

BID DOCUMENTS AND SPECIFICATIONS FOR:

**Lussiano/North Union Playground
Arlington, Massachusetts**

Bid # 20-24

April 2020

Prepared for:

Town of Arlington, Massachusetts

Prepared by: Ray Dunetz Landscape Architecture, Inc.

SEALED BIDS will be received:

Date: May 21, 2020

Time: 10:00 AM

Place: Office of the Purchasing Agent

730 Massachusetts Avenue

Arlington, MA 02476

**Town of Arlington
Massachusetts**

INVITATION TO BID

BID No. 20- 24 Lussiano/North Union Playground

Sealed bids for Lussiano/North Union Playground for the Town of Arlington, MA, will be received at the Purchasing Department, 730 Mass Ave. Arlington, MA 02476 until **10:00AM EST on Thursday May 21, 2020** at which time and place said bids will be publicly opened and read aloud.

All bids must be in a sealed envelope plainly marked: BID No. 20-24 Lussiano/North Union Playground.

The scope of work includes furnishing all labor, materials, and equipment necessary to make improvements to the Lussiano/North Union Playground. Work includes demolition of existing playground surface, bituminous concrete walks and play equipment with site preparation as described in the Contract Drawings, installing a new bituminous concrete walkway, play equipment, safety surfacing, new play equipment, grading and new lawn and trees.

Add Alternate One includes the installation of (5) 6' benches and (2) 8' benches with the site furniture provided by the Town.

Add Alternate Two includes the installation of (3) new picnic tables with the site furniture provided by the Town.

Add Alternate Three includes the installation of (1) new trash receptacle with the receptacle provided by the Town.

Add Alternate Four includes the installation of a new sand box.

Add Alternate Five includes the installation of (1) new log climber with the equipment provided by the Town.

Add Alternate Six includes the installation of new waterline, water spigot and connection to existing water service.

Add Alternate Seven includes the installation of 20 boulders, with boulders provided by the Town.

Add Alternate Eight includes the installation of 22 linear feet of new 6' height cedar fence.

Add Alternate Nine includes the installation of (5) new bike racks with the equipment provided by the Town.

Contract documents are available on the Town website at arlingtonma.gov/purchasing.

Questions may be addressed to the Designer until 4:00 pm on May 14th, 2020. Contractors should have visited the site at their convenience prior to submitting questions. A written addendum answering questions will be issued if necessary before May 18th, 2020 at 4:00pm. There is no pre-bid meeting for this project.

The Designer is Ray Dunetz Landscape Architecture, Inc., email: rd@raydunetz.com.

The project is to begin as soon as a contract is executed. The project completion date is Friday September 4th, 2020.

A bid deposit in the amount of five percent (5%) on the Bid amount, including any and all alternates, shall be submitted with each Bid. Bid deposit shall be in the form of Certified Check, or a Treasurer's or Cashier's Check issued by a responsible or trust company payable to the Town of Arlington or a bid bond (a) in a form satisfactory to the Awarding Authority, (b) with a surety company qualified to do business in the Commonwealth of Massachusetts and (c) conditioned upon faithful performance by the principal of the agreements contained in the Bid. Return of bid deposits will be in accordance with the provisions of the applicable General Laws. All bid bonds shall be retained by the Town of Arlington unless accompanied by a stamped, self-addressed envelope.

Bidding procedures and award of the contract shall be in accordance with the applicable provisions of the Commonwealth of Massachusetts General Laws, Chapter 30, Section 39M as amended and Chapter 149, Sections 44A through 44L, inclusive, as amended.

The Town of Arlington will reject any Bid when required to do so by the above referenced General Laws. In addition, the Town of Arlington reserves the right to waive any informality in bidding and to reject any and all bids if it deems it to be the public interest to do so.

The successful bidder will be required to furnish a Performance Bond and a Labor and Materials Payment bond, each in the amount of 100% of the Contract Amount. The cost of such bonds, including any and all alternates, shall be stated on the bid form. Such bonds shall be of a surety company qualified to do business under the laws of the commonwealth of Massachusetts.

Bylaw of the Town of Arlington, Title 1, Article 16, Minority/Woman Workforce Participation in Construction Projects which exceed \$200,000 is part and parcel of the bid,

The conditions of employment as set forth in Federal Wage Determination MA20200021 dated FEBRUARY 14, 2020, issued by the U.S. Department of Labor, shall prevail in the execution of the work under this contract. Attention is called to the fact that minimum wage rates and health and welfare and pension fund contributions are established for this contract and are part of the specifications.

Minimum Wage rates as determined by the Commissioner of the Division of Occupational Safety of the Executive Office of Labor and Workforce Development under the provisions of Chapter 149, Sections 26 to 27D inclusive, as amended, apply to this project. It is the responsibility of the Bidder, before bid opening, to request if necessary, any additional information on Minimum Wage Rates for those trades people who may be employed for the proposed work under this contract.

No bidder may withdraw his bid for a period of sixty (60) days, excluding Saturdays, Sundays and legal holidays, after the actual date of the opening thereof.

The Town of Arlington is exempt from sales tax, for which reason Bidders should not include sales taxes in figuring or in references to any bid.

Commonwealth of Massachusetts General Laws Section 149, Sections 44A through 44L, inclusive and Chapter

30, Sections 39F through 39P inclusive, are incorporated herein by reference. Any inconsistency between the Invitation to Bid, Instructions to Bidders, Bid Forms, Conditions of the Contract and any other contract documents and these Statutes, or any other applicable statutes, bylaws or regulation shall be deemed to govern.

The attention of bidders is particularly called to the requirements as to conditions of employment to be observed, the minimum wage rates to be paid under the contract and affirmative action to ensure equal employment opportunity.

Adam Chapdelaine, Town Manager
TOWN OF ARLINGTON, MASSACHUSETTS
April 30, 2020

INSTRUCTIONS TO BIDDERS

- I. **COMPLEMENTARY DOCUMENT**
 - A. INVITATION TO BID, including herewith, is complementary to this document and shall be reviewed by bidder for specific instruction which are not repeated herein.

2. **STATUTES REGULATING COMPETITIVE BIDDING**
 - A. Bidding procedures and award of general contract and subcontracts shall be in accordance with the provisions of Chapter 30, Section 39M and Chapter 149, Section 44A through 44L inclusive, of the General Laws of the Commonwealth of Massachusetts, including all current amendments.
 - B. In the event of any discrepancy or inconsistency between the provisions of these Bid and Contract Documents and the above-mentioned statutes, the provisions of the above-mentioned statutes shall govern. In such event, the application of all remaining provisions not in conflict to any circumstance other than that in which the conflict occurs shall not be affected thereby.

3. **BIDDER'S QUALIFICATIONS**
 - A. DCPO Certification not required.
 - B. The Contractors' Update Statements are not public records and will not be open to public inspection.

4. **INTERPRETATION OF DOCUMENTS: NOTIFICATION OF ERRORS**
 - A. Interpretations of the provisions of the Bid and Contract Documents will be made by the designer upon written request of any general bidder or subbidder, provided that such request is received by the Designer at least seven (7) days prior to the date of the applicable bid opening, and that the Designer considers such interpretation to be of sufficient importance. Oral or telephone interpretations will not generally be made, and if made shall be strictly informal and not legally valid or binding.
 - B. Such written interpretations shall be in the form of Addenda to the Bid and Contract Documents.
 - C. Bidders are urged to communicate all errors and discrepancies found in the Bid and Contract Documents to the Designer. Telephone calls pointing out any such errors or discrepancies will be taken by the Designer, but only for the purpose of receiving the information in order that it may be properly processed, and not for interpretation or clarification.

5. **EXAMINATION OF BIDDING AND CONTRACT DOCUMENTS**
 - A. Each Bidder shall carefully examine the Bid and Contract Documents to obtain a thorough understanding of the work of his bid in addition to the work of related trades. In addition, each General Bidder shall personally visit the

site to thoroughly acquaint himself/herself with the conditions as they exist hereon.

- B. Failure of any Bidder to thoroughly examine the Bid and Contract Documents or to visit and examine the site shall in no way relieve him/her of any obligation with respect to his/her bid or of any responsibility assigned to him under the Contract.

6. PRE-BID CONFERENCE

- A. Pre-bid conference will be held at the location and time stipulated in the Invitation to Bid.

7. MODIFICATION AND WITHDRAWAL OF BIDS

- A. Modification of withdrawal of Bids will be permitted after the submission of such bids provided clearly written, readily understandable instructions for same are received by the Owner in writing prior to the time established for opening of such bids. No Bid may be withdrawn after that time, except as otherwise provided herein or by law.

8. ADDENDA

- A. Addenda may be required during the bidding period to modify, clarify or interpret the Bid and Contract Documents. It is intended, but not guaranteed, that such Addenda shall be mailed by the Owner to all persons or parties to whom Bid and Contract Documents have been issued (Bidders of Record). Failure to receive such Addenda shall in no way relieve any bidder from the execution of its provisions. All bidders are cautioned to verify the number of Addenda which have been issued and to secure any needed copies from the Designer before submitting a Bid.

9. FORM FOR BIDS

- A. The Owner will make available, to every person applying therefor, a Bid Form. Each bona fide Bidder will be furnished forms for his proposal upon request. Such forms will be made available at the Owner's office during the regular office hours throughout the bidding period. Bids must be submitted on the forms provided by Owner or of forms included in the bid documents of the Project Manual.
- B. All blank spaces provided on the bid forms shall be filled in with ink or typewriter. Where space is provided, sums shall be expressed in both words and figures. In case of a discrepancy between the two, the written words shall govern.
- C. No interlineations, additional, alterations or erasures shall be made on the forms.

10. ALTERNATES

- A. Each Bidder shall bid on alternatives listed. In the event that any alternate does not involve a change in the amount of the Bid, the Bidder shall so

indicate by using the words "No Change" in the space provided for that alternate.

- B. General Bidders shall enter on the form for General Bid a single amount for each alternate, each amount to consist of the total of all the subbidders' amounts for the given alternate plus the amount of for work of the alternate to be performed by the General Contractor.
- C. If alternate(s) are accepted, they shall be accepted in the order listed. The low bidder will be determined on the basis of the sum of the Base Bid and the alternates accepted.

11. SUBMISSION OF BIDS

- A. The Bid Form shall be properly executed and enclosed with the required bid deposit in a sealed envelope plainly marked on the outside with the following information.

Bid For:

SUBMITTED

BY:

(Name of Bidder)

(Address of Bidder)

- B. If Bids are mailed; the above required envelope shall be enclosed in a second envelope identified with the above markings and mailed to the place of bid opening, as described in the Invitation to Bid. Mailed Bids must be received before the time scheduled for opening of Bids.

12. PERFORMANCE AND PAYMENT BONDS

- A. The Performance and Labor and Materials Payment Bonds required of the General Contractor shall each be in the amount of 100% of the contract sum from a surety company qualified to do business under the laws of the Commonwealth of Massachusetts and approved by the Owner.

13. FOREIGN CORPORATIONS

- A. The attention of bidders is called to General Laws, Chapter 30, Section 39L, as amended by Acts of 1967, Chapter 3, under which the Owner may not enter into a contract with a foreign corporation as a subcontractor unless the foreign corporation has filed with the Owner a certificate by the State Secretary stating that the foreign corporation has complied with General Laws Chapter 181, Sections 3 and 5 and stating the date of such compliance.

14. AWARD OF CONTRACT

- A. The Contract will be awarded to the lowest responsible and eligible bidder except in the event of a substitution as provided by under Chapter 149, Sections 44E and 44F of the above-reference General Laws.

15. COMMENCEMENT AND COMPLETION OF WORK

- A. The successful bidder, upon completion of the Contract Agreement, shall commence the work of the Contract within seven (7) calendar days from receipt of written Notice to Proceed issued by the Owner within fourteen (14) calendar days after said execution of the Contract Agreement, and shall therefore diligently and continuously carry on the work in such manner as to substantially complete the work on or before November 22, 2019 except as noted herein.

16. LIQUIDATED DAMAGES

- A. The attention of bidders is particularly called to the requirements as to the conditions of employment to be observed, the minimum wage rates to be paid under the Contract and affirmative action to ensure equal employment opportunity.
- B. Contractor shall make full good faith efforts to secure at least ten percent (10%) of the Labor and Materials incorporated in the Work from Minority Business Enterprises and five percent (5%) of the Labor and Materials incorporated in the Work from Women Business Enterprises certified by the Commonwealth of Massachusetts and consistent with the Federal Equal Employment Opportunity requirements attached hereto as Attachment A. Satisfactory documentation of such effort shall be furnished promptly upon request by Owner.
- C. The Owner is an equal employment opportunity employer and has an active Affirmative Action Plan (AAP). For more information, direct correspondence to Patricia M. Libby, Affirmative Action Officer for the Town of Arlington.

BID FORM

For: Lussiano/North Union Playground (Bid #20-24)

Proposal (BID) of _____
(hereinafter called "Bidder") a corporation, organized and existing under the laws of the
Commonwealth of Massachusetts.

_____ doing business as _____
(corporation, proprietorship, partnership)

to the TOWN OF ARLINGTON hereinafter called "Owner". Gentlemen:

A. The Bidder, in compliance with your invitation for bids for the Lussiano/North Union Playground, Arlington Massachusetts, having examined the plan and specifications with related documents and the site of the proposed project including the availability of materials and labor, hereby proposes to furnish all labor, materials and supplies, and to construct the project in accordance with the Contract Documents, within the time set forth therein, and at the prices stated below. These prices are to cover all expenses incurred in performing the work required under the Contract Documents, of which this proposal is a part.

Bidder hereby agrees to commence work under this Contract on or before a date to be specified in the written "Notice to Proceed" from the Owner, and to complete the work by September 4, 2020. The Bidder further agrees to pay as liquidated damages, the sum of \$100.00 for each consecutive calendar day thereafter that the works remains incomplete, as provided in the Instruction to Bidders, Modifications to General Conditions.
Required completion dates are as follows:

B. Bidder acknowledges receipt of the following addendum:

_____ Dated _____
_____ Dated _____
_____ Dated _____

C. Bidder agrees to perform all work described in the specifications and shown on the drawings, for the following lump sum price of:

1. Total Proposed Base Bid Contract Price:

_____ Dollars (\$ _____)

2. Bid Deposit on total bid price, including alternates, in the sum of:

_____ Dollars (\$ _____) in

the form of _____ is submitted herewith in accordance with the INSTRUCTION FOR BIDDERS and is to become property of the Owner in the event the Contract and bonds are not executed within the time above set forth, as liquidated

damages for the delay and additional expense to the Owner caused thereby.

