENT, CONTRACT ADMINISTRATION, etc.

1.1 "Or Equal" Clause: (Statutory reference: M.G.L. Chapter 30, Section 39M(b))
This Paragraph 1.1 applies to every contract subject to M.G.L. Chapter 30, Section 39M(b).

This Paragraph 1.1 applies to every contract for the construction, reconstruction or repair of any public work or for the purchase of any material by the Commonwealth, any political subdivision thereof, or any county, city, town, district or housing authority (above certain dollar limits, as stated in the statute), and to contracts awarded pursuant to M.G.L. Chapter 149, Sections 44A through 44H. The said Sections 44A through 44H apply to every contract for the construction, reconstruction, installation, demolition, maintenance or repair of any building by a department, agency, board, commission, authority, or other instrumentality or the Commonwealth or political subdivision thereof, or two or more subdivisions thereof, but not including the Massachusetts Bay Transportation Authority, estimated to cost more than a dollar amount set forth in M.G.L. Chapter 149, Section 44A.

Every such contract shall provide that an item equal to that named or described in the said specifications may be furnished. Where products or materials are prescribed by manufacturer name, trade name, or catalog reference, the words "or approved equal" shall be understood to follow. An item shall be considered equal to the item so named or described if, in the opinion of the awarding authority:

a. It is at least equal in quality, durability, appearance, strength, and design;

b. 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

c. it conforms substantially, even with deviations, to the detailed requirements for the items as indicated by the specifications. For each item of material the specifications shall provide for either a minimum of three named brands of material or a description of

material which can be met by a minimum of three manufacturers or producers, and for the equal of any one of said name or described materials.

Any structural or mechanical changes made necessary to accommodate substituted equipment under this paragraph shall be at the expense of the Contractor or Subcontractor responsible for the work item. See other paragraphs of General and Supplementary Conditions for procedures to be used in determining compliance with the standards of this paragraph.

1.2 Delays: (Statutory reference: Chapter 30, Section 39O). This Paragraph 1.2 applies to every contract subject to M.G.L. Chapter 30, Section 39M and to every contract subject to Chapter 149, Sections 44A through 44H.

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.

Except as otherwise provided by law and by this Paragraph 1.2, the Contractor shall not be entitled to damages on account of any hindrances or delays, avoidable or unavoidable; but if such delay be occasioned by the awarding authority, the Contractor may be entitled to an extension of time only, in which to complete the work, to be determined by the Architect.

(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 days or more or due to a failure of the awarding authority to act within the time specified in this contract, the awarding authority shall make an adjustment in the contract price for any increase in the cost of performance of this contract but shall not include any profit to the general contractor on such increase; and provided further, that the awarding authority shall not make any adjustment in the contract price under this provision for any suspension, delay, interruption or failure to act to the extent that such is due to any cause for which this contract provides for an equitable adjustment of the contract price under any other contract provisions.
(b) The general contractor must submit the amount of a claim under provision (a) to the awarding authority in writing as soon as practicable after the end of the suspension, delay, interruption or failure to act and, in any event, not later than the date of final payment under this contract and, except for costs due to a suspension order, the awarding authority shall not approve any costs in the claim incurred more than twenty days before the general contractor notified the awarding authority in writing of the act or failure to act involved in the claim.

1.3 Deviations: (Statutory referenced: M.G.L. Chapter 30, section 39I) This Paragraph 1.3 applies to every contract for the construction, alteration, maintenance, repair or demolition of,

or addition to, any public building or public works for the Commonwealth or any political subdivision thereof.

The Contractor shall perform all the work required by this contract in conformity with the plans and specifications contained therein. No willful and substantial deviation from said plans and specifications shall be made unless authorized in writing by the awarding authority or by the Engineer or Architect in charge of the work who is duly authorized by the awarding authority to approve such deviations. In order to avoid delays in the prosecution of the work required by such contract, such deviation from the plans or specifications may be authorized by a written order of the awarding authority or such Engineer or Architect so authorized to approve such deviation. Within thirty days thereafter, such written order shall be confirmed by a certificate of the awarding authority stating: (1) If such deviation involves any substitution or elimination of materials, fixtures or equipment, the reasons why such materials, fixtures or equipment were included in the first instance and the reasons for substitution or elimination, and, if the deviation is of any other nature, the reasons for such deviation, giving justification therefor (2) that the specified deviation does not materially injure the project as a whole; (3) that either the work substituted for the work specified is the same cost and quality, or that an equitable adjustment has been agreed upon between the awarding authority and the Contractor and the amount in dollars of said adjustment; and (4) that the deviation is in the best interest of the awarding authority.

Such certificate shall be signed under the penalties of perjury and shall be a permanent part of the file record of the work contracted for.

Whoever violates any provision of this section willfully and with intent to defraud shall be punished by a fine of not more than five thousand dollars or by imprisonment for not more than six months, or both.

1.4 Finality of Decisions by Awarding Authority or Architect: (Statutory reference: M.G.L. Chapter 30, Section 39J) This Paragraph 1.4 applies to every contract for the construction, reconstruction, alteration, remodeling, repair or demolition of any public building or public works by the Commonwealth or by any county, city, district, board, commission, or other public body, when the amount of the contract exceeds the amount stated in M.G.L. Chapter 30, Section 39J.

Notwithstanding any contrary provision of this contract, a decision by the contracting body or by any administrative board, official or agency, or by any architect or engineer, on a dispute, whether of fact or of law, arising under said contract shall not be final or conclusive if such decision is made in bad faith, fraudulently, capriciously, or arbitrarily, is unsupported by substantial evidence, or is based upon error of law.

1.5 Differing Site Conditions: (Statutory reference: M.G.L. Chapter 30, Section 39N) This Paragraph 1.5 applies to every contract subject to M.G.L. Chapter 30, Section 39M and to every contract subject to M.G.L. Chapter 49, Sections 44A through 44H.

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 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 such a nature as to cause 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.

1.6 Timely Decision by Awarding Authority: (Statutory reference: M.G.L. Chapter 30, Section 39P) This Paragraph 1.6 applies to every contract subject to M.G.L. Chapter 30, Section 39M, and to every contract subject to M.G.L. Chapter 149, Sections 44A through 44H.

In every case in which this contract requires the awarding authority, any official, its Architect or Engineer to make a decision on interpretation of the specifications, approval of equipment, material or any other approval, or progress of the work, the decision shall be made promptly and, in any event, no later than thirty days after the written submission for decision; but if such decision requires extended investigation and study, the awarding authority, the official, Architect or Engineer shall, within thirty days after the receipt of the submission, give the party making the submission written notice of the reasons why the decision cannot be made within the thirty-day period and the date by which the decision will be made.

1.7 Certificate of Appropriation: (Statutory reference: M.G.L. Chapter 44, Section 31C) This Paragraph 1.7 applies to contracts for construction, reconstruction, alteration, remodeling, repair or demolition of any public building or public work by any city or town costing more than the amount set forth in M.G.L. Chapter 44, Section 31C.

This 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 such 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 to be performed under a contract subject to this section, 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 have been given until the auditor or accountant, or other officer of the awarding authority having similar duties, has certified thereon that an appropriation in the amount of such order is available therefor; but such certificate shall not be construed as an admission by the awarding authority of its liability to pay for such work. The certificate of the auditor or accountant or other officer of the awarding authority having similar duties, that an appropriation in the amount of such contract or order is available shall bar any defense by the awarding authority on the ground of insufficient appropriation; and any law barring payment in excess of appropriations shall not apply to amounts covered by any certificate under this section.

1.8 Method of Payment: (Statutory reference: M.G.L. Chapter 30, Section 39K) This Paragraph 1.8 applies to 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 two thousand dollars, or the amount set forth in M.G.L. Chapter 30, Section 39K.

1.8.1 Within fifteen days 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 Paragraph 1.10 of these Supplementary General Conditions, and less (3) a retention not exceeding five percent 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 percent of the original contract price, or (b) the Contractor substantially completes the work and the awarding authority takes possession for occupancy, whichever occurs first, the awarding authority shall pay the contractor the entire balance due on the contract less (1) a retention based on its estimate of the fair value of its claims against the Contractor and of the cost of completing the incomplete and unsatisfactory items of work and less (2) a retention for direct payments to Subcontractors based on demands for same in accordance with the provisions of Paragraph 1.10 of these Supplementary General Conditions, 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 Paragraph 1.10. 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 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 days…after receipt of such periodic estimate from the Contractor, at the place designated by the awarding authority if such a place is so designated. The Contractor agrees to pay to each Subcontractor a portion of any such interest paid in accordance with the amount due each Subcontractor.

1.8.2 The awarding authority may make changes in any periodic estimate submitted by the Contractor, and the payment due on said periodic estimate shall be computed in accordance with the change 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.

1.8.3 All periodic estimates shall be submitted to the awarding authority, or to its designee as set forth in writing to the Contractor, and the date of receipt by the awarding authority or its designee shall be marked on the estimate. All periodic estimates shall contain a separate item for each subtrade and each sub-subtrade listed in sub-bid form as required by the 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.

1.8.4 A certificate of the Architect to the effect that the Contractor has fully or substantially completed the work shall, subject to the provisions of Paragraph 1.4 of these Supplementary General Conditions, be conclusive for the purposes of this Paragraph 1.8.

1.8.5 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.

1.9 Method of Payment: (Statutory reference: M.G.L. Chapter 30, section 39G) This Paragraph 1.9 applies to every contract 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 entered into with the commonwealth, or any agency or political subdivision thereof.

1.9.1 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 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.

1.9.2 Within sixty-five days after the effective date of a declaration of substantial completion, the awarding authority shall prepare and forthwith send to the contractor for acceptance a substantial completion estimate for the quality and price of the work done and all but one percent retainage on that work, including the quantity, price and all but one percent retainage 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 payments filed by subcontractors and not yet paid to subcontractors or deposited in joint accounts pursuant to section 1.10, but no contract subject to said section 1.10 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.

1.9.3 If the awarding authority fails to prepare and send to the contractor any substantial completion estimate required by section 1.9.2, 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.

1.9.4 Within fifteen 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 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 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.

1.9.5 Within thirty 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 on that work less the 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 sends to the contractor the final estimate within thirty 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.

1.9.6 The awarding authority shall pay the amount due pursuant to any substantial completion or final estimate within thirty-five 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 day to the day of payment. Within 15 days after receipt from the contractor, if such place is so 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 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 claim against the contractor, a retention for direct payments to subcontractors based on demands for same in accordance with the provisions of section 1.10, and a retention to secure satisfactory performance of the contractual work not exceeding five percent 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 1.10; provided, that a five percent value of all items that are planted in the ground shall be deducted from the periodic payments until final acceptance.

1.9.7 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.

1.9.8 Substantial completion, for the purpose of this section 1.9, shall mean either that the work required by the contract has been completed except for work having a contract price of less than one 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.

1.10 Direct Payment: (Statutory reference: M.G.L. Chapter 30, Section 39F) This Paragraph 1.10 applies to every contract awarded pursuant to M.G.L. Chapter 149, Sections 44A through 44J, and (with the exception of Subparagraph 1.10.9) to every contract awarded pursuant to M.G.L. Chapter 30, Section 39M.

1.10.1 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.

1.10.2 Not later than the sixty-fifth day after each Subcontractor substantially completes the 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.

1.10.3 Each payment made by the awarding authority to the General Contractor pursuant to Subparagraphs 1.10.1 and 1.10.2 of this Paragraph 1.10 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 for payment to the Subcontractor as provided in Subparagraphs 1.10.1 and 1.10.2, the awarding authority shall act upon the demand as provided in this Paragraph 1.10.

1.10.4 If, within seventy days after the Subcontractor has substantially completed the subcontract work, the Subcontractor has not received from the Contractor the balance due under the subcontract including any amount due for extra labor and materials furnished to the General Contractor, less any amount retained by the awarding authority as to the estimated cost of completing the incomplete and unsatisfactory items of work, the Subcontractor may demand direct payment of that balance from the awarding authority. The demand shall be by a sworn statement delivered to or sent by certified mail to the awarding authority, and a copy shall be delivered to or sent by certified mail to the General Contractor at the same time. The demand shall contain a detailed breakdown of the balance due under the subcontract and also a statement of the status of completion of the subcontract work. Any demand made after substantial completion of the subcontract work shall be valid even if delivered or mailed prior to the seventieth day after the Subcontractor has substantially completed the subcontract work. Within ten days after the Subcontractor has delivered or so mailed the demand to the awarding authority and delivered or so mailed a copy to the General Contractor, the General Contractor

may reply to the demand. The reply shall be 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.

1.10.5 Within fifteen days after receipt of the demand by the awarding authority, but in no event prior to the seventieth day after substantial completion of the subcontract work, the awarding authority shall make direct payment to the Subcontractor of the balance due under the subcontract, including any amount due for extra labor and materials furnished to the General Contractor, less any amount (i) retained by the awarding authority as the estimated cost of completing the incomplete or unsatisfactory items of work, (ii) specified in any court proceedings barring such payment, or (iii) disputed by the General Contractor in the sworn reply; provided, that the awarding authority shall not deduct from 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 1.10.4 The awarding authority shall make further direct payments to the Subcontractor forthwith after the removal of the basis for deduction from direct payments made as provided in parts (i) and (ii) of this Subparagraph.

1.10.6 The awarding authority shall forthwith deposit the amounts deducted from a direct payment as provided in part (iii) of the Subparagraph 1.10.5 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 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.

1.10.7 All direct payments and all deductions from demands for direct payments deposited in an interest-bearing account or accounts in a bank pursuant to Subparagraph 1.10.6 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 or 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.

1.10.8 The awarding authority shall deduct from payments to a General Contractor amounts which, together with the deposits in interest-bearing accounts pursuant to Subparagraph 1.10.6, are sufficient to satisfy all unpaid balances of demands for direct payments 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.

1.10.9 If the Subcontractor does not receive payment as provided in Subparagraph 1.10.1 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 1.10.1, the Subcontractor may demand direct payment by following the procedure in Subparagraph 1.10.4 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 Subparagraphs 1.10.5, 1.10.6, 1.10.7 and 1.10.8.

1.10.10 Any assignment by a Subcontractor of the rights under this section to a surety company furnishing a bond under the provisions of M.G.L. Chapter 149, Section 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 Subparagraph 1.10.6 shall be subordinate to the rights of all Subcontractors who are entitled to be paid under this section and who have not been paid in full.

1.10.11 "Subcontractor" as used in this Paragraph 1.10 (i) for contracts awarded as provided in M.G.L. Chapter 149, Sections 44A-44J, inclusive, 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 M.G.L. Chapter 30, Section 39M(a), 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.

1.10.12 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 1.1.6 by a petition in equity in the superior court against the other and the bank shall not be a necessary party. A Subcontractor shall enforce a claim for direct payment or a right to require a deposit as provided in Subparagraph 1.10.6 by a petition in equity in the superior court against the awarding authority and the Contractor shall not be a necessary party. Upon motion of any party the court shall advance for speedy trial any petition filed as provided in this paragraph. M.G.L. Chapter 231, Sections 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 Sections 59 and 59B and, upon motion of any party, shall advance for speedy trial the petition to collect the remainder of the claim. Any party aggrieved by such interlocutory decree shall have the right to appeal therefrom as from a final decree. The court shall not consolidate for trial the petition of any Subcontractor with the petition of one or more Subcontractors or the same general contract unless the court finds that a substantial portion of the evidence of the same events during the course of construction (other than the fact that the claims sought to be consolidated arise under the same general contract) is applicable to the petitions sought to be consolidated and that such consolidation will prevent unnecessary duplication of evidence. A decree in any such proceeding shall not include interest on the disputed amount deposited in excess of the interest earned for the period of any such deposit. No person except a Subcontractor filing a demand for direct payment for which no funds due the Contractor are available for direct payment shall have a right to file a petition in a court of equity against the awarding authority claiming a demand for direct payment is premature, and such Subcontractor

must file the petition before the awarding authority has made a direct payment to the Subcontractor and has made a deposit of the disputed portion as provided in part (iii) of Subparagraph 1.10.5 and in Subparagraph 1.10.6.

1.10.13 In any petition to collect any claim for which a Subcontractor has filed a demand for direct payment the court shall, upon motion of the General Contractor, reduce by the amount of any deposit of a disputed amount by the awarding authority as provided in part (iii) of Subparagraph 1.10.5 and in Subparagraph 1.10.6 any amount held under a trustee writ or pursuant to a restraining order or injunction.

1.11 Discharge or Release of Bonds (Statutory reference: M.G.L. c.30, section 40) This Paragraph 1.11 applies to every contract awarded for the construction or repair of public buildings or other public works.

1.11.1 Bonds given to the commonwealth, any county, city, town or political subdivision to secure the performance of contracts for the construction or repair of public buildings or other public works may be discharged or released by the awarding authority, upon such terms as it deems expedient, after the expiration of one year from the time of completion, subject to Section 1.8, of the work contracted to be done; provided that no claim filed under said bond is pending, and provided further, that no such bonds shall be discharged or released prior to the expiration of all special guarantees provided for in the contract unless new bonds in substitution therefor specifically relating to the unexpired guarantees shall be taken.

ARTICLE 2 – WAGES AND EMPLOYMENT PRACTICES

2.1 Preference To Veterans and Citizens In Public Works; Rate of Wages: (Statutory reference: M.G.L. c. 149, Section 26) This Paragraph 2.1 applies to every contract or subcontract for the construction of public works by the Commonwealth or by a county, town or district.

2.1.1 In the employment of mechanics and apprentices, teamsters, chauffeurs and laborers, preference shall first be given to citizens of the Commonwealth who have been residents of the Commonwealth for at least six months at the commencement of their employment, who are veterans as defined in M.G.L. Chapter 4, Section 7, clause 43, 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 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.

2.1.2 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 or more towns, the wages paid to laborers shall not be less than those paid to laborers in the municipal 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 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 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 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.

2.2 List of Jobs; Classifications; Determination of Rate of Wages; Schedule: (Statutory reference: M.G.L. Chapter 149, Section 27) This Paragraph 2.2. applies to every contract or subcontract for the construction of public works by the Commonwealth, or by a county, town or district.

2.2.1 The commissioner shall prepare, for the use of such public officials or public bodies whose duty it shall be to cause public works to be constructed, a list of the several jobs usually performed on various types of public works upon which mechanics and apprentices, teamsters, chauffeurs and laborers are employed, including the transportation of gravel or fill to the site of said public works or the removal of surplus gravel or fill from such site. The commissioner shall classify said jobs, and he may revise such classification from time to time, as he may deem advisable. Prior to awarding a contract for the construction of public works, said public official or public body shall submit to the commissioner a list of the jobs upon which mechanics and apprentices, teamsters, chauffeurs and laborers are to be employed, and shall request the commissioner to determine the rate of wages to be paid on each job. Each year after the awarding of the contract, the public official or public body shall submit to the commissioner a list of the jobs upon which mechanics and apprentices and laborers are to be employed and shall request that the commissioner update the determination of the rate of wages to be paid on each job. The general contractor shall annually obtain updated rates from the public official or public body and no contractor or subcontractor shall pay less than the rates so established. Said rates shall apply to all persons engaged in transporting gravel or fill to the site of said public works or removing gravel or fill from such site, regardless of whether such persons are employed by a contractor or subcontractor or are independent contractors or owner-operators. The commissioner, subject to the provisions of Section 2.1, shall proceed forthwith to determine the same, and shall furnish said official or public body with a schedule of such rate or rates of wages as soon as said determination shall have been made. In advertising or calling for bids for said works, the awarding official or public body shall incorporate said schedule in the advertisement or call for bids by an appropriate reference thereto, and shall furnish a copy of said schedule,

without cost, to any person requesting the same. Said schedule shall be made a part of the contract for said works and shall continue to be the minimum rate or rates of wages for said employees during the life of the contract. Any person engaged in the construction of said works shall cause a legible copy of said schedule and subsequent updates to be kept posted in a conspicuous place at the site of said works during the life of the contract. An apprentice performing work on a project subject to this section shall maintain in his possession an apprentice identification card issued pursuant to section M.G.L. Chapter 23, Section 11W. The aforesaid rates of wages in the schedule of wage rates shall include payments by employers to health and welfare plans, pension plans and supplementary unemployment benefit plans as provided in said Section 2.1, and such payments shall be considered as payments to persons under this section performing work as herein provided. Any employer engaged in the construction of such works who does not make payments to a health and welfare plan, a pension plan and a supplementary unemployment benefit plan, where such payments are included in said rates of wages, shall pay the amount of said payments directly to each employee engaged in said construction. Whoever shall pay less than said rate or rates of wages, including payments to health and welfare funds and pension funds, or the equivalent payment in wages, on said works to any person performing work within classifications as determined by the commissioner, and whoever, for himself, or as representative, agent or officer of another, shall take or receive for his own use or the use of any other person, as a rebate, refund or gratuity, or in any other guise, any part or portion of the wages, including payments to health and welfare funds and pension funds, or the equivalent payment in wages, paid to any such person for work done or service rendered on said public works, shall have violated this section and shall be punished or shall be subject to a civil citation or order as provided in M.G.L. Chapter 149, Section 27C. The president and treasurer of a corporation and any officers or agents having the management of such corporation shall also be deemed to be employers of the employees of any corporation within the meaning of Sections 2.1 to 2.3, inclusive. Offers of restitution or payment of restitution shall not be considered in imposing such punishment.

2.2.2 When an investigation by the attorney general's office reveals that a contractor or subcontractor has violated this section by failing to pay said rate or rates of wages, including payments to health and welfare funds and pension funds, or the equivalent payment in wages, on said works to any person performing work within classifications as determined by the commissioner, or that a contractor or subcontractor has, for himself, or as representative, agent or officer of another, taken or received for his own use or the use of any other person, as a rebate, refund or gratuity, or in any other guise, any portion of the wages, including payments to health and welfare funds and pension funds, or the equivalent payment in wages, paid to any such person for work done or service rendered on said public works, the attorney general may, upon written notice to the contractor or subcontractor and the sureties of the contractor or subcontractor, and after a hearing thereon, order work halted on the part of the contract on which such wage violations occurred, until the defaulting contractor or subcontractor has filed with the attorney general's office a bond in the amount of such penal sum as the attorney general shall determine, conditioned upon payment of said rate or rates of wages, including payments to health and welfare funds and pension funds, or the equivalent payment in wages, on said works to any person performing work within classifications as determined by the commissioner. An employee claiming to be aggrieved by a violation of this section may, 90 days after the filing of a complaint with the attorney general, or sooner if the attorney general assents in writing, and within 3 years after the violation, institute and prosecute in his own name and on his own behalf,

or for himself and for others similarly situated, a civil action for injunctive relief, for any damages incurred, and for any lost wages and other benefits. An employee so aggrieved who prevails in such an action shall be awarded treble damages, as liquidated damages, for any lost wages and other benefits and shall also be awarded the costs of the litigation and reasonable attorneys' fees.

2.3 Employment Records To Be Kept By Contractor, Subcontractors; Statement of Compliance: (Statutory reference: M.G.L. c. 149, Section 27B) This Paragraph 2.3 applies to every contract or subcontract for the construction of public works by the Commonwealth, or by a county, town or district.

Every Contractor, Subcontractor or public body engaged in said public works to which Paragraph 2.3 of these Supplementary General Conditions applies shall keep a true and accurate records of all mechanics and apprentices, teamsters, chauffeurs and laborers employed thereon, showing the name, address and occupational classification of each such employee on said works, and hours worked by, and wages paid to, each such employee, and shall promptly furnish to the Attorney General or his representative, upon his request, a copy of said record, signed by the employer or his authorized agent under the penalties of perjury. For every week in which an apprentice is employed by a contractor, subcontractor or public body subject to this section, a photocopy of the apprentice's apprentice identification card, issued pursuant to M.G.L. Chapter 23, Section 11W, shall be attached to the records submitted under this section. Such records shall be open to inspection by any authorized representative of the department at any reasonable time, and as often as may be necessary. Every contractor and subcontractor required to keep such a record shall submit a copy of said record to the awarding authority directly and on a weekly basis.

Each such Contractor, Subcontractor or public body shall preserve its payroll records for a period of three years from the date of completion of the contract.

Each such Contractor, Subcontractor or public body shall furnish to the awarding authority directly within fifteen days after completion of its portion of the work a statement, executed by the Contractor, Subcontractor, or public body who supervises the payment of wages, in the following form.

STATEMENT OF COMPLIANCE

I, _____
(Name of signatory party) (Title)

do hereby state:

That I pay or supervise the payment of the persons employed by

_____
(Contractor, Subcontractor or public body)

on the _____ and that all mechanics
(building or project)

and apprentices, teamsters, chauffeurs and laborers employed on said project have been paid in accordance with wages determined under the provisions of sections twenty-six and twenty-seven of chapter one hundred and forty-nine of the General Laws.

Signature _____

Title _____

The above-mentioned copies of payroll records and statements of compliance shall be available for inspection by any interested party filing a written request to the awarding authority for such inspection and copying.

2.4 Wages Paid to Operators of Trucks and Other Equipment: (Statutory reference: M.G.L. c. 149, Section 27F) This Paragraph 2.4 applies to every contract for the construction of public works by the Commonwealth, or by a county, city, town or district.

No agreement of lease, rental or other arrangement, and no order or requisition under which a truck or any automotive or other vehicle or equipment is to be engaged in public works by the commonwealth or by a county, city, town or district, shall be entered into or given by any public official or public body unless said agreement, order or requisition contains a stipulation requiring prescribed rates of wages, as determined by the commissioner, to be paid to the operators of said trucks, vehicles or equipment. Any such agreement, order or requisition which does not contain said stipulation shall be invalid, and no payment shall be made thereunder. Said rates of wages shall be requested of said commissioner by said public official or public body, and shall be furnished by the commissioner in a schedule containing the classifications of jobs, and the rate of wages to be paid for each job. Said rates of wages shall include payments to health and welfare plans, or, if no such plan is in effect between employers and employees, the amount of such payments shall be paid directly to said operators. Whoever pays less than said rates of wages, including payments to health and welfare funds, or the equivalent in wages, on said works, and whoever accepts for his own use, or for the use of any other person, as a rebate, gratuity or in any other guise, any part or portion of said wages or health and welfare funds, shall have violated this section and shall be punished or shall be subject to a civil citation or order as

provided in M.G.L. Chapter 149, Section 27C. An employee claiming to be aggrieved by a violation of this section may, 90 days after the filing of a complaint with the attorney general, or sooner if the attorney general assents in writing, and within 3 years after the violation, institute and prosecute in his own name and on his own behalf, or for himself and for others similarly situated, a civil action for injunctive relief, for any damages incurred, and for any lost wages and other benefits. An employee so aggrieved who prevails in such an action shall be awarded treble damages, as liquidated damages, for any lost wages and other benefits and shall also be awarded the costs of the litigation and reasonable attorneys' fees.

2.5 Reserve Police Officers: (Statutory reference: M.G.L. Chapter 149, Section 34B) This Paragraph 2.5 applies to 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.

The contractor shall pay to any reserve police officer employed by him in any city or town the prevailing rate of wages paid to regular police officers in such city or town.

2.6 Eight-hour Day, etc.: (Statutory reference: M.G.L. Chapter 149, Sections 30, 34, and 34A) This Paragraph 2.6 applies only to contracts which are subject to the provisions of the aforesaid sections of the Massachusetts General Laws.

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 hours in any one week, or more than six days in any one week, except in cases of extraordinary emergency.

2.7 Lodging, etc.: (Statutory reference: M.G.L. Chapter 149, Section 25) This paragraph 2.7 applies to every contract for the doing of public work with the Commonwealth, a county, city or town, or with a department, board, commission, or officer acting therefor.

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.

2.8 Access to Contractor’s Records: (Executive Order No. 195) This Paragraph 2.8 applies to every contract for the purchase of services or materials by any agency, bureau, board, commission, institution, or department of the Commonwealth or a municipal contract funded, in whole or in part, by the Commonwealth.

The Governor or his designee, the secretary of administration and finance, and the state auditor or his designee shall have the right at reasonable times and upon reasonable notice to examine the books, records and other compilations of data of the Contractor which pertain to the performance and requirements of this contract.

2.9 Worker's Compensation Insurance: (Statutory reference: M.G.L. chapter 149, Section 34) This Paragraph 2.9 applies to 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.

The Contractor shall, before commencing performance of the contract, provide by insurance for the payment of and the furnishing of other benefits under M.G.L. Chapter 152 to all persons to be employed under the contract, and the Contractor shall continue such insurance in full force and effect during the term of the contract. Sufficient proof of compliance with this Paragraph 2.9 must be furnished at the time of execution of this contract. 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 other party and to the awarding authority at least fifteen days prior to the intended effective date thereof, which date shall be expressed in said notice.
Notice of cancellation sent by the party proposing cancellation by registered mail, postage prepaid, with a return receipt of the addressee requested, shall be a sufficient notice. 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 or by imprisonment for six 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.

ARTICLE 3 – CONTRACTOR'S ACCOUNTING METHOD REQUIREMENTS

3.1 (Statutory reference: M.G.L. Chapter 30, Section 39R)
This Article 3 applies to "Contracts" and "Contractors", as defined in Subparagraph 3.1.1 and 3.1.2, below.

3.1.1 "Contractor" means any person, corporation, partnership, joint venture, sole proprietorship, or other entity awarded a contract pursuant to Sections 38A 1/2 to 38O, inclusive, of Chapter 7, Section 39M of Chapter 30, Sections 44A-44J, inclusive, of Chapter 149, or Section 11C of Chapter 25A which is for an amount or estimated amount that exceeds the dollar amount set forth in M.G.L. Chapter 30, Section 39R.

3.1.2 "Contract" means any contract awarded or executed pursuant to Sections 38A 1/2 to 38O, inclusive, of Chapter 7, Section 39M of Chapter 30, Sections 44A-44J, inclusive, of Chapter 149, or Section 11C of Chapter 25A which is for an amount or estimated amount that exceeds the dollar amount set forth in M.G.L. Chapter 30, Section 39R.

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

3.1.4 “Independent Certified Public Accountant” means a person duly registered in good standing and entitled to practice as a certified public accountant under the laws of the place of his residence or principal office 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.

3.1.5 “Audit”, when used in regard to financial statements, means an examination of records by an independent certified public accountant in accordance with generally accepting 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.

3.1.6 “Accountant’s Report”, when used in regard to financial statements, means a document in which an independent certified public accountant indicates the scope of the audit which he has made and sets 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 reasons 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 auditing financial statement is a true and complete statement of the financial condition of the Contractor.

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

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

3.2 Subparagraph 3.1.2 hereof notwithstanding, every agreement or contract awarded or executed pursuant to to Sections 38A 1/2 to 38O, inclusive, of Chapter 7, Section 39M of Chapter 30, Sections 44A-44J, inclusive, of Chapter 149, or Section 11C of Chapter 25A, shall provide that:

3.2.1 The Contractor shall make, and keep for at least six years after final payment, books, records, and accounts which in reasonable detail accurately and fairly reflect the transactions and dispositions of the Contractor; and

3.2.2 Until the expiration of six years after final payment, the awarding authority, office of inspector general, and the commissioner of capital asset management and maintenance shall have the right to examine any books, documents, papers or records of the Contractor or his Subcontractors that directly pertain to, and involve transactions relating to, the Contractor or his Subcontractors; and

3.2.3 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.

3.2.4 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 3.3 below prior to the execution of the contract.

3.2.5 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 3.5 below.

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

3.3.1 transactions are executed in accordance with management's general and specific authorization:

3.3.2 transactions are recorded as necessary

(i) to permit preparation of financial statements in conformity with generally accepted accounting principles, and

(ii) to maintain accountability for assets;

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

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

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

3.4.1 Whether the representations of management in response to this paragraph and Paragraph 3.2 above are consistent with the result of management's evaluation of the system of internal accounting controls; and

3.4.2 Whether such representations of management are, in addition, reasonable with respect to transactions and assets in amounts which would be material when measured in relation to the applicant's financial statements.

3.5 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.

ARTICLE 4 – MISCELLANEOUS

4.1 Weather Protection: This Paragraph 4.1 applies to every contract subject to M.G.L. Chapter 149, Section 44A.

4.1.1 The Contractor shall install weather protection and provide adequate heat in the protected area from November 1 to March 31, as required by M.G.L. Chapter 149 Section 44F(1).

4.2 Form for Sub-contract: This Paragraph 4.2 applies to every contract subject to M.G.L. Chapter 149 Section 44A.

4.2.1 The Contractor when sub-contracting with sub-bidders filed pursuant to M.G.L. Chapter 149, Section 44F shall use the form for sub-contract in Chapter 149 Section 44F(4)(c).

4.3 Foreign Corporations: This Paragraph 4.3 applies to every contract with the Commonwealth, a county, city, town, district, board, commission, or other public body for the construction, reconstruction, alteration, remodeling, repair, or demolition of any public building or other public works.

4.3.1 The Contractor, if a foreign corporation, shall comply with M.G.L. Chapter 30, Section 39L.

4.4 Shoring: (Statutory reference: M.G.L. Chapter 149, Section 129A*).* This Paragraph 4.4 applies to every construction project carried on by any city, town, county, or other subdivision of the Commonwealth in which a trench is to be dug to a depth of five feet or more, except a trench for laying of water pipes dug to a depth of six and one-half feet which will be open less than 48 hours, and except for digging of graves.

4.4.1 Such trenches shall be shored and braced in conformity with rules and regulations for the prevention of accidents in construction operations, as adopted and enforced by the Attorney General.

4.5 Certification of Compliance with Tax Laws: (Statutory reference: M.G.L. Chapter 62C, Section 49A) This Paragraph 4.5 applies to contracts for goods or services furnished by any department, board, commission, division, authority, district or other agency of the Commonwealth or any subdivision of the Commonwealth, including a city, town or district.

4.5.1 By executing this contract, the Contractor certifies, under penalties of perjury, that to the best of his information, knowledge and belief he has complied with all laws of the Commonwealth relating to taxes.

4.6 Verification of Construction Debris Disposal: (Worcester Revised Ordinances Chapter 8, Section 7) This paragraph 4.6 shall apply to every contract entered into by the City of Worcester for the demolition, renovation, rehabilitation, or alteration of a building or structure.

a. In furtherance of the requirements set forth in G.L. c.40, §54, and §114.1.3 of the State Building Code, the building commissioner shall require any person who obtains a permit for the demolition, renovation, rehabilitation, or alteration of a building or structure to provide verification that the debris resulting from such activities was disposed of at the licensed solid waste facility named in conjunction with the permit application.

b. The verification required under sub-section (a), above, shall consist of the following:

    1) a dated receipt, signed by the owner/operator of the licensed solid waste disposal facility where the debris was deposited.

    2) the receipt shall contain a description of the debris disposed of, and its weight, or volume.

    3) the permit holder shall also provide the building commissioner with an affidavit that the receipt submitted is true and accurate to the best of the permit holder's knowledge.

    4) if the permit holder cannot dispose of the debris at the location indicated, it shall be the permit holder's obligation to obtain an amendment to the permit reflecting the new disposal location. The building commissioner shall be so notified, and the permit amended, prior to the disposal of the debris at the new disposal location.

c. This section shall not apply to the construction of a new building or structure.

4.7 Responsible Employer Ordinance: (Worcester Revised Ordinances, Chapter 2, Section 35) *This paragraph 4.7 shall apply to every contract entered into by the City of Worcester for the construction, reconstruction, installation, demolition, maintenance or repair of any* ***building****, where the contract amount is more than one hundred thousand dollars.*

a. The city council hereby finds and determines that taxpayer money is most efficiently and productively spent by awarding construction contracts to firms that include and enforce provisions requiring compliance with state laws governing the payment of prevailing wages, the provision of workers compensation coverage, and the proper classification of individuals as employees and not as independent contractors, as well as provisions concerning health insurance coverage and state-certified apprenticeship programs. The city council hereby further finds and determines that it is appropriate for it to exercise its entrepreneurial discretion by requiring firms that are awarded such contracts to comply with this ordinance because failure to comply is injurious to the life, health, and happiness of individuals employed by such firms and is deleterious to the quality of life in the city where most of such individuals reside.

b. Every contract awarded by the city under G.L. c.149 and G.L. 149A shall be deemed to incorporate by reference the provisions of sub-parts (c)(1) through (8) of together with the provisions of subsections (d) and (e) of this section. Any person, company or corporation shall acknowledge, in writing, receipt of said requirements with their bid or proposal.

c. All bidders or proposers and all subcontractors and trade contractors, including subcontractors that are not subject to G.L. c.149, Section 44F, under the bidder for projects subject to G.L. c.149, Section 44A(2), and proposers under G.L. c. 149A, shall as a condition for bidding or subcontracting verify under oath and in writing at the time of bidding or subcontracting verify under oath and in writing at the time of budding or submittal in response to and RFP or in any event prior to entering into a subcontract at any tier, that they comply with the following conditions for bidding or subcontracting and, for the duration of the project, shall comply with the following obligations:

    1) The bidder or proposer and all trade contractors and subcontractors under the bidder or proposer must comply with the obligations established under G.L. c. 149 to pay the appropriate lawful prevailing wage rates to their employees.

    2) The bidder or proposer and all trade contractors and subcontractors under the bidder or proposer must at a the time of bidding maintain or participate in a bona fide apprentice training program as defined by G.L. c.23, Sections 11H and 11I for each apprenticable trade or occupation represented in their workforce that is approved by the Division of Apprentice Standards of the Department of Labor and Workforce Development, regardless of whether or not the program qualifies as an employee welfare benefit plan under ERISA, and must register all apprentices with the Division and abide by the apprentice to journeyman ratio for each trade prescribed therein in the performance of any work on the project. This provision does not require the program to be an ERISA plan; the program need only have been approved by the Division of Apprentice Standards. All general bidders or

proposers and all trade contractors and sub-bidders at every tier must submit with its bid or proposal an original, stamped Sponsor Verification letter from the Commonwealth of Massachusetts, Department of Labor and Workforce Development – Division Apprentice Standards, issued within the past 90 days, evidencing that at the time of submitting a bid or proposal, the bidder or proposer is currently an Approved Sponsor of Apprentices. Any bid or proposal submitted without the above documentation shall be rejected; *(Compliance with the apprentice training provision is currently suspended 7/24/14)*

3) The bidder or proposer and all trade contractors and subcontractors under the bidder or proposer must maintain appropriate industrial accident insurance coverage for all the employees on the project in accordance with G.L. c. 152;
4) The bidder or proposer and all trade contractors and subcontractors under the bidder must properly classify employees as employees rather than independent contractors and treat them accordingly for purposes of workers' compensation insurance coverage, unemployment taxes, social security taxes and income tax withholding. (G.L. c.149, Section 148B on employee classification);

5) The bidder or proposer and all trade contractors and subcontractors under the bidder or proposer must at the time of bidding certify that, at the time employees begin work at the worksite, all employees will have successfully completed a course in construction safety and health approved by the United States Occupational Safety and Health Administration that is at least 10 hours in duration, and shall ensure that all employees working at the worksite possess such qualifications at all times throughout the duration of their work on the project and furnish documentation of successful completion of the course;

6) The bidder or proposer and all trade contractors and subcontractors under the bidder or proposer must be in compliance with the health and hospitalization requirements of the Massachusetts Health Care Reform law established by Chapter 58 of the Acts of 2006, as amended, and regulations promulgated under that statute by the Commonwealth Health Insurance Connector Authority.

7) The bidder or proposer and all trade contractors and subcontractors under the bidder or proposer must make arrangements to ensure that each employee of every contractor entering or leaving the project individually completes the appropriate entries in a daily sign-in/out log. The sign-in/out log shall include: the location of the project; current date; printed employee name; signed employee name; and the time of each entry or exiting. The log shall contain a prominent

notice that employees are entitled under state law to receive the prevailing wage rate for their work on the project. Such sign-in/out logs shall be provided to the City on a daily basis.

8) The bidder or proposer and all trade contractors and subcontractors under the bidder or proposer, prior to bidding or, if not subject to bidding requirements, prior to performing any work on the project, shall sign under oath and provide to the City a certification that they are not debarred or otherwise prevented from bidding for or performing work on a public project in the Commonwealth of Massachusetts or in the City.

d. A proposal or bid submitted by any general bidder or by any trade contractor or subcontractor under the general bidder or proposer that does not comply with any of the foregoing conditions for bidding shall be rejected, and no subcontract for work outside the scope of G.L. c.149, Section 44F shall be awarded to a subcontractor that does not comply with the foregoing conditions.
e. All bidders or proposers and all trade contractors and subcontractors under the bidder or proposer who are awarded or who otherwise obtain contracts on the projects subject to G.L. c.149, Section 44A(2) or c.149A, shall comply with each of the obligations set forth in this Section 4.7 for the entire duration of their work on the project, and an officer of each bidder or subcontractor under the bidder shall certify under oath and in writing on a weekly basis that they are in compliance with such obligations.
f. Any proposer, bidder, trade contractor or subcontractor under the bidder or proposer who fails to comply with any one of the obligations set forth in this Section 4.7 for any period of time shall be, at the sole discretion of the City, subject to one or more of the following sanctions:
   1) cessation of work on the project until compliance is obtained;
   2) withholding of payment due under any contract or subcontract until compliance is obtained;
   3) permanent removal from any further work on the project;
   4) liquidated damages payable to the City in the amount of 5% of the dollar value of the contract.

g. In addition to the sanctions outlined in subsection (h) above, a proposer, general bidder or contractor shall be equally liable for the violations of its subcontractor with the exception of violations arising from work performed pursuant to subcontracts that are subject to G.L. c.149, Section 44F. Any contractor or subcontractor that has been determined by the City or by any court or agency to have violated any of the obligations set forth in this Section 4.7 shall be barred from performing any work on any future projects for six months for a first violation, three years for a second violation and permanently for a third violation.

4.8 Regulation of Construction Noise: (Worcester Revised Ordinances, Chapter 8, Section 34) This paragraph 4.8 shall apply to anyone operating powered construction equipment delivering construction equipment and/or supplies at any construction site or project within the city of Worcester.

a. It shall be unlawful for any person, firm, corporation, partnership, or other entity to operate powered construction equipment or to build, erect, construct, demolish, alter, repair, excavate or engage in hoisting, grading, site work, including tree and brush removal, dredging or pneumatic hammering, or to deliver construction equipment and/or supplies to the site on any building, road, tower, parking lot, machine, pipe, sewer, sidewalk, or any other construction project (hereafter collectively the "construction project"), except between the hours of 7:00 a.m. and 9:00 p.m. on weekdays and Saturday, except for "emergency work" which is performed in the interest of public safety or welfare and for which a permit has been issued by the commissioner of public works and parks or the commissioner of inspectional services.

   It shall be unlawful for any person, firm, corporation, partnership, or other entity to engage in a construction project activity on Sundays or legal holidays without a permit from the police chief issued pursuant to G.L. c. 136, Section 7 or 15 and a permit issued by the commissioner of inspectional services hereunder.

b. Emergency work permits may be issued in:

   1) cases of urgent necessity and for the interests of health, safety and convenience of the public. The commissioner of inspectional services shall whether the reasons given for the urgent necessity are valid and reasonable, and whether the health, safety and convenience of the public will be protected or better served by granting the permit requested and whether the manner and amount of loss or inconvenience to the party in interest imposes a significant hardship; or,

   2) cases where, because the location and nature of the work, the noise caused by said work will not be heard by anyone not working on the project. The commissioner of inspectional services shall consider whether supplying machinery and/or materials to the construction project site will cause unreasonable noise along the routes to the construction project site, and whether such activity will impact residential neighborhoods, and shall not grant any emergency work permit unless unreasonable noise in residential areas will be prevented.

c. Emergency work permits may be issued to the general contractor on a blanket basis that applies to all of the contractors working on the job, or may be issued to specific contractors on the construction project, at the discretion of the Commissioner.

Emergency work permits may be issued for not more than one week at a time, and may be renewed for additional one week periods at the discretion of the Commissioner.

d. Prior to issuing or reissuing said emergency work permit, the commissioner of inspectional services shall review the work being conducted and all attendant circumstances, and shall prescribe whatever limitations possible to minimize the generation of noise, and to minimize the impact of noise on the neighbors to the construction project.

e. Emergency repair work performed by the Department of Public Works and/or any public utility is exempt from this section.

f. The fee for each such Emergency work permits issued under this section shall be set in accordance with Chapter 2, § 24 of the City of Worcester Revised Ordinances of 2008.

g. On any project for the construction, reconstruction, installation, demolition, maintenance or repair of any building, or public work, to be funded in whole or in part by city funds, or funds which, in accordance with a federal or state grant, program, or otherwise, the city expends or administers, or any such project to which the city is a signatory to the contract therefor, the provisions of this section shall apply and the same shall be referred in every invitation to bid for such project and, the following paragraphs shall be contained in every resulting contract therefrom:

> "It shall be a material breach of this contract if the contractor and each subcontractor shall not at all times adhere to the provisions of § 34 of chapter eight of the Revised Ordinances of the city, by limiting their on-site, noise producing construction and related work to the hours specified by the Ordinance.
>
> A waiver from the above requirements may, in certain circumstances, be granted in accordance with subsections (b), (c) and (d) of § 34 of chapter eight of the Revised Ordinances of the city."

h. The commissioner of inspectional services shall have the authority to adopt any rules and regulations he or she deems necessary to implement this section.

i. Nothing in this section shall be deemed to prevent an individual from performing work on his or her own property, so long as the work is being done by the owner of the property or by direct relative(s) of the owner, and said work is not being done for profit.

j. This section may be enforced by the commissioner of inspectional services, the building commissioner, the chief of police or their subordinates.

> Any violation of this section by any person, firm, corporation, partnership, or other entity, shall be individually punished with a fine of $100.00. Each day upon which a violation of this section occurs shall be considered a separate violation. Employers shall be deemed the violator for violations committed by their employees.

4.9 Regulation of Excessive and Unreasonable Noise: (Worcester Revised Ordinances, Chapter 9, Section 1A(e)(9) This paragraph 4.9 shall apply to anyone operating powered construction equipment delivering construction equipment and/or supplies at any construction site or project within the city of Worcester.

a. No person shall operate any powered construction equipment or build, erect, construct, demolish, alter, repair, excavate or engage in hoisting, grading, site work, including tree and brush removal, dredging or pneumatic hammering, or deliver construction equipment and/or supplies to the site on any building, road, tower, parking lot, machine, pipe, sewer, sidewalk, or any other construction project, except between the hours of 7:00 a.m. and 9:00 p.m. on weekdays and Saturday, and between the hours of 9:00 a.m. and 7:00 p.m. on Sundays, except for work performed by a public service or municipal utility department or “emergency work” performed with the express written permission of the commissioner of inspectional services or the commissioner of public works and parks. Emergency work shall be limited to such work that is clearly essential to respond to a sudden and unexpected threat to public health or public safety. Emergency work permission may be granted to a general or sub-contractor on a blanket basis governing all persons working on a specified portion of a particular job. Emergency work permission may be granted for not more than one week at a time, and may be renewed for additional one week periods at the discretion of the commissioner who granted the initial permission.

ARTICLE 104: GENERAL BID FORM

for

Sewer Lining (S20-4) / DPW & Parks
BID #: 7459-W1

BIDDER _____
Print Name of the Firm or Proprietorship Submitting this Bid

This bid must be accompanied by a deposit in the form of cash, or bid bond, or a certified check, treasurer's check, or cashier's check, payable to the City of Worcester (hereinafter referred to as the "Owner", or the "Awarding Authority") in the amount of five percent (5%) of the total value of the bid. No other form of bid security will be accepted.

By submitting this bid the Bidder represents that it has carefully examined the site of work described herein; has become thoroughly familiar with local conditions and the character and extent of the work; has carefully examined the Drawings, Project Manual and Contract Documents including all Addenda which are a part of this proposal, the General Bid Form, and thoroughly understands their stipulations, requirements, and provisions, and that the Bidder will contract, in the form of contract required, to provide all necessary and proper machinery, equipment, facilities, and means to do all the work and furnish all the materials necessary and proper to carry out such contract in the manner and on the conditions set forth therein in accordance with the Contract Documents, and to perform or observe all other contract requirements thereby. By submitting this bid, the Bidder further represents that it agrees to be subject to the jurisdiction of the courts of the Commonwealth of Massachusetts with respect to any actions arising out of or related to this bid or any contract that may be entered into based upon this bid, and that any such actions commenced by the Bidder shall be commenced in the courts of the Commonwealth of Massachusetts.

A bidder wishing to amend this bid after transmittal to the Owner may do so only by withdrawing this bid and resubmitting another bid prior to the time for opening bids.

TO THE AWARDING AUTHORITY:

A. The undersigned Bidder proposes to furnish all labor, materials, and equipment necessary and required for the project described herein in Worcester, MA, in accordance with the accompanying plans and specifications for the contract price specified below, subject to additions or deductions according to the terms of the Contract Documents.

B. This Bid includes Addenda numbered: ____ ____ ____ ____ ____

C. The proposed total base Bid price is:

$_____

_____

(TOTAL BASE BID WRITTEN IN WORDS)

D. BID ALTERNATES: N/A

The owner may select at its option, any Alternate or combination of Alternates, or none of the Alternates. The Bidder is required to provide a bid for each Alternate listed below. If selected by the Owner, the Alternate(s) will be added to the total Base Bid price to determine the low bidder.

E. UNIT PRICES: *Refer to Unit Price Proposal Pages*

In addition to stating the Total Base Bid Price, the Bidder shall state prices for the various items of work as may be listed herein. The Unit Prices listed below, if accepted by the Owner in the award of the contract, may be used for computing adjustments during the course of construction, based upon extra work ordered by the Owner, or for work countermanded, reduced, or omitted by the Owner.

F. TIME FOR COMPLETION

The work of this contract must be completed within 210 calendar days from issuance of notice to proceed by the City.

G. The Bidder agrees that if it is selected as the lowest responsible and eligible bidder, the Bidder will within five (5) days, Saturdays, Sundays and legal holidays excluded, after presentation thereof by the awarding authority, execute a contract in accordance with the terms of this bid and furnish a performance bond and also a labor and materials (a.k.a., payment) bond, each of a surety company qualified to do business under the laws of the Commonwealth of Massachusetts and satisfactory to the awarding authority and each in the sum of the contract price, the premiums for which are to be paid by the Bidder and are included in the bid price(s) contained herein.

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

The undersigned further 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 herein the word “person” shall mean any natural person, joint venture, partnership, corporation or other business or legal entity. The undersigned further certifies under penalty of perjury that the said undersigned is not presently debarred from doing public construction work in the Commonwealth under the provisions of section 29F of Chapter 29 or any other applicable debarment provisions of any other chapter of the General Laws or any rule or regulation promulgated thereunder.

Date: _____ _____
(Print Name of Bidder)

Signature:_____ By:_____
(Name of Person Signing Bid and Title)

_____
(Business Address)

_____
(City, State and Zip Code)

Fax: (_____) _____ Phone: (_____) _____

Social Security Number or
Federal Identification Number:_____

E-Mail Address: _____

NOTE: If Bidder is a corporation, indicate state of incorporation; if a partnership, give full names and addresses of all partners; and if a sole proprietorship, give residential address if different from business address. Use the following spaces:

If a Corporation:

Incorporated in what state: _____

President: _____

Treasurer: _____

Secretary: _____

If a foreign corporation (incorporated or organized under laws other than laws of the Commonwealth of Massachusetts), is the corporation registered with the Massachusetts Secretary of State's office? *Yes* _____ *No* _____

If the Bidder is a foreign corporation, it is required under M.G.L. c. 30, section 39L to furnish to the awarding authority a certificate of the Secretary of State stating that the corporation has complied with M.G.L. c. 156D, Part 15, subdivision A, s. 15.03, and Part 16, subdivision B, s. 16.22.

If a Partnership: (Name all Partners)

Name of Partner: _____

Residence: _____

_____

Name of Partner: _____

Residence: _____

_____

Name of Partner: _____

Residence: _____

_____

If an Individual:

Name: _____

Residence: _____

_____

If an Individual doing business under a firm name:

Name of Firm: _____

Name of Individual: _____

Business Address: _____

_____

Residential Address _____
(if different from above)

_____

Other form of business organization:

_____

_____

SURETY INFORMATION:

The bidder will give below the name and address and State of Incorporation of the surety company who will sign the bonds. Performance and Payment Bonds in the amount of 100% of the dollar value of the contract will be required at time of contract execution.

_____

_____

_____

It is contractor's responsibility to submit the required bond documentation in a form satisfactory to the City.

STATEMENT OF BIDDER'S QUALIFICATIONS

The bidder is requested to state below what work of a similar character to that included in the proposed contract he/she has done and to give references that will enable the Owner to judge his/her experience, skill, business standing and overall responsibility. Supplemental forms may be used by the bidder.

_____

_____

_____

_____

END OF GENERAL BID FORM

ARTICLE 105: OWNER-CONTRACTOR AGREEMENT

THIS AGREEMENT made on at Worcester, in the County of Worcester and Commonwealth of Massachusetts, by and between (hereinafter called the Contractor), and the City of Worcester, a municipal corporation within said County of Worcester, (hereinafter called the City).

W I T N E S S E T H:

That the Contractor, in consideration of the payments hereinafter mentioned, and of the fulfillment of the agreements herein mutually entered into, agrees with the City as follows:

SCOPE OF WORK:

(1) The Contractor shall, pursuant to the terms of this AGREEMENT, provide all the supplies, materials, and equipment, and perform all the labor, services and supervision necessary and proper for (hereinafter called the "Project") in the City of Worcester, Massachusetts, and to accomplish any and all work incidental thereto.

BONDS:

(2) The Contractor shall obtain and deposit with the City the following bond(s) in the amount of:

PERFORMANCE BOND: ($)

PAYMENT BOND: ($)

with sureties satisfactory to the Contracting Officer to (a) guarantee the faithful performance by the Contractor of all its obligations under this AGREEMENT and (b) constitute the security required by Massachusetts General Laws Chapter 149, Section 29, and Chapter 30, Section 39A, as amended, for the payment by the Contractor and its subcontractors for all labor performed or furnished and for all materials used or employed in connection with this AGREEMENT.

CONTRACTING OFFICER:

(3) Wherever used in this AGREEMENT, the term "Contracting Officer" shall mean the City Official(s) so designated below, or the individual duly appointed by him/her for the performance of any of his/her functions or responsibilities under this AGREEMENT. The work performed hereunder shall be carried out under the direction and subject to the approval and acceptance of the Purchasing Director (hereinafter called the Contracting Officer).

INCORPORATED DOCUMENTS:

(4) The performance of this AGREEMENT is subject to the provisions of the following documents, all of which are attached hereto and intended to be an integral part of this AGREEMENT (hereinafter collectively referred to as "the Contract Documents").

a. Information to Bidders
b. Bid Proposal
c. Specifications, Drawings and Addenda

The Contract Documents are to be read collectively and complementary to one another; any requirement under one shall be as binding as if required by all. In the event of any conflict or inconsistency between the provisions of this AGREEMENT and any of the other Contract Documents, the provisions of this AGREEMENT shall prevail. In the event of any conflict or inconsistency between this AGREEMENT, the Contract Documents and any applicable state law, the applicable statutory provisions shall prevail.

TIME FOR PERFORMANCE:

(5) Time is of the essence for this AGREEMENT. The work of this AGREEMENT must be substantially completed _____.

PRICE:

(6) The City will pay the Contractor for all materials delivered or furnished and for all the work performed pursuant to Article (1) hereof a sum of money as follows:

_____($_____).

PAYMENT:

(7) Payment shall be made by the City in accordance with General Laws Chapter 30, Section 39G (1988 ed.), as amended, which is included in the Supplementary General Conditions to the Contract.

(a) In addition to the retainage provided for in the above statutory provisions, the City may also, with the written consent of the Contractor, use any of the sums payable under this contract to pay for labor, materials, and for the rental of equipment that has been furnished to the Contractor or any of its subcontractors in connection with work under this contract, regardless of whether claims for such obligations have been filed with the City under General Laws Chapter 149, Section 29 or Chapter 30, Section 39A.

(b) The payment shall be in full for furnishing all materials, supplies, labor services, supervision, tools and equipment and the use thereof as embraced under the AGREEMENT and shall also constitute the payment for all loss or damage to the Contractor arising out of the nature of the work or from the action of the elements or from any unforeseen difficulties or obstructions which may arise or be encountered during the prosecution of the work until its final approval by the Contracting Officer, and for all risks to the Contractor of every description

connected with the prosecution of the work or infringement of patents, trademarks, or copyrights and for completing the work in an acceptable manner.

(c) The payment of any periodic estimate or of any retained percentage shall in no way constitute an acceptance of the work or in no way prejudice or affect the obligation of the Contractor at his own cost or expense to repair, correct, renew, or replace any defects or imperfections in the construction as well as all damages due or attributable to such defects, nor shall any such payment for any current estimate or of any retained percentages prejudice or affect the rights of the City to hold the Contractor liable for breach of contract or to avail itself of the remedies under Article 15, hereof.

(d) If at any time there shall be evidence of any lien or other claim for which, if established, the City may become liable, directly or indirectly, and which is chargeable to the Contractor, the City may retain out of any payment then due or thereafter to become due an amount sufficient to completely indemnify it against any such claim. If there prove to be any such claim after all the payments are made, the Contractor shall refund to the City all moneys that the City pays in discharging such claim in consequence of the Contractor's default.

(e) The Contractor, and each subcontractor, at every tier, represents, warrants and certifies that it has complied with all laws of the Commonwealth of Massachusetts relating to taxes and all Ordinances and Orders of the City of Worcester relating to taxes, fees and charges, or is lawfully contesting the validity of the same. The Contractor, and each subcontractor, at every tier, further represents, warrants and certifies that it will remain in such compliance during the term of this Agreement, including any amendments or extensions hereto. Breach of any of these provisions shall be deemed a material breach which shall entitle the City to immediately terminate this Agreement and take any other action authorized by law to collect any amounts due the City.

PAYMENT OF SUBCONTRACTORS

(8) Payment to subcontractors shall be made in accordance with General Laws Chapter 30, Section 39F (1988 ed.), as amended, which is included in the Supplementary General Conditions.

NOTICE:

(9) Wherever in this AGREEMENT the City is to give or receive a notice, the Contracting Officer as defined in Article (3) shall be the City's agent for such purpose.

PERFORMANCE:

(10) (a) The Contractor shall give his personal attention constantly to the faithful prosecution of the work and shall keep the same under his personal control. He shall not assign by power of attorney or otherwise the work or any part thereof without the previous written consent of the Contracting Officer. He shall not either legally or equitably assign any of the moneys payable under this contract or any claim thereto unless by and with like consent on the part of the Contracting Officer and the City Treasurer. He shall be responsible for all the acts and omissions

of his employees and of all persons directly or indirectly employed by him in connection with the prosecution of this work.

(b) The Contractor shall provide sufficient and proper facilities at all times for the inspection of the work by the City. He shall, after receiving written notice that certain work or construction is improper, unsafe or defective or that such construction in any way fails to conform to the contract documents, forthwith remove such unsafe or defective construction and reconstruct the same in a manner satisfactory to the Contracting Officer. Upon failure of the Contractor to remedy the construction after being so notified, the Contracting Officer may cause such defective work to be remedied or replaced and the City may deduct the cost thereof from any moneys due or to become due the Contractor.

(c) The City, acting through the Contracting Officer, shall have the authority to suspend the work wholly, or in part thereof, for such period as he shall deem necessary, due to failure of the Contractor to carry out orders given or to perform any provision of the contract. Upon receipt of written order from the Contracting Officer, the Contractor shall immediately suspend the work or such part thereof in accordance with the order. No work shall be suspended without the written permission of the Contracting Officer. The work shall be resumed when conditions so warrant, or deficiencies have been corrected and the condition of the contract satisfied as ordered or approved in writing by the Contracting Officer. No allowance of any kind will be made for suspension of work by order of the Contracting Officer pursuant to this paragraph.

(d) If, during the process of the work, the Contractor or the City discovers that the actual subsurface or latent physical conditions encountered at the site differ substantially or materially from those shown on the plans or indicated in the contract documents either the Contractor or the City may request an equitable adjustment in the price of the AGREEMENT 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 the Contractor, or upon its own initiative, the City shall make an investigation of such physical conditions, and, if they differ substantially or materially from those shown on the plans or indicated in the contract documents or from those ordinarily encountered and generally recognized as inherent in work of the character provided for in the plans and contract documents and are of such a nature as to cause an increase or decrease in the cost of performance of the work or a change in the construction methods required for the performance of the work which results in an increase or decrease in the cost of work, the City shall make an equitable adjustment in the contract price and the AGREEMENT shall be modified in writing accordingly. (G. L. c. 30, s.39N, as amended, which is included in the Supplementary General Conditions).

(e) The Contractor agrees that it will have no claim for damages of any kind on account of any delay in commencement of the Work, or any delay or suspension of any portion thereof, except as hereinafter provided. Post commencement, the Contractor shall have no claim for damages of any kind on account of any delay or suspension of any portion of the work except as hereinafter provided. Adjustments, if any, in the contract price due to a suspension, delay, interruption or failure to act by the City shall be governed by the provisions of General Laws Chapter 30, section 39(O), as amended, which is included in the Supplementary Conditions. Provided, however, the provisions of this paragraph shall not apply to any suspension pursuant

to paragraph 10(c), or for any suspension, delay, interruption or failure to act to the extent that such is due to any cause for which this AGREEMENT provides for an equitable adjustment of the contract price, or time under any other AGREEMENT provision. Provided further, that no adjustment shall be made if the performance of the Contractor would have been prevented by other causes, even if the work had not been so suspended, delayed or interrupted by the City. Provided further, that a subcontractor shall have the same rights against the Contractor for payment for an increase in the cost of his performance as the provisions of this paragraph gives the Contractor against the City, but nothing herein shall in any way change, modify or alter any other rights which the Contractor and subcontractor may have against each other.

(f) The Contractor must submit the amount of a claim under provision (e) to the City in writing as soon as practicable after the end of the suspension, delay or interruption or failure to act and, in any event, not later than the date of final payment under this AGREEMENT and, except for costs due to a suspension order, the City shall not approve any costs in the claim incurred more than twenty days before the Contractor notified the City in writing of the act or failure to act involved in the claim.

(g) The City may award other contracts for additional work. The Contractor shall cooperate fully with other contractors and carefully fit his own work to that of other contracts as may be directed by the Contracting Officer. The Contractor shall not commit or permit any act that will interfere with the performance of work by any other contractor.

(h) The Contractor shall comply with all the laws, state and federal, applicable to the work and construction herein provided for. This AGREEMENT is made subject to all laws, state and federal; and if any clause hereof does not conform to such law, then such clause shall be void and the operative state or federal law shall be inserted in lieu thereof. Any violation by the Contractor of state or federal laws relating to the employment of labor upon the work or the construction contemplated by this AGREEMENT shall be a sufficient cause for the City to cancel the AGREEMENT without in any way being liable in damages therefor. Should the City cancel the AGREEMENT because of the failure on the part of the Contractor to observe the state or federal laws, or the rules and regulations relating to employment and labor upon the work herein contemplated, then upon cancellation the City reserves all rights and benefits herein or by law provided against the Contractor for the breach of the conditions of this AGREEMENT.

(i) When the use of explosives is necessary for the prosecution of the work, the Contractor shall take the utmost care not to endanger life and property. Whenever directed, the number and size of the charges shall be reduced. All explosives shall be stored in a secure manner. All such storage places shall be marked clearly "DANGEROUS - EXPLOSIVES", and shall be in the care of competent watchmen at all times. The method of storage and handling explosives and highly inflammable materials shall conform to all the State laws and regulations, as well as any local requirements.

(j) Upon the completion of the work, the Contractor shall at his own expense remove all equipment, temporary Contractor's buildings and sheds, fencing, rubbish and waste material in and about the area that has been worked and he shall leave the premises and the work performed all in a neat and proper condition.

(k) Before commencing the work, the Contractor shall, if required, submit a schedule of operations for approval by the Contracting Officer. The schedule shall show the methods and order of operations that the Contractor proposes to use. The approval of the schedule by the Contracting Officer shall not be construed as relieving the Contractor from any responsibility.

(l) Should the Contractor be obstructed or delayed in the prosecution of the work by any act or neglect on the part of the City, or as a result of damage which may be caused by lightning, earthquake, rain, storm, or cyclone, then the time fixed for completion may be extended for a period equivalent to the time lost by reason of any of the foregoing causes. No such extension shall be made unless a claim therefor is presented in writing to the Contracting Officer within forty-eight hours of the occurrence of such delay. The Contractor shall have no claim against the City for damages on account of such delay. The duration of the extension itself must be certified to by the Contracting Officer.

ADDITIONAL WORK:

(11) (a) The Contractor agrees to perform any work related to the subject matter of the AGREEMENT, but not within the scope of the AGREEMENT and its specifications, upon the written order of the Contracting Officer, the payment for such extra work to be made in accordance with one of the methods set forth in Article 12 of the General Conditions of the Contract for Construction.

(b) The Contracting Officer may make alterations in the line, grade, plan, form, dimensions, or materials of the subject matter of the contract, or any part thereof either before or after commencement of construction. Where such alterations increase the quantity or standard of the work to be done, payment for such increase shall be made in the same way that payment is made for such extra work under (a), above. Where such alterations diminish the quantity or standard of the work to be done, an adjustment shall be made to the benefit of the City based upon the unit prices where used, or where unit prices are not used, as the Contracting Officer shall determine.

EMPLOYMENT:

(12) (a) The Contractor shall employ competent workers, and if notified by the Contracting Officer in writing that any person engaged upon the work is incompetent, unfaithful, disorderly or otherwise unsatisfactory, then such worker shall be discharged from the work.

(b) In the employment of persons, including mechanics, teamsters, chauffeurs and laborers, under this contract, preference shall be given

First: To citizens of the Commonwealth who are residents of the City of Worcester and who have served in the Army or Navy of the United States in time of war and have been honorably discharged therefrom or released from active duty therein, and who are qualified to perform the work to which the employment relates.

Second: To citizens of the Commonwealth who are residents of Worcester and are qualified to perform the work to which the employment relates.

Third: To citizens of the Commonwealth who have served in the Army or Navy of the United States in time of war and have been honorably discharged therefrom or released from active duty therein and who are qualified to perform the work to which the employment relates.

Fourth: To citizens of the Commonwealth generally.

Fifth: To citizens of the United States.

The foregoing provisions shall not apply to those persons employed in a supervisory capacity. In so far as practicable preference is to be given Worcester Truckers in hauling materials.

(c) No laborer, worker, mechanic, foreman, or inspector working within the Commonwealth of Massachusetts in the employ of the Contractor, sub-contractors, or other persons doing or contracting to do the whole or part of the work contemplated by this AGREEMENT, shall be required or permitted to work more than eight hours in any one calendar day; or more than 48 hours in one week, or more than 6 days in any one week in full compliance with provisions of G. L. c. 149, sec. 34, except in cases of emergency.

(d) Every employee in the work covered by this AGREEMENT shall lodge, board and trade where and with whom he elects and neither the Contractor nor his agents or employees shall directly or indirectly require as a condition of employment therein that an employee shall lodge, board or trade at a particular place or with a particular person.

(e) The Contractor shall provide and maintain in a neat and sanitary condition such accommodations for the use of his employees as may be necessary to comply with the requirements of the Department of Public Health, local health officials or of other appropriate authorities. The maintenance of all sanitary facilities shall be subject to the laws of the Commonwealth and to the rules and regulations of the State Board of Health and of the Commissioner of Public Health for the City of Worcester.

(f) The Contractor shall, before commencing the work, provide by insurance for the payment of compensation and the furnishing of other benefits under Chapter 152 of the General Laws (Ter. Ed.) to all persons employed under the AGREEMENT, and he shall continue such insurance in force and effect during the term thereof. The City may require the Contractor to deliver certificates of insurance as sufficient proof of compliance with the foregoing. Failure to provide and continue in force such insurance as aforesaid shall be deemed a material breach of the AGREEMENT and shall entitle the City to terminate the AGREEMENT without in any way being liable in damages therefor.

(g) The Contractor shall keep a true and accurate register of all mechanics, teamsters, chauffeurs and laborers employed upon the work contemplated by this AGREEMENT, showing the name, address and occupational classification of each such employee, the hours worked by and the wages paid to each such employee, and shall furnish the Massachusetts Attorney General's office, or such other appropriate state official upon request a true statement thereof.

(h) Minimum wage rates under the provisions of General Laws c. 149, section 27, as amended, have been determined by the state Department of Labor and Workforce Development, and the Contractor shall in the payment of wages be bound by them during the life of the AGREEMENT. The applicable schedule of minimum wage rates, as so determined, is incorporated elsewhere within the Contract Documents.

TERMINATION:

(13) (a) If the Contractor shall be adjudged a bankrupt, or if he shall make a general assignment for the benefit of his creditors, or if a receiver of his property shall be appointed, or if the work to be done under the AGREEMENT shall be abandoned, or if the AGREEMENT or any part thereof shall be sublet without the previous written consent of the Contracting Officer, or if the AGREEMENT or any claim thereunder shall be assigned by the Contractor otherwise than as herein specified, or if at any time the Contracting Officer shall be of the opinion that the work, or any part thereof, is unnecessarily or unreasonably delayed, or that the Contractor has violated any of the provisions of the AGREEMENT, the Contracting Officer, for and in behalf of the City, may notify the Contractor to discontinue all work, or any part thereof; and thereupon the Contractor shall discontinue such work or such part thereof as the Contracting Officer may designate, remove his equipment, tools, supplies and materials as the Contracting Officer directs, and the City may thereupon, by contract or otherwise, as it may determine, complete the work, or such part thereof, and charge the entire expense of so completing the work or any part thereof to the Contractor.

(b) If the Contracting Officer shall certify by written notice to the Contractor that the rate of progress is not satisfactory, the City may, instead of notifying the Contractor to discontinue all of the work or any part thereof, notify him from time to time to increase the force, equipment and plant, or any of them, employed on the whole or any part of the work, stating the amount of increase required. Unless the Contractor shall, within five days after such notice, increase his force, equipment and plant to the extent required therein, and maintain and employ the same from day to day until the completion of the work or such part thereof, or until the conditions of the work or such part thereof, or until the conditions as to the rate of progress shall, in the opinion of the Contracting Officer, be fulfilled, the City may employ and direct the labors of such additional force, equipment and plant as may, in the opinion of the Contracting Officer, be necessary to insure the completion of the work or such part thereof within the time specified or at the earliest possible date thereafter, and charge the expense thereof to the Contractor. Neither the notice from the Contracting Officer to the Contractor to increase his force, equipment or plant nor the employment of additional force, equipment or plant by the City shall be held to prevent a subsequent notice to the Contractor from the City to discontinue the work under the provisions of the preceding portion of this Article.

(c) All expenses charged under this Article shall be deducted by the City out of moneys then due or to become due the Contractor under this AGREEMENT, or any part thereof. In such accounting, the City shall not be obligated to obtain the lowest figures for the work of completing the AGREEMENT or any part thereof, or for insuring its proper completion, and all sums actually paid by the City shall be charged to the Contractor. If the expense so charged is greater than the sum which would have been payable under the AGREEMENT, if the same had been

completed by the Contractor, then the Contractor shall pay the amount of the excess to the City upon completion of the work and without further demand being made therefor.

(d) The Contractor shall not be relieved of liability to the City by virtue of any termination of this AGREEMENT and any claim for damages against the Contractor relating to the Contractor's performance under this AGREEMENT shall survive any termination hereunder.

GUARANTEES:

(14) (a) The Contractor guarantees the work under this AGREEMENT and the materials furnished by him for use in connection therewith to be free from defects or flaws for one year after the completion of the AGREEMENT. It is expressly understood, however, that this guarantee provision shall not absolve the Contractor from any liability to the City arising out of a failure to substantially comply with the terms of the AGREEMENT.

(b) If at any time within said guaranty period, any part of the work constructed under the terms of this AGREEMENT shall in the opinion of the Contracting Officer require repairing due to defective work or materials furnished by the Contractor he may notify the Contractor in writing to make the required repairs. If the Contractor shall neglect to start such repairs within ten days of the date of giving him notice thereof and to complete the same to the satisfaction of the Contracting Officer with reasonable dispatch, then the latter may employ other persons to make such repairs. The City shall charge the expense thereof to the Contractor and may use any moneys still retained to pay for the same, and if such sum is insufficient, the Contractor shall be obligated to pay the balance thereof.

INDEMNIFICATION:

(15) (a) The Contractor shall indemnify and save harmless the City of Worcester and all of its officers, agents and employees against all suits, claims or liability of every name, nature, and description arising out of or in consequence of the acts or omissions of this AGREEMENT in the performance of the work covered by the contract and/or his failure to comply with the terms and conditions hereof; and will at his own cost and expense defend any and all such suits and actions.

(b) The Contractor shall bear all losses resulting from the use or storage of explosives and highly inflammable materials and shall save the City harmless from all claims for bodily injuries or death to any person and from all claims for property damage or destruction arising out of the use or storage of explosives and highly inflammable materials.

(c) The Contractor further covenants to hold and save the City, its officers, servants and employees harmless from and against all and every demand or demands, of any nature or kind for or on account of the use of any patented invention, article or appliance included in the materials and equipment agreed to be furnished, supplied or used under this AGREEMENT.

INSURANCE:

(16) (a) The Contractor shall carry public liability insurance so as to save the City harmless from any and all claims for damages arising out of bodily injury to, or death of, any person or persons and for all claims for damages arising out of injury to or destruction of property caused by accidents resulting from the use of implements, equipment or labor used in the performance of the AGREEMENT or from any neglect, default, omission or want of proper care or misconduct on the part of the Contractor or of any one in his employ during the execution of the work. Such insurance shall include coverage for blasting and explosion if explosives are to be used.

(b) The Contractor shall carry any other types of insurance as may be required elsewhere in the Contract Documents. All insurance policies required in the Contract Document shall be provided by companies satisfactory to the City.

(c) Prior to starting work under this AGREEMENT the Contractor shall deposit with the City's Purchasing Division certificates from the insurers to the effect that the insurance policies required in the above paragraphs have been issued to the Contractor. The certificates must be on a form satisfactory to the City.

(d) Unless greater amounts of insurance coverage are required elsewhere in the Contract Documents, the amounts of such public liability insurance shall not be less than the minimum amounts set forth below:

(i) Commercial General Liability $1,000,000.00 per occurrence / $ 2,000,000.00 aggregate.

(ii) Automotive Liability, for bodily injury & property damage combined single limit of, $ 1,000,000.00 (all owned, hired and non-owned autos).

(iii) Excess / Umbrella Liability – Per Occurrence / Aggregate $ 1,000,000 / $ 1,000,000

(e) Unless greater amounts of insurance coverage are required elsewhere in the Contract Documents, the Contractor shall also carry bodily injury and property damage insurance in amounts not less than those set forth above covering the operation of all motor vehicles owned by the Contractor and engaged in this work.

(f) No cancellation of any insurance whether by the insurer or by insured shall be effective unless written notice thereof is given to the City at least fifteen days prior to the intended effective date thereof, which date has been expressed in the notice. Prior to the effective date of any such cancellation the Contractor shall take out new insurance to cover the policies so canceled. The Insurance Companies shall remain liable, however, until new and satisfactory insurance policies have been delivered to and accepted by the City.

CONFLICT OF INTEREST

(17) (a) The Contractor warrants that he has complied with all provisions of law regarding the award of this AGREEMENT and that he, or his employees, agents, officers, directors or trustees

have not offered or attempted to offer anything of value to any employee of the City in connection with this AGREEMENT.

(b) The Contractor further warrants that no elected official or employee of the City of Worcester, including unpaid members of the City boards and commissions, serves as an officer, director, trustee or employee of Contractor, and that no elected officials or employees of the City of Worcester have or will have a direct or indirect financial interest in this AGREEMENT.

(c) Violation of this Article shall be material breach of this AGREEMENT and shall be grounds for immediate termination of this AGREEMENT by the City without regard to any enforcement activities undertaken or completed by any enforcement agency.

(d) Termination of this AGREEMENT pursuant to this Article shall not waive any claims for damages that the City may have against the Contractor resulting from Contractor's violation of the terms of this Article.

SEVERABILITY:

(18) If any provision of this AGREEMENT is held invalid by any court or body of competent jurisdiction, the remainder of this AGREEMENT shall remain in full force and effect.

HEADINGS:

(19) The section headings in this AGREEMENT are for convenience and reference only and in no way define or limit the scope or content of this AGREEMENT or in any way affect its provisions.

AMENDMENTS:

(20) This AGREEMENT may be amended or modified only by written instrument duly executed by the parties.

ENTIRE AGREEMENT:
(21) This AGREEMENT contains the entire understanding of the parties and supersedes all prior agreements, representations, proposals and undertakings of the parties.

IN WITNESS WHEREOF, the Contractor has hereunto set his hand and seal, and the City has caused its corporate seal to be hereto affixed and this AGREEMENT to be executed in its name and behalf the day and year first above written.

CITY OF WORCESTER

By:_____
Christopher J. Gagliastro
Purchasing Director

(CONTRACTOR)

By:_____

(Seal)

APPROVED AS TO LEGAL FORM:

By:_____

CERTIFICATION OF FUNDING:

I certify that an appropriation of funds in the amount of this Agreement is contained in account number _____.

By: _____
Robert V. Stearns
City Auditor

APPROVED:

By:_____
Edward M. Augustus, Jr.
City Manager

ARTICLE 106: PAYMENT BOND

KNOW ALL BY THESE PRESENTS, that _____ a corporation duly established by law and having a usual place of business at as PRINCIPAL, and, _____ a corporation organized under the laws of the **(State/Commonwealth)** of _____ and duly authorized and admitted, under the provisions of Chapter 175 of the Massachusetts General Laws as amended, to transact the business of a fidelity and surety company in Massachusetts, as SURETY, are held and firmly bound unto the City of Worcester, a municipal corporation within the Commonwealth of Massachusetts, in the sum of _____lawful money of the United States of America, to be paid to the City of Worcester, its successors and assigns, to the payment of which, well and truly to be made, the PRINCIPAL and the SURETY bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the said PRINCIPAL has entered into an Agreement of even date herewith with the City of Worcester, said Agreement being for the _____ in the city of Worcester, Massachusetts;

NOW THEREFORE, the condition of this obligation is such that if the PRINCIPAL shall pay for all labor performed or furnished and for all materials used or employed or any appliance and equipment used or employed or rented or hired out in the execution of said Agreement and in any and all duly authorized modifications, alterations, extensions of time, changes or additions to said Agreement that may hereafter be made, notice to the SURETY of such modifications, alterations, extensions of time, changes or additions being hereby waived, the foregoing to include any other purposes or items set out in, and to be subject to, the provisions of Massachusetts General Laws, Chapter 149, Section 29 and Chapter 30, Section 39A as amended, then this obligation shall become null and void; otherwise it shall remain in full force and virtue.

IN TESTIMONY WHEREOF, the PRINCIPAL has hereunto caused its name and seal to be affixed, and the SURETY has caused its corporate seal to be hereunto affixed by a duly authorized officer thereof and this instrument to be executed and delivered in its name and behalf by its attorney-in-fact, duly authorized by its by-laws and votes, powers of attorney, and letters of appointment and authorization, certificated copies of which documents are annexed to this bond and may be introduced in evidence as if a part hereof.

(Principal) (Seal)

By: _____

(Surety) (Seal)

BY: _____
Attorney-in-Fact

ARTICLE 107: PERFORMANCE BOND

KNOW ALL BY THESE PRESENTS, that _____ a corporation duly established by law and having a usual place of business at as PRINCIPAL, and _____, a corporation duly established under the laws of the (**Commonwealth/State**) of _____ and duly authorized and admitted, under the provisions of Chapter 175 of the Massachusetts General Laws as amended, to transact the business of a fidelity and surety company in Massachusetts, as SURETY, are held and firmly bound unto the City of Worcester, a municipal corporation within the Commonwealth of Massachusetts, in the sum of _____ lawful money of the United States of America, to be paid to said City of Worcester, its successors and assigns, to the payment of which, well and truly to be made, the PRINCIPAL and said SURETY bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

Whereas the said PRINCIPAL has entered into an Agreement of even date hereof with the City of Worcester, said Agreement being for the _____ in the city of Worcester, Massachusetts;

NOW THEREFORE, the condition of this obligation is such that if the said PRINCIPAL shall well and faithfully perform all the terms and conditions of said Agreement on its part to be kept and performed as therein stipulated, including guarantee and maintenance provisions therein, and shall pay for all materials furnished and for all labor performed in the execution of said Agreement, and shall indemnify and save harmless the said City of Worcester as therein stipulated, then this obligation shall be of no effect; otherwise it shall remain in full force and virtue.

And the said SURETY, for value received, hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of said Agreement, or to the work to be performed thereunder, or to the specifications accompanying the same, shall in any way effect its obligation on this bond; and it does hereby waive notice of any change, extension of time, alterations or additions to the terms of said Agreement, or to the work, or to the specifications.

In the event that the Agreement is abandoned by the Contractor, or is terminated by the City under the provisions thereof, said SURETY hereby further agrees that it shall, if requested in writing by the City, take such action as is necessary to complete said Agreement.

IN TESTIMONY WHEREOF, the PRINCIPAL has hereunto caused its name and seal to be affixed, and the said SURETY has caused its corporate seal to be hereunto affixed by a duly authorized officer thereof and this instrument to be executed and delivered in its name and behalf by its attorney-in-fact, duly authorized by its by-laws and votes, powers of attorney, and letters of appointment and authorization, certificated copies of which documents are annexed to this bond and may be introduced in evidence as if a part hereof.

(PRINCIPAL) (SEAL)

By: _____

(SURETY) (SEAL)

By: _____
Attorney-in-fact

ARTICLE 108 - APPLICATIONS FOR PAYMENT

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, are hereby made a part of this Section.

1.2 SUMMARY

A. This Section specifies administrative and procedural requirements governing the Contractor's Applications for Payment.

1. Coordinate the Schedule of Values and Applications for Payment with the Contractor's Construction Schedule, List of Subcontracts, and Submittal Schedule.

B. The Contractor's Construction Schedule and Submittal Schedule are included in Section "Submittals".

1.3 SCHEDULE OF VALUES

A. Coordinate preparation of the Schedule of Values with preparation of the Contractor's Construction Schedule.

1. Correlate line items in the Schedule of Values with other required administrative schedules and forms, including:

a. Contractor's construction schedule.
b. Application for Payment form.
c. List of subcontractors.
d. Schedule of allowances, if any.
e. Schedule of alternates, if any.
f. List products.
g. List of principal suppliers and fabricators.
h. Schedule of submittals.

2. Submit the Schedule of Values to the Architect at the earliest feasible date, but in no case later than seven (7) days before the date scheduled for submittal of the initial Application for Payment.

3. Sub-Schedules: Where the Work is separated into phases that require separately phased payments, provide sub-schedules showing values correlated with each phase of payment.

B. Format and Content: Use the Project Manual Table of Contents as a guide to establish the format for the Schedule of Values. Coordinate with the Clerk of the Works for exact breakdown of major categories of work.

1. Identification: Include the following Project identification on the Schedule of Values:

a. Project name and location.
b. Name of the Architect.
c. Project number.
d. Contractor's name and address.
e. Date of submittal.

2. Arrange the Schedule of Values in a tabular form with separate columns to indicate the following for each item listed:

a. Generic name.
b. Related Specification Section.
c. Name of subcontractor.
d. Name of manufacturer or fabricator.
e. Name of supplier.
f. Change Orders (numbers) that have affected value.
g. Dollar value to nearest dollar.
h. Percentage of Contract Sum to the nearest percent, adjusted to total 100 percent

3. Provide a breakdown of the Contract Sum in sufficient detail to facilitate continued evaluation of Applications for Payment and progress reports. Break principal subcontract amounts down into several line items.

4. Round amounts off to the nearest whole dollar; the total shall equal the Contract Sum.

5. For each part of the Work where an Application for Payment may include materials or equipment, purchased or fabricated and stored, but not yet installed, provide separate line items on the Schedule of Values for initial cost of the materials, for each subsequent stage of completion, and for total installed value of that part of the Work.

6. Margins of Cost: Show line items for indirect costs, and margins on actual costs, only to the extent that such items will be listed individually in Applications for Payment. Each item in the Schedule of Values and Applications for Payment shall be complete including its total cost and proportionate share of general overhead and profit margin.

a. At the Contractor's option, temporary facilities and other major cost items that are not direct cost of actual work-in-place may be shown as separate line items in the Schedule of Values or distributed as general overhead expense.

7. Schedule Updating: Update and resubmit the Schedule of Values when Change Orders result in a change in the Contract Sum.

1.4 APPLICATIONS FOR PAYMENT:

A. Each Application for Payment shall be consistent with previous applications and payments as certified by the Architect and paid for by the Owner.

1. The initial Application for Payment, the Application for Payment at time of Substantial Completion, and the final Application for Payment involve additional requirements.

B. Payment Application Times: Each progress payment date is as indicated in the Agreement. The period of construction Work covered by each Application or Payment is the period indicated in the Agreement.

C. Payment Application Forms: Use AIA Document G 702 and Continuation Sheets G 703 as the form for Application for Payment. No exceptions will be made.

D. Application Preparation: Complete every entry on the form, including notarization and execution by person authorized to sign legal documents on behalf of the Contractor. Incomplete applications will be returned without action.

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

2. Include amounts of Change Orders issued prior to the last day of the construction period covered by the application.

E. Transmittal: Submit six (6) executed copies of each Application for Payment to the Architect by means ensuring receipt within twenty-four (24) hours; one (1) copy shall be complete, including proof of payments (see, 1.4F) and similar attachments, when required.

1. Transmit each copy with a transmittal form listing attachments, and recording appropriate information related to the application in a manner acceptable to the Architect.

2. With each requisition, after the first requisition, submit one (1) copy of up-dated as-built drawings for all underground and concealed work, showing locations, depths, or elevations.

F. Proof of Payments: With each Application for Payment, submit proof of payment to every subcontractor and supplier, at each tier, entitled to payment under the previous requisition and periodic payment made by the Owner to the Contractor on behalf of all such entities.

1. Submit partial waivers on each item for the amount requested, prior to deduction for retainage, on each item.

2. When an application shows completion of an item, submit final or full waivers or proof of payments.

3. Proof of Payment Delays: Submit each Application for Payment with the Contractor's proof of payment for the period of construction covered by the Application or it may be returned as incomplete.

a. Submit final Application for Payment with or preceded by final proof of payment for every entity involved with performance of Work covered by the application who could lawfully be entitled to file for direct payment under M.G.L. c. 30, s. 39F, and/or against the Contractor's Labor and Materials Payment Bond.

4. Submit proof of payment in a manner acceptable to Owner.

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

1. List of subcontractors.
2. List of principal suppliers and fabricators.
3. Schedule of Values.
4. Contractor's Construction Schedule (preliminary, if not final).
5. Schedule of principal products.
6. Submittal Schedule (preliminary, if not final).
7. List of Contractor's staff assignments.
8. List of Contractor's principal consultants.
9. Copies of building permits.
10. Copies of authorizations and licenses from governing authorities for performance of the Work.
11. Initial progress report.
12. Report of pre-construction meeting.
13. Certificates of insurance and insurance policies.
14. Performance and payment bonds (if required).
15. Data needed to acquire Owner's insurance.
16. Initial settlement survey and damage report, if required.

H. Application for Payment at Substantial Completion: Following issuance of the Certificate of Substantial Completion, submit an Application for Payment; this application shall reflect any Certificates of Partial Substantial Completion issued previously for Owner occupancy of designated portions of the Work.

I. Administrative actions and submittals that shall proceed or coincide with Application for Payment at Substantial Completion include:

1. Occupancy permits and similar approvals.
2. Warranties (guarantees) and maintenance agreements.
3. Test/adjust/balance records.
4. Maintenance instructions.
5. Meter readings.
6. Start-up performance reports.
7. Change over information related to Owner's occupancy, use, operation and maintenance.
8. Final cleaning.
9. Application for reduction of retainage, and consent of surety.
10. Advice on shifting insurance coverages.
11. Final progress photographs.
12. List of incomplete Work, recognized as exceptions to Architect's Certificate of Substantial Completion.

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

1. Completion of Project closeout requirements.
2. Completion of items specified for completion after Substantial Completion.
3. Assurance that unsettled claims will be settled.
4. Assurance that Work not complete and accepted will be completed without undue delay.
5. Transmittal of required Project construction records to Owner.
6. Certified property survey.
7. Proof that taxes, fees and similar obligations have been paid.
8. Removal of temporary facilities and services.
9. Removal of surplus materials, rubbish and similar elements.
10. Change of door locks to Owner's access.

ARTICLE 109 - MODIFICATION PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, are hereby made a part of this Section.

1.2 SUMMARY

A. This section specifies administrative and procedural requirements for handling and processing Contract modifications.

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

1. Division 1 Section "Submittals" for requirements for the Contractor's Construction Schedule.

2. Division 1 Section "Application for Payment" for administrative procedures governing applications for payment.

3. Division 1 Section "Product Substitutions" for administrative procedures for handling requests for substitutions made after award of the Contract.

1.3 MINOR CHANGES IN THE WORK

A. Supplemental instructions authorizing minor changes in the Work, not involving an adjustment to the Contract Sum or Contract Time, will be issued by the Architect.

1.4 CHANGE ORDER PROPOSAL REQUESTS

A. Owner-Initiated Proposal Requests: Proposed changes in the Work that will require adjustment to the Contract Sum or Contract Time will be issued by the Architect, with a detailed description of the proposed change and supplemental or revised Drawings and Specifications, if necessary.

1. Proposal requests issued by the Architect are for information only. Do not consider them an instruction either to stop work in progress, or to execute the proposed change.

2. Unless otherwise indicated in the proposal request, within twenty (20) days of receipt of the proposal request, submit to the Architect for the Owner's review an estimate of cost necessary to execute the proposed change.

a. Include a list of quantities of products to be purchased and unit costs, along with the total amount of purchases to be made. Where requested, furnish survey data to substantiate quantities.

b. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.

c. Include a statement indicating the effect the proposed change in the Work will have on the Contract Time.

B. Contractor-Initiated Change Order Proposal Requests: When latent or other unforeseen conditions require modifications to the Contract, the Contractor may propose changes by submitting a request for a change to the Architect.

1. Include a statement outlining the reasons for the change and the effect of the change on the Work. Provide a complete description of the proposed change. Indicate the effect of the proposed change on the Contract Sum and/or the Contract Time.

2. Include a list of quantities of products to be purchased and unit costs along with the total amount of purchases to be made. Where requested, furnish survey data to substantiate quantities.

3. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.

4. Comply with requirements in Section "Product Substitutions" if the proposed change in the Work requires the substitution of one product or system for a product or system specified.

1.5 ALLOWANCES

A. Allowance Adjustment: Base each Change Order Proposal Request for an allowance cost adjustment solely on the difference between the actual purchase amount and the allowance, multiplied by the final measurement of work-in-place, with reasonable allowances, where applicable, for cutting losses, tolerances, mixing wastes, normal product imperfections, and similar margins.

1. Include installation costs in the purchase amount only where indicated as part of the allowance.

2. When requested, prepare explanations and documentation to substantiate the margins claimed.

3. The Owner reserves the right to establish the actual quantity of work-in-place by independent quantity survey, measure, or count.

B. Submit claims for increased costs because of a change in scope or nature of the allowance described in the Contract Documents, whether for the purchase order amount or Contractor's handling, labor, installation, overhead, and profit, within twenty (20) days of receipt of the change order authorizing work to proceed. Claims submitted later than twenty (20) days will be rejected.

1. The Change Order cost amount shall not include the Contractor's or Subcontractor's indirect expense except when it is clearly demonstrated that either the nature or scope of work required was changed from that which could have been foreseen from information in Contract Documents.

2. No change to the Contractor's indirect expense is permitted for selection of higher or lower priced materials or systems of the same scope and nature as originally indicated.

1.6 CHANGE ORDER PROCEDURES

A. Upon the Owner's approval of a Change Order Proposal Request, the Architect will issue a Change Order for signatures of the Owner and Contractor.

1.7 OVERHEAD AND PROFIT

A. Overhead and Profit will be as noted elsewhere in these specifications.

B. In reviewing change orders, the Architect will exercise his right to request a complete breakdown from the Contractor showing exact costs for labor and material, as well as delivery slips and invoices from suppliers and other subcontractors.

ARTICLE 110 - PRODUCT SUBSTITUTIONS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, are hereby made a part of this Section.

1.2 SUMMARY

A. This Section specifies administrative and procedural requirements for handling requests for substitutions made after award of the Contract.

B. The Contractor's Construction Schedule and the Schedule of Submittals are included under Section "Submittals".

C. Standards: Refer to Section "Reference Standards and Definitions" for applicability of industry standards to products specified.

D. Procedural requirements governing the Contractor's selection of products and product options are included under Section "Materials and Equipment".

1.3 DEFINITIONS

A. Definitions used in this Article are not intended to change or modify the meaning of other terms used in the Contract Documents.

B. Substitutions: Requests for changes in products, materials, equipment, and methods of construction required by Contract Documents proposed by the Contractor after award of the Contract are considered requests for "substitutions". The following are not considered substitutions:

1. Specified options of products and construction methods included in Contract Documents.

2. The Contractor's determination of and compliance with governing regulations and orders issued by governing authorities.

1.4 SUBMITTALS

A. Substitution Request Submittal: Requests for substitution will be considered if received within sixty (60) days after commencement of the Work. Requests received more than sixty (60) days after commencement of the Work may be considered or rejected at the discretion of the Architect.

1. Submit three (3) copies of each request for substitution for consideration. Submit requests in the form and in accordance with procedures required for Change Order proposals.

2. Identify the product, or the fabrication or installation method to be replaced in each request. Include related Specification Section and Drawing numbers. Provide complete documentation showing compliance with the requirements for substitutions, and the following information, as appropriate.

a. Product Data, including Drawings and descriptions of products, fabrication and installation procedures.

b. Samples, where applicable or requested.

c. A detailed comparison of significant qualities of the proposed substitution with those of the Work specified. Significant qualities may include elements such as size, weight, durability, performance and visual effect, i.e. color, texture, pattern, etc.

d. Coordination information, including a list of changes or modifications needed to other parts of the Work and to construction performed by the Owner and separate Contractors, that will become necessary to accommodate the proposed substitution.

e. A statement indicating the substitution's effect on the Contractor's Construction Schedule compared to the schedule without approval of the substitution. Indicate the effect of the proposed substitution on overall Contract Time.

f. Cost information, including a proposal of the net change, if any, in the Contract Sum.

g. Certification by the Contractor that the substitution proposed is equal to or better in every significant respect to that required by the Contract Documents, and that it will perform adequately in the application indicated. Include the Contractor's waiver of rights to additional payment or time, that may subsequently become necessary because of the failure of the substitution to perform adequately.

3. Architects' Action: Within one (1) week of receipt of the request for substitution, the Architect will request additional information or documentation necessary for evaluation of the request. Within two (2) weeks of receipt of the request, or one (1) week of receipt of the additional information or documentation, which ever is later, the Architect will notify the Contractor of acceptance or rejection of the proposed substitution. If a decision on use of a proposed substitute cannot be made or obtained within the time allocated, use the product specified by name. Acceptance will be in the form of a Change Order, when a change in contract cost or time is required; or in the form of Architect’s supplemental instructions when no change to contract cost or time is required.

PART 2 - PRODUCTS

2.1 SUBSTITUTIONS

A. Conditions: The Contractor's substitution request will be received and considered by the Architect when one or more of the following conditions are satisfied, as determined by the Architect; otherwise requests will be returned without action except to record non-compliance with these requirements.

1. Extensive revisions to Contract Documents are not required.

2. Proposed changes are in keeping with the intent of Contract Documents.

3. The request is timely, fully documented and properly submitted.

4. The request is directly related to an "or equal" clause or similar language in the Contract Documents.

5. The specified product or method of construction cannot receive necessary approval by a governing authority, and the requested substitution can be approved.

6. The specified product or method of construction cannot be provided in a manner that is compatible with other materials, and where the Contractor certifies that the substitution will overcome the incompatibility.

7. The specified product or method of construction cannot be coordinated with other materials, and where the Contractor certifies that the proposed substitution can be coordinated.

8. The specified product or method of construction cannot provide a warranty required by the Contract Documents and where the Contractor certifies that the proposed substitution provide the required warranty.

9. Where a proposed substitution involves more than one prime Contractor, each Contractor shall cooperate with the other Contractors involved to coordinate the Work, provide uniformity and consistency, and to assure compatibility of products.

B. The Contractor's submittal and Architect's acceptance of Shop Drawings, Product Data or Samples that relate to construction activities not complying with the Contract Documents does not constitute an acceptable or valid request for substitution, nor does it constitute approval.

PREVAILING WAGE RATES

&

CERTIFIED PAYROLL REPORTING FORMS

NOTE: **Successful bidder/contractor shall submit the required certified payroll reporting forms on a weekly basis *via email* to:**

certifiedpayrollrecords@worcesterma.gov

City of Worcester – Purchasing Division
City Hall – Room 201
455 Main Street
Worcester, MA 01608

MASSACHUSETTS WEEKLY CERTIFIED PAYROLL REPORT FORM

Company's Name:	Address:	Phone No.:	Payroll No.:

Employer's Signature:	Title:	Contract No:	Tax Payer ID Number	Work Week Ending:

Awarding Authority's Name:	Public Works Project Name:	Public Works Project Location:	Min. Wage Rate Sheet Number

General / Prime Contractor's Name:	Subcontractor's Name:		"Employer" Hourly Fringe Benefit Contributions

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

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

For all apprentices performing work during the reporting period, attach a copy of the apprentice identification card issued by the Massachusetts Department of Labor Standards / Division of Apprentice Standards.

No apprentices are identified above ☐

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

Date Received by Awarding Authority
/ /

Weekly Workforce Utilization Report Form

Project Name:			Contract No.:		Contract Value:						
Name of General Contractor:			Address:					Tel. No.:			
Name of Contractor Filing Report:			Address:					Tel. No.:			
Week Ending:											
Report by:		Date Work Began:		Final Report?:	Y ☐	N ☐	Date Work Completed:				
Title:		Reporting Date:		Report No.:							

Job Category	Number of Employees	Number of Employees Who Are		Total Weekly Workforce Hours	Total Weekly Workforce		Weekly % Workforce Hours		Total Workforce Hours to	Total Workforce Hours to Date		% of Workforce Hours to Date	
		P.O.C.	Women		P.O.C.	Women	P.O.C.	Women		P.O.C.	Women	P.O.C.	Women
							0%	0%				0%	0%
							0%	0%				0%	0%
							0%	0%				0%	0%
							0%	0%				0%	0%
							0%	0%				0%	0%
							0%	0%				0%	0%
Totals	-	-	-	-	-	-	0%	0%	-	-	-	0%	0%

WEEKLY PAYROLL RECORDS REPORT
& STATEMENT OF COMPLIANCE

In accordance with Massachusetts General Law c. 149, §27B, a true and accurate record must be kept of all persons employed on the public works project for which the enclosed rates have been provided. A Payroll Form has been printed on the reverse of this page and includes all the information required to be kept by law. Every contractor or subcontractor is required to keep these records and preserve them for a period of three years from the date of completion of the contract.

In addition, every contractor and subcontractor is required to submit a copy of their weekly payroll records to the awarding authority. For every week in which an apprentice is employed, a photocopy of the apprentice's identification card must be attached to the payroll report. Once collected, the awarding authority is also required to preserve those records for three years.

In addition, each such contractor, subcontractor, or public body shall furnish to the awarding authority directly, within fifteen days after completion of its portion of the work a statement, executed by the contractor, subcontractor or public body who supervises the payment of wages, in the following form:

STATEMENT OF COMPLIANCE

_____, 20_____

I,_____,_____
(Name of signatory party) (Title)

do hereby state:

That I pay or supervise the payment of the persons employed by
_____ on the _____
(Contractor, subcontractor or public body) (Building or project)

and that all mechanics and apprentices, teamsters, chauffeurs and laborers employed on said project have been paid in accordance with wages determined under the provisions of sections twenty-six and twenty-seven of chapter one hundred and forty nine of the General Laws.

Signature _____

Title _____

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

CHARLES D. BAKER
Governor

KARYN E. POLITO
Lt. Governor

ROSALIN ACOSTA
Secretary
MICHAEL FLANAGAN
Director

Awarding Authority: City of Worcester Purchasing Division

Contract Number: 7459-W1 **City/Town:** WORCESTER

Description of Work: Sewer Lining (S20-4) / DPWP - Sewer rehabilitation including: manhole lining, root treatment, open cut point repairs, structural cured-in-place pipe, cured-in-place later liners and associated work

Job Location: Various

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 criminal penalties.

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
Construction						
(2 AXLE) DRIVER - EQUIPMENT *TEAMSTERS JOINT COUNCIL NO. 10 ZONE B*	08/01/2020	$35.15	$12.91	$13.72	$0.00	$61.78
	12/01/2020	$35.15	$12.91	$14.82	$0.00	$62.88
	06/01/2021	$35.95	$12.91	$14.82	$0.00	$63.68
	08/01/2021	$35.95	$13.41	$14.82	$0.00	$64.18
	12/01/2021	$35.95	$13.41	$16.01	$0.00	$65.37
(3 AXLE) DRIVER - EQUIPMENT *TEAMSTERS JOINT COUNCIL NO. 10 ZONE B*	08/01/2020	$35.22	$12.91	$13.72	$0.00	$61.85
	12/01/2020	$35.22	$12.91	$14.82	$0.00	$62.95
	06/01/2021	$36.02	$12.91	$14.82	$0.00	$63.75
	08/01/2021	$36.02	$13.41	$14.82	$0.00	$64.25
	12/01/2021	$36.02	$13.41	$16.01	$0.00	$65.44
(4 & 5 AXLE) DRIVER - EQUIPMENT *TEAMSTERS JOINT COUNCIL NO. 10 ZONE B*	08/01/2020	$35.34	$12.91	$13.72	$0.00	$61.97
	12/01/2020	$35.34	$12.91	$14.82	$0.00	$63.07
	06/01/2021	$36.14	$12.91	$14.82	$0.00	$63.87
	08/01/2021	$36.14	$13.41	$14.82	$0.00	$64.37
	12/01/2021	$36.14	$13.41	$16.01	$0.00	$65.56
ADS/SUBMERSIBLE PILOT *PILE DRIVER LOCAL 56 (ZONE 2)*	08/01/2019	$102.78	$9.90	$21.15	$0.00	$133.83
For apprentice rates see "Apprentice- PILE DRIVER"						
AIR TRACK OPERATOR *LABORERS - ZONE 2*	06/01/2020	$34.81	$8.60	$15.77	$0.00	$59.18
	12/01/2020	$35.70	$8.60	$15.77	$0.00	$60.07
	06/01/2021	$36.62	$8.60	$15.77	$0.00	$60.99
	12/01/2021	$37.53	$8.60	$15.77	$0.00	$61.90
For apprentice rates see "Apprentice- LABORER"						
ASBESTOS WORKER (PIPES & TANKS) *HEAT & FROST INSULATORS LOCAL 6 (WORCESTER)*	06/01/2020	$38.00	$12.50	$8.85	$0.00	$59.35
	12/01/2020	$39.00	$12.50	$8.85	$0.00	$60.35
ASPHALT RAKER *LABORERS - ZONE 2*	06/01/2020	$34.31	$8.60	$15.77	$0.00	$58.68
	12/01/2020	$35.20	$8.60	$15.77	$0.00	$59.57
	06/01/2021	$36.12	$8.60	$15.77	$0.00	$60.49
	12/01/2021	$37.03	$8.60	$15.77	$0.00	$61.40
For apprentice rates see "Apprentice- LABORER"						
ASPHALT/CONCRETE/CRUSHER PLANT-ON SITE *OPERATING ENGINEERS LOCAL 4*	06/01/2020	$49.33	$13.00	$15.70	$0.00	$78.03
	12/01/2020	$50.48	$13.00	$15.70	$0.00	$79.18
	06/01/2021	$51.58	$13.00	$15.70	$0.00	$80.28
	12/01/2021	$52.73	$13.00	$15.70	$0.00	$81.43
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
BACKHOE/FRONT-END LOADER *OPERATING ENGINEERS LOCAL 4*	06/01/2020	$49.33	$13.00	$15.70	$0.00	$78.03
	12/01/2020	$50.48	$13.00	$15.70	$0.00	$79.18
	06/01/2021	$51.58	$13.00	$15.70	$0.00	$80.28
	12/01/2021	$52.73	$13.00	$15.70	$0.00	$81.43
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
BARCO-TYPE JUMPING TAMPER *LABORERS - ZONE 2*	06/01/2020	$34.31	$8.60	$15.77	$0.00	$58.68
	12/01/2020	$35.20	$8.60	$15.77	$0.00	$59.57
	06/01/2021	$36.12	$8.60	$15.77	$0.00	$60.49
	12/01/2021	$37.03	$8.60	$15.77	$0.00	$61.40
For apprentice rates see "Apprentice- LABORER"						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
BLOCK PAVER, RAMMER / CURB SETTER *LABORERS - ZONE 2*	06/01/2020	$34.81	$8.60	$15.77	$0.00	$59.18
	12/01/2020	$35.70	$8.60	$15.77	$0.00	$60.07
	06/01/2021	$36.62	$8.60	$15.77	$0.00	$60.99
	12/01/2021	$37.53	$8.60	$15.77	$0.00	$61.90
For apprentice rates see "Apprentice- LABORER"						
BOILER MAKER *BOILERMAKERS LOCAL 29*	01/01/2020	$46.10	$7.07	$17.98	$0.00	$71.15

Apprentice - *BOILERMAKER - Local 29*

Effective Date - 01/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	65	$29.97	$7.07	$11.69	$0.00	$48.73
2	65	$29.97	$7.07	$11.69	$0.00	$48.73
3	70	$32.27	$7.07	$12.59	$0.00	$51.93
4	75	$34.58	$7.07	$13.49	$0.00	$55.14
5	80	$36.88	$7.07	$14.38	$0.00	$58.33
6	85	$39.19	$7.07	$15.29	$0.00	$61.55
7	90	$41.49	$7.07	$16.18	$0.00	$64.74
8	95	$43.80	$7.07	$17.09	$0.00	$67.96

Notes:

Apprentice to Journeyworker Ratio:1:4

BRICK/STONE/ARTIFICIAL MASONRY (INCL. MASONRY WATERPROOFING) *BRICKLAYERS LOCAL 3 (WORCESTER)*	08/01/2020	$53.61	$10.75	$21.45	$0.00	$85.81
	02/01/2021	$54.21	$10.75	$21.45	$0.00	$86.41
	08/01/2021	$55.61	$10.75	$21.61	$0.00	$87.97
	02/01/2022	$56.19	$10.75	$21.61	$0.00	$88.55

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *BRICK/PLASTER/CEMENT MASON - Local 3 Worcester*

Effective Date - 08/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$26.81	$10.75	$21.45	$0.00	$59.01
2	60	$32.17	$10.75	$21.45	$0.00	$64.37
3	70	$37.53	$10.75	$21.45	$0.00	$69.73
4	80	$42.89	$10.75	$21.45	$0.00	$75.09
5	90	$48.25	$10.75	$21.45	$0.00	$80.45

Effective Date - 02/01/2021

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$27.11	$10.75	$21.45	$0.00	$59.31
2	60	$32.53	$10.75	$21.45	$0.00	$64.73
3	70	$37.95	$10.75	$21.45	$0.00	$70.15
4	80	$43.37	$10.75	$21.45	$0.00	$75.57
5	90	$48.79	$10.75	$21.45	$0.00	$80.99

Notes:

Apprentice to Journeyworker Ratio:1:5

BULLDOZER/GRADER/SCRAPER *OPERATING ENGINEERS LOCAL 4*	06/01/2020	$48.81	$13.00	$15.70	$0.00	$77.51
	12/01/2020	$49.95	$13.00	$15.70	$0.00	$78.65
	06/01/2021	$51.04	$13.00	$15.70	$0.00	$79.74
	12/01/2021	$52.18	$13.00	$15.70	$0.00	$80.88
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
CAISSON & UNDERPINNING BOTTOM MAN *LABORERS - FOUNDATION AND MARINE*	06/01/2020	$40.30	$8.60	$17.24	$0.00	$66.14
	12/01/2020	$41.28	$8.60	$17.24	$0.00	$67.12
	06/01/2021	$42.30	$8.60	$17.24	$0.00	$68.14
	12/01/2021	$43.31	$8.60	$17.24	$0.00	$69.15
For apprentice rates see "Apprentice- LABORER"						
CAISSON & UNDERPINNING LABORER *LABORERS - FOUNDATION AND MARINE*	06/01/2020	$39.15	$8.60	$17.24	$0.00	$64.99
	12/01/2020	$40.13	$8.60	$17.24	$0.00	$65.97
	06/01/2021	$41.15	$8.60	$17.24	$0.00	$66.99
	12/01/2021	$42.16	$8.60	$17.24	$0.00	$68.00
For apprentice rates see "Apprentice- LABORER"						
CAISSON & UNDERPINNING TOP MAN *LABORERS - FOUNDATION AND MARINE*	06/01/2020	$39.15	$8.60	$17.24	$0.00	$64.99
	12/01/2020	$40.13	$8.60	$17.24	$0.00	$65.97
	06/01/2021	$41.15	$8.60	$17.24	$0.00	$66.99
	12/01/2021	$42.16	$8.60	$17.24	$0.00	$68.00
For apprentice rates see "Apprentice- LABORER"						
CARBIDE CORE DRILL OPERATOR *LABORERS - ZONE 2*	06/01/2020	$34.31	$8.60	$15.77	$0.00	$58.68
	12/01/2020	$35.20	$8.60	$15.77	$0.00	$59.57
	06/01/2021	$36.12	$8.60	$15.77	$0.00	$60.49
	12/01/2021	$37.03	$8.60	$15.77	$0.00	$61.40
For apprentice rates see "Apprentice- LABORER"						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
CARPENTER *CARPENTERS -ZONE 2 (Eastern Massachusetts)*	03/01/2020	$42.50	$9.40	$18.95	$0.00	$70.85
	09/01/2020	$43.15	$9.40	$18.95	$0.00	$71.50
	03/01/2021	$43.75	$9.40	$18.95	$0.00	$72.10
	09/01/2021	$44.40	$9.40	$18.95	$0.00	$72.75
	03/01/2022	$45.00	$9.40	$18.95	$0.00	$73.35
	09/01/2022	$45.65	$9.40	$18.95	$0.00	$74.00
	03/01/2023	$46.25	$9.40	$18.95	$0.00	$74.60

Apprentice - *CARPENTER - Zone 2 Eastern MA*

Effective Date - 03/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$21.25	$9.40	$1.73	$0.00	$32.38
2	60	$25.50	$9.40	$1.73	$0.00	$36.63
3	70	$29.75	$9.40	$13.76	$0.00	$52.91
4	75	$31.88	$9.40	$13.76	$0.00	$55.04
5	80	$34.00	$9.40	$15.49	$0.00	$58.89
6	80	$34.00	$9.40	$15.49	$0.00	$58.89
7	90	$38.25	$9.40	$17.22	$0.00	$64.87
8	90	$38.25	$9.40	$17.22	$0.00	$64.87

Effective Date - 09/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$21.58	$9.40	$1.73	$0.00	$32.71
2	60	$25.89	$9.40	$1.73	$0.00	$37.02
3	70	$30.21	$9.40	$13.76	$0.00	$53.37
4	75	$32.36	$9.40	$13.76	$0.00	$55.52
5	80	$34.52	$9.40	$15.49	$0.00	$59.41
6	80	$34.52	$9.40	$15.49	$0.00	$59.41
7	90	$38.84	$9.40	$17.22	$0.00	$65.46
8	90	$38.84	$9.40	$17.22	$0.00	$65.46

Notes:

% Indentured After 10/1/17; 45/45/55/55/70/70/80/80
Step 1&2 $30.26/ 3&4 $36.18/ 5&6 $54.64/ 7&8 $60.62

Apprentice to Journeyworker Ratio:1:5

CARPENTER WOOD FRAME *CARPENTERS-ZONE 3 (Wood Frame)*	04/01/2020	$22.66	$7.21	$4.80	$0.00	$34.67
	04/01/2021	$23.16	$7.21	$4.80	$0.00	$35.17
	04/01/2022	$23.66	$7.21	$4.80	$0.00	$35.67
	04/01/2023	$24.16	$7.21	$4.80	$0.00	$36.17

All Aspects of New Wood Frame Work

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *CARPENTER (Wood Frame) - Zone 3*

Effective Date - 04/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	$13.60	$7.21	$0.00	$0.00	$20.81
2	60	$13.60	$7.21	$0.00	$0.00	$20.81
3	65	$14.73	$7.21	$0.00	$0.00	$21.94
4	70	$15.86	$7.21	$0.00	$0.00	$23.07
5	75	$17.00	$7.21	$3.80	$0.00	$28.01
6	80	$18.13	$7.21	$3.80	$0.00	$29.14
7	85	$19.26	$7.21	$3.80	$0.00	$30.27
8	90	$20.39	$7.21	$3.80	$0.00	$31.40

Effective Date - 04/01/2021

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	$13.90	$7.21	$0.00	$0.00	$21.11
2	60	$13.90	$7.21	$0.00	$0.00	$21.11
3	65	$15.05	$7.21	$0.00	$0.00	$22.26
4	70	$16.21	$7.21	$0.00	$0.00	$23.42
5	75	$17.37	$7.21	$3.80	$0.00	$28.38
6	80	$18.53	$7.21	$3.80	$0.00	$29.54
7	85	$19.69	$7.21	$3.80	$0.00	$30.70
8	90	$20.84	$7.21	$3.80	$0.00	$31.85

Notes:

% Indentured After 10/1/17; 45/45/55/55/70/70/80/80
Step 1&2 $17.41/ 3&4 $19.67/ 5&6 $26.87/ 7&8 $29.14

Apprentice to Journeyworker Ratio:1:5

CEMENT MASONRY/PLASTERING *BRICKLAYERS LOCAL 3 (WORCESTER)*	01/01/2020	$47.14	$12.75	$22.41	$0.62	$82.92

Apprentice - *CEMENT MASONRY/PLASTERING - Worcester*

Effective Date - 01/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$23.57	$12.75	$15.41	$0.00	$51.73
2	60	$28.28	$12.75	$17.41	$0.62	$59.06
3	65	$30.64	$12.75	$18.41	$0.62	$62.42
4	70	$33.00	$12.75	$19.41	$0.62	$65.78
5	75	$35.36	$12.75	$20.41	$0.62	$69.14
6	80	$37.71	$12.75	$21.41	$0.62	$72.49
7	90	$42.43	$12.75	$22.41	$0.62	$78.21

Notes:

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

Apprentice to Journeyworker Ratio:1:3

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
CHAIN SAW OPERATOR *LABORERS - ZONE 2*	06/01/2020	$34.31	$8.60	$15.77	$0.00	$58.68
	12/01/2020	$35.20	$8.60	$15.77	$0.00	$59.57
	06/01/2021	$36.12	$8.60	$15.77	$0.00	$60.49
	12/01/2021	$37.03	$8.60	$15.77	$0.00	$61.40
For apprentice rates see "Apprentice- LABORER"						
CLAM SHELLS/SLURRY BUCKETS/HEADING MACHINES *OPERATING ENGINEERS LOCAL 4*	06/01/2020	$50.33	$13.00	$15.70	$0.00	$79.03
	12/01/2020	$51.48	$13.00	$15.70	$0.00	$80.18
	06/01/2021	$52.58	$13.00	$15.70	$0.00	$81.28
	12/01/2021	$53.73	$13.00	$15.70	$0.00	$82.43
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
COMPRESSOR OPERATOR *OPERATING ENGINEERS LOCAL 4*	06/01/2020	$32.72	$13.00	$15.70	$0.00	$61.42
	12/01/2020	$33.50	$13.00	$15.70	$0.00	$62.20
	06/01/2021	$34.25	$13.00	$15.70	$0.00	$62.95
	12/01/2021	$35.04	$13.00	$15.70	$0.00	$63.74
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
DELEADER (BRIDGE) *PAINTERS LOCAL 35 - ZONE 2*	07/01/2020	$51.51	$8.25	$22.40	$0.00	$82.16
	01/01/2021	$52.06	$8.25	$22.75	$0.00	$83.06

Apprentice - *PAINTER Local 35 - BRIDGES/TANKS*

Effective Date - 07/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$25.76	$8.25	$0.00	$0.00	$34.01
2	55	$28.33	$8.25	$6.05	$0.00	$42.63
3	60	$30.91	$8.25	$6.60	$0.00	$45.76
4	65	$33.48	$8.25	$7.15	$0.00	$48.88
5	70	$36.06	$8.25	$19.10	$0.00	$63.41
6	75	$38.63	$8.25	$19.65	$0.00	$66.53
7	80	$41.21	$8.25	$20.20	$0.00	$69.66
8	90	$46.36	$8.25	$21.30	$0.00	$75.91

Effective Date - 01/01/2021

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$26.03	$8.25	$0.00	$0.00	$34.28
2	55	$28.63	$8.25	$6.16	$0.00	$43.04
3	60	$31.24	$8.25	$6.72	$0.00	$46.21
4	65	$33.84	$8.25	$7.28	$0.00	$49.37
5	70	$36.44	$8.25	$19.39	$0.00	$64.08
6	75	$39.05	$8.25	$19.95	$0.00	$67.25
7	80	$41.65	$8.25	$20.51	$0.00	$70.41
8	90	$46.85	$8.25	$21.63	$0.00	$76.73

Notes:

Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
DEMO: ADZEMAN *LABORERS - ZONE 2* For apprentice rates see "Apprentice- LABORER"	12/01/2019	$39.30	$8.10	$16.60	$0.00	$64.00
DEMO: BACKHOE/LOADER/HAMMER OPERATOR *LABORERS - ZONE 2* For apprentice rates see "Apprentice- LABORER"	12/01/2019	$40.30	$8.10	$16.60	$0.00	$65.00
DEMO: BURNERS *LABORERS - ZONE 2* For apprentice rates see "Apprentice- LABORER"	12/01/2019	$40.05	$8.10	$16.60	$0.00	$64.75
DEMO: CONCRETE CUTTER/SAWYER *LABORERS - ZONE 2* For apprentice rates see "Apprentice- LABORER"	12/01/2019	$40.30	$8.10	$16.60	$0.00	$65.00
DEMO: JACKHAMMER OPERATOR *LABORERS - ZONE 2* For apprentice rates see "Apprentice- LABORER"	12/01/2019	$40.05	$8.10	$16.60	$0.00	$64.75
DEMO: WRECKING LABORER *LABORERS - ZONE 2* For apprentice rates see "Apprentice- LABORER"	12/01/2019	$39.30	$8.10	$16.60	$0.00	$64.00
DIRECTIONAL DRILL MACHINE OPERATOR *OPERATING ENGINEERS LOCAL 4*	06/01/2020	$48.81	$13.00	$15.70	$0.00	$77.51
	12/01/2020	$49.95	$13.00	$15.70	$0.00	$78.65
	06/01/2021	$51.04	$13.00	$15.70	$0.00	$79.74
	12/01/2021	$52.18	$13.00	$15.70	$0.00	$80.88
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
DIVER *PILE DRIVER LOCAL 56 (ZONE 2)* For apprentice rates see "Apprentice- PILE DRIVER"	08/01/2019	$68.52	$9.90	$21.15	$0.00	$99.57
DIVER TENDER *PILE DRIVER LOCAL 56 (ZONE 2)* For apprentice rates see "Apprentice- PILE DRIVER"	08/01/2019	$48.94	$9.90	$21.15	$0.00	$79.99
DIVER TENDER (EFFLUENT) *PILE DRIVER LOCAL 56 (ZONE 2)* For apprentice rates see "Apprentice- PILE DRIVER"	08/01/2019	$73.41	$9.90	$21.15	$0.00	$104.46
DIVER/SLURRY (EFFLUENT) *PILE DRIVER LOCAL 56 (ZONE 2)* For apprentice rates see "Apprentice- PILE DRIVER"	08/01/2019	$102.78	$9.90	$21.15	$0.00	$133.83
DRAWBRIDGE OPERATOR (Construction) *DRAWBRIDGE - SEIU LOCAL 888*	07/01/2020	$26.77	$6.67	$3.93	$0.16	$37.53
ELECTRICIAN *ELECTRICIANS LOCAL 96*	07/01/2019	$44.07	$10.72	$16.04	$0.00	$70.83

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *ELECTRICIAN - Local 96*

Effective Date - 07/01/2019

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	$17.63	$10.72	$0.53	$0.00	$28.88
2	43	$18.95	$10.72	$0.57	$0.00	$30.24
3	48	$21.15	$10.72	$12.93	$0.00	$44.80
4	55	$24.24	$10.72	$13.27	$0.00	$48.23
5	65	$28.65	$10.72	$13.88	$0.00	$53.25
6	80	$35.26	$10.72	$14.81	$0.00	$60.79

Notes:

Steps 1-2 are 1000 hrs; Steps 3-6 are 1500 hrs.