3. The Bid does not include premiums on Performance/Labor and Materials Bond. Cost of required Bond Premiums (for base bid and any and all alternates):

Bond Premiums Add \$ _____

4. Alternates

This bid includes Alternates as follows:

ADD Alternate No. 1: _____ dollars
and _____ cents \$ { _____ }.

ADD Alternate No. 2: _____ dollars
and _____ cents \$ { _____ }.

ADD Alternate No. 3: _____ dollars
and _____ cents \$ { _____ }.

ADD Alternate No. 4: _____ dollars
and _____ cents \$ { _____ }.

ADD Alternate No. 5: _____ dollars
and _____ cents \$ { _____ }.

ADD Alternate No. 6: _____ dollars
and _____ cents \$ { _____ }.

ADD Alternate No. 7: _____ dollars
and _____ cents \$ { _____ }.

ADD Alternate No. 8: _____ dollars
and _____ cents \$ { _____ }.

ADD Alternate No. 9: _____ dollars
and _____ cents \$ { _____ }.

- D. If the Bid is accepted by the Owner, the undersigned agrees to complete the entire work provided to be done under the contract within the time stipulated by the Owner.
- E. The undersigned agrees that for extra work, if any, performed in accordance with the AGREEMENT, he will accept compensation as stipulated therein in full payment for such extra work.
- F. Bidder understands that the Owner reserves the right to reject any and all bids.
- G. The undersigned hereby agrees that he will not withdraw the Bid within sixty (60) consecutive calendar days after the actual date of the opening of Bids and that, if the Owner accepts this Bid, the undersigned will duly execute and acknowledge the required Contract Bonds within 10 days after notification that the AGREEMENT is ready for signature.
- H. Should the undersigned fail to fulfill any of his agreements as here in before set forth, the Owner shall have the right to retain as liquidated damages the amount of the Bid security, which shall become the Owner/s property. If a bid was furnished as bid security, it is agreed that the amount thereof shall be paid as liquidated damages to the Owner by the Surety.
- I. The Undersigned certifies under penalty of perjury that this Bid is in all respect bona fide, fair and made without collusion or fraud with any other person. As used in this subsection the "person" shall men natural person, joint venture, partnership, corporation or other business or legal entity.
- J. The undersigned certifies that he is able to furnish labor that can work in harmony with all laws and regulations applicable to awards made subject forty-four A.
 - 1. Have been in business under the present name for_____years.
 - 2. Ever failed to complete any work awarded?_____(Yes),_____(No). If yes, explain: _____
 - 3. Bank Reference: _____

K. The Bidder is required to state below all work he/she and his/her subcontractors (if subcontractors are to perform substantial portions of the work) has compete within the past 5 years of a similar character and value to that of the work included in the proposed Contract and to give references that will enable the Owners to judge the Bidder's experience, skill and business standing. The Bidder is required to list a minimum of 3 completed projects that are comparable in scope, complexity and value. For each project, include the name, location, type, date complete, construction value and owner contact.

(add supplementary page if necessary)

L. The Bidder is required to state below all construction projects he/she currently has under contract. For each project, include the name, location, type, scheduled completion date, construction value and owner contact.

M. The undersigned bidder hereby certifies that the tools and equipment required to meet the specified requirements of the Contract document, will be utilized in the performance of the work.

- N. The undersigned further certifies under the penalty of perjury that the said undersigned is not presently debarred from doing public construction work in the Commonwealth of Massachusetts under the provisions of section 29F, or any other applicable debarment provisions of any other chapter of the General Laws or any rule or regulation declared there under.

- O. The undersigned bidder hereby certifies he/she will comply with the minority workforce percentage ratio and specific affirmative action steps contained in the EEO/AA provisions of the Contract, including compliance with Minority/Women Business Enterprise as required under these contract provisions. The contractor receiving the award of the Contract shall be required to obtain from each of its subcontractors a copy of its bidder's certification and submit it to the contracting agency prior to the award of such subcontract, regardless of tier, that it will comply with the minority workforce ratio and specific affirmative action steps contained in these EEO/AA contract provisions.

Date: _____

Name of General Bidder

By:

Name and Title of Person Signing Bond

Business Address

FORM A

CERTIFICATE OF NON-COLLUSION

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

Authorized Name

Authorized Signature Date

Social Security Number or Federal Identification Number

Legal Name of Business Entity (Print or

Type) Address

City, State, Zip Code

Corporate Seal (If applicable)

FORM B

CERTIFICATE OF FOREIGN CORPORATION

The undersigned certifies that it has been duly established, organized, or chartered as a corporation under the laws of:

Jurisdiction

The undersigned further certifies that it complies with the requirements of M.G.L, c. 30, sec. 39L and with the requirements of M.G.L, c. 181 relative to the registration and operation of foreign corporations within the Commonwealth of Massachusetts.

Name of Person Signing the Bid or Proposal Date

Signature of Person Signing the Bid or Proposal Date

Name of Business (Print or Type)

Corporate Seal (If applicable)

FORMD

BIDDER CERTIFICATION REGARDING PAYMENT OF PREVAILING WAGES

The undersigned hereby certifies, under pains and penalties of perjury, that the foregoing bid is based upon the payment to laborers to be employed on the project of wages in an amount no less than the applicable wage rates established for the project by the Massachusetts Department of Labor and Industries. The undersigned bidder agrees to identify the awarding authority for, from, and against any loss, expense, damages, action, or claims, including any expense incurred in connection with any delay or stoppage of the project work, arising out of or as a result of (1) the failure of the said bid to be based upon the payment of the said applicable prevailing wage rates or (2) the failure of the bidder, if selected as the contractor, to pay laborers employed on the project the said applying prevailing wage rates.

Date

Name of Person Signing the Bid or Proposal

Signature of Person Signing the Bid or Proposal Title

Name of Business (Print or Type)

Corporate Seal (If applicable)

FORM E

CERTIFICATION OF PAYMENT OF STATE TAXES

Legislation enacted by the Commonwealth of Massachusetts, effective, 1983, requires that attestation below be signed:

Pursuant to M.G.L c. 62C, sec. 49A, I certify under the penalties of perjury, that I, to my best knowledge and belief, have filed all state tax returns and paid all state taxes required by law.

APPROVAL OF A CONTRACT OR ANY OTHER AGREEMENT WILL NOT BE GRANTED UNLESS THIS CERTIFICATION CLAUSE IS SIGNED BY AN AUTHORIZED CORPORATE OFFICER.

THE TAX PAYER IDENTIFICATION NUMBER WILL BE FURNISHED TO THE MASSACHUSETTS DEPARTMENT OF REVENUE TO DETERMINE IF TAX FILINGS AND/OR TAX PAYMENT OBLIGATIONS HAVE BEEN MET. PROVIDERS WHO FAIL TO CORRECT THEIR NON-FILING AND/OR DELIQUENCY STATUS SHALL NOT HAVE A CONTRACT OR ANY OTHER AGREEMENT ISSUED, RENEWED OR EXTENDED

(Signature of Individual)

Title

Social Security Number or Federal Identification Number

Corporate Name

Name of Person Signing the Proposal (Print or Type)

Date

Legal Name of Business Entity (Print or

Type) Business Address

Corporate Seal (If applicable)

FORM F

**CERTIFICATION OF AUTHORITY
MEETING OF BOARD OF
DIRECTORS**

(Note: if business entity is a partnership or individual, all owners shall sign this form.)

At a meeting of the Directors of the _____ duly called and held at

(Corporation)

_____ on the _____ day of _____, 20 _____,
(Location)

at which a quorum was present and acting, it was voted that _____, the
(Name)

_____ of this Corporation, is hereby authorized and empowered to make,
(Title/Position)

into, sign, seal and deliver on behalf of the Corporation a Contract for _____
with the _____, and the performance and payment
bonds each in the amount as specified by the Owner.

I hereby certify that the above is a true and correct copy of the record, that said vote has not been amended or repealed and is in full force, and effect as of this date and that

_____ is duly elected _____ of the corporation
(Name) (Title/Position)

Clerk or secretary of the Corporation

Date

(Note: If the Bidder is a corporation, affix corporate seal and give below the names of its president, treasurer, and general manager, if any: if a partnership, give full names and residential addresses of all partners; and if an individual, give residential address if different from business address.)

the required names and addresses of all person interested in this proposal, as Principals, are as follows:

CONTRACT FOR LUSSIANO/NORTH UNION PLAYGROUND RENOVATION

THIS AGREEMENT, made as of this _____ day of _____, 20____, by and between the TOWN OF ARLINGTON, MASSACHUSETTS, acting through its TOWN

MANAGER, hereinafter called the 'Owner' and _____, (Name of Contractor) of _____, country of _____ and State of _____, hereinafter called the 'Contractor'.

WITNESSETH; That the Contractor and the Owner for the consideration hereinafter named agrees as follow:

1. SCOPE: The Contractor will furnish at his own proper cost and expense all materials, supplies, machinery, equipment, appliances, tools, superintendence, labor, insurance and other items and services necessary to complete the work as shown and described on the Contract Documents entitled "Lussiano/North Union Playground Renovation, Arlington, Massachusetts, hereinafter called the 'Project', prepared by Ray Dunetz Landscape Architecture, Inc., hereinafter called the 'Designer', or 'Landscape Architect'.
2. CONTRACT SUM: The owner agrees to pay the contractor, and the contractor agrees to accept in full consideration for the performance of the contract, subject to additions and deductions provided for in the contract documents, in current funds, the sum of dollars (\$ _____), hereinafter called the 'Contract Sum' and to make payments on account thereof, as described below and elsewhere in the Contract Documents.
3. COMMENCEMENT OF WORK AND TIME OF COMPLETION: The contractor agrees to commence work on the contract within seven (7) calendar days from the receipt of written Notice to Proceed issued by the Owner and/or within fourteen (14) calendar days after execution of the contract Agreement and to thereafter diligently and continuously carry on the work. He agrees to complete the work on or before September 4, 2020 except as herein noted.
4. LIQUIDATED DAMAGES: The Contractor agrees to pay the Owner liquidated damages for failure to complete the Project in conformance with the time allowances as set forth above at the rate of \$100.00 per calendar day.
5. ALTERNATES: The following Alternates have been accepted and the Contract Sum stated in Paragraph 2 of this Agreement includes and is adjusted to reflect the total cost of each accepted alternate:

Alternate No.	Indicate Accepted or Rejected	Original Bid Value of Alternate
ADD Alt. No. 1	_____	_____
ADD Alt. No. 2	_____	_____
ADD Alt. No. 3	_____	_____
ADD Alt. No. 4	_____	_____

6. PAYMENTS TO CONTRACTOR: Payments shall be made in accordance with Chapter 30, Section 39K of the General Laws of the Commonwealth of Massachusetts, including all current amendments, generally as follows:

- A. Within fifteen days after receipt from the Contractor, at the place designated by the Owner if such a place is so designated, of a periodic estimate requesting payment of the amount due for the preceding month, the Owner 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 Owner, less (1) a retention based on its estimate of the fair value of its claims against the Contractor and less (2) a retention for direct payments to subcontractors based on demands for same in accordance with the provisions of Section 39F, 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 Owner, less than one percent of the original contract price, or (b) the Contractor substantially completes the work and the Owner takes possession for occupancy, whichever occurs first, the Owner 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 claim 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 the demands for same in accordance with the provisions of Section 39F, or based on the record of payments by the Contractor to the subcontractors under this contract if such record of payment indicates that the Contractor has not paid subcontractors as provided in Section 39F. If the Owner fails to make payment as herein provided, there shall be added to each such payment daily interest at the rate of five percent per annum 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 a periodic estimate from the Contractor, at the place designated by the Owner 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.
- B. The Owner may make changes in any periodic estimate submitted by the Contractor and the payment due on said periodic estimate shall be computed in accordance with the changes so made, but such changes or any requirement for a corrected periodic estimate shall not affect the due date for the periodic payment or the date for the commencement of interest charges on the amount of the periodic payment computed in accordance with the changes made, as provided herein; provided that the Owner 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 for such periodic estimate in proper form and with arithmetically correct computations. The date of receipt of a periodic estimate received on a Saturday shall be the first working day thereafter. The provisions of Section 39G shall not apply to any contract for the construction, reconstruction, remodeling, repair or demolition of any public building to which this section applies.
7. **PAYMENTS TO SUBCONTRACTORS:** Payments shall be made in accordance with Chapter 30, Section 39F of the General Laws of the Commonwealth of Massachusetts, including all current amendments, generally as follows:

- A. Forthwith after the General Contractor receives payment on account of a period estimate, the General Contractor shall pay to each Subcontractor the amount paid for the labor performed and the materials furnished in any court proceedings barring such payment and also less any amount claimed due from the Subcontractor by the General Contractor.
- B. Not later than the sixty-fifth day after each Subcontractor substantially completes his work in accordance with the plans and specifications, the entire balance due under the Subcontract less amounts retained by the Owner as the estimated cost of completing the incomplete and unsatisfactory items of work, shall be due the Subcontractor, and the Owner shall pay that amount to the General Contractor. The General Contractor shall forthwith pay to the Subcontractor the full amount received from the Owner less any amount specified in any court proceedings barring such payment and also less any amount claimed due from the Subcontractor by the General Contractor.
- C. Each payment made by the Owner to the General Contractor pursuant to subparagraphs (A) and (B) of this paragraph for the labor performed and the materials furnished by a Subcontractor shall be made to the General Contractor for the account of that Subcontractor; and the Owner shall take reasonable steps to compel the General Contractor to make each payment to each such Subcontractor. If the Owner 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 (A) and (B), the Owner shall act upon demand as provided in this Section.
- D. If, within seventy days after the Subcontractor has substantially completed the Subcontract work, the Subcontractor has not received from the General Contractor the balance due under the Subcontract including any amount due for extra labor and materials furnished to the General Contractor, less any amount retained by the Owner as the estimated cost of completing the incomplete and unsatisfactory items of work, the Subcontractor may demand direct payment of that balance from the Owner. The demand shall be by a sworn statement delivered to or sent by certified mail to the Owner, 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 Owner 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 Owner and a copy shall be delivered to or sent by certified mail to the Subcontractor at the same time. The reply shall contain a detailed breakdown of the balance due under the Subcontract including any amount due for extra labor and materials furnished to the General Contractor and of the amount due for each claim made by the General Contractor against the Subcontractor.
- E. Within fifteen days after receipt of the demand by the Owner, 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, less any amount (i) retained by the Owner 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 Owner 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 in subparagraph (D); The Owner shall make further direct payments to the Subcontractor forthwith after the removal of the basis for deductions from direct payments made as provided in parts (i) and (ii) of this

subparagraph.