Apprentice to Journeyworker Ratio:2:3***

ELEVATOR CONSTRUCTOR *ELEVATOR CONSTRUCTORS LOCAL 41*	01/01/2020	$54.85	$15.73	$18.41	$0.00	$88.99
	01/01/2021	$56.69	$15.88	$19.31	$0.00	$91.88
	01/01/2022	$58.62	$16.03	$20.21	$0.00	$94.86

Apprentice - *ELEVATOR CONSTRUCTOR - Local 41*

Effective Date - 01/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$27.43	$15.73	$0.00	$0.00	$43.16
2	55	$30.17	$15.73	$18.41	$0.00	$64.31
3	65	$35.65	$15.73	$18.41	$0.00	$69.79
4	70	$38.40	$15.73	$18.41	$0.00	$72.54
5	80	$43.88	$15.73	$18.41	$0.00	$78.02

Effective Date - 01/01/2021

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$28.35	$15.88	$0.00	$0.00	$44.23
2	55	$31.18	$15.88	$19.31	$0.00	$66.37
3	65	$36.85	$15.88	$19.31	$0.00	$72.04
4	70	$39.68	$15.88	$19.31	$0.00	$74.87
5	80	$45.35	$15.88	$19.31	$0.00	$80.54

Notes:

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

Apprentice to Journeyworker Ratio:1:1

ELEVATOR CONSTRUCTOR HELPER *ELEVATOR CONSTRUCTORS LOCAL 41*	01/01/2020	$38.40	$15.73	$18.41	$0.00	$72.54
	01/01/2021	$39.68	$15.88	$19.31	$0.00	$74.87
	01/01/2022	$41.03	$16.03	$20.21	$0.00	$77.27

For apprentice rates see "Apprentice - ELEVATOR CONSTRUCTOR"

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
FENCE & GUARD RAIL ERECTOR *LABORERS - ZONE 2*	06/01/2020	$34.31	$8.60	$15.77	$0.00	$58.68
	12/01/2020	$35.20	$8.60	$15.77	$0.00	$59.57
	06/01/2021	$36.12	$8.60	$15.77	$0.00	$60.49
	12/01/2021	$37.03	$8.60	$15.77	$0.00	$61.40
For apprentice rates see "Apprentice- LABORER"						
FIELD ENG.INST.PERSON-BLDG,SITE,HVY/HWY *OPERATING ENGINEERS LOCAL 4*	05/01/2020	$44.73	$12.50	$15.70	$0.00	$72.93
	11/01/2020	$45.73	$12.50	$15.70	$0.00	$73.93
	05/01/2021	$46.88	$12.50	$15.70	$0.00	$75.08
	11/01/2021	$47.88	$12.50	$15.70	$0.00	$76.08
	05/01/2022	$49.03	$12.50	$15.70	$0.00	$77.23
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
FIELD ENG.PARTY CHIEF-BLDG,SITE,HVY/HWY *OPERATING ENGINEERS LOCAL 4*	05/01/2020	$46.23	$12.50	$15.70	$0.00	$74.43
	11/01/2020	$47.24	$12.50	$15.70	$0.00	$75.44
	05/01/2021	$48.40	$12.50	$15.70	$0.00	$76.60
	11/01/2021	$49.41	$12.50	$15.70	$0.00	$77.61
	05/01/2022	$50.57	$12.50	$15.70	$0.00	$78.77
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
FIELD ENG.ROD PERSON-BLDG,SITE,HVY/HWY *OPERATING ENGINEERS LOCAL 4*	05/01/2020	$22.64	$12.50	$15.70	$0.00	$50.84
	11/01/2020	$23.23	$12.50	$15.70	$0.00	$51.43
	05/01/2021	$23.91	$12.50	$15.70	$0.00	$52.11
	11/01/2021	$24.51	$12.50	$15.70	$0.00	$52.71
	05/01/2022	$25.18	$12.50	$15.70	$0.00	$53.38
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
FIRE ALARM INSTALLER *ELECTRICIANS LOCAL 96*	07/01/2019	$44.07	$10.72	$16.04	$0.00	$70.83
For apprentice rates see "Apprentice- ELECTRICIAN"						
FIRE ALARM REPAIR / MAINT/COMMISSIONING *ELECTRICIANS LOCAL 96*	07/01/2019	$44.07	$10.72	$16.04	$0.00	$70.83
For apprentice rates see "Apprentice- ELECTRICIAN"						
FIREMAN (ASST. ENGINEER) *OPERATING ENGINEERS LOCAL 4*	06/01/2020	$40.30	$13.00	$15.70	$0.00	$69.00
	12/01/2020	$41.25	$13.00	$15.70	$0.00	$69.95
	06/01/2021	$42.16	$13.00	$15.70	$0.00	$70.86
	12/01/2021	$43.11	$13.00	$15.70	$0.00	$71.81
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
FLAGGER & SIGNALER *LABORERS - ZONE 2*	06/01/2020	$23.50	$8.60	$15.77	$0.00	$47.87
	12/01/2020	$24.50	$8.60	$15.77	$0.00	$48.87
	06/01/2021	$24.50	$8.60	$15.77	$0.00	$48.87
	12/01/2021	$24.50	$8.60	$15.77	$0.00	$48.87
For apprentice rates see "Apprentice- LABORER"						
FLOORCOVERER *FLOORCOVERERS LOCAL 2168 ZONE II*	03/01/2020	$44.74	$9.40	$19.25	$0.00	$73.39
	09/01/2020	$45.54	$9.40	$19.25	$0.00	$74.19
	03/01/2021	$46.34	$9.40	$19.25	$0.00	$74.99
	09/01/2021	$47.14	$9.40	$19.25	$0.00	$75.79
	03/01/2022	$47.94	$9.40	$19.25	$0.00	$76.59

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *FLOORCOVERER - Local 2168 Zone II*

Effective Date - 03/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$22.37	$9.40	$1.79	$0.00	$33.56
2	55	$24.61	$9.40	$1.79	$0.00	$35.80
3	60	$26.84	$9.40	$13.88	$0.00	$50.12
4	65	$29.08	$9.40	$13.88	$0.00	$52.36
5	70	$31.32	$9.40	$15.67	$0.00	$56.39
6	75	$33.56	$9.40	$15.67	$0.00	$58.63
7	80	$35.79	$9.40	$17.46	$0.00	$62.65
8	85	$38.03	$9.40	$17.46	$0.00	$64.89

Effective Date - 09/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$22.77	$9.40	$1.79	$0.00	$33.96
2	55	$25.05	$9.40	$1.79	$0.00	$36.24
3	60	$27.32	$9.40	$13.88	$0.00	$50.60
4	65	$29.60	$9.40	$13.88	$0.00	$52.88
5	70	$31.88	$9.40	$15.67	$0.00	$56.95
6	75	$34.16	$9.40	$15.67	$0.00	$59.23
7	80	$36.43	$9.40	$17.46	$0.00	$63.29
8	85	$38.71	$9.40	$17.46	$0.00	$65.57

Notes: Steps are 750 hrs.
% After 09/1/17; 45/45/55/55/70/70/80/80 (1500hr Steps)
Step 1&2 $31.32/ 3&4 $37.53/ 5&6 $56.39/ 7&8 $62.65

Apprentice to Journeyworker Ratio:1:1

FORK LIFT/CHERRY PICKER *OPERATING ENGINEERS LOCAL 4*	06/01/2020	$49.33	$13.00	$15.70	$0.00	$78.03
	12/01/2020	$50.48	$13.00	$15.70	$0.00	$79.18
	06/01/2021	$51.58	$13.00	$15.70	$0.00	$80.28
	12/01/2021	$52.73	$13.00	$15.70	$0.00	$81.43
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
GENERATOR/LIGHTING PLANT/HEATERS *OPERATING ENGINEERS LOCAL 4*	06/01/2020	$32.72	$13.00	$15.70	$0.00	$61.42
	12/01/2020	$33.50	$13.00	$15.70	$0.00	$62.20
	06/01/2021	$34.25	$13.00	$15.70	$0.00	$62.95
	12/01/2021	$35.04	$13.00	$15.70	$0.00	$63.74
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
GLAZIER (GLASS PLANK/AIR BARRIER/INTERIOR SYSTEMS) *GLAZIERS LOCAL 35 (ZONE 2)*	07/01/2020	$41.01	$8.25	$22.40	$0.00	$71.66
	01/01/2021	$41.56	$8.25	$22.75	$0.00	$72.56

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *GLAZIER - Local 35 Zone 2*

Effective Date - 07/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$20.51	$8.25	$0.00	$0.00	$28.76
2	55	$22.56	$8.25	$6.05	$0.00	$36.86
3	60	$24.61	$8.25	$6.60	$0.00	$39.46
4	65	$26.66	$8.25	$7.15	$0.00	$42.06
5	70	$28.71	$8.25	$19.10	$0.00	$56.06
6	75	$30.76	$8.25	$19.65	$0.00	$58.66
7	80	$32.81	$8.25	$20.20	$0.00	$61.26
8	90	$36.91	$8.25	$21.30	$0.00	$66.46

Effective Date - 01/01/2021

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$20.78	$8.25	$0.00	$0.00	$29.03
2	55	$22.86	$8.25	$6.16	$0.00	$37.27
3	60	$24.94	$8.25	$6.72	$0.00	$39.91
4	65	$27.01	$8.25	$7.28	$0.00	$42.54
5	70	$29.09	$8.25	$19.39	$0.00	$56.73
6	75	$31.17	$8.25	$19.95	$0.00	$59.37
7	80	$33.25	$8.25	$20.51	$0.00	$62.01
8	90	$37.40	$8.25	$21.63	$0.00	$67.28

Notes:

Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

HOISTING ENGINEER/CRANES/GRADALLS *OPERATING ENGINEERS LOCAL 4*	06/01/2020	$49.33	$13.00	$15.70	$0.00	$78.03
	12/01/2020	$50.48	$13.00	$15.70	$0.00	$79.18
	06/01/2021	$51.58	$13.00	$15.70	$0.00	$80.28
	12/01/2021	$52.73	$13.00	$15.70	$0.00	$81.43

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *OPERATING ENGINEERS - Local 4*

Effective Date - 06/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	55	$27.13	$13.00	$0.00	$0.00	$40.13
2	60	$29.60	$13.00	$15.70	$0.00	$58.30
3	65	$32.06	$13.00	$15.70	$0.00	$60.76
4	70	$34.53	$13.00	$15.70	$0.00	$63.23
5	75	$37.00	$13.00	$15.70	$0.00	$65.70
6	80	$39.46	$13.00	$15.70	$0.00	$68.16
7	85	$41.93	$13.00	$15.70	$0.00	$70.63
8	90	$44.40	$13.00	$15.70	$0.00	$73.10

Effective Date - 12/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	55	$27.76	$13.00	$0.00	$0.00	$40.76
2	60	$30.29	$13.00	$15.70	$0.00	$58.99
3	65	$32.81	$13.00	$15.70	$0.00	$61.51
4	70	$35.34	$13.00	$15.70	$0.00	$64.04
5	75	$37.86	$13.00	$15.70	$0.00	$66.56
6	80	$40.38	$13.00	$15.70	$0.00	$69.08
7	85	$42.91	$13.00	$15.70	$0.00	$71.61
8	90	$45.43	$13.00	$15.70	$0.00	$74.13

Notes:

Apprentice to Journeyworker Ratio:1:6

HVAC (DUCTWORK) *SHEETMETAL WORKERS LOCAL 63*	01/01/2020	$36.99	$10.64	$16.22	$1.77	$65.62

For apprentice rates see "Apprentice- SHEET METAL WORKER"

HVAC (ELECTRICAL CONTROLS) *ELECTRICIANS LOCAL 96*	07/01/2019	$44.07	$10.72	$16.04	$0.00	$70.83

For apprentice rates see "Apprentice- ELECTRICIAN"

HVAC (TESTING AND BALANCING - AIR) *SHEETMETAL WORKERS LOCAL 63*	01/01/2020	$36.99	$10.64	$16.22	$1.77	$65.62

For apprentice rates see "Apprentice- SHEET METAL WORKER"

HVAC (TESTING AND BALANCING -WATER) *PLUMBERS LOCAL 4*	03/01/2020	$46.16	$9.80	$15.46	$0.00	$71.42
	09/01/2020	$46.91	$9.80	$15.71	$0.00	$72.42
	03/01/2021	$47.91	$9.80	$15.71	$0.00	$73.42
	09/01/2021	$48.91	$9.80	$15.71	$0.00	$74.42
	03/01/2022	$49.91	$9.80	$15.71	$0.00	$75.42

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

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
HVAC MECHANIC *PLUMBERS LOCAL 4*	03/01/2020	$46.16	$9.80	$15.46	$0.00	$71.42
	09/01/2020	$46.91	$9.80	$15.71	$0.00	$72.42
	03/01/2021	$47.91	$9.80	$15.71	$0.00	$73.42
	09/01/2021	$48.91	$9.80	$15.71	$0.00	$74.42
	03/01/2022	$49.91	$9.80	$15.71	$0.00	$75.42
For apprentice rates see "Apprentice- PIPEFITTER" or "PLUMBER/PIPEFITTER"						
HYDRAULIC DRILLS *LABORERS - ZONE 2*	06/01/2020	$34.81	$8.60	$15.77	$0.00	$59.18
	12/01/2020	$35.70	$8.60	$15.77	$0.00	$60.07
	06/01/2021	$36.62	$8.60	$15.77	$0.00	$60.99
	12/01/2021	$37.53	$8.60	$15.77	$0.00	$61.90
For apprentice rates see "Apprentice- LABORER"						
INSULATOR (PIPES & TANKS) *HEAT & FROST INSULATORS LOCAL 6 (WORCESTER)*	09/01/2019	$43.60	$12.80	$16.40	$0.00	$72.80

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

Effective Date - 09/01/2019

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$21.80	$12.80	$11.90	$0.00	$46.50
2	60	$26.16	$12.80	$12.80	$0.00	$51.76
3	70	$30.52	$12.80	$13.70	$0.00	$57.02
4	80	$34.88	$12.80	$14.60	$0.00	$62.28

Notes:

Steps are 1 year

Apprentice to Journeyworker Ratio:1:4

IRONWORKER/WELDER *IRONWORKERS LOCAL 7 (WORCESTER AREA)*	03/16/2019	$46.36	$8.00	$23.50	$0.00	$77.86

Apprentice - *IRONWORKER - Local 7 Worcester*

Effective Date - 03/16/2019

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	$27.82	$8.00	$23.50	$0.00	$59.32
2	70	$32.45	$8.00	$23.50	$0.00	$63.95
3	75	$34.77	$8.00	$23.50	$0.00	$66.27
4	80	$37.09	$8.00	$23.50	$0.00	$68.59
5	85	$39.41	$8.00	$23.50	$0.00	$70.91
6	90	$41.72	$8.00	$23.50	$0.00	$73.22

Notes:

Structural 1:6; Ornamental 1:4

Apprentice to Journeyworker Ratio:

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
JACKHAMMER & PAVING BREAKER OPERATOR *LABORERS - ZONE 2*	06/01/2020	$34.31	$8.60	$15.77	$0.00	$58.68
	12/01/2020	$35.20	$8.60	$15.77	$0.00	$59.57
	06/01/2021	$36.12	$8.60	$15.77	$0.00	$60.49
	12/01/2021	$37.03	$8.60	$15.77	$0.00	$61.40
For apprentice rates see "Apprentice- LABORER"						
LABORER *LABORERS - ZONE 2*	06/01/2020	$34.06	$8.60	$15.77	$0.00	$58.43
	12/01/2020	$34.95	$8.60	$15.77	$0.00	$59.32
	06/01/2021	$35.87	$8.60	$15.77	$0.00	$60.24
	12/01/2021	$36.78	$8.60	$15.77	$0.00	$61.15

Apprentice - *LABORER - Zone 2*

Effective Date - 06/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	$20.44	$8.60	$15.77	$0.00	$44.81
2	70	$23.84	$8.60	$15.77	$0.00	$48.21
3	80	$27.25	$8.60	$15.77	$0.00	$51.62
4	90	$30.65	$8.60	$15.77	$0.00	$55.02

Effective Date - 12/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	$20.97	$8.60	$15.77	$0.00	$45.34
2	70	$24.47	$8.60	$15.77	$0.00	$48.84
3	80	$27.96	$8.60	$15.77	$0.00	$52.33
4	90	$31.46	$8.60	$15.77	$0.00	$55.83

Notes:

Apprentice to Journeyworker Ratio:1:5

LABORER: CARPENTER TENDER *LABORERS - ZONE 2*	06/01/2020	$34.06	$8.60	$15.77	$0.00	$58.43
	12/01/2020	$34.95	$8.60	$15.77	$0.00	$59.32
	06/01/2021	$35.87	$8.60	$15.77	$0.00	$60.24
	12/01/2021	$36.78	$8.60	$15.77	$0.00	$61.15
For apprentice rates see "Apprentice- LABORER"						
LABORER: CEMENT FINISHER TENDER *LABORERS - ZONE 2*	06/01/2020	$34.06	$8.60	$15.77	$0.00	$58.43
	12/01/2020	$34.95	$8.60	$15.77	$0.00	$59.32
	06/01/2021	$35.87	$8.60	$15.77	$0.00	$60.24
	12/01/2021	$36.78	$8.60	$15.77	$0.00	$61.15
For apprentice rates see "Apprentice- LABORER"						
LABORER: HAZARDOUS WASTE/ASBESTOS REMOVER *LABORERS - ZONE 2*	06/01/2020	$34.15	$8.60	$15.83	$0.00	$58.58
For apprentice rates see "Apprentice- LABORER"						
LABORER: MASON TENDER *LABORERS - ZONE 2*	06/01/2020	$34.31	$8.60	$15.77	$0.00	$58.68
	12/01/2020	$35.20	$8.60	$15.77	$0.00	$59.57
	06/01/2021	$36.12	$8.60	$15.77	$0.00	$60.49
	12/01/2021	$37.03	$8.60	$15.77	$0.00	$61.40
For apprentice rates see "Apprentice- LABORER"						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
LABORER: MULTI-TRADE TENDER *LABORERS - ZONE 2*	06/01/2020	$34.06	$8.60	$15.77	$0.00	$58.43
	12/01/2020	$34.95	$8.60	$15.77	$0.00	$59.32
	06/01/2021	$35.87	$8.60	$15.77	$0.00	$60.24
	12/01/2021	$36.78	$8.60	$15.77	$0.00	$61.15
For apprentice rates see "Apprentice- LABORER"						
LABORER: TREE REMOVER *LABORERS - ZONE 2*	06/01/2020	$34.06	$8.60	$15.77	$0.00	$58.43
	12/01/2020	$34.95	$8.60	$15.77	$0.00	$59.32
	06/01/2021	$35.87	$8.60	$15.77	$0.00	$60.24
	12/01/2021	$36.78	$8.60	$15.77	$0.00	$61.15
This classification applies to the removal of standing trees, and the trimming and removal of branches and limbs when related to public works construction or site clearance incidental to construction . For apprentice rates see "Apprentice- LABORER"						
LASER BEAM OPERATOR *LABORERS - ZONE 2*	06/01/2020	$34.31	$8.60	$15.77	$0.00	$58.68
	12/01/2020	$35.20	$8.60	$15.77	$0.00	$59.57
	06/01/2021	$36.12	$8.60	$15.77	$0.00	$60.49
	12/01/2021	$37.03	$8.60	$15.77	$0.00	$61.40
For apprentice rates see "Apprentice- LABORER"						
MARBLE & TILE FINISHERS *BRICKLAYERS LOCAL 3 - MARBLE & TILE*	08/01/2020	$42.57	$10.75	$20.27	$0.00	$73.59
	02/01/2021	$43.08	$10.75	$20.27	$0.00	$74.10
	08/01/2021	$44.20	$10.75	$20.43	$0.00	$75.38
	02/01/2022	$44.67	$10.75	$20.43	$0.00	$75.85

Apprentice - *MARBLE & TILE FINISHER - Local 3 Marble & Tile*

Effective Date - 08/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$21.29	$10.75	$20.27	$0.00	$52.31
2	60	$25.54	$10.75	$20.27	$0.00	$56.56
3	70	$29.80	$10.75	$20.27	$0.00	$60.82
4	80	$34.06	$10.75	$20.27	$0.00	$65.08
5	90	$38.31	$10.75	$20.27	$0.00	$69.33

Effective Date - 02/01/2021

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$21.54	$10.75	$20.27	$0.00	$52.56
2	60	$25.85	$10.75	$20.27	$0.00	$56.87
3	70	$30.16	$10.75	$20.27	$0.00	$61.18
4	80	$34.46	$10.75	$20.27	$0.00	$65.48
5	90	$38.77	$10.75	$20.27	$0.00	$69.79

Notes:

Apprentice to Journeyworker Ratio:1:3

MARBLE MASONS,TILELAYERS & TERRAZZO MECH *BRICKLAYERS LOCAL 3 - MARBLE & TILE*	08/01/2020	$55.77	$10.75	$22.08	$0.00	$88.60
	02/01/2021	$56.41	$10.75	$22.08	$0.00	$89.24
	08/01/2021	$57.81	$10.75	$22.24	$0.00	$90.80
	02/01/2022	$58.38	$10.75	$22.24	$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 - 08/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$27.89	$10.75	$22.08	$0.00	$60.72
2	60	$33.46	$10.75	$22.08	$0.00	$66.29
3	70	$39.04	$10.75	$22.08	$0.00	$71.87
4	80	$44.62	$10.75	$22.08	$0.00	$77.45
5	90	$50.19	$10.75	$22.08	$0.00	$83.02

Effective Date - 02/01/2021

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$28.21	$10.75	$22.08	$0.00	$61.04
2	60	$33.85	$10.75	$22.08	$0.00	$66.68
3	70	$39.49	$10.75	$22.08	$0.00	$72.32
4	80	$45.13	$10.75	$22.08	$0.00	$77.96
5	90	$50.77	$10.75	$22.08	$0.00	$83.60

Notes:

Apprentice to Journeyworker Ratio:1:5

MECH. SWEEPER OPERATOR (ON CONST. SITES) *OPERATING ENGINEERS LOCAL 4*	06/01/2020	$48.81	$13.00	$15.70	$0.00	$77.51
	12/01/2020	$49.95	$13.00	$15.70	$0.00	$78.65
	06/01/2021	$51.04	$13.00	$15.70	$0.00	$79.74
	12/01/2021	$52.18	$13.00	$15.70	$0.00	$80.88
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
MECHANICS MAINTENANCE *OPERATING ENGINEERS LOCAL 4*	06/01/2020	$48.81	$13.00	$15.70	$0.00	$77.51
	12/01/2020	$49.95	$13.00	$15.70	$0.00	$78.65
	06/01/2021	$51.04	$13.00	$15.70	$0.00	$79.74
	12/01/2021	$52.18	$13.00	$15.70	$0.00	$80.88
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
MILLWRIGHT (Zone 3) *MILLWRIGHTS LOCAL 1121 - Zone 3*	04/01/2019	$37.11	$9.90	$18.50	$0.00	$65.51

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *MILLWRIGHT - Local 1121 Zone 3*

Effective Date - 04/01/2019

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	55	$20.41	$9.90	$5.31	$0.00	$35.62
2	65	$24.12	$9.90	$15.13	$0.00	$49.15
3	75	$27.83	$9.90	$16.10	$0.00	$53.83
4	85	$31.54	$9.90	$17.06	$0.00	$58.50

Notes:

Steps are 2,000 hours

Apprentice to Journeyworker Ratio:1:5

MORTAR MIXER *LABORERS - ZONE 2*	06/01/2020	$34.31	$8.60	$15.77	$0.00	$58.68
	12/01/2020	$35.20	$8.60	$15.77	$0.00	$59.57
	06/01/2021	$36.12	$8.60	$15.77	$0.00	$60.49
	12/01/2021	$37.03	$8.60	$15.77	$0.00	$61.40
For apprentice rates see "Apprentice- LABORER"						
OILER (OTHER THAN TRUCK CRANES,GRADALLS) *OPERATING ENGINEERS LOCAL 4*	06/01/2020	$23.13	$13.00	$15.70	$0.00	$51.83
	12/01/2020	$23.70	$13.00	$15.70	$0.00	$52.40
	06/01/2021	$24.25	$13.00	$15.70	$0.00	$52.95
	12/01/2021	$24.83	$13.00	$15.70	$0.00	$53.53
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
OILER (TRUCK CRANES, GRADALLS) *OPERATING ENGINEERS LOCAL 4*	06/01/2020	$27.79	$13.00	$15.70	$0.00	$56.49
	12/01/2020	$28.47	$13.00	$15.70	$0.00	$57.17
	06/01/2021	$29.11	$13.00	$15.70	$0.00	$57.81
	12/01/2021	$29.79	$13.00	$15.70	$0.00	$58.49
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
OTHER POWER DRIVEN EQUIPMENT - CLASS II *OPERATING ENGINEERS LOCAL 4*	06/01/2020	$48.81	$13.00	$15.70	$0.00	$77.51
	12/01/2020	$49.95	$13.00	$15.70	$0.00	$78.65
	06/01/2021	$51.04	$13.00	$15.70	$0.00	$79.74
	12/01/2021	$52.18	$13.00	$15.70	$0.00	$80.88
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
PAINTER (BRIDGES/TANKS) *PAINTERS LOCAL 35 - ZONE 2*	07/01/2020	$51.51	$8.25	$22.40	$0.00	$82.16
	01/01/2021	$52.06	$8.25	$22.75	$0.00	$83.06

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *PAINTER Local 35 - BRIDGES/TANKS*

Effective Date - 07/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$25.76	$8.25	$0.00	$0.00	$34.01
2	55	$28.33	$8.25	$6.05	$0.00	$42.63
3	60	$30.91	$8.25	$6.60	$0.00	$45.76
4	65	$33.48	$8.25	$7.15	$0.00	$48.88
5	70	$36.06	$8.25	$19.10	$0.00	$63.41
6	75	$38.63	$8.25	$19.65	$0.00	$66.53
7	80	$41.21	$8.25	$20.20	$0.00	$69.66
8	90	$46.36	$8.25	$21.30	$0.00	$75.91

Effective Date - 01/01/2021

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$26.03	$8.25	$0.00	$0.00	$34.28
2	55	$28.63	$8.25	$6.16	$0.00	$43.04
3	60	$31.24	$8.25	$6.72	$0.00	$46.21
4	65	$33.84	$8.25	$7.28	$0.00	$49.37
5	70	$36.44	$8.25	$19.39	$0.00	$64.08
6	75	$39.05	$8.25	$19.95	$0.00	$67.25
7	80	$41.65	$8.25	$20.51	$0.00	$70.41
8	90	$46.85	$8.25	$21.63	$0.00	$76.73

Notes:

Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

PAINTER (SPRAY OR SANDBLAST, NEW) *	07/01/2020	$41.21	$8.25	$22.40	$0.00	$71.86
* If 30% or more of surfaces to be painted are new construction, NEW paint rate shall be used.*PAINTERS LOCAL 35 - ZONE 2*	01/01/2021	$42.96	$8.25	$22.75	$0.00	$73.96

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *PAINTER Local 35 Zone 2 - Spray/Sandblast - New*

Effective Date - 07/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$20.61	$8.25	$0.00	$0.00	$28.86
2	55	$22.67	$8.25	$6.05	$0.00	$36.97
3	60	$24.73	$8.25	$6.60	$0.00	$39.58
4	65	$26.79	$8.25	$7.15	$0.00	$42.19
5	70	$28.85	$8.25	$19.10	$0.00	$56.20
6	75	$30.91	$8.25	$19.65	$0.00	$58.81
7	80	$32.97	$8.25	$20.20	$0.00	$61.42
8	90	$37.09	$8.25	$21.30	$0.00	$66.64

Effective Date - 01/01/2021

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$21.48	$8.25	$0.00	$0.00	$29.73
2	55	$23.63	$8.25	$6.16	$0.00	$38.04
3	60	$25.78	$8.25	$6.72	$0.00	$40.75
4	65	$27.92	$8.25	$7.28	$0.00	$43.45
5	70	$30.07	$8.25	$19.39	$0.00	$57.71
6	75	$32.22	$8.25	$19.95	$0.00	$60.42
7	80	$34.37	$8.25	$20.51	$0.00	$63.13
8	90	$38.66	$8.25	$21.63	$0.00	$68.54

Notes:

Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

PAINTER (SPRAY OR SANDBLAST, REPAINT) *PAINTERS LOCAL 35 - ZONE 2*	07/01/2020	$40.47	$8.25	$22.40	$0.00	$71.12
	01/01/2021	$41.02	$8.25	$22.75	$0.00	$72.02

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *PAINTER Local 35 Zone 2 - Spray/Sandblast - Repaint*

Effective Date - 07/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$20.24	$8.25	$0.00	$0.00	$28.49
2	55	$22.26	$8.25	$6.05	$0.00	$36.56
3	60	$24.28	$8.25	$6.60	$0.00	$39.13
4	65	$26.31	$8.25	$7.15	$0.00	$41.71
5	70	$28.33	$8.25	$19.10	$0.00	$55.68
6	75	$30.35	$8.25	$19.65	$0.00	$58.25
7	80	$32.38	$8.25	$20.20	$0.00	$60.83
8	90	$36.42	$8.25	$21.30	$0.00	$65.97

Effective Date - 01/01/2021

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$20.51	$8.25	$0.00	$0.00	$28.76
2	55	$22.56	$8.25	$6.16	$0.00	$36.97
3	60	$24.61	$8.25	$6.72	$0.00	$39.58
4	65	$26.66	$8.25	$7.28	$0.00	$42.19
5	70	$28.71	$8.25	$19.39	$0.00	$56.35
6	75	$30.77	$8.25	$19.95	$0.00	$58.97
7	80	$32.82	$8.25	$20.51	$0.00	$61.58
8	90	$36.92	$8.25	$21.63	$0.00	$66.80

Notes:

Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

PAINTER (TRAFFIC MARKINGS) *LABORERS - ZONE 2*	06/01/2020	$34.06	$8.60	$15.77	$0.00	$58.43
	12/01/2020	$34.95	$8.60	$15.77	$0.00	$59.32
	06/01/2021	$35.87	$8.60	$15.77	$0.00	$60.24
	12/01/2021	$36.78	$8.60	$15.77	$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*	07/01/2020	$41.01	$8.25	$22.40	$0.00	$71.66
	01/01/2021	$41.56	$8.25	$22.75	$0.00	$72.56

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

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

Effective Date - 07/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$20.51	$8.25	$0.00	$0.00	$28.76
2	55	$22.56	$8.25	$6.05	$0.00	$36.86
3	60	$24.61	$8.25	$6.60	$0.00	$39.46
4	65	$26.66	$8.25	$7.15	$0.00	$42.06
5	70	$28.71	$8.25	$19.10	$0.00	$56.06
6	75	$30.76	$8.25	$19.65	$0.00	$58.66
7	80	$32.81	$8.25	$20.20	$0.00	$61.26
8	90	$36.91	$8.25	$21.30	$0.00	$66.46

Effective Date - 01/01/2021

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$20.78	$8.25	$0.00	$0.00	$29.03
2	55	$22.86	$8.25	$6.16	$0.00	$37.27
3	60	$24.94	$8.25	$6.72	$0.00	$39.91
4	65	$27.01	$8.25	$7.28	$0.00	$42.54
5	70	$29.09	$8.25	$19.39	$0.00	$56.73
6	75	$31.17	$8.25	$19.95	$0.00	$59.37
7	80	$33.25	$8.25	$20.51	$0.00	$62.01
8	90	$37.40	$8.25	$21.63	$0.00	$67.28

Notes:

Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

PAINTER / TAPER (BRUSH, REPAINT) *PAINTERS LOCAL 35 - ZONE 2*	07/01/2020	$39.07	$8.25	$22.40	$0.00	$69.72
	01/01/2021	$39.62	$8.25	$22.75	$0.00	$70.62

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

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

Effective Date - 07/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$19.54	$8.25	$0.00	$0.00	$27.79
2	55	$21.49	$8.25	$6.05	$0.00	$35.79
3	60	$23.44	$8.25	$6.60	$0.00	$38.29
4	65	$25.40	$8.25	$7.15	$0.00	$40.80
5	70	$27.35	$8.25	$19.10	$0.00	$54.70
6	75	$29.30	$8.25	$19.65	$0.00	$57.20
7	80	$31.26	$8.25	$20.20	$0.00	$59.71
8	90	$35.16	$8.25	$21.30	$0.00	$64.71

Effective Date - 01/01/2021

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$19.81	$8.25	$0.00	$0.00	$28.06
2	55	$21.79	$8.25	$6.16	$0.00	$36.20
3	60	$23.77	$8.25	$6.72	$0.00	$38.74
4	65	$25.75	$8.25	$7.28	$0.00	$41.28
5	70	$27.73	$8.25	$19.39	$0.00	$55.37
6	75	$29.72	$8.25	$19.95	$0.00	$57.92
7	80	$31.70	$8.25	$20.51	$0.00	$60.46
8	90	$35.66	$8.25	$21.63	$0.00	$65.54

Notes:

Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

PANEL & PICKUP TRUCKS DRIVER *TEAMSTERS JOINT COUNCIL NO. 10 ZONE B*	08/01/2020	$34.98	$12.91	$13.72	$0.00	$61.61
	12/01/2020	$34.98	$12.91	$14.82	$0.00	$62.71
	06/01/2021	$35.78	$12.91	$14.82	$0.00	$63.51
	08/01/2021	$35.78	$13.41	$14.82	$0.00	$64.01
	12/01/2021	$35.78	$13.41	$16.01	$0.00	$65.20
PIER AND DOCK CONSTRUCTOR (UNDERPINNING AND DECK) *PILE DRIVER LOCAL 56 (ZONE 2)* For apprentice rates see "Apprentice- PILE DRIVER"	08/01/2019	$44.61	$9.90	$21.15	$0.00	$75.66
PILE DRIVER *PILE DRIVER LOCAL 56 (ZONE 2)*	08/01/2019	$44.61	$9.90	$21.15	$0.00	$75.66

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *PILE DRIVER - Local 56 Zone 2*

Effective Date - 08/01/2019

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	0	$0.00	$0.00	$0.00	$0.00	$0.00

Notes: Apprentice wages shall be no less than the following Steps;
(Same as set in Zone 1)
1$54.34/2$58.99/3$63.65/4$65.98/5$68.31/6$68.31/7$72.96/8$72.96

Apprentice to Journeyworker Ratio:1:5

PIPELAYER *LABORERS - ZONE 2*	06/01/2020	$34.31	$8.60	$15.77	$0.00	$58.68
	12/01/2020	$35.20	$8.60	$15.77	$0.00	$59.57
	06/01/2021	$36.12	$8.60	$15.77	$0.00	$60.49
	12/01/2021	$37.03	$8.60	$15.77	$0.00	$61.40
For apprentice rates see "Apprentice- LABORER"						
PLUMBER & PIPEFITTER *PLUMBERS LOCAL 4*	03/01/2020	$46.16	$9.80	$15.46	$0.00	$71.42
	09/01/2020	$46.91	$9.80	$15.71	$0.00	$72.42
	03/01/2021	$47.91	$9.80	$15.71	$0.00	$73.42
	09/01/2021	$48.91	$9.80	$15.71	$0.00	$74.42
	03/01/2022	$49.91	$9.80	$15.71	$0.00	$75.42

Apprentice - *PLUMBER/PIPEFITTER - Local 4*

Effective Date - 03/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	$18.46	$9.80	$0.00	$0.00	$28.26
2	50	$23.08	$9.80	$0.00	$0.00	$32.88
3	60	$27.70	$9.80	$0.00	$0.00	$37.50
4	70	$32.31	$9.80	$5.75	$0.00	$47.86
5	80	$36.93	$9.80	$5.75	$0.00	$52.48

Effective Date - 09/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	$18.76	$9.80	$0.00	$0.00	$28.56
2	50	$23.46	$9.80	$0.00	$0.00	$33.26
3	60	$28.15	$9.80	$0.00	$0.00	$37.95
4	70	$32.84	$9.80	$6.00	$0.00	$48.64
5	80	$37.53	$9.80	$6.00	$0.00	$53.33

Notes:
Steps - 2000 hrs; Step 4 w/lic 75%, Step 5 w/lic 85%
Step 4 w/lic $50.17, Step 5 w/lic $54.79

Apprentice to Journeyworker Ratio:1:3

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
PNEUMATIC CONTROLS (TEMP.) *PLUMBERS LOCAL 4*	03/01/2020	$46.16	$9.80	$15.46	$0.00	$71.42
	09/01/2020	$46.91	$9.80	$15.71	$0.00	$72.42
	03/01/2021	$47.91	$9.80	$15.71	$0.00	$73.42
	09/01/2021	$48.91	$9.80	$15.71	$0.00	$74.42
	03/01/2022	$49.91	$9.80	$15.71	$0.00	$75.42
For apprentice rates see "Apprentice- PIPEFITTER" or "PLUMBER/PIPEFITTER"						
PNEUMATIC DRILL/TOOL OPERATOR *LABORERS - ZONE 2*	06/01/2020	$34.31	$8.60	$15.77	$0.00	$58.68
	12/01/2020	$35.20	$8.60	$15.77	$0.00	$59.57
	06/01/2021	$36.12	$8.60	$15.77	$0.00	$60.49
	12/01/2021	$37.03	$8.60	$15.77	$0.00	$61.40
For apprentice rates see "Apprentice- LABORER"						
POWDERMAN & BLASTER *LABORERS - ZONE 2*	06/01/2020	$35.06	$8.60	$15.77	$0.00	$59.43
	12/01/2020	$35.95	$8.60	$15.77	$0.00	$60.32
	06/01/2021	$36.87	$8.60	$15.77	$0.00	$61.24
	12/01/2021	$37.78	$8.60	$15.77	$0.00	$62.15
For apprentice rates see "Apprentice- LABORER"						
POWER SHOVEL/DERRICK/TRENCHING MACHINE *OPERATING ENGINEERS LOCAL 4*	06/01/2020	$49.33	$13.00	$15.70	$0.00	$78.03
	12/01/2020	$50.48	$13.00	$15.70	$0.00	$79.18
	06/01/2021	$51.58	$13.00	$15.70	$0.00	$80.28
	12/01/2021	$52.73	$13.00	$15.70	$0.00	$81.43
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
PUMP OPERATOR (CONCRETE) *OPERATING ENGINEERS LOCAL 4*	06/01/2020	$49.33	$13.00	$15.70	$0.00	$78.03
	12/01/2020	$50.48	$13.00	$15.70	$0.00	$79.18
	06/01/2021	$51.58	$13.00	$15.70	$0.00	$80.28
	12/01/2021	$52.73	$13.00	$15.70	$0.00	$81.43
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
PUMP OPERATOR (DEWATERING, OTHER) *OPERATING ENGINEERS LOCAL 4*	06/01/2020	$32.72	$13.00	$15.70	$0.00	$61.42
	12/01/2020	$33.50	$13.00	$15.70	$0.00	$62.20
	06/01/2021	$34.25	$13.00	$15.70	$0.00	$62.95
	12/01/2021	$35.04	$13.00	$15.70	$0.00	$63.74
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
READY-MIX CONCRETE DRIVER *TEAMSTERS 170 - Dauphinais (Bellingham)*	01/01/2020	$24.00	$11.01	$2.50	$0.00	$37.51
RECLAIMERS *OPERATING ENGINEERS LOCAL 4*	06/01/2020	$48.81	$13.00	$15.70	$0.00	$77.51
	12/01/2020	$49.95	$13.00	$15.70	$0.00	$78.65
	06/01/2021	$51.04	$13.00	$15.70	$0.00	$79.74
	12/01/2021	$52.18	$13.00	$15.70	$0.00	$80.88
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
RIDE-ON MOTORIZED BUGGY OPERATOR *LABORERS - ZONE 2*	06/01/2020	$34.31	$8.60	$15.77	$0.00	$58.68
	12/01/2020	$35.20	$8.60	$15.77	$0.00	$59.57
	06/01/2021	$36.12	$8.60	$15.77	$0.00	$60.49
	12/01/2021	$37.03	$8.60	$15.77	$0.00	$61.40
For apprentice rates see "Apprentice- LABORER"						
ROLLER/SPREADER/MULCHING MACHINE *OPERATING ENGINEERS LOCAL 4*	06/01/2020	$48.81	$13.00	$15.70	$0.00	$77.51
	12/01/2020	$49.95	$13.00	$15.70	$0.00	$78.65
	06/01/2021	$51.04	$13.00	$15.70	$0.00	$79.74
	12/01/2021	$52.18	$13.00	$15.70	$0.00	$80.88
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
ROOFER (Inc.Roofer Waterproofng &Roofer Damproofg) *ROOFERS LOCAL 33*	08/01/2020	$46.60	$11.75	$16.15	$0.00	$74.50
	02/01/2021	$48.03	$11.75	$16.15	$0.00	$75.93
	08/01/2021	$49.46	$11.75	$16.15	$0.00	$77.36
	02/01/2022	$50.89	$11.75	$16.15	$0.00	$78.79

Apprentice - *ROOFER - Local 33*

Effective Date - 08/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$23.30	$11.75	$3.81	$0.00	$38.86
2	60	$27.96	$11.75	$16.15	$0.00	$55.86
3	65	$30.29	$11.75	$16.15	$0.00	$58.19
4	75	$34.95	$11.75	$16.15	$0.00	$62.85
5	85	$39.61	$11.75	$16.15	$0.00	$67.51

Effective Date - 02/01/2021

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$24.02	$11.75	$3.81	$0.00	$39.58
2	60	$28.82	$11.75	$16.15	$0.00	$56.72
3	65	$31.22	$11.75	$16.15	$0.00	$59.12
4	75	$36.02	$11.75	$16.15	$0.00	$63.92
5	85	$40.83	$11.75	$16.15	$0.00	$68.73

Notes: ** 1:5, 2:6-10, the 1:10; Reroofing: 1:4, then 1:1
Step 1 is 2000 hrs.; Steps 2-5 are 1000 hrs.
(Hot Pitch Mechanics' receive $1.00 hr. above ROOFER)

Apprentice to Journeyworker Ratio:**

ROOFER SLATE / TILE / PRECAST CONCRETE *ROOFERS LOCAL 33*	08/01/2020	$46.85	$11.75	$16.15	$0.00	$74.75
	02/01/2021	$48.28	$11.75	$16.15	$0.00	$76.18
	08/01/2021	$49.71	$11.75	$16.15	$0.00	$77.61
	02/01/2022	$51.14	$11.75	$16.15	$0.00	$79.04
For apprentice rates see "Apprentice- ROOFER"						
SHEETMETAL WORKER *SHEETMETAL WORKERS LOCAL 63*	01/01/2020	$36.99	$10.64	$16.22	$1.77	$65.62

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *SHEET METAL WORKER - Local 63*

Effective Date - 01/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	45	$16.65	$6.21	$4.67	$0.00	$27.53
2	50	$18.50	$6.55	$5.19	$0.00	$30.24
3	55	$20.34	$6.88	$9.33	$1.08	$37.63
4	60	$22.19	$7.22	$9.33	$1.14	$39.88
5	65	$24.04	$7.55	$9.33	$1.20	$42.12
6	70	$25.89	$7.88	$9.33	$1.27	$44.37
7	75	$27.74	$8.22	$9.33	$1.33	$46.62
8	80	$29.59	$9.30	$15.18	$1.59	$55.66
9	85	$31.44	$9.64	$15.18	$1.66	$57.92
10	90	$33.29	$9.98	$15.18	$1.72	$60.17

Notes:

Apprentice to Journeyworker Ratio:1:3

SPECIALIZED EARTH MOVING EQUIP < 35 TONS *TEAMSTERS JOINT COUNCIL NO. 10 ZONE B*	08/01/2020	$35.44	$12.91	$13.72	$0.00	$62.07
	12/01/2020	$35.44	$12.91	$14.82	$0.00	$63.17
	06/01/2021	$36.24	$12.91	$14.82	$0.00	$63.97
	08/01/2021	$36.24	$13.41	$14.82	$0.00	$64.47
	12/01/2021	$36.24	$13.41	$16.01	$0.00	$65.66
SPECIALIZED EARTH MOVING EQUIP > 35 TONS *TEAMSTERS JOINT COUNCIL NO. 10 ZONE B*	08/01/2020	$35.73	$12.91	$13.72	$0.00	$62.36
	12/01/2020	$35.73	$12.91	$14.82	$0.00	$63.46
	06/01/2021	$36.53	$12.91	$14.82	$0.00	$64.26
	08/01/2021	$36.53	$13.41	$14.82	$0.00	$64.76
	12/01/2021	$36.53	$13.41	$16.01	$0.00	$65.95
SPRINKLER FITTER *SPRINKLER FITTERS LOCAL 669*	01/01/2019	$41.51	$10.02	$13.08	$0.00	$64.61

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *SPRINKLER FITTER - Local 669*

Effective Date - 01/01/2019

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	45	$18.68	$7.75	$0.00	$0.00	$26.43
2	50	$20.76	$7.75	$0.00	$0.00	$28.51
3	55	$22.83	$10.02	$7.25	$0.00	$40.10
4	60	$24.91	$10.02	$7.25	$0.00	$42.18
5	65	$26.98	$10.02	$7.50	$0.00	$44.50
6	70	$29.06	$10.02	$7.50	$0.00	$46.58
7	75	$31.13	$10.02	$7.50	$0.00	$48.65
8	80	$33.21	$10.02	$7.50	$0.00	$50.73
9	85	$35.28	$10.02	$7.50	$0.00	$52.80
10	90	$37.36	$10.02	$7.50	$0.00	$54.88

Notes:

Apprentice to Journeyworker Ratio:1:1

STEAM BOILER OPERATOR *OPERATING ENGINEERS LOCAL 4*	06/01/2020	$48.81	$13.00	$15.70	$0.00	$77.51
	12/01/2020	$49.95	$13.00	$15.70	$0.00	$78.65
	06/01/2021	$51.04	$13.00	$15.70	$0.00	$79.74
	12/01/2021	$52.18	$13.00	$15.70	$0.00	$80.88
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
TAMPERS, SELF-PROPELLED OR TRACTOR DRAWN *OPERATING ENGINEERS LOCAL 4*	06/01/2020	$48.81	$13.00	$15.70	$0.00	$77.51
	12/01/2020	$49.95	$13.00	$15.70	$0.00	$78.65
	06/01/2021	$51.04	$13.00	$15.70	$0.00	$79.74
	12/01/2021	$52.18	$13.00	$15.70	$0.00	$80.88
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
TERRAZZO FINISHERS *BRICKLAYERS LOCAL 3 - MARBLE & TILE*	08/01/2020	$54.69	$10.75	$22.09	$0.00	$87.53
	02/01/2021	$55.33	$10.75	$22.09	$0.00	$88.17
	08/01/2021	$56.73	$10.75	$22.25	$0.00	$89.73
	02/01/2022	$57.32	$10.75	$22.25	$0.00	$90.32

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *TERRAZZO FINISHER - Local 3 Marble & Tile*

Effective Date - 08/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$27.35	$10.75	$22.09	$0.00	$60.19
2	60	$32.81	$10.75	$22.09	$0.00	$65.65
3	70	$38.28	$10.75	$22.09	$0.00	$71.12
4	80	$43.75	$10.75	$22.09	$0.00	$76.59
5	90	$49.22	$10.75	$22.09	$0.00	$82.06

Effective Date - 02/01/2021

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$27.67	$10.75	$22.09	$0.00	$60.51
2	60	$33.20	$10.75	$22.09	$0.00	$66.04
3	70	$38.73	$10.75	$22.09	$0.00	$71.57
4	80	$44.26	$10.75	$22.09	$0.00	$77.10
5	90	$49.80	$10.75	$22.09	$0.00	$82.64

Notes:

Apprentice to Journeyworker Ratio:1:3

TEST BORING DRILLER *LABORERS - FOUNDATION AND MARINE*	06/01/2020	$40.55	$8.60	$17.24	$0.00	$66.39
	12/01/2020	$41.53	$8.60	$17.24	$0.00	$67.37
	06/01/2021	$42.55	$8.60	$17.24	$0.00	$68.39
	12/01/2021	$43.56	$8.60	$17.24	$0.00	$69.40
For apprentice rates see "Apprentice- LABORER"						
TEST BORING DRILLER HELPER *LABORERS - FOUNDATION AND MARINE*	06/01/2020	$39.27	$8.60	$17.24	$0.00	$65.11
	12/01/2020	$40.25	$8.60	$17.24	$0.00	$66.09
	06/01/2021	$41.27	$8.60	$17.24	$0.00	$67.11
	12/01/2021	$42.28	$8.60	$17.24	$0.00	$68.12
For apprentice rates see "Apprentice- LABORER"						
TEST BORING LABORER *LABORERS - FOUNDATION AND MARINE*	06/01/2020	$39.15	$8.60	$17.24	$0.00	$64.99
	12/01/2020	$40.13	$8.60	$17.24	$0.00	$65.97
	06/01/2021	$41.15	$8.60	$17.24	$0.00	$66.99
	12/01/2021	$42.16	$8.60	$17.24	$0.00	$68.00
For apprentice rates see "Apprentice- LABORER"						
TRACTORS/PORTABLE STEAM GENERATORS *OPERATING ENGINEERS LOCAL 4*	06/01/2020	$48.81	$13.00	$15.70	$0.00	$77.51
	12/01/2020	$49.95	$13.00	$15.70	$0.00	$78.65
	06/01/2021	$51.04	$13.00	$15.70	$0.00	$79.74
	12/01/2021	$52.18	$13.00	$15.70	$0.00	$80.88
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
TRAILERS FOR EARTH MOVING EQUIPMENT *TEAMSTERS JOINT COUNCIL NO. 10 ZONE B*	08/01/2020	$36.02	$12.91	$13.72	$0.00	$62.65
	12/01/2020	$36.02	$12.91	$14.82	$0.00	$63.75
	06/01/2021	$36.82	$12.91	$14.82	$0.00	$64.55
	08/01/2021	$36.82	$13.41	$14.82	$0.00	$65.05
	12/01/2021	$36.82	$13.41	$16.01	$0.00	$66.24
TUNNEL WORK - COMPRESSED AIR *LABORERS (COMPRESSED AIR)*	06/01/2020	$51.38	$8.60	$17.69	$0.00	$77.67
	12/01/2020	$52.36	$8.60	$17.69	$0.00	$78.65
	06/01/2021	$53.38	$8.60	$17.69	$0.00	$79.67
	12/01/2021	$54.39	$8.60	$17.69	$0.00	$80.68
For apprentice rates see "Apprentice- LABORER"						
TUNNEL WORK - COMPRESSED AIR (HAZ. WASTE) *LABORERS (COMPRESSED AIR)*	06/01/2020	$53.38	$8.60	$17.69	$0.00	$79.67
	12/01/2020	$54.36	$8.60	$17.69	$0.00	$80.65
	06/01/2021	$55.38	$8.60	$17.69	$0.00	$81.67
	12/01/2021	$56.39	$8.60	$17.69	$0.00	$82.68
For apprentice rates see "Apprentice- LABORER"						
TUNNEL WORK - FREE AIR *LABORERS (FREE AIR TUNNEL)*	06/01/2020	$43.45	$8.60	$17.69	$0.00	$69.74
	12/01/2020	$44.43	$8.60	$17.69	$0.00	$70.72
	06/01/2021	$45.45	$8.60	$17.69	$0.00	$71.74
	12/01/2021	$46.46	$8.60	$17.69	$0.00	$72.75
For apprentice rates see "Apprentice- LABORER"						
TUNNEL WORK - FREE AIR (HAZ. WASTE) *LABORERS (FREE AIR TUNNEL)*	06/01/2020	$45.45	$8.60	$17.69	$0.00	$71.74
	12/01/2020	$46.43	$8.60	$17.69	$0.00	$72.72
	06/01/2021	$47.45	$8.60	$17.69	$0.00	$73.74
	12/01/2021	$48.46	$8.60	$17.69	$0.00	$74.75
For apprentice rates see "Apprentice- LABORER"						
VAC-HAUL *TEAMSTERS JOINT COUNCIL NO. 10 ZONE B*	08/01/2020	$35.44	$12.91	$13.72	$0.00	$62.07
	12/01/2020	$35.44	$12.91	$14.82	$0.00	$63.17
	06/01/2021	$36.24	$12.91	$14.82	$0.00	$63.97
	08/01/2021	$36.24	$13.41	$14.82	$0.00	$64.47
	12/01/2021	$36.24	$13.41	$16.01	$0.00	$65.66
VOICE-DATA-VIDEO TECHNICIAN *ELECTRICIANS LOCAL 96*	07/01/2019	$30.10	$10.57	$14.15	$0.00	$54.82

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *VOICE-DATA-VIDEO TECHNICIAN - Local 96*

Effective Date - 07/01/2019

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$15.05	$10.57	$3.83	$0.00	$29.45
2	55	$16.56	$10.57	$3.88	$0.00	$31.01
3	60	$18.06	$10.57	$13.79	$0.00	$42.42
4	65	$19.57	$10.57	$13.84	$0.00	$43.98
5	70	$21.07	$10.57	$13.88	$0.00	$45.52
6	75	$22.58	$10.57	$13.93	$0.00	$47.08
7	80	$24.08	$10.57	$13.97	$0.00	$48.62
8	85	$25.59	$10.57	$14.02	$0.00	$50.18

Notes:

Apprentice to Journeyworker Ratio:1:1

WAGON DRILL OPERATOR *LABORERS - ZONE 2*	06/01/2020	$34.31	$8.60	$15.77	$0.00	$58.68
	12/01/2020	$35.20	$8.60	$15.77	$0.00	$59.57
	06/01/2021	$36.12	$8.60	$15.77	$0.00	$60.49
	12/01/2021	$37.03	$8.60	$15.77	$0.00	$61.40
For apprentice rates see "Apprentice- LABORER"						
WASTE WATER PUMP OPERATOR *OPERATING ENGINEERS LOCAL 4*	06/01/2020	$49.33	$13.00	$15.70	$0.00	$78.03
	12/01/2020	$50.48	$13.00	$15.70	$0.00	$79.18
	06/01/2021	$51.58	$13.00	$15.70	$0.00	$80.28
	12/01/2021	$52.73	$13.00	$15.70	$0.00	$81.43
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
WATER METER INSTALLER *PLUMBERS LOCAL 4*	03/01/2020	$46.16	$9.80	$15.46	$0.00	$71.42
	09/01/2020	$46.91	$9.80	$15.71	$0.00	$72.42
	03/01/2021	$47.91	$9.80	$15.71	$0.00	$73.42
	09/01/2021	$48.91	$9.80	$15.71	$0.00	$74.42
	03/01/2022	$49.91	$9.80	$15.71	$0.00	$75.42
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.

MINORITY/WOMEN BUSINESS ENTERPRISE and WORKER UTILIZATION PROGRAM

BIDDERS MUST COMPLETE AND SUBMIT FORM E00-101 WHICH IS PART OF THE BID SUBMISSION

INCLUDED IN THIS SECTION ARE COPIES OF THE AGREEMENT BETWEEN THE CITY AND THE MASSACHUSETTS COMMISSION AGAINST DISCRIMINATION WHICH GOVERN THE ACTIVITIES ADDRESSED BY THE E00-101 FORM.

Direct any questions about these forms and procedures to:

Purchasing Division
City Hall – Room 201
455 Main Street
Worcester, MA 01608
(508) 799-1220
purchasing@worcesterma.gov

C I T Y O F W O R C E S T E R

MINORITY/WOMEN BUSINESS ENTERPRISE AND WORKER UTILIZATION PROGRAM

AFFIDAVIT OF ACKNOWLEDGEMENT and CERTIFICATE OF COMPLIANCE

Form E00-101

TO ALL CONTRACTORS:
General Bidders and Filed Subbidders shall complete and submit this form as part of their bid. Non-Filed Subcontractors shall complete and submit this form to the General Contractor before beginning work**.**

I. THE MINORITY AND WOMEN BUSINESS AND UTILIZATION PROGRAMS

Pursuant to an agreement between the City of Worcester and the Commonwealth of Massachusetts, during the performance of any contract with the City of Worcester, all Contractors, Filed Subcontractors, and Subcontractors are bound by the obligations of the Supplemental Equal Employment Opportunity Anti-Discrimination and Affirmative Action Program. **All contractors and subcontractors if subcontracting any portion of the work are obligated to make a good faith effort to engage 10% minority and 5% women owned businesses. Further, each contractor shall make a good faith effort to maintain a workforce that is 38% people of color and 10% women.**

The undersigned hereby certifies that he/she is familiar with the provisions of The Supplemental Equal Employment Opportunity Anti-Discrimination and Affirmative Action Programs and agrees to adhere to the provisions therein.

II. This contractor **IS** ☐ **or IS NOT** ☐ certified by the State Office of Minority and Women Business Assistance to be a minority or women owned and operated business; and

III. WILL ☐ or **WILL NOT** ☐ subcontract any portion of this contract**.**

Project Name: _____ Bid Number: _____

_____ _____
Authorized Signature Business Name

_____ _____
Title Address

_____ _____
Date

MINORITY/WOMEN BUSINESS ENTERPRISE AND WORKER UTILIZATION PROGRAM

FORM EOO-D/102

BIDDERS INFORMATION ON PROCEDURES AND FORMS

To make all contractors aware of their obligation to follow certain procedures and file appropriate reports pertaining to those procedures, the following is an outline of Minority/Women Business Enterprise and Worker Utilization Program. Also included here is the Affidavit of Acknowledgement and Certification of Compliance, Form E00-101. This form is to be completed and filed as part of your bid.

The following documents are included in this bid:

1. **AFFIDAVIT OF ACKNOWLEDGEMENT AND CERTIFICATION OF COMPLIANCE,** E00-101

   This form is to be completed by all General Contractors and Filed Subcontractors and submitted as part of their bid on all City of Worcester construction projects.

2. **SUPPLEMENTAL EQUAL EMPLOYMENT OPPORTUNITY ANTI-DISCRIMINATION AND AFFIRMATIVE ACTION PROGRAM E00-D/3**

   The agreement between the City of Worcester and the Massachusetts Commission Against Discrimination establishing the goals and procedures for the utilization of minority and women owned businesses and minority and women workers on City Construction projects.

3. **SUCCESSFUL BIDDER'S OBLIGATION TO PROCEDURES AND FORMS, EE0-D/103**

   This is a listing of the procedures and forms that will be provided to the successful bidder for use prior to beginning work and at various times throughout the life of the project.

THE COMMONWEALTH OF MASSACHUSETTS

FORM E00-D/3

THE CITY OF WORCESTER

SUPPLEMENTAL EQUAL EMPLOYMENT OPPORTUNITY ANTI-DISCRIMINATION AND AFFIRMATIVE ACTION PROGRAM

I. AGREEMENT

During the performance of this contract, the Contractor or Filed Subcontractor and all subcontractors (herein collectively referred to as the Contractor), for himself/herself, his/her assignees, and successors in interest, agree as follows:

1. In conjunction with the performance of work under this contract, the contractor shall not discriminate against any employee or applicant for employment because of race, color, religious creed, national origin, age, sex, or handicap. The aforesaid provision shall include, but not be limited to, the following: employment upgrading, demotion, or transfer; recruitment advertising; layoff; termination, rates of pay or other forms of compensation; conditions or privileges of employment; and selection for apprenticeship. The contractor shall post hereafter in a conspicuous place, available to employees and applicants for employment, notices to be provided by the Commission setting forth the provisions of the Fair Employment Practices Law of the Commonwealth (M.G.L. Chapter 151 B).

2. In connection with the performance of work under this contract, the Contractor shall 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, or handicap, and to eliminate and remedy any effects of such discrimination in the past. Such affirmative action shall entail positive and aggressive measures to ensure equal opportunity in the areas of apprenticeship training programs. This affirmative action shall include all action required to guarantee equal employment opportunity for all persons, regardless of race, color, religious creed, national origin, age, sex, or handicap. The purpose of this provision is to ensure to the fullest extent possible an adequate supply of skilled tradesmen for this and future City public construction project.

II. OBLIGATION

1. As part of the obligation of remedial action under the foregoing section, the Contractor shall maintain goals on this project no less than 38 percent (38%) people of color employee and 10 percent (10%) women employee hours of the total work hours in each job category including but not limited to, bricklayers, carpenters, cement masons, electricians, iron workers, operating engineers, and those “classes of work” enumerated in section 44C of chapter 149 of the Massachusetts General Laws.

   In the hiring of minority and women journeymen, apprentices, trainees and advanced trainees, the Contractor shall rely on referrals from a multi-employer affirmative action program approved by the City, traditional referral methods utilized by the construction industry, and referrals from agencies, not more than three in number at any one time, designated by the City.

III. REPORTS

1. Contractor shall prepare projected manning tables on a quarterly basis, **Quarterly Projected Workforce Table, E00-105.** These shall be broken down into projections by week, for workers required in each trade. Copies shall be furnished to the City one week in advance of the commencement of the period covered, and at such time as there is a need to be updated during the period.

2. Records of employment referral orders, prepared by the Contractor, shall be made available to the City on request.

3. The Contractor shall prepare the **Certified Payroll Report on a weekly basis,** which lists the hours worked in each trade by each employee identified as minority, non-minority, male and female. Copies of these shall be provided to the City at the end of each week.

IV. SUBCONTRACTING WORK

If the Contractor shall use any Subcontractor on any work performed under this contract, affirmative action shall be taken to negotiate with qualified minority and women contractors. This affirmative action shall cover both pre-bid and post-bid periods.

V. EMPLOYMENT

In the employment of journeymen, apprentices, trainees, and advanced trainees, the Contractor shall give preference, first to citizens of the Commonwealth who have served in the armed forces of the United States in time of war and have been honorably discharged therefrom or released from active duty therein, and who are qualified to perform the work to which the employment relates, and , secondly, to citizens of the Commonwealth generally, and, if such cannot be obtained in sufficient numbers, then to citizens of the United States.

VI. RIGHT OF ACCESS

A designee of the City shall have the right of access to the construction site.

VII. COMPLIANCE WITH REQUIREMENTS

The contractor shall comply with the provisions of Executive Order No. 227 amending and revising Executive Order No. 74, as amended by executive Order No. 16 dated May 1, 1975 and of Chapter 151B as amended, of the Massachusetts General Laws, both of which are herein incorporated by reference and made part of this contract.

VIII. NON-DISCRIMINATION

The Contractor, in the performance of all work after the award, and prior to completion of the contract work, will not discriminate on the grounds of race, color, religious creed, national origin, age, sex, or handicap in employment practices, in the selection or retention of other contractors or in the procurement of materials and rentals of equipment.

IX. SOLICITATIONS FOR SUBCONTRACTORS, AND FOR THE PROCUREMENT OF MATERIALS AND EQUIPMENT

In all solicitations either by competitive bidding or negotiation made by the Contractor either for work to be performed under a subcontract or for the procurement of materials or supplies, each entity solicited shall be notified in writing by the contractor of the

Contractor's obligation under this contract relative to non-discrimination and affirmative action.

X. CONTRACTOR'S CERTIFICATION

Contractors bidding as General Contractors or Filed Sub-contractors shall certify that they will comply with the minority and women manpower and business enterprise goals and specific affirmative action steps contained in this Supplemental Equal Employment Opportunity Anti-Discrimination and Affirmative Action Program by signing and submitting with the bid the **Affidavit of Acknowledgement and Certification of Compliance, Form E00-101.**

If any Contractor subcontracts any portion of the work, the Contractor is required to obtain from each Subcontractor, regardless of tier, an Affidavit of Acknowledgement and Certification of Compliance, Form E00-101 stating that it will comply with the minority and women subcontracting and manpower ratios and specific affirmative action steps contained in this Supplemental Equal Employment Opportunity Anti-Discrimination and Affirmative Action Program by signing this form and submitting it to the Contractor for submission to the awarding authority not later than five working days following the opening of the bids.

XI. COMPLIANCE – INFORMATION, REPORTS, AND SANCTIONS

1. The Contractor will provide all information and reports required by the City on instructions issued and will permit access to its facilities and any books, records, accounts and other sources of information which may be determined by the City to affect the employment of personnel. This provision shall apply only to information pertinent to the City's supplementary affirmative action contract requirements. Where information required is in the exclusive possession of another who fails or refuses to furnish this information, the Contractor shall so certify to the City and shall set forth what efforts have been made to obtain the information.

2. Whenever the City believes the Contractor may not be operating in compliance with the terms of this Section, the City directly, or through its designated agent, shall conduct an appropriate investigation, and confer with the parties, to determine if such Contractor is operating in compliance with the terms of this Section. If the City or its agent finds the Contractor not in compliance, it shall make a preliminary report of non-compliance and notify such Contractor in writing of such steps as will in the judgment of the City or its agent bring such Contractor into compliance. In the event that such Contractor fails or refuses to fully perform such steps, the City shall make a final report of non-compliance, and recommend the imposition of one or more of the sanctions listed below. If, however, the City believes the Contractor has taken or is taking every possible measure to achieve compliance, it shall not make final a report on non-compliance. Within fourteen (14) days of the receipt of the recommendations of the City, the administering agency shall move to impose one or more of the following sanctions, as it may deem appropriate to attain full and effective enforcement.

    a. The recovery by the administering agency from the Contractor of l/10 of 1% of the contract award price or $1000.00, whichever sum is greater, in the nature of liquidated damages or, if a Subcontractor is in non-compliance, the recovery by the administering agency from the Contractor as a back charge against the Subcontractor of l/10 of 1% of the subcontract price, or $400.00, whichever sum

is greater, in the nature of liquidated damages, for each week that such party fails or refuses to comply;

b. The suspension of any payment or part thereof due under the contract until such time as the Contractor or any Subcontractor is able to demonstrate compliance with the terms of the contract;

c. The termination, or cancellation, of the contract, in whole or in part, unless the Contractor is able to demonstrate within a specified time his compliance with the terms of the contract;

d. The denial to the Contractor of the right to participate in any further contracts awarded by the administering agency for a period of up to three years.

3. If at any time after the imposition of one or more of the above sanctions a Contractor is able to demonstrate that he/she is in compliance with this section, he/she may request the administering agency in consultation with the City, to suspend the sanctions conditionally, pending a final determination by the City as to whether the contractor is in compliance. Upon final determination, based on the recommendations of the adjudicatory body, the City shall either lift the sanctions or reimpose them.

4. Sanctions enumerated under Section XII-2 shall not be imposed except after an adjudicatory proceeding, as that term is used in M.G.L. Chapter 30, has been conducted. No investigation by the City or its agent shall be initiated without prior notice to the Contractor.

XII. SEVERABILITY

The provisions of this Section are severable, and if any of these provisions shall be held unconstitutional by any court of competent jurisdiction, the decisions of such court shall not affect or impair any of the remaining provisions.

XIII. WAIVER

The City of Worcester reserves the right to waive any stipulation in the M/WBE Program when deemed necessary or appropriate for the general good of the City and its programs.

DEFINITIONS

Contractor — Except where otherwise specifically stated the term “Contractor” shall mean any General Contractor, Filed Subcontractor or Non-Filed Subcontractor.

City — is the City of Worcester , Massachusetts

M/WBE — is Minority and Women Business Enterprise as certified by the State Office of Minority and Women Business Assistance to be 5l% or more minority or women owned and operated.

FORM E00-D/103

SUCCESSFUL BIDDER'S OBLIGATION TO PROCEDURES AND FORMS

All successful bidders on City of Worcester construction projects will receive a package of procedures and forms that are to be used at specific times throughout the life of the project.

The following is a list of the documents that will be sent to successful bidders when this office is notified that a contract has been, or is about to be, executed.

I. BUILDING TRADES – CONTACT LIST, E00-D/6

When a contractor cannot fulfill the worker utilization percentages, the appropriate building trades locals may be contacted to request assistance in locating and engaging qualified workers.

II. AFFIDAVIT OF ACKNOWLEDGEMENT and CERTIFICATION OF COMPLIANCE, (FOR SUBCONTRACTORS), E00-101

If any portion of a project is to be subcontracted at any tier, each additional subcontractor shall complete this form and send it to the Contract Compliance Office within two business days of contract execution and PRIOR to beginning work on the project.

III. TABLE OF PROJECTED SUBCONTRACTORS, E00-103

The use of subcontractors at any tier shall be reported to the Contract Compliance Office on this form prior to the subcontractor beginning work on the project.

IV. SUBCONTRACTOR'S CERTIFICATE OF INTENT TO PARTICIPATE, E00-104

Each Non-Filed subcontractor engaged to work on a project shall complete and forward this form to the Contract Compliance Office prior to beginning work on the project.

V. QUARTERLY PROJECTED WORKFORCE TABLE, E00-105

Each General Contractor, Filed Subcontractor and Non-Filed Subcontractor, regardless of tier, shall complete and forward this form to the Contract Compliance Office prior to beginning work and again for each additional three month period throughout the life of the project.

VI. REQUEST FOR MODIFICATION

E00-106B, MINORITY AND WOMEN BUSINESS UTILIZATION
E00-106C, MINORITY AND WOMEN UTILIZATION IN THE WORK FORCE

Any General Contractor, Filed Subcontractor or Non-Filed Subcontractor, regardless of tier, not meeting the minority and women goals, may file a request for modification after having exhausted all possible sources. Requests for modification are considered **ONLY** after attempts to fulfill these mandates have been documented and submitted to the Contract Compliance Office with the appropriate sections of this form.

A modification or waiver will not be granted because a contractor wishes to use an existing workforce that does not achieve the goals of 38% of total work hours to be worked by people of color and 10% of total work hours to be worked by women; and,

If subcontracting, does not meet the goals of 10% of the contract value for Minority Business Enterprises and 5% of the contract value to Women Business Enterprises.

VII. WEEKLY PAYROLL REPORT FORM & STATEMENT OF COMPLIANCE

At the end of each week of work, all Contractors, Filed Subcontractors, and Non-Filed Subcontractors, regardless of tier, shall complete and submit these forms to the Contract Compliance Office.

The Contract Compliance Office will also accept computer generated payroll reports. However, if the computer payroll does not reflect the prevailing wage, the Contractor must provide a breakdown of the benefits paid to each employee which, when added to the base wage, equals the prevailing wage.

The City of Worcester regards the monitoring of weekly certified payroll reports to be a most important function. Therefore, all certified payroll reports shall be scrutinized by the Contract Compliance Office and any violations of the Commonwealth's prevailing wage law will be vigorously enforced.

CORI COMPLIANCE / GENDER IDENTITY & EXPRESSION

Vendors entering into contracts with the City of Worcester must affirm that their policies regarding CORI information are consistent with the CORI hiring standards set by the City of Worcester. The City's CORI hiring policy may be downloaded from City of Worcester website www.worcesterma.gov. Questions pertaining to the City's CORI hiring policy are to be directed to the Equal Employment Opportunity Officer, Executive Office of Human Resources at hr@worcesterma.gov

CERTIFICATION

All Vendors must check one of the three lines below.

1. _____ CORI checks are not performed on any Applicants.

2. _____ CORI checks are performed on some or all Applicants. The Vendor, by affixing a signature below, affirms under penalties of perjury that its CORI policy is consistent with the standards set forth with the CORI hiring standards set by the City of Worcester.

3. _____ CORI checks are performed on some or all Applicants. The Vendor's CORI policy is not consistent with the standards set forth with the CORI hiring standards set by the City of Worcester. (a copy of the Vendor's written CORI policy must accompany this form).

_____ _____

(Typed or printed name of person signing quotation, bid or proposal) Signature

_____

Name of Business

A Vendor with a CORI policy that does NOT conform to the City standards must check Line 3. Vendors who check Line 3 will not be permitted to enter into contracts with the City, absent a waiver granted by the City. For any waiver to be granted, a written request should accompany bid submission explaining in detail why the vendor fails or refuses to comply with the City's CORI hiring standards.

Gender Identity Standards Applicable to Vendors

The city will do business only with vendors that have adopted and employ Gender Identity policies, practices and standards that are consistent with city standards.

The city may review all vendors' Gender Identity policies and practices for consistency with city standards.

By signing this bid, vendor confirms that their Gender Identity policies, practices and standards are consistent with those of the City of Worcester. For further information please refer to the Ordinance Relative to Gender Identity and Expression found at www.worcesterma.gov or call the LGBTQ Liaison/Director of Human Rights & Disabilities at 508-799-8486.

CITY OF WORCESTER MINORITY AND WOMEN BUSINESS ENTERPRISE PROGRAM

VENDOR/SERVICE PROVIDER CERTIFICATION

TO BE AWARDED A VENDOR/SERVICE CONTRACT, ALL PARTS OF THIS FORM THAT APPLY TO YOUR BID MUST BE COMPLETED AND SUBMITTED WITH YOUR BID.