- F. The Owner shall forthwith deposit the amount deducted from a direct payment as provided in part (iii) of subparagraph (E) in an interest-bearing joint account in the names of the General Contractor and the Subcontractor in a bank in Massachusetts; selected by the Owner and agreed upon by the General Contractor and the Subcontractor and shall notify the General Contractor and the Subcontractor of the date of deposit and the bank receiving the deposit. The bank shall pay the amount on the account, including accrued interest, as provided in an agreement between the General Contractor and the Subcontractor or as determined by decree of a court of competent jurisdiction.
- G. All direct payments and all deductions from demands for direct payments deposited in an interest-bearing account or accounts in a bank pursuant to subparagraph (F) shall be made out of amounts payable to the General Contractor at the time of receipt of a demand for direct payment from a Subcontractor and out of amounts later become payable to the General Contractor and in order of receipt of such demands from Subcontractors. All direct payments shall discharge the obligation of the Owner to the General Contractor to the extent of such payment.
- H. The Owner shall deduct from payments to a General Contractor amounts which, together with the deposits in interest-bearing accounts pursuant to subparagraph (F), are sufficient to satisfy all unpaid balances of demands for direct payment received from Subcontractors. All such amounts shall be earmarked for such direct payments, and the Subcontractors shall have a right in such deductions prior to any claims against such amounts by creditors of the General Contractor.
- I. On all contracts for building construction subject to the provisions of Sections 44A to 44L, inclusive, of Chapter 149, periodic payments for work performed by a Subcontractor shall be made to the General Contractor for payment to the Subcontractor and shall be paid to the Subcontractor forthwith after receipt thereof by the General Contractor and without any ten day waiting period as provided above, less any amount claimed by the General Contractor in a letter containing a breakdown of the claim and sent to the Subcontractor with such payment, provided that a General Contractor, who has received a periodic estimate for a periodic payment in proper form from a Subcontractor three days, Saturdays, Sundays and holidays excluded, before the due date of the General Contractor's periodic estimate for the same periodic payment period less any amount claimed by the General Contractor in a letter containing a breakdown of the claim and sent to the Subcontractor with such payment, even though the General Contractor does not submit a periodic estimate to the Owner for that payment period; and provided, further, that the Owner shall take all reasonable steps to compel the General Contractor to make payment to the Subcontractors as provided in this paragraph, and upon the written request of a Subcontractor setting forth the amount payable but not paid, a copy of which shall be sent to the General Contractor, shall make direct payment to a Subcontractor, as provided for above, which shall discharge the obligation of the Owner to the General Contractor to extent of any such payment.
- J. The Owner shall not include in any direct payment to a Subcontractor pursuant to this section any amount claimed from that Subcontractor by the General Contractor in a letter containing a breakdown of the claim and sent to the Owner within ten days after the receipt by the General Contractor of the copy of the request of the Subcontractor to the Owner for direct payment.

8. CONDITIONS OF EMPLOYMENT

- A. The schedule of Minimum Wage Rates and Health and Pension Fund Contributions as determined by the Commissioner under the provisions of the Massachusetts General Laws, Chapter 149, Sections 26 m 27D, inclusive, AS amended, is hereby made a part of this Agreement.

- B. 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.
- C. No laborer, workman, mechanic, foreman or inspector working within the Commonwealth, in the employ of the Contractor, Subcontractor or any other person doing or contracting to do the whole or a part of the work contemplated by the Contract, shall be required or permitted to work more than eight hours in any one day or forty-eight hours in any one week, or more than six days in any one week, except in cases of emergency.
- D. Every employee of the Contractor or any Subcontractor shall lodge, board and trade where and with whom he elects; and no person or his agents or employees shall be directly or indirectly required, as a condition of employment that the employee to lodge, board or trade at a particular place or with a particular person.

9. SUBCONTRACTORS

- A. The Contractor will employ the following Subcontractors on the work and will pay for the execution of his as defined in the Contract Documents; and subject to the additions and deductions provided in the subject to the additions and deductions provided in the Contract Documents, the sum shown opposite his name.

<u>Class Of Work</u>	<u>Subcontractor</u>	<u>Subcontractor Sum</u>

- B. The names of any additional Subcontractors whom the Contractor proposed to employ shall be submitted to the Designer for approval. No such Subcontractor shall be employed to whose standing or ability the Owner or the Designer has any reasonable objection.

10. THE CONTRACT DOCUMENTS: The General Conditions of the Contract, the Specifications and the Drawings, together with this Agreement, for the Contract, and they are as fully a part of the Contract as if hereto attached or herein repeated Drawings and Specifications titled: HARDY SCHOOL PLAYGROUND RENOVATION.

11. INCORPORATION OF STATUTES BY REFERENCE: If statutes of the Commonwealth of Massachusetts in any way relating to the construction, alterations, repair and installation of public works,

particularly with reference to labor and labor rates, they shall be strictly complied with by the Contractor and it is understood that all such statutes are incorporated by reference in this Contract.

- 12. It is expressly agreed that this Agreement is to be executed for and in behalf of the Owner by the members of its Board of Selectmen and any of its appoints and that such persons are acting in a representative capacity for and in behalf of Owner, and that such persons shall not incur any personal liability hereunder.

IN WITNESS whereof, inhabitants of the Town of Arlington and

have caused these presents to be executed by their

hereunto duly authorized the day and year first written.

TOWN OF ARLINGTON

Adam W. Chapdelaine, Town Manager

Certification:
I hereby Certify that an
appropriation in the amount of
the Contract is available.

Town Accountant

Contractor

By: . (Title)

Approved as to Matter of Form:

Town Counsel

PERFORMANCE BOND

KNOW ALL MEN BY THESE PRESENTS: That we

(Name of Contractor)

a _____
(Corporation, Partnership or Individual)

hereinafter called "Principal" and

(Surety)
of _____, State of _____, hereinafter called the
"Surety", are held and firmly bound into

THE TOWN OF ARLINGTON,
MASSACHUSETTS (Owner)

acting through its TOWN MANAGER

ARLINGTON,
MASSACHUSETTS (City and
State)

hereinafter called "Owner", in the penal sum of
_____ Dollars (\$ _____) in lawful money
of the United states, for the payment of which sum well and truly to be made, we bind
ourselves, our heirs, executors, administrators and successors, jointly and severally, firmly
by these presents.

THE CONDITION OF THIS OBLIGATION is such that Whereas, the Principal entered into
a certain contract with the Owner, dated _____ day of _____ a copy
of which is hereto attached and made a part hereof for the construction of

Arlington, Massachusetts

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

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

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

IN WITNESS WHEREOF, the parties to these present have duly executed in this Bond on the day of _____

ATTEST:

Principal

By _____
Secretary

(Address - zip code)

Witness as to Principal

(Seal)

(Address - zip code)

ATTEST

: Surety

BY _____

(Surety)

Secretary

(Address-Zip Code)

Witness as to Surety

(Seal)

(Address-Zip Code)

NOTE: Date of Bond must not be prior to date of Contract. If Contractor is a Partnership, all partners should execute Bond.

END OF DOCUMENT

LABOR AND MATERIALS PAYMENT BOND

KNOW ALL MEN BY THESE PRESENTS: That we

_____ (Name of Contractor)

a _____ (Corporation, Partnership of Individual)

hereinafter called "Principal" and

_____ (Surety)

of _____, State of _____, hereinafter called the "Surety", are held and firmly bound into

TOWN OF ARLINGTON,
MASSACHUSETTS (Owner)
acting through its TOWN MANAGER

ARLINGTON,
MASSACHUSETTS (City and
State)

herein called "Owner", in the penal sum of

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

THE CONDITION OF THIS OBLIGATION is such that 'Whereas, the Principal entered into a certain contract with the Owner, dated the day of _____, _____ a copy of which is hereto attached and made a part hereof for the construction of:

SPY POND EGDE AND EROSION CONTROL PROJECT IN ARLINGTON
MASSACHUSETTS.

NOW, THEREFORE, if the Principal shall promptly make payment to all persons, firms, subcontractors, and corporations furnishing materials for or performing labor in the prosecution of the work provided for in such contract, and any authorized extension or modification thereof, including all amounts due for materials, lubricants, oil, gasoline, coal and coke, repairs on machinery, equipment and tools, consumed or used 'in connection with the construction of such work, and all insurance premiums on said work, and for all labor, performed in such work whether by subcontractor or otherwise, then this obligation shall be void; otherwise to remain in full force and effect.

PROVIDED, FURTHER, that the said surety, for value received hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the contract or to the work to be performed thereunder or the specifications accompanying the Same shall in any wise affect its obligation on this Bond, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the contract or to the work or to the specifications.

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

IN WITNESS WHEREOF, the parties to these present have duly executed in this Bond on the day of _____,

ATTEST:

Principal

BY
Secretary

(Address - zip code)

Witness as to Principal

(Seal)

(Address - zip code)

ATTEST:

Surety

Secretary

(Address-Zip Code)

Witness as to Surety

(Seal)

(Address-Zip Code)

NOTE: Date of Bond must not be prior to date of Contract. If Contractor is a Partnership, all partners should execute Bond.

END OF DOCUMENT

BY-LAWS OF THE TOWN OF ARLINGTON
TITLE I
ARTICLE 16

CONSTRUCTION PROJECTS

Section 1. Women Work Force Participation

Any Town board or official in charge of a construction or reconstruction project is required to include in the contract documents the following:

- A. Contractor shall maintain as a goal on this project a not less than five percent ratio of women work force to total project hours in both the general contract and each individual filed sub-bid contract, if applicable. The preceding sentence shall be included in all construction contracts whether entered into by the Town pursuant to the provisions of M.G.L. c. 149 or M.G. L. c 30, §39M et. seq. provided however, that if entered into under Chapter 30 same shall not be deemed to apply where the projected bid price as determined by the Director of Public Works is not likely to exceed \$200,000.
- B. A Labor Scheduling Table which will be used as a tool for achieving a range of women work force participation for the entire project in both the general contract and each individual filed sub-bid contract.

Section 2. Equal Opportunity Goal Compliance

Any Town board or official in charge of a construction or reconstruction project is required to include in the contract documents the following:

- A. Before starting work, the contractors (includes the general contractor, for itself and its subcontractors, as well as all filed sub-bid contractors, if applicable) will submit plans for achievement of the equal opportunity goals of the contract. All contractors will be required to make a good faith effort to achieve these goals. The plan will indicate if the contractors expect to achieve the requirements during the first quarter. If there are reasons why the contractors do not expect to achieve the requirements during the first quarter year of the contract construction phase, then the contractors shall provide a plan calculated to address, to the extent reasonably possibly, these obstacles to a good faith effort to achieve such goals.
- B. Not more than ten days following the end of each work quarter, the contractors will report on the achievement of the goals, detailing the good faith efforts that have been made and will continue to be made and any other appropriate efforts not yet undertaken.
- C. All reports will be signed by an officer or principal of the company who has the authority to contractually obligate the company.

Section 3. Recruitment and Training

Any board, officer, committee, or other agency of the Town, which acts on behalf of the Town in making or supervising any contract, in an amount exceeding the sum of \$100,000 for the purchase of goods or services or for the construction, renovation, or repair of buildings or other improvement of real estate, may make arrangements with contractors and other interested agencies for special programs of recruitment and training in connection with the work to be performed on such contract, with the objective of promoting equal employment opportunity for members of minority groups protected by the fair employment laws of the Commonwealth and the United States. Any board, officer, committee or other Town agency may expend Town funds in carrying them out provided that appropriations specifically designed for such purposes have been voted by the Town Meeting.



TOWN OF ARLINGTON EQUAL OPPORTUNITY ADVISORY COMMITTEE

730 MASSACHUSETTS AVENUE, ARLINGTON, MA 02476
PHONE (781) 316-3120 FAX: (781) 316-3129

TRICIA O'DONOGHUE, CHAIR
BARBARA BOLTZ
AUGUSTA HAYDOCK
JACK JONES

CARYN COVE MALLOY
EQUAL OPPORTUNITY OFFICER

CONTRACTOR CERTIFICATION

During the performance of the Contract, the Contractor and all subcontractors (hereafter collectively referred to as "the Contractor") for a town construction contract or town assisted construction contract, for him/herself, his/her assignees and successors in interest, agree to comply with all applicable equal employment opportunity, non-discrimination and affirmative action requirements, including but not limited to the following:

The Contractor shall comply with the provisions of Town of Arlington Bylaws, Anti-Discrimination policies and Chapter 151B of the Massachusetts General Laws, as amended, and all other applicable anti-discrimination and equal opportunity laws, all of which are herein incorporated by reference and made a part of this contract.

In connection with the performance of work under this contract, the Contractor shall undertake, in good faith, affirmative action measures to eliminate any discriminatory barrier in the terms and conditions of employment on the grounds of race, color, religious creed, national origin, sex, gender identity, sexual orientation, age, genetic information, ancestry, children, marital status, veteran status or membership in the armed service, the receiving of public assistance, and handicap. Such affirmative action measures shall entail a list of positive and aggressive measures which shall include but not be limited to, advertising employment opportunities in minority and other community news media; notifying minority women and other community-based organizations of employment opportunities; maintaining a file of names and addresses of each worker referred to the Contractor and what action was taken concerning such worker; and notifying this Committee in writing when a union with whom the Contractor has a collective bargaining agreement has failed to refer a minority or woman worker.

The Contractor shall submit to the Equal Opportunity Advisory Committee, through the Purchasing Director Domenic Lanzillotti, the following Contractor's Certification with all attachments. The Contractor's Certification will be reviewed by the Committee and will inform the Contractor of any deficiencies to be corrected.

CONTRACTOR CERTIFICATION

_____ certifies that they:

(Contractor Name)

1. Will not discriminate in their employment practices.
2. Intend to use, if General Contractor, the following listed construction trades in the work under the contract:

3. If Trade Subcontractor, will provide the following work under the contract:

4. Will make good faith efforts to comply with the minority employee and women employee workforce participation ratio goals of the Town of Arlington and the Commonwealth of Massachusetts and specific affirmative steps contained herein; and to provide evidence of its good faith efforts. Attached hereto, please find:

- A. Employment Opportunities advertised in:

- B. Notification to Minority/Women/Community based Organizations such as:

C. List of workers referred to Contractor and note on what action was taken:

D. Written notification that Union/Local No. _____ failed to refer a Minority or
Female worker during the week of: _____

Signature of Officer

Date

Printed Name of Officer and Title

STANDARD
GENERAL CONDITIONS
OF THE
CONSTRUCTION CONTRACT

Prepared by

ENGINEERS JOINT CONTRACT DOCUMENTS COMMITTEE

and

Issued and Published Jointly By

PROFESSIONAL ENGINEERS IN PRIVATE PRACTICE
a practice division of the
NATIONAL SOCIETY OF PROFESSIONAL ENGINEERS

AMERICAN CONSULTING ENGINEERS COUNCIL

AMERICAN SOCIETY OF CIVIL ENGINEERS

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The Associated General Contractors of America

Construction Specifications Institute

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National Society of Professional Engineers
1420 King Street, Alexandria, VA 22314

American Consulting Engineers Council
1015 15th Street N.W., Washington, DC 20005

American Society of Civil Engineers
345 East 47th Street, New York, NY 10017

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GENERAL CONDITIONS

ARTICLE 1 - DEFINITIONS AND TERMINOLOGY

1.01 *Defined Terms*

A. Wherever used in the Contract Documents and printed with initial or all capital letters, the terms listed below will have the meanings indicated which are applicable to both the singular and plural thereof.

1. *Addenda*--Written or graphic instruments issued prior to the opening of Bids which clarify, correct, or change the Bidding Requirements or the Contract Documents.

2. *Agreement*--The written instrument which is evidence of the agreement between OWNER and CONTRACTOR covering the Work.

3. *Application for Payment*--The form acceptable to ENGINEER which is to be used by CONTRACTOR during the course of the Work in requesting progress or final payments and which is to be accompanied by such supporting documentation as is required by the Contract Documents.

4. *Asbestos*--Any material that contains more than one percent asbestos and is friable or is releasing asbestos fibers into the air above current action levels established by the United States Occupational Safety and Health Administration.

5. *Bid*--The offer or proposal of a bidder submitted on the prescribed form setting forth the prices for the Work to be performed.

6. *Bidding Documents*--The Bidding Requirements and the proposed Contract Documents (including all Addenda issued prior to receipt of Bids).

7. *Bidding Requirements*--The Advertisement or Invitation to Bid, Instructions to Bidders, Bid security form, if any, and the Bid form with any supplements.

8. *Bonds*--Performance and payment bonds and other instruments of security.

9. *Change Order*--A document recommended by ENGINEER which is signed by CONTRACTOR and OWNER and authorizes an addition, deletion, or revision in the Work or an adjustment in the Contract Price or the

Contract Times, issued on or after the Effective Date of the Agreement.

10. *Claim*--A demand or assertion by OWNER or CONTRACTOR seeking an adjustment of Contract Price or Contract Times, or both, or other relief with respect to the terms of the Contract. A demand for money or services by a third party is not a Claim.

11. *Contract*--The entire and integrated written agreement between the OWNER and CONTRACTOR concerning the Work. The Contract supersedes prior negotiations, representations, or agreements, whether written or oral.

12. *Contract Documents*--The Contract Documents establish the rights and obligations of the parties and include the Agreement, Addenda (which pertain to the Contract Documents), CONTRACTOR's Bid (including documentation accompanying the Bid and any post Bid documentation submitted prior to the Notice of Award) when attached as an exhibit to the Agreement, the Notice to Proceed, the Bonds, these General Conditions, the Supplementary Conditions, the Specifications and the Drawings as the same are more specifically identified in the Agreement, together with all Written Amendments, Change Orders, Work Change Directives, Field Orders, and ENGINEER's written interpretations and clarifications issued on or after the Effective Date of the Agreement. Approved Shop Drawings and the reports and drawings of subsurface and physical conditions are not Contract Documents. Only printed or hard copies of the items listed in this paragraph are Contract Documents. Files in electronic media format of text, data, graphics, and the like that may be furnished by OWNER to CONTRACTOR are not Contract Documents.

13. *Contract Price*--The moneys payable by OWNER to CONTRACTOR for completion of the Work in accordance with the Contract Documents as stated in the Agreement (subject to the provisions of paragraph 11.03 in the case of Unit Price Work).

14. *Contract Times*--The number of days or the dates stated in the Agreement to: (i) achieve Substantial Completion; and (ii) complete the Work so that it is ready for final payment as evidenced by ENGINEER's written recommendation of final payment.

15. *CONTRACTOR*--The individual or entity with whom OWNER has entered into the Agreement.

16. *Cost of the Work*--See paragraph 11.01.A for definition.

17. *Drawings*--That part of the Contract Documents prepared or approved by ENGINEER which graphically shows the scope, extent, and character of the Work to be performed by CONTRACTOR. Shop Drawings and other CONTRACTOR submittals are not Drawings as so defined.

18. *Effective Date of the Agreement*--The date indicated in the Agreement on which it becomes effective, but if no such date is indicated, it means the date on which the Agreement is signed and delivered by the last of the two parties to sign and deliver.

19. *ENGINEER*--The individual or entity named as such in the Agreement.

20. *ENGINEER's Consultant*--An individual or entity having a contract with ENGINEER to furnish services as ENGINEER's independent professional associate or consultant with respect to the Project and who is identified as such in the Supplementary Conditions.

21. *Field Order*--A written order issued by ENGINEER which requires minor changes in the Work but which does not involve a change in the Contract Price or the Contract Times.

22. *General Requirements*--Sections of Division 1 of the Specifications. The General Requirements pertain to all sections of the Specifications.

23. *Hazardous Environmental Condition*--The presence at the Site of Asbestos, PCBs, Petroleum, Hazardous Waste, or Radioactive Material in such quantities or circumstances that may present a substantial danger to persons or property exposed thereto in connection with the Work.

24. *Hazardous Waste*--The term Hazardous Waste shall have the meaning provided in Section 1004 of the Solid Waste Disposal Act (42 USC Section 6903) as amended from time to time.

25. *Laws and Regulations; Laws or Regulations*--Any and all applicable laws, rules, regulations, ordinances, codes, and orders of any and all governmental bodies, agencies, authorities, and courts having jurisdiction.

26. *Liens*--Charges, security interests, or encumbrances upon Project funds, real property, or personal property.

27. *Milestone*--A principal event specified in the Contract Documents relating to an intermediate completion date or time prior to Substantial Completion of all the Work.

28. *Notice of Award*--The written notice by OWNER to the apparent successful bidder stating that upon timely compliance by the apparent successful bidder with the conditions precedent listed therein, OWNER will sign and deliver the Agreement.

29. *Notice to Proceed*--A written notice given by OWNER to CONTRACTOR fixing the date on which the Contract Times will commence to run and on which CONTRACTOR shall start to perform the Work under the Contract Documents.

30. *OWNER*--The individual, entity, public body, or authority with whom CONTRACTOR has entered into the Agreement and for whom the Work is to be performed.

31. *Partial Utilization*--Use by OWNER of a substantially completed part of the Work for the purpose for which it is intended (or a related purpose) prior to Substantial Completion of all the Work.

32. *PCBs*--Polychlorinated biphenyls.

33. *Petroleum*--Petroleum, including crude oil or any fraction thereof which is liquid at standard conditions of temperature and pressure (60 degrees Fahrenheit and 14.7 pounds per square inch absolute), such as oil, petroleum, fuel oil, oil sludge, oil refuse, gasoline, kerosene, and oil mixed with other non-Hazardous Waste and crude oils.

34. *Project*--The total construction of which the Work to be performed under the Contract Documents may be the whole, or a part as may be indicated elsewhere in the Contract Documents.

35. *Project Manual*--The bound documentary information prepared for bidding and constructing the Work. A listing of the contents of the Project Manual, which may be bound in one or more volumes, is contained in the table(s) of contents.

36. *Radioactive Material*--Source, special nuclear, or byproduct material as defined by the Atomic Energy Act of 1954 (42 USC Section 2011 et seq.) as amended from time to time.

37. *Resident Project Representative*--The authorized representative of ENGINEER who may be assigned to the Site or any part thereof.

38. *Samples*--Physical examples of materials, equipment, or workmanship that are representative of some portion of the Work and which establish the standards by which such portion of the Work will be judged.

39. *Shop Drawings*--All drawings, diagrams, illustrations, schedules, and other data or information which are specifically prepared or assembled by or for CONTRACTOR and submitted by CONTRACTOR to illustrate some portion of the Work.

40. *Site*--Lands or areas indicated in the Contract Documents as being furnished by OWNER upon which the Work is to be performed, including rights-of-way and easements for access thereto, and such other lands furnished by OWNER which are designated for the use of CONTRACTOR.

41. *Specifications*--That part of the Contract Documents consisting of written technical descriptions of materials, equipment, systems, standards, and workmanship as applied to the Work and certain administrative details applicable thereto.

42. *Subcontractor*--An individual or entity having a direct contract with CONTRACTOR or with any other Subcontractor for the performance of a part of the Work at the Site.

43. *Substantial Completion*--The time at which the Work (or a specified part thereof) has progressed to the point where, in the opinion of ENGINEER, the Work (or a specified part thereof) is sufficiently complete, in accordance with the Contract Documents, so that the Work (or a specified part thereof) can be utilized for the purposes for which it is intended. The terms "substantially complete" and "substantially completed" as applied to all or part of the Work refer to Substantial Completion thereof.

44. *Supplementary Conditions*--That part of the Contract Documents which amends or supplements these General Conditions.

45. *Supplier*--A manufacturer, fabricator, supplier, distributor, materialman, or vendor having a direct contract with CONTRACTOR or with any Subcontractor to furnish materials or equipment to be incorporated in the Work by CONTRACTOR or any Subcontractor.

46. *Underground Facilities*--All underground pipelines, conduits, ducts, cables, wires, manholes, vaults, tanks, tunnels, or other such facilities or attachments, and any encasements containing such facilities, including those that convey electricity, gases, steam, liquid petroleum products, telephone or other communications, cable television, water, wastewater, storm water, other liquids or chemicals, or traffic or other control systems.

47. *Unit Price Work*--Work to be paid for on the basis of unit prices.

48. *Work*--The entire completed construction or the various separately identifiable parts thereof required to be provided under the Contract Documents. Work includes and is the result of performing or providing all labor, services, and documentation necessary to produce such construction, and furnishing, installing, and incorporating all materials and equipment into such construction, all as required by the Contract Documents.

49. *Work Change Directive*--A written statement to CONTRACTOR issued on or after the Effective Date of the Agreement and signed by OWNER and recommended by ENGINEER ordering an addition, deletion, or revision in the Work, or responding to differing or unforeseen subsurface or physical conditions under which the Work is to be performed or to emergencies. A Work Change Directive will not change the Contract Price or the Contract Times but is evidence that the parties expect that the change ordered or documented by a Work Change Directive will be incorporated in a subsequently issued Change Order following negotiations by the parties as to its effect, if any, on the Contract Price or Contract Times.

50. *Written Amendment*--A written statement modifying the Contract Documents, signed by OWNER and CONTRACTOR on or after the Effective Date of the Agreement and normally dealing with the nonengineering or nontechnical rather than strictly construction-related aspects of the Contract Documents.

1.02 *Terminology*

A. *Intent of Certain Terms or Adjectives*

1. Whenever in the Contract Documents the terms “as allowed,” “as approved,” or terms of like effect or import are used, or the adjectives “reasonable,” “suitable,” “acceptable,” “proper,” “satisfactory,” or adjectives of like effect or import are used to describe an action or determination of ENGINEER as to the Work, it is intended that such action or determination will be solely to evaluate, in general, the completed Work for compliance with the requirements of and information in the Contract Documents and conformance with the design concept of the completed Project as a functioning whole as shown or indicated in the Contract Documents (unless there is a specific statement indicating otherwise). The use of any such term or adjective shall not be effective to assign to ENGINEER any duty or authority to supervise or direct the performance of the Work or any duty or authority to undertake responsibility contrary to the provisions of paragraph 9.10 or any other provision of the Contract Documents.

B. *Day*

1. The word “day” shall constitute a calendar day of 24 hours measured from midnight to the next midnight.

C. *Defective*

1. The word “defective,” when modifying the word “Work,” refers to Work that is unsatisfactory, faulty, or deficient in that it does not conform to the Contract Documents or does not meet the requirements of any inspection, reference standard, test, or approval referred to in the Contract Documents, or has been damaged prior to ENGINEER’s recommendation of final payment (unless responsibility for the protection thereof has been assumed by OWNER at Substantial Completion in accordance with paragraph 14.04 or 14.05).

D. *Furnish, Install, Perform, Provide*

1. The word “furnish,” when used in connection with services, materials, or equipment, shall mean to supply and deliver said services, materials, or equipment to the Site (or some other

specified location) ready for use or installation and in usable or operable condition.

2. The word “install,” when used in connection with services, materials, or equipment, shall mean to put into use or place in final position said services, materials, or equipment complete and ready for intended use.

3. The words “perform” or “provide,” when used in connection with services, materials, or equipment, shall mean to furnish and install said services, materials, or equipment complete and ready for intended use.

4. When “furnish,” “install,” “perform,” or “provide” is not used in connection with services, materials, or equipment in a context clearly requiring an obligation of CONTRACTOR, “provide” is implied.

E. Unless stated otherwise in the Contract Documents, words or phrases which have a well-known technical or construction industry or trade meaning are used in the Contract Documents in accordance with such recognized meaning.

ARTICLE 2 - PRELIMINARY MATTERS

2.01 *Delivery of Bonds*

A. When CONTRACTOR delivers the executed Agreements to OWNER, CONTRACTOR shall also deliver to OWNER such Bonds as CONTRACTOR may be required to furnish.

2.02* *Copies of Documents*

A. OWNER shall furnish to CONTRACTOR up to ten copies of the Contract Documents. Additional copies will be furnished upon request at the cost of reproduction.

2.03 *Commencement of Contract Times; Notice to Proceed*

A. The Contract Times will commence to run on the thirtieth day after the Effective Date of the Agreement or, if a Notice to Proceed is given, on the day indicated in the Notice to Proceed. A Notice to Proceed may be given at any time within 30 days after the Effective Date of the Agreement. In no event will the Contract Times com-

mence to run later than the sixtieth day after the day of Bid opening or the thirtieth day after the Effective Date of the Agreement, whichever date is earlier.

2.04 *Starting the Work*

A. CONTRACTOR shall start to perform the Work on the date when the Contract Times commence to run. No Work shall be done at the Site prior to the date on which the Contract Times commence to run.

*See Supplementary Conditions

2.05* *Before Starting Construction*

A. *CONTRACTOR's Review of Contract Documents:* Before undertaking each part of the Work, CONTRACTOR shall carefully study and compare the Contract Documents and check and verify pertinent figures therein and all applicable field measurements. CONTRACTOR shall promptly report in writing to ENGINEER any conflict, error, ambiguity, or discrepancy which CONTRACTOR may discover and shall obtain a written interpretation or clarification from ENGINEER before proceeding with any Work affected thereby; however, CONTRACTOR shall not be liable to OWNER or ENGINEER for failure to report any conflict, error, ambiguity, or discrepancy in the Contract Documents unless CONTRACTOR knew or reasonably should have known thereof.