Bidder is a Minority Business Enterprise (MBE) - see reverse for definition Yes_____ No_____

Bidder is a Woman Business Enterprise (WBE) - see reverse for definition Yes_____ No_____

IF SUBCONTRACTING any portion of the service covered by this bid, the successful bidder shall demonstrate a good faith effort to seek and use TEN PERCENT (10%) Minority and FIVE PERCENT (5%) Women-owned Businesses.

A. YOUR INTENT TO SUBCONTRACT. CHECK (✔) THE APPROPRIATE BOX:

☐ No work will be subcontracted. Complete Section "C" only.
☐ Some work will be subcontracted. Complete Section "B" and "C"

B. LIST SUBCONTRACTORS Engaged to do any portion of this Bid.

Check (✔) the appropriate box and give complete information.

☐ MBE ☐ WBE ☐ OTHER _____

Firm Name: _____
Street Address: _____
City/State/Zip _____

Work subcontracted: _____Dollar Value $ _____

Check (✔) the appropriate box and give complete information.

☐MBE ☐WBE ☐ OTHER _____

Firm Name: _____
Street Address: _____
City/State/Zip _____

Work subcontracted: _____ Dollar Value $ _____

C. ITEM/SERVICE BID ON: _____BID NO.: _____

Firm Name: _____
Street Address: _____
City/State/Zip _____

For purposes of the City's classification and reporting program, the following definitions apply:

Minority Business Enterprise (MBE) – a for profit enterprise, regardless of size, physically located in the United States or its trust territories, which is owned, operated and controlled by minority group members. "Minority group members" are U.S. citizens who are African-American, Latin American, Native American, Asian-Pacific American and Asian-Indian American. "Ownership" by minority individuals means the business is at least 51% owned by such individuals or, in the case of a publicly owned business, at least 51% of the stock is owned by one or more such individuals. Further, those minority group members control the management and daily business operations.

Women Business Enterprise (WBE) – a for profit enterprise, regardless of size, physically located in the United States or its trust territories, which is owned, operated and controlled by women group members. "Ownership" by women means the business is at least 51% owned by women or, in the case of a publicly owned business, at least 51% of the stock is owned by one or more women. Further, those women group members control the management and daily business operations.

STATE LAW MANDATES THAT TO DO BUSINESS WITH THE CITY OF WORCESTER the Massachusetts Revenue Enforcement and Protection Program of 1983 requires that the following be supplied with your bid:

DATE: _____

Pursuant to Mass. G.L. Ch. 62C, Section 49A, I certify under the penalties of perjury that I, to my best knowledge and belief, have filed all Massachusetts State Tax Returns and paid all Massachusetts State and City Taxes required under law.

COMPANY NAME: _____

STREET ADDRESS: _____

CITY OR TOWN: _____

STATE: _____ ZIP CODE: _____

TELEPHONE NO.: _____ FAX NO. _____

SOCIAL SECURITY OR FEDERAL IDENTIFICATION NO.: _____

AUTHORIZED SIGNATURE: _____

FAILURE TO COMPLETE THIS FORM MAY RESULT IN REJECTION OF BID AND/OR REMOVAL FROM CITY BID LIST.

RIGHT TO KNOW

Any vendor who receives an order or orders resulting from this invitation agrees to submit a Material Safety Data Sheet (MSDS) for each toxic or hazardous substance or mixture containing such substance, pursuant to M.G.L. C111f 228, 9 and 10 and the regulations contained in 441 CMR SS21.06 when deliveries are made. The vendor agrees to deliver all containers properly labeled pursuant to M.G.L. C111F S7 and the regulation contained in 441 CMR S21-05. Failure to submit a MSDS and/or labels on each container will place the vendor in noncompliance with the purchase order and/or contract. Failure to furnish MSDS's and/or labels on each container may result in Civil or Criminal penalties, including bid debarment and action to prevent the vendor from selling said substances, or mixtures containing said substances within the Commonwealth. All vendors furnishing substances or mixtures subject to Chapter 1.1F or M.G.L. are cautioned to obtain and read the law and rules and Regulations referenced above. Copies can be obtained from the State House Book Store, Secretary of State, State House, Room 117, Boston, MA (617) 727-2834 for $2.00 plus $.65 postage. In addition, copy of "Right to Know" law is available in Purchasing Department for review.

WAGE THEFT PREVENTION CERTIFICATION

By the Revised Ordinances, Chapter 2, Section 39, the city of Worcester has established requirements for certain contracts in an effort to prevent wage theft. Prospective contractors must provide the following certification and disclosures with their bids/proposals. The City will not award a contract without receipt of this completed certification.

INSTRUCTIONS: A prospective contractor shall **(a)** check Box 1 *OR* Box 2, as applicable, **(b)** check Boxes 3-5, **(c)** sign this form certifying compliance with the Wage Theft Prevention Ordinance, and **(d)** submit the completed form with its bid/proposal. For multi-year contracts, the successful bidder/proposer shall submit the completed form annually to the Purchasing Director.

Pursuant to the Wage Theft Prevention Ordinance, successful bidders/proposals shall post in conspicuous places the Mass. Wage and Hour Laws notice informing employees of the protections of G.L. c. 149, Sec. 151, and the Fair Labor Standards Act (FLSA). The notice may be found at http://www.mass.gov/ago/docs/workplace/wage/wagehourposter.pdf

ALL BIDDERS/PROPOSERS MUST CERTIFY THAT [**check either Box 1 or Box 2, as applicable**]

1. ☐ Neither this vendor/contractor nor any prospective subcontractor has been subject to a federal or state criminal or civil judgment, administrative citation, final administrative determination, order or debarment resulting from a violation of G.L. c. 149, G.L. c. 151, or FLSA, within three (3) years prior to the date of this bid/proposal submission.

OR

2. ☐ This vendor/contractor, or a prospective subcontractor, has been subject to a federal or state criminal or civil judgment, administrative citation, final administrative determination, or debarment resulting from a violation of G.L. c. 149, G.L. c. 151, or FLSA, within three (3) years prior to the date of this bid/proposal submission. The firm shall provide a copy of the same with the bid/proposal.

ALL BIDDERS/PROPOSERS MUST CERTIFY EACH OF THE FOLLOWING

3. ☐ Within five (5) days of receiving notice, the vendor/contractor shall report and provide a copy of any federal or state criminal or civil judgment, administrative citation, final administrative determination, order or debarment resulting from a violation of G.L. c. 149, G.L. c. 151, or FLSA imposed on this firm or on any prospective subcontractor while any bid/proposal to the City is pending and, if awarded a contract, during the term of the contract provide the same to the Purchasing Director.

4. ☐ A vendor/contractor awarded a contract that has disclosed under paragraph 3 above shall, upon request, furnish monthly certified payrolls for the City contract as the Purchasing Director instructs and shall, at the discretion of the Purchasing Director, obtain a wage/payment bond or other suitable insurance as required by the Wage Theft Prevention Ordinance. Vendors/contractors subject to a state or federal debarment for violation of the above laws or prohibited from contracting with the Commonwealth are prohibited from contracting with the City, and upon a finding or order of debarment or prohibition, the City may terminate the contract.

5. ☐ The contractor shall post notices provided by the City in conspicuous places informing employees of the protections of the Wage Theft Prevention Ordinance, and applicable local, state and federal law.

The undersigned certifies under the pains and penalties of perjury that the contractor is in compliance and agrees to remain in compliance with the provisions of the Wage Theft Prevention Ordinance for the term of its contract with the City.

Signed:_____ _____ _____

Print Name & Title **Company Name** **Date**

PROPOSAL

BID ITEMS
for
Bid No. 7459-W1
Contract No. S20-4

ITEM NUMBER	DESCRIPTION	ESTIMATE OF QUANTITIES	COMPUTED TOTALS

THE BIDDER MUST FILL IN THESE UNIT OR LUMP SUM PRICES. The BIDDER should also carry out all extensions and fill in "Computed Totals"

(In case of error or discrepancies, UNIT OR LUMP SUM PRICES govern and written words take precedence over figures)

BASE BID
(ITEMS 220.081 220.10 , 701 THROUGH 736 , and Item 900)

Open Cut Point Repair

Item 220.08	Trench Excavation and Backfill, Furnish and Install 8-inch PVC sewer, per linear foot		
	_____ Dollars		
	and _____ Cents	25 LF	$ _____
	($ _____) LF		
Item 220.10	Trench Excavation and Backfill, Furnish and Install 10-inch PVC sewer, per linear foot		
	_____ Dollars		
	and _____ Cents	62 LF	$ _____
	($ _____) LF		

Structural Cured-in-Place Pipe

Item 700	Structural Cured-in-Place Pipe for 8-inch Sanitary Sewers, per linear foot		
	_____ Dollars		
	and _____ Cents	5,077 LF	$ _____
	($ _____) LF		

PROPOSAL

BID ITEMS
for
Bid No. 7459-W1
Contract No. S20-4

ITEM NUMBER	DESCRIPTION	ESTIMATE OF QUANTITIES	COMPUTED TOTALS

THE BIDDER MUST FILL IN THESE UNIT OR LUMP SUM PRICES. The BIDDER should also carry out all extensions and fill in "Computed Totals"

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Item 701	Structural Cured-in-Place Pipe for 10-inch Sanitary Sewers, per linear foot		
	_____ Dollars		
	and _____ Cents	2,133 LF	$ _____
	($ _____) LF		
Item 702	Structural Cured-in-Place Pipe for 12-inch Sanitary and Combined Sewers, per linear foot		
	_____ Dollars		
	and _____ Cents	274 LF	$ _____
	($ _____) LF		
Item 703	Structural Cured-in-Place Pipe for 15-inch Sanitary, Surface, and Combined Sewers, per linear foot		
	_____ Dollars		
	and _____ Cents	273 LF	$ _____
	($ _____) LF		
Item 704	Structural Cured-in-Place Pipe for 18-inch Sanitary and Combined Sewers, per linear foot		
	_____ Dollars		
	and _____ Cents	237 LF	$ _____
	($ _____) LF		

PROPOSAL

BID ITEMS
for
Bid No. 7459-W1
Contract No. S20-4

ITEM NUMBER	DESCRIPTION	ESTIMATE OF QUANTITIES	COMPUTED TOTALS
THE BIDDER MUST FILL IN THESE UNIT OR LUMP SUM PRICES. The BIDDER should also carry out all extensions and fill in "Computed Totals"			
(In case of error or discrepancies, UNIT OR LUMP SUM PRICES govern and written words take precedence over figures)			
Item 705	Structural Cured-in-Place Pipe for 24-inch Combined Sewers, per linear foot		
	_____ Dollars		
	and _____ Cents	15 LF	$ _____
	($ _____) LF		
Item 706	Structural Cured-in-Place Pipe for 36-inch Combined Sewers, per linear foot		
	_____ Dollars		
	and _____ Cents	251 LF	$ _____
	($ _____) LF		
Item 707	Structural Cured-in-Place Pipe for 18-inch x 27-inch Combined Sewers, per linear foot		
	_____ Dollars		
	and _____ Cents	927 LF	$ _____
	($ _____) LF		
Item 708	Structural Cured-in-Place Pipe for 20-inch x 30-inch Combined Sewers, per linear foot		
	_____ Dollars		
	and _____ Cents	230 LF	$ _____
	($ _____) LF		

PROPOSAL

BID ITEMS
for
Bid No. 7459-W1
Contract No. S20-4

ITEM NUMBER	DESCRIPTION	ESTIMATE OF QUANTITIES	COMPUTED TOTALS

THE BIDDER MUST FILL IN THESE UNIT OR LUMP SUM PRICES. The BIDDER should also carry out all extensions and fill in "Computed Totals"

(In case of error or discrepancies, UNIT OR LUMP SUM PRICES govern and written words take precedence over figures)

Item 709	Structural Cured-in-Place Pipe for 24-inch x 36-inch Surface Drains, per linear foot		
	_____ Dollars		
	and _____ Cents	322 LF	$ _____
	($ _____) LF		
Item 710	Structural Cured-in-Place Pipe for 25-inch x 26-inch Surface Drains, per linear foot		
	_____ Dollars		
	and _____ Cents	45 LF	$ _____
	($ _____) LF		
Item 711	Structural Cured-in-Place Pipe for 32-inch x 42-inch Sanitary Sewers, per linear foot		
	_____ Dollars		
	and _____ Cents	305 LF	$ _____
	($ _____) LF		

Structural Cured-In-Place Short Liner

Item 712	Structural Cured-in-Place Short Liner for 30-inch Combined Sewers, per linear foot		
	_____ Dollars		
	and _____ Cents	10 LF	$ _____
	($ _____) VF		

PROPOSAL

BID ITEMS
for
Bid No. 7459-W1
Contract No. S20-4

ITEM NUMBER	DESCRIPTION	ESTIMATE OF QUANTITIES	COMPUTED TOTALS

THE BIDDER MUST FILL IN THESE UNIT OR LUMP SUM PRICES. The BIDDER should also carry out all extensions and fill in "Computed Totals"

(In case of error or discrepancies, UNIT OR LUMP SUM PRICES govern and written words take precedence over figures)

Manhole Rehabilitation

Item 713	Cementitious Lining and Exterior Sealing of Sanitary, Surface, and Combined Sewer Manholes, per vertical foot		
	_____ Dollars		
	and _____ Cents	866 VF	$ _____
	($ _____) VF		
Item 714	Epoxy Lining and Exterior Sealing of Sanitary and Combined Sewer Manholes, per vertical foot		
	_____ Dollars		
	and _____ Cents	221 VF	$ _____
	($ _____) VF		
Item 715	Install Manhole Encapsulation System, per manhole		
	_____ Dollars		
	and _____ Cents	9 manholes	$ _____
	($ _____) manhole		

PROPOSAL

BID ITEMS
for
Bid No. 7459-W1
Contract No. S20-4

ITEM NUMBER	DESCRIPTION	ESTIMATE OF QUANTITIES	COMPUTED TOTALS

THE BIDDER MUST FILL IN THESE UNIT OR LUMP SUM PRICES. The BIDDER should also carry out all extensions and fill in "Computed Totals"

(In case of error or discrepancies, UNIT OR LUMP SUM PRICES govern and written words take precedence over figures)

Item 716	Raise Manhole Frame and Cover, 2 Feet Above Grade, per manhole		
	_____ Dollars		
	and _____ Cents	2 manholes	$ _____
	($ _____) manhole		
Item 717	Install Watertight Locking Manhole Frame and Cover, per manhole		
	_____ Dollars		
	and _____ Cents	3 manholes	$ _____
	($ _____) manhole		
Item 718	Rebuild Bench and Install 8-inch Internal Drop Connection, per manhole		
	_____ Dollars		
	and _____ Cents	1 manhole	$ _____
	($ _____) manhole		
Item 719	Chemical Root Treatment of Sanitary Sewer Manholes, per manhole		
	_____ Dollars		
	and _____ Cents	17 manholes	$ _____
	($ _____) manhole		

PROPOSAL

BID ITEMS
for
Bid No. 7459-W1
Contract No. S20-4

ITEM NUMBER	DESCRIPTION	ESTIMATE OF QUANTITIES	COMPUTED TOTALS

THE BIDDER MUST FILL IN THESE UNIT OR LUMP SUM PRICES. The BIDDER should also carry out all extensions and fill in "Computed Totals"

(In case of error or discrepancies, UNIT OR LUMP SUM PRICES govern and written words take precedence over figures)

Sanitary Sewer Line Chemical Root Treatment

Item 720	Chemical Root Treatment of 8-inch Sanitary Sewers, per linear foot		
	_____ Dollars		
	and _____ Cents	3,695 LF	$ _____
	($ _____) LF		
Item 721	Chemical Root Treatment of 10-inch Sanitary Sewers, per linear foot		
	_____ Dollars		
	and _____ Cents	2,089 LF	$ _____
	($ _____) LF		

Service Connection Rehabilitation

Item 722	Cut Protruding Service Connection in 8-inch Sanitary Sewers, per service		
	_____ Dollars		
	and _____ Cents	1 service	$ _____
	($ _____) service		

PROPOSAL

BID ITEMS
for
Bid No. 7459-W1
Contract No. S20-4

ITEM NUMBER	DESCRIPTION	ESTIMATE OF QUANTITIES	COMPUTED TOTALS

THE BIDDER MUST FILL IN THESE UNIT OR LUMP SUM PRICES. The BIDDER should also carry out all extensions and fill in "Computed Totals"

(In case of error or discrepancies, UNIT OR LUMP SUM PRICES govern and written words take precedence over figures)

Item 723	Cut Protruding Service Connection in 10-inch Sanitary Sewers, per service		
	_____ Dollars		
	and _____ Cents	1 service	$ _____
	($ _____) service		
Item 724	Cut Protruding Service Connection in 12-inch Combined Sewers, per service		
	_____ Dollars		
	and _____ Cents	1 service	$ _____
	($ _____) service		
Item 725	Cut Protruding Service Connection in 30-inch Sanitary Sewers, per service		
	_____ Dollars		
	and _____ Cents	1 service	$ _____
	($ _____) service		
Item 726	Cut Protruding Service Connection in 18-inch x 27-inch Sanitary Sewers, per service		
	_____ Dollars		
	and _____ Cents	1 service	$ _____
	($ _____) service		

PROPOSAL

BID ITEMS
for
Bid No. 7459-W1
Contract No. S20-4

ITEM NUMBER	DESCRIPTION	ESTIMATE OF QUANTITIES	COMPUTED TOTALS

THE BIDDER MUST FILL IN THESE UNIT OR LUMP SUM PRICES. The BIDDER should also carry out all extensions and fill in "Computed Totals"

(In case of error or discrepancies, UNIT OR LUMP SUM PRICES govern and written words take precedence over figures)

Item 727	Cut Protruding Service Connection in 20-inch x 30-inch Sanitary Sewers, per service		
	_____ Dollars		
	and _____ Cents	1 service	$ _____
	($ _____) service		
Item 728	Cut Protruding Service Connection in 25-inch x 26-inch Surface Drains, per service		
	_____ Dollars		
	and _____ Cents	1 services	$ _____
	($ _____) service		
Item 729	Grout Service Connection in 18-inch x 27-inch Combined Sewers, per service		
	_____ Dollars		
	and _____ Cents	43 services	$ _____
	($ _____) service		
Item 730	Grout Service Connection in 20-inch x 30-inch Combined Sewers, per service		
	_____ Dollars		
	and _____ Cents	11 services	$ _____
	($ _____) service		

PROPOSAL

BID ITEMS
for
Bid No. 7459-W1
Contract No. S20-4

ITEM NUMBER	DESCRIPTION	ESTIMATE OF QUANTITIES	COMPUTED TOTALS

THE BIDDER MUST FILL IN THESE UNIT OR LUMP SUM PRICES. The BIDDER should also carry out all extensions and fill in "Computed Totals"

(In case of error or discrepancies, UNIT OR LUMP SUM PRICES govern and written words take precedence over figures)

Item 731 — Grout Service Connection in 24-inch x 36-inch Surface Drains, per service

_____ Dollars
and _____ Cents — 3 services — $ _____
($ _____) service

Item 732 — Grout Service Connection in 25-inch x 26-inch Surface Drains, per service

_____ Dollars
and _____ Cents — 2 services — $ _____
($ _____) service

Item 733 — Grout Service Connection in 32-inch x 42-inch Sanitary Sewers, per service

_____ Dollars
and _____ Cents — 9 services — $ _____
($ _____) service

Item 735 — Cured-in-Place Lateral Liner in 8-inch mainline, per linear foot

_____ Dollars
and _____ Cents — 5 LF — $ _____
($ _____) service

PROPOSAL

BID ITEMS
for
Bid No. 7459-W1
Contract No. S20-4

ITEM NUMBER	DESCRIPTION	ESTIMATE OF QUANTITIES	COMPUTED TOTALS

THE BIDDER MUST FILL IN THESE UNIT OR LUMP SUM PRICES. The BIDDER should also carry out all extensions and fill in "Computed Totals"

(In case of error or discrepancies, UNIT OR LUMP SUM PRICES govern and written words take precedence over figures)

Item 736	Cured-in-Place Lateral Liner in 18-inch mainline, per linear foot		
	_____ Dollars		
	and _____ Cents	5 LF	$ _____
	($ _____) service		

Mobilization

Item 737	Mobilization, lump sum (not more than 5% of total of items 220.08, 220.10, 700 through 736)		
	_____ Dollars		
	and _____ Cents	1 L.S.	$ _____
	($ _____) L.S		

City Use

Item 900	Lump Sum Reserved for City Use, lump sum		
	One Hundred Thirty-Four Thousand Dollars		
	and Zero Cents	1 L.S.	$ 134,000.00
	($ 134,000.00) L.S		

TOTAL BID PRICE FOR WORK INCLUDING CONTINGENCY

The computed contract price for all Items 220.08, 220.10, 700 through 736, and item 900 inclusive is:

_____ DOLLARS
(AMOUNT IN WORDS)

AND _____ CENTS $_____
(AMOUNT IN FIGURES)

NUMBER OF CALENDAR DAYS TO COMPLETE PROJECT 210

THIS PROPOSAL IS BASED ON PROVISIONS OF THE FOLLOWING ADDENDA:

No._____ No._____

No._____ No._____

All amounts and totals given above will be subject to verification by the City. In case of variation between Unit Bid Price and Totals shown by the Bidder, the Unit Price written in words will be considered to be the bid.

The City reserves the right to reject any and all bids, wholly or in part, and to make awards in a manner deemed in the best interests of the City.

The estimated quantities in these specifications form an approximate statement of the extent of the work to be done, based upon the estimate of the Design ENGINEER. The City does not expressly or by implication agree that the actual quantity of work will correspond therewith but reserves the right to increase or decrease the quantity of any class or portion of the work, as may be deemed necessary by the Contracting Officer.

TIME OF COMPLETION

The bidder shall complete the work of this contract, exclusive of re-test inspection, within 210 consecutive calendar days (Saturdays, Sundays and Holidays included) from the date of the signing of the contract if he is awarded the contract.

The bidder shall complete re-test inspection for the work within 42 consecutive calendar days (Saturdays, Sundays and Holidays included) of commencement of re-test inspection.

LIQUIDATED DAMAGES
(Contracts of $100,000 or more)

It is expressly understood and agreed, by and between the Contractor and the City, that the time for the completion of the work described herein is a reasonable time for the completion of the same, taking into consideration the average climate range and usual industrial and/or residential conditions prevailing in this locality. If the said Contractor shall neglect, fail or refuse to complete the work within the time herein specified, or any proper extension thereof requested in writing by the Contractor and granted in writing by the Contracting Officer, then the Contractor does hereby agree, as a part consideration for the awarding of this contract, to pay to the City the amount of $1,300.00 per day, not as a penalty, but as liquidated damages for such breach of contract for each and every calendar day that the Contractor shall be in default after the time stipulated for completing the work. The said amount of $1,300.00 per day is fixed and agreed upon by and between the Contractor and the City because of impracticability and extreme difficulty of fixing and ascertaining the actual damages the City would in such event sustain and said amount is agreed to be the amount of damages which the City would sustain and the said amount shall be deducted by the City for periodic payments.

Liquidated Damages shall apply to both the 210 consecutive calendar day construction duration and the 42 consecutive calendar day re-test duration.

LUMP SUM RESERVE FOR CITY USE

1. **Lump Sum Reserve for Contingency Work**
   The Contractor is advised that the lump sum reserve for contingency work shall be utilized, as required by the City of Worcester, for additional work that may be required by the City and agreed to by the Contractor. Any reserve balance remaining at the end of the contract will return to the City of Worcester.

2. **Lump Sum Reserve for Testing**
   The Contractor is advised that, where indicated by the City of Worcester, independent laboratory tests may be required of materials incorporated into the project. The tests will be performed by an independent laboratory selected by the City and compensated for directly by the City under the Lump Sum Reserve for Testing items. The Contractor is to cooperate fully with the City to make available any material and samples necessary to perform the independent tests. Upon completion of the contract all amount not utilized will return to the City of Worcester.

3. **Lump Sum Reserve for Traffic Police**
   The Contractor is advised that the City of Worcester will designate the number and need for Traffic Police throughout the duration of the contract. The City will compensate directly for Traffic Police, as ordered, under the Lump Sum Reserve for Traffic Police. Upon completion of the contract all amount not utilized will return to the City of Worcester.

INFORMATION TO BIDDERS

GENERAL DESCRIPTION

This bid consists of work in approximate quantities as listed in the Proposal Forms, which state the location and description of the work to be done and the materials to be furnished.

The plans and specifications, proposal and addenda shall form part of this contract.

QUANTITIES

All bids will be compared on the total estimate of quantities of work to be done, as shown in the proposal.

These quantities are approximate only, being given as a basis for the comparison of bids to determine the approximate amount of the consideration of the contract. The bidder will be required to complete the work specified and/or as shown on the drawings, within the required time period, whether the required quantities are more or less than the amounts herein estimated without any change in the contract unit price. The final payment will not be made until the work is so completed.

The unit price bid for each item must allow for all collateral or indirect costs connected with it.

INVESTIGATION OF CONDITIONS

Bidders are expected to visit the locality of the work and acquaint themselves with all available information concerning local conditions. They are also expected to make their own estimates of the facilities needed and difficulties attending the execution of the proposed contract, including local conditions, availability of labor, uncertainties of weather and other contingencies. In no event will the City assume any responsibility whatever for an interpretation, deduction or conclusion drawn from the inspection of the site. Failure to acquaint himself with all available information concerning these conditions will not relieve the successful bidder from responsibility for estimating the difference and costs of successfully performing the complete work.

At the bidder's request, a representative of the City will point out the site of the proposed operations.

ADDENDA

The bidder is required to acknowledge receipt of any Addenda issued to this contract by inserting the addendum number in the space provided on the proposal form.

EXPERIENCE

Each bidder shall state in his bid whether he is now or ever has been engaged on any other contract or other work similar to that proposed, giving the year in which it was done and the manner of its execution and shall submit such other information as will tend to show his ability to prosecute vigorously the work required to these specifications. A successful bidder will be required to employ an organization thoroughly experienced and skilled in the type of work to be done. After the opening of bids any bidder may be required to submit satisfactory evidence that the specific organization which he proposes to employ on this contract has successfully executed work of the nature and quality indicated herein.

EQUIPMENT

Each bidder shall state in his bid the character, make, and amount of equipment that he proposes to employ on the work. After bids are opened any bidder may be required to show that he owns, controls by firm option, or can procure the equipment necessary for commencing, prosecuting, and completing the work as required by the specifications.

CONTRACTOR RESPONSIBILTY

The Contractor must care for, replace and restore to good condition to the satisfaction of the Commissioner of Public Works any utilities, fences, sidewalks, posts, poles or other structures damaged by or interfered with by the Contractor outside the scope of work. The Contractor shall perform any necessary replacement, reparation or restoration at no additional compensation.

Damage resulting from the operation of the Contractor to any structure in the street or ground near or within the scope of work (and not required to be changed under the contract) shall be replaced, repaired or restored by the Contractor at no additional compensation.

The Contractor shall have no grounds for additional compensation because of expenses due to encountering existing pipes, conduits or structures.

The Contractor must perform construction work without damage to shade trees.

The Contractor shall cooperate with all other Contractors or other forces within the limits of the work specified. The Contractor shall allow the necessary access to the

site to other Contractors and utility companies and their agents. The Contractor shall be responsible for preventing damage by others to the work performed under this contract or for having damage repaired, either by the party responsible or at his own expense.

PUBLIC CONVENIENCE

The Contractor shall so conduct his operation as to offer the least possible obstruction and inconvenience to the public.

Vehicular and pedestrian traffic will be maintained on all streets located within the project unless permission is received in writing from the commissioner of Public Works or his representatives to close the street.

Where construction operations are such that a hazard exists to the public, all safety precautions shall be maintained.

POLICE PROTECTION

The City of Worcester will furnish and pay for police when and where the City decides police protection is necessary. The Contractor shall notify the Engineer of the anticipated requirements as the work progresses, so that each day's protection can be scheduled not later than the preceding day.

REHABILITATION OF SANITARY SEWERS AND MANHOLES IN OTHER STREETS

Similar work for rehabilitation of sanitary, surface, or and/or combined sewers and manholes may be needed in other streets and may be included in this contract by agreement between the City and the Contractor.

Any such work is to be paid for on a unit price basis at the prices bid under the contract. Extra work orders will be given the Contractor for any such work on a unit price basis at the prices bid in the contract. The purpose of this provision is to permit the inclusion of any emergency or rush project that may arise.

ADDITIONAL WORK

(a) The Contractor agrees to perform any work related to the Subject Matter of the contract, but not within the scope of the contract and its specifications, upon written order of the Contracting Officer. The payment for such extra work to be made in accordance with whichever of the following plans the Contracting Officer elects: (i) a price agreed upon between the parties and stipulated in the order for the extra work; (ii) a price based on the unit prices of the contract; (iii) a price determined by adding 15% to the reasonable cost of the extra work performed. Such reasonable cost to be determined by

the Contracting Officer in accordance with paragraph (b) below.

(b) In computing reasonable cost for the purposes of (iii) above, the Contracting Officer shall include the reasonable cost to the Contractor of all materials used, of all labor, common and skilled, of foremen, trucks and the fair rental of all machinery used upon the extra work for the period of such use. If the extra work requires the use of machinery not upon the work or to be used upon the work, then the cost of transportation of such machinery to and from the work shall be added to the fair rental, but said transportation shall not cover a distance exceeding 100 miles. The Contracting Officer shall include in the cost of extra work the cost to the Contractor of any additional insurance that may be required covering public liability and bodily injuries to his employees engaged in the extra work, and the cost of Social Security or other direct assessment upon the Contractor's payroll by Federal or other properly authorized public agencies. The cost of extra work shall not include any cost or rental of small tools, buildings, or any portion of the time of the Contractor or his superintendent, or any allowance for use of capital or the premium on the bond as assessed upon the amount of extra work, these items being considered as being covered by the fifteen percent (15%) added to the reasonable cost.

(c) Dimensions, or materials of the Subject Matter of the contract, or any part thereof, either before or after commencement of construction. Where such alterations increase the quantity or standard of the work to be done, payment for such increase shall be made in the same way that payment is made for extra work under (a) and (b) above. Where such alterations diminish the quantity or standard of the work to be done, an adjustment shall be made to the benefit of the City, based upon the unit prices where used or, where unit prices are not used, as the Contracting Officer shall determine.

BIDDERS TO INVESTIGATE

Bidders required to submit their proposals upon the following express conditions, which shall apply to and become part of every bid received, via:

Bidders must satisfy themselves by personal examination of the location of the proposed work and by such other means as they may desire, as to actual conditions and requirements of the work, and the accuracy of the quantities.

INFORMATION NOT GUARANTEED

It is understood and agreed that the City does not warrant or guarantee that the materials, conditions and pipes or other structures encountered during construction will be the same as those indicated by the information given on the drawings. The bidder must satisfy himself regarding the character, quantities, and conditions of the various materials and the work to be done.

It is further understood and agreed that the bidder or the Contractor will not use any of the information made available to him, or obtained in an examination made by him, in any manner as a basis or ground of claim or demand of any nature against the City or the Contracting Officer, arising from or by reason of any variance which may exist between the information offered and the actual materials or structures encountered during the construction work.

ITEMS

The parts of the work have been divided into items in order to enable the bidder to bid for the different portions of the work in accordance with his estimate of their cost, so that in the event of an increase or decrease in the quantity of any particular item of work, the actual quantities executed may be paid for at the price bid for that particular item of work.

INDETERMINATE ITEMS

Certain items in the proposal cover classes of work of doubtful necessity or work for which it is impracticable to estimate approximate quantities. Such items have been marked “Indeterminate.”

COMPARISON OF BIDS

Bids will be compared on the basis of the lump sums, or quantities and unit prices bid, stated by the bidders in their proposals should the City elect to make such evaluation. The net sum thus obtained will be used to determine the order of bidders. In the event that there is a discrepancy between the lump-sum prices or unit prices written in words and written in figures, the prices written in words shall govern.

DEPOSIT FORFEITED

In case the party to whom the contract is awarded shall fail or neglect to execute the contract and furnish a satisfactory bond within the time specified, the City may determine that the bidder has abandoned the contract and thereupon the proposal and acceptance shall be null and void, and the security accompanying the proposal shall be forfeited to and retained by said City as liquidated damages for such failure or neglect and to indemnify said City for any loss which may be sustained by failure of the bidder to execute the contract and furnish bond as aforesaid. After the execution of the contract and the acceptance of the bond by the City the security accompanying the proposal of the successful bidder shall be returned.

THE HANDLING OF LIVE SEWAGE

The attention of the bidder is particularly called to the requirement that in submitting his bid he has considered that the Contractor, as a contractual obligation, shall handle all live sewage in existing sewer lines as a necessary part of the sewer work and for this work no additional compensation will be considered.

WATER SUPPLY

The Contractor shall obtain and pay for a hydrant permit from the City. The Contractor shall obtain approval from the ENGINEER prior to opening any fire hydrants. Designated fire hydrants will be provided to the Contractor for water usage.

For all necessary operations the City will, without charge, provide water under available system pressure from the nearest hydrant of the City water distribution system. The Contractor shall furnish any necessary pipe or hose extensions to conduct the water to the points of use, and shall exercise due care not to waste water.

LABOR CONDITIONS

The attention of the bidder is called to those parts of the contract regarding labor conditions, wage rates, etc.

QUESTIONS REGARDING CONTRACT DOCUMENTS

In general, no answer will be given in reply to an oral question involving interpretation of the Contract Documents. Discrepancies, omissions or doubts as to the meanings of the Contract Documents should be communicated in writing to the Commissioner of Public Works for interpretation no later than five (5) business days prior to bid opening date. Any interpretation made will be in the form of an addendum to the Contract Documents which we will forward to all bidders.

MANHOLE FRAME & COVER

Note that the City of Worcester Standard Item 236 Manhole Frame & Cover has been redesigned. The Bidder should refer to this item prior to bidding and should be alert to the changes.

GENERAL NOTES

1. Prior to the start of any construction activity in any previously unoccupied location the Contractor will supply the Engineer with a traffic flow plan for the Engineer's approval.

2. Where applicable the Contractor will supply all barricades, barriers, signing, lighting, etc. warranted to ensure the safety of the general public throughout the work site as a subsidiary obligation without any additional cost to the City of Worcester and subject to the Engineer's approval.

3. Prior to the start of any work the contractor will be required to supply and install construction safety signing on each approach to the work zone as directed by the Engineer. Signing shall read "Street Under Construction" or "Road Work Ahead" or as directed by the Engineer. Signing shall conform to applicable provisions of section 850 of the Massachusetts Standard Specifications for Highways and Bridges latest edition.

4. Any necessary detouring will be arranged by the Contractor through the Engineer and subject to the approval of the Department of Public Works and Parks.

5. The Contractor will be required to provide adequate access to businesses affected by all construction activities.

6. The Contractor will be required to have onsite at all times during the course of all construction activities a full-time superintendent whom will be in responsible charge of this project. This individual will be the exclusive agent for the Contractor maintaining continuous correspondence with the City Engineers.

7. The Contractor will notify the Engineer in writing whenever a change of superintendent is warranted

8. Any existing conditions disturbed by the construction operations shall be restored by the Contractor at his own expense.

9. The Contractor shall provide the Engineer with a list of streets, which will require police details at least 24 hours in advance of the work to be performed.

10. In case of discrepancies between City of Worcester Standard Specification & Details and the Supplement to Specifications, the City’s Standard Specification & Details govern and take precedence over the Supplement to Specifications.

SPECIAL PROVISIONS

NOTICE TO PROCEED

The Bidder must agree to commence work on or before the date specified in the written “Notice to Proceed" issued by the City, and/or Engineer acting on behalf of the City, and to fully complete the project within the time specified in the contract.

SCHEDULE OF WORK

The Contractor shall submit, to and for the comments of the Contracting Officer, a schedule of operations within fourteen (14) days after the mailing of the executed Contract to the Contractor. The schedule shall show the proposed methods of construction and sequence of work and the time the Contractor proposed to complete the various items of work within the time specified in the contract.

PROPER NOTIFICATION

The Contractor will be required to provide at least 48-hour notice to the Contracting Officer before locating in work sites previously unoccupied under this contract or before proceeding with paving operations.

HOURS OF WORK

In general, the City will permit the Contractor to work Monday thru Friday between the hours of 7:00 A.M. and 5:00 P.M. except as provided by the Contracting Officer.

CASTINGS

The Contractor will be required to return to the City-Yard any or all excess castings, either water or sewer that were replaced or abandoned by the Contracting Officer. This work will be performed as a subsidiary obligation by the Contractor and no additional payment will be made by the City.

OVERLOADED TRUCKS

The Contracting Officer will not accept any materials delivered to any project in motor vehicles or semi-trailer units that exceed the legal maximum gross weight allowed for the particular class, as specified in Section 19A of Chapter 90 of the General Laws of Massachusetts.

The provisions of subsection 7.03 of the Standard Specifications shall still apply.

RULES AND REGULATIONS CONCERNING DISTINCTIVE SLOW MOVING VEHICLE EMBLEM

In accordance with the provisions of Section 7 of Chapter 90 of the General Laws as most recently amended by Chapter 684 of the Acts of 1970 and following due notice and a public hearing held on January 8, 1971 at the Registry of Motor Vehicles, 100 Nashua Street, Boston, Massachusetts, I hereby prescribe the following standards and specifications for a distinctive slow-moving vehicle emblem.

1.1 The minimum total construction and the dimensions of the emblem shall conform to Society of Automotive Engineers standards as last revised in June, 1967.

1.2 The emblem shall be securely mounted on the rear of the vehicle with a broad base down facing squarely to the rear of said vehicle, as near to center as possible with the bottom of the emblem not less than 3 feet nor more than 5 feet above ground. Said emblem shall be Incorporated herein and made a part of these rules and regulations is the standard of the Society of Automotive Engineers, SAE-J943A as last revised in June 1967, pertaining to a slow-moving vehicle identifications emblem.

FINAL CLEAN-UP

Upon completion of the work and before acceptance and final payment, the Contractor shall remove and dispose of in an approved manner at his own expense, from the right-of-way, construction site, and adjoining property, all temporary structures and all surplus materials and rubbish which the Contractor may have accumulated during the prosecution of the work, and shall leave the areas in a neat and orderly condition. No equipment or material shall be left within any of the aforementioned areas after acceptance of the Contract without the written permission of the Engineer. The Contractor shall not abandon any material at or near the site regardless of whether or not it has any value.

PERMITS

The Contractor will be responsible for any and all City of Worcester permits including the Street Opening Permit for each location, which can be obtained from the Management Services Department located at 20 East Worcester Street, Worcester, Massachusetts.

EMERGENCY TELEPHONE NUMBERS

A 24-hour telephone number must be supplied along with the name of the person to he notified for repairs or emergencies. Failure to respond will necessitate the actuation of City crews at the Contractor’s expense.

BID DOCUMENT

There is a fifty dollar ($50.00) non-refundable charge for each bid document that must be tendered by either a Cashier's Check, Certified Check or Money Order payable to the City of Worcester.

COVID-19 GUIDELINES AND PROCEDURES

Contractor shall develop and implement a COVID-19 health and safety plan in accordance with the Commonwealth of Massachusetts COVID-19 Guidelines and Procedures for all Construction Sites and Workers at all Public Work. The guidelines are included in Appendix C.

COVID-19 protocols will be addressed and discussed during pre-construction conference. No additional compensation shall be considered to satisfy local, state, or federal regulations as it relates to these guidelines.

GENERAL SPECIFICATIONS

SECTION I LOCATION AND WORK TO BE DONE

The work herein specified to be done consists of rehabilitating sanitary, surface, and combined sewers and manholes in various locations and streets, in the City of Worcester, Massachusetts.

The approximate amount of Base Bid rehabilitation is as follows:

25 linear feet open cut point repair of 8-inch PVC sewers, complete in place
62 linear feet of open cut point repair 10-inch PVC sewers, complete in place
5,077 linear feet of 8-inch structural cured-in-place pipe
2,133 linear feet of 10-inch structural cured-in-place pipe
274 linear feet of 12-inch structural cured-in-place pipe
273 linear feet of 15-inch structural cured-in-place pipe
237 linear feet of 18-inch structural cured-in-place pipe
15 linear feet of 24-inch structural cured-in-place pipe
251 linear feet of 36-inch structural cured-in-place pipe
927 linear feet of 18-inch x 27-inch structural cured-in-place pipe
230 linear feet of 20-inch x 30-inch structural cured-in-place pipe
322 linear feet of 24-inch x 36-inch structural cured-in-place pipe
45 linear feet of 25-inch x 26-inch structural cured-in-place pipe
305 linear feet of 32-inch x 42-inch structural cured-in-place pipe
10 linear feet of 30-inch structural cured-in-place short liner
Reinstate and grout all active service connections in lined pipe
866 vertical feet of cementitious lining and exterior sealing of manholes
221 vertical feet of epoxy lining and exterior sealing of manholes
Install 9 manhole encapsulation systems
Raise 2 manhole frames and covers 2 feet above grade
Install 3 watertight locking manhole frames and covers
Rebuild 1 bench and install 1 8-inch internal drop connection
Chemical root treatment of 17 manholes
8784 linear feet of sewer mainline chemical root treatment
Cut 7 protruding service connections
Install 5 linear feet of cured-in-place lateral liner in 8-inch mainline
Install 5 linear feet of cured-in-place lateral liner in 18-inch mainline
Handling of existing flows (temporary bypass pumping)

The location, general characteristics, and principal details are shown on a set of ten (10) drawings, entitled:

CITY OF WORCESTER, MASSACHUSETTS
DEPARTMENT OF PUBLIC WORKS & PARKS
CONTRACT NO. S20-4
VARIOUS STREETS 2020 SEWER, SURFACE, AND COMBINED SEWER REHABILITATION PROJECT

The drawings listed above are the contract drawings, sometimes referred to herein as "the drawings". Additional drawings showing details in accordance with which the work is to be constructed will be furnished from time to time by the Contracting Officer, if found necessary, and shall then become a part hereof.

SECTION II HANDLING AND DISTRIBUTION

The Contractor shall, at his own expense, handle, haul, and distribute all materials and all surplus materials on the different portion of the work as required.

He shall provide suitable and adequate storage room for materials and equipment during the progress of the work, and be responsible for any loss of or damage to materials and equipment furnished or accepted by him until the final acceptance of the work.

Delays in handling involving storage and demurrage charges by transportation companies and vendors shall be at the expense of the contractor.

SECTION III SAMPLES – INSPECTION – APPROVAL

All materials and equipment furnished by the Contractor to be incorporated in the work shall be subject to the inspection and approval of the Contracting Officer.
As soon as possible after the contract has been awarded, the Contractor shall furnish to the Contracting Officer data relating to materials and equipment. Such data shall be sufficiently complete to enable the Contracting Officer to identify the particular product in question.

If the Contracting Officer so requires, either prior to beginning or during the progress of the work, the Contractor shall submit samples of materials for such special tests as may be necessary to demonstrate that they conform to specifications. Such samples shall be furnished, taken, packed, and shipped as directed, at the expense of the contractor. Except as otherwise noted, the City shall make arrangements for and pay for the tests.

Facilities and labor for the handling and inspection of all materials and equipment shall be furnished by the Contractor. Defective materials and equipment shall immediately be removed from the site of the work.

The Contractor shall place his orders for the various materials sufficiently early to permit the completion of all testing and inspection before the materials are required for incorporation in the work. He may not claim that his work has been delayed because of his own failure to purchase his materials early enough to allow for the time required for such inspection and testing.

When required, the Contractor shall furnish to the Contracting Officer triplicate sworn copies of manufacturer's shop or mill tests (or reports from independent testing laboratories) relative to materials, equipment performance ratings, and concrete data.

After approval of the samples, data, etc., the materials and equipment used on the work shall in all respects conform therewith.

SECTION IV OCCUPYING PRIVATE LAND

The Contractor shall not (except after consent from the proper parties) enter or occupy with men, tools, materials, or equipment, any land outside the rights-of-way or property of the City.

SECTION V PERMITS

The Contractor shall at his own expense; take out necessary permits from the county, municipal or other public authorities; shall give all notices required by law or ordinances and shall post all bonds and pay all fees and charges incident to the due and lawful prosecution of the work covered by this Contract.

SECTION VI INTERFERENCE WITH AND PROTECTION OF STREETS DRIVES, ETC.

The Contractor shall not close nor obstruct any portion of a street, road, or private way without obtaining permits therefore from the proper authorities. If any street or private way shall be rendered unsafe by the Contractor's operations, he shall make such repairs or provide such temporary ways or guards as shall be acceptable to the Contracting Officer.
Streets, roads, private ways, and walks shall be maintained passable by the Contractor at his expense, and the Contractor shall assume full responsibility for the adequacy and safety of provisions made.

The Contractor shall conduct his work so as to interfere as little as possible with private business and public travel. He shall at his own expense, wherever necessary or required, maintain fences, provide watchmen, maintain lights, and take such other precautions as may be necessary to protect life and property, and shall be liable for all damages occasioned in any way by his act or neglect, or that of his agents, employees, or workmen.

SECTION VII STORAGE OF MATERIALS AND EQUIPMENT

All excavated materials, construction equipment, and materials and equipment to be incorporated in the new work, shall be so placed as not to injure the work and so that free access may be had at any time to all parts of the work and to all public utility installations in the vicinity of the work. Materials and equipment shall be kept neatly piled and compactly and conveniently stored so as to inconvenience as little as possible public travel and adjoining tenants.

SECTION VIII INSUFFICIENCY OF SAFETY PRECAUTIONS

If at any time, in the opinion of the Contracting Officer, the work is not properly lighted, barricaded, and in all respects safe in respect to public travel, persons on or about the work, or public or private property, the Contracting Officer shall have the right to order such safeguards to be erected and such precautions to be taken as he deems advisable and the Contractor shall promptly comply with such orders. If under such circumstances, the Contractor does not or cannot immediately put the same into proper and approved conditions, or, if the Contractor or his representative is not upon the ground so that he can be immediately notified of the insufficiency of safety precautions there, the Contracting' Officer may put the work into such a condition that it shall be in his opinion, in all respects safe, and the Contractor shall pay all expenses of such labor and materials as may have been used for this purpose by him or by the Contracting Officer. Such action of the Contracting Officer, or his failure to take such action, shall in no way relieve the Contractor of the entire responsibility for any cost, loss, or damage by any party sustained on account of the insufficiency of the safety precautions taken by him or by the Contracting Officer acting under authority of this section.

SECTION IX PUBLIC SAFETY

The Contractor shall at his expense furnish all required barricades, warning and detour signs, and shall at all times provide adequate control of moderate traffic with flagmen. Wherever, in the opinion of the Contracting Officer, traffic is sufficiently congested or public safety is endangered, the City will furnish uniformed Police Officers without charge to the Contractor to direct traffic and to keep traffic off any part of the highway in which construction is being carried on. These Officers shall be in addition to the Contractor's watchmen required under the other items of the contract or his flagmen required herein.

The employment of traffic watchmen, flagmen, or special officers for any purpose connected with the project shall in no way relieve the Contractor of any responsibility or liability under the terms of the contract.

SECTION X CONTRACTING OFFICER TO GIVE ORDERS

The Contracting Officer shall make all necessary explanations as to the meaning

and intention of the drawings and specifications, and shall give all necessary orders and directions.

The order or sequence of execution of the work and the general conduct of the work shall be subject to the approval of the Contracting Officer, who shall have authority to direct the order or sequence where public necessity or welfare shall require, which approval or direction, shall however, in no way affect the responsibility of the Contractor in the conduct or the work. Whenever the Contractor is not present on any part of the work where it may be desired to give directions, orders may be given by the Contracting Officer, and shall be received and obeyed by the superintendent or foreman who may have charge of the particular work in reference to which orders are given.

SECTION XI LIABILITY OF CONTRACTOR

The Contractor shall take all responsibility for the work done under this contract, for the protection of the work, and for preventing injuries to persons and damage to property and utilities on or about the work. He shall in no way be relieved of his responsibility by any right of the Contracting Officer to give permission or issue orders relating to any part of the work, nor by any such permission given or orders issued nor by failure of the Contracting Officer to give such permission or issue such orders. The Contractor shall bear all losses resulting to him or to the City on account of the amount or character of the work, or because the nature of the land in or on which work is done is different from what was estimated or expected, or on account of the weather, elements, or other causes.

SECTION XII LINES, GRADES, AND MEASUREMENTS

The controlling lines and grades shall be given to the Contractor, who shall provide at his own expense such batter boards, forms, materials, and labor as may be required. Additional batter boards, lines, grades, and forms shall be furnished and set by the Contractor as directed. If the Contractor, through willfulness or carelessness, removes or permits to be removed said reference marks before the prosecution of the work requires it, they shall be replaced at his expense.

The Contractor shall make all measurements and check dimensions necessary for the proper construction of the work called for by the drawings and specifications, and during the prosecution of the work, he shall make all necessary measurements to prevent misfitting in said work, and he shall be responsible therefore and for the accurate construction of the entire work.

SECTION XIII WORK TO CONFORM

All work shall conform during its progress and on its completion truly to the lines, levels, and grades indicated on the drawings or given by the Contracting Officer and shall be built in a thoroughly substantial and workmanlike manner, in accordance with the plans and specifications and directions given from time to

time by him. In no case shall any work in excess of the plan requirements and specifications be paid for unless ordered in writing by said Contracting Officer.

All work done without instructions having been given therefore by the Contracting Officer, or done without proper lines or levels, or done during the absence of the Contracting Officer or his agent, will not be estimated or paid for except when such work is authorized by the Contracting Officer in writing. Work so done may be ordered uncovered or taken down, removed, and replaced at the Contractor’s sole cost and expense.

SECTION IX DISCREPANCIES ERRORS AND OMISSIONS

The drawings and specifications are intended to be explanatory of each other, but should any discrepancy appear or any misunderstanding arise as to the import of anything contained in either, the interpretation and decision of the Contracting Officer shall be final and binding on both parties to this contract.

Any correction or errors or omissions in drawings and specifications may be made by the Contracting Officer when such correction is necessary for the proper fulfillment of their intention as construed by him. Where said correction of errors or omissions, except as provided in the next two paragraphs below, adds to the amount of work to be done by the Contractor, compensation for said additional work shall be made under the items for Extra Work except where additional work may be classed under some item of work for which a unit price is included in the proposal.

The fact that specific mention of a fixture, or of any part of the work is omitted in the specifications whether intentionally or otherwise, when the same is clearly shown or indicated on the drawings, or is usually and customarily required to complete fully such work as is specified herein, will not entitle the Contractor to consideration in the matter of any claim for extra compensation, but the said fixtures or work, or both, must be installed or done the same as if called for by both the drawings and drawings and specifications.

All work indicated on the drawings and not mentioned in the specifications, or vice versa, and all work and material usual and necessary to make the work complete in all its parts, whether or not they are indicated on the drawings or mentioned in the specifications, shall be furnished and executed the same as if they were called for by both the drawings and specifications.

SECTION XV PIPE LOCATION

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

where required, at the unit prices agreed upon in the proposal.

SECTION XVI LIMITS OF NORMAL EXCAVATION

In determining the quantities of excavation to which unit prices shall apply, the limits of normal width and depth of excavation shall be as described below unless other limits are indicated on the drawings or specified.

For pipes in trench, the normal width of the trench shall be measured between vertical planes which are a distance apart equal to the sum of 18 inches plus 1-1/3 times the nominal inside diameter of the pipe. If the width so computed is less than 3 feet, a width of 3 feet shall be taken as the normal width for payment. The normal depth shall be measured to a distance of 0.5 feet below the bottom of the outside of the pipe in earth and in rock unless there be a cradle underneath the pipe, in which case the normal depth shall be measured to the underside of the cradle. The width of trench for the cradle shall be assumed to be that above specified for pipes in trenches. No allowance will be made for additional width or depth of trench for bell holes or at the manholes.

For other structures, the normal width shall be measured between vertical planes 1 ft. outside the neat lines of the several parts of the structure, except that the width at any elevation shall be measured as not less than the width at a lower elevation. The normal depth shall be measured to the underside of that part of the structure for which the excavation is made.

SECTION XVII COMPUTATION OF QUANTITIES

For the estimating of quantities in which the computation of areas by geometric methods would be comparatively laborious it is stipulated and agreed that the planimeter shall be considered an instrument of precision adapted to the measurement of such areas.

It is further stipulated and agreed that the computation of the volume of prismoids shall be by the method of average end areas.

SECTION XVIII PROTECTION AGAINST WATER AND STORM

The Contractor shall take all precautions to prevent damage to the work by groundwater, storms, or by floodwater entering the site of the work directly or through the ground. In case of damage by storm or water, the Contractor shall make such repairs or replacements or rebuild such parts of the work as the Contracting Officer may require in order that the finished work may be completed as required by the drawings and specifications.

SECTION XIX PRECAUTIONS DURING ADVERSE WEATHER

During adverse weather the Contractor shall take all necessary precautions so that the work may be properly done and satisfactory in all respects. When required, protection shall be provided by use of tarpaulins, wood and building paper shelters, or by other approved means.

During cold weather, materials shall be preheated, if required, and the materials and adjacent structure into which they are to be incorporated shall be made and kept sufficiently warm so that a proper bond will take place and a proper curing, aging, or drying will result. Protected spaces shall be artificially heated by approved means which will result in a moist or a dry atmosphere according to the particular requirements of the work being protected. Ingredients for concrete and mortar shall be sufficiently heated so that the mixture shall be warm throughout when used.

The Contracting Officer may suspend construction operations at any time when, in his judgment, the conditions are unsuitable or the proper precautions are not being taken, whatever the weather may be, in any season.

SECTION XX DEFINITIONS

Wherever the words defined in this section or pronouns used in their stead occur in the specifications, they shall have the meanings herein given.

As Directed, As Required, Etc.

Wherever in the specifications, or upon the drawings, the words “as directed”, “as required,” “as permitted,” or words of like import are used, it shall be understood that the direction, requirement, or permission of the Contracting Officer is understood and similarly, the words “approved,” “acceptable,” “satisfactory” or words of like import shall mean approved by or acceptable and satisfactory to the Contracting Officer.

Elevation

The figures given in the contract and specifications or upon the drawings after the word “elevation” or abbreviation of it shall mean the distance in feet above the datum adopted by the Contracting Officer.

Rock

The word “rock” wherever used as the name of an excavated material shall mean boulders and pieces of concrete or masonry exceeding one-half cubic yard in volume, or solid ledge rock which, in the opinion of the Contracting Officer requires for its removal, drilling and blasting or wedging, or sledging, or barring, or breaking up with a power-operation tool. No soft or disintegrated rock which can be removed with a hand pick or power-operated excavator shovel, no loose, shaken, or previously blasted rock or broken stone in rock fillings or elsewhere,

and no rock exterior to the maximum limits of measurement allowed, which may fall into the excavation, will be measured or allowed. Excavated stone paving blocks and concrete roadway base within the limits of the trench excavation shall be defined and measured as “rock” excavation.

Earth

The word “earth” shall mean all kinds of material excavated or which are to be excavated, except rock as above defined.

SECTIONS XXII ABBREVIATIONS

Where any of the following abbreviations are used in these specifications they shall have the meaning set forth opposite each.

AAR - Association of American Railroads
AASHO - American Association of State Highway Officials
ACI - American Concrete Institute
AGA - American Gas Association
AIEE (IEEE) -American Institute of Electrical Engineers (Institute of Electrical and Electronic Engineers Inc.)\
AISC - American Institute of Steel Construction
ANSI - American National Standards Institute -American Railway Association
AREA - American Railway Engineering Association
-United States of America Standards Institute (formerly American Standards Association)
ASCE - American Society of Civil Engineers
ASLA - American Society of Landscape Architects
ASME - American Society of Mechanical Engineers -American Society for Testing and Materials
AWS - American Welding Society
AWWA - American Water Works Association
CIPRA - Cast Iron Pipe Research Association
EIS - Environmental Impact Statement
MEC - Massachusetts Electrical Code
NBS - National Bureau of Standards
NCPI - National Clay Pipe Institute
NEC - National Electrical Code, Latest Edition
NEMA - National Electrical Manufacturers Association
NEWWA - New England Water Works Association
NFPA - National Fire Protection Association
USASI - Standard of the United States of America Standards Institute (formerly American Standards Association)
FEDERAL SPECIFICATION - Federal Specifications issued by the Federal Supply Service of the General Services Administration Washington,D.C
AWG - American or Brown and Sharpe. Wire Gage.
STL.W.G. - U.S. Steel Wire, Washburn and Moen, American Steel & Wire Cos., Roetling Gage
USSGage - United States Standard Gage

WORCESTER STANDARD SPECIFICATIONS

Except as indicated in the specifications and on the plans, all work shall be in accordance with the pertinent requirements of the

CITY OF WORCESTER
DEPARTMENT OF PUBLIC WORKS & PARKS

STANDARD SPECIFICATIONS
&
DETAILS

February 1, 2020

(Not Included - Available on - http://www.worcesterma.gov/engineering)

SUPPLEMENT TO SPECIFICATIONS

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APPENDICES

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***NOTE: Logs and Reports are not included and shall be furnished upon request.**

SUPPLEMENT TO SPECIAL PROVISIONS (ON PAGES E1 TO E3)

SPECIAL PROVISIONS

In addition to Special Provisions located on pages E1 through E3, the Specifications shall be amended and supplemented by the following:

1. Hauling, Handling and Storage of Materials

   A. The Contractor shall, at its own expense, handle and haul all materials furnished by it and shall remove any of its surplus materials at the completion of the work.

   B. The Contractor shall provide suitable and adequate storage for equipment and materials furnished by it that are liable to injury and shall be responsible for any loss of or damage to any equipment or materials by theft, breakage, or otherwise.

   C. All excavated materials and equipment to be incorporated in the Work shall be placed so as not to injure any part of the Work or existing facilities and so that free access can be had at all times to all parts of the Work and to all public utility installations in the vicinity of the work. Materials and equipment shall be kept neatly piled and compactly stored in such location as will cause a minimum of inconvenience to public travel and adjoining owners, tenants and occupants.

   D. The Contractor shall be responsible for all damages to the work under construction during its progress and until final completion and acceptance even though partial payments have been made under the Contract.

2. Easements

   A. As indicated on the drawings, a portion of the work is located in easements obtained by the Owner. The Contractor has no rights outside of the easements unless they are obtained from the property owner.

   B. Contractor shall schedule work so that it will cause minimum inconvenience and nuisance to abutting property owners, over the shortest possible time.

   C. Easements shall be kept clean; no rubbish or discarded construction materials shall be allowed to accumulate. Storage of excess construction materials, including soil, ledge, equipment, or machinery on easements will not be allowed.

   D. Restoration of fences, shrubs, trees and grass, both natural and artificial, shall be completed promptly following completion of the work in an easement, to minimize disruption and inconvenience to property owners.

   E. Unless approved by the Engineer, the use of easements for ease of access to and egress from other areas of the project will not be permitted.

3. Open Excavations

A. All open excavations shall be adequately safeguarded by providing temporary barricades, caution signs, lights and other means to prevent accidents to persons, and damage to property. The Contractor shall, at his own expense, provide suitable and safe means for completely covering all open excavations and for accommodating travel when work is not in progress.

B. Bridges provided for access to private property during construction shall be removed when no longer required.

C. The length of open trench will be controlled by the particular surrounding conditions but shall always be confined to the limits prescribed by the Engineer.

D. If the excavation becomes a hazard, or if it excessively restricts traffic at any point, then special construction procedures shall be taken, such as limiting the length of trench and prohibiting stocking excavated material in the street.

E. All street excavations shall be completely closed at the end of each work day. Backfilling or use of steel plates of adequate strength to carry traffic shall be used.

4. Maintenance of Traffic

A. Unless permission to close the street is received in writing from the proper authority, all excavated materials and equipment shall be placed so that vehicular and pedestrian traffic may be safely maintained at all times.

B. Should the Chief of Police deem it necessary, uniformed officers will be assigned to direct traffic. The Contractor shall make all arrangements in obtaining uniformed officers required.

C. The Contractor shall at its own expense, as directed by the Police Traffic Control/Safety Officer, provide and erect acceptable barricades, barrier fences, traffic signs, and all other traffic devices not specifically covered in a bid item, to protect the work from traffic, pedestrians, and animals. The Contractor shall provide sufficient temporary lighting such as lanterns/flashers (electric battery operated) or other approved illuminated traffic signs and devices to afford adequate protection to the traveling public, at no additional cost to the Owner. See Section 01552 CONSTRUCTION ZONE SAFETY PLAN.

D. The Contractor shall furnish all construction signs that are deemed necessary by and in accordance with Part VI of the Manual on Uniform Traffic Control Devices as published by the U.S. Department of Transportation. In addition, the Contractor may be required to furnish up to 128 square feet of additional special construction warning signs. Size and exact wording of signs shall be determined by the Engineer during construction.

E. The intent of policing is to ensure public safety by direction of traffic. Police officers are not to serve as watchmen to protect the Contractor's equipment and materials.

F. Nothing contained herein shall be construed as relieving the Contractor of any of its responsibilities for protection of persons and property under the terms of the Contract.

5. Care, Protection, and Security of Property

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

B. The Contract shall provide security for the private property with temporary by-pass pumping during the entire duration of the temporary by-pass. Once the temporary by-pass pumping is not required, the Contractor shall notify the owner and/or contact person of the private property. The private property shall be secured and left in the original condition prior to the temporary by-pass. If any damages or trespassing occurs at the private property during the temporary by-pass, the Engineer is to be notified immediately. The Contractor is responsible for all property damage encountered during the temporary by-pass.

6. Protection and Relocation of Existing Structures and Utilities

A. All existing buildings, utilities, pipes, poles, wires fences, curbings, property line markers and other structures which the Engineer decides must be preserved in place without being temporarily or permanently relocated, shall be carefully supported and protected from damage by the contractor. Should such property be damaged, it shall be restored by the Contractor, at no additional cost to the Owner.

B. The Contractor shall determine the location of all underground structures and utilities (including existing water services, drain lines, electrical lines, and sewers). Services to buildings shall be maintained, and all costs or charges resulting from damage thereto shall be paid by Contractor.

C. When fences interfere with the Contractor's operations, the Contractor shall remove and (unless otherwise specified) promptly restore them in accordance with Section 01564 EXISTING FENCES.

D. On paved surfaces the Contractor shall not use or operate tractors, bulldozers, or other power-operated equipment with treads or wheels which are shaped so as to cut or otherwise damage such surfaces.

E. All property damaged by the Contractor's operations shall be restored to a condition at least equal to that in which it was found immediately before work was begun. Suitable materials and methods shall be used for such restoration.

F. Restoration of existing property and structures shall be carried out as promptly as practicable and shall not be left until the end of the construction period.

7. Maintenance of Flow

A. The Contractor shall, at his own cost, provide for the flow of sewers and drains interrupted during the progress of the work and shall immediately cart away and dispose of all offensive matter. The entire procedure of maintaining existing flow shall be fully discussed with the Engineer well in advance of the interruption of any flow.

B. All existing drainage facilities including, but not limited to; brooks, streams, canals, channels, ditches, culverts, catch basins and drainage piping shall be adequately safeguarded so as not to impede drainage or to cause siltation of downstream areas in any manner whatsoever. If the Contractor damages or impairs any of the aforesaid drainage facilities, he shall repair the same within the same day.

C. At the conclusion of the work, the Contractor shall remove all silt in drainage structures caused by his operations as described in Section 01740, CLEANING UP.

8. Rejected Materials and Defective Work

A. Materials furnished by the Contractor and condemned by the Engineer as unsuitable or not in conformity with the specifications shall forthwith be removed from the work by the Contractor, and shall not be made use of elsewhere in the work.

B. Any errors, defects or omissions in the execution of the work or in the materials furnished by the Contractor, even though they may have been passed or overlooked or have appeared after the completion of the work, discovered at any time before the final payment is made hereunder, shall be forthwith rectified and made good by and at the expense of the Contractor and in a manner satisfactory to the Engineer.

C. The Contractor shall reimburse the Owner for any expense, losses or damages incurred in consequence of any defect, error, omission or act of the Contractor or his employees, as determined by the Engineer, occurring previous to the final payment.

9. Sanitary Regulations

Sanitary conveniences for the use of all persons employed on the work, properly screened from public observation, shall be provided in sufficient numbers in such manner and at such locations as may be approved. The contents shall be removed and disposed of in a satisfactory manner as the occasion requires. The Contractor shall rigorously prohibit the committing of nuisances within, on or about the work. Any employees found violating these provisions shall be discharged and not again employed on the work without the written consent of the Engineer. The sanitary conveniences specified above shall be the obligation and responsibility of the Contractor.