B. *Preliminary Schedules:* Within ten days after the Effective Date of the Agreement (unless otherwise specified in the General Requirements), CONTRACTOR shall submit to ENGINEER for its timely review:

1. a preliminary progress schedule indicating the times (numbers of days or dates) for starting and completing the various stages of the Work, including any Milestones specified in the Contract Documents;
2. a preliminary schedule of Shop Drawing and Sample submittals which will list each required submittal and the times for submitting, reviewing, and processing such submittal; and
3. a preliminary schedule of values for all of the Work which includes quantities and prices of items which when added together equal the Contract Price and subdivides the Work into

component parts in sufficient detail to serve as the basis for progress payments during performance of the Work. Such prices will include an appropriate amount of overhead and profit applicable to each item of Work.

* C. *Evidence of Insurance:* Before any Work at the Site is started, CONTRACTOR and OWNER shall each deliver to the other, with copies to each additional insured identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance which either of them or any additional insured may reasonably request) which CONTRACTOR and OWNER respectively are required to purchase and maintain in accordance with Article 5.

2.06 *Preconstruction Conference*

A. Within 20 days after the Contract Times start to run, but before any Work at the Site is started, a conference attended by CONTRACTOR, ENGINEER, and others as appropriate will be held to establish a working understanding among the parties as to the Work and to discuss the schedules referred to in paragraph 2.05.B, procedures for handling Shop Drawings and other submittals, processing Applications for Payment, and maintaining required records.

2.07 *Initial Acceptance of Schedules*

A. Unless otherwise provided in the Contract Documents, at least ten days before submission of the first Application for Payment a conference attended by CONTRACTOR, ENGINEER, and others as appropriate will be held to review for acceptability to ENGINEER as provided below the schedules submitted in accordance with paragraph 2.05.B. CONTRACTOR shall have an additional ten days to make corrections and adjustments and to complete and resubmit the schedules. No progress payment shall be made to CONTRACTOR until acceptable schedules are submitted to ENGINEER.

1. The progress schedule will be acceptable to ENGINEER if it provides an orderly progression of the Work to completion within any specified Milestones and the Contract Times. Such acceptance will not impose on ENGINEER responsibility for the progress schedule, for sequencing, scheduling, or progress of the Work nor interfere with or relieve CONTRACTOR from CONTRACTOR's full responsibility therefor.

2. CONTRACTOR's schedule of Shop Drawing and Sample submittals will be acceptable to ENGINEER if it provides a workable arrangement for reviewing and processing the required submittals.

3. CONTRACTOR's schedule of values will be acceptable to ENGINEER as to form and substance if it provides a reasonable allocation of the Contract Price to component parts of the Work.

*See Supplementary Conditions

ARTICLE 3 - CONTRACT DOCUMENTS: INTENT,
AMENDING, REUSE

3.01* *Intent*

A. The Contract Documents are complementary; what is called for by one is as binding as if called for by all.

B. It is the intent of the Contract Documents to describe a functionally complete Project (or part thereof) to be constructed in accordance with the Contract Documents. Any labor, documentation, services, materials, or equipment that may reasonably be inferred from the Contract Documents or from prevailing custom or trade usage as being required to produce the intended result will be provided whether or not specifically called for at no additional cost to OWNER.

C. Clarifications and interpretations of the Contract Documents shall be issued by ENGINEER as provided in Article 9.

3.02 *Reference Standards*

A. *Standards, Specifications, Codes, Laws, and Regulations*

1. Reference to standards, specifications, manuals, or codes of any technical society, organization, or association, or to Laws or Regulations, whether such reference be specific or by implication, shall mean the standard, specification, manual, code, or Laws or Regulations in effect at the time of opening of Bids (or on the Effective Date of the Agreement if there were no Bids), except as may be otherwise specifically stated in the Contract Documents.

2. No provision of any such standard, specification, manual or code, or any instruction of a Supplier shall be effective to change the duties or responsibilities of OWNER, CONTRACTOR, or ENGINEER, or any of their subcontractors, consultants, agents, or employees from those set forth in the Contract Documents, nor shall any such provision or instruction be effective to assign to OWNER, ENGINEER, or any of ENGINEER's Consultants, agents, or employees any duty or authority to supervise or direct the performance of the Work or any duty or authority to undertake responsibility inconsistent with the provisions of the Contract Documents.

3.03 *Reporting and Resolving Discrepancies*

A. *Reporting Discrepancies*

1. If, during the performance of the Work, CONTRACTOR discovers any conflict, error, ambiguity, or discrepancy within the Contract Documents or between the Contract Documents and any provision of any Law or Regulation applicable to the performance of the Work or of any standard, specification, manual or code, or of any instruction of any Supplier, CONTRACTOR shall report it to ENGINEER in writing at once. CONTRACTOR shall not proceed with the Work affected thereby (except in an emergency as required by paragraph 6.16.A) until an amendment or supplement to the Contract Documents has been issued by one of the methods indicated in paragraph 3.04; provided, however, that CONTRACTOR shall not be liable to OWNER or ENGINEER for failure to report any such conflict, error, ambiguity, or discrepancy unless CONTRACTOR knew or reasonably should have known thereof.

B. *Resolving Discrepancies*

1. Except as may be otherwise specifically stated in the Contract Documents, the provisions of the Contract Documents shall take precedence in resolving any conflict, error, ambiguity, or discrepancy between the provisions of the Contract Documents and:

a. the provisions of any standard, specification, manual, code, or instruction (whether or not specifically incorporated by reference in the Contract Documents); or

b. the provisions of any Laws or Regulations applicable to the performance of the Work (unless such an interpretation of the provisions of the Contract Documents would result in violation of such Law or Regulation).

3.04 *Amending and Supplementing Contract Documents*

A. The Contract Documents may be amended to provide for additions, deletions, and revisions in the Work or to modify the terms and conditions thereof in one or

*See Supplementary Conditions

B. The requirements of the Contract Documents may be supplemented, and minor variations and deviations in the Work may be authorized, by one or more of the following ways: (i) a Field Order; (ii) ENGINEER's approval of a Shop Drawing or Sample; or (iii) ENGINEER's written interpretation or clarification.

3.05 *Reuse of Documents*

A. CONTRACTOR and any Subcontractor or Supplier or other individual or entity performing or furnishing any of the Work under a direct or indirect contract with OWNER: (i) shall not have or acquire any title to or ownership rights in any of the Drawings, Specifications, or other documents (or copies of any thereof) prepared by or bearing the seal of ENGINEER or ENGINEER's Consultant, including electronic media editions; and (ii) shall not reuse any of such Drawings, Specifications, other documents, or copies thereof on extensions of the Project or any other project without written consent of OWNER and ENGINEER and specific written verification or adaption by ENGINEER. This prohibition will survive final payment, completion, and acceptance of the Work, or termination or completion of the Contract. Nothing herein shall preclude CONTRACTOR from retaining copies of the Contract Documents for record purposes.

ARTICLE 4 - AVAILABILITY OF LANDS; SUBSURFACE AND PHYSICAL CONDITIONS; REFERENCE POINTS

4.01 *Availability of Lands*

A. OWNER shall furnish the Site. OWNER shall notify CONTRACTOR of any encumbrances or

restrictions not of general application but specifically related to use of the Site with which CONTRACTOR must comply in performing the Work. OWNER will obtain in a timely manner and pay for easements for permanent structures or permanent changes in existing facilities. If CONTRACTOR and OWNER are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times, or both, as a result of any delay in OWNER's furnishing the Site, CONTRACTOR may make a Claim therefor as provided in paragraph 10.05.

B. Upon reasonable written request, OWNER shall furnish CONTRACTOR with a current statement of record legal title and legal description of the lands upon which the Work is to be performed and OWNER's interest therein as necessary for giving notice of or filing a mechanic's or construction lien against such lands in accordance with applicable Laws and Regulations.

C. CONTRACTOR shall provide for all additional lands and access thereto that may be required for temporary construction facilities or storage of materials and equipment.

4.02* *Subsurface and Physical Conditions*

A.* *Reports and Drawings:* The Supplementary Conditions identify:

1. those reports of explorations and tests of subsurface conditions at or contiguous to the Site that ENGINEER has used in preparing the Contract Documents; and

2. those drawings of physical conditions in or relating to existing surface or subsurface structures at or contiguous to the Site (except Underground Facilities) that ENGINEER has used in preparing the Contract Documents.

B. *Limited Reliance by CONTRACTOR on Technical Data Authorized:* CONTRACTOR may rely upon the general accuracy of the "technical data" contained in such reports and drawings, but such reports and drawings are not Contract Documents. Such "technical data" is identified in the Supplementary Conditions. Except for such reliance on such "technical data," CONTRACTOR may not rely upon or make any Claim against OWNER, ENGINEER, or any of ENGINEER's Consultants with respect to:

1. the completeness of such reports and drawings for CONTRACTOR's purposes, includ-

ing, but not limited to, any aspects of the means, methods, techniques, sequences, and procedures of construction to be employed by CONTRACTOR, and safety precautions and programs incident thereto; or

2. other data, interpretations, opinions, and information contained in such reports or shown or indicated in such drawings; or

3. any CONTRACTOR interpretation of or conclusion drawn from any "technical data" or any such other data, interpretations, opinions, or information.

*See Supplementary Conditions

4.03 *Differing Subsurface or Physical Conditions*

A. *Notice:* If CONTRACTOR believes that any subsurface or physical condition at or contiguous to the Site that is uncovered or revealed either:

1. is of such a nature as to establish that any "technical data" on which CONTRACTOR is entitled to rely as provided in paragraph 4.02 is materially inaccurate; or

2. is of such a nature as to require a change in the Contract Documents; or

3. differs materially from that shown or indicated in the Contract Documents; or

4. is of an unusual nature, and differs materially from conditions ordinarily encountered and generally recognized as inherent in work of the character provided for in the Contract Documents; then CONTRACTOR shall, promptly after becoming aware thereof and before further disturbing the subsurface or physical conditions or performing any Work in connection therewith (except in an emergency as required by paragraph 6.16.A), notify OWNER and ENGINEER in writing about such condition. CONTRACTOR shall not further disturb such condition or perform any Work in connection therewith (except as aforesaid) until receipt of written order to do so.

B. *ENGINEER's Review:* After receipt of written notice as required by paragraph 4.03.A, ENGINEER will promptly review the pertinent condition, determine the

necessity of OWNER's obtaining additional exploration or tests with respect thereto, and advise OWNER in writing (with a copy to CONTRACTOR) of ENGINEER's findings and conclusions.

C. *Possible Price and Times Adjustments*

1. The Contract Price or the Contract Times, or both, will be equitably adjusted to the extent that the existence of such differing subsurface or physical condition causes an increase or decrease in CONTRACTOR's cost of, or time required for, performance of the Work; subject, however, to the following:

a. such condition must meet any one or more of the categories described in paragraph 4.03.A; and

b. with respect to Work that is paid for on a Unit Price Basis, any adjustment in Contract Price will be subject to the provisions of paragraphs 9.08 and 11.03.

2. CONTRACTOR shall not be entitled to any adjustment in the Contract Price or Contract Times if:

a. CONTRACTOR knew of the existence of such conditions at the time CONTRACTOR made a final commitment to OWNER in respect of Contract Price and Contract Times by the submission of a Bid or becoming bound under a negotiated contract; or

b. the existence of such condition could reasonably have been discovered or revealed as a result of any examination, investigation, exploration, test, or study of the Site and contiguous areas required by the Bidding Requirements or Contract Documents to be conducted by or for CONTRACTOR prior to CONTRACTOR's making such final commitment; or

c. CONTRACTOR failed to give the written notice within the time and as required by paragraph 4.03.A.

3. If OWNER and CONTRACTOR are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times, or both, a Claim may be

made therefor as provided in paragraph 10.05. However, OWNER, ENGINEER, and ENGINEER's Consultants shall not be liable to CONTRACTOR for any claims, costs, losses, or damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) sustained by CONTRACTOR on or in connection with any other project or anticipated project.

4.04 *Underground Facilities*

A. *Shown or Indicated:* The information and data shown or indicated in the Contract Documents with respect to existing Underground Facilities at or contiguous to the Site is based on information and data furnished to OWNER or ENGINEER by the owners of such Underground Facilities, including OWNER, or by others. Unless it is otherwise expressly provided in the Supplementary Conditions:

1. OWNER and ENGINEER shall not be responsible for the accuracy or completeness of any such information or data; and

2. the cost of all of the following will be included in the Contract Price, and CONTRACTOR shall have full responsibility for:

a. reviewing and checking all such information and data,

b. locating all Underground Facilities shown or indicated in the Contract Documents,

c. coordination of the Work with the owners of such Underground Facilities, including OWNER, during construction, and

d. the safety and protection of all such Underground Facilities and repairing any damage thereto resulting from the Work.

B. *Not Shown or Indicated*

1. If an Underground Facility is uncovered or revealed at or contiguous to the Site which was not shown or indicated, or not shown or indicated with reasonable accuracy in the Contract Documents, CONTRACTOR shall, promptly after becoming aware thereof and before further disturbing conditions affected thereby or

performing any Work in connection therewith (except in an emergency as required by paragraph 6.16.A), identify the owner of such Underground Facility and give written notice to that owner and to OWNER and ENGINEER. ENGINEER will promptly review the Underground Facility and determine the extent, if any, to which a change is required in the Contract Documents to reflect and document the consequences of the existence or location of the Underground Facility. During such time, CONTRACTOR shall be responsible for the safety and protection of such Underground Facility.

2. If ENGINEER concludes that a change in the Contract Documents is required, a Work Change Directive or a Change Order will be issued to reflect and document such consequences. An equitable adjustment shall be made in the Contract Price of Contract Times, or both, to the extent that they are attributable to the existence or location of any Underground Facility that was not shown or indicated or not shown or indicated with reasonable accuracy in the Contract Documents and that CONTRACTOR did not know of and could not reasonably have been expected to be aware of or to have anticipated. If OWNER and CONTRACTOR are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment in Contract Price or Contract Times, OWNER or CONTRACTOR may make a Claim therefor as provided in paragraph 10.05.

4.05* *Reference Points*

A. OWNER shall provide engineering surveys to establish reference points for construction which in ENGINEER's judgment are necessary to enable CONTRACTOR to proceed with the Work. CONTRACTOR shall be responsible for laying out the Work, shall protect and preserve the established reference points and property monuments, and shall make no changes or relocations without the prior written approval of OWNER.

CONTRACTOR shall report to ENGINEER whenever any reference point or property monument is lost or destroyed or requires relocation because of necessary changes in grades or locations, and shall be responsible for the accurate replacement or relocation of such reference points or property monuments by professionally qualified personnel.

4.06 *Hazardous Environmental Condition at Site*

A. *Reports and Drawings*: Reference is made to the Supplementary Conditions for the identification of those reports and drawings relating to a Hazardous Environmental Condition identified at the Site, if any, that have been utilized by the ENGINEER in the preparation of the Contract Documents.