10. Safety and Health Regulations

This project is subject to the Safety and Health regulations of the U.S. Department of Labor set forth in 29 CFR, Part 1926, and to the Massachusetts Department of Labor and Industries, Division of Industrial Safety "Rules and Regulations for the Prevention of Accidents in Construction Operations (454 CMR 10.0 et. seq.)." Contractors shall be familiar with the requirements of these regulations.

11. Site Investigation

The Contractor acknowledges that he has satisfied himself as to the conditions existing at the site of the work, the type of equipment required to perform this work, the quality and quantity of the materials furnished insofar as this information is reasonably ascertainable from an inspection of the site, as well as from information presented by the drawings and specifications made a part of this contract. Any failure of the Contractor to acquaint himself with available information will not relieve him from the responsibility for estimating properly the difficulty or cost of successfully performing the work. The Owner assumes no responsibility for any conclusion or interpretation made by the Contractor on the basis of the information made available by the Owner.

12. Weather Protection

In conformance with Sections 44F and 44G of Chapter 149 of the General Laws of Massachusetts, the General Contractor shall install weather protection and 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 Director of Building Construction in the Executive Office for Administration and Finance.

13. Electric Service

A. The Contractor shall make all necessary applications and arrangements and pay for all fees and charges for electrical energy for power and light necessary for the proper completion of this contract during its entire progress. The Contractor shall provide and pay for all temporary wiring, switches, connections, and meters.

B. There shall be sufficient electric lighting so that all work may be done in a workmanlike manner where there is not sufficient daylight.

14. Hazardous Waste

Should the Contractor, while performing work under this contract, uncover hazardous materials, as defined in Massachusetts Hazardous Waste Regulations 310 CMR 30.00, he shall immediately notify the Engineer. The Contractor is not, and has no authority to act as, a handler, generator, operator or disposer of hazardous or toxic substances found or identified at the site, and the Owner shall undertake all such functions.

15. Sewer Service Connections

A. All sewer service connections shall be identified and located prior to each segment replacement to expedite reconnection.

B. The Contractor shall affix a written notice to the door of each home that has sewer service on the segment to be replaced 48-hours prior to disconnection of the service and again the day of disconnection.

C. Services on the segments of mainline scheduled to be pipe burst, shall be disconnected from the existing main and connected to the temporary bypass pumping system prior to bursting.

D. Flow from the existing sewer services shall be bypass pumped as specified in Section 01575 HANDLING EXISTING FLOWS and in Section 01535 TEMPORARY BYPASS PUMPING SYSTEM.

16. Twin Manholes

A. The City of Worcester has a combination of sanitary manholes, storm drain manholes, and “twin manholes”. The Contractor is advised that some manholes in this project proposed for work may be twin manholes.

B. A twin manhole is defined as a manhole that is shared by both the sanitary and storm drain systems. The manhole typically has two inverts. In a twin manhole, the majority of the sanitary inverts have been sealed with an aluminum plate and restraint. The plating system was installed to prevent storm water from entering the sanitary system. It is crucial that this system be in place to prevent surcharging of the sanitary system.

17. Pipe Location

Pipe shall be located substantially as indicated on drawings. The Owner reserves the right, acting through the Engineer, to make such modifications as may be deemed desirable to avoid interference with existing structures or for other reasons.

18. Dimensions of Existing Structures

Where the dimensions and locations of existing structures are of critical importance in the installation or connections of new work, the Contractor shall verify such dimensions and locations in the field before the fabrication of any material or equipment which is dependent on the correctness of such information.

19. Occupying Private Property

The Contractor shall not enter upon nor occupy with men, equipment or materials any property outside of the public roadways or Owner's easements, except with the written consent of the property owner or property owner's agent.

20. Existing Utility Locations - Contractor's Responsibility

A. The location of existing underground services and utilities shown on the drawings is based on available records. It is not warranted that all existing utilities and services are shown, nor that shown locations are correct. The Contractor shall be responsible for having the utility companies locate their respective utilities on the ground prior to excavating.

B. To satisfy the requirements of Massachusetts law, Chapter 82, Section 40, the Contractor shall, at least 72 hours, exclusive of Saturdays, Sundays and holidays, prior to excavation in the proximity of telephone, gas, cable television and electric utilities, notify the utilities concerned by calling "DIG SAFE" at telephone number: 1-888-344-7233 or 811.

C. The Contractor shall coordinate all work involving utilities and shall satisfy himself as to the existing conditions of the areas in which he is to perform his work. He shall conduct and arrange his work so as not to impede or interfere with the work of other contractors working in the same or adjacent areas.

21. Coordination of Work

The General Contractor shall be responsible for coordinating his own work as well as that of any subcontractors. He shall be responsible for notification of the Engineer when each phase of work is expected to begin and the approximate completion date.

22. Access Points for Cured-in-Place Pipe Inversions

A schedule listing the access point locations, area of excavation, depth of excavation, and dates of access with work hours shall be submitted to the Engineer prior to the cured-in-place pipe rehabilitation work beginning. Once the access point is not required, the Contractor shall notify the Engineer.

23. Maintenance of Trench Surface

After backfilling and compacting the trench, the Contractor shall be responsible for keeping the ground surface dry and passable at all times until the surface has been restored to original conditions.

24. Compliance with Permits

The Contractor shall perform all work in conformance with requirements of the Permits, which appear in Section 00890 - PERMITS.

25. Cutting, Fitting and Patching

A. The Contractor shall do all cutting, fitting, or patching of his work that may be required to make its several parts come together properly and fit it to receive or be received by work of other Contractors, as shown upon or reasonably implied by the drawings and the specifications for the completed structure, including all existing work.

B. The Contractor shall not endanger any work by cutting, digging, or otherwise and shall not cut or alter the work of any other Contractor, save with the consent of the Engineer.

C. All holes or openings required to be made in new or existing work, particularly at pipe, conduit, or other penetrations not covered by escutcheons or plates shall be neatly patched. All such holes shall be made completely watertight as approved by the Engineer.

D. Size and locations of holes required in steel, concrete, or other structural or finish materials for piping, wiring, ducts, etc., which have not been located and detailed on the drawings shall be approved by the Engineer prior to layout and cutting thereof. All holes shall be suitably reinforced as required by the Engineer.

E. Workmanship and materials of patching and repair work shall match the adjacent similar work and shall conform to the applicable sections of the specification. Patches and joints with existing work shall provide, as applicable in each case, visual, structural, and waterproofing continuity.

26. Contractor's Representative

Contractor shall designate a representative who will be available to respond to emergency calls by the Owner at any time day and night and on weekends and holidays should such a situation arise.

27. Construction Crews

The Contractor shall not increase the number of construction crews assigned to the work without providing one week advance notice to the Engineer.

28. Massachusetts Data Security Regulations

The Contractor is required to comply with data security regulations contained in 201 CMR 17.00 that have been established to safeguard personal information of Massachusetts residents contained in paper or electronic records. The Contractor shall not submit to the Engineer or Owner documents in paper or electronic form that contain personal information (person's name combined with one or more of the following – Social Security Number, driver's license number or state-issued identification card number, financial institution account number, or credit or debit card number). Any document submitted to the Engineer that violates this provision shall be returned to the Contractor and the Contractor shall remove personal information from the document prior to resubmitting it to the Engineer. The Contractor shall require each Subcontractor to also comply with the MA data security regulations insofar as they involve submittal of personal information to the Engineer and Owner.

29. Bidder Certification – OSHA Training

A. As of July 1, 2006, all employees who work on Massachusetts public works construction sites, on projects estimated to cost more than $10,000, must have no less than ten (10) hours of OSHA-approved safety and health training.

B. This law will apply to any bid submitted on or after July 1, 2006 and to any contract awarded on or after July 1, 2006.This law directs the Massachusetts Attorney General to restrain award of the construction contracts to any contractor who is in violation of this requirement and to restrain the performance of these contracts by non-complying contractors.

C. Noncompliance with this law will disqualify contractors from bidding on public contracts.

30. Winter Work

A. The Owner will allow the Contractor to work within the public ways on this Project during the winter months.

B. The Contractor will be required to backfill all excavations at the end of each work day, or place Jersey barriers around open excavations.

C. The Owner has agreed to provide snow removal services on all public ways affected by this Project. The Owner will not remove snow from the Contractor's work area that the public will not be using for either driving or pedestrian activity.

D. The Contractor will provide snow removal services on any public way affected by his work that has been authorized by the Owner to be closed to through traffic. Snow will be plowed in accordance with the Owner's normal plowing schedule for the closed public ways.

E. In no event will the Owner remove snow on any private way affected by the Contractor's work on this Project. The Contractor may coordinate snow removal activities with whoever provides these services for the owners of the private way(s).

31. Nighttime/Weekend Work

A. Construction activity shall be restricted to a normal 8-hour day, 5-day week between the hours of 7:00 a.m. and 5:00 p.m., Monday through Friday, except when required due to high traffic areas or vicinity to schools or other sensitive buildings. Continuous work for CIPP lining may extend beyond work hours; however, no new work shall be started after 4:00 p.m. unless authorized by the Owner and approved by the Engineer in advance.

B. No construction work shall be allowed on Saturdays, Sundays or Holidays without written authorization from the Owner and approval of the Engineer. The compensation of detail officers and the Engineer for work approved outside of the limitations aforementioned shall be the responsibility of the Contractor and shall be at no additional cost to the Owner.

MEASUREMENT AND PAYMENT

Delete all references to "Measurement and Payment" in the City of Worcester's Standard Specifications & Details Section.

Measurement and Payment shall be as specified in this section:

1.01 GENERAL:

1. All work performed as described in these contract documents will be paid for under one or more of the items listed in the BID ITEM SHEET. All other activities required in connection with performance of the work, including all work required under this Contract, whether described in the contract documents or mandated by applicable codes, permits and laws, will not be separately paid for unless specifically provided for in the BID ITEM SHEET, but will be considered incidental to performance of the overall project.

2. Each unit or lump-sum price stated in the BID ITEM SHEET shall constitute full compensation as herein specified for each item of work completed in accordance with the drawings and specifications.

3. The payment items listed herein and in the BID ITEM SHEET are intended to provide full payment for the work shown on the drawings and specified herein. Any work called for or implied in the documents but not listed as a payment item shall be considered incidental to the overall project.

4. Unless otherwise noted, each item shall be furnished and installed in accordance with the technical section whether a specific applicable payment item exists or not.

1.02 OPEN CUT POINT REPAIR:

1. The work for this item shall be measured at the contract unit price bid per linear foot of replaced pipe.

2. The unit prices under the appropriate subdivisions of this item shall constitute full compensation for constructing the sanitary sewers, complete in place, as indicated on the drawings and as specified, including removal and disposal of existing sanitary sewers, furnishing and installing pipe and fittings, detectable tracer tape, end plug, oak marker, making connections to the existing sewer, removing and resetting water mains and drains, and excavation, backfill, bedding, select material, clearing, crushed stone, grubbing, testing, restoration of the ground surface, including gravel sub-base and pavement, loaming and seeding, surface restoration, removal and replacement of sidewalks and curbing, temporary and permanent pavement replacement, pavement markings, rock excavation, and all work incidental thereto and not specifically included for payment under other items, as described in Section 02442, POINT REPAIR OF GRAVITY SANITARY, SURFACE, AND COMBINED SEWERS.

3. Replacement of wyes and tees shall include 6-inch PVC sewer service within the replaced main sewer trench, which shall be considered incidental to the work and shall not be measured separately for payment.

4. Pre-television inspection of existing sewers to verify location of the repair and quantity and location of sewer services shall be considered incidental to the work and shall not be measured separately for payment.

5. Post-television inspection of completed sewers shall be considered incidental to the work and shall not be measured separately for payment.

6. No payment shall be allowed for additional liner foot of replaced pipe, if different than indicated on the drawings, without prior approval of the Engineer.

7. The work shall be paid for at the contract unit bid price under Items 220.08 and 220.10.

1.03 STRUCTURAL CURED-IN-PLACE PIPE:

1. The work of this item shall be measured at the contract unit price bid per linear foot of structural cured-in-place pipe installed from edge of manhole to edge of manhole.

2. Measurement, including all material, labor, tools and equipment shall be based on the actual length of pipes lined as determined by the Engineer. Structural Cured-In-Place Pipe shall be installed as specified in Section 02428, CURED-IN-PLACE PIPE.

3. Locating active and inactive service connections and television inspection in conjunction with investigation shall be considered incidental to the work and shall not be measured separately for payment.

4. Repairing the pipe invert in accordance with specification Section 02428, CURED-IN-PLACE PIPE shall be considered incidental to the work and shall not be measured separately for payment.

5. For Items 700, 701, 702, 703, 704, and 705 reinstating, inspecting, testing and grouting of service connections, service connection materials, and excavations for the purpose of reinstating connections shall be considered incidental to the work and shall not be measured separately for payment.

6. For Items 707, 708, 709, 710, and 711, reinstating of service connections, service connection materials, and excavations for the purpose of reinstating connections shall be considered incidental to the work and shall not be measured separately for payment. For Items 707, 708, 709, 710, and 711, inspecting, testing and grouting of service connections shall be paid for at the contract unit price under the appropriate subdivisions of Items 729, 730, 731, 732, and 733.

7. Television inspection and cleaning (pre and post inspection) of sewer lines associated with the installation of structural cured-in-place pipe shall be considered incidental to the work and shall not be measured separately for payment.

8. Flushing/dyed water testing for active/inactive service connections in conjunction with the television inspection of sewer lines associated with the installation of structural cured-in-place pipe shall be considered incidental to the work and shall not be measured separately for payment.

9. Excavation of an access point and restoring it to its original condition after the installation of the cured-in-place liner shall be considered incidental to the work and shall not be measured separately for payment. If the access point is at a manhole, the manhole shall be replaced as specified in the Worcester Standard Specifications. Manhole replacement at an access point shall be considered incidental to the work and shall not be measured separately for payment.

10. The work shall be paid for at the contract unit bid price under Items 700, 701, 702, 703, 704, 705, 706, 707, 708, 709, 710, and 711.

11. Ten percent of the payment for the subdivisions Items 700, 701, 702, 703, 704, 705, 706, 707, 708, 709, 710, and 711 "Structural Cured-in-Place Pipe" shall be withheld until the pipeline rehabilitation's have satisfactorily completed and passed field testing/inspection(s) as specified in Section 02428, CURED-IN-PLACE PIPE.

1.04 STRUCTURAL CURED-IN-PLACE SHORT LINER

1. The work of this item shall be measured at the unit price bid per linear foot of short liner installed.

2. Measurement, including all material, labor, tools and equipment shall be based on the actual length of installed short liners in sewer lines as determined by the Engineer. Short liners shall be installed as specified in Section 02429, CURED-IN-PLACE SHORT LINER.

3. Reinstating, inspecting, testing, and grouting of service connections shall be considered incidental to the work and shall not be measured separately for payment.

4. Bypass pumping and plugging or blocking of sewer flow shall be considered incidental to the work and shall not be measured separately for payment.

5. Television inspection of sewer lines with short liners shall be considered incidental to the work and shall not be measured separately for payment.

6. The work under this section shall be paid at the contract unit price under Item 712.

7. Ten percent of the payment for the subdivisions of the item "Structural Cured-In-Place Short Liner" shall be withheld until the pipeline rehabilitation's have satisfactorily completed and passed field testing/inspection(s) as specified in Section 02429, CURED-IN-PLACE SHORT LINER.

1.05 SEWER MANHOLE REHABILITATION:

1. Cementitious and Epoxy Lining of Manholes

   A. The work of this item shall be measured at the contract unit price bid per vertical foot of manhole lined.

   B. Measurement shall be based on the actual vertical footage of manhole lined and shall constitute full compensation for supplying all material, labor, tools, and equipment required to line the manhole as specified in Section 02435, SEWER MANHOLE REHABILITATION. No additional payment shall be made for material sprayed in the manhole invert or manhole frame.

   C. Cleaning and plugging or sealing of active leaks in the manhole structure prior to lining, invert sealing, and exterior sealing shall be considered incidental to the work and will not be measured separately for payment.

   D. The work under this section shall be paid at the contract unit bid price under Items 713, 714, 731, and 742.

2. Sealing of Manhole Inverts:

   A. The work of this item shall be incidental and shall include all necessary materials, labor, tools, and equipment required to seal the manhole inverts as specified in Section 02435, SEWER MANHOLE REHABILITATION.

3. Manholes Exterior Sealing:

   A. The work of this item shall be incidental and shall include all necessary materials, labor, tools, and equipment required to seal the manhole exterior as specified in Section 02435, SEWER MANHOLE REHABILITATION.

4. Manhole Encapsulation System:

   A. The work of this item shall be measured at the contract unit bid price per manhole encapsulation system installed.

   B. Measurement shall be per manhole and shall constitute full compensation for supplying all material, labor, tools, and equipment required to install the manhole encapsulation system as specified in Section 02435, SEWER MANHOLE REHABILITATION.

C. The work under this section shall be paid at the contract unit bid price under Item 715.

5. Raise Manhole Frame and Cover:

A. The work of this item shall be measured at the contract unit price bid per manhole raised.

B. The contract unit bid price per manhole to be paid shall constitute full compensation for supplying all material, labor, tools, and equipment required to raise the manhole for access, including excavation, backfill, bedding, crushed stone, rock excavation, and restoration of ground surface to its original condition upon the completion of work and all work incidental thereto and not specifically included for payment under other items as specified in Section 02435, SEWER MANHOLE REHABILITATION.

C. The work under this section shall be paid at the contract unit bid price under Items 716.

6. Install Watertight Locking Manhole Frame and Cover:

A. The work of this item shall be measured at the contract unit bid price per watertight locking manhole frame and cover installed.

B. Measurement shall be per manhole and shall constitute full compensation for supplying all material, labor, tools, and equipment required to install the watertight frame and cover as specified in Section 02435, SEWER MANHOLE REHABILITATION.

C. The work under this section shall be paid at the contract unit bid price under Item 717.

7. Rebuild Bench and Install 8-inch Internal Drop Connection:

A. The work of this item shall be measured at the contract unit bid price per manhole.

B. The contract unit bid price per manhole, including rebuild bench and install 8-inch internal drop connection, to be paid shall constitute full compensation for supplying all material, labor, tools, and equipment required to rebuild the manhole bench and install 8-inch internal drop connection as specified in Section 02435, SEWER MANHOLE REHABILITATION.

C. The work under this section shall be paid at the contract unit price under Item 718.

8. Chemical Root Treatment of Sanitary Sewer Manholes:

   A. The work of this item shall be measured at the contract unit bid price per manhole treated.

   B. The contract unit price per manhole to be paid shall constitute full compensation for supplying all material, labor, tools, and equipment required to chemically treat the manholes for root control as specified in Section 02435, SEWER MANHOLE REHABILITATION and Section 02437, SEWER LINE AND MANHOLE CHEMICAL ROOT TREATMENT.

   C. The work under this section shall be paid at the contract unit price under Item 719.

9. Ten percent of the payment for the subdivision Items 713, 714, 715, 716, 717, and 718 shall be withheld until the manhole rehabilitations have satisfactorily completed and passed field testing/inspection(s) as specified in Section 02435, SEWER MANHOLE REHABILITATION.

1.06 SANITARY SEWER LINE CHEMICAL ROOT TREATMENT:

1. Chemical root treatment shall be measured at the contract unit bid price per linear foot of pipe treated.

2. Measurement shall be based on the actual length of treated sewer from end of pipe to end of pipe. Sewers shall be chemically treated for root control as specified in Section 02437, SEWER LINE AND MANHOLE CHEMICAL ROOT TREATMENT.

3. The work under this section shall be paid at the contract unit bid price under Items 720 and 721.

1.07 SERVICE CONNECTION REHABILITATION:

1. Cut Protruding Service Connection

   A. The work under this item shall be measured at the contract unit bid price per service.

   B. Measurement shall be based on per service cut. Services shall be cut as specified in Section 02443, SERVICE CONNECTION REHABILITATION.

   C. The work under this section shall be paid at the contract unit bid price under Items 722, 723, 724, 725, 726, 727, and 728.

2. Grout Service Connection:

A. The work of this item shall be measured per service grouted.

B. The contract unit price per service and grouted to be paid shall constitute full compensation for supplying all material, labor, tools, and equipment required to grout services as specified in Section 02428, CURED-IN-PLACE PIPE and grout services as specified in Section 02443, SERVICE CONNECTION REHABILITATION.

C. Reinstate and grout services associated with Items 700, 701, 702, 703, 704, and 705 shall be incidental and shall include all necessary materials, labor, tools, and equipment required to reinstate services as specified in Section 02428, CURED-IN-PLACE PIPE and grout services as specified in Section 02443, SERVICE CONNECTION REHABILITATION.

D. The work shall be paid for at the contract unit bid price under Items 729, 730, 731, 732, and 733.

3. Cured-In-Place Lateral Liner:

A. The work of this item shall be measured at the contract unit price bid per linear foot of structural cured-in-place lateral liner installed.

B. Measurement, including all material, labor, tools and equipment shall be based on the actual length of laterals lined as determined by the Engineer. Cured-in-place lateral liners shall be installed as specified in Section 02436, CURED-IN-PLACE LATERAL LINER.

C. Laterals shall be cleaned and inspected as specified in Section 02436, CURED-IN-PLACE LATERAL LINER prior to the installation of the cured-in-place lateral liner. Lateral cleaning and inspection shall be considered incidental to the work and shall not be measured separately for payment.

D. The work shall be paid for at the contract unit price under Item 735 and 736.

4. Ten percent of the payment for Items 729, 730, 731, 732, and 733 “Reinstate and Grout Services” and Items 735 and 736 “Cured-In-Place Lateral Liner” shall be withheld until the pipeline rehabilitations have satisfactorily completed and passed field testing/inspection(s) as specified in Section 02443, SERVICE CONNECTION REHABILITATION and Section 02436, CURED-IN-PLACE LATERAL LINER.

1.08 MOBILIZATION:

The lump sum for this item shall constitute full compensation to the Contractor for the general mobilization necessary to make the contract operational, exclusive of the cost of

materials. The total for mobilization to be paid at the lump sum price under Item 737 shall not exceed 5 percent of the total of items 220.08, 220.10, 700 through 736, excluding Item 900 (City Use).

1.09 HANDLING EXISTING FLOWS:

Handling existing sewage flows (temporary bypass pumping) in accordance with Section 01575, HANDLING EXISTING FLOWS, including providing, installing, bypass piping trenching, including excavation, backfill, bedding, select material, clearing, crushed stone, grubbing, testing, and removing all required equipment, piping, pumping, restoration of the ground surface, including gravel sub-base, temporary and permanent pavement replacement, and all work incidental thereto and not specifically included for payment under other items as required shall not be separately measured for payment, but shall be considered incidental to the project.

1.10 ENVIRONMENTAL PROTECTION:

The work of this section shall not be separately measured for payment, but shall be considered incidental to the project.

1.11 SIGNAGE:

The work of this section shall not be separately measured for payment, but shall be considered incidental to the project.

1.12 REMOVAL AND RESETTING OF EXISTING FENCES

The work of this section shall not be separately measured for payment, but shall be considered incidental to the project.

1.13 RESTORATION OF LAWNS AND CROSS-COUNTRY AREAS

The work of this section shall not be separately measured for payment, but shall be considered incidental to the project.

1.14 DOCUMENTATION:

All documentation, as described in Specification Section 01331 – DOCUMENTATION, to be provided to the Owner shall not be separately measured for payment but shall be considered incidental to the project.

1.15 WARRANTY INSPECTION:

All warranty inspections and related work shall not be separately measured for payment but shall be considered incidental to the project.

1.16 DEWATERING:

The work of this section shall not be separately measured for payment, but shall be considered incidental to the project.

1.17 SUPPORT OF EXCAVATION:

The work of this section shall not be separately measured for payment, but shall be considered incidental to the project.

1.18 ELECTRICAL:

The work of this section shall not be separately measured for payment, but shall be considered incidental to the project.

1.19 CONSTRUCTION ZONE SAFETY PLAN:

The work of this section shall not be separately measured for payment, but shall be considered incidental to the project.

1.20 CONNECTIONS TO EXISTING STRUCTURES:

Connections to existing structures shall be considered incidental to the work and shall not be measured separately for payment.

1.21 DUST CONTROL

The work of this section shall not be separately measured for payment, but shall be considered incidental to the project.

1.22 PAVEMENT REPLACEMENT

The work of this section shall not be separately measured for payment, but shall be considered incidental to the project.

1.23 PRICE ADJUSTMENTS MANDATED BY MGL CHAPTER 30, SECTION 38A

Price adjustments for certain payment items shall be as described in Specification Section 01250 PRICE ADJUSTMENTS. Payment shall be made at the unit prices included in BID ITEM SHEET or, if no such items are contained in BID ITEM SHEET, by change order.

SECTION 00331

TV INSPECTION LOGS

PART 1 - GENERAL

1.01 PURPOSE:

A. PURPOSE OF LOGS AND FIELD OBSERVATIONS:

1. The purpose of the TV Inspection and Field Observations Logs was to determine the condition of the existing sewer system and assess the extent of cleaning, repairs and/or replacement required for the system.

2. The inspections and observations provided information to prepare the design specifications included in these contract documents and to meet the requirements of the Owner.

3. Information reported from the TV Inspection and Field Observations Logs are those observed in the field at the particular location and time the observations were made, and do not necessarily represent the present conditions.

1.02 SCOPE:

A. TV INSPECTION LOGS:

1. TV Inspection of existing pipelines has been performed, with reasonable care. The results of the inspection program are appended hereto and are a part of the Contract Documents. Videos of what was encountered at the time of the inspection may be seen by appointment, upon request, during the bidding period at the office of Weston & Sampson Engineers, Inc., 427 Main Street, Suite 400, Worcester, Massachusetts. Contractors may, after obtaining Owner's permission, carry out additional pipeline inspection, at no expense to the Owner.

2. TV Inspection Logs provided in the Contract Documents are limited by the methods used for obtaining and expressing such data and is subject to various interpretations. The terms used to describe conditions encountered are subject to local usage and individual interpretation.

3. TV Inspections have been taken substantially at the locations indicated on the drawings and shown on the logs. Information presented in the inspection logs, as to the pipe condition, material build up in the pipe; etc. is based on visual observation from the videos. Information reported on the TV Inspection logs are those observed in the field at the particular location and at the time the videos were taken, and do not necessarily represent the present conditions. Condition of the pipeline, material build up in the pipe, and other factors may differ now from those originally observed.

Contractors should be aware that present conditions might affect methods of construction.

B. FIELD OBSERVATIONS:

1. Observations of unusual field conditions if observed during the TV Inspections are noted on the contract drawings.

PART 2 – PRODUCTS – NOT APPLICABLE

PART 3 - EXECUTION

3.01 EXECUTION:

A. TV Inspection Logs are for the general information of the Contractors. The Contractors are obligated, to examine the site, records of investigations and other data pertinent to the site, and then, based upon their own interpretations and investigations, decide the character and quantity of material to be encountered, the difficulties or obstacles likely to be encountered, and other conditions affecting the work. The TV Inspection Logs are accurate only at the particular locations and times the original inspections were made. No other warranty, either expressed or implied, by the Owner, Engineer or their agents is made to the accuracy of the information contained on TV Inspection Logs or other data shown on the drawings or presented in the Contract Documents.

END OF SECTION

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SECTION 00890

PERMITS

PART 1 – GENERAL

1.01 DESCRIPTION:

This Section provides specific information and defines specific requirements of the Contractor regarding the preparation and acquisition of permits required to perform the work of this project.

1.02 RELATED WORK:

A. SUPPLEMENT TO SPECIFICATIONS – SPECIAL PROVISIONS

B. Section 01550, SIGNAGE (TRAFFIC CONTROL)

C. Section 01562, DUST CONTROL

D. Section 01570, ENVIRONMENTAL PROTECTION

E. Section 02300, EARTHWORK

1.03 GENERAL REQUIREMENTS:

A. The Contractor shall obtain and pay for all other permits required.

Permits by Owner	Status
• Conservation Commission	*

Permits to be Obtained by Contractor	Status
• City of Worcester – Street Opening Permit	*
• Trench Permit (520 CMR 14.00)(effective date 3/1/09)	*
• City of Worcester – Hydrant Use Permit	*
• City of Worcester – Drain Permit	*

*Contractor shall prepare permit application and obtain the permit after contract is awarded, bearing all expenses.

PART 2 - PRODUCTS

Not Used.

PART 3 – EXECUTION

3.01 PERFORM WORK IN ACCORDANCE WITH REQUIREMENTS:

A. The Contractor shall perform the work in accordance with the Contract Documents, including the attached permits/order of conditions, and any applicable municipal requirements.

B. Prior to commencing any construction activities, the Contractor shall demonstrate to the Owner and the Engineer, through on-site inspection and submitting copies of permits or approvals, that it is in full compliance with the terms and conditions of all permits specified herein. The Contractor shall maintain full compliance with all permits throughout the performance of the work, and upon request, grant access to permitting.

END OF SECTION

SECTION 01014

SCOPE AND SEQUENCE OF WORK

PART 1- GENERAL

1.01 WORK INCLUDED:

A. This Section of the specifications covers the scope and sequence of work for the "Various Streets 2020 Sanitary, Surface, and Combined Sewer Rehabilitation Project" in Worcester, Massachusetts, including:

2 point repairs of gravity sewers; 10,089 linear feet of structural cured-in-place pipe; 10 linear feet of structural cured-in-place short liner; reinstate and grout all active service connections in lined pipe; 8,784 linear feet of sewer mainline chemical root treatment; 866 vertical feet of cementitious lining and exterior sealing of manholes; 221 vertical feet of epoxy lining and exterior sealing of manholes; install 9 manhole encapsulation systems; raise 2 manhole frames and covers; install 3 watertight frames and covers; rebuild 1 bench and install 1 8-inch internal drop connection; chemical root treatment of 17 manhole; install 2 cured-in-place lateral liner; cut 7 protruding service connections; handling of existing flows (temporary bypass pumping); and other related tasks, in the City of Worcester.

B. The Contractor shall furnish all labor, materials, equipment, and incidentals required to complete the work as shown on the drawings and as specified herein.

C. Sanitary, surface, and combined sewer system rehabilitations include:

1. Structural lining of sewer mains (manhole to manhole) to repair and seal multiple cracks and holes which are leaking or have the potential to leak (refer to Section 02428, CURED-IN-PLACE PIPE);

2. Chemical root treatment (refer to Section 02437, SEWER LINE AND MANHOLE CHEMICAL ROOT TREATMENT);

3. Rehabilitating service connections including reinstating and grouting service connections in lined pipe, installation of a lateral liner, and cutting of protruding services (refer to Section 02443 SERVICE CONNECTION REHABILITATION);

4. Rehabilitating manholes including cementitious lining and exterior sealing of manholes, epoxy lining and exterior sealing of manholes, installation of manhole encapsulation systems, raising manhole frames and covers, installing watertight locking manhole frames and covers, rebuilding a manhole bench, and installing an 8-inch internal drop connection (refer to Section 02435 SEWER MANHOLE REHABILITATION).

5. Point repairs of gravity sewers as required to repair broken or collapsing pipe

prior to lining (refer to Section 02442 POINT REPAIR OF GRAVITY SEWERS (OPEN CUT)).

6. Handling existing flows (refer to Section 01575, HANDLING EXISTING FLOWS)

1.02 RELATED WORK:

A. SUPPLEMENT TO SPECIFICATIONS – SPECIAL PROVISIONS

PART 2 – PRODUCTS – NOT APPLICABLE

PART 3 - EXECUTION

3.01 SEQUENCE OF WORK:

A. Root treatment of sewers shall be conducted first. Any other work in the root treated segments of sewer (manhole to manhole) shall not be performed until a waiting period has passed in accordance with Section 02437, SEWER LINE AND MANHOLE CHEMICAL ROOT TREATMENT.

B. Cleaning and inspecting shall be performed prior to all other pipeline rehabilitation work in each segment of sewer (manhole to manhole).

C. Cutting of protruding service connections required in a segment of sewer (manhole to manhole) shall be performed prior to all other pipeline rehabilitation required in that segment.

D. Lining (manhole to manhole) shall be completed prior to any television inspecting, pressure testing, or grouting of service connections required in that segment.

E. Manhole rehabilitation (cementitious and epoxy lining) shall be performed after all other pipeline rehabilitation required in that segment. In addition, any other manhole rehabilitation work that could interfere or limit access to other pipeline rehabilitation shall be performed after that pipeline rehabilitation is completed.

F. All work may be scheduled at the Contractor's discretion within the time of contract so long as it adheres to this scope and sequence of work and all plans and specifications. The schedule is also subject to approval by the Engineer.

END OF SECTION

SECTION 01250

PRICE ADJUSTMENTS

PART 1 - GENERAL

1.01 WORK INCLUDED:

A. Price adjustments, as required by MGL Chapter 30, Section 38A, shall be implemented for this Project. Price adjustments, as enumerated in Part 3 of this specification, shall be made for the following items:

Water and Sewer Projects

- Diesel fuel and gasoline
- Liquid asphalt
- Portland cement contained in cast-in-place concrete

B. Price adjustments shall be made in accordance with the methodology adopted by the Massachusetts Department of Transportation in the following SPECIAL PROVISIONS documents, which are attached, but modified as contained herein:

1. Document 00811 Monthly Price Adjustment for Hot Mix Asphalt Mixtures, revised July 8, 2016
2. Document 00812 Monthly Price Adjustment for Diesel fuel and Gasoline, revised January 26, 2009
3. Document 00814 Price Adjustments for Portland Cement concrete Mixes, dated January 12, 2009

C. Base and Period Prices used to calculate price adjustments shall be as published by the Massachusetts Department of Transportation as presented in Documents 00811 through 00814.

1.02 CONTRACTOR CREDIT TO OWNER SHOULD PRICES DECREASE:

A. Price adjustments will only be made if the variance between the base price and the period price is Five Percent (5%) or more.

B. In the instance where the period price is below the base price by 5% or more, then the Contractor shall credit the Owner the adjustment.

PART 2 - PRODUCTS

Not used

PART 3 - EXECUTION

3.01 DIESEL FUEL AND GASOLINE:

A. Price adjustments shall be determined based on documented quantities of diesel fuel and gasoline usage for site dedicated equipment. This methodology shall replace the price adjustment basis on fuel usage factors, as described within the Massachusetts Department of Transportation Document 00812.

B. All site dedicated equipment shall be approved by the Engineer for the calculation of any qualifying price adjustment. Prior to the start of work the Contractor shall submit to the Engineer a list of all dedicated equipment for the project. The Contractor shall forward updated submittals, as necessary, throughout the duration of the contract. Only that equipment included within the current approved list shall be considered eligible for calculating a price adjustment under this Section 01250.

C. The Contractor shall submit fuel delivery slips to the Engineer as a basis for calculating total diesel fuel and gasoline usage for site dedicated equipment. At a minimum, the delivery slips will include the name of the fuel delivery company, the date and location of fueling, the type of fuel, description of the fueled equipment and the quantity for each type of fuel delivered in gallons. Any slips not providing the minimum information shall not be included in the calculation of total diesel fuel and gasoline usage for price adjustment purposes.

3.02 LIQUID ASPHALT:

A. The "Period Price Method" shall be used to determine price adjustments. For projects utilizing reclaimed asphalt include Reclaimed Asphalt Pavement (RAP) Factor (0.0 to <1.0) in calculation of the total price adjustment. Otherwise, use RAP Factor = 1.0.

B. For bid items involving asphalt paving that are measured and paid on a linear foot basis, or some other basis besides tonnage, the number of tons shall be determined by the Engineer using compacted measure of thickness within the established payment limits.

C. Asphalt paving not separately measured for payment but rather included as an incidental component of work under a related bid item shall not be considered for price adjustment.

3.03 PORTLAND CEMENT AND CONCRETE:

A. The price adjustment applies to all projects contained herein in Section 1.01A.

B. Field Concrete used in water and sewer projects, typically used for thrust blocks and concrete encasement, shall not be considered for price adjustment. Cast-in-place concrete used on these projects will be included in the price adjustment determination.

END OF SECTION

ATTACHMENT FOR SECTION 01250 PRICE ADJUSTMENTS

MASSDOT DOCUMENTS 00811-00814

DOCUMENT 00811
SPECIAL PROVISIONS
MONTHLY PRICE ADJUSTMENT FOR HOT MIX ASPHALT (HMA) MIXTURES
ENGLISH AND METRIC UNITS
Revised: 07/08/2016

This provision applies to all projects using greater than 100 tons (91 megagrams) of hot mix asphalt (HMA) mixtures containing liquid asphalt cement as stipulated in the Notice to Contractors section of the bid documents.

Price Adjustments will be based on the variance in price, for the liquid asphalt component only, between the Base Price and the Period Price. They shall not include transportation or other charges. Price Adjustments will occur on a monthly basis.

Base Price
The Base Price of liquid asphalt on a project as listed in the Notice to Contractors section of the bid documents is a fixed price determined by the Department at the time of the bid using the same method as the determination of the Period Price detailed below. The Base Price shall be used in all bids.

Period Price
The Period Price is the price of liquid asphalt for each monthly period as determined by the Department using the average selling price per standard ton of PG64-28 paving grade (primary binder classification) asphalt, FOB manufacturer's terminal, as listed under the "East Coast Market - New England, Boston, Massachusetts area" section of the Poten & Partners, Inc. "Asphalt Weekly Monitor". This average selling price is listed in the issue having a publication date of the second Friday of the month and will be posted as the Period Price for that month. The Department will post this Period Price on its website at http://www.mhd.state.ma.us/ within two (2) business days following its receipt of the relevant issue of the "Asphalt Weekly Monitor". Poten and Partners has granted the Department the right to publish this specific asphalt price information sourced from the Asphalt Weekly Monitor. This method of period price determination was formerly called the New Asphalt Period Price Method. Separate website postings using both the New Asphalt Period Price Method and the Old Asphalt Period Price Method were discontinued after June 2013.

Price Adjustment Determination, Calculation and Payment
The Contract Price of the HMA mixture will be paid under the respective item in the Contract. Price Adjustments, as herein provided, either upwards or downwards, will be made after the work has been performed using the monthly period price for the month during which the work was performed.

Price Adjustments will be paid only if the variance from the Base Price is 5% or more for a monthly period. The complete adjustment will be paid in all cases with no deduction of the 5% from either upward or downward adjustments.

The Price Adjustment applies only to the actual virgin liquid asphalt content in the mixture placed on the job in accordance with the Standard Specifications for Highways and Bridges, Division III, Section M3.11.03.

Price Adjustments will be separate payment items. The pay item numbers are 999.401 for a positive price adjustment (a payment) and 999.402 for a negative price adjustment (a deduction). Price Adjustments will be calculated using the following equation:

Price Adjustment = Tons of HMA Placed X Liquid Asphalt Content % X RAP Factor X (Period Price - Base Price)

No Price Adjustment will be allowed beyond the Completion Date of this Contract, unless there is a Department-approved extension of time.

******** END OF DOCUMENT ********

DOCUMENT 00812

SPECIAL PROVISIONS
MONTHLY PRICE ADJUSTMENT FOR DIESEL FUEL AND GASOLINE –
ENGLISH UNITS

Revised: 01/26/2009

This monthly fuel price adjustment is inserted in this contract because the national and worldwide energy situation has made the future cost of fuel unpredictable. This adjustment will provide for either additional compensation to the Contractor or repayment to the Commonwealth, depending on an increase or decrease in the average price of diesel fuel or gasoline.

This adjustment will be based on fuel usage factors for various items of work developed by the Highway Research Board in Circular 158, dated July 1974. These factors will be multiplied by the quantities of work done in each item during each monthly period and further multiplied by the variance in price from the Base Price to the Period Price.

The Base Price of Diesel Fuel and Gasoline will be the price as indicated in the Department's web site (www.mhd.state.ma.us) for the month in which the contract was bid, which includes State Tax.

The Period Price will be the average of prices charged to the State, including State Tax for the bulk purchases made during each month.

This adjustment will be effected only if the variance from the Base Price is 5% or more for a monthly period. The complete adjustment will be paid in all cases with no deduction of the 5% from either upward or downward adjustments.

No adjustment will be paid for work done beyond the extended completion date of any contract.

Any adjustment (increase or decrease) to estimated quantities made to each item at the time of final payment will have the fuel price adjustment figured at the average period price for the entire term of the project for the difference of quantity.

The fuel price adjustment will apply only to the following items of work at the fuel factors shown:

ITEMS COVERED	**FUEL FACTORS**	
	Diesel	**Gasoline**
Excavation: and Borrow Work: Items 120, 120.1, 121, 123, 124, 125, 127, 129.3, 140, 140.1, 141, 142, 143, 144., 150, 150.1, 151 and 151.1 (Both Factors used)	0.29 Gallons / CY.	0.15 Gallons / CY
Surfacing Work: All Items containing Hot Mix Asphalt	2.90 Gallons / Ton	Does Not Apply

******** END OF DOCUMENT ********

DOCUMENT 00814

SPECIAL PROVISIONS
PRICE ADJUSTMENT FOR PORTLAND CEMENT CONCRETE MIXES

January 12, 2009

This provision applies to all projects using greater than 100 Cubic Yards (76 Cubic Meters) of Portland cement concrete containing Portland cement as stipulated in the Notice to Contractors section of the Bid Documents. This Price Adjustment will occur on a monthly basis.

The Price Adjustment will be based on the variance in price for the Portland cement component only from the Base Price to the Period Price. It shall not include transportation or other charges.

The Base Price of Portland cement on a project is a fixed price determined at the time of bid by the Department by using the same method as for the determination of the Period Price (see below) and found in the Notice to Contractors.

The Period Price of Portland cement will be determined by using the latest published price, in dollars per ton (U.S.), for Portland cement (Type I) quoted for Boston, U.S.A. in the **Construction Economics** section of *ENR Engineering News-Record* magazine or at the ENR website http://www.enr.com under **Construction Economics**. The Period Price will be posted on the MassHighway website the Wednesday immediately following the publishing of the monthly price in ENR, which is normally the first week of the month.

The Contract Price of the Portland cement concrete mix will be paid under the respective item in the Contract. The price adjustment, as herein provided, upwards or downwards, will be made after the work has been performed, using the monthly period price for the month during which the work was performed.

The price adjustment applies only to the actual Portland cement content in the mix placed on the job in accordance with the Standard Specifications for Highways and Bridges, Division III, Section M4.02.01. No adjustments will be made for any cement replacement materials such as fly ash or ground granulated blast furnace slag.

The Price Adjustment will be a separate payment item. It will be determined by multiplying the number of cubic yards of Portland cement concrete placed during each monthly period times the Portland cement content percentage times the variance in price between the Base Price and Period Price of Portland cement.

This Price Adjustment will be paid only if the variance from the Base Price is 5% or more for a monthly period. The complete adjustment will be paid in all cases with no deduction of the 5% from either upward or downward adjustments.

No Price Adjustment will be allowed beyond the Completion Date of this Contract, unless there is a Department-approved extension of time.

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END OF DOCUMENT

SECTION 01330

SUBMITTALS

PART 1 - GENERAL

1.01 WORK INCLUDED:

A. The Contractor shall provide the Engineer with submittals as required by the contract documents.

1.02 RELATED WORK:

A. Divisions 1 – 16 of these specifications that require submittals.

PART 2 - PRODUCTS

NOT USED

PART 3 - EXECUTION

3.01 GENERAL:

A. As required by the General Conditions, Contractor shall submit a schedule of shop and working drawing submittals.

B. The Contractor shall submit the shop and working drawing submittals either electronically or hard copy.

3.02 ELECTRONIC SUBMITTALS:

A. In accordance with the accepted schedule, the Contractor shall submit promptly to the Engineer by email (davida@wseinc.com) or on an external hard drive (mail to Weston & Sampson Engineers, attention: CSD), one electronic copy in Portable Document Format (PDF) of shop or working drawings required as noted in the specifications, of equipment, structural details and materials fabricated especially for this Contract.

B. Each electronic copy of the shop or working drawing shall be accompanied by the Engineer's standard shop drawing transmittal form, included as Exhibit 1 of this section (use only for electronic submittals), on which is a list of the drawings, descriptions and numbers and the names of the Owner, Project, Contractor and building, equipment or structure.

C. The Contractor shall receive a shop drawing memorandum with the Engineer's approval or comments via email.

3.03 HARD COPY SUBMITTALS:

A. In accordance with the accepted schedule, the Contractor shall submit promptly to the Engineer, by mail (to Weston & Sampson Engineers, attention: CSD), six (6) copies each of shop or working drawings required as noted in the specifications, of equipment, structural details and materials fabricated especially for this Contract.

B. Each shipment of drawings shall be accompanied by the Engineer's (if applicable) standard shop drawing transmittal form on which is a list of the drawings, descriptions and numbers and the names of the Owner, Project, Contractor and building, equipment or structure.

3.04 SHOP AND WORKING DRAWINGS:

A. Shop and working drawings shall show the principal dimensions, weight, structural and operating features, space required, clearances, type and/or brand of finish of shop coat, grease fittings, etc., depending on the subject of the drawings. When it is customary to do so, when the dimensions are of particular importance, or when so specified, the drawings shall be certified by the manufacturer or fabricator as correct for this Contract.

B. All shop and working drawings shall be submitted to the Engineer by and/or through the Contractor, who shall be responsible for obtaining shop and working drawings from his subcontractors and returning reviewed drawings to them. All shop and working drawings shall be prepared on standard size, 24-inch by 36-inch sheets, except those, which are made by changing existing standard shop or working drawings. All drawings shall be clearly marked with the names of the Owner, Project, Contractor and building, equipment or structure to which the drawing applies, and shall be suitably numbered. Each shipment of drawings shall be accompanied by the Engineer's (if applicable) standard shop drawing transmittal form on which is a list of the drawings, descriptions and numbers and the names mentioned above.

C. Only drawings that have been prepared, checked and corrected by the fabricator should be submitted to the Contractor by his subcontractors and vendors. Prior to submitting drawings to the Engineer, the Contractor shall check thoroughly all such drawings to satisfy himself that the subject matter thereof conforms to the Contract Documents in all respects. Shop drawings shall be reviewed and marked with the date, checker's name and indication of the Contractor's approval, and only then shall be submitted to the Engineer. Shop drawings unsatisfactory to the Contractor shall be returned directly to their source for correction, without submittal to the Engineer. Shop drawings submitted to the Engineer without the Contractor's approval stamp and signature will be rejected. Any deviation from the Contract Documents indicated on the shop drawings must be identified on the drawings and in a separate submittal to the Engineer, as required in this section of the specifications and General Conditions.

D. The Contractor shall be responsible for the prompt submittal and resubmittal, as necessary, of all shop and working drawings so that there will be no delay in the work due to the absence of such drawings.

E. The Engineer will review the shop and working drawings as to their general conformance with the design concept of the project and general compliance with the information given in the Contract Documents. Corrections of comments made on the drawings during the review do not relieve the Contractor from compliance with requirements of the Contract Documents. The Contractor is responsible for: confirming and correlating all quantities and dimensions; selecting fabrication processes and techniques of construction; coordinating his work with that of all other trades; and performing his work in a safe and satisfactory manner. The review of the shop drawings is general and shall not relieve the Contractor of the responsibility for details of design, dimensions, code compliance, etc., necessary for interfacing with other components, proper fitting and construction of the work required by the Contract and for achieving the specified performance. The Engineer will review submittals two times: once upon original submission and a second time if the Engineer requires a revision or corrections. The Contractor shall reimburse the Owner amounts charged to the Owner by the Engineer for performing any review of a submittal for the third time or greater.

F. With few exceptions, shop drawings will be reviewed and returned to the Contractor within 30 days of submittal.

G. No material or equipment shall be purchased or fabricated especially for this Contract nor shall the Contractor proceed with any portion of the work, the design and details of which are dependent upon the design and details of equipment or other features for which review is required, until the required shop and working drawings have been submitted and reviewed by the Engineer as to their general conformance and compliance with the project and its Contract Documents. All materials and work involved in the construction shall then be as represented by said drawings.

H. Two copies of the shop and working drawings and/or catalog cuts will be returned to the Contractor. The Contractor shall furnish additional copies of such drawings or catalog cuts when he needs more than two copies or when so requested.

3.05 SAMPLES:

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

B. The number of samples submitted shall be as specified. Submittal and processing of samples shall follow the procedures outlined for shop and working drawings unless the specifications call for a field submittal or mock-up.

C. Acceptance of samples will be acknowledged via a copy of the transmittal noting status. When samples are not acceptable, prompt resubmittal will be required.

END OF SECTION

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EXHIBIT 1 TO SECTION 01330 SUBMITTALS

SHOP DRAWING TRANSMITTAL FORM

Shop Drawing Transmittal

Weston & Sampson

Instruction for Preparing Transmittal

No action will be taken on any item unless accompanied by this form.
TRANSMITTAL NOS. to be consecutive (1, 2, 3, etc.).
Each resubmittal of same item shall use same number with suffix letter (A, B, etc.).
SPEC. SECT. NO: Only one spec. section no. to each transmittal.
DESCRIPTION: Complete identification of document or group of documents.
SOURCE: Originator of document(s) being submitted.

DRAWING NO: Identification of document(s).
CONTRACT DRAWING REFERENCE: Contract drawing number(s) showing details of document(s).
SPECIAL INSTRUCTIONS: Special cases and emergencies, changes in distribution and special handling requests, etc. should be entered here.
SIGNATURE OF CONTRACTOR: Signature of individual who reviews and approves material prior to submittal to engineer.

THIS SECTION TO BE COMPLETED BY CONTRACTOR

TRANSM. NO.	SPEC. SECT. NO.	DATE	CONTRACTORS JOB NO.	W&S JOB NO.

PROJECT NAME & CONTRACT NO.	LOCATION

TO	Attention: CSD (Davida@wseinc.com) Weston & Sampson Engineers, Inc. 55 Walkers Brook Drive, Suite 100 Reading, MA 01867	FROM	

						BY W&S	
ITEM NO.	DESCRIPTION	SOURCE	DRAWING NO. CATALOG NO. BROUCHURE, ETC	NO. OF COPIES	CONTRACT DRAWING REF.	ACTION CODE	REVIEWED BY
1							
2							
3							
4							

THIS CERTIFIES THAT ALL ITEMS SUBMITTED HEREWITH HAVE BEEN CHECKED BY THE CONTRACTOR, ARE IN CONFORMANCE WITH THE REQUIREMENTS OF THE CONTRACT DOCUMENTS, EXCEPT AS NOTED, AND ARE APPROVED BY THE CONTRACTOR FOR THIS PROJECT.

SIGNATURE & TITLE

THIS SECTION TO BE COMPLETED BY W&S

ACTION CODE:
1. FURNISH AS SUBMITTED
2. FURNISH AS NOTED
3. REVISE AND RESUBMIT
4. REJECTED- SEE REMARKS
5. ACKNOWLEDGEMENT
6. SUBMITTAL NOT REQUIRED, RETURNED WITHOUT REVIEW

a. INSTALLATION SHALL PROCEED ONLY WHEN ACTION CODE IS 1 OR 2
b. ACTION CODED 3 SHALL BE RESUBMITTED WITHIN TIME LIMIT SET IN CONTRACT
c. REVIEW DOES NOT RELIEVE CONTRACTOR FROM RESPONSIBILITY OF COMPLIANCE WITH ALL REQUIREMENTS OF THE CONTRACT DOCUMENTS

Weston & Sampson

SECTION 01331

DOCUMENTATION

PART 1 – GENERAL

1.01 WORK INCLUDED:

A. This section covers the requirements for documentation to be furnished by the Contractor on this project.

1.02 RELATED WORK:

A. Section 02428, CURED-IN-PLACE PIPE

B. Section 02429, CURED-IN-PLACE SHORT LINER

C. Section 02440, SEWER CLEANING AND INSPECTION

D. Section 02435, SEWER MANHOLE REHABILITATION

E. Section 02437, SEWER LINE AND MANHOLE CHEMICAL ROOT TREATMENT

F. Section 02443, SERVICE CONNECTION REHABILITATION

1.03 DOCUMENTATION:

A. The Contractor shall maintain printed television inspection logs of sewer segments, for each sewer line segment undergoing repair/rehabilitation under this contract and provide one (1) copy of the logs within five (5) working days of the work being performed. Log sheet format shall be approved by Engineer prior to start of work.

B. The log sheet(s) as a minimum shall clearly identify:

1. Project Name;

2. Street Location, Name, Intersection, Station;

3. Date of inspection;

4. Total Length of Line Inspected;

5. Line Size(s)/Joint Spacing/Type;

6. Line and Manhole(s) Condition;

7. Significant observations such as service connections, offset joints, drop joints, broken/cracked pipe, protruding services, roots, collapsed sections, infiltration, presence of scale and corrosion and other discernible features. Observations shall

be made in accordance with NASSCO PACP standards and scoring for each pipe segment shall be include on the log sheets.

8. Filename.

C. All logs shall be provided to the Engineer in PDF format (one log per PDF file) at the completion of the project.

D. All television inspection shall be recorded in accordance with NASCCO specifications and as follow:

- File Format: MPEG-4 (.mp4)
- Codec: AVC (H.264)
- Frame Size 16/9: 1280 x 720 or Frame Size 4/3: 960 x 720
- Frame Rate: 60 fps
- Pixel Aspect Ratio 1:1 (square pixels)
- Video Standard: NTSC
- Scan Type: Progressive

All television inspection shall include accompanying audio and shall be cross-referenced in an Access Database provided by the ENGINEER. Inspections shall be recorded one at a time, with each segment recorded as a separate file on the external hard drive. The contractor shall provide two (2) original and labeled copies of each external hard drive to the Engineer. All external hard drives shall have a typed label with the following:

[Date work was performed]
Various Streets 2020 Sanitary, Surface, and Combined Sewer Rehabilitation
Worcester, MA
Engineer: Weston & Sampson

File names for television inspection of pipes (video, report files, and photographs taken during television inspection) shall be provided as following:

wAssetID_Date_Media_Iteration

Where:

- wAssetID is identifying number for the pipe asset (this must match GIS wAsset ID, if available)
- Date is in the format "YYYYMMDD",
- Media can be "Report", "Video", or "Photo"
- Iteration starts at "1" and increases by one (1) for each subsequent video in the same pipe asset.

For example, if pipe wAsset ID SM26765 on Dallas Street were inspected on August 1, 2018, the Video file name would be:

SM26765_20180801_Video_1

And the Report file name would be:

SM26765_20180801_Report_1

In the event of a reverse setup, the next filenames would be:

SM26765_20180801_Video_2
SM26765_20180801_Report_2

Stationing shall be recorded at a minimum of every foot and at all points of interest, to allow instant access to any given footage. Manhole to manhole sewer segments shall not be split between two (2) external hard drives.

E. The Contractor shall additionally provide one (1) copy of all logs relative to work performed on sewer manholes within five (5) working days of the work being performed.

F. The Contractor shall take a digital photograph, in JPEG format, at each manhole before and after manhole rehabilitation. Digital photographs shall have a minimum resolution of ten (10) megapixels. The files shall be provided on the external hard drives as specified in 1.03.D.

File names for the inspection and/or rehabilitation of manholes (photographs, report files, and video files) shall be provided as the followings:

wAssetID_Date_Media_Iteration

Where:

- wAssetID is identifying number for the manhole asset (this must match GIS wAsset ID, if available)
- Date is in the format "YYYYMMDD",
- Media can be "Internal_Photo", or "Report"
- Iteration starts at "1" and increases by one (1) for each subsequent photo in the same manhole asset.

For example, if a photograph was taken of the pre-rehabilitation work performed on manhole wAsset ID SS26765 on Dallas Street on August 1, 2018, the photograph would be:

SS26765_20180801_ Internal_Photo_1

And the Report file name would be:

SS26765_20180801_Report_1

And the post-rehabilitation photograph would be:

SS26765_20180801_ Internal_Photo_2

In the event that the rehabilitation work was not completed until the following day, August 2, 2018, the post-rehabilitation photograph would be:

SS26765_20180802_ Internal_Photo_2

G. The Contractor shall deliver to the Owner, at no additional cost, two (2) external hard drives each including the following information at the end of the project. The external hard drives shall be USB powered and capable of USB 3.0 connectivity and will become the property of the Owner upon delivery. The Contractor shall use file folders to organize individual types of data on the external hard drives. The Contractor shall include the following data on the external hard drives prior to delivery to the Engineer.

- **Sewer Manhole Rehabilitation**
  - Pre and Post Rehabilitation Manhole Inspection Photos in JPEG format
    - Filenames shall be in accordance with 1.03F of this section.
  - Each manhole rehabilitation log as a separate PDF file
    - Filenames shall be in accordance with 1.03F of this section.

- **Sewer Line and Manhole Chemical Root Treatment**
  - Field logs as a PDF file

- **Clean and Inspect**
  - Television Inspection MPEG Files
    - Filenames shall be in accordance with 1.03D of this section
  - Each television inspection log as a separate PDF file
    - Filenames shall be in accordance with 1.03D of this section

- **Cured-in-Place Short Liner (and Cured-in-Place Structural Short Liner)**
  - Television Inspection MPEG Files
    - Filenames shall be in accordance with 1.03D of this section
  - Each television inspection log as a separate PDF file
    - Filenames shall be in accordance with 1.03D of this section

- **Cured-in-Place Pipe (and Structural Cured-in-Place Pipe) – Organized per Inversion**
  - Pre-inversion Television Inspection MPEG Files
    - Filenames shall be in accordance with 1.03D of this section
  - Each pre-inversion television inspection log as a separate PDF file
    - Filenames shall be in accordance with 1.03D of this section
  - Each liner order sheet (describing the material ordered) as a separate PDF file
  - Each service connection reinstatement sign-off sheet as a separate PDF file
  - Each thermo couple log kept during inversion process as a separate PDF file
  - Post-inversion Television Inspection MPEG Files
    - Filenames shall be in accordance with 1.03D of this section
  - Each post-inversion television inspection log as a separate PDF file

        - Filenames shall be in accordance with 1.03D of this section
    - Each material testing results report as a separate PDF file

- **Point Repair of Gravity Sewer (Open Cut)**
    - Television Inspection MPEG Files
        - Filenames shall be in accordance with 1.03D of this section
    - Each television inspection log as a separate PDF file
        - Filenames shall be in accordance with 1.03D of this section

- **Cutting of Protruding Service Connections**
    - Television Inspection MPEG Files
        - Filenames shall be in accordance with 1.03D of this section
    - Each television inspection log as a separate PDF file
        - Filenames shall be in accordance with 1.03D of this section

PART 2 – PRODUCTS

Not Used.

PART 3 – EXECUTION

Not Used.

END OF SECTION

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SECTION 01380

HEALTH AND SAFETY PLAN

PART 1 - GENERAL

1.01 WORK INCLUDED:

A. Prior to the start of work on the site, Contractor shall prepare and submit a site-specific health and safety plan that includes consideration of all known and potential hazards at the site. Work may not proceed at the project site until the Contractor's health and safety plan has been received and reviewed by the Engineer.

1.02 REFERENCES:

A. OSHA 29 CFR 1910.120

PART 2 – PRODUCTS

2.01 HEALTH AND SAFETY PLAN:

A. The health and safety plan shall include, but not necessarily be limited to the following:

1. Identification of Contractor's Site Safety Officer.

2. Identification of Hazards and Risks Associated with Project.

3. Contractor's Standard Operating Procedures, Including Personnel Training and Field Orientation.

4. Respiratory Protection Training Requirements.

5. Levels of Protection and Selection of Equipment Procedures.

6. Type of Medical Surveillance Program.

7. Personal Hygiene Requirements and Guidelines.

8. Zone Delineation of the Project Site.

9. Site Security and Entry Control Procedures.

10. Field Monitoring of Site Contaminants.

11. Contingency and Emergency Procedures.

12. Listing of Emergency Contacts.

PART 3 - EXECUTION

3.01 PERSONAL PROTECTIVE EQUIPMENT:

A. The personal protective equipment required to provide the appropriate level of dermal and respiratory protection shall be determined based on the results of continuous air monitoring performed by the Contractor and the standards set forth in the Contractor's health and safety plan. The Engineer may conduct duplicate air monitoring for quality control purposes. Modified Level D protection shall be the minimum requirement for all on-site personnel.

END OF SECTION

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SECTION 01535

TEMPORARY BYPASS PUMPING SYSTEM

PART 1 - GENERAL

1.01 WORK INCLUDED:

A. This Section includes furnishing of all materials, labor, equipment, power, and maintenance, to implement a temporary pumping system for the purpose of diverting existing sanitary, surface, and combined flows around the work area for the duration of the project.

B. The design, installation and operation of the temporary pumping system shall be the Contractor's responsibility. The Contractor shall employ the services of a vendor firm who can demonstrate to the Engineer that it has the required expertise in the design and operation of temporary bypass pumping systems. The vendor firm shall provide at least five references of projects similar in size and complexity to this project that have been performed by the firm within the past three years.

C. The by-pass system shall meet the requirements of all codes and regulatory agencies having jurisdiction.

1.02 SUBMITTALS: IN ACCORDANCE WITH REQUIREMENTS OF GENERAL SPECIFICATIONS, SUBMIT THE FOLLOWING:

A. The Contractor shall submit a detailed description of the proposed pumping system stamped by a Professional Engineer in the State of Massachusetts and submit it and the vendor's references.

B. The Contractor shall submit to the Engineer detailed plans and descriptions outlining all provisions and precautions to be taken by the Contractor regarding the handling of existing sanitary, surface, and combined flows. This plan must be specific and complete, including such items as schedules, locations, elevations, capacities of equipment, materials 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. No construction shall begin until all provisions and requirements have been reviewed by the Engineer.

C. The plan shall include but not be limited to the following:

1. Staging areas for pumps;

2. Flow diversion method and types of materials;

3. Number, size, material, location and method of installation of suction piping;

4. Number, size, material, method of installation and location of discharge piping;

5. Bypass pump sizes, capacity, number of each size to be on site and the related power requirements;

6. Calculations of static lift, friction losses, and flow velocity (pump curves showing pump operating range shall be submitted);

7. Standby power generator size, location;

8. Downstream discharge plan;

9. Method of protecting suction and discharge areas from erosion and damage;

10. Thrust and restraint block sizes and locations;

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, with external dB valve.

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;

17. Plan indicating proposed location of bypass pumping lines.

1.03 RELATED WORK:

A. Section 01014, SCOPE AND SEQUENCE OF WORK

PART 2 - MATERIALS

2.01 EQUIPMENT:

A. All pumps used shall be centrifugal, end suction, fully automatic self-priming units that do not require the use of foot-valves, diaphragm pumps, isolation valves or vacuum pumps in the priming system. The pumps may be electric or diesel powered. All pumps used must be constructed to allow dry running for long periods to accommodate the cyclical nature of bypass flows. The pumps shall not be hydraulic submersible type.

B. All pumps shall be Godwin Dri-prime Automatic Self-priming Pumps (CD, DPC, or HL Series) as manufactured by Xylem, (860) 889-2343, (207) 233-8322, or approved equal.

C. The Contractor shall provide the necessary stop/start controls for each pump.

D. The Contractor shall include one stand-by pump system (including suction and discharge piping) of each size to be maintained on site.

E. Additional back-up pumps shall be on-line, isolated from the primary system by a valve.

F. Discharge Piping - in order to prevent the accidental spillage of flows, all temporary discharge systems shall be constructed of rigid pipe with positive, restrained joints. Under no circumstances will aluminum "Irrigation" type piping or glued PVC pipe be allowed. Discharge hoses will only be allowed in short sections and with the specific permission of the Engineer.

G. Allowable piping materials will be Godwin "QD" steel pipe (Xylem), or fused, high-density polyethylene pipe as manufactured by Xylem, or approved equal.

2.02 SYSTEM DESCRIPTION:

A. DESIGN REQUIREMENTS:

1. Bypass pumping systems shall have sufficient capacity to handle peak flow. The Contractor shall provide all pipeline, plugs, pumps of adequate size to handle peak flow, and discharge piping to ensure that the total flow can be safely diverted around the area of work. Bypass pumping system will be required to operate 24 hours per day.

2. The Contractor shall have adequate standby power and pumping equipment available and ready for immediate operation and use in the event of an emergency or breakdown. 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.

3. 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.

B. PERFORMANCE REQUIREMENTS:

1. It is essential for the protection of the public safety and private property that there be no interruption in the flow throughout the duration of the project. To this end, the Contractor shall provide, maintain and operate all temporary facilities such as dams, plugs, pumping equipment (both primary and back-up units as required), conduits, all necessary power, and all other labor and equipment necessary to

intercept the flow before it reaches the point where it would interfere with his work, carry it past his work and return it to the existing pipe segments downstream of his work.

2. The design, installation and operation of the temporary pumping system shall be the Contractor's responsibility. The bypass system shall meet the requirements of all codes and regulatory agencies having jurisdiction.

3. The Contractor shall provide all necessary means to safely convey the flow past the work area. The Contractor will not be permitted to stop or impede the flows under any circumstances.

4. The Contractor shall maintain flow around the work area in a manner that will not cause surcharging or significant level variations in the existing pipe network and that will protect public and private property from damage and flooding.

5. The Contractor shall protect water resources, wetlands and other natural resources.

6. The Contractor shall be responsible to meet noise requirements (73dbA @ 30'). All diesel driven primary and standby pumps shall be sound attenuated. The use of Critical Silenced Canopy Pumps or acoustical Whisper Pac enclosures for sound attenuation is required.

7. The contractor must have a standby pump ready for operation on-site in the event the lead pump fails.

PART 3 - EXECUTION

3.01 FIELD QUALITY CONTROL AND MAINTENANCE.

A. The Contractor shall perform leakage and pressure tests of the bypass pumping discharge piping using clean water prior to actual operation. The Engineer shall be given 24 hours' notice prior to testing.

B. Contractor shall inspect bypass pumping system every two hours to ensure that the system is working correctly.

C. 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.

D. Spare parts for pumps and piping shall be kept on site as required.

E. Adequate hoisting equipment for each pump and accessories shall be maintained on the site.

3.02 PRECAUTIONS:

A. Contractor is responsible for locating any existing utilities in the area the Contractor selects to locate the bypass pipelines. The Contractor shall locate his bypass pipelines to minimize any disturbance to existing utilities and shall obtain approval of the pipeline locations from the Owner and the Engineer. All costs associated with relocating utilities and obtaining all approvals shall be paid by the Contractor.

B. During all bypass pumping operation, the Contractor shall protect the work area and all local utilities from damage inflicted by any equipment. The Contractor shall be responsible for all physical damage to public and private property caused by human or mechanical failure.

3.03 INSTALLATION AND REMOVAL:

A. The Contractor shall construct temporary bypass pumping structures only at the access locations indicated on the drawings and may be required to provide adequate suction conduit.

B. Diverting or blocking of flows shall incorporate primary and secondary devices. When diversion or blocking is no longer needed for performance and acceptance or work, it is to be removed in a manner that permits the flow to slowly return to normal without surge, to prevent surcharging or causing other major disturbances downstream.

C. The Contractor shall exercise caution and comply with OSHA requirements when working in the presence of gases, combustible or oxygen-deficient atmospheres, and confined spaces.

D. Except as specifically permitted, the installation of the bypass pipelines is prohibited in all salt marsh/wetland areas. 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. 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 property to pre-construction condition and restore all pavement. The Contractor is responsible for obtaining any approvals from the Owner for placement of the temporary pipeline within public ways.

END OF SECTION

SECTION 01550

SIGNAGE (TRAFFIC CONTROL)

PART 1 - GENERAL

1.01 WORK INCLUDED:

This Section covers furnishing and installing traffic control signs and other devices.

1.02 SYSTEM DESCRIPTION:

The Contractor shall furnish and install all construction signs deemed necessary by and in accordance with the latest edition of Part VI of the Manual on Uniform Traffic Control Devices (MUTCD) as published by the U.S. Department of Transportation.

PART 2 - PRODUCTS

2.01 TRAFFIC WARNING AND REGULATING DEVICES:

Contractor shall provide warning signs, barricades and other devices in accordance with the specifications provided in the MUTCD. Size of signs, lettering, colors, method of support and other factors prescribed in the MUTCD shall be adhered to.

PART 3 - EXECUTION

3.01 INSTALLATION:

A. Contractor shall erect barricades, barrier fences, traffic signs, and other traffic control devices as required by the MUTCD, or as required by the Engineer, to protect the work area from traffic, pedestrians, and animals.

B. Contractor shall relocate barricades, signs and other devices as necessary as the work progresses.

C. Unless extended protection is required for specific areas, when the work has been completed, all temporary warning and regulatory devices used by the Contractor shall be removed so that traffic can move unimpeded through the area.

END OF SECTION

SECTION 01552

CONSTRUCTION ZONE SAFETY PLAN

PART 1 - GENERAL

1.01 WORK INCLUDED:

A. This Section covers the provisions for complying with Commonwealth of Massachusetts requirements for construction zone safety plans on public works projects.

1.02 DESCRIPTION:

A. The Contractor shall implement traffic safety and control measures through the construction zone through road closures and detours and mitigate impacts on traffic outside of the construction zone in accordance with these contract documents.

1.03 RELATED WORK:

A. SECTION 01550, SIGNAGE (TRAFFIC CONTROL)

B. SECTION 01553, UNIFORMED OFFICERS FOR TEMPORARY TRAFFIC CONTROL

1.04 REFERENCES:

701 CMR 7.00 Use of Road Flaggers and Police Details on Public Works Projects

Massachusetts Department of Transportation Standard Specifications for Highways and Bridges – latest edition

PART 2 - PRODUCTS

2.01 Traffic control devices utilized by the Contractor shall meet the requirements of these contract documents and the latest Massachusetts Department of Transportation (MassDOT) Standard Specifications and Manual On Uniform Traffic Control Devices (MUTCD).

PART 3 - EXECUTION

3.01 OPERATION:

A. Contractor shall be responsible for providing all temporary traffic control devices including barricades, barrier fences, signs, drums, cones, impact attenuators and other traffic control devices in accordance with typical traffic management plans and details shown on the drawings or as required by the Engineer.

B. The Contractor shall prepare temporary traffic management plans and details that deviates significantly from the typical plans shown on the drawings and submit to the Engineer for review and approval prior to start of the work.

C. Contractor shall relocate barricades, signs and other devices as necessary as the work progresses as required by the Owner's Traffic Control Officer or the Engineer.

D. If police details fail to show up for work at the construction zone at the usual time for start of work, or otherwise leave the jobsite before work is completed for the day, the provisions of the Alternative Plan will be followed by the Contractor.

3.02 ALTERNATIVE PLAN:

A. In accordance with 701 CMR 7.06(6), whenever required police details/road flaggers do not arrive on time or fail to show up for work, the Alternative Plan will be implemented by the Contractor.

B. The Alternative Plan for this project is as follows:

1. Redeploy crew to work in areas not requiring temporary traffic control (if available).

END OF SECTION

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SECTION 01553

UNIFORMED OFFICERS FOR TEMPORARY TRAFFIC CONTROL

PART 1 - GENERAL

1.01 WORK INCLUDED:

A. This Section covers the provisions for furnishing Uniformed Officers for Traffic Control and Maintenance of Traffic as described in SUPPLEMENT TO SPECIFICATIONS – SPECIAL PROVISIONS.

1.02 DESCRIPTION:

A. The Contractor shall coordinate with the local jurisdiction's Traffic Control Officer to determine the number of Officers deemed necessary to provide for public safety and to maintain a smooth flow of traffic through the construction area(s) affected.

1.03 RELATED WORK:

A. SUPPLEMENT TO SPECIFICATIONS – SPECIAL PROVISIONS

B. SECTION 01550, SIGNAGE (TRAFFIC CONTROL)

C. SECTION 01552, CONSTRUCTION ZONE SAFETY PLAN

PART 2 - PRODUCTS

2.01 UNIFORMED OFFICERS:

A. Contractor shall provide the Engineer with a minimum of 24 hours' notice indicating the time of day, street location and confirm number of officers required for traffic control.

B. Contractor shall give the Engineer a minimum of 3 hours prior cancellation notice should Contractor determine that due to weather or conditions beyond his control he would not need the scheduled officers.

C. Contractor shall pay for officer(s) at the prevailing rate established by the local police department should officers not be needed and the Contractor fails to cancel the officers as noted in 2.01.B above.

D. Where the Owner is paying directly for Traffic Officers and the Contractor cancels scheduled officers, the Contractor shall be responsible for payment of the wages for cancellations if not cancelled in accordance with 2.01.B and 2.01.C above.

PART 3 - EXECUTION

3.01 OPERATION:

A. Contractor shall provide barricades, barrier fences, traffic signs, and other traffic control devices as required by the Owners Traffic Control Officer, or as required by the Engineer, to protect the work area from traffic, pedestrians, and animals.

B. Contractor shall relocate barricades, signs and other devices as necessary as the work progresses as required by the Owners Traffic Control Officer or the Engineer.

END OF SECTION

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SECTION 01562

DUST CONTROL

PART 1 - GENERAL

1.01 DESCRIPTION:

This section of the specification covers the control of dust via calcium chloride and water, complete.

PART 2 - PRODUCTS

2.01 CALCIUM CHLORIDE:

A. Calcium chloride shall conform to the requirements of AASHTO-M 144, Type I or Type II and Specification for Calcium Chloride, ASTM D98. The calcium chloride shall be packaged in moisture proof bags or in airtight drums with the manufacturer, name of product, net weight, and percentage of calcium chloride guaranteed by the manufacturer legibly marked on each container.

B. Calcium chloride failing to meet the requirements of the aforementioned specifications or that which has become caked or sticky in shipment, may be rejected by the Engineer.

2.02 WATER:

A. Water shall not be brackish and shall be free from oil, acid, and injurious alkali or vegetable matter.

PART 3 - EXECUTION

3.01 APPLICATION:

A. Calcium chloride shall be applied when ordered by the Engineer and only in areas which will not be adversely affected by the application. See Section 01570, ENVIRONMENTAL PROTECTION.

B. Calcium chloride shall be uniformly applied at the rate of 1-1/2 pounds per square yard or at any other rate as required by the Engineer. Application shall be by means of a mechanical spreader, or other approved methods. The number and frequency of applications shall be determined by the Engineer.

C. Water may be sprinkler applied with equipment including a tank with gauge-equipped pressure pump and a nozzle-equipped spray bar.

D. Water shall be dispersed through the nozzle under a minimum pressure of 20 pounds per square inch, gauge pressure.

END OF SECTION

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SECTION 01564

EXISTING FENCES

PART 1 - GENERAL

1.01 DESCRIPTION:

A. This section of the specification covers the removal and resetting of existing fences.

B. Where the removal of existing fences, at locations shown on the plans and where required by the Engineer, is required, the Contractor shall remove and reset such fences as required by the Engineer.

PART 2 - PRODUCTS

2.01 FENCING:

A. The materials removed shall be utilized to reset the fence. Where necessary, new posts and bases shall be furnished and installed by the Contractor. Any materials damaged or lost during or subsequent to removal shall be replaced by the Contractor without additional compensation.

B. All new materials required shall be equal in quality and design to the materials in the present fences.

PART 3 - EXECUTION

3.01 REMOVAL OF EXISTING FENCES:

A. The present fences shall be carefully removed together with all appurtenances and satisfactorily stored and protected until required for resetting.

3.02 ERECTION:

A. Fences shall be reset plumb and to the grades required and shall conform to the original fence or as the Engineer requires. Backfilling around the posts shall consist of suitable material satisfactorily compacted. If the fence posts were originally set in concrete bases they shall be reset in concrete bases.

3.03 PAINTING:

A. Painting, if required, shall be done as required by the Engineer.

END OF SECTION

SECTION 01570

ENVIRONMENTAL PROTECTION

PART 1 – GENERAL

1.01 DESCRIPTION:

A. The work covered by this section of the specifications consists of furnishing all labor, materials, tools and equipment and performing all work required for the prevention of environmental pollution during and as a result of construction operations under this contract.

B. The requirements set forth in this section of the specifications apply to cross-country areas, river and stream crossings, and construction in and adjacent to wetlands, unless otherwise specifically stated.

C. All work under this Contract shall be in accordance with the Conservation Commissions' Orders of Conditions as well as any conditional requirements applied, all of which are attached to Section 00890, PERMITS.

D. Prior to commencement of work, the Contractor shall meet with representatives of the Engineer to develop mutual understandings relative to compliance of the environmental protection program.

1.02 RELATED WORK:

A. Section 00890, PERMITS

B. Section 01330, SUBMITTALS

C. Section 01562, DUST CONTROL

D. Section 02230, CLEARING AND GRUBBING

E. Section 02240, DEWATERING

F. Section 02252, SUPPORT OF EXCAVATION

G. Section 02300, EARTHWORK

H. Section 02921, SURFACE RESTORATION OF CROSS-COUNTRY AREAS

1.03 SUBMITTALS:

A. The Contractor shall submit details and literature fully describing environmental protection methods to be employed in carrying out construction activities within 100 feet of wetlands or across areas designated as wetlands.

PART 2 - PRODUCTS

2.01 SILT FENCE:

A. The silt fence shall consist of a 3-foot wide continuous length sediment control fabric, stitched to a mesh backing, and stapled to pre-weathered oak posts installed as shown on the drawings. The oak posts shall be 1-1/4-inches by 1-1/4-inches (Minimum Dimension) by 48-inches and shall be tapered. The bottom edge of the silt fence shall be buried as shown on the drawings.

B. The silt fence shall be DOT Silt Fence PPDM3611, as manufactured by U.S. Silt & Site Supply/Getsco, Concord, NH, or approved equal.

C. Silt fence properties:

Physical Properties	**Test Method**	**Minimum Value**
Grab Strength, lbs.	ASTM-D-4632	124
Grab Elongation, %	ASTM-D-4632	15
Mullen burst, psi	ASTM-D-3786	300
Puncture, lbs.	ASTM-D-4833	65
Trapezoidal Tear, lbs.	ASTM-D-4533	65
UV Resistance2, %3	ASTM-D-4355	80@500 hrs.
AOS, US Sieve No.	ASTM-D-4751	30
Flow Rate, gal/min/sq. ft.	ASTM-D-4491	10
Permittivity, (1/sec) gal/min/sq. ft.	ASTM-D-4491	0.05 sec^{-1}

2.02 STRAW BALES:

A. Straw bales shall consist of certified seed free stems of agricultural grain and cereal crops and shall be free of grasses and legumes. Standard bales shall be 14-inches high, 18-inches wide and 36- to 40-inches long tied with polypropylene twine and weigh within 5 percent of 7 lbs. per cubic ft.

2.03 STRAW WATTLES:

A. Straw Wattles shall consist of a 100% biodegradable exterior jute or coir netting with 100% wheat straw interior filling as manufactured by GEI Works, Sebastian, Florida (Phone: 772-646-0597; website: www.erosionpollution.com), or approved equal.

2.04 CATCH BASIN PROTECTION:

A. To trap sediment and to prevent sediment from clogging drainage systems, catch basin protection in the form of a siltation sack (Siltsack as manufactured by ACF Environmental, Inc. or approved equal) shall be provided as approved by the Engineer.

PART 3- EXECUTION

3.01 NOTIFICATION AND STOPPAGE OF WORK:

A. The Engineer will notify the Contractor in writing of any non-compliance with the provisions of the Order of Conditions. The Contractor shall, after receipt of such notice, immediately take corrective action. Such notice, when delivered to the Contractor or his authorized representative at the site of the work, shall be deemed sufficient for the purpose. If the Contractor fails to act promptly, the Owner may order stoppage of all or part of the work through the Engineer until satisfactory corrective action has been taken. No claim for an extension of time or for excess costs or damage incurred by the Contractor as a result of time lost due to any stop work orders shall be made unless it was later determined that the Contractor was in compliance.

3.02 AREA OF CONSTRUCTION ACTIVITY:

A. Insofar as possible, the Contractor shall confine his construction activities to those areas defined by the plans and specifications. All land resources within the project boundaries and outside the limits of permanent work performed under this contract shall be preserved in their present condition or be restored to a condition after completion of construction at least equal to that which existed prior to work under this contract.

3.03 PROTECTION OF WATER RESOURCES:

A. The Contractor shall not pollute streams, lakes or reservoirs with fuels, oils, bitumens, calcium chloride, acids or other harmful materials. It is the Contractor's responsibility to comply with all applicable Federal, State, County and Municipal laws regarding pollution of rivers and streams.

B. Special measures should be taken to insure against spillage of any pollutants into public waters.

3.04 CONSTRUCTION IN AREAS DESIGNATED AS WETLANDS ON THE DRAWINGS:

A. Insofar as possible, the Contractor shall make every effort to minimize disturbance within areas designated as wetlands or within 100-feet of wetland resource areas. Total easement widths shall be limited to the widths shown.

B. The Contractor shall perform his work in such a way that these areas are left in the condition existing prior to construction.

C. The elevations of areas designated as wetlands shall not be unduly disturbed by the Contractor's operations outside of the trench limits. If such disturbance does occur, the Contractor shall take all measures necessary to return these areas to the elevations which existed prior to construction.

D. In areas designated as wetlands, the Contractor shall carefully remove and stockpile the top 24 inches of soil. This topsoil material shall be used as backfill for the trench excavation top layer. The elevation of the trench shall be restored to the preconstruction elevations wherever disturbed by the Contractor's operation.

E. The Contractor shall use a trench box, sheeting or bracing to support the excavation in areas designated as wetlands.

F. Excavated materials shall not be permanently placed or temporarily stored in areas designated as wetlands. Temporary storage areas for excavated material shall be as required by the Engineer.

G. The use of a temporary/permanent gravel roadway to access pipes and structures in the wetlands area is not acceptable. The Contractor will be required to utilize timber or rubber matting to support his equipment in these areas. The timber or rubber matting shall be constructed in such a way that it is capable of supporting all equipment necessary to install the pipeline. The timber or rubber matting shall be constructed of materials and placed in such a way that when removed the material below the matting will not be unduly disturbed, mixed or compacted so as to adversely affect recovery of the existing plant life.

H. Bentonite dams shall be placed in wetlands to prevent drainage. Locations for dams are as indicated on the drawings or as required by the Engineer.

I. During construction, easements within wetlands shall be lined with a continuous straw/bale/siltation fence barrier or line of straw wattles (aka compost filter tube, silt/filter sock).

3.05 PROTECTING AND MINIMIZING EXPOSED AREAS:

A. The Contractor shall limit the area of land which is exposed and free from vegetation during construction. In areas where the period of exposure will be greater than two (2) months, temporary vegetation, mulching or other protective measures shall be provided as specified.

B. The Contractor shall take account of the conditions of the soil where temporary cover crop will be used to ensure that materials used for temporary vegetation are adaptive to the sediment control. Materials to be used for temporary vegetation shall be approved by the Engineer.

3.06 LOCATION OF STORAGE AREAS:

A. The location of the Contractor's storage areas for equipment and/or materials shall be upon cleared portions of the job site or areas to be cleared as a part of this project and shall require written approval of the Engineer. Plans showing storage facilities for equipment and materials shall be submitted for approval of the Engineer.

B. No excavated materials or materials used in backfill operations shall be deposited within a minimum distance of one hundred (100) feet of any watercourse or any drainage facility. Adequate measures for erosion and sediment control such as the placement of baled straw around the downstream perimeter of stockpiles shall be employed to protect any downstream areas from siltation.

C. There shall be no storage of equipment or materials in areas designated as wetlands.

D. The Engineer may designate a particular area or areas where the Contractor may store materials used in his operations.

E. Storage areas in cross-country locations shall be restored to pre-construction conditions with the planting of native species of trees and shrubs.

3.07 PROTECTION OF LANDSCAPE:

A. The Contractor shall not deface, injure, or destroy trees or shrubs nor remove or cut them without written authority from the Owner. No ropes, cables, or guys shall be fastened to or attached to any existing nearby trees for anchorages unless specifically authorized by the Engineer. Excavating machinery and cranes shall be of suitable type and be operated with care to prevent injury to trees which are not to be removed, particularly overhanging branches and limbs. The Contractor shall, in any event, be responsible for any damage resulting from such use.

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. When there is unavoidable injury to branches, limbs and trunks of trees, the injured portions shall be neatly trimmed and covered with an application of grafting wax or tree healing paint as directed.

C. Where, in the opinion of the Engineer, trees may possibly be defaced, bruised, injured, or otherwise damaged by the Contractor's equipment or by his blasting or other operations, the Engineer may require the Contractor to adequately protect such trees by placing boards, planks, poles or fencing around them. Any trees or landscape feature scarred or damaged by the Contractor's equipment or operations shall be restored as nearly as possible to its original condition at the expense of the Contractor. The Engineer will decide what method of restoration shall be used, and whether damaged trees shall be treated and healed or removed and disposed of under the provisions of Section 02230, CLEARING AND GRUBBING.

D. Cultivated hedges, shrubs, and plants which could be injured by the Contractor's operations shall be protected by suitable means or shall be dug up, balled and temporarily replanted and maintained. After construction operations have been substantially completed, they shall be replanted in their original positions and cared for until growth is re-established. If cultivated hedges, shrubs, and plants are injured to such a degree as to affect their growth or diminish their beauty or usefulness, they shall be replaced by items of a kind and quality at least equal to that existing at the start of the work.

3.08 CLEARING AND GRUBBING:

A. The Contractor shall clear and grub only on the Owner's land or the Owner's easements, and only the area required for construction operations, as approved by the Engineer. Removal of mature trees (4 inches or greater DBH) will not be allowed on temporary easements.

B. The Contractor shall not remove trees in the Owner's temporary easements without permission of the Engineer.

3.09 DISCHARGE OF DEWATERING OPERATIONS:

A. Any water that is pumped and discharged from the trench and/or excavation as part of the Contractor's water handling shall be filtered by an approved method prior to its discharge into a receiving water or drainage system.

B. Under no circumstances shall the Contractor discharge water to the areas designated as wetlands. When constructing in a wetlands area, the Contractor shall discharge water from dewatering operations directly to the nearest drainage system, stream, or waterway after filtering by an approved method.

C. The pumped water shall be filtered through filter fabric and baled straw, a vegetative filter strip or a vegetated channel to trap sediment occurring as a result of the construction operations. The vegetated channel shall be constructed such that the discharge flow rate shall not exceed a velocity of more than 1 foot per second. Accumulated sediment shall be cleared from the channel periodically.

3.10 DUST CONTROL:

A. During the progress of the work, the Contractor shall conduct his operations and maintain the area of his activities, including sweeping and sprinkling of streets as necessary, to minimize creation and dispersion of dust. If the Engineer decides it is necessary to use calcium chloride for more effective dust control, the Contractor shall furnish and spread the material, as directed. Calcium chloride shall be as specified under Section 01562, DUST CONTROL.

B. Calcium Chloride shall not be used for dust control within a drainage basin or in the vicinity of any source of potable water.

3.11 SEPARATION AND REPLACEMENT OF TOPSOIL:

A. Topsoil shall be carefully removed from cross-country areas where excavations are to be made, and separately stored to be used again as required. The topsoil shall be stored in an area acceptable to the Engineer and adequate measures shall be employed to prevent erosion of said material.

3.12 BALED STRAW:

A. To trap sediment and to prevent sediment from clogging drainage systems, straw shall be used where shown on the drawings. Care shall be taken to keep the bales from breaking apart. The bales should be securely staked to prevent overturning, flotation, or displacement. All deposited sediment shall be removed periodically.

3.13 ERECTION AND MAINTENANCE OF SILT FENCE:

A. Where indicated on the drawings or where required by the Engineer, the Contractor shall erect and maintain a temporary silt fence. In areas designated as wetlands, the Contractor shall line the limits of the construction easement with a silt fence. The silt fence shall be used specifically to contain sediment from runoff water and to minimize environmental damage caused by construction.

3.14 SURFACE RESTORATION OF CROSS-COUNTRY AREAS:

A. Plantings detailed in Section 02921 shall be conducted when construction of the pipeline has been completed within the areas designated. A one-year guarantee of maintenance will be required on these plantings to ensure that they establish in the area.

3.15 CATCH BASIN PROTECTION:

A. Catch basin protection shall be used for every catch basin, shown on the plans or as required by the Engineer, to trap sediment and prevent it from clogging drainage systems and entering wetlands. Siltation sacks shall be securely installed under the catch basin grate. Care shall be taken to keep the siltation sacks from breaking apart or clogging. All deposited sediment shall be removed periodically and at times prior to predicted precipitation to allow free drainage flow. Prior to working in areas where catch basins are to be protected, each catch basin sump shall be cleaned of all debris and protected. The Contractor shall properly dispose of all debris at no additional cost to the Owner.

B. All catch basin protection shall be removed by the Contractor after construction is complete.

3.16 STRAW WATTLES:

A. The wattles will be placed in a shallow trench (2-3 inches deep) and staked in the ground using wooden stakes driven at 4-foot intervals. The wooden stakes will be placed at a minimum depth of 24-inches into the ground.

B. The wattles shall be regularly inspected and before and after every forecasted major weather event. All deposited sediment shall be removed and not allowed to accumulate to the top of the wattles. Wattles damaged during construction shall be repaired or replaced as required by the Engineer at no additional cost to the Owner.

C. The Contractor shall remove all wattles after construction is completed.

END OF SECTION

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SECTION 01575

HANDLING EXISTING FLOWS

PART 1 - GENERAL

1.01 WORK INCLUDED:

This Section covers all materials, equipment, and labor required to handle existing sanitary, surface, and combined sewage flows and installation and maintenance of all temporary connections, plugs, and by-pass pumping. Upon completion of the project, all temporary plugs and connections shall be removed and flows returned to the new or existing pipes.

1.02 RELATED WORK:

Section 01330, SUBMITTALS

Section 01535, TEMPORARY BYPASS PUMPING SYSTEM

1.03 SUBMITTALS: IN ACCORDANCE WITH REQUIREMENTS OF GENERAL SPECIFICATIONS, SUBMIT THE FOLLOWING:

Six sets of complete, checked shop drawings, showing equipment, method of by-passing, and the method of transferring flows from the existing system to the new system shall be submitted.

PART 2 - PRODUCTS - NOT APPLICABLE

PART 3 - EXECUTION

3.01 MAINTAINING EXISTING FLOWS:

A. The Contractor shall maintain all flows in the existing system until construction is complete and ready for safe operation.

B. The Contractor shall protect against surcharging of the existing system upstream of the work area by installing adequate temporary by-pass pumping to handle dry weather and wet weather flows. The bypass system shall have a sufficient capacity to handle full pipe capacity for the pipeline section to be bypassed times 1.25 and shall provide and maintain sufficient flow at all times to prevent any backwater flooding due to obstructions caused by the construction.

C. The Contractor shall repair any damage that occurs to existing pipes and structures to the satisfaction of the Engineer. Work performed under this section shall be considered incidental and shall not be measured separately for payment.

D. The Contractor shall not allow sanitary flow to discharge to any salt or fresh water body by means of overflow, by-pass pumping, or any other method that may contaminate these water areas.

END OF SECTION

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SECTION 01740

CLEANING UP

PART 1 - GENERAL

1.01 DESCRIPTION:

The Contractor must employ at all times during the progress of its work adequate cleanup measures and safety precautions to prevent injuries to persons or damage to property. The Contractor shall immediately, upon request by the Engineer provide adequate material, equipment and labor to cleanup and make safe any and all areas deemed necessary by the Engineer.

1.02 RELATED WORK:

A. Section 01570 ENVIRONMENTAL PROTECTION

PART 2 - PRODUCTS

Not applicable

PART 3 - EXECUTION

3.01 DAILY CLEANUP:

A. The Contractor shall clean up, at least daily, all refuse, rubbish, scrap and surplus material, debris and unneeded construction equipment resulting from the construction operations and sweep the area. The site of the work and the adjacent areas affected thereby shall at all times present a neat, orderly and workmanlike appearance.

B. Upon written notification by the Engineer, the Contractor shall within 24 hours clean up those areas, which in the Engineer's opinion are in violation of this section and the above referenced sections of the specifications.

C. If in the opinion of the Engineer, the referenced areas are not satisfactorily cleaned up, all other work on the project shall stop until the cleanup is satisfactory.

3.02 MATERIAL OR DEBRIS IN DRAINAGE FACILITIES:

A. Where material or debris has washed or flowed into or has been placed in existing watercourses, ditches, gutters, drains, pipes, structures, such material or debris shall be entirely removed and satisfactorily disposed of during progress of the work, and the ditches, channels, drains, pipes, structures, and work shall, upon completion of the work, be left in a clean and neat condition.

3.03 REMOVAL OF TEMPORARY BUILDINGS, STRUCTURES AND EQUIPMENT:

A. On or before completion of the work, the Contractor shall, unless otherwise specifically required or permitted in writing, tear down and remove all temporary buildings and structures it built; shall remove all temporary works, tools and machinery or other construction equipment it furnished; shall remove all rubbish from any grounds which it has occupied; shall remove silt fences and hay bales used for trapping sediment; and shall leave the roads and all parts of the property and adjacent property affected by its operations in a neat and satisfactory condition.

3.04 RESTORATION OF DAMAGED PROPERTY:

A. The Contractor shall restore or replace, when and as required, any property damaged by its work, equipment or employees, to a condition at least equal to that existing immediately prior to the beginning of operations. To this end the Contractor shall do as required all necessary highway or driveway, walk and landscaping work. Materials, equipment, and methods for such restoration shall be as approved by the Engineer.

3.05 FINAL CLEANUP:

A. Before acceptance by the Owner, the Contractor shall perform a final cleanup to bring the construction site to its original or specified condition. This cleanup shall include removing all trash and debris off of the premises. Before acceptance, the Engineer shall approve the condition of the site.

END OF SECTION

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SECTION 01770

PROJECT CLOSEOUT

PART 1 - GENERAL

1.01 WORK INCLUDED:

A. This Section covers administrative and procedural requirements for closing out the project, including, but not limited to:

1. Project as-built documents

2. Final Cleaning

3. Substantial Completion

4. Closeout Procedures

5. Final Completion

6. Correction/Warranty Period

B. Closeout checklist to be completed by the Engineer.

1.02 RELATED WORK:

A. General Requirements in their entirety.

B. Section 01740, CLEANING UP

C. Division 2 through Division 3.

1.03 AS-BUILT DOCUMENTS:

A. Contractor shall maintain on site, separate from the documents used for construction, one set of the documents listed below, and as construction progresses, shall legibly record on these documents all changes made during construction.

1. Contract Drawings.

2. Specifications.

3. Addenda.

4. Change Orders and other Modifications to the Contract.

5. Reviewed shop drawings, product data, and samples.

6. Written interpretations and clarifications.

7. Field Orders.

8. Field test reports properly verified.

B. The completed set of as-built documents shall be submitted to the Engineer with the final Application for Payment.

1.04 FINAL CLEANING:

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

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

2. Remove waste and surplus materials, rubbish, fencing equipment, temporary utilities and construction facilities from the site, unless otherwise required by the Engineer.

3. Comply with requirements of Section 01740 CLEANING UP.

1.05 SUBSTANTIAL COMPLETION:

A. Substantial Completion is officially defined in the General and Supplementary Conditions. The date of substantial completion will be certified by the Engineer. This date will not be certified until the following requirements have been satisfied by the Contractor:

1. All Contract requirements are coordinated into a fully operational system. All individual units of equipment and treatment are fully operative and performing at specified efficiencies. Where efficiencies are not specified, performance shall meet acceptable standards for the particular unit.

2. All field tests have been satisfactorily completed and reports forwarded to the Engineer.

1.06 CLOSEOUT PROCEDURES:

A. Submit written certification that Contract Documents have been reviewed, Work has been inspected, and is complete in accordance with Contract Documents and ready for Engineer's and Owner's inspection.

B. Accompany Engineer and Owner on inspection to verify conformance with the Contract Documents. Prepare a punch list of work items that have been determined by inspection to not conform to Contract Documents. Punch list items shall include work items that are missing, incomplete, damaged, incorrect items, or improperly installed or constructed. The Contractor shall correct the punch list deficiencies by re-work, modifications, or replacement, as appropriate, until the items conform to the Contract Documents. The initial punch list shall be produced by the Contractor, with copies to the Engineer and Owner. When the Contractor has reduced the number of deficient items to a reasonable level, the Engineer will develop a definitive punch list for the use of the Contractor.

C. Provide submittals to Engineer that are required by governing or other authorities.

D. Submit final Application for Payment identifying total adjusted Contract Sum, previous payments, and sum remaining due. The Contractor shall submit the following documents with or prior to Final Application for Payment: Set of as-built documents, Contract Completion and Acceptance Certificate, Consent of Surety to Final Payment, Release and Waiver of Liens and Claims (SECTION 01770 ATT. A), Affidavit of Payment of Debts and Claims, and remaining releases, waivers, warranties/guarantees, and all other data required by the Contract Documents.

1.07 FINAL COMPLETION:

A. Prior to final completion, the following tasks shall be completed:

1. All items in the punch list shall be completed.

2. All Contract closeout documentation shall be submitted to and accepted by the Engineer.

1.08 CORRECTION/WARRANTY PERIOD:

A. During the correction period, the Contractor shall correct all deficiencies in equipment and materials.

B. During the warranty period, the Contractor shall perform all corrective work on warranty deficiencies.

C. Corrective work will be identified by the Engineer or Owner, as appropriate. The Contractor will be notified of the item(s) requiring corrective work.

D. The Contractor shall begin work on all corrective work within ten days of being notified of the deficiency by the Engineer and shall then work continuously until the deficiency is corrected. Upon completion of the corrective work, the Contractor shall submit a letter report to the Engineer describing the deficiency and the corrective action that was taken.

E. The Contractor shall coordinate all corrective work with the Engineer and/or the Owner.

1.09 COMPLETION CHECKLIST:

A. When the project has been fully completed, Final Payment can be approved.

PROJECT COMPLETION CHECKLIST

Owner _____ Job No.

Project

As part of the project closeout, all items listed below must be checked off as being complete or otherwise accounted for. The person verifying completion of the item shall list the completion date and his/her initials.

Project Closeout Checklist		
	Date Completion Verified	Verified by
AS-BUILT DOCUMENTS HANDED OVER		
1. Contract Drawings		
2. Specifications		
3. Addenda		
4. Change Orders/Contract Modifications		
5. Reviewed Shop Drawings, Product Data and Samples		
6. Written Interpretations/Clarifications		
7. Field Orders		
8. Field Test Reports		
EQUIPMENT CHECKOUT AND CERTIFICATIONS		
1. Construction Complete per Drawings/Specifications		
2. Equipment Installed and Adjusted		
3. All Shop Drawings have Final Approval		
4. All Shop Tests Complete and Results Submitted		

Project Closeout Checklist		
	Date Completion Verified	Verified By
FINAL CLEANING		
1. All Construction Facilities Removed		
2. All Construction Debris Removed		
3. All Areas Swept/Cleared		
SUBSTANTIAL COMPLETION		
1. All Items Coordinated Into a Fully Operational System		
2. All Equipment Units Operational at Specified Efficiencies		
3. All Field Tests Completed and Reports Submitted		
CLOSEOUT PROCEDURES		
1. Written Certification Submitted that Work is Ready for Owner & Engineer Inspector		
2. Inspection by Owner, Engineer, Contractor completed		
3. Punch List of Nonconforming Items Prepared		
4. Documents Required by Governing or Other Authorities Submitted (List Them)		
5. Final Application for Payment Received		
6. Contract Completion and Acceptance Certificate Submittal		
7. Consent of Surety to Final Payment Submittal		
8. Release and Waiver of Liens and Claims Submitted		
9. Affidavit of Payment of Debts and Claims Submitted		
10. Warranties/Guarantees Submitted		
11. Other Required Releases and Waivers Submitted (List Them)		
12. Permits Submitted (List Them)		
13. Weekly Payrolls Submitted as Required by Law		
FINAL COMPLETION		
1. All Items in Punch List Completed		

Project Closeout Checklist		
	Date Completion Verified	Verified By
2. All Other Required Documentation Submitted (List It)		
CORRECTION/WARRANTY PERIOD		
1. Correction Period Start Date: _____ End Date: _____		
2. Specific Warranties Provided Item Warranty Duration		

Full name of persons signing their initials on this checklist:

_____

_____

_____

_____

_____

END OF SECTION

SECTION 01770

PROJECT CLOSEOUT

ATTACHMENT A

RELEASE AND WAIVER OF LIEN

GENERAL CONTRACTOR'S OR SUBCONTRACTOR'S

RELEASE AND WAIVER OF LIEN

For and in consideration of the receipt of $ _____, in payment for labor and/or materials furnished, the undersigned does hereby waive, release and relinquish any and all claims, demands and rights of lien for all work, labor, materials, machinery or other goods, equipment or services done, performed or furnished for the construction located at the site hereinafter described, to wit:

_____ (name of project)

_____ (location)

_____ (name of project owner)

The undersigned further warrants and represents that any and all valid labor and/or materials and equipment bills, now due and payable on the property herein above described in behalf of the undersigned, have been paid in full to date of this waiver.

$ _____

Total Paid to Date This Contract

$ _____

Balanced Owed After This Payment

$ _____

Total Billed to Date This Contract

_____

Contractor/Subcontractor

_____

Witness Signature

By: _____

_____

Witness Printed Name

_____

Printed Name

Title: _____

_____

Date

SECTION 02085

POLYVINYL CHLORIDE GRAVITY PIPE AND FITTINGS(SDR-35)

PART 1 - GENERAL

1.01 WORK INCLUDED:

This section covers the furnishing and installation of Polyvinyl Chloride (PVC) pipe and fittings, as indicated on the drawings and as specified herein.

1.02 RELATED WORK:

A. Section 02252, SUPPORT OF EXCAVATION

B. Section 02300, EARTHWORK

C. Section 02518, TRACER TAPE

1.03 REFERENCES:

A. The following standards form a part of these specifications as referenced:

American Society for Testing and Materials (ASTM)

ASTM	D2321	Recommended Practice for Underground Installation of Flexible Thermoplastic Sewer Pipe
ASTM	D3034	Specification for Type PSM Polyvinyl Chloride (PVC) Sewer Pipe and Fittings
ASTM	D3212	Specification for Joints for Drain and Sewer Plastic Pipes Using Flexible Elastomeric Seals
ASTM	F679	Specification for Polyvinyl Chloride (PVC) Large Diameter Plastic Gravity Sewer Pipe and Fittings

1.04 SUBMITTALS: IN ACCORDANCE WITH REQUIREMENTS OF SECTION 01330 SUBMITTALS, SUBMIT THE FOLLOWING:

Manufacturer's literature of the materials of this section.

PART 2 - PRODUCTS

2.01 MATERIALS:

A. PVC nonpressure sewer pipe 4-inches through 15-inches diameter shall conform to ASTM D3034, 18-inches through 60-inches diameter to ASTM F679, all with SDR of 35 unless noted, and shall meet the specific requirements and exceptions to the aforementioned specifications that follow.

B. PVC nonpressure sewer pipe shall be furnished in standard lengths.

C. One pipe bell consisting of an integral wall section with a solid cross section rubber ring, factory assembled, shall be furnished with each standard, random and short length of pipe. Rubber rings shall be provided to the requirements of ASTM D32l2.

D. The rubber ring shall be retained within the bell of the pipe by a precision formed groove or recess designed to resist fishmouthing or creeping during assembly of joints.

E. Spigot pipe ends shall be supplied with bevels from the manufacturer to ensure proper insertion. Each spigot end shall have an "assembly stripe" imprinted thereon to which the bell end of the mated pipe will extend upon proper jointing of the two pipes.

F. PVC fittings shall be provided with bell and/or spigot configurations with rubber gasketed joints compatible with that of the pipe. Bend fittings with spigot ends shorter than the pipe recess bells will not be allowed. The shorter spigot end would not allow proper seating of the spigot in the mating bell and would permit undesired contact between the mating bell and the outside of the fitting bell.

G. All pipe delivered to the job site shall be accompanied by independent testing laboratory reports certifying that the pipe and fittings conform to the above-mentioned specifications. In addition, the pipe shall be subject to thorough inspection and tests, the right being reserved for the Engineer to apply such of the tests specified as he may from time to time deem necessary.

H. All cutting of pipe shall be done with a machine suitable for cutting PVC pipe. Cut ends shall be beveled when recommended by the pipe manufacturer.

PART 3 - EXECUTION

3.01 INSTALLATION:

A. Except as modified herein, installation of the PVC pipe shall be in accordance with ASTM D232l.

B. Each pipe length shall be inspected before being laid to verify that it is not cracked. Pipe shall be laid to conform to the lines and grades indicated on the drawings or given by the Engineer. Each pipe shall be so laid as to form a close joint with the next adjoining pipe and bring the inverts continuously to the required grade.

C. The pipe shall be supported by compacted crushed stone. Crushed stone shall be as specified under Section 02300, EARTHWORK.

D. The pipe shall not be driven down to grade by striking it with a shovel handle, timber, rammer, or other unyielding object. When each pipe has been properly bedded, enough of the backfill material shall be placed and compacted between the pipe and the sides of the trench to hold the pipe in correct alignment.

E. Before a joint is made, the pipe shall be checked to assure that a close joint with the next adjoining pipe has been maintained and that inverts are matched and conform to the required line and grade.

F. For pipe placed on crushed stone, immediately after the joint is made, the jointing area shall be filled with suitable materials so placed and compacted that the ends of either pipe will not settle under backfill load.

G. No pipe or fitting shall be permanently supported on saddles, blocking, or stones.

H. Branches and fittings shall be laid by the Contractor as indicated on the drawings, and/or as required by the Engineer. Open ends of pipe and branches shall be closed with PVC caps secured in place with premolded gasket joints or as required by the Engineer.

I. All pipe joints shall be made as nearly watertight as practicable. There shall be no visible leakage at the joints and there shall be no sand, silt, clay, or soil of any description entering the pipeline at the joints. Where there is evidence of water or soil entering the pipeline, connecting pipes, or structures, the defects shall be repaired to the satisfaction of the Engineer.

J. The Contractor shall build a tight bulkhead in the pipeline where new work enters an existing sewer. This bulkhead shall remain in place until the Engineer authorizes its removal.

K. Care shall be taken to prevent earth, water, and other materials from entering the pipe, and when pipe laying operations are suspended, the Contractor shall maintain a suitable stopper in the end of the pipe and also at openings for manholes.

L. As soon as possible after the pipe and manholes are completed on any street, the Contractor shall flush out the new pipeline using a rubber ball ahead of the water, and none of the flushing water or debris shall be permitted to enter any existing sewer.

3.02 QUALITY ASSURANCE

A. TELEVISION INSPECTION:

1. On completion of a section of sewer, including building connections installed to the property line, the Contractor shall TV inspect the section in accordance with Section 02440, Sewer Cleaning, Inspection, Testing and Sealing at no additional cost to the Owner.

2. The Contractor shall be responsible for the satisfactory water-tightness of the entire section of the sewer. Should the Engineer determine that the sections inspected are unsatisfactory, the Contractor shall do all work required to locate and repair the defects and re-inspect as the Engineer may require without additional compensation.

3. A plan of the method for repairing any defects that are found shall be submitted to the Engineer for review.

B. PIPE DEFLECTION MEASUREMENT:

1. In accordance with ASTM D3034, no less than 30 days after completion of the PVC sewer pipe installation, the Contractor shall test the pipeline for deflection using a "go/no-go" deflection mandrel having a minimum of nine evenly spaced arms or prongs. The "go/no-go" gauge shall be hand pulled through all sections of the pipeline by the Contractor. The Contractor shall submit drawings of the "go/no-go" gauge to the Engineer for approval prior to testing. Complete dimensions of the gauge for each diameter of pipe to be tested shall be in accordance with ASTM D3034.

2. Any section of pipe found to exceed 7.5 percent deflection shall be deemed a failed pipe and shall be excavated and replaced by the Contractor at his own expense.

END OF SECTION

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SECTION 02230

CLEARING AND GRUBBING

PART 1 - GENERAL

1.01 WORK INCLUDED:

A. The Contractor shall do all required clearing and grubbing as indicated on the drawings or herein specified in the area required for construction operations on the Owner's land or in the Owner's permanent or temporary easements and shall remove all debris resulting therefrom.

B. Unless otherwise noted, all areas to be cleared shall also be grubbed.

C. The Contractor shall not clear and grub outside of the area required for construction operations.

1.02 RELATED WORK:

Any trees and shrubs specifically designated by the Owner not to be cut, removed, destroyed, or trimmed shall be saved from harm and injury in accordance with Section 01570, ENVIRONMENTAL PROTECTION.

PART 2 - PRODUCTS: NOT APPLICABLE

PART 3 - EXECUTION

3.01 RIGHT TO WOOD AND LOGS:

The Owner shall have the right to cut and remove logs and other wood of value in advance of the Contractor's operations. All remaining logs and other wood to be removed in the course of clearing shall become the property of the Contractor. In response to the State/Federal imposed quarantine regarding the Asian Longhorned Beetle infestation, the Contractor shall follow the protocol for handling and disposal of cleared and grubbed materials.

3.02 CLEARING:

A. Unless otherwise indicated, the Contractor shall cut or otherwise remove all trees, saplings, brush and vines, windfalls, logs and trees lying on the ground, dead trees and stubs more than 1-foot high above the ground surface (but not their stumps), trees which have been partially uprooted by natural or other causes (including their stumps), and other vegetable matter such as shags, sawdust, bark, refuse, and similar materials.

B. The Contractor shall not remove mature trees (4-inches or greater DBH) in the Owner's temporary easements.

C. Except where clearing is done by uprooting with machinery or where stumps are left longer to facilitate subsequent grubbing operations, trees, stumps, and stubs to be cleared shall be cut as close to the ground as practicable but not more than 6-inches above the ground surface in the case of small trees, and 12-inches in the case of large trees. Saplings, brush and vines shall be cut close to the ground.

3.03 GRUBBING:

A. Unless otherwise indicated, the Contractor shall completely remove all stumps and roots to a depth of 18-inches, or if the Contractor elects to grind the stumps, they shall be ground to a minimum depth of 6-inches.

B. Any depression remaining from the removal of a stump and not filled in by backfilling shall be filled with gravel borrow and/or loam, whichever is appropriate to the proposed ground surface.

3.04 PROTOCOL FOR HANDLING AND DISPOSAL OF CLEARED AND GRUBBED MATERIALS:

A. Process all cleared and grubbed vegetative, wood and cellulose based materials (trees shrubs, roots, stumps, branches, leaves, lumber materials twelve inches and under, as measured in all directions, designated for disposal) to a size of less than one inch as measured in two directions by approved mechanical means (wood chipper) prior to disposal/removal offsite.

B. Stockpile within the property limits, as designated by the Owner, all cleared and grubbed vegetative, wood and cellulose based materials greater than twelve inches, as measured in all directions, designated for disposal/removal offsite.

END OF SECTION

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SECTION 02240

DEWATERING

PART 1 - GENERAL

1.01 WORK INCLUDED:

This section specifies designing, furnishing, installing, maintaining, operating and removing temporary dewatering systems as required to lower and control water levels and hydrostatic pressures during construction; disposing of pumped water; constructing, maintaining, observing and, except where indicated or required to remain in place, removing of equipment and instrumentation for control of the system.

1.02 RELATED WORK:

A. Section 00890, PERMITS

B. Section 01570, ENVIRONMENTAL PROTECTION

C. Section 02252, SUPPORT OF EXCAVATION

D. Section 02300, EARTHWORK

1.03 SYSTEM DESCRIPTION:

A. Dewatering includes lowering the water table and intercepting seepage which would otherwise emerge from the slopes or bottom of the excavation; increasing the stability of excavated slopes; preventing loss of material from beneath the slopes or bottom of the excavation; reducing lateral loads on sheeting and bracing; improving the excavation and hauling characteristics of sandy soil; preventing rupture or heaving of the bottom of any excavation; and disposing of pumped water.

1.04 QUALITY ASSURANCE:

A. The Contractor is responsible for the adequacy of the dewatering systems.

B. The dewatering systems shall be capable of effectively reducing the hydrostatic pressure and lowering the groundwater levels to a minimum of 2 feet below excavation bottom, unless otherwise required by the Engineer, so that all excavation bottoms are firm and dry.

C. The dewatering system shall be capable of maintaining a dry and stable subgrade until the structures, pipes and appurtenances to be built therein have been completed to the extent that they will not be floated or otherwise damaged.

D. The dewatering system and excavation support (see Section 02252, SUPPORT OF EXCAVATION) shall be designed so that lowering of the groundwater level outside the excavation does not adversely affect adjacent structures, utilities or wells.

1.05 SUBMITTALS:

A. In accordance with Section 01330, Contractor shall submit a plan indicating how it intends to control the discharge from any dewatering operations on the project, whether it is discharge of groundwater from excavations or stormwater runoff during the life of the project.

PART 2 - PRODUCTS

NOT APPLICABLE

PART 3 - EXECUTION

3.01 DEWATERING OPERATIONS:

A. All water pumped or drained from the work shall be disposed of in a manner that will not result in undue interference with other work or damage to adjacent properties, pavements and other surfaces, buildings, structures and utilities. Suitable temporary pipes, flumes or channels shall be provided for water that may flow along or across the site of the work. All disposal of pumped water shall conform to the provisions of Section 01570 ENVIRONMENTAL PROTECTION and Section 00890 PERMITS.

B. Dewatering facilities shall be located where they will not interfere with utilities and construction work to be done by others.

C. Dewatering procedures to be used shall be as described below:

1. Crushed stone shall encapsulate the suction end of the pump to aid in minimizing the amount of silt discharged.

2. For dewatering operations with relatively minor flows, pump discharges shall be directed into hay bale sedimentation traps lined with filter fabric. Water is to be filtered through the hay bales and filter fabric prior to being allowed to seep out into its natural watercourse.

3. For dewatering operations with larger flows, pump discharges shall be into a steel dewatering basin. Steel baffle plates shall be used to slow water velocities to increase the contact time and allow adequate settlement of sediment prior to discharge into waterways.

4. Where indicated on the contract drawings or in conditions of excess silt suspended in the discharge water, silt control bags shall be utilized in catch basins.

D. The Contractor shall be responsible for repair of any damage caused by his dewatering operations, at no cost to the Owner.

END OF SECTION

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SECTION 02252

SUPPORT OF EXCAVATION

PART 1 - GENERAL

1.01 WORK INCLUDED:

A. This section of the specification covers wood sheeting and bracing for support of excavations. The requirements of this section shall also apply, as appropriate, to other methods of excavation support and underpinning which the Contractor elects to use to complete the work.

B. The Contractor shall furnish and place timber sheeting of the kinds and dimensions required, complying with these specifications, where indicated on the drawings or required by the Engineer.

1.02 RELATED WORK:

A. Section 02240, DEWATERING.

B. Section 02300, EARTHWORK.

1.03 QUALITY ASSURANCE:

A. This project is subject to the Safety and Health regulations of the U.S. Department of Labor set forth in 29 CFR, Part 1926, and to the Massachusetts Department of Safety and Department of Labor, Division of Occupational Safety "Excavation & Trench Safety Regulation (520 CMR 14.00)" and "Rules and Regulations for the Prevention of Accidents in Construction Operations (454 CMR 10.0 et seq.)." Contractors shall be familiar with the requirements of these regulations.

B. The excavation support system shall be of sufficient strength and be provided with adequate bracing to support all loads to which it will be subjected. The excavation support system shall be designed to prevent any movement of earth that would diminish the width of the excavation or damage or endanger adjacent structures.

PART 2 - PRODUCTS

2.01 MATERIALS:

A. Timber sheeting shall be sound spruce, pine, or hemlock, planed on one side and either tongue and grooved or splined. Timber sheeting shall not be less than nominal 2-inches thick.

B. Timber and steel used for bracing shall be of such size and strength as required in the excavation support design. Timber or steel used for bracing shall be new or undamaged used material which does not contain splices, cutouts, patches, or other alterations which would impair its integrity or strength.

PART 3 - EXECUTION

3.01 INSTALLATION:

A. Work shall not be started until all materials and equipment necessary for their construction are either on the site of the work or satisfactorily available for immediate use as required.

B. The sheeting shall be securely and satisfactorily braced to withstand all pressures to which it may be subjected and be sufficiently tight to minimize lowering of the groundwater level outside the excavation, as required in Section 02240, DEWATERING.

C. The sheeting shall be driven by approved means to the design elevation. No sheeting may be left so as to create a possible hazard to safety of the public or a hindrance to traffic of any kind.

D. If boulders or very dense soils are encountered, making it impractical to drive a section to the desired depth, the section shall, as required, be cut off.

E. The sheeting shall be left in place where indicated on the drawings or required by the Engineer in writing. At all other locations, the sheeting may be left in place or salvaged at the option of the Contractor. Steel or wood sheeting permanently left in place shall be cut off at a depth of not less than two feet below finish grade unless otherwise required.

F. All cut-off will become the property of the Contractor and shall be removed by him from the site.

G. Responsibility for the satisfactory construction and maintenance of the excavation support system, complete in place, shall rest with the Contractor. Any work done, including incidental construction, which is not acceptable for the intended purpose shall be either repaired or removed and reconstructed by the Contractor at his expense.

H. The Contractor shall be solely responsible for repairing all damage associated with installation, performance, and removal of the excavation support system.

END OF SECTION

SECTION 02300

EARTHWORK

PART 1 - GENERAL

1.01 WORK INCLUDED:

The Contractor shall make excavations of normal depth in earth for trenches and structures, shall backfill and compact such excavations to the extent necessary, shall furnish the necessary material and construct embankments and fills, shall furnish the necessary material and construct an access road, and shall make miscellaneous earth excavations and do miscellaneous grading.

1.02 RELATED WORK:

A. Section 00890, PERMITS

B. Section 01570, ENVIRONMENTAL PROTECTION

C. Section 02230, CLEARING AND GRUBBING

D. Section 02240, DEWATERING

E. Section 02252, SUPPORT OF EXCAVATION

F. Section 02442, POINT REPAIR OF GRVITY SEWERS (OPEN CUT)

G. Section 02921, SURFACE RESTORATION OF CROSS-COUNTRY AREAS

1.03 REFERENCES:

American Society for Testing and Materials (ASTM)

ASTM	C131	Test Method for Resistance to Degradation of Small Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine.
ASTM	C136	Method for Sieve Analysis of Fine and Coarse Aggregates.
ASTM	C330	Specification for Lightweight Aggregate for Structural Concrete.
ASTM	D1556	Test Method for Density of Soil in Place by the Sand Cone Method.
ASTM	D1557	Test Methods for Moisture-density Relations of Soils and Soil Aggregate Mixtures Using Ten-pound (10 Lb.) Hammer and Eighteen-inch (18") Drop.

ASTM D2922 Test Methods for Density of Soil and Soil-aggregate in Place by Nuclear Methods (Shallow Depth).

Massachusetts Department of Transportation (MassDOT) Standard Specifications for Highways and Bridges.

Code of Massachusetts Regulations (CMR) 310.40.0032 Contaminated Media and Contaminated Debris

Code of Massachusetts Regulations (CMR) 520 CMR 14.00 Excavation & Trench Safety Regulation

1.04 SUBMITTALS: IN ACCORDANCE WITH REQUIREMENTS OF GENERAL SPECIFICATIONS, SUBMIT THE FOLLOWING:

Samples of all materials proposed for the project shall be submitted to the Engineer for review. Size of the samples shall be as approved by the Engineer.

1.05 PROTECTION OF EXISTING PROPERTY:

A. The work shall be executed in such manner as to prevent any damage to facilities at the site and adjacent property and existing improvements, such as but not limited to streets, curbs, paving, service utility lines, structures, monuments, bench marks, observation wells, and other public or private property. Protect existing improvements from damage caused by settlement, lateral movements, undermining, washout and other hazards created by earthwork operations.

B. In case of any damage or injury caused in the performance of the work, the Contractor shall, at its own expense, make good such damage or injury to the satisfaction of, and without cost to, the Owner. Existing roads, sidewalks, and curbs damaged during the project work shall be repaired or replaced to at least the condition that existed at the start of operations. The Contractor shall replace, at his own cost, existing benchmarks, observation wells, monuments, and other reference points, which are disturbed or destroyed.

C. Buried drainage structures and pipes, observation wells and piezometers, including those which project less than eighteen inches (18") above grade, which are subject to damage from construction equipment shall be clearly marked to indicate the hazard. Markers shall indicate limits of danger areas, by means which will be clearly visible to operators of trucks and other construction equipment, and shall be maintained at all times until completion of project.

1.06 DRAINAGE:

A. The Contractor shall provide, at its own expense, adequate drainage facilities to complete all work items in an acceptable manner. Drainage shall be done in a manner so that runoff

will not adversely affect construction procedures or cause excessive disturbance of underlying natural ground or abutting properties.

1.07 FROST PROTECTION AND SNOW REMOVAL:

A. The Contractor shall, at its own expense, keep earthwork operations clear and free of accumulations of snow as required to carry out the work.

B. The Contractor shall protect the subgrade beneath new structures and pipes from frost penetration when freezing temperatures are expected.

PART 2 - PRODUCTS

2.01 MATERIALS:

A. GRAVEL BORROW:

Gravel Borrow shall satisfy the requirements listed in MassDOT Specification Section M1.03.0, Type b.

B. CRUSHED STONE:

Crushed stone shall satisfy the requirements listed in MassDOT Specification SectionM2.01.

C. SAND BORROW:

Sand Borrow shall satisfy the requirements listed in MassDOT Specification Section M1.04.0.

D. PEASTONE:

Peastone shall be smooth, hard, naturally occurring, rounded stone meeting the following gradation requirements:

Passing 5/8 inch square sieve opening	-	100%
Passing No. 8 sieve opening	-	0%

E. BACKFILL MATERIALS:

1. Class B Backfill:

Class B backfill shall be granular, well graded friable soil; free of rubbish, ice, snow, tree stumps, roots, clay and organic matter; with 30 percent or less passing the No. 200 sieve; no stone greater than two-third (2/3) loose lift thickness, or six inches, whichever is smaller.

2. Select Backfill:

Select backfill shall be granular, well graded friable soil, free of rubbish, ice, snow, tree stumps, roots, clay and organic matter, and other deleterious or organic material; graded within the following limits:

Sieve Size	Percent Finer by Weight
3-inch	100
No. 10	30-95
No. 40	10-70
No. 200	0-10

F. PROCESSED GRAVEL:

1. Processed gravel shall consist of inert material that is hard, durable stone and coarse sand, free from loam and clay, surface coatings and deleterious materials. The coarse aggregate shall have a percentage of wear, by the Los Angeles Abrasion Test, of not more than 50.

2. The gradation shall meet the following requirements:

Sieve Designation	Percentage Passing
3-in.	100
1 ½-in.	70-100
¾-in.	50-85
No. 4	30-60
No. 200	0-10

3. The approved source of bank-run gravel material shall be processed by mechanical means. The equipment for producing crushed gravel shall be of adequate size with sufficient adjustments to produce the desired materials. The processed material shall be stockpiled in such a manner to minimize segregation of particle sizes. All processed gravel shall come from approved stockpiles.

PART 3 - EXECUTION

3.01 DISTURBANCE OF EXCAVATED AND FILLED AREAS DURING CONSTRUCTION:

A. Contractor shall take the necessary steps to avoid disturbance of subgrade during excavation and filling operations, including restricting the use of certain types of construction equipment and their movement over sensitive or unstable materials, dewatering and other acceptable control measures.

B. All excavated or filled areas disturbed during construction, all loose or saturated soil, and other areas that will not meet compaction requirements as specified herein shall be removed and replaced with a minimum 12-inch layer of compacted crushed stone wrapped all around in non-woven filter fabric. Costs of removal and replacement shall be borne by the Contractor.

C. The Contractor shall place a minimum of 12-inch layer of special bedding materials and crushed stone wrapped in filter fabric over the natural underlying soil to stabilize areas which may become disturbed as a result of rain, surface water runoff or groundwater seepage pressures, all at no additional cost to the Owner. The Contractor also has the option of drying materials in-place and compacting to specified densities.

3.02 EXCAVATION:

A. GENERAL:

1. The Contractor shall perform all work of any nature and description required to accomplish the work as shown on the Drawings and as specified.

2. Excavations, unless otherwise required by the Engineer, shall be carried only to the depths and limits shown on the Drawings. If unauthorized excavation is carried out below required subgrade and/or beyond minimum lateral limits shown on Drawings, it shall be backfilled with gravel borrow and compacted at the Contractor's expense as specified below, except as otherwise indicated. Excavations shall be kept in dry and good conditions at all times, and all voids shall be filled to the satisfaction of the Engineer.

3. In all excavation areas, the Contractor shall strip the surficial topsoil layer and underlying subsoil layer separate from underlying soils. In paved areas, the Contractor shall first cut pavement as specified in paragraph 3.02 B.1 of this specification, strip pavement and pavement subbase separately from underlying soils. All excavated materials shall be stockpiled separately from each other within the limits of work.

4. The Contractor shall follow a construction procedure, which permits visual identification of stable natural ground. Where groundwater is encountered, the size of the open excavation shall be limited to that which can be handled by the Contractor's chosen method of dewatering and which will allow visual observation of the bottom and backfill in the dry.

5. The Contractor shall excavate unsuitable materials to stable natural ground where encountered at proposed excavation subgrade, as required by the Engineer. Unsuitable material includes topsoil, loam, peat, other organic materials, snow, ice, and trash. Unless specified elsewhere or otherwise required by the Engineer, areas where unsuitable materials have been excavated to stable ground shall be backfilled with compacted special bedding materials or crushed stone wrapped all around in non-woven filter fabric.

B. TRENCHES:

1. Prior to excavation, trenches in pavement shall have the traveled way surface cut in a straight line by a concrete saw or equivalent method, to the full depth of pavement. Excavation shall only be between these cuts. Excavation support shall be provided as required to avoid undermining of pavement. Cutting operations shall not be done by ripping equipment.

2. The Contractor shall satisfy all dewatering requirements specified in Section 02240 DEWATERING, before performing trench excavations.

3. Trenches shall be excavated to such depths as will permit the pipe to be laid at the elevations, slopes, and depths of cover indicated on the Drawings. Trench widths shall be as shown on the Drawings or as specified.

4. Where pipe is to be laid in bedding material, the trench may be excavated by machinery to, or just below, the designated subgrade provided that the material remaining in the bottom of the trench is not disturbed.

5. If pipe is to be laid in embankments or other recently filled areas, the fill material shall first be placed to a height of at least 12-inches above the top of the pipe before excavation.

6. Pipe trenches shall be made as narrow as practicable and shall not be widened by scraping or loosening materials from the sides. Every effort shall be made to keep the sides of the trenches firm and undisturbed until backfilling has been completed.

7. If, in the opinion of the Engineer, the subgrade, during trench excavation, has been disturbed as a result of rain, surface water runoff or groundwater seepage pressures, the Contractor shall remove such disturbed subgrade to a minimum of 12-inches and replace with crushed stone wrapped in filter fabric. Cost of removal and replacement shall be borne by the Contractor.

8. The Contractor shall obtain a trench permit from the municipality where the trench is located prior to making any excavations of trenches (any subsurface excavation greater than three (3) feet in depth and fifteen (15) feet or less between soil walls as measured from the bottom).

9. All trenches required to be permitted must be attended, covered, barricaded, or backfilled. Covers must be road plates at least ¾-inch thick or equivalent, barricades must be fences at least 6-feet high with no openings greater than 4-inches between vertical supports and all horizontal supports required to be located on the trench-side of the fencing.

C. EXCAVATION NEAR EXISTING STRUCTURES:

1. Attention is directed to the fact that there are pipes, manholes, drains, and other utilities in certain locations. An attempt has been made to locate all utilities on the drawings, but the completeness or accuracy of the given information is not guaranteed.

2. As the excavation approaches pipes, conduits, or other underground structures, digging by machinery shall be discontinued and excavation shall be done by means of hand tools, as required. Such manual excavation, when incidental to normal excavation, shall be included in the work to be done under items involving normal excavation.

3. Where determination of the exact location of a pipe or other underground structure is necessary for properly performing the work, the Contractor shall excavate test pits to determine the locations.

3.03 BACKFILL PLACEMENT AND COMPACTION:

A. GENERAL:

1. Prior to backfilling, the Contractor shall compact the exposed natural subgrade to the densities as specified herein.

2. After approval of subgrade by the Engineer, the Contractor shall backfill areas to required contours and elevations with specified materials.

3. The Contractor shall place and compact materials to the specified density in continuous horizontal layers, not to exceed nine (9) inches in uncompacted lifts. The degree of compaction shall be based on maximum dry density as determined by ASTM Test D1557, Method C. The minimum degree of compaction for fill placed shall be as follows:

Location	Percent of Maximum Density
Below pipe centerline	95
Above pipe centerline	92
Below pavement (upper 3 ft.)	95
Embankments	95
Below pipe in embankments	95
Adjacent to structures	92
Below structures	95

4. The Engineer reserves the right to test backfill for conformance to the specifications and Contractor shall assist as required to obtain the information. Compaction testing will be performed by the Engineer or by an inspection laboratory designated by the

Engineer, engaged and paid for by the Owner. If test results indicate work does not conform to specification requirements, the Contractor shall remove or correct the defective Work by recompacting where appropriate or replacing as necessary and approved by the Engineer, to bring the work into compliance, at no additional cost to the Owner. All backfilled materials under structures and buildings shall be field tested for compliance with the requirements of this specification.