B. *Limited Reliance by CONTRACTOR on Technical Data Authorized*: CONTRACTOR may rely upon the general accuracy of the "technical data" contained in such reports and drawings, but such reports and drawings are not Contract Documents. Such "technical data" is identified in the Supplementary Conditions. Except for such reliance on such "technical data," CONTRACTOR may not rely upon or make any Claim against OWNER, ENGINEER or any of ENGINEER's Consultants with respect to:

1. the completeness of such reports and drawings for CONTRACTOR's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences and procedures of construction to be employed by CONTRACTOR and safety precautions and programs incident thereto; or

*See Supplementary Conditions

2. other data, interpretations, opinions and information contained in such reports or shown or indicated in such drawings; or

3. any CONTRACTOR interpretation of or conclusion drawn from any "technical data" or any such other data, interpretations, opinions or information.

C. CONTRACTOR shall not be responsible for any Hazardous Environmental Condition uncovered or revealed at the Site which was not shown or indicated in Drawings or Specifications or identified in the Contract Documents to be within the scope of the Work. CONTRACTOR shall be responsible for a Hazardous Environmental Condition created with any materials brought to the Site by CONTRACTOR, Subcontractors, Suppliers, or anyone else for whom CONTRACTOR is responsible.

D. If CONTRACTOR encounters a Hazardous Environmental Condition or if CONTRACTOR or anyone for whom CONTRACTOR is responsible creates a Hazardous Environmental Condition, CONTRACTOR shall immediately: (i) secure or otherwise isolate such condition;

(ii) stop all Work in connection with such condition and in any area affected thereby (except in an emergency as required by paragraph 6.16); and (iii) notify OWNER and ENGINEER (and promptly thereafter confirm such notice in writing). OWNER shall promptly consult with ENGINEER concerning the necessity for OWNER to retain a qualified expert to evaluate such condition or take corrective action, if any.

E. CONTRACTOR shall not be required to resume Work in connection with such condition or in any affected area until after OWNER has obtained any required permits related thereto and delivered to CONTRACTOR written notice: (i) specifying that such condition and any affected area is or has been rendered safe for the resumption of Work; or (ii) specifying any special conditions under which such Work may be resumed safely. If OWNER and CONTRACTOR cannot agree as to entitlement to or on the amount or extent, if any, of any adjustment in Contract Price or Contract Times, or both, as a result of such Work stoppage or such special conditions under which Work is agreed to be resumed by CONTRACTOR, either party may make a Claim therefor as provided in paragraph 10.05.

F. If after receipt of such written notice CONTRACTOR does not agree to resume such Work based on a reasonable belief it is unsafe, or does not agree to resume such Work under such special conditions, then OWNER may order the portion of the Work that is in the area affected by such condition to be deleted from the Work. If OWNER and CONTRACTOR cannot agree as to entitlement to or on the amount or extent, if any, of an adjustment in Contract Price or Contract Times as a result of deleting such portion of the Work, then either party may make a Claim therefor as provided in paragraph 10.05.

OWNER may have such deleted portion of the Work performed by OWNER's own forces or others in accordance with Article 7.

G. To the fullest extent permitted by Laws and Regulations, OWNER shall indemnify and hold harmless CONTRACTOR, Subcontractors, ENGINEER, ENGINEER's Consultants and the officers, directors, partners, employees, agents, other consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to a Hazardous Environmental Condition, provided that such Hazardous Environmental Condition: (i) was not shown or indicated in the Drawings or

Specifications or identified in the Contract Documents to be included within the scope of the Work, and (ii) was not created by CONTRACTOR or by anyone for whom CONTRACTOR is responsible. Nothing in this paragraph 4.06.E shall obligate OWNER to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.

H. To the fullest extent permitted by Laws and Regulations, CONTRACTOR shall indemnify and hold harmless OWNER, ENGINEER, ENGINEER's Consultants, and the officers, directors, partners, employees, agents, other consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to a Hazardous Environmental Condition created by CONTRACTOR or by anyone for whom CONTRACTOR is responsible. Nothing in this paragraph 4.06.F shall obligate CONTRACTOR to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.

I. The provisions of paragraphs 4.02, 4.03, and 4.04 are not intended to apply to a Hazardous Environmental Condition uncovered or revealed at the Site.

*See Supplementary Conditions

ARTICLE 5 - BONDS AND INSURANCE

5.01* *Performance, Payment, and Other Bonds*

A. CONTRACTOR shall furnish performance and payment Bonds, each in an amount at least equal to the Contract Price as security for the faithful performance and payment of all CONTRACTOR's obligations under the Contract Documents. These Bonds shall remain in effect at least until one year after the date when final payment becomes due, except as provided otherwise by Laws or Regulations or by the Contract Documents. CONTRACTOR shall also furnish such other Bonds as are required by the Contract Documents.

B.* All Bonds shall be in the form prescribed by the Contract Documents except as provided otherwise by Laws or Regulations, and shall be executed by such sureties as are named in the current list of "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Compa-

nies" as published in Circular 570 (amended) by the Financial Management Service, Surety Bond Branch, U.S. Department of the Treasury. All Bonds signed by an agent must be accompanied by a certified copy of such agent's authority to act.

C. If the surety on any Bond furnished by CONTRACTOR is declared bankrupt or becomes insolvent or its right to do business is terminated in any state where any part of the Project is located or it ceases to meet the requirements of paragraph 5.01.B, CONTRACTOR shall within 20 days thereafter substitute another Bond and surety, both of which shall comply with the requirements of paragraphs 5.01.B and 5.02.

5.02 *Licensed Sureties and Insurers*

A. All Bonds and insurance required by the Contract Documents to be purchased and maintained by OWNER or CONTRACTOR shall be obtained from surety or insurance companies that are duly licensed or authorized in the jurisdiction in which the Project is located to issue Bonds or insurance policies for the limits and coverages so required. Such surety and insurance companies shall also meet such additional requirements and qualifications as may be provided in the Supplementary Conditions.

5.03 *Certificates of Insurance*

A. CONTRACTOR shall deliver to OWNER, with copies to each additional insured identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance requested by OWNER or any other additional insured) which CONTRACTOR is required to purchase and maintain. OWNER shall deliver to CONTRACTOR, with copies to each additional insured identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance requested by CONTRACTOR or any other additional insured) which OWNER is required to purchase and maintain.

5.04* *CONTRACTOR's Liability Insurance*

A. CONTRACTOR shall purchase and maintain such liability and other insurance as is appropriate for the Work being performed and as will provide protection from claims set forth below which may arise out of or result from CONTRACTOR's performance of the Work and CONTRACTOR's other obligations under the Contract Documents, whether it is to be performed by CONTRACTOR, any Subcontractor or Supplier, or by anyone directly or indirectly employed by any of them to

perform any of the Work, or by anyone for whose acts any of them may be liable:

1. claims under workers' compensation, disability benefits, and other similar employee benefit acts;
2. claims for damages because of bodily injury, occupational sickness or disease, or death of CONTRACTOR's employees;
3. claims for damages because of bodily injury, sickness or disease, or death of any person other than CONTRACTOR's employees;
4. claims for damages insured by reasonably available personal injury liability coverage which are sustained: (i) by any person as a result of an offense directly or indirectly related to the employment of such person by CONTRACTOR, or (ii) by any other person for any other reason;
5. claims for damages, other than to the Work itself, because of injury to or destruction of tangible property wherever located, including loss of use resulting therefrom; and
6. claims for damages because of bodily injury or death of any person or property damage arising out of the ownership, maintenance or use of any motor vehicle.

B. The policies of insurance so required by this paragraph 5.04 to be purchased and maintained shall:

*See Supplementary Conditions

1. with respect to insurance required by paragraphs 5.04.A.3 through 5.04.A.6 inclusive, include as additional insureds (subject to any customary exclusion in respect of professional liability) OWNER, ENGINEER, ENGINEER's Consultants, and any other individuals or entities identified in the Supplementary Conditions, all of whom shall be listed as additional insureds, and include coverage for the respective officers, directors, partners, employees, agents, and other consultants and subcontractors of each and any of all such additional insureds, and the insurance afforded to these additional insureds shall provide primary coverage for all claims covered thereby;

2. include at least the specific coverages and be written for not less than the limits of liability provided in the Supplementary Conditions or required by Laws or Regulations, whichever is greater;

3. include completed operations insurance;

4. include contractual liability insurance covering CONTRACTOR's indemnity obligations under paragraphs 6.07, 6.11, and 6.20;

5. contain a provision or endorsement that the coverage afforded will not be canceled, materially changed or renewal refused until at least thirty days prior written notice has been given to OWNER and CONTRACTOR and to each other additional insured identified in the Supplementary Conditions to whom a certificate of insurance has been issued (and the certificates of insurance furnished by the CONTRACTOR pursuant to paragraph 5.03 will so provide);

6. remain in effect at least until final payment and at all times thereafter when CONTRACTOR may be correcting, removing, or replacing defective Work in accordance with paragraph 13.07; and

7. with respect to completed operations insurance, and any insurance coverage written on a claims-made basis, remain in effect for at least two years after final payment (and CONTRACTOR shall furnish OWNER and each other additional insured identified in the Supplementary Conditions, to whom a certificate of insurance has been issued, evidence satisfactory to OWNER and any such additional insured of continuation of such insurance at final payment and one year thereafter).

5.05 *OWNER's Liability Insurance*

A.* In addition to the insurance required to be provided by CONTRACTOR under paragraph 5.04, OWNER, at OWNER's option, may purchase and maintain at OWNER's expense OWNER's own liability insurance as will protect OWNER against claims which may arise from operations under the Contract Documents.

5.06* *Property Insurance*

A. Unless otherwise provided in the Supplementary Conditions, OWNER shall purchase and maintain property

insurance upon the Work at the Site in the amount of the full replacement cost thereof (subject to such deductible amounts as may be provided in the Supplementary Conditions or required by Laws and Regulations). This insurance shall:

1. include the interests of OWNER, CONTRACTOR, Subcontractors, ENGINEER, ENGINEER's Consultants, and any other individuals or entities identified in the Supplementary Conditions, and the officers, directors, partners, employees, agents, and other consultants and subcontractors of each and any of them, each of whom is deemed to have an insurable interest and shall be listed as an additional insured;

2. be written on a Builder's Risk "all-risk" or open peril or special causes of loss policy form that shall at least include insurance for physical loss or damage to the Work, temporary buildings, false work, and materials and equipment in transit, and shall insure against at least the following perils or causes of loss: fire, lightning, extended coverage, theft, vandalism and malicious mischief, earthquake, collapse, debris removal, demolition occasioned by enforcement of Laws and Regulations, water damage, and such other perils or causes of loss as may be specifically required by the Supplementary Conditions;

3. include expenses incurred in the repair or replacement of any insured property (including but not limited to fees and charges of engineers and architects);

*See Supplementary Conditions

4. cover materials and equipment stored at the Site or at another location that was agreed to in writing by OWNER prior to being incorporated in the Work, provided that such materials and equipment have been included in an Application for Payment recommended by ENGINEER;

5. allow for partial utilization of the Work by OWNER;

6. include testing and startup; and

7. be maintained in effect until final payment is made unless otherwise agreed to in writing by OWNER, CONTRACTOR, and ENGINEER with

30 days written notice to each other additional insured to whom a certificate of insurance has been issued.

B.* OWNER shall purchase and maintain such boiler and machinery insurance or additional property insurance as may be required by the Supplementary Conditions or Laws and Regulations which will include the interests of OWNER, CONTRACTOR, Subcontractors, ENGINEER, ENGINEER's Consultants, and any other individuals or entities identified in the Supplementary Conditions, each of whom is deemed to have an insurable interest and shall be listed as an insured or additional insured.

C.* All the policies of insurance (and the certificates or other evidence thereof) required to be purchased and maintained in accordance with paragraph 5.06 will contain a provision or endorsement that the coverage afforded will not be canceled or materially changed or renewal refused until at least 30 days prior written notice has been given to OWNER and CONTRACTOR and to each other additional insured to whom a certificate of insurance has been issued and will contain waiver provisions in accordance with paragraph 5.07.

D.* OWNER shall not be responsible for purchasing and maintaining any property insurance specified in this paragraph 5.06 to protect the interests of CONTRACTOR, Subcontractors, or others in the Work to the extent of any deductible amounts that are identified in the Supplementary Conditions. The risk of loss within such identified deductible amount will be borne by CONTRACTOR, Subcontractors, or others suffering any such loss, and if any of them wishes property insurance coverage within the limits of such amounts, each may purchase and maintain it at the purchaser's own expense.

E.* If CONTRACTOR requests in writing that other special insurance be included in the property insurance policies provided under paragraph 5.06, OWNER shall, if possible, include such insurance, and the cost thereof will be charged to CONTRACTOR by appropriate Change Order or Written Amendment. Prior to commencement of the Work at the Site, OWNER shall in writing advise CONTRACTOR whether or not such other insurance has been procured by OWNER.

5.07 Waiver of Rights

A.* OWNER and CONTRACTOR intend that all policies purchased in accordance with paragraph 5.06 will protect OWNER, CONTRACTOR, Subcontractors, ENGINEER, ENGINEER's Consultants, and all other

individuals or entities identified in the Supplementary Conditions to be listed as insureds or additional insureds (and the officers, directors, partners, employees, agents, and other consultants and subcontractors of each and any of them) in such policies and will provide primary coverage for all losses and damages caused by the perils or causes of loss covered thereby. All such policies shall contain provisions to the effect that in the event of payment of any loss or damage the insurers will have no rights of recovery against any of the insureds or additional insureds thereunder. OWNER and CONTRACTOR waive all rights against each other and their respective officers, directors, partners, employees, agents, and other consultants and subcontractors of each and any of them for all losses and damages caused by, arising out of or resulting from any of the perils or causes of loss covered by such policies and any other property insurance applicable to the Work; and, in addition, waive all such rights against Subcontractors, ENGINEER, ENGINEER's Consultants, and all other individuals or entities identified in the Supplementary Conditions to be listed as insureds or additional insureds (and the officers, directors, partners, employees, agents, and other consultants and subcontractors of each and any of them) under such policies for losses and damages so caused.

None of the above waivers shall extend to the rights that any party making such waiver may have to the proceeds of insurance held by OWNER as trustee or otherwise payable under any policy so issued.