5. Where horizontal layers meet a rising slope, the Contractor shall key each layer by benching into the slope.

6. If the material removed from the excavation is suitable for backfill with the exception that it contains stones larger than permitted, the Contractor has the option to remove the oversized stones and use the material for backfill or to provide replacement backfill at no additional cost to the Owner.

7. The Contractor shall remove loam and topsoil, loose vegetation, stumps, large roots, etc., from areas upon which embankments will be built or areas where material will be placed for grading. The subgrade shall be shaped as indicated on the Drawings and shall be prepared by forking, furrowing, or plowing so that the first layer of the fill material placed on the subgrade will be well bonded to the subgrade.

8. Where called for on the Drawings, Lightweight Fill shall be placed and compacted as recommended by the manufacturer. The exact number of passes shall be approved by the Engineer to insure stability of the layer. As soon as the compaction of each layer has been completed, the next layer shall then be placed. The Contractor shall take all necessary precautions during construction activities in operations on or adjacent to the Lightweight Fill to insure that the material is not over-compacted. Construction equipment, other than for compaction, shall not operate on the exposed Lightweight Fill. The top surface of the Lightweight Fill lying directly below the gravel course shall be chinked by additional rolling of the Lightweight Fill to prevent infiltration of fines.

B. TRENCHES:

1. Bedding as detailed and specified shall be furnished and installed beneath the pipeline prior to placement of the pipeline. A minimum bedding thickness shall be maintained between the pipe and undisturbed material, as shown on the Drawings.

2. As soon as practicable after pipes have been laid, backfilling shall be started.

3. Unless otherwise indicated on the Drawings, select backfill shall be placed by hand shovel in 6-inch thick lifts up to a minimum level of 12-inches above the top of pipe. This area of backfill is considered the zone around the pipe and shall be thoroughly compacted before the remainder of the trench is backfilled. Compaction of each lift in the zone around the pipe shall be done by use of power-driven tampers weighing at least 20 pounds or by vibratory compactors. Care shall be taken that material close

to the bank, as well as in all other portions of the trench, is thoroughly compacted to densities required.

4. Class B backfill shall be placed from the top of the select backfill to the specified material at grade (loam, pavement subbase, etc.). Fill compaction shall meet the density requirements of this specification.

5. Water Jetting:

   a. Water jetting may be used when the backfill material contains less than 10 percent passing the number 200 sieve, but shall be used only if approved by the Engineer.

   b. Contractor shall submit a detailed plan describing the procedures he intends to use for water jetting to the Engineer for approval prior to any water jetting taking place.

   c. Compaction of backfill placed by water jetting shall conform to the requirements of this specification.

6. If the materials above the trench bottom are unsuitable for backfill, the Contractor shall furnish and place backfill materials meeting the requirements for trench backfill, as shown on the drawings or specified herein.

7. Should the Engineer order crushed stone for utility supports or for other purposes, the Contractor shall furnish and install the crushed stone as directed.

8. In shoulders of streets and road, the top 12-inch layer of trench backfill shall consist of processed gravel for sub-base, satisfying the requirements listed in MassDOT standard specification M1.03.1.

C. BACKFILLING ADJACENT TO STRUCTURES:

1. The Contractor shall not place backfill against or on structures until they have attained sufficient strength to support the loads to which they will be subjected. Excavated material approved by the Engineer may be used in backfilling around structures. Backfill material shall be thoroughly compacted to meet the requirements of this specification.

2. Contractor shall use extra care when compacting adjacent to pipes and drainage structures. Backfill and compaction shall proceed along sides of drainage structures so that the difference in top of fill level on any side of the structure shall not exceed two feet (2') at any stage of construction.

3. Where backfill is to be placed on only one side of a structural wall, only hand-operated roller or plate compactors shall be used within a lateral distance of five feet

(5') of the wall for walls less than fifteen feet (15') high and within ten feet (10') of the wall for walls more than fifteen feet (15') high.

3.04 DISPOSAL OF SURPLUS MATERIALS:

A. Surplus excavated materials, which are acceptable to the Engineer, shall be used to backfill normal excavations in rock or to replace other materials unacceptable for use as backfill. Upon written approval of the Engineer, surplus excavated materials shall be neatly deposited and graded so as to make or widen fills, flatten side slopes, or fill depressions; or shall be neatly deposited for other purposes as indicated by the Owner, within its jurisdictional limits; all at no additional cost to the Owner.

B. Surplus excavated material not needed as specified above shall be hauled away and disposed of by the Contractor at no additional cost to the Owner, at appropriate locations, and in accordance with arrangements made by him. Disposal of all rubble shall be in accordance with all applicable local, state and federal regulations.

C. No excavated material shall be removed from the site of the work or disposed of by the Contractor unless approved by the Engineer.

D. The Contractor shall comply with Massachusetts regulations (310 CMR 40.0032) that govern the removal and disposal of surplus excavated materials. Materials, including contaminated soils, having concentrations of oil or hazardous materials less than an otherwise Reportable Concentration and that are not a hazardous waste, may not be disposed of at locations where concentrations of oil and/or hazardous material at the receiving site are significantly lower than the levels of those oil and/or hazardous materials present in the soil being disposed or reused.

END OF SECTION

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SECTION 02329

LOAM BORROW (TOPSOIL)

PART 1 - GENERAL

1.01 WORK INCLUDED:

A. This Section covers all labor, materials, and equipment necessary to furnish and place Loam Borrow and all related work as indicated on the drawings and as herein specified.

B. Existing on-site topsoil that has been stockpiled may be re-used provided it meets these specifications. The Contractor shall be solely responsible to determine if adequate quantities of on-site topsoil exist that may potentially be reused.

1.02 RELATED WORK:

A. Section 02300, EARTHWORK

B. Section 02920, SEEDING

1.03 QUALITY ASSURANCE:

A. For each particular source of loam, the Contractor shall send representative samples totaling approximately 10 pounds of Loam Borrow to an approved State-certified testing laboratory.

B. Loam shall be subject to tests for Soluble Salts (1:2 soil-water ratio), Nitrogen (including nitrate and ammonium Nitrogen), Phosphorous, Potassium, Sulfate, Calcium, Magnesium, Aluminum, and Ferric Iron concentrations.

C. Loam shall also be tested for heavy metals concentration, which shall include Boron, Cadmium, Zinc, Chromium, Copper, Lead, Manganese, and Nickel.

D. Mechanical gradation (textural analysis) as per USDA Soil Classification System and determine Organic matter content and the pH (1:1 soil-water ratio).

E. All tests shall be at the Contractor's expense. Laboratory test results shall state whether the Loam Borrow is acceptable as a planting medium, whether it needs to be amended, or if it fails to meet accepted requirements. Test results shall also include soil amendment and fertilizing recommendations and shall be forwarded to the Engineer at least 1month before any loaming is to be undertaken.

F. Samples and tests shall continue to be made at the Contractor’s expense until Loam Borrow to be provided is found to be acceptable to the Engineer.

1.04 SUBMITTALS:

In accordance with requirements of Section 01330 SUBMITTALS, the Contractor shall submit the following:

A. Information detailing the soil amendments including limestone, fertilizers, organic material amendments, and the name and address of the supplier and origin of Loam Borrow shall be submitted to the Engineer for approval.

B. Soils test results shall be submitted to the Engineer for review.

PART 2 - PRODUCTS

2.01 MATERIALS:

A. LOAM BORROW:

1. Loam Borrow shall consist of, fertile, friable natural topsoil, typical of productive soils in the vicinity, obtained from naturally well-drained areas that have never been stripped. Loam Borrow shall be reasonably free of stumps, roots, heavy or stiff clay, stones larger than 1-inch in diameter, lumps, coarse sand, noxious weeds, sticks, brush or other litter.

2. Loam Borrow shall be classified as a sandy loam by the USDA textural classification system as determined by sieve and pipette or hydrometer analysis. Loam Borrow shall have the following mechanical analysis:

Textural Class	Percent of Total Weight	Avg. Percentage
Sand (0.05 – 2.0mm range)	45 – 75	60
Silt (0.002 – 0.05mm range)	15 – 35	25
Clay (less than 0.002mm)	5 – 20	15

3. Loam Borrow shall contain not less than 4 percent or more than 7 percent organic matter as determined by the loss of weight by ignition of oven-dried samples. Test samples shall be oven-dried to a constant weight at a temperature of 230 degrees F.

4. Loam Borrow shall not be excessively acid or alkaline and shall not contain any phytotoxic materials or unacceptable concentration levels of any substance harmful to plant growth as determined by the soils testing laboratory. Loam Borrow shall have a pH value range between 5.0 and 6.5. Maximum soluble salt index shall be 100. The electrical conductivity (EC2) of a 1:2 soil-water suspension shall be less than or equal to 1.0 millimhos/cm. Aluminum concentration levels shall be less than 200ppm.

5. Loam Borrow shall not be worked, excavated, or delivered in a frozen or muddy condition. Soil structure shall not be destroyed through excessive and unnecessary handling or compaction.

6. Existing on-site topsoil may be re-used as Loam Borrow provided it meets these specifications.

7. All amendments to Loam Borrow shall be approved by the Engineer and shall be made in accordance with recommendations from the soils testing laboratory for use of Loam Borrow as a plant-growing medium and these specifications.

B. LIMESTONE:

Lime shall be an approved agricultural limestone containing at least 50 percent total oxides (calcium oxide and magnesium oxide). The material will be ground such that 50 percent of the material will pass through a No. 100 mesh sieve and 98 percent will pass a No. 2 mesh sieve. Lime shall be uniform in composition, dry and free-flowing and shall be delivered to the site in the original sealed containers, each bearing the manufacturer's guaranteed analysis.

C. FERTILIZER:

1. Fertilizer shall be a complete, standard commercial fertilizer, homogeneous and uniform in composition, dry and free-flowing, and shall be delivered to the site in the manufacturer's original sealed containers, each bearing the manufacturer's guaranteed analysis and marketed in compliance with State and Federal Laws. All fertilizer shall be used in accordance with the manufacturer's recommendations.

2. For Fertilizers containing Nitrogen, at least 50 percent of the nitrogenous elements shall be Urea-form or derived from organic sources and contain no less than 3 percent water-soluble Nitrogen.

3. Superphosphate shall be composed of finely ground phosphate rock as commonly used for agricultural purposes, containing not less than 18 percent available phosphoric acid.

D. ORGANIC MATERIAL AMENDMENTS:

1. Organic compost shall be a standard commercial product comprised of fully decomposed, 100 percent plant-derived, natural organic matter. Its composition shall furnish ample water holding capacity and cation exchange capacity for the retention of plant nutrients. Compost shall be free of sticks, stones, weed seeds, roots, mineral or other foreign matter and delivered air dry. It shall be free from excessive soluble salts, heavy metals, phytotoxic compounds, and/or substances harmful to plant growth and viability. Organic compost shall have an acidity range of 4.5 to 7.0 pH.

2. Sphagnum Peat Moss shall be a standard commercial product. Its composition shall furnish ample water holding capacity and cation exchange capacity for the retention of plant nutrients. Peat moss shall be free of sticks, stones, weeds or weed seeds,

roots, mineral or other foreign matter. It shall be free from toxic substances and/or compounds harmful to plant growth and viability. It shall be delivered air dry in standard bales and shall have an acidity range of 3.5 to 5.5 pH.

3. Humus shall be natural humus, reed peat, or sedge peat. Its composition shall furnish ample water holding capacity and cation exchange capacity for the retention of plant nutrients. Humus shall be free of sticks, stones, weeds, roots, mineral or other foreign matter and/or toxic substances harmful to plant growth and viability. It shall be low in wood content, free from hard lumps and excessive amounts of zinc and delivered air dry in a shredded or granular form. The acidity range for humus shall be 5.5 to 7.5 pH, and the organic matter content shall be not less than 85 percent, as determined by loss on ignition. The minimum water holding capacity shall be 200 percent by weight on an oven-dry basis.

4. Manure shall be well-rotted, leached, cow manure not less than 8 months or more than 2 years old. It shall be free of sawdust, shavings, or refuse of any kind and shall not contain more than 25 percent straw. It shall contain no substances harmful to plant growth. The Contractor shall furnish information regarding chemical disinfectants, if any, that may have been used in storage of the manure.

PART 3 - EXECUTION

3.01 After approval of rough grading, the sub-base shall be raked to a depth of 3 inches to remove stones, rock or other foreign materials 3-inches or larger in dimension. The Engineer shall inspect the work for approval, prior to placing of Loam Borrow.

3.02 Loam Borrow shall be placed and spread to the required depths over the locations approved by the Engineer.

3.03 Lime shall be uniformly applied in accordance with the soil testing laboratory recommendations, or as required by the Engineer, at a maximum rate of 100 pounds per 1000 square feet per application, in necessary quantities to achieve the pH range requirements for Loam Borrow.

3.04 Fertilizer shall be uniformly applied in accordance with the soil testing laboratory recommendations, or as required by the Engineer. At slopes exceeding 25 percent gradient, fertilizer shall be applied manually in a manner approved by the Engineer. Fertilizer shall not be applied between June 15 and August 31.

3.05 Loam Borrow shall be worked by tilling or power raking to a minimum depth of 3-inches, thoroughly incorporating the lime and fertilizer into the soil. The Loam Borrow shall then be raked until the surface is finely pulverized and smooth and compacted with rollers, weighing between 75 and 100 pounds per linear foot of tread, to an even surface conforming to the prescribed lines, grades and depths indicated on the plans.

END OF SECTION

SECTION 02428

CURED-IN-PLACE PIPE

PART 1 - GENERAL

1.01 WORK INCLUDED:

A. This section covers installation of cured-in-place pipe as called for herein and on the drawings. The work includes furnishing all equipment, material and labor required to perform the services described herein.

1.02 RELATED WORK:

A. Section 00331, TELEVISION AND MANHOLE INSPECTION LOGS

B. Section 00890, PERMITS

C. Section 01014, SCOPE AND SEQUENCE OF WORK

D. Section 01330, SUBMITTALS

E. Section 01331, DOCUMENTATION

F. Section 01575, HANDLING EXISTING FLOWS

G. Section 02440, SEWER CLEANING AND INSPECTION

H. Section 02443, SERVICE CONNECTION REHABILITATION

1.03 QUALITY ASSURANCE:

A. The work described herein shall be performed by a company with not less than five (5) years of experience in providing the required services, employing experienced workers and experienced supervisory personnel. Supervisory personnel shall have not less than three (3) years of experience in providing the required services and shall be present at the jobsite during all work related to the required services.

1.04 REFERENCES:

The following standards form a part of this specification as referenced:

American Society for Testing and Materials (ASTM)

ASTM F1216 Standard Practice for Rehabilitation of Existing Pipelines and Conduits by the Inversion and Curing of a Resin-Impregnated Tube

1.05 SYSTEM DESCRIPTION:

A. Unless otherwise indicated herein, installation of cured-in-place pipe shall be carried out in accordance with ASTM F1216, Section 7.

B. Curing of liner tube using hot water or steam shall be acceptable.

C. The Contractor shall design all cured-in-place liners assuming partially deteriorated pipe conditions and a groundwater height above the crown of the pipe equal to one-half (50%) of the distance between the ground surface and the invert of the sanitary sewer line to be rehabilitated unless otherwise noted below.

D. The Contractor shall design all cured-in-place structural liners assuming fully deteriorated pipe conditions and a groundwater height above the crown of the pipe equal to one-half (50%) of the distance between the ground surface and the invert of the sanitary sewer line to be rehabilitated unless otherwise noted below.

E. The Contractor may propose alternative cured-in-place processes and/or products for review and approval by the Engineer.

F. The location, length, and approximate interior dimensions of the cured-in-place pipe to be installed are as shown on the drawings.

G. The Contractor shall provide MSDS for all chemicals used in the lining process.

1.06 SUBMITTALS: IN ACCORDANCE WITH REQUIREMENTS OF SECTION 01330 SUBMITTALS, SUBMIT THE FOLLOWING:

A. Prior to beginning the work, submit the following:

1. Qualifications of the firm/personnel who will perform the Work.

2. Descriptions of system proposed for handling existing flows, if necessary, during the procedures to be carried out.

3. Description of the system, equipment and material proposed for the cured-in-place pipe.

4. Manufacturer’s warranty.

B. Prior to beginning the work, the Contractor shall submit, a written plan for contacting homeowners whose service connections may be affected due to the installation of liner.

Such plan is subject to approval by the Engineer and the Owner.

C. The Contractor shall submit the following information for each inversion within 21 days following completion of the liner installation. The information shall also be included on external hard drives as described in Section 01331, DOCUMENTATION.

- Pre-inversion television inspection logs and videos
- Liner order sheet describing the material ordered
- Service connection reinstatement sign-off sheet
- Thermo couple log kept during inversion process
- Post-inversion television inspection logs and videos
- Material testing results

Information should be organized by inversion and two (2) copies shall be delivered.

1.07 WARRANTY:

The cured-in-place pipe shall be warranted against infiltration and defects for one (1) year from the date the project is accepted by the Owner. Defects shall include, but not be limited to, dry spots; lifts; wrinkles; fins; delaminations; pinholes (with or without infiltration); mineral deposits; staining; and infiltration. Defects shall also include reinstated non-active service connections and reinstated connections specifically identified on the drawings to not be reinstated.

PART 2 - PRODUCTS

2.01 MATERIALS:

A. Materials used for the cured-in-place pipe shall meet the requirements of ASTM F1216.

B. Cured-in-place pipe shall be as manufactured by Insituform Technologies, National Liner, Cure-Line, or approved equal.

C. Hydrophylic rubber gaskets shall swell to a minimum of 120% of its dry size when in contact with water and shall have a maximum swell size of 6 millimeters high. Gaskets must be adhered to the host pipe to ensure proper installation by either an adhesive sealant or mechanical fastener. Gaskets, fasteners and adhesives shall be as manufactured by Hydrotite, Adeka, LMK Technologies or approved equal.

PART 3 - EXECUTION

3.01 PIPE CLEANING AND INSPECTION:

Pipe cleaning and inspection shall be carried out in accordance with Section 02440, SEWER CLEANING AND INSPECTION and shall not be measured separately for payment.

3.02 FLOW CONTROL:

Flow control, if required, shall be in accordance with Section 01575, HANDLING EXISTING FLOWS.

3.03 WATER FOR CONSTRUCTION PURPOSES:

Availability of water for construction purposes shall be in accordance with Section 01140, SPECIAL PROVISIONS.

3.04 NOTIFICATION:

A. The Contractor shall affix a written notice to the door of each home that has sewer service through the pipe being lined one week prior to the lining operation and again one day before the lining operation. A notice shall also be distributed following service connection reinstatement stating that the service connection has been restored to service.

B. The written notice must be approved by the Engineer prior to its distribution.

C. The printing and distribution of notices to the homeowners by the Contractor shall be considered incidental to the lining operation.

3.05 INSTALLATION:

A. Each sewer segment shall be television inspected prior to the installation of the cured-in-place liner. The inspection shall be performed in "dry-pipe" conditions with no flow in the pipe. The pipe shall be clean and free of all obstructions prior to installation of the liner.

B. Prior to installation of the cured-in-place pipe the Contractor shall install a hydrophilic rubber gasket on the inside of each pipe where it meets a manhole such that the hydrophilic rubber gasket is between the host pipe and the cured-in-place pipe. The annular space shall be made watertight at the ends of the liner in the manholes.

C. The Contractor shall make television inspection camera available for confirming service connections to be reinstated. At the Engineer's discretion, the Contractor shall dye test service connections to confirm that each service connection that should be reinstated is included on the attached Service Connection Reinstatement Certification Form. Contractor shall not reinstate inactive service connections. Contractor shall make reasonable efforts to confirm if a service is active, including review of available tie cards with the Resident Representative (Resident Representatives shall obtain available tie cards) and dye testing/television inspection of properties as required. No additional payment will be made for television inspection of mainline or service line from mainline to property in conjunction with dye testing of service connections.

D. The Contractor shall install a pre-liner or grout infiltration sources if required to install

the cured-in-place pipe.

E. Installation of the cured-in-place pipe shall be in accordance with ASTM F1216, Section 7.

F. After the liner has been cured in place, the Contractor shall reinstate and brush all active service connections as required by the Engineer. Branch connections to buildings shall be reinstated to a minimum of 95% of the inside diameter of the existing service connection without excavation, utilizing a remotely controlled cutting and brushing device, monitored by a video TV camera. No additional payment will be made for excavations for the purpose of reinstating connections and the contractor will be responsible for all cost and liability associated with such excavation and restoration work.

G. The service connections to be reinstated for each inversion will be listed on the attached form (Service Connection Reinstatement Certification Form) and will be signed by an authorized representative of the Contractor.

H. All reinstated service connections shall be sealed with grout in accordance with Section 02443, SERVICE CONNECTION REHABILITATION. The Contractor shall make certain that the annular space between the host pipe and the cured-in-place pipe is fully sealed with grout.

I. Each sewer segment shall be television inspected after the liner installation and service grouting have been completed. The inspection shall be performed in "dry-pipe" conditions with no flow in the pipe. Post rehabilitation television inspection shall be performed prior to removing any sewer bypass equipment. Post rehabilitation television inspection shall be considered incidental to the lining process and shall not be measured separately for payment.

3.06 TESTING REQUIREMENTS:

A. Cured-in-place pipe samples shall be prepared and tested by the Contractor in accordance with ASTM F1216 Section 8.1 unless otherwise stated in this section.

B. The Contractor shall obtain samples for each pipe inversion.

C. If field conditions or pipe shape prevent the Contractor from obtaining the samples as specified in ASTM F1216 Section 8.1 the samples shall be taken as required by the Engineer.

D. An independent testing laboratory shall test the cured-in-place pipe samples and the results are to be sent directly to the Engineers Resident Project Representative within 21 calendar days following the completion of each inversion.

E. The cost of obtaining the samples and testing shall be the sole responsibility of the Contractor and shall be considered incidental to the lining process.

F. Inversions where the cured-in-place pipe samples that do not meet the requirements of ASTM D790 and D638 as indicated in ASTM F1216 Section 8 will be televised by the Contractor, as required by the Engineer, at no additional cost to the Owner, for review by the Engineer. Liner deemed unacceptable by the Engineer will be removed and replaced at no additional cost to the Owner.

3.07 FIELD TESTING/INSPECTION:

A. Prior to expiration of the warranty period, during periods of high groundwater, and at a time to be approved by the Engineer, the Contractor shall clean and television inspect each of the cured-in-place pipes in accordance with Section 02440, SEWER CLEANING, INSPECTION, TESTING AND SEALING. The contractor shall repair any defects found in the cured-in-place pipe. Defects shall include, but not be limited to, dry spots; lifts; wrinkles; fins; delaminations; pinholes (with or without infiltration); mineral deposits; staining; and infiltration. Defects shall also include reinstated non-active service connections and reinstated connections specifically identified on the drawings to not be reinstated. Removal and replacement of cured-in-place pipe with defects shall be performed if required by the ENGINEER. Defects shall be repaired by cured-in-place pipe or short liners, as required by the ENGINEER. Short liners shall be a minimum of four (4) linear feet per defect location. The Contractor shall reseal the annular space between the sewer main and the cured-in-place pipe at manhole locations and service connections until there are no visible leaks through television inspection.

B. All inspecting, resealing, cured-in-place lining, short lining, or other repairs within the warranty period shall be provided at no additional cost to the Owner and as required by the ENGINEER.

SERVICE CONNECTION REINSTATEMENT CERTIFICATION FORM

The Contractor shall review sewer tie cards, television inspection tapes, and perform dye tests as necessary to determine which service connections should be reinstated following installation of a Cured-in-Place Liner. Details regarding the location of each service connection that will be reinstated, including Manhole-to-Manhole reach, stationing, and clock position shall be recorded on this form.

		Service Connections to be Reinstated (Clock Position)
Inversion #_____	MH _____ to MH _____	_____
	MH _____ to MH _____	_____
	MH _____ to MH _____	_____
	MH _____ to MH _____	_____
	MH _____ to MH _____	_____
	MH _____ to MH _____	_____
	MH _____ to MH _____	_____
	MH _____ to MH _____	_____

The Contractor shall be responsible for reinstatement of **all active** service connections following Cured-in-Place Lining. If active service connections are found, prior to the project being complete, not to have been reinstated, the Contractor shall reinstate them within one (1) calendar day of notification, at his sole expense. If active service connections are found, at any future date, not to have been reinstated, the Contractor shall reinstate them within three (3) calendar days of notification, at his sole expense.

Contractor

_____ _____
Signature Date

_____
Print Name

END OF SECTION

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SECTION 02429

CURED-IN-PLACE SHORT LINER

PART 1 - GENERAL

1.01 WORK INCLUDED:

This section covers installation of cured-in-place short liners as called for herein and on the drawings. The work includes furnishing all equipment, material and labor required to perform the services described herein.

1.02 RELATED WORK:

A. Section 00331, TELEVISION AND MANHOLE INSPECTION LOGS

B. Section 01014, SCOPE AND SEQUENCE OF WORK

C. Section 01330, SUBMITTALS

D. Section 01331, DOCUMENTATION

E. Section 01575, HANDLING EXISTING FLOWS

F. Section 02428, CURED-IN-PLACE PIPE

G. Section 02440, SEWER CLEANING AND INSPECTION

H. Section 02443, SERVICE CONNECTION REHABILITATION

1.03 QUALITY ASSURANCE:

The work described herein shall be performed by a company with not less than five (5) years of experience in providing the required services, employing experienced workers and experienced supervisory personnel. Supervisory personnel shall have not less than three (3) years of experience in providing the required services and shall be present at the jobsite during all work related to the required services.

1.04 REFERENCES:

The following standards form a part of this specification as referenced:

American Society for Testing and Materials (ASTM)

ASTM F1216 Standard Practice for Rehabilitation of Existing Pipelines and Conduits by the Inversion and Curing of a Resin-Impregnated Tube.

1.05 SYSTEM DESCRIPTION:

A. The cured-in-place short liners shall be epoxy resin impregnated cured-in-place liners, installed where indicated on the drawings. The short liners shall be thoroughly impregnated with epoxy resin prior to insertion and upon curing shall form a hard, impervious, corrosion resistant lining. When cured, the short liner shall be formed to the internal circumference of the host pipe. The short liner shall be impervious to water and shall not allow infiltration to migrate between the liner and the host pipe at either end of the liner or in the area where a service connection has been reinstated.

B. The Contractor shall design cured-in-place short liners assuming partially deteriorated pipe conditions and a groundwater height above the crown of the pipe equal to one-half (50%) of the distance between the ground surface and the invert of the sanitary sewer line to be rehabilitated.

C. The Contractor shall design structural cured-in-place short liners assuming fully deteriorated pipe conditions and a groundwater height above the crown of the pipe equal to one-half (50%) of the distance between the ground surface and the invert of the sanitary sewer line to be rehabilitated.

D. The Contractor may propose alternative processes and/or products for review and approval by the Engineer."

1.06 SUBMITTALS: IN ACCORDANCE WITH REQUIREMENTS OF SECTION 01330 SUBMITTALS, SUBMIT THE FOLLOWING:

Prior to beginning the work, submit the following:

1. Qualifications of the firm/personnel who will perform the Work.

2. Descriptions of system proposed for handling existing flows, if necessary, during the procedures to be carried out.

3. Description of the system, equipment and material proposed for the cured-in-place short liners.

4. MSDS for all chemicals used in the short lining process.

5. Manufacturer's Warranty.

1.07 WARRANTY:

The short liners shall be warranted against infiltration and faulty workmanship and materials for one year from the date the project is accepted by the Owner.

PART 2 - PRODUCTS

2.01 MATERIALS:

Materials used for the cured-in-place short liners shall meet the requirements of ASTM F1216.

PART 3 - EXECUTION

3.01 PIPE CLEANING AND INSPECTION:

Pipe cleaning and inspection shall be carried out in accordance with Section 02440, SEWER CLEANING AND INSPECTION

3.02 FLOW CONTROL:

Flow control, if required, shall be in accordance with Section 01575, HANDLING EXISTING FLOWS.

3.03 STRUCTURAL REQUIREMENTS:

The design of the cured-in-place short liners shall meet the requirements of ASTM F1216 X1, taking into consideration the condition of the original pipe.

3.04 INSTALLATION:

A. The cured-in-place short liner installation procedures shall be in accordance with the manufacturer's written instructions, and as herein specified.

B. The edges of the short liners shall be tapered at both ends.

C. No significant pipe volume change shall occur due to installation of the short liners.

D. The short liners shall be installed so as to force excess resin into any cracks, joints or other surface defects of the existing interior pipe wall surface.

E. Each short liner shall have a minimum length of three (3) linear feet. The location and length of the short liners shall be as indicated on the drawings and as required by the Engineer.

F. After the short liner has been cured in place, the Contractor shall reinstate the existing service connections. Branch connections to buildings shall be reopened without excavation, per ASTM F1216, paragraph 7.9. No additional payment will be made for

excavations for the purpose of reopening connections and the Contractor will be responsible for all costs and liability associated with such excavation and restoration work.

G. After the existing service connections have been reinstated, the Contractor shall grout the service connections, in accordance with Section 02443, SERVICE CONNECTION REHABILITATION. The Contractor shall make certain that the annular space between the sewer main and the cured-in-place short liner is fully sealed with grout. No additional payment shall be made for grouting service connections.

3.05 FIELD TESTING/INSPECTION:

A. Prior to expiration of the warranty period, during periods of high groundwater, and at a time to be approved by the Engineer, the Contractor shall television inspect each of the short liners in accordance with paragraph 3.02 of Section 02440, SEWER CLEANING, AND INSPECTION. The Contractor shall repair any defects found and shall seal the annular space between the liner and the host pipe until there are no visible leaks through television inspection.

B. All inspecting and sealing within the warranty period shall be provided at no additional cost to the Owner.

END OF SECTION

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SECTION 02435

SEWER MANHOLE REHABILITATION

PART 1 - GENERAL

1.01 WORK INCLUDED:

A. This Section covers the rehabilitation of sewer manholes as called for herein and on the drawings. It is the intent of this specification to provide for the waterproofing, sealing, and structural enhancement of existing manholes by chemical grout exterior sealing of sewer manhole inverts, walls and corbels; and by application of a uniform cementitious layer of high-quality mortar. Additional manhole rehabilitation related items include chemical root treatment, install epoxy liner**,** install bolted and gasketed manhole frame and cover, raise manhole frame and cover, install manhole encapsulation system, build manhole bench and invert, and install internal drop connection.

B. The work shall include: elimination of infiltration by external chemical grout sealing; removal and patching of loose and/or unsound material; cleaning and preparation of surfaces; repair of invert, bench, and walls; and chemical grout sealing of the invert, bench, walls, and pipe connections; and spray application of a cementitious mix to form a liner. Other repairs shall be completed as indicated on the drawings and described herein.

C. The contractor shall furnish all equipment, material and labor required to perform all manhole rehabilitations described in this specification.

D. External grouting of inverts, bench, walls, corbel, and pipe connections shall be performed prior to application of cementitious mix.

1.02 RELATED WORK:

A. Section 00331, TELEVISION AND MANHOLE INSPECTION LOGS

B. Section 01014, SCOPE AND SEQUENCE OF WORK

C. Section 01330, SUBMITTALS

D. Section 01331, DOCUMENTATION

E. Section 01575, HANDLING EXISTING FLOWS

1.03 QUALITY ASSURANCE:

A. The work described herein shall be performed by a company with not less than five (5) years of experience in providing the required services, employing experienced workers and experienced supervisory personnel. Supervisory personnel shall have not less than three (3) years of experience in providing the required services and shall be present at the jobsite during all work related to the required services.

1.04 REFERENCES:

A. The following standards form a part of this specification as referenced:

The National Association of Sewer Service Companies (NASSCO)

Performance Specification Guideline for Manhole Rehabilitation

American Society for Testing and Materials (ASTM)

ASTM C94	Ready-Mix Concrete
ASTM C109	Comprehensive Strength
ASTM C267	Chemical Resistance
ASTM C596	Shrinkage
ASTM C666, Method A	Freeze/Thaw Resistance
ASTM D4414	Standard Practice for Measurement of Wet Film Thickness for Organic Coatings
ASTM 543	Resistance of Plastics to Chemical Reagents
ASTM 638	Tensile Properties of Plastic
ASTM 695	Comprehensive Properties of Rigid Plastics
ASTM D790	Flexural Properties of Unreinforced and Reinforced Plastics

1.05 CEMENTITIOUS LINING SYSTEM DESCRIPTION:

A. Unless otherwise indicated herein, sewer manhole sealing shall be carried out in accordance with the current edition of the Performance Specification Guideline for Manhole Rehabilitation (NASSCO).

B. The Contractor may propose alternative processes and/or products for review and approval by the Engineer.

C. The locations of the cementitious lining work to be completed are as shown on the drawings.

1.06 EPOXY LINER SYSTEM DESCRIPTION:

A. Unless otherwise indicated herein, the application of an epoxy liner shall be carried out in accordance with the current edition of the PROTECTION OF UNDERGROUND CONCRETE AND MASONRY STRUCTURES AND MANHOLES (As provided by Raven Lining Systems) of NASSCO Recommended Specifications for Sewer Collection System Rehabilitation.

B. The Contractor may propose alternative processes and/or products for review and approval by the Engineer.

C. The locations where the epoxy liner is to be applied are indicated on the drawings.

1.07 SUBMITTALS: IN ACCORDANCE WITH REQUIREMENTS OF SECTION 01330 SUBMITTALS, SUBMIT THE FOLLOWING:

A. Prior to beginning the work, submit the following:

1. Qualifications of the firm/personnel who will perform the work.

2. Provide at least five (5) references of different projects in which at least 50 manholes have been rehabilitated by the firm within the past three (3) years.

3. Provide at least three (3) references of different projects completed in the last three (3) years in which an epoxy finish was applied to sanitary sewer manholes.

4. Description of the system, equipment and material with MSDS Data Sheets proposed for sewer manhole rehabilitation.

5. Description of the system proposed for bypass pumping during the procedures to be carried out.

6. Manufacturer’s warranty

B. Refer to Section 01331, DOCUMENTATION, for required documentation to be submitted.

1.08 WARRANTY:

A. The manhole rehabilitation work performed shall be warrantied against infiltration and faulty workmanship and materials for a period of one (1) year after the project is accepted by the Owner.

PART 2 - PRODUCTS

2.01 REHABILITATION MATERIALS:

All products used for lining, sealing, patching, and cleaning shall be environmentally safe. The contractor shall submit MSDS Data Sheets for all materials used.

2.02 SEALING OF INVERT, STOPPING ACTIVE LEAKS AND EXTERIOR CHEMICAL SEALING:

The contractor shall use a chemical grout that is environmentally safe for the sealing of sewers. The chemical grout shall be in accordance with Part 2, Products, of the NASSCO Suggested Standard Specification for Pressure Testing and Grouting of Sewer Joints, Laterals and Lateral Connections (Using the Packer Method with Solution Grouts).

2.03 PATCHING MIX:

A quick-setting cementitious material shall be used as a patching mix and is to be mixed and applied according to the manufacturer's recommendation and shall have the following minimum requirements.

Compressive Strength	ASTM C-109	6 hr 1,400 psi
Shrinkage	ASTM C-596	0% AT 90% Relative Humidity

2.04 INFILTRATION CONTROL MIX:

A rapid-setting cementitious product specifically for leak control shall be used to stop water infiltration and shall be mixed and applied according to the manufacturer's recommendations and shall have the following minimum requirements.

Compressive Strength	ASTM C-109	1 hr 600 psi
Compressive Strength	ASTM C-109	24 hr 1,800 psi

2.05 LINER MIX:

A. The cementitious liner mix shall be used to form a structural enhancing monolithic liner covering all interior manhole surfaces and shall have the following minimum requirements at 28 days:

Compressive Strength	ASTM C-109	6,000 psi
Shrinkage	ASTM C-596	0%, 90% humidity
Freeze/Thaw Resistance	ASTM C-666	No visible damage after 100 cycles

B. The liner mix shall be applied in one monolithic layer.

2.06 EPOXY MIX:

The epoxy liner mix shall be composed of 100% solids, solvent-free, moisture tolerant, two-component epoxy resin system, thixotropic in nature and filled with select fillers to minimize permeability. The epoxy liner mix shall form an interlocking bond to freshly applied cementitious mortars and conform to the manufacturer's specifications to prevent delaminating powders from forming during hydration. The epoxy liner shall have the following minimum requirements.

Compressive Strength	ASTM D695	>4,000 psi
Tensile Strength, psi	ASTM D638	>2,700 psi
Flexural Modulus, psi	ASTM D790	>600,000 psi
Bond Strength Concrete	ASTM D7234	>Tensile Strength of Concrete
Chemical Resistance to:	ASTM D543	
Wastewater		Immersion Service
Sulfuric Acids, 10%		Immersion Service

2.07 BRICK MATERIALS:

A. Brick shall be sound, hard, and uniformly burned brick, regular and uniform in shape and size, of compact texture, and satisfactory to the Engineer. Bricks shall comply with ASTM C32, for Grade SS, hard brick, except that the mean of five tests for absorption shall not exceed 8 percent by weight.

B. Rejected brick shall be immediately removed from the work and brick satisfactory to the Engineer substituted.

C. Mortar shall be composed of Portland cement, hydrated lime, and sand in which the volume of sand shall not exceed three times the sum of the volumes of cement and lime. The proportions of cement and lime shall be as directed and may vary from 1:1/4 for dense hard-burned brick to 1:3/4 for softer brick. In general, mortar for Grade SS Brick shall be mixed in the volume proportions of 1:1/2:4-1/2; Portland cement to hydrated lime to sand.

D. Cement shall be Type II Portland cement as specified for concrete masonry.

E. Hydrated lime shall be Type S conforming to ASTM C207.

F. Sand shall comply with ASTM C144 specifications for "Fine Aggregate," except that all of the sand shall pass a No. 8 sieve.

2.08 CONCRETE:

A. Cement shall be domestic Portland cement conforming to ASTM C150, Type II.

B. Fine aggregate shall be washed natural sand conforming to ASTM C33.

C. Coarse aggregate shall be well graded crushed stone conforming to ASTM C33, size No. 67.

D. No admixtures shall be used unless approved by the Engineer in writing.

2.09 BOLTED AND GASKETED MANHOLE FRAME AND COVER:

The bolted and gasketed manhole frame and cover shall EJ type 1056ZPT/1056APT or approved equal.

2.10 INTERNAL DROP CONNECTION:

Inside drop connection components shall be manufactured by RELINER/Duran, Inc. or approved equal.

2.11 WATER:

Water used in mixing shall be potable.

2.12 DELIVERY, STORAGE, AND HANDLING:

A. Materials shall be delivered to the site in the Manufacturer's original, unopened containers and packaging, with labels clearly identifying product name and manufacturer.

B. All materials shall be stored properly and in accordance with Manufacturer's instructions.

PART 3 - EXECUTION

3.01 SAMPLING AND TESTING OF LINER:

A. The Owner reserves the right to test all materials.

B. Products that fail to meet the requirements of these specifications shall not be incorporated in the work.

3.02 SURFACE PROTECTION:

A. During progress of work, where appearance is important, adjacent areas or grounds which may be permanently discolored, stained, or otherwise damaged by dust and rebound, shall be adequately protected and, if contacted, shall be cleaned by early scraping, brushing or washing, as the surroundings permit.

B. No street markings shall be removed or covered throughout the progress of work.

3.03 EXISTING FLOWS:

The Contractor shall divert flows as required for the work and in accordance with the requirements specified in Section 01575, HANDLING EXISTING FLOWS.

3.03 MANHOLE CHEMICAL ROOT TREATMENT:

The Contractor shall provide manhole chemical root treatment where indicated on the drawings. The chemical root treatment shall be in accordance with Section 02437, SEWER LINE AND MANHOLE CHEMICAL ROOT TREATMENT.

3.04 CEMENTITIOUS LINING:

A. Preparation

1. Remove all foreign material from the manhole wall and bench using a high-pressure water spray (minimum 5,000 psi). Loose and protruding brick, mortar, and concrete shall be removed using a mason's hammer and chisel and/or scraper. Fill any large voids with quick-setting patching mix. Surfaces to be repaired shall be clean and free of loose materials. Additional surface preparation shall be as recommended by the manufacturer of the materials to be applied.

2. Leaks shall be stopped using a chemical grout, which shall be applied as per the manufacturer's recommendations. Leaks may require weep holes drilled at the manhole base to localize the infiltration during the application, after which the weep holes shall be sealed with a chemical grout and plugged with the quick-setting infiltration control mix prior to the final liner application. Areas with evidence of previous leakage (e.g., mineral deposits) shall also be grouted.

3. All pipe connections in brick and block manholes shall be grouted regardless of whether they are leaking or have signs of previous leakage. Grout ports shall be located near the pipe connections to ensure the sealing material is injected at the manhole/pipe connections. Grout ports shall also be located and drilled in the bench and invert for all brick and block manholes as necessary to seal the manhole base.

B. Invert Sealing

1. The Contractor shall carry out all work as described in the latest edition of the Performance Specification Guideline for Manhole Rehabilitation, Section 3.2C (NASSCO) using sealing materials and procedures accepted by the Engineer.

2. A minimum of four (4) grout ports shall be located and drilled in the manhole bench and invert of brick and block manholes as necessary to seal the invert and manhole base.

3. A quick setting patch mix shall be troweled uniformly not to exceed ½-inch, onto the damaged invert extended out onto the base of the manhole sufficiently to tie into the structurally enhanced monolithic liner to be applied.

C. Exterior Grouting

1. For precast manholes, grout ports shall be located two (2) feet (maximum) around the circumference of the manhole, approximately one (1) foot below and one (1) foot above each joint to seal all joints. Additional grout ports shall be located so as to seal any other defects not occurring at a joint.
2. For brick/block manholes, grout ports shall be located and drilled at 90-degree intervals and every two (2) vertical feet (maximum) around the circumference every two (2) feet (maximum) of the manhole to ensure proper grouting of the soil outside the manhole.

3. The Contractor shall prohibit debris from entering the invert by either covering the invert or plugging during application.

4. The chemical sealing material used shall be as described in chemical sealing (grouting) materials of the Performance Specification for Manhole Rehabilitation (NASSCO).

D. Interior Sealing

1. Interior lining of the manholes shall be conducted only after all other manhole rehabilitations have been completed.

2. Unless otherwise indicated herein, the Contractor shall carry out all work as described in the Performance Specification Guideline for Manhole Rehabilitation, Section 3.2 (NASSCO) using lining materials and procedures accepted by the Engineer.

3. Preparation, as described in section 3.05A, shall be completed prior to the placement of the cementitious liner.

4. Sealant shall not be placed on a frozen surface or during freezing weather. Sealant shall not be placed when it is anticipated that the temperature during the following 24 hours will drop below 32 degrees, Fahrenheit.

5. Pipes and/or service connections shall be temporarily plugged prior to the application of the cementitious manhole interior liner. A flash coat of the liner material shall be applied three (3) inches into each service connection. Temporary plugs shall be removed once the liner has cured sufficiently to prevent erosion of the new liner.

6. Thickness shall be verified with a wet gauge at random points of the new interior surfaces as required by the Engineer. Minimum thickness of one-half (½) inch is required.

7. Application shall be with low velocity, continuous flow equipment to prevent the adverse effects of rebound. A smooth trowel finish shall be applied.

8. The Contractor shall prohibit debris from entering the invert by either covering the invert or plugging during application.

E. Digital Photographs

1. The Contractor shall take a digital photograph of the interior of each manhole, before and after rehabilitation, in JPEG format. Filenames shall contain subarea and manhole designations (e.g. "G-05A-001"). Digital photographs shall have a minimum resolution of 10 megapixels.

3.05 EPOXY LINER:

A. The application of an epoxy liner to the interior of the sewer manholes shall be conducted only after all other manhole rehabilitations have been completed. When the epoxy lining is applied over the cementitious mortar, as indicated on the contract drawings, the epoxy shall form an interlocking bond to the cementitious mortar and conform to the manufacturer's specifications to prevent delaminating powders forming during hydration. To allow for adequate curing of the cementitious lining, a minimum of twenty four (24) hours shall elapse between the application of the cementitious mortar and the epoxy lining.

B. Unless otherwise indicated herein, the Contractor shall carry out all work as described in the current edition of the PROTECTION OF UNDERGROUND CONCRETE AND MASONRY STRUCTURES AND MANHOLES (As provided by Raven Lining Systems) of NASSCO Recommended Specifications for Sewer Collection System Rehabilitation using lining materials and procedures accepted by the Engineer.

C. The manhole surface must be clean and structurally sound prior to the application of the epoxy liner. Surfaces must be entirely free of oil, grease, paint, detergent, rust, surface

water, or other surface contaminants. After the cementitious mortar has been applied to the manhole, and more that 24-hours has elapsed, the Engineer shall determine if the surface is properly prepared for the application of the epoxy liner. The Engineer may require the Contractor to perform an additional pressure wash of the manhole, without harming the cementitious liner, to reach optimal surface conditions for the epoxy liner. All pressure washing shall be completed at no additional cost to the Owner.

D. The epoxy liner shall not be placed on a frozen surface or during freezing weather. The epoxy coating materials are to be stored and applied between 50 degrees, Fahrenheit and 90 degrees, Fahrenheit and shall be handled in accordance to their material data sheets.

E. Pipes and/or service connections shall be temporary plugged prior to the application of the epoxy interior liner. Temporary plugs shall be removed once the liner has cured sufficiently to prevent erosion of the new liner.

F. Application procedures shall conform to the epoxy coating manufacturer, including material handling, mixing, environmental controls during application, safety, and spray equipment. The spray equipment shall be specifically designed to accurately ratio and apply the specified epoxy coating materials.

G. Where indicated on the drawings, specified surfaces shall be sprayed with the epoxy coating to achieve a void free film consisting of one (1) coat wet film thickness of 100 mils. During the application a wet film thickness gauge meeting ASTM D4414 shall be used to ensure a monolithic coating and uniform thickness during the application.

H. After the epoxy coating has set hard to the touch, it shall be inspected with high-voltage holiday detection equipment. An induced holiday shall be made onto the coated concrete surface and shall serve to determine the minimum/maximum voltage to be used to test the coating for holidays at that particular area. The spark tester shall be initially set at 100 volts per 1 mil (25 microns) of minimum film thickness applied but may be adjusted as necessary to detect the induced holiday. All detected holidays shall be marked and repaired by abrading the coating surface with grit paper or other hand tooling methods. After abrading and cleaning, additional epoxy coating material can be hand applied to the repair area. All touch-up procedures shall follow the epoxy coating manufacturer's recommendations.

I. A final visual inspection shall be made by the ENGINEER and the CONTRACTOR. Any deficiencies in the finished coating shall be marked and repaired.

J. The Contractor shall prohibit debris from entering the invert by either covering the invert or plugging during application.

K. Epoxy coated structures shall be allowed to cure for a minimum of three (3) days prior to reinstating sewer service.

3.06 FURNISH AND INSTALL BOLTED AND GASKETED MANHOLE FRAME AND COVER:

A. Contractor shall excavate, remove, and dispose of existing frames and covers. Contractor shall furnish and install EJ type 1056ZPT/1056APT or approved equal bolted and gasketed manhole frame and cover at manholes as indicated on the plans.

B. Frames shall be set concentric with the top of the concrete section and in a full bed of mortar so that the space between the top of the concrete section or brick headers and the bottom flange of the frame shall be completely filled and made watertight. A thick ring of mortar extending to the outer edge of the concrete shall be placed all around the bottom flange. The mortar shall be smoothly finished to be flush with the top of the flange and have a slight slope to shed water away from the frame.

3.07 RAISE MANHOLE FRAME AND COVER:

Manhole frame and cover shall be removed and courses of brick added to raise the manhole frame and cover two (2) feet above existing grade. The manhole frame and cover shall be secured on top of the new bricks creating a watertight seal. The exterior of the structure exposed above grade shall be covered with a minimum 2-inch coating of the LINER MIX. The liner mix shall be applied as described in Section 3.05 D, Interior Sealing.

3.08 INSTALL MANHOLE ENCAPSULATION SYSTEM:

A. The exterior of the structure shall be sealed with a heat shrinkable sleeve manhole encapsulation system.

B. The manhole encapsulation system shall be installed from the manhole frame joint to six (6) inches below ground surface. The sleeve shall overlap the manhole frame.

C. Prior to installation of the manhole encapsulation system, that Contractor shall prepare surfaces in accordance with the manufacturer's instructions. The Contractor must ensure surfaces are clean, dry, and free of frost, surface rust, foreign objects, sharp edges and projections that could damage the sleeve.

D. The Contractor shall install the manhole encapsulation system in accordance with the manufacturer's instructions.

E. After shrinking is complete, allow the sleeve to cool prior to backfilling in accordance with the manufacturer's instructions.

F. Contractor shall furnish and install Canusa-CPS WrapidSeal Manhole Encapsulation System or approved equal.

3.09 BUILD MANHOLE BENCH AND INVERT:

A. Existing manhole bench and invert (including debris, deteriorated brick, block, and mortar) shall be removed and disposed of.

B. Bricks shall be moistened by suitable means, as required, until they are neither so dry as to absorb water from the mortar nor so wet as to be slippery when laid.

C. Each brick shall be laid as a header in a full bed and joint of mortar without requiring subsequent grouting, flushing or filling, and shall be thoroughly bonded as required.

D. Channels and shelves shall be constructed of brick and concrete as shown on the Drawings. The brick lined channels shall correspond in shape with the lower half of the pipe. The top of the shelf shall be set at the elevation of the crown of the highest pipe and shall be sloped 1 inch per foot to drain toward the flow through channel. Brick surfaces exposed to sewage flow shall be constructed with a nominal 2-inch by 8-inch face exposed (i.e. bricks on edge).

E. Bench and invert shall be constructed to allow television inspection camera and rehabilitation equipment to be inserted into the adjacent sewers.

3.10 INSTALL INTERNAL DROP CONNECTION:

A. Internal drop connections shall be installed as required by the Engineer.

B. The internal drop connection shall consist of an inside drop bowl and SDR 35 PVC drop pipe. Connection from drop bowl to drop pipe shall be by flexible external pipe connector. All components shall be installed as recommended by the manufacturer.

C. A PVC elbow shall be installed at the base of the drop pipe to provide a smooth transition into channel flow.

D. Inside drop bowl and drop pipe shall be secured in place using stainless steel clamping brackets, using a minimum of two (2) brackets and a maximum spacing of four (4) feet.

E. Inside drop connection components shall be manufactured by RELINER/Duran, Inc. or approved equal.

3.11 FIELD TESTING/INSPECTION:

A. Prior to the expiration of the warranty period, the Contractor shall inspect each of the sewer manholes rehabilitated during this project in accordance with the Performance Specification Guideline for Manhole Rehabilitation (NASSCO) at a timetable to be approved by the Engineer. The Contractor shall repair any defects found until there are no visible leaks.

B. If the groundwater level is not, in the opinion of the Engineer, high enough for an accurate visual inspection, the Contractor shall test a 25% sample of the original manhole rehabilitation work using exfiltration or vacuum methods as described in ASTM C-1244. The manholes in the test sample will be selected and approved by the Engineer and will consist of manholes from throughout the project area that are representative of the manhole rehabilitation work originally performed. Any manholes failing the warranty test shall be sealed and retested until the test is passed and/or the results are satisfactory to the Engineer.

C. If the initial failure rate of tested manholes is less than 5%, the work will be considered satisfactory and no further testing will required.

D. If the failure rate in the initial test sample equals or exceeds 5%, an additional and equivalent test sample of the original manhole rehabilitation work will be selected and approved by the Engineer. Additional test samples shall be taken until the failure rate of less than 5% is met. No previously tested manholes can be included in a subsequent test sample.

E. Should all of the manhole rehabilitation work fail to meet the less than 5% failure rate in each of the 25% test samples, the Contractor will be required to repeat the inspection procedure following resealing of the structures in question.

F. All inspecting, testing, and reworking within the warranty period shall be provided at no additional cost to the Owner.

END OF SECTION

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SECTION 02436

CURED-IN-PLACE LATERAL LINER

PART 1 - GENERAL

1.01 WORK INCLUDED:

A. This section covers installation of cured-in-place lateral liners as called for herein and on the drawings. The work includes furnishing all equipment, material and labor required to perform the services described herein.

1.02 RELATED WORK:

A. Section 01014, SCOPE AND SEQUENCE OF WORK

B. Section 01330, SUBMITTALS

C. Section 01331, DOCUMENTATION

D. Section 01575, HANDLING EXISTING FLOWS

1.03 QUALITY ASSURANCE:

A. The work described herein shall be performed by a company with not less than two (2) years of experience in providing the required services, employing experienced workers and experienced supervisory personnel. Supervisory personnel shall have not less than two (2) years of experience in providing cured-in-place services and shall be present at the jobsite during all work related to the required services.

1.04 REFERENCES:

The following standards form a part of this specification as referenced:

American Society for Testing and Materials (ASTM)

ASTM F1216 Standard Practice for Rehabilitation of Existing Pipelines and Conduits by the Inversion and Curing of a Resin-Impregnated Tube

The National Association of Sewer Service Companies (NASSCO) Recommended Specifications for Sewer Collection System Rehabilitation (Current Edition).

1.05 SYSTEM DESCRIPTION:

A. Unless otherwise indicated herein, installation of cured-in-place lateral liners shall be carried out in accordance with ASTM F1216, Section 7.

B. Curing of liner tube using ambient-temperature air, hot water, or steam shall be acceptable.

C. The Contractor shall design all cured-in-place lateral liners assuming partially deteriorated pipe conditions and a groundwater height above the crown of the pipe equal to one-half (50%) of the distance between the ground surface and the invert of the lateral (at its connection to the mainline) to be rehabilitated unless otherwise noted below.

D. Lateral liners shall be a one piece joint-less polyester felt tube that will create a watertight seal at the mainline interface and extend continuously over the entire length of the lateral liner. Cured-in-place lateral liners in mainline pipes 12-inch diameter and smaller shall include a full wrap at the mainline.

E. Termination of the lateral liner shall be at the property line, or a maximum of 30 linear feet from the mainline if the property line is greater than 30 feet from the mainline. Lateral lining shall be accomplished without a cleanout when possible. No additional payment will be made for the installation of a cleanout. Minimum liner length shall be five (5) feet from the connection at the mainline.

D. The Contractor may propose alternative cured-in-place processes and/or products for review and approval by the Engineer.

E. The location of the cured-in-place lateral liners to be installed are as shown on the drawings.

F. The Contractor shall provide MSDS for all chemicals used in the lining process.

1.06 SUBMITTALS: IN ACCORDANCE WITH REQUIREMENTS OF SECTION 01330 SUBMITTALS, SUBMIT THE FOLLOWING:

A. Prior to beginning the work, submit the following:

1. Qualifications of the firm/personnel who will perform the Work.

2. Descriptions of system proposed for handling existing flows, if necessary, during the procedures to be carried out.

3. Description of the system, equipment and material proposed for the cured-in-place lateral liner.

4. Manufacturer's warranty.

B. Prior to beginning the work, the Contractor shall submit, a written plan for contacting homeowners whose service connections will be affected due to the installation of the liner. Such plan is subject to approval by the Engineer and the Owner.

C. The Contractor shall submit the following information for each inversion within 21 days following completion of the liner installation.

- Pre-inversion television inspection logs and video files (Video files shall also be included on external hard drives as described in Section 01331, DOCUMENTATION)
- Liner order sheet describing the material ordered
- Thermo couple log kept during inversion process (if relevant)
- Post-inversion television inspection logs and video files (Video files shall also be included on external hard drives as described in Section 01331, DOCUMENTATION)
- Material testing results

Information should be organized by mainline sewer segment and stationing and two (2) copies shall be delivered.

1.07 WARRANTY:

The cured-in-place lateral liner shall be warranted against infiltration and faulty workmanship and materials for one (1) year from the date the project is accepted by the Owner.

PART 2 - PRODUCTS

2.01 MATERIALS:

A. Materials used for the cured-in-place lateral liner shall meet the requirements of ASTM F1216.

B. Cured-in-place lateral liners shall be manufactured by Layne Inliner, LLC or approved equal.

PART 3 - EXECUTION

3.01 PIPE CLEANING AND INSPECTION:

A. Cleaning and inspection of the lateral shall be accomplished from the mainline pipe.

B. The lateral shall be cleaned to the property line, or a maximum of 30 linear feet from the mainline if the property line is greater than 30 feet from the mainline, to ensure the lateral is ready for lining. The Contractor shall verify, prior to liner installation, that all debris has been removed from the lateral.

C. The interior of the lateral shall be carefully inspected to determine the location of any conditions which may prevent proper installation of the lateral liner.

3.02 FLOW CONTROL:

Flow control, if required, shall be in accordance with Section 01575, HANDLING EXISTING FLOWS.

3.03 WATER FOR CONSTRUCTION PURPOSES:

Availability of water for construction purposes shall be in accordance with Section 01140, SPECIAL PROVISIONS.

3.04 NOTIFICATION:

A. The Contractor shall affix a written notice to the door of each home that has sewer service through the lateral being lined one week prior to the lining operation and again one day before the lining operation. A notice shall also be distributed following lateral liner installation stating that the service connection has been restored to service.

B. The written notice must be approved by the Engineer prior to its distribution.

C. The printing and distribution of notices to the homeowners by the Contractor shall be considered incidental to the lining operation.

3.05 INSTALLATION:

A. Each lateral shall be television inspected prior to the installation of the lateral liner. The inspection shall be performed in “dry-pipe” conditions with no flow in the pipe. The pipe shall be clean and free of all obstructions prior to installation of the liner.

B. Installation of the cured-in-place lateral liner shall be in accordance with ASTM F1216, Section 7.

C. No additional payment will be made for excavations for the purpose of reinstating connections or repairing improperly installed liners and the contractor will be responsible for all cost and liability associated with such excavation and restoration work.

D. The Contractor shall make certain that the connection between the mainline pipe and the lateral liner is watertight.

E. Each lateral shall be television inspected after the liner installation has been completed. The inspection shall be performed in “dry-pipe” conditions with no flow in the pipe. Post rehabilitation television inspection shall be performed prior to removing any sewer bypass equipment. Post rehabilitation television inspection shall be considered incidental to the lining process and shall not be measured separately for payment.

3.06 TESTING REQUIREMENTS:

A. Cured-in-place pipe samples shall be prepared and tested by the Contractor in accordance with ASTM F1216 Section 8.1 unless otherwise stated in this section.

B. The Contractor shall obtain samples for all liner inversions, as required by the Engineer.

C. An independent testing laboratory shall test the cured-in-place lateral liner samples and the results are to be sent directly to the Engineers Resident Project Representative within 21 calendar days following the completion of each inversion.

D. The cost of obtaining the samples and testing shall be the sole responsibility of the Contractor and shall be considered incidental to the lining process.

E. Inversions where the cured-in-place lateral liner samples that do not meet the requirements of ASTM D790 and D638 as indicated in ASTM 1216 Section 8 will be televised by the Contractor, as required by the Engineer, at no additional cost to the Owner, for review by the Engineer. Liners deemed unacceptable by the Engineer will be removed and replaced at no additional cost to the Owner.

3.07 FIELD TESTING/INSPECTION:

A. Prior to expiration of the warranty period, during periods of high groundwater, and at a time to be approved by the Engineer, the Contractor shall clean and television inspect each of the cured-in-place lateral liners. The contractor shall repair any defects found in the cured-in-place lateral liners.

B. All inspecting and resealing or relining within the warranty period shall be provided at no additional cost to the Owner.

END OF SECTION

SECTION 02437

SEWER LINE AND MANHOLE CHEMICAL ROOT TREATMENT

PART 1 - GENERAL

1.01 WORK INCLUDED:

A. This Section covers chemical root treatment of sewer lines and manholes as called for herein and on the drawings. The work includes furnishing all equipment, material and labor required to perform the services described herein.

1.02 RELATED WORK:

A. Section 00331, TELEVISION AND MANHOLE INSPECTION LOGS

B. Section 00890, PERMITS

C. Section 01014, SCOPE AND SEQUENCE OF WORK

D. Section 01330, SUBMITTALS

E. Section 01331, DOCUMENTATION

F. Section 01575, HANDLING EXISTING FLOWS

G. Section 02435, SEWER MANHOLE REHABILITATION

H. Section 02440, SEWER CLEANING AND INSPECTION

1.03 QUALITY ASSURANCE:

A. The work described herein shall be performed by a company with not less than five (5) years of experience in providing the required services, employing experienced workers and experienced supervisory personnel. Supervisory personnel shall have not less than three (3) years of experience in providing the required services and shall be present at the jobsite during all work related to the required services.

1.04 REFERENCES:

A. The following standards form a part of this specification as referenced:

The National Association of Sewer Service Companies (NASSCO)

Sewer Line Chemical Root Control – Technical Specifications (Duke's Root Control)
Foaming Root Control Herbicide – Technical Specifications (Vaporooter)

1.05 SYSTEM DESCRIPTION:

A. Unless otherwise indicated herein, chemical root treatment of the specified lengths of pipe and manholes shall be carried out in accordance with Foaming Root Control Herbicide – Technical Specifications (Vaporooter) of the NASSCO Specification Guidelines.

B. The Contractor may propose alternative processes and/or products for review and approval by the Engineer.

1.06 SUBMITTALS: IN ACCORDANCE WITH REQUIREMENTS OF SECTION 01330 SUBMITTALS, SUBMIT THE FOLLOWING:

A. Prior to beginning the work, submit the following:

1. Qualifications of the firm/personnel who will perform the work.

2. Description of system proposed for handling existing flows, if necessary, during the procedures to be carried out.

3. Description of the system, equipment and material proposed for root treatment and cleaning of the pipe and manholes, including MSDS Data Sheets for all chemicals intended to be used.

4. Manufacturer's warranty.

B. Refer to Section 01331, DOCUMENTATION, for required documentation to be submitted.

1.07 WARRANTY:

A. The Contractor shall provide a written guarantee that meets or exceeds any claims or warranties made by the manufacturer in published advertising. As a minimum, the Contractor shall guarantee that, prior to scheduled cleaning, virtually all root tissue present in the sewer pipe will be dead or unable to sustain life.

PART 2 - PRODUCTS

2.01 ROOT TREATMENT MATERIALS:

A. The chemical root treatment material shall be EPA registered and labeled for use in sewer lines and acceptable to the state agencies having jurisdiction over its use. The Contractor shall submit a specimen product label of the material to be used in chemical root treatment to the Engineer. The chemical root treatment material shall not permanently affect parts of trees distant from the treated roots.

B. Materials shall meet the requirements of the Foaming Root Control Herbicide – Technical Specifications (Vaporooter) of the NASSCO Specification Guidelines.

PART 3 - EXECUTION

3.01 ROOT TREATMENT:

A. The Contractor shall carry out all preparatory work, including flow control, and apply root treatment as described in the Foaming Root Control Herbicide – Technical Specifications (Vaporooter) of the NASSCO Specification Guidelines, using treatment materials accepted by the Engineer.

3.02 ROOT CLEANING:

A. Root cleaning shall be carried out under Section 02440, SEWER CLEANING AND INSPECTION.

END OF SECTION

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SECTION 02440

SEWER CLEANING AND INSPECTION

PART 1 - GENERAL

1.01 WORK INCLUDED:

A. This section covers cleaning and inspection of pipelines as called for herein and on the drawings. The work includes furnishing all equipment, material and labor required to perform the services described herein. The sewer lines were previously cleaned and televised. The television inspection logs are included as Appendix A for reference.

1.02 RELATED WORK:

A. Section 00331, TELEVISION AND MANHOLE INSPECTION LOGS

B. Section 01014, SCOPE AND SEQUENCE OF WORK

C. Section 01330, SUBMITTALS

D. Section 01331, DOCUMENTATION

E. Section 01575, HANDLING EXISTING FLOWS

F. Section 02428, CURED-IN-PLACE PIPE

G. Section 02437, SEWER LINE AND MANHOLE CHEMICAL ROOT TREATMENT

H. Section 02443, SERVICE CONNECTION REHABILITATION

1.03 QUALITY ASSURANCE:

A. The work described herein shall be performed by a company with not less than five (5) years of experience in providing the required services, employing experienced workers and experienced supervisory personnel. Supervisory personnel shall have not less than three (3) years of experience in providing the required services and shall be present at the jobsite during all work related to the required services.