B. OWNER waives all rights against CONTRACTOR, Subcontractors, ENGINEER, ENGINEER's Consultants, and the officers, directors, partners, employees, agents, and other consultants and subcontractors of each and any of them for:

*See Supplementary Conditions

1. loss due to business interruption, loss of use, or other consequential loss extending beyond direct physical loss or damage to OWNER's property or the Work caused by, arising out of, or resulting from fire or other peril whether or not insured by OWNER; and

2. loss or damage to the completed Project or part thereof caused by, arising out of, or resulting from fire or other insured peril or cause of loss covered by any property insurance maintained on the completed Project or part thereof by OWNER during partial utilization pursuant to

paragraph 14.05, after Substantial Completion pursuant to paragraph 14.04, or after final payment pursuant to paragraph 14.07.

C. Any insurance policy maintained by OWNER covering any loss, damage or consequential loss referred to in paragraph 5.07.B shall contain provisions to the effect that in the event of payment of any such loss, damage, or consequential loss, the insurers will have no rights of recovery against CONTRACTOR, Subcontractors, ENGINEER, or ENGINEER's Consultants and the officers, directors, partners, employees, agents, and other consultants and subcontractors of each and any of them.

5.08* *Receipt and Application of Insurance Proceeds*

A.* Any insured loss under the policies of insurance required by paragraph 5.06 will be adjusted with OWNER and made payable to OWNER as fiduciary for the insureds, as their interests may appear, subject to the requirements of any applicable mortgage clause and of paragraph 5.08.B. OWNER shall deposit in a separate account any money so received and shall distribute it in accordance with such agreement as the parties in interest may reach. If no other special agreement is reached, the damaged Work shall be repaired or replaced, the moneys so received applied on account thereof, and the Work and the cost thereof covered by an appropriate Change Order or Written Amendment.

B.* OWNER as fiduciary shall have power to adjust and settle any loss with the insurers unless one of the parties in interest shall object in writing within 15 days after the occurrence of loss to OWNER's exercise of this power. If such objection be made, OWNER as fiduciary shall make settlement with the insurers in accordance with such agreement as the parties in interest may reach. If no such agreement among the parties in interest is reached, OWNER as fiduciary shall adjust and settle the loss with the insurers and, if required in writing by any party in interest, OWNER as fiduciary shall give bond for the proper performance of such duties.

5.09* *Acceptance of Bonds and Insurance; Option to Replace*

A.* If either OWNER or CONTRACTOR has any objection to the coverage afforded by or other provisions of the Bonds or insurance required to be purchased and maintained by the other party in accordance with Article 5 on the basis of non-conformance with the Contract Documents, the objecting party shall so notify the other party in writing within 10 days after receipt of the

certificates (or other evidence requested) required by paragraph 2.05.C. OWNER and CONTRACTOR shall each provide to the other such additional information in respect of insurance provided as the other may reasonably request. If either party does not purchase or maintain all of the Bonds and insurance required of such party by the Contract Documents, such party shall notify the other party in writing of such failure to purchase prior to the start of the Work, or of such failure to maintain prior to any change in the required coverage. Without prejudice to any other right or remedy, the other party may elect to obtain equivalent Bonds or insurance to protect such other party's interests at the expense of the party who was required to provide such coverage, and a Change Order shall be issued to adjust the Contract Price accordingly.

5.10 *Partial Utilization, Acknowledgment of Property Insurer*

A. If OWNER finds it necessary to occupy or use a portion or portions of the Work prior to Substantial Completion of all the Work as provided in paragraph 14.05, no such use or occupancy shall commence before the insurers providing the property insurance pursuant to paragraph 5.06 have acknowledged notice thereof and in writing effected any changes in coverage necessitated thereby. The insurers providing the property insurance shall consent by endorsement on the policy or policies, but the property insurance shall not be canceled or permitted to lapse on account of any such partial use or occupancy.

ARTICLE 6 - CONTRACTOR'S RESPONSIBILITIES

6.01 *Supervision and Superintendence*

A. CONTRACTOR shall supervise, inspect, and direct the Work competently and efficiently, devoting such attention thereto and applying such skills and expertise as may be necessary to perform the Work in accordance with

*See Supplementary Conditions

the Contract Documents. CONTRACTOR shall be solely responsible for the means, methods, techniques, sequences, and procedures of construction, but CONTRACTOR shall not be responsible for the negligence of OWNER or ENGINEER in the design or specification of a specific means, method, technique, sequence, or procedure of

construction which is shown or indicated in and expressly required by the Contract Documents. CONTRACTOR shall be responsible to see that the completed Work complies accurately with the Contract Documents.

B. At all times during the progress of the Work, CONTRACTOR shall assign a competent resident superintendent thereto who shall not be replaced without written notice to OWNER and ENGINEER except under extraordinary circumstances. The superintendent will be CONTRACTOR's representative at the Site and shall have authority to act on behalf of CONTRACTOR. All communications given to or received from the superintendent shall be binding on CONTRACTOR.

6.02 *Labor; Working Hours*

A. CONTRACTOR shall provide competent, suitably qualified personnel to survey, lay out, and construct the

Work as required by the Contract Documents. CONTRACTOR shall at all times maintain good discipline and order at the Site.

B. Except as otherwise required for the safety or protection of persons or the Work or property at the Site or adjacent thereto, and except as otherwise stated in the Contract Documents, all Work at the Site shall be performed during regular working hours, and CONTRACTOR will not permit overtime work or the performance of Work on Saturday, Sunday, or any legal holiday without OWNER's written consent (which will not be unreasonably withheld) given after prior written notice to ENGINEER.

6.03 *Services, Materials, and Equipment*

A. Unless otherwise specified in the General Requirements, CONTRACTOR shall provide and assume full responsibility for all services, materials, equipment, labor, transportation, construction equipment and machinery, tools, appliances, fuel, power, light, heat, telephone, water, sanitary facilities, temporary facilities, and all other facilities and incidentals necessary for the performance, testing, start-up, and completion of the Work.

B. All materials and equipment incorporated into the Work shall be as specified or, if not specified, shall be of good quality and new, except as otherwise provided in the Contract Documents. All warranties and guarantees specifically called for by the Specifications shall expressly

run to the benefit of OWNER. If required by ENGINEER, CONTRACTOR shall furnish satisfactory evidence (including reports of required tests) as to the source, kind, and quality of materials and equipment. All materials and equipment shall be stored, applied, installed, connected, erected, protected, used, cleaned, and conditioned in accordance with instructions of the applicable Supplier, except as otherwise may be provided in the Contract Documents.

6.04 *Progress Schedule*

A. CONTRACTOR shall adhere to the progress schedule established in accordance with paragraph 2.07 as it may be adjusted from time to time as provided below.

1. CONTRACTOR shall submit to ENGINEER for acceptance (to the extent indicated in paragraph 2.07) proposed adjustments in the progress schedule that will not result in changing the Contract Times (or Milestones). Such adjustments will conform generally to the progress schedule then in effect and additionally will comply with any provisions of the General Requirements applicable thereto.

2. Proposed adjustments in the progress schedule that will change the Contract Times (or Milestones) shall be submitted in accordance with the requirements of Article 12. Such adjustments may only be made by a Change Order or Written Amendment in accordance with Article 12.

6.05 *Substitutes and "Or-Equals"*

A. Whenever an item of material or equipment is specified or described in the Contract Documents by using the name of a proprietary item or the name of a particular Supplier, the specification or description is intended to establish the type, function, appearance, and quality required. Unless the specification or description contains or is followed by words reading that no like, equivalent, or "or-equal" item or no substitution is permitted, other items of material or equipment or material or equipment of other Suppliers may be submitted to ENGINEER for review under the circumstances described below.

1. *"Or-Equal" Items:* If in ENGINEER's sole discretion an item of material or equipment proposed by CONTRACTOR is functionally equal to that named and sufficiently similar so that no change in related Work will be required, it may be

considered by ENGINEER as an "or-equal" item, in which case review and approval of the proposed item may, in ENGINEER's sole discretion, be accomplished without compliance with some or all of the requirements for approval of proposed substitute items. For the purposes of this paragraph 6.05.A.1, a proposed item of material or equipment will be considered functionally equal to an item so named if:

a. in the exercise of reasonable judgment ENGINEER determines that: (i) it is at least equal in quality, durability, appearance, strength, and design characteristics; (ii) it will reliably perform at least equally well the function imposed by the design concept of the completed Project as a functioning whole, and;

b. CONTRACTOR certifies that: (i) there is no increase in cost to the OWNER; and (ii) it will conform substantially, even with deviations, to the detailed requirements of the item named in the Contract Documents.

2. *Substitute Items*

a. If in ENGINEER's sole discretion an item of material or equipment proposed by CONTRACTOR does not qualify as an "or-equal" item under paragraph 6.05.A.1, it will be considered a proposed substitute item.

b. CONTRACTOR shall submit sufficient information as provided below to allow ENGINEER to determine that the item of material or equipment proposed is essentially equivalent to that named and an acceptable substitute therefor. Requests for review of proposed substitute items of material or equipment will not be accepted by ENGINEER from anyone other than CONTRACTOR.

c. The procedure for review by ENGINEER will be as set forth in paragraph 6.05.A.2.d, as supplemented in the General Requirements and as ENGINEER may decide is appropriate under the circumstances.

d. CONTRACTOR shall first make written application to ENGINEER for review of a proposed substitute item of material or equipment that CONTRACTOR seeks to furnish or use. The application shall certify

that the proposed substitute item will perform adequately the functions and achieve the results called for by the general design, be similar in substance to that specified, and be suited to the same use as that specified. The application will state the extent, if any, to which the use of the proposed substitute item will prejudice CONTRACTOR's achievement of Substantial Completion on time, whether or not use of the proposed substitute item in the Work will require a change in any of the Contract Documents (or in the provisions of any other direct contract with OWNER for work on the Project) to adapt the design to the proposed substitute item and whether or not incorporation or use of the proposed substitute item in connection with the Work is subject to payment of any license fee or royalty. All variations of the proposed substitute item from that specified will be identified in the application, and available engineering, sales, maintenance, repair, and replacement services will be indicated. The application will also contain an itemized estimate of all costs or credits that will result directly or indirectly from use of such substitute item, including costs of redesign and claims of other contractors affected by any resulting change, all of which will be considered by ENGINEER in evaluating the proposed substitute item. ENGINEER may require CONTRACTOR to furnish additional data about the proposed substitute item.

B. Substitute Construction Methods or Procedures:

If a specific means, method, technique, sequence, or procedure of construction is shown or indicated in and expressly required by the Contract Documents, CONTRACTOR may furnish or utilize a substitute means, method, technique, sequence, or procedure of construction approved by ENGINEER. CONTRACTOR shall submit sufficient information to allow ENGINEER, in ENGINEER's sole discretion, to determine that the substitute proposed is equivalent to that expressly called for by the Contract Documents. The procedure for review by ENGINEER will be similar to that provided in subparagraph 6.05.A.2.

C. Engineer's Evaluation: ENGINEER will be allowed a reasonable time within which to evaluate each proposal or submittal made pursuant to paragraphs 6.05.A and 6.05.B. ENGINEER will be the sole judge of acceptability. No "or-equal" or substitute will be ordered, installed or utilized until ENGINEER's review is complete, which will be evidenced by either a Change Order for a

substitute or an approved Shop Drawing for an "or equal." ENGINEER will advise CONTRACTOR in writing of any negative determination.

D. Special Guarantee: OWNER may require CONTRACTOR to furnish at CONTRACTOR's expense a special performance guarantee or other surety with respect to any substitute.

E. ENGINEER's Cost Reimbursement: ENGINEER will record time required by ENGINEER and ENGINEER's Consultants in evaluating substitute proposed or submitted by CONTRACTOR pursuant to paragraphs 6.05.A.2 and 6.05.B and in making changes in the Contract Documents (or in the provisions of any other direct contract with OWNER for work on the Project) occasioned thereby. Whether or not ENGINEER approves a substitute item so proposed or submitted by CONTRACTOR, CONTRACTOR shall reimburse OWNER for the charges of ENGINEER and ENGINEER's Consultants for evaluating each such proposed substitute.

F. CONTRACTOR's Expense: CONTRACTOR shall provide all data in support of any proposed substitute or "or-equal" at CONTRACTOR's expense.

6.06 *Concerning Subcontractors, Suppliers, and Others*

A. CONTRACTOR shall not employ any Subcontractor, Supplier, or other individual or entity (including those acceptable to OWNER as indicated in paragraph 6.06.B), whether initially or as a replacement, against whom OWNER may have reasonable objection. CONTRACTOR shall not be required to employ any Subcontractor, Supplier, or other individual or entity to furnish or perform any of the Work against whom CONTRACTOR has reasonable objection.

B. If the Supplementary Conditions require the identity of certain Subcontractors, Suppliers, or other individuals or entities to be submitted to OWNER in advance for acceptance by OWNER by a specified date prior to the Effective Date of the Agreement, and if CONTRACTOR has submitted a list thereof in accordance with the Supplementary Conditions, OWNER's acceptance (either in writing or by failing to make written objection thereto by the date indicated for acceptance or objection in the Bidding Documents or the Contract Documents) of any such Subcontractor, Supplier, or other individual or entity so identified may be revoked on the basis of reasonable objection after due investigation. CONTRACTOR shall submit an acceptable replacement

for the rejected Subcontractor, Supplier, or other individual or entity, and the Contract Price will be adjusted by the difference in the cost occasioned by such replacement, and an appropriate Change Order will be issued or Written Amendment signed. No acceptance by OWNER of any such Subcontractor, Supplier, or other individual or entity, whether initially or as a replacement, shall constitute a waiver of any right of OWNER or ENGINEER to reject defective Work.

C. CONTRACTOR shall be fully responsible to OWNER and ENGINEER for all acts and omissions of the Subcontractors, Suppliers, and other individuals or entities performing or furnishing any of the Work just as CONTRACTOR is responsible for CONTRACTOR's own acts and omissions. Nothing in the Contract Documents shall create for the benefit of any such Subcontractor, Supplier, or other individual or entity any contractual relationship between OWNER or ENGINEER and any such Subcontractor, Supplier or other individual or entity, nor shall it create any obligation on the part of OWNER or ENGINEER to pay or to see to the payment of any moneys due any such Subcontractor, Supplier, or other individual or entity except as may otherwise be required by Laws and Regulations.

D. CONTRACTOR shall be solely responsible for scheduling and coordinating the Work of Subcontractors, Suppliers, and other individuals or entities performing or furnishing any of the Work under a direct or indirect contract with CONTRACTOR.

E. CONTRACTOR shall require all Subcontractors, Suppliers, and such other individuals or entities performing or furnishing any of the Work to communicate with ENGINEER through CONTRACTOR.

F. The divisions and sections of the Specifications and the identifications of any Drawings shall not control CONTRACTOR in dividing the Work among Subcontractors or Suppliers or delineating the Work to be performed by any specific trade.

G. All Work performed for CONTRACTOR by a Subcontractor or Supplier will be pursuant to an appropriate agreement between CONTRACTOR and the Subcontractor or Supplier which specifically binds the Subcontractor or Supplier to the applicable terms and conditions of the Contract Documents for the benefit of OWNER and ENGINEER. Whenever any such agreement is with a Subcontractor or Supplier who is listed as an additional insured on the property insurance provided in paragraph 5.06, the agreement between the CONTRAC-

TOR and the Subcontractor or Supplier will contain provisions whereby the Subcontractor or Supplier waives all rights against OWNER, CONTRACTOR, ENGINEER, ENGINEER's Consultants, and all other individuals or entities identified in the Supplementary Conditions to be listed as insureds or additional insureds (and the officers, directors, partners, employees, agents, and other consultants and subcontractors of each and any of them) for all losses and damages caused by, arising out of, relating to, or resulting from any of the perils or causes of loss covered by such policies and any other property insurance applicable to the Work. If the insurers on any such policies require separate waiver forms to be signed by any Subcontractor or Supplier, CONTRACTOR will obtain the same.

6.07 *Patent Fees and Royalties*

A. CONTRACTOR shall pay all license fees and royalties and assume all costs incident to the use in the performance of the Work or the incorporation in the Work of any invention, design, process, product, or device which is the subject of patent rights or copyrights held by others. If a particular invention, design, process, product, or device is specified in the Contract Documents for use in the performance of the Work and if to the actual knowledge of OWNER or ENGINEER its use is subject to patent rights or copyrights calling for the payment of any license fee or royalty to others, the existence of such rights shall be disclosed by OWNER in the Contract Documents. To the fullest extent permitted by Laws and Regulations, CONTRACTOR shall indemnify and hold harmless OWNER, ENGINEER, ENGINEER's Consultants, and the officers, directors, partners, employees or agents, and other consultants of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any infringement of patent rights or copyrights incident to the use in the performance of the Work or resulting from the incorporation in the Work of any invention, design, process, product, or device not specified in the Contract Documents.

6.08 *Permits*

A. Unless otherwise provided in the Supplementary Conditions, CONTRACTOR shall obtain and pay for all construction permits and licenses. OWNER shall assist CONTRACTOR, when necessary, in obtaining such permits and licenses. CONTRACTOR shall pay all governmental charges and inspection fees necessary for

the prosecution of the Work which are applicable at the time of opening of Bids, or, if there are no Bids, on the Effective Date of the Agreement. CONTRACTOR shall pay all charges of utility owners for connections to the Work, and OWNER shall pay all charges of such utility owners for capital costs related thereto, such as plant investment fees.

6.09 *Laws and Regulations*

A. CONTRACTOR shall give all notices and comply with all Laws and Regulations applicable to the performance of the Work. Except where otherwise expressly required by applicable Laws and Regulations, neither OWNER nor ENGINEER shall be responsible for monitoring CONTRACTOR's compliance with any Laws or Regulations.

B. If CONTRACTOR performs any Work knowing or having reason to know that it is contrary to Laws or Regulations, CONTRACTOR shall bear all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such Work; however, it shall not be CONTRACTOR's primary responsibility to make certain that the Specifications and Drawings are in accordance with Laws and Regulations, but this shall not relieve CONTRACTOR of CONTRACTOR's obligations under paragraph 3.03.

C. Changes in Laws or Regulations not known at the time of opening of Bids (or, on the Effective Date of the Agreement if there were no Bids) having an effect on the cost or time of performance of the Work may be the subject of an adjustment in Contract Price or Contract Times. If OWNER and CONTRACTOR are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment, a Claim may be made therefor as provided in paragraph 10.05.

6.10* *Taxes*

A. CONTRACTOR shall pay all sales, consumer, use, and other similar taxes required to be paid by CONTRACTOR in accordance with the Laws and Regulations of the place of the Project which are applicable during the performance of the Work.

6.11* *Use of Site and Other Areas*

A.* *Limitation on Use of Site and Other Areas*

1. CONTRACTOR shall confine construction equipment, the storage of materials and equipment, and the operations of workers to the Site and other areas permitted by Laws and Regulations,

*See Supplementary Conditions

and shall not unreasonably encumber the Site and other areas with construction equipment or other materials or equipment. CONTRACTOR shall assume full responsibility for any damage to any such land or area, or to the owner or occupant thereof, or of any adjacent land or areas resulting from the performance of the Work.

2. Should any claim be made by any such owner or occupant because of the performance of the Work, CONTRACTOR shall promptly settle with such other party by negotiation or otherwise resolve the claim by arbitration or other dispute resolution proceeding or at law.

3. To the fullest extent permitted by Laws and Regulations, CONTRACTOR shall indemnify and hold harmless OWNER, ENGINEER, ENGINEER's Consultant, and the officers, directors, partners, employees, agents, and other consultants of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any claim or action, legal or equitable, brought by any such owner or occupant against OWNER, ENGINEER, or any other party indemnified hereunder to the extent caused by or based upon CONTRACTOR's performance of the Work.

B. *Removal of Debris During Performance of the Work:* During the progress of the Work CONTRACTOR shall keep the Site and other areas free from accumulations of waste materials, rubbish, and other debris. Removal and disposal of such waste materials, rubbish, and other debris shall conform to applicable Laws and Regulations.

C. *Cleaning*: Prior to Substantial Completion of the Work CONTRACTOR shall clean the Site and make it ready for utilization by OWNER. At the completion of the Work CONTRACTOR shall remove from the Site all tools, appliances, construction equipment and machinery, and surplus materials and shall restore to original condition all property not designated for alteration by the Contract Documents.

D. *Loading Structures*: CONTRACTOR shall not load nor permit any part of any structure to be loaded in any manner that will endanger the structure, nor shall CONTRACTOR subject any part of the Work or adjacent property to stresses or pressures that will endanger it.

6.12 *Record Documents*

A. CONTRACTOR shall maintain in a safe place at the Site one record copy of all Drawings, Specifications, Addenda, Written Amendments, Change Orders, Work Change Directives, Field Orders, and written interpretations and clarifications in good order and annotated to show changes made during construction. These record documents together with all approved Samples and a counterpart of all approved Shop Drawings will be available to ENGINEER for reference. Upon completion of the Work, these record documents, Samples, and Shop Drawings will be delivered to ENGINEER for OWNER.

6.13 *Safety and Protection*

A. CONTRACTOR shall be solely responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the Work. CONTRACTOR shall take all necessary precautions for the safety of, and shall provide the necessary protection to prevent damage, injury or loss to:

1. all persons on the Site or who may be affected by the Work;
2. all the Work and materials and equipment to be incorporated therein, whether in storage on or off the Site; and
3. other property at the Site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures, utilities, and Underground Facilities not designated for removal, relocation, or replacement in the course of construction.

B. CONTRACTOR shall comply with all applicable Laws and Regulations relating to the safety of persons or property, or to the protection of persons or property from damage, injury, or loss; and shall erect and maintain all necessary safeguards for such safety and protection. CONTRACTOR shall notify owners of adjacent property and of Underground Facilities and other utility owners when prosecution of the Work may affect them, and shall cooperate with them in the protection, removal, relocation, and replacement of their property. All damage, injury, or loss to any property referred to in paragraph 6.13.A.2 or 6.13.A.3 caused, directly or indirectly, in whole or in part, by CONTRACTOR, any Subcontractor, Supplier, or any other individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, shall be remedied by CONTRACTOR (except damage or loss attributable to the fault of Drawings or Specifications or to the acts or omissions of OWNER or ENGINEER or ENGINEER's Consultant, or anyone employed by any of them, or anyone for whose acts any of them may be liable, and not attributable, directly or indirectly, in whole or in part, to the fault or negligence of CONTRACTOR or any Subcontractor, Supplier, or other individual or entity directly or indirectly employed by any of them). CONTRACTOR's duties and responsibilities for safety and for protection of the Work shall continue until such time as all the Work is completed and ENGINEER has issued a notice to OWNER and CONTRACTOR in accordance with paragraph 14.07.B that the Work is acceptable (except as otherwise expressly provided in connection with Substantial Completion).

6.14 *Safety Representative*

A. CONTRACTOR shall designate a qualified and experienced safety representative at the Site whose duties and responsibilities shall be the prevention of accidents and the maintaining and supervising of safety precautions and programs.

6.15 *Hazard Communication Programs*

A. CONTRACTOR shall be responsible for coordinating any exchange of material safety data sheets or other hazard communication information required to be made available to or exchanged between or among employers at the Site in accordance with Laws or Regulations.

6.16 *Emergencies*

A. In emergencies affecting the safety or protection of persons or the Work or property at the Site or adjacent thereto, CONTRACTOR is obligated to act to prevent threatened damage, injury, or loss. CONTRACTOR shall give ENGINEER prompt written notice if CONTRACTOR believes that any significant changes in the Work or variations from the Contract Documents have been caused thereby or are required as a result thereof. If ENGINEER determines that a change in the Contract Documents is required because of the action taken by CONTRACTOR in response to such an emergency, a Work Change Directive or Change Order will be issued.

6.17* *Shop Drawings and Samples*

A.* CONTRACTOR shall submit Shop Drawings to ENGINEER for review and approval in accordance with the acceptable schedule of Shop Drawings and Sample submittals. All submittals will be identified as ENGINEER may require and in the number of copies specified in the General Requirements. The data shown on the Shop Drawings will be complete with respect to quantities, dimensions, specified performance and design criteria, materials, and similar data to show ENGINEER the services, materials, and equipment CONTRACTOR proposes to provide and to enable ENGINEER to review the information for the limited purposes required by paragraph 6.17.E.

B.* CONTRACTOR shall also submit six (6) Samples to ENGINEER for review and approval in accordance with the acceptable schedule of Shop Drawings and Sample submittals. Each Sample will be identified clearly as to material, Supplier, pertinent data such as catalog numbers, and the use for which intended and otherwise as ENGINEER may require to enable ENGINEER to review the submittal for the limited purposes required by paragraph 6.17.E. The numbers of each Sample to be submitted will be as specified in the Specifications.

C. Where a Shop Drawing or Sample is required by the Contract Documents or the schedule of Shop Drawings and Sample submittals acceptable to ENGINEER as required by paragraph 2.07, any related Work performed prior to ENGINEER's review and approval of the pertinent submittal will be at the sole expense and responsibility of CONTRACTOR.

D. *Submittal Procedures*

1. Before submitting each Shop Drawing or Sample, CONTRACTOR shall have determined and verified:

a. all field measurements, quantities, dimensions, specified performance criteria, installation requirements, materials, catalog numbers, and similar information with respect thereto;

b. all materials with respect to intended use, fabrication, shipping, handling, storage, assembly, and installation pertaining to the performance of the Work;

c. all information relative to means, methods, techniques, sequences, and procedures of construction and safety precautions and programs incident thereto; and

d. CONTRACTOR shall also have reviewed and coordinated each Shop Drawing or

*See Supplementary Conditions

Sample with other Shop Drawings and Samples and with the requirements of the Work and the Contract Documents.

2. Each submittal shall bear a stamp or specific written indication that CONTRACTOR has satisfied CONTRACTOR's obligations under the Contract Documents with respect to CONTRACTOR's review and approval of that submittal.

3. At the time of each submittal, CONTRACTOR shall give ENGINEER specific written notice of such variations, if any, that the Shop Drawing or Sample submitted may have from the requirements of the Contract Documents, such notice to be in a written communication separate from the submittal; and, in addition, shall cause a specific notation to be made on each Shop Drawing and Sample submitted to ENGINEER for review and approval of each such variation.

E. *ENGINEER's Review*

1. ENGINEER will timely review and approve Shop Drawings and Samples in accordance with the schedule of Shop Drawings and Sample submittals acceptable to ENGINEER. ENGINEER's review and approval will be only to determine if the items covered by the submittals

will, after installation or incorporation in the Work, conform to the information given in the Contract Documents and be compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents.

2. ENGINEER's review and approval will not extend to means, methods, techniques, sequences, or procedures of construction (except where a particular means, method, technique, sequence, or procedure of construction is specifically and expressly called for by the Contract Documents) or to safety precautions or programs incident thereto. The review and approval of a separate item as such will not indicate approval of the assembly in which the item functions.

3. ENGINEER's review and approval of Shop Drawings or Samples shall not relieve CONTRACTOR from responsibility for any variation from the requirements of the Contract Documents unless CONTRACTOR has in writing called ENGINEER's attention to each such variation at the time of each submittal as required by paragraph 6.17.D.3 and ENGINEER has given written approval of each such variation by specific written notation thereof incorporated in or accompanying the Shop Drawing or Sample approval; nor will any approval by ENGINEER relieve CONTRACTOR from responsibility for complying with the requirements of paragraph 6.17.D.1.

F. *Resubmittal Procedures*

1. CONTRACTOR shall make corrections required by ENGINEER and shall return the required number of corrected copies of Shop Drawings and submit as required new Samples for review and approval. CONTRACTOR shall direct specific attention in writing to revisions other than the corrections called for by ENGINEER on previous submittals.

6.18 *Continuing the Work*

A. CONTRACTOR shall carry on the Work and adhere to the progress schedule during all disputes or disagreements with OWNER. No Work shall be delayed or postponed pending resolution of any disputes or disagreements, except as permitted by paragraph 15.04 or as OWNER and CONTRACTOR may otherwise agree in writing.

6.19 *CONTRACTOR's General Warranty and Guarantee*

A. CONTRACTOR warrants and guarantees to OWNER, ENGINEER, and ENGINEER's Consultants that all Work will be in accordance with the Contract Documents and will not be defective. CONTRACTOR's warranty and guarantee hereunder excludes defects or damage caused by:

1. abuse, modification, or improper maintenance or operation by persons other than CONTRACTOR, Subcontractors, Suppliers, or any other individual or entity for whom CONTRACTOR is responsible; or
2. normal wear and tear under normal usage.

B. CONTRACTOR's obligation to perform and complete the Work in accordance with the Contract Documents shall be absolute. None of the following will constitute an acceptance of Work that is not in accordance with the Contract Documents or a release of CONTRACTOR's obligation to perform the Work in accordance with the Contract Documents:

1. observations by ENGINEER;
2. recommendation by ENGINEER or payment by OWNER of any progress or final payment;
3. the issuance of a certificate of Substantial Completion by ENGINEER or any payment related thereto by OWNER;
4. use or occupancy of the Work or any part thereof by OWNER;
5. any acceptance by OWNER or any failure to do so;
6. any review and approval of a Shop Drawing or Sample submittal or the issuance of a notice of acceptability by ENGINEER;
7. any inspection, test, or approval by others; or
8. any correction of defective Work by OWNER.

6.20 *Indemnification*

A. To the fullest