1.04 REFERENCES:

A. The following standards form a part of this specification as referenced:

The National Association of Sewer Service Companies (NASSCO)

Suggested Standard Specification for Pressure Testing and Grouting of Sewer Joints, Laterals and Lateral Connections (Using the Packer Method with Solution Grouts)

American Society of Testing and Materials (ASTM)

ASTM F2304 Standard Practice for Rehabilitation of Sewers Using Chemical Grouting

1.05 SYSTEM DESCRIPTION:

A. Unless otherwise indicated herein, the pipe cleaning, inspection, testing and sealing of the specified length of pipe shall be carried out in accordance with Section 3, Execution, of the latest edition of NASSCO Suggested Standard Specification for Pressure Testing and Grouting of Sewer Joints, Laterals and Lateral Connections (Using the Packer Method with Solution Grouts). Sewer flow control shall comply with Section 01575, HANDLING OF EXISTING FLOWS. Sealing materials shall comply with Part 2, Products, of the NASSCO Suggested Standard Specification for Pressure Testing and Grouting of Sewer Joints, Laterals and Lateral Connections (Using the Packer Method with Solution Grouts.

B. The Contractor may propose alternative processes and/or products for review and approval by the Engineer.

1.06 SUBMITTALS: IN ACCORDANCE WITH REQUIREMENTS OF SECTION 01330 SUBMITTALS, SUBMIT THE FOLLOWING:

A. Prior to beginning work, submit the following:

1. Qualifications of the firm/personnel who will perform the work.

2. Description of system proposed for handling existing flows during the various procedures to be carried out.

3. Description of the system and equipment proposed for cleaning the pipe.

4. Description of the equipment and system proposed for inspecting the pipe after cleaning.

5. Description of the equipment and system proposed for testing the joints.

6. Description of the equipment, the sealing compound and the system proposed for sealing selected joints and circular cracks.

7. Manufacturer’s warranty.

8. Submit MSDS for the sealing compound to be used.

B. Refer to Section 01331, DOCUMENTATION for required documentation to be submitted.

1.07 WARRANTY:

A. The joint and circular crack sealing shall be warrantied for one year after the project is accepted by the Owner.

PART 2 - PRODUCTS - NOT APPLICABLE

PART 3 - EXECUTION

3.01 PIPE CLEANING:

A. Chemical root treatment, where required, shall be applied under Section 02437, SEWER LINE AND MANHOLE CHEMICAL ROOT TREATMENT before the cleaning operation is carried out. Sufficient time shall be allowed between the two operations as described in SEWER LINE CHEMICAL ROOT TREATMENT (FOAMING METHOD) of the NASSCO Standard Specifications.

B. The Contractor may elect to use either high velocity jet, or mechanically powered equipment, as described in the NASSCO Suggested Standard Specification for Pressure Testing and Grouting of Sewer Joints, Laterals and Lateral Connections (Using the Packer Method with Solution Grouts). Selection of equipment shall be based upon field conditions such as access to manholes, quantity of debris, size of sewer, depth of flow, etc.

C. All sludge, dirt, sand, rocks, grease, and other solid or semisolid material resulting from the cleaning operation shall be disposed of in accordance with all applicable regulations and in a method acceptable to the Owner. Pipe cleaning shall be performed in advance of pipe television inspection.

D. The Contractor shall be responsible for the legal disposal of all debris removed from the sewers during the cleaning operation including any costs incurred. The Contractor shall not expect the Owner to provide a dump site.

E. Acceptance by the Engineer of the cleaning results will be based on the results of television inspection. If the results are unsatisfactory, the Contractor shall repeat the cleaning until accepted by the Engineer at no additional cost to the Owner.

3.02 PIPE INSPECTION:

A. Pipe shall be visually inspected by means of closed-circuit television. The television camera used for the inspection shall be one specifically designed and constructed for such inspection. Lighting for the camera shall be suitable to allow a clear picture, with minimal reflective glare, for the entire periphery of the pipe. The camera shall be operative in 100% humidity conditions. The camera, television monitor and other components of the video system shall be capable of producing a minimum 400 line resolution color video picture. Picture quality and definition shall be to the satisfaction of the Engineer.

1. Refer to Section 01331, DOCUMENTATION, in regard to external hard drives to be given to the Owner upon completion of project and before the project is accepted by the Owner.

B. The camera shall have a remote controlled, pan and tilt type lens and lighting system capable of turning perpendicular to the direction of flow and rotating 360 degrees while inside the pipe. The camera shall be able to view a minimum service connection length of 4 feet in order to determine whether the connection is active or inactive.

C. Electronic video equipment shall be capable of displaying and recording during the entire inspection, as a minimum, the following data for each sewer reach videotaped:

1. Project identification
2. Date recorded
3. Sewer reach identification (street location, MH to MH)
4. Footage counter

D. The camera shall be moved through the line in either direction at a uniform rate, stopping when necessary to ensure proper identification of the sewer's condition. Manual winches, power winches, television cable and powered rewinds or other devices that do not obstruct the camera view or interfere with proper documentation of the sewer conditions shall be used to move the camera through the sewer line. If, during the inspection operation the television camera will not pass through the entire sewer section, the Contractor shall re-set his equipment in a manner so that the inspection can be performed from the opposite manhole.

E. Flow control shall be in accordance with Section 01575, HANDLING OF EXISTING FLOWS.

F. Standing water within a sagging pipe shall be removed so that the pipe can be adequately television inspected. A minimum of 80% of the pipe shall be visible before television inspection.

G. Removal of obstruction caused by protruding taps shall be in accordance with Section 02443, SERVICE CONNECTION REHABILITATION.

H. Television inspection shall be performed in advance of pipe repair and pipe lining activities.

END OF SECTION

SECTION 02442

POINT REPAIR OF GRAVITY SEWERS (OPEN-CUT)

PART 1 - GENERAL

1.01 WORK INCLUDED:

A. This Section covers the point repair of gravity sewers using open cut construction methods. The Work includes furnishing all equipment, material and labor required to point repair a sewer pipe section as described herein.

B. A point repair shall be identified as a repair made at a specified location on a sanitary, surface, or combined sewer line. The point repairs identified in this project will be at the discretion of the Engineer or Owner.

1.02 RELATED WORK:

A. Section 01575, HANDLING EXISTING FLOWS

B. Section 01740, CLEANING UP

C. Section 02085, POLYVINYL CHLORIDE GRAVITY PIPE AND FITTINGS

D. Section 02252, SUPPORT OF EXCAVATION

E. Section 02300, EARTHWORK

F. Section 02745, PAVING

G. Section 02921, RESTORATION OF CROSS-COUNTRY AREAS

1.03 QUALITY ASSURANCE:

The Work described herein shall be performed by a company with not less than two years of experience in providing the required services, employing experienced supervisory personnel.

1.04 REFERENCES:

The following standards form a part of this specification as referenced:

The National Association of Sewer Service Companies (NASSCO) Specifications Guidelines for Sewer Collection System Maintenance & Rehabilitation.

1.05 SUBMITTALS: IN ACCORDANCE WITH REQUIREMENTS OF SECTION 01330 SUBMITTALS, SUBMIT THE FOLLOWING:

Prior to beginning the Work, submit the following:

1. Qualifications of the firm/personnel who will perform the Work.

2. Description of system proposed for handling existing flows, if necessary.

3. Description of the system, equipment and material proposed, including the source and name of manufacturer.

4. Specifications and Data Sheets of all materials to be used, including a list of applicable ASTM standards.

5. Material and structural details of the point repair method proposed, including typical cross-sections and strength calculations.

PART 2 - PRODUCTS

2.01 GENERAL:

All workmanship and materials used for making point repairs shall be of the highest quality. The materials shall be the products of a manufacturer actively engaged in research, development and manufacturing of said materials.

2.02 REPAIR PIPE:

The repair pipe shall be POLYVINYL CHLORIDE GRAVITY PIPE as specified in Section 02085. The inside diameter of the replacement pipe size shall be the same as the existing pipe.

2.03 JOINT MATERIALS:

When connecting together joints of plain-end spigot pipe, suitable adaptors shall be used for joining dissimilar pipe materials. The adapters shall be Fernco Couplings, or approved equal. All materials shall pass the strength and chemical requirements of current ASTM requirements. Adapters and methods of connecting pipes shall be approved by the Engineer. The Contractor shall submit to the Engineer descriptive literature and materials on the adaptors and connection method he proposes to use.

2.04 BUILDING CONNECTIONS:

Any building connection replaced during a point repair shall conform to pipe manufacturer's recommendations and specifications and applicable ASTM specifications, for furnishing and installing the building connection. The connection materials shall be similar to the connecting sewer pipe.

2.05 SEALING OPEN JOINTS:

Any open joint to be sealed during a point repair shall be yarned, wiped and encased with concrete. The encasement shall be centered on the joint, have a minimum thickness of six (6) inches of concrete, and have a minimum length equal to the pipe diameter, but not less than twelve (12) inches. Any alternative method for sealing open joints shall be submitted to the Engineer for approval.

PART 3 - EXECUTION

3.01 SAFETY:

The Contractor shall perform all work in strict accordance with all applicable OSHA standards. Particular attention is drawn to those safety requirements regarding confined space entry.

3.02 POINT REPAIR METHOD:

The method by which the point repair shall be made shall include all supervision, labor, equipment and materials necessary to perform and successfully complete the following items of work:

1. Excavate a trench deep enough to uncover the gravity sewer line and wide enough and long enough to work in, in accordance with the latest OSHA requirements.

2. Remove any existing fences, base material, storm sewers, water mains, and other items that interfere with the repair made at each specific point, and replace the fences, base material, storm sewers, water mains, and other removed items in the same or better condition than found, as determined by the Engineer.

3. Replace and reshape the bottom of the trench so that the grade of the pipe replaced will match that required for the existing sewer line. Any material replaced in the bottom of the trench shall be tamped so as to prevent sags in the sewer line due to settlement of trench material. If the material in the bottom of the trench is not stable, the Contractor shall stabilize the trench bottom by placing suitable materials at the request of the Engineer.

4. Repair and replace the section of damaged sewer identified in Appendix A herein. The damaged section of pipe shall be removed and a replacement section of PVC pipe shall be spliced in its place, using Fernco couplings at each end of the splice.

5. Repair and replace any service wye or tee encountered within the required point repair, or any service wye or tee connection or service line judged to be a source of infiltration/inflow by the Engineer. All service lines broken by the Contractor shall be replaced by the Contractor at his expense.

6. Seal open joints exposed within the pipe excavation, where the barrel of the pipe is still satisfactory but the joints are not. Any roots in open joints shall be removed before sealing. Determination as to whether or not roots exist shall be made by the Engineer. The materials to use when sealing open joints are listed in subsection 2.05.

7. Connect all newly laid sewer pipe to existing pipe, and main sewer lines to services, so that no possible source of infiltration/inflow (a leak in the line) may be created. When applicable, the main sewer line shall be cut so that a smooth plain-end spigot exists at both ends of the trench and connected, as specified in subsection 2.03. The materials used to make the tie-ins shall be properly sized as specified in section 2.01. Any sewer pipe broken by the Contractor shall be replaced at the Contractors expense. All such occurrences shall be pointed out to the Engineer.

8. Backfill the excavation, and replace the trench pavement as specified in Section 02745, so that the finished elevation will match the natural ground elevation and no ponding will occur after the backfilled material has settled.

9. Clean up the area as specified in Section 01740 CLEANING UP.

3.03 ABANDONMENT:

A. If a decision is made by the Engineer in the field that a point repair will not satisfactorily correct the problem, or if the Contractor excavates at the required location and does not find the source of the problem, the Engineer shall verify the condition, declare the point repair to be abandoned and the excavation shall be backfilled.

B. At such time as the point repair has been declared abandoned, the Engineer shall determine how to proceed or whether to reclassify the sewer line for further investigation.

3.04 FIELD JUDGEMENTS:

At any time during a point repair, the Engineer shall make field judgements which shall govern the point repair process until such time that the specifications will again prevail. Field judgements shall include the following situations and any other questionable situation that may arise:

1. Determination of the length of sewer pipe to repair.

2. Determination of method of payment for additional work outside the original point repair area.

3. Determination of dewatering requirements.

4. Determination of abandonment.

5. By-pass pumping of sewage.

6. Determination of the amount of asphalt, concrete driveway, curb or sidewalk, or any other surface feature to be replaced.

3.05 BY-PASS PUMPING:

On all point repairs, the normal flow of sewage shall be re-routed by by-pass pumping so as not to interrupt the flow of sewage to the treatment plant. By-pass pumping shall be as specified in Section 01575 HANDLING OF EXISTING FLOWS.

3.06 RESTORATION:

A. The Contractor shall replace all streets, roadways, sidewalks, and driveways which may be removed, disturbed, or damaged in connection with his operation under this Contract. The Contractor shall reconstruct same to the original lines and grades and in such a manner as to leave all such surfaces in fully as good or better condition than that which existed prior to his operations. The re-use of materials removed in making excavations will be permitted in the manner described, provided said materials are in good condition and are acceptable to the Engineer.

B. In easements and other unpaved areas, the Contractor shall return the area as close as is practicable to its original condition to the satisfaction of the Engineer, at no additional cost to the Owner.

3.07 INSPECTION

A. Prior to the end of the warranty period, the section of pipe where the point repair is located shall be television inspected for defects in accordance with Section 02440, SEWER CLEANING AND INSPECTION.

END OF SECTION

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SECTION 02443

SERVICE CONNECTION REHABILITATION

PART 1 - GENERAL

1.01 WORK INCLUDED:

A. This Section covers the rehabilitation of service connections, including cutting of protruding services, television inspection and testing of services, and grouting of services as called for herein and on the drawings. The work includes furnishing all equipment, material and labor required to perform the services described herein.

1.02 RELATED WORK:

A. Section 00331, TELEVISION AND MANHOLE INSPECTION LOGS

B. Section 01014, SCOPE AND SEQUENCE OF WORK

C. Section 01330, SUBMITTALS

D. Section 01331, DOCUMENTATION

E. Section 01575, HANDLING EXISTING FLOWS

F. Section 02428, CURED-IN-PLACE PIPE

G. Section 02440, SEWER CLEANING AND INSPECTION

1.03 QUALITY ASSURANCE:

A. The work described herein shall be performed by a company with not less than five (5) years of experience in providing the required services, employing experienced workmen and experienced supervisory personnel. Supervisory personnel shall have not less than three (3) years of experience in providing the required services and shall be present at the jobsite during all work related to the required services.

1.04 REFERENCES:

A. The following standards form a part of this specification as referenced:

The National Association of Sewer Service Companies (NASSCO)

Suggested Standard Specification for Pressure Testing and Grouting of Sewer Joints, Laterals and Lateral Connections (Using the Packer Method with Solution Grouts)

American Society of Testing and Materials (ASTM)

ASTM F2454 Standard Practice for Sealing Lateral Connections and Lines from the Mainline Sewer Systems by the Lateral Packer Method, Using Chemical Grouting

1.05 SYSTEM DESCRIPTION:

A. Unless otherwise indicated herein, service connection rehabilitation shall be carried out in accordance with Lateral Connection Sealing from the Mainline by Packer Injection Grouting, Section 3.10, of the NASSCO Suggested Standard Specification for Pressure Testing and Grouting of Sewer Joints, Laterals and Lateral Connections (Using the Packer Method with Solution Grouts).

B. The Contractor may propose alternative processes and/or products for review and approval by the Engineer.

C. The location of the service connection rehabilitations are indicated on the drawings.

1.06 SUBMITTALS: IN ACCORDANCE WITH REQUIREMENTS OF SECTION 01330 SUBMITTALS, SUBMIT THE FOLLOWING:

A. Prior to beginning the work, submit the following:

1. Qualifications of the firm/personnel who will perform the work.

2. Descriptions of system proposed for handling existing flows, if necessary, during the procedures to be carried out.

3. Description of the system, equipment and material proposed for the service connection rehabilitations.

4. Manufacturer's warranty.

5. Submit MSDS Data Sheets for proposed chemicals to be used.

B. Refer to Section 01331, DOCUMENTATION, for documentation required to be submitted.

1.07 WARRANTY:

A. The service connection rehabilitations shall be warrantied against infiltration and faulty workmanship and materials for one year from the date the project is accepted by the Owner.

PART 2 - PRODUCTS

2.01 CHEMICAL GROUT:

A. The Contractor shall use chemical grout which is environmentally safe for the sealing of sewers. The chemical sealing materials shall be used in accordance with Part 2, Products, of the latest edition of NASSCO Suggested Standard Specification for Pressure Testing and Grouting of Sewer Joints, Laterals and Lateral Connections (Using the Packer Method with Solution Grouts). All other products used for sealing, patching and cleaning of sewers shall also be environmentally safe.

B. The Contractor may elect to submit alternative materials and methodologies for review as an approved equal in lieu of grouting the reinstated service and lateral connections to provide a watertight seal between the host pipe and the cured-in-place pipe.

PART 3 - EXECUTION

3.01 PIPE CLEANING AND INSPECTION:

A. Pipe cleaning and inspection shall be carried out in accordance with Section 02440, SEWER CLEANING AND INSPECTION.

3.02 FLOW CONTROL:

A. Flow control, if required, shall be in accordance with Section 01575, HANDLING EXISTING FLOWS.

3.03 CUTTING OF PROTRUDING SERVICE CONNECTIONS:

A. The Contractor shall cut protruding service connections where called for on the drawings. The protruding services shall be cut flush with the wall of the sewer, using either a lateral cutter or grinder.

B. After the protruding services are cut, the service connections shall be grouted in accordance with paragraph 3.06 of this Section. No additional payment shall be made for grouting service connections.

3.04 EQUIPMENT TESTING:

A. The Contractor shall perform an above ground demonstration test in a test cylinder with the same diameter as the proposed pipe being tested to simulate a pipe leak. The setup shall have a valve and pressure gauge to simulate leaks and monitor pressure. The tests shall be performed in accordance with the latest edition of ASTM F2454, Standard Practice for Sealing Lateral Connections and Lines from the Mainline Sewer Systems by the Lateral Packer Method, Using Chemical Grouting, Section 11.3.3, Initial Testing.

B. The pressure displayed by the testing equipment shall be within ±0.5 psi of the gauge pressure to pass successfully. The void pressure should drop to within ±0.5 psi of the pre-test pressure displayed by the testing equipment after the pressure is released to pass successfully. Test pressures shall be between 7 and 10 psi.

C. If the demonstration test cannot be performed successfully, the Contractor shall repair or modify the equipment and perform the test again until the results are satisfactory to the Engineer

D. The Contractor shall perform the demonstration test for each chemical sealing unit prior to the equipment being used on the Project. Additional tests may be required by the Engineer at various times during the Project.

3.05 TELEVISION INSPECTION AND TESTING OF SERVICE CONNECTIONS:

A. The Contractor shall television inspect and test service connections where called for on the drawings. Television inspection of services shall utilize a pan and tilt camera which shall inspect a minimum of 4 feet of the service connection from the main sewer.

B. Pressure Testing: Air testing is accomplished by isolating the area to be tested with the packer and applying positive pressure into the isolated VOID area. VOID area shall include a minimum 3 feet of service connection pipe.

C. Pressure testing shall be carried out in accordance with Section 3.7, Lateral Connection Testing Procedure, of the latest edition of NASSCO Suggested Standard Specification for Pressure Testing and Grouting of Sewer Joints, Laterals and Lateral Connections (Using the Packer Method with Solution Grouts).

D. Pressure testing shall be equal to 0.5 psi per vertical foot of pipe depth plus 2 psi; however, test pressure shall not exceed 10 psi. Once the designated pressure in the isolated void is displayed on the meter of the control panel, the application of air pressure will be stopped and a 15 second waiting period will commence. If the void pressure drop is greater than 2.0 psi within 15 seconds, the lateral shall be considered to have failed the air test.

E. The television inspection and testing equipment shall be capable of inspecting and testing 4-inch, 5-inch and 6-inch diameter service connections.

F. If the service fails the pressure test, the service shall be grouted in accordance with paragraph 3.06 of this Section and retested.

3.06 GROUTING OF SERVICE CONNECTIONS:

A. The Contractor shall grout service connections where indicated on the drawings or when a service fails the pressure test, as described in paragraph 3.05 of this Section. The Contractor shall grout all service connections reinstated as described in Section 02428, CURED-IN-PLACE PIPE or Section 02429, CURED-IN-PLACE SHORT LINER,

regardless of the results of the pressure test. Grouting of service connections shall be carried out in accordance with Section 3.10, Lateral Connection Sealing from the Mainline by Packer Injection Grouting, of the NASSCO Suggested Standard Specification for Pressure Testing and Grouting of Sewer Joints, Laterals and Lateral Connections (Using the Packer Method with Solution Grouts).

B. When pumping grout commences, operate the pump until a minimum back pressure of 8 psi is achieved.

C. The grouting equipment shall be capable of grouting 4-inch, 5-inch and 6-inch diameter service connections.

D. The chemical sealing materials shall be as described in Part 2, Products of the latest edition of NASSCO Suggested Standard Specification for Pressure Testing and Grouting of Sewer Joints, Laterals and Lateral Connections (Using the Packer Method with Solution Grouts).

E. If a service connection becomes clogged with grout, the Contractor shall clear the grout from the lateral. This work shall be done at no additional cost to the Owner.

3.07 FIELD TESTING/INSPECTION:

A. Prior to the expiration of the warranty period, an initial test sample of approximately 10% of the original service connection rehabilitation work will be selected and approved by the Engineer. The test sample will consist of manhole sections from throughout the project area that are representative of the sealing work originally performed. The Contractor shall television inspect and test all previously grouted service connections within the initial test sample as specified in paragraph 3.05 of this Section. Any service connections failing the re-test shall be re-grouted as specified in paragraph 3.06 of this Section. If the failure rate in the initial test sample is less than 10%, the work will be considered satisfactory and no further testing will be required.

B. If the failure rate in the initial test sample equals or exceeds 10%, an additional 15% test sample will be selected and approved by the Engineer. If the failure rate in the additional test sample is less than 10%, the work will be considered satisfactory and no further testing will be required. No previously tested service connection can be included in the additional test sample.

C. If the failure rate in the additional test sample equals or exceeds 10%, the Contractor shall television inspect and test 100% of the service connections.

D. Any remaining service connection rehabilitation work not television inspected and tested as part of a test sample shall be television inspected. The Contractor shall repair any defects found and shall re-grout the services until there are no visible leaks through television inspection.

E. Television inspecting, testing, and re-grouting of service connections shall be performed prior to the expiration of the warranty period, during periods of high groundwater and at a time to be approved by the Engineer.

F. All inspecting, re-testing, and re-grouting shall be provided at no additional cost to the Owner and shall be completed within the warranty re-test period.

END OF SECTION

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SECTION 02518

TRACER TAPE

PART 1 - GENERAL

1.01 WORK INCLUDED:

This section covers the furnishing, handling and installation of tracer tape, as called for on the drawings.

1.02 SUBMITTALS: IN ACCORDANCE WITH REQUIREMENTS OF SECTION 01330 SUBMITTALS, SUBMIT THE FOLLOWING:

A. Manufacturer's literature on the materials, colors and printing specified herein, shall be submitted to the Engineer for review.

B. Tape samples shall also be submitted to the Engineer for review.

PART 2 - PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS:

Tracer tape shall be by Reef Industries, Houston, TX; Empire Level, Mukwonago, WI; Pro-Line Safety Products Co., W. Chicago, IL; or approved equal.

2.02 TRACER TAPE:

A. Tracer tape shall be at least 3-inches wide.

B. Tracer tape for non-ferrous pipe or conduit shall be constructed of a metallic core bonded to plastic layers. The metallic tracer tape shall be a minimum 5-mil thick and must be locatable at a depth of 18-inches with ordinary pipe locaters.

C. Tracer tape for ferrous pipe or conduit shall consist of multiple bonded plastic layers. The non-metallic tracer tape shall elongate at least 500% before breaking.

D. The tape shall bear the wording: "BURIED DRAIN LINE BELOW" (with "DRAIN" replaced by "WATER, "SEWER", "ELECTRICAL", "GAS", "TELEPHONE", or "CHEMICAL" as appropriate), continuously repeated every 30-inches to identify the pipe.

E. Tape colors shall be as follows, as recommended by the American Public Works Association (APWA):

Electric	Red
Gas & Oil	Yellow
Communications	Orange

Water	Blue
Sewer & Drain	Green
Chemical	Red (not APWA)

PART 3 - EXECUTION

3.01 INSTALLATION:

A. Tracer tape shall be installed directly above the pipe or conduit it is to identify, approximately 12-inches below the proposed ground surface.

B. The Contractor shall follow the manufacturer's recommendations for installation of the tape, as approved by the Engineer.

END OF SECTION

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SECTION 02920

SEEDING

PART 1 - GENERAL

1.01 WORK INCLUDED:

A. This Section includes furnishing all labor, materials, equipment, seed and incidental materials necessary to accomplish all grass seeding and related work, complete in place, maintained, and accepted, in accordance with the Contact Drawings and Specifications. All grassed areas disturbed by the Contractor's operations shall be repaired as herein specified.

B. The Contractor shall bear the responsibility and cost of furnishing and applying water or any other substances, as necessary to ensure the sustainability of grass seeded areas, as part of the work of this contract.

1.02 RELATED WORK:

A. Section 02329, LOAM BORROW

1.03 SUBMITTALS:

In accordance with requirements of Section 01330 SUBMITTALS, the Contractor shall submit the following to the Engineer for review and approval:

A. Information for seed mixes including the following:

1. Name and address of the seed supplier.

2. Source of origin and dates of harvest for each of the various types of seed

3. Certification of seed mix composition and proportion, indicating named seed varieties by percent, percent germination, purity, and percent crop seed, percent inert matter, and percent weed seed content.

4. Estimated number of seeds per pound of each type of seed in the mix

B. Information detailing proposed limestone, fertilizers, insecticides, herbicides, fungicides, mulch materials, hydroseeding materials (as required), and slope protection material (as required) to be applied to seeded areas.

C. Watering, fertilizing and maintenance schedule.

D. Marked up prints indicating the square footage of all proposed seeded areas with quantities of various soil additives and amendments, and quantities of seed for each area prior to beginning work.

PART 2 - PRODUCTS

2.01 MATERIALS:

A. LOAM BORROW:

1. Loam Borrow shall be as specified in Section 02329, LOAM BORROW.

B. LIMESTONE:

1. Lime shall be an approved agricultural limestone containing at least 50 percent total oxides (calcium oxide and magnesium oxide). The material will be ground such that 50 percent of the material will pass through a No. 100 mesh sieve and 98 percent will pass a No. 2 mesh sieve. Lime shall be uniform in composition, dry and free-flowing and shall be delivered to the site in the original sealed containers, each bearing the manufacturer's guaranteed analysis.

C. FERTILIZER:

1. Fertilizer shall be a complete, standard commercial fertilizer, homogenous and uniform in composition, dry and free-flowing, and shall be delivered to the site in the manufacturer's original sealed containers, each bearing the manufacturer's guaranteed analysis and marketed in compliance with State and Federal Laws. All fertilizer shall be used in accordance with the manufacturer's recommendations.

2. The analysis for supplemental maintenance fertilizer shall have a ratio of Nitrogen (N) – Phosphorous (P) – Potassium (K) of approximately 4 – 1 – 2 and shall be applied to deliver 1 pound of Nitrogen per 1000 square feet, or as approved by the Engineer. At least 50 percent of nitrogenous elements shall be Urea-form or derived from organic sources and contain no less than 3 percent water soluble Nitrogen.

D. SEED:

1. Seed shall be of an approved perennial variety mixture, the previous year's crop, clean, and high in germinating value. Weed seed content shall be less than 0.5 percent and include no noxious weeds. Seed shall be obtained from a reliable seed company and shall be accompanied by certificates of compliance relative to mixture purity and germinating value. Seed shall be furnished and delivered in new, clean, sealed and properly labeled containers. All seed shall comply with applicable State and Federal laws. Seed that has become wet, moldy or otherwise damaged shall not be accepted.

2. Grass seed for lawn areas shall conform to the following requirements:

Botanical and Common Names	Proportion by Weight	Germination Rate	Purity Minimum
Chewing's Fescue (Festuca rubra commutata)	30%	70%	97%
'Kentucky 31' Tall Fescue (Festuca arundinacea 'Kentucky 31')	30%	90%	98%
Kentucky Bluegrass (Poa pratensis)	20%	80%	85%
Perennial Ryegrass (Lolium perenne)	20%	90%	98%

3. Grass seed for cross-country areas, slopes and other areas not normally mowed shall conform to the following requirements:

Botanical and Common Names	Proportion by Weight	Germination Rate	Purity Minimum
Creeping Red Fescue (Festuca rubra)	50%	85%	95%
'Kentucky 31' Tall Fescue (Festuca arundinacea 'Kentucky 31')	30%	85%	95%
Perennial Ryegrass (Lolium perenne)	10%	90%	98%
Red Top (Agrostis alba)	5%	85%	92%
Ladino White Clover (Trifolium repens 'Ladino'	5%	85%	96%

E. TEMPORARY COVER CROP:

1. Temporary cover crop shall conform to the following requirements:

Botanical and Common Names	Proportion by Weight	Germination Rate	Purity Minimum
Annual Ryegrass (Lolium multiflorum)	80% min.	85%	%
Creeping Red Fescue (Festuca rubra)	4% min.	85%	95%
Perennial Ryegrass (Lolium perenne)	3% min.	90%	98%
Red Clover (Trifolium pratense)	3% min.	90%	%
Other Crop Grass	0.5% max.		
Noxious Weed Seed	0.5% max.		
Inert Matter	1.0% max.		

F. MULCH:

1. Materials to be used in mulching seeded areas shall be free of weed seed and shall conform to the following requirements:

   a. Straw Mulch shall consist of stalks or stems of grain after threshing.

   b. No hay mulch or salt hay shall be used.

G. SLOPE EROSION PROTECTION:

1. Erosion control blanket shall be 100 percent biodegradable mesh with 100 percent biodegradable straw or straw/coconut fill. Fill shall be held together by biodegradable fastening. Weight shall be 0.50 pounds per square yard. Erosion control blankets shall be applied parallel to direction of water flow. The erosion control blankets shall be by North American Green, Evansville, IN or approved equal. For slopes 2:1 or greater, erosion control blanket shall be composed of 70 percent straw 30 percent coconut fiber, Model SC150. For slopes less than 2:1, erosion control blanket shall be a high velocity straw matting, Model S150.

2. Six-inch wire staples shall be placed in accordance with the manufacturer's recommendations to anchor the mesh material. Staples shall be biodegradable.

H. WATER:

1. Water shall be furnished by the Contractor, unless otherwise specified, and shall be suitable for irrigation and free from ingredients harmful to plant growth and viability. The delivery and distribution equipment required for the application of water shall be the furnished by the Contractor, at no additional cost to the Owner.

PART 3 - EXECUTION

3.01 GENERAL:

A. All work shall be performed by skilled workers with a minimum of 2 years of seeded lawn construction and establishment experience and under the full-time supervision of a qualified foreman.

B. Seeding operations shall not begin less than 4 days after the application of lime and fertilizer and the seedbed areas are reviewed and approved by the Engineer.

C. Seeding shall be done when soil and weather conditions permit in early spring, until June 15, or from September 10 to October l5, unless otherwise approved. If it becomes necessary for seed to be sown after June 15, provisions shall be made for supplementary water and using a mulch cover over lawn areas.

D. If there is a delay in seeding, during which weeds grow, or soil is washed out, the Contractor shall eliminate the weeds by chemical or physical means, or replace the soil before sowing the seed, without additional compensation. Immediately before seeding is begun, the soil shall be lightly raked.

E. Seed shall be sown at the approved rate, on a non-windy day by machine, or as approved by the Engineer.

F. The surface shall be kept moist by a fine spray until the seed shows uniform germination over the entire area. Wherever poor germination occurs in areas larger than 3 square feet, the Contractor shall reseed, roll, and water as necessary to obtain proper germination.

G. If there is insufficient time in the planting season to complete soil preparations, fertilizing, and seeding, permanent seeding may be left until the following planting season, at the option of the Contractor, or as required by the Engineer. In that event, a temporary cover crop shall be sown. This cover crop shall be cut and watered as necessary until the beginning of the following planting season, at which time it shall be plowed or harrowed into the soil, the area shall be fertilized and the permanent seed crop shall be sown as specified.

H. Protection of all newly loamed and graded areas is required and shall be accomplished by whatever means necessary such as mulch applied with a tackifier, or by other means approved by the Engineer. The Contractor shall be responsible for the prevention of

siltation in areas beyond the limit of work and for all means of protection throughout the maintenance period at no additional cost to the Owner.

3.02 SURFACE PREPARATION:

A. If approved by the Engineer, the entire site area to be seeded shall be treated with an approved herbicide, in accordance with the manufacturer's instructions, not less than 7 days before the start of seeding operations.

B. If approved by the Engineer, grub control insecticide shall be spread on the surface of the seedbed, in accordance with the manufacturer's instructions, after the seedbed has been properly graded, not less than 24 hours before the start of seeding operations.

3.03 BROADCAST SEEDING, PLACING MULCH AND SLOPE EROSION PROTECTION:

A. The seed mix shall be broadcast at 6 pounds per 1000 square feet, as recommended by the seed supplier, or as required by the Engineer. Seed shall be divided into 2 equal amounts and uniformly distributed in 2 applications at right angles to each other. Seed shall then be raked lightly into the soil to a depth of l/4-inch.

B. If mulch is not necessary the seed shall be directly firmed into the soil with a roller that will apply pressure between 75 and 100 pounds per linear foot of width.

C. Straw Mulch shall be used based on time of seeding as previously specified over all seeded areas, as designated on the plans, or as otherwise required. If mulch is to be used, it shall be loosely spread to a uniform depth at a rate of 4-1/2 tons per acre to provide ¼-inch of cover, or as otherwise required. The seed and mulch shall then be firmed into the soil with a roller that will apply a pressure between 75 and 100 pounds per foot of width.

D. Straw Mulch may be applied by mechanical apparatus, if in the judgment of the Engineer, the apparatus spreads the mulch uniformly and forms a suitable mat to control slope erosion. The apparatus shall be capable of spreading at least 80 percent of the hay or straw in lengths of 6-inches or more, otherwise it shall be spread by hand without additional compensation.

E. Slope erosion control blankets shall be placed as indicated on the plans or as required by the Engineer.

3.04 HYDROSEEDING:

A. The application of lime, fertilizer, grass seed and mulch may be accomplished in a single operation with the use of approved hydroseeding equipment. The materials shall be mixed with water in the machine and kept in an agitated state in order that the materials may be uniformly suspended in the water. The slurry shall be of such consistency that it can be sprayed from a hydroseed gun or through at least 200 feet of 1½- inch diameter hose. The spraying equipment shall be so designed that when the solution is sprayed over an area, the

resulting deposits of lime, fertilizer, grass seed, and mulch shall be equal to the specified quantities.

B. Prior to the start of hydroseeding, the Contractor shall furnish to the Engineer, in writing, the weights of limestone, fertilizer, grass seed, mulch, tackifier (as required) and moisture retention agent (as required) per 100 gallons of water to be used. This statement should also specify the number of square yards of seeding that can be covered with the solution specified above. If the results of hydroseeding operations are unsatisfactory, the Contractor will be required to abandon this method and to apply the lime, fertilizer, grass seed and mulch by other means.

C. Seed shall be incorporated with the mulching material to obtain a minimum hydroseeded sown coverage of 200 pounds of the specified seed mix per acre, as recommended by the seed suppliers, or as required by the Engineer.

D. Wood fiber mulch shall be uniformly spread over certain selected seeded areas at the minimum rate of 1,400 pounds per acre unless otherwise directed. Mulch shall be placed by spraying from an approved spraying machine with pressure sufficient to cover the entire area in a single operation.

E. The Contractor shall immediately cleanup hydroseed oversprays from plant materials, pavements, furnishings, etc., to the satisfaction of the Engineer.

3.05 MAINTENANCE:

A. The Contractor shall maintain and protect the entire seeded area, as necessary to ensure dense healthy growth, until completion of the guarantee period and final acceptance of the project, or for 60 days, whichever is longer. If lawns are planted in late summer or during the fall, maintenance shall continue through the following spring for at least 30 days. Maintenance shall include watering as specified, liming, fertilizing, removal of stones, control of weeds, insect pests and fungal pathogens, and regular mowing. Defective work shall be corrected as soon as possible after it becomes apparent and weather and season permit.

B. The first cutting of lawn areas shall be done when the grass is between 2½ - to 3-inches in height. The lawn shall be cut no shorter than 2-inches in height and shall be regularly mowed as necessary to maintain the above-prescribed conditions. All cuttings shall be removed from the lawn during the maintenance period and disposed of off-site.

C. The Contractor shall be responsible to regularly water seeded areas with the equivalent of 1-inch minimum of rainfall per week, or as necessary to develop and sustain dense, green growth.

D. Six weeks after turf has established, and only during the months of April, May, or September, the Contractor shall apply fertilizer as specified above, at one half the rate recommended by the initial soils laboratory tests, or as required by the Engineer.

E. The Contractor shall be responsible for securing all seeded areas from physical damage as necessary, including warning signs, barriers, temporary fencing, or other means of protection, through the guarantee period until final acceptance. All damaged areas shall be repaired to reestablish healthy vigorous growth of turf to the satisfaction of the Engineer, at no additional cost to the Owner. All temporary barriers shall remain the property of the Contractor and shall be removed by the Contractor upon final acceptance by the Engineer.

F. Pavement shall be kept clean and clear of cuttings and debris at all times during the maintenance period to the satisfaction of the Engineer.

3.06 INSPECTION AND PRELIMINARY ACCEPTANCE:

A. At the beginning of the planting season following that in which the permanent grass crop is sown, seeded areas will be inspected. Any section not showing dense, vigorous growth shall be promptly reseeded by the Contractor at no additional cost to the Owner. The seeded areas shall be watered, weeded, cut and otherwise maintained by the Contractor, as many times as necessary, in accordance with these specifications, until they are accepted.

B. The Contractor shall provide written notice to the Engineer not less than 10 days before the anticipated date of inspection for preliminary acceptance. The Engineer shall recommend preliminary acceptance of the work of this Section only after completion and re-inspection of all necessary repairs, renewals, or replacements.

C. Inspection and acceptance of seeded areas may be requested and granted in part, provided the areas for which acceptance is requested are relatively substantial in size, and with clearly definable boundaries. Acceptance and use of these areas by the Owner shall not waive any other provisions of this Contract.

3.07 GUARANTEE:

A. Seeded areas shall be guaranteed until final acceptance of the project, or, in the case of late summer or fall planting, the guarantee period shall extend through the following spring.

B. When the work is accepted in part, the guarantee period shall extend from each partial acceptance to the terminal date of the last guarantee period. All guarantee periods terminate at one time.

C. Guarantee shall not apply to the replacement of seeded lawns resulting from the removal, loss, or damage due to occupancy of the project in any part; vandalism or acts of neglect on the part of others; physical damage by animals, vehicles, etc.; and Acts of God, including but not limited to, catastrophic fire, hurricanes, riots, war, etc.

D. In the instance of curtailment of water by local water authorities (when supply was to be furnished by the Owner), the Contractor shall furnish all necessary water by water tanker, the cost of which will be approved and paid for by the Owner.

3.08 FINAL INSPECTION AND FINAL ACCEPTANCE:

A. At the end of the guarantee period, the Contractor shall provide written notice to the Engineer not less than 10 days before the anticipated date of final inspection for final acceptance.

B. The Engineer shall recommend final acceptance of the work of this Section only after completion and re-inspection of all necessary repairs, renewals or replacements.

END OF SECTION

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SECTION 02921

SURFACE RESTORATION OF CROSS-COUNTRY AREAS

PART 1 - GENERAL

1.01 WORK INCLUDED:

This section covers labor, materials, and equipment necessary to restore cross country areas affected by the Contractor's operations.

1.02 RELATED WORK:

A. Work in cross country areas shall also be in accordance with Section 01570, ENVIRONMENTAL PROTECTION.

B. Restoring lawn areas is specified in Section 02920, LOAMING AND SEEDING.

1.03 SYSTEM DESCRIPTION:

A. Cross country areas shall be restored as much as possible to their original condition. A vegetative cover shall be established as soon as possible to prevent erosion.

B. In areas within or adjacent to wetlands, the provisions of the Conservation Commission Order of Conditions shall be adhered to unless otherwise required by the Engineer.

PART 2 – PRODUCTS

2.01 MATERIALS:

A. Seed mix shall consist of a certified mixture of the following seeds:

- Erosion control/Restoration – Switchgrass, Virginia Wild Rye, Creeping Red Fescue, Fox Sedge, Creeping Bentgrass, Silky Wild rye, Nodding Bur-marigold, Soft Rush, Grass-leaved Goldenrod, Sensitive Fern, Joe-Pye Weed, Boneset, Flat-top Aster, New York Aster and Blue Vervain.
    A. To be used for detention basins and/or moist sites

- Conservation/Wildlife mix – Big Bluestem, Switchgrass, Little Bluestem, Canada Wild Rye, Fox Sedge, Partridge Pea, Fringed Bromegrass, Pennsylvania Smartweed, Common Milkweed, Nodding Bur-marigold, Showy Tick-Trefoil, Silky Smooth Aster, Flat-top Aster.
    A. To be used for cut/fill slops, detention basins, and/or disturbed areas adjacent to commercial and/or residential sites.

B. Weed seed shall be less than 1 percent.

C. Lime and fertilizer shall be as specified in Section 02920, LOAMING AND SEEDING, except as noted below:

- Erosion control/restoration mix – fertilization is not required unless the soils are particularly infertile.
- New England Wildflower Mix - fertilization is not required unless the soils are particularly infertile.

D. Mulch shall consist of weed-free straw.

PART 3 - EXECUTION

3.01 SEPARATION OF SURFACE MATERIALS:

Topsoil shall be carefully removed and separately stored to be used again as required.

3.02 SURFACE PREPARATION:

A. After approval of rough grading, the stockpiled topsoil shall be replaced in the areas affected by the Contractor's operations.

B. Seedbed shall be worked up a minimum of 3-inches deep. The topsoil shall then be raked until the surface is finely pulverized and smooth and shall be compacted with rollers weighing not over 100 pounds per linear foot of tread, to an even surface to the prescribed lines and grades.

3.03 SEEDING:

A. Seeding shall be done when weather conditions are approved as suitable, in the periods between April 1 and May 30 or August 15 to October 1, unless otherwise approved.

Straw mulch shall be used for summer and fall seeding for the following seed mixes:

Erosion Control/Restoration Mix
New England Wildflower Mix
Wet Meadow Seed Mix
Upland Seed Mix

Straw mulch shall be used at all times that the Erosion Control/Restoration Mix for Dry Sites is applied.

B. Seed shall be sown at a rate applicable to the type of seed mix being applied. Application rates shall be as follows:

Erosion Control/Restoration Mix – 35 lb/acre

Conservation/Wildlife Mix – 25 lb/acre
Mix may be applied by hydro seeding, mechanical spreader, or by hand on small sites.

C. One half the seed shall be sown in one direction and the other half at right angles. Seed shall be raked lightly into the soil to a depth of ¼-inch and rolled with a roller weighing not more than 100 pounds per linear foot of tread.

D. Wherever poor germination occurs in areas larger than 3 square feet, the Contractor shall reseed, roll, and water as necessary to obtain proper germination.

3.04 INSPECTION AND ACCEPTANCE:

A. At the beginning of the planting season following that in which the seed mix is sown, the seeded areas shall be inspected. Any section not showing dense, vigorous growth at that time shall be promptly reseeded by the Contractor at his own expense. If necessary, the Contractor shall furnish and apply soil conditioners and fertilizer to achieve acceptable growth.

B. The seeded areas shall be watered, cut and otherwise maintained by the Contractor until the end of that planting season, when they will be accepted if the sections show dense, vigorous growth.

END OF SECTION

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SECTION 03302

FIELD CONCRETE

PART 1 - GENERAL

1.01 WORK INCLUDED:

A. This Section covers concrete and all related items necessary to place and finish the concrete work.

B. Concrete thrust, and anchor blocks, to be provided at all water main bends, tees, plugs and wyes and at other locations required by the Engineer shall be installed in accordance with the details shown on the drawings and as specified in this section.

C. Concrete encasement for piping with shallow cover and for encasement of telephone, and electrical duct bank when specified shall be installed in accordance with the details shown on the drawings and as specified in this section.

1.02 RELATED WORK:

A. Section 02300, EARTHWORK

1.03 REFERENCES:

A. The following standards form a part of this specification:

American Concrete Institute (ACI)

ACI 304	Recommended Practice for Measuring, Mixing, Transporting, and Placing Concrete.
ACI 305	Recommended Practice for Hot Weather Concreting
ACI 306	Recommended Practice for Cold Weather Concreting
ACI SP-66 ACI	Detailing Manual
ACI 318	Building Code Requirements for Reinforced Concrete

American Society for Testing and Materials (ASTM)

ASTM A615	Deformed and Plain Billet-Steel Bars for Concrete Reinforcement
ASTM C33	Concrete Aggregates
ASTM C94	Ready-Mixed Concrete

ASTM C143 Test for Slump of Portland Cement Concrete

ASTM C150 Portland Cement

ASTM C260 Air Entraining Admixtures for Concrete

ASTM C494 Chemical Admixtures for Concrete

1.04 SUBMITTALS: IN ACCORDANCE WITH REQUIREMENTS OF SECTION 01330 SUBMITTALS, SUBMIT THE FOLLOWING:

Six copies of the statement of materials constituting the design of mixes for each size aggregate as required by ASTM C94 shall be submitted to the Engineer within one week following award of the Contract.

PART 2 - PRODUCTS

2.01 CONCRETE:

A. All concrete, reinforced or non-reinforced shall have a 28 day compressive strength of 3000 psi unless otherwise noted on the design drawings. A minimum of 5.5 sacks of cement per cubic yard and a maximum water cement ratio of 6.9 gallons per sack shall be used.

B. Concrete shall conform to ASTM C94. The Contractor shall be responsible for the design of the concrete mixtures. Slump shall be a maximum of 4-inches and a minimum of 2-inches, determined in accordance with ASTM C143.

C. Admixtures shall be as specified in subsection 2.05. No additional admixtures shall be used unless approved by the Engineer.

D. No additional water, except for the amount indicated by the design mix shall be added to the concrete without the prior permission of the Engineer.

2.02 CEMENT:

The cement shall be an approved brand of American manufactured Portland Cement, Type II conforming to the applicable requirements of ASTM C150.

2.03 AGGREGATES:

A. Except as otherwise noted, aggregate shall conform to the requirements of ASTM C33.

B. Maximum size aggregate shall be 3/4-inch.

2.04 ADMIXTURES:

A. All concrete (unless otherwise directed) shall contain an air entraining agent. Air entrained concrete shall have air content by volume of 4 to 8 percent for 3/4-inch aggregate.

B. Air entraining agent shall be in accordance with ASTM C260 and shall be Darex AEA, as manufactured by W.R. Grace & Company; Placewel (air entraining Type), as manufactured by Johns Manville; Sika AER as manufactured by Sika Chemical Company; or an approved equal product.

C. Water reducing agent shall be WRDA, as manufactured by W.R Grace & Company; Placewel (non-air entraining Type), as manufactured by Johns Manville; Sika Plastiment as manufactured by Sika Chemical Company; or an approved equal product.

D. Water reducing agent-retarder shall be "Daratard," as manufactured by W.R. Grace & Company; Sika Plastiment as manufactured by Sika Chemical Company; or an approved equal product.

2.05 WATER:

A. Water for concrete shall be potable, free of deleterious amounts of oil, acid, alkali, organic matter and other deleterious substances.

PART 3 - EXECUTION

3.01 PREPARATION:

A. Before placing concrete, forms and the space to be occupied by the concrete shall be thoroughly cleaned, and reinforcing steel and embedded metal shall be free from dirt, oil, mill scale, loose rust, paint or the material which would tend to reduce the bond.

B. Earth, concrete, masonry, or other water permeable material against which concrete is to be placed shall be thoroughly saturated with water immediately before concrete is placed.

C. No concrete shall be placed until the consolidation of the ground and the arrangement and details of forms and reinforcing have been inspected and approved by the Engineer.

C. Fill concrete shall be brought to lines and grades as shown on the design drawings.

3.02 CONCRETE PLACING DURING COLD WEATHER:

A. Concrete shall not be placed on frozen ground, and no frozen material or material containing ice shall be used. Materials for concrete shall be heated when temperature is below 40°F, or is expected to fall to below 40°F, within 73 hours, and the concrete after placing shall be protected by covering, heat, or both.

B. All details of Contractor's handling and protecting of concrete during freezing weather shall be subject to the approval of the Engineer. All procedures shall be in accordance with provisions of ACI 306.

3.03 CONCRETE PLACING DURING HOT WEATHER:

A. Concrete just placed shall be protected from the direct rays of the sun and the forms and reinforcement just prior to placing, shall be sprinkled with cold water. The Contractor shall make every effort to minimize delays, which will result in excessive mixing of the concrete after arrival on the job.

B. During periods of excessively hot weather (90°F or above), ingredients in the concrete shall be cooled insofar as possible and cold mixing water shall be used to maintain the temperature of the concrete at permissible levels all in accordance with the provisions of ACI 305. Any concrete with a temperature above 90°F, when ready for placement, will not be acceptable, and will be rejected.

3.04 FIELD QUALITY CONTROL:

A. Concrete inspection and testing shall be performed by the Engineer or by an inspection laboratory, designated by the Engineer, engaged and paid for by the Owner. Testing equipment shall be supplied by the laboratory, and the preparation of samples and all testing shall be performed by the laboratory personnel. Full assistance and cooperation, concrete for samples, and such auxiliary personnel and equipment as needed shall be provided by the Contractor.

B. At least 4 standard compression test cylinders shall be made and tested and 1 slump test from each day's placement of concrete. A minimum of four compression test cylinders shall be made and tested for each 100 cubic yards of each type and design strength of concrete placed. One cylinder shall be tested at 7 days, and two at 28 days. The fourth cylinder from each set shall be kept until the 28 day test report on the second and third cylinders in the same set has been received. If the average compressive strength of the two 28 day cylinders do not achieve the required level, the Engineer may elect to test the fourth cylinder immediately or test it after 56 days. If job experience indicates additional cylinder tests or other tests are required for proper control or determination of concrete quality, such tests shall be made.

C. The Engineer shall have the right to reject concrete represented by low strength tests. Rejected concrete shall be promptly removed and replaced with concrete conforming to the specification. The decision of the Engineer as to whether substandard concrete is to be accepted or rejected shall be final.

END OF SECTION

APPENDIX A

TELEVISION INSPECTION LOGS
(NOT INCLUDED – FURNISHED UPON REQUEST)

APPENDIX B

TWIN MANHOLE PROTOCOL

Twin Manhole
Inspection Procedure - General Observations

City or Worcester, Massachusetts

Twin Manholes:

The City of Worcester has a combination of sanitary manholes, storm drain manholes, and "twin manholes".

A twin manhole is defined as a manhole that is shared by both the sanitary and storm drain systems. The manhole typically has two inverts. In a twin manhole, the majority of the sanitary inverts have been sealed with an aluminum plate and restraint. The plating system was installed to prevent storm water from entering the sanitary system. It is crucial that this system be in place to prevent surcharging of the sanitary system.

Manhole Inspection:

When accessing the City's sanitary and storm drain systems, the CONTRACTOR or DPW PERSONNEL shall provide general observations regarding status at the time of the access. The City's "Manhole Inspection Report" form shall be completed by the CONTRACTOR or DPW INSPECTOR. The CONTRACTOR or DPW PERSONNEL shall identify defects, damage, and/or missing manhole components and the type of corrective actions taken or to be taken.

As a minimum, CONTRACTOR's or DPW PERSONNEL performing work within the City's sanitary and storm drain systems shall inspect as follows:

- Open manhole. Determine if the manhole is a Twin Manhole.
- If so, complete the "Manhole Inspection Report" form.
- Check the manholes aluminum plate and restraint system.
- Identify if the aluminum plate and restraint system is correctly installed and has all components present (plate and restraint).
- Indicate that the aluminum plate and restraint system was correctly re-installed following work (if not notify city, see below).

Defective or Missing Plating System:

- If the aluminum plate and restraint system was missing or unable to be re-installed correctly, the CONTRACTOR or DPW PERSONNEL will notify the Sewer Operations Division at (508) 799-1480.
- If the system is surcharged, notify DPW contact above.

APPENDIX C

COMMONWEALTH OF MASSACHUSETTS COVID-19 GUIDELINES AND PROCEDURES FOR ALL CONSTRUCTION SITES AND WORKERS AT ALL PUBLIC WORK

THE COMMONWEALTH OF MASSACHUSETTS
OFFICE OF THE GOVERNOR

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March 25, 2020

Dear Municipal Chief Executive Officer:

I write to provide guidance regarding the effect of the Governor's March 23, 2020 Order "Assuring Continued Operation of Essential Services in the Commonwealth, Closing Certain Workplaces, and Prohibiting Gatherings of More than 10 People" insofar as the Order intersects with municipal efforts to address the COVID-19 crisis.

The Governor's Essential Services Order has two functions. First, the Order closes a broad range of public spaces, workplaces, and other establishments in order to reduce unnecessary movement of Commonwealth residents outside of the home and, in so doing, limit the spread of this highly contagious and potentially deadly virus. Second, the Order designates a range of critical services and functions as "COVID-19 Essential Services" to ensure their continued operation during the state of emergency in order to protect the public health and welfare of the Commonwealth and support community resilience and continuity of response efforts. Correspondingly, the Order designates workers engaged in delivering these critical services and functions as members of the "COVID-19 Essential Workforce." Taken together, these designations seek to ensure that COVID-19 Essential Services continue without interruption during the period of the declared emergency.

The Baker-Polito Administration recognizes the value of local decision making in most circumstances. Nevertheless, ensuring an effective response to the COVID-19 emergency requires the Administration to prioritize consistency and clarity of action. A key requirement of any effective, statewide response will be that public officials avoid conflicting directives and duplication of efforts. The Massachusetts Civil Defense Act, the authority under which the Governor issued the Order, reflects the necessity for unified statewide directives in a time of crisis. Section 8A of the Act provides that that any rule, regulation, ordinance or by-law issued by a municipality or other political subdivision of the Commonwealth "shall be inoperative" to the extent that such provision is inconsistent with any order issued by the Governor during the period of the emergency.

Accordingly, the Order the Governor signed on Monday includes the following provision to ensure unitary management of this crisis:

> This Order supersedes and makes inoperative any order or rule issued by a municipality that will or might in any way impede or interfere with the achievement of the objectives of this Order. With respect to work and travel in particular, any order or rule issued by a municipality is hereby made inoperative to the extent: (1) such municipal order or rule will or might interfere with provisions of this Order ensuring the continued operation of COVID-19 Essential Services; or (2) such municipal order or rule will or might interfere with the free travel anywhere within the Commonwealth of any person who is a member of any COVID-19 Essential Workforce where such travel is made in connection with the ongoing operation of COVID-19 Essential Services.

One important area in which the potential for conflict has presented itself is in questions surrounding the continuing operation of construction projects. A number of municipalities have announced policies to address construction work during the state of emergency that conflict with the terms of the Order. Exhibit A of the Order contains two entries that designate construction projects as COVID-19 Essential Services and identify workers engaged in construction projects as included within the Order's COVID-19 Essential Workforce:

- Guidance: Workers – including contracted vendors – involved in the construction of critical or strategic infrastructure including public works construction, airport operations, water, sewer, gas, electrical, nuclear, oil refining and other critical energy services, roads and highways, public transportation, solid waste collection and removal, and internet, and telecommunications systems (including the provision of essential global, national, and local infrastructure for computing services)

- Guidance: Construction Workers who support the construction, operation, inspection, and maintenance of construction sites and construction projects (including housing construction)

Accordingly, the Order provides that all construction projects are to "continue operations during the state of emergency, but to do so with allowance for social distancing protocols consistent with guidance provided by the Department of Public Health." Local policies, regulations, or directives that provide otherwise are in direct conflict with the Order and should be withdrawn.

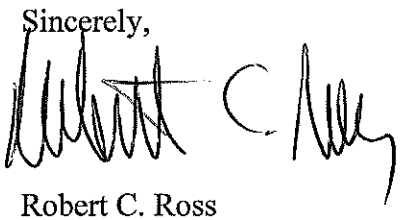
The Baker-Polito Administration is aware that cities and towns and local Boards of Health quite sensibly have raised questions about how to manage the health risks of COVID-19 in the context of an active construction site. In order to address these same concerns, Commonwealth agencies that undertake horizontal and vertical construction have adopted a detailed set of safety practices for all construction projects sponsored or managed by their agencies. The Commonwealth also plans to ensure that each project sponsored or managed by a state agency observes a "safety stand-down day" within the next week. This stand-down is

designed to ensure that all workers involved in the project are familiar with the health safety practices required for the continued operation of Commonwealth construction projects. I am attaching the Commonwealth's construction site safety policy to this guidance for your review. The Administration encourages all cities and towns to issue similar requirements for construction projects undertaken by private owners.

Unitary management in this crisis will be essential to ensuring an appropriate balance statewide between taking actions necessary to combat the spread of COVID-19 and avoiding unnecessary hardships to the public and supporting community resilience over the weeks and months it may take for this crisis to run its course. The economic disruption and interruption in critical services and functions that could result from halting construction projects abruptly would be felt statewide and not simply in the locality where a particular project sits. For these reasons, construction projects should continue as long as they observe social distancing protocols and otherwise can continue to operate safely.

The Baker-Polito Administration recognizes and values the unceasing efforts of local officials to support an effective statewide response to COVID-19. We will continue to work with cities and towns to ensure a consistent application of the Governor's Essential Services Order and to provide for effective enforcement of proper COVID-19 safety protocols at active construction sites.

Sincerely,



Robert C. Ross
Chief Legal Counsel

Cc: Geoffrey Beckwith, Massachusetts Municipal Association

Enclosure

Commonwealth of Massachusetts
COVID-19 GUIDELINES AND PROCEDURES FOR ALL CONSTRUCTION SITES AND WORKERS AT ALL PUBLIC WORK

These Guidelines and Procedures MUST be implemented at all times on all construction sites. All construction sites MUST conduct a Safety Stand Down day to disseminate these Guidelines to all employees and workers.

Employee Health Protection – ZERO Tolerance

The following applies to both State employees and contracted staff working on behalf of the State.

- ZERO TOLERANCE FOR SICK WORKERS REPORTING TO WORK. IF YOU ARE SICK, STAY HOME! IF YOU FEEL SICK, GO HOME! IF YOU SEE SOMEONE SICK, SEND THEM HOME!
- If you are exhibiting any of the symptoms below, you are to report this to your supervisor (via phone, text or email) right away, and head home from the job site or stay home if already there.

  If you notice a co-worker showing signs or complaining about such symptoms, he or she should be directed to their supervisor (via phone, text or email) and asked to leave the project site immediately.

  COVID-19 Typical Symptoms:
  - Fever
  - Cough
  - Shortness of Breath
  - Sore Throat
- Prior to starting a shift, each employee will self-certify to their supervisor that they:
  - Have no signs of a fever or a measured temperature above 100.3 degrees or greater, a cough or trouble breathing within the past 24 hours.
  - Have not had "close contact" with an individual diagnosed with COVID-19. "Close contact" means living in the same household as a person who has tested positive for COVID-19, caring for a person who has tested positive for COVID-19, being within 6 feet of a person who has tested positive for COVID-19 for about 15 minutes, or coming in direct contact with secretions (e.g., sharing utensils, being coughed on) from a person who has tested positive for COVID-19, while that person was symptomatic.
  - Have not been asked to self-isolate or quarantine by their doctor or a local public health official.
- Workers that are working in a confined space or inside a closed building envelope will have to be temperature screened by a Medical Professional or Trained Individual provided that such screening is out of public view to respect privacy and results are kept private.
- Employees exhibiting symptoms or unable to self-certify should be directed to leave the work site and seek medical attention and applicable testing by their health care provider. They are not to return to the work site until cleared by a medical professional.

General On-the-Job Guidance to Prevent Exposure & Limit the Transmission of the Virus

- No handshaking
- Wash hands often with soap for at least 20 seconds or use an alcohol-based hand sanitizer with at least 60% ethanol or 70% isopropanol
- Contractor and State Agency Field Offices are locked down to all but authorized personnel
- Each jobsite should develop cleaning and decontamination procedures that are posted and shared. These Procedures must cover all areas including trailers, gates, equipment, vehicles, etc. and shall be posted at all entry points to the sites, and throughout the project site.
- A "No Congregation" policy is in effect, individuals must implement social distancing by maintaining a minimum distance of 6-feet from other individuals
- Avoid face to face meetings – critical situations requiring in-person discussion must follow social distancing
- Conduct all meetings via conference calls, if possible. Do not convene meetings of more than 10 people. Recommend use of cell phones, texting, web meeting sites and conference calls for project discussion
- All individual work crew meetings/tailgate talks should be held outside and follow social distancing
- Please keep all crews a minimum of 6' apart at all times to eliminate the potential of cross contamination
- At each job briefing/tool box talk, employees are asked if they are experiencing any symptoms, and are sent home if they are
- Each jobsite should have laminated COVID-19 safety guidelines and handwashing instructions
- All restroom facilities/porta-potties should be cleaned and handwashing stations must be provided with soap, hand sanitizer and paper towels
- All surfaces should be regularly cleaned, including surfaces, door handles, laptops, etc.
- All common areas and meeting areas are to be regularly cleaned and disinfected at least once a day but preferably twice a day
- Be sure to use your own water bottle, and do not share
- To avoid external contamination, we recommend everyone bring food from home
- Please maintain Social Distancing separation during breaks and lunch.
- Cover coughing or sneezing with a tissue, then throw the tissue in the trash and wash hands, if no tissue is available then cough into your elbow
- Avoid touching eyes, nose, and mouth with your hands
- To avoid sharing germs, please clean up after Yourself. DO NOT make others responsible for moving, unpacking and packing up your personal belongings
- If you or a family member is feeling ill, stay home!

Work Site Risk Prevention Practices

- At the start of each shift, confirm with all employees that they are healthy.
- We will have a 100% glove policy from today going forward. All construction workers will be required to wear cut-resistant gloves or the equivalent.
- Use of eye protection (safety goggles/face shields) is recommended
- In work conditions where required social distancing is impossible to achieve affected employees shall be supplied PPE including as appropriate a standard face mask, gloves, and eye protection.
- All employees shall drive to work site/parking area in a single occupant vehicle. Contractors / State staff shall not ride together in the same vehicle
- When entering a machine or vehicle which you are not sure you were the last person to enter, make sure that you wipe down the interior and door handles with disinfectant prior to entry
- In instances where it is possible, workers should maintain separation of 6' from each other per CDC guidelines.
- Multi person activities will be limited where feasible (two person lifting activities)
- Large gathering places on the site such as shacks and break areas will be eliminated and instead small break areas will be used with seating limited to ensure social distancing.
- Contact the cleaning person for your office trailer or office space and ensure they have proper COVID-19 sanitation processes. Increase their cleaning visits to daily
- Clean all high contact surfaces a minimum of twice a day in order to minimize the spread of germs in areas that people touch frequently. This includes but is not limited to desks, laptops and vehicles

Wash Stations: All site-specific projects with outside construction sites without ready access to an indoor bathroom MUST install Wash Stations.

- Install hand wash stations with hot water, if possible, and soap at fire hydrants or other water sources to be used for frequent handwashing for all onsite employees
- All onsite workers must help to maintain and keep stations clean
- If a worker notices soap or towels are running low or out, immediately notify supervisors
- Garbage barrels will be placed next to the hand wash station for disposal of tissues/towels

Do all you can to maintain your good health by: getting adequate sleep; eating a balanced, healthy diet, avoid alcohol; and consume plenty of fluids.

Please Note: This document is not intended to replace any formalized procedures currently in place with the General Contractor.

Where these guidance does not meet or exceed the standards put forth by the General Contractor, everyone shall abide by the most stringent procedure available.

A site-specific COVID-19 Officer (who may also be the Health and Safety Officer) shall be designated for every site.

The approved project Health and Safety Plan (HASP) shall be modified to require that the Contractor's site-specific project COVID-19 Officer submit a written daily report to the Owner's Representative. The COVID-19 Officer shall certify that the contractor and all subcontractors are in full compliance with these guidelines.

Any issue of non-compliance with these guidelines shall be a basis for the suspension of work. The contractor will be required to submit a corrective action plan detailing each issue of non-conformance and a plan to rectify the issue(s). The contractor will not be allowed to resume work until the plan is approved by the Owner. Any additional issues of non-conformance may be subject to action against the contractor's prequalification and certification status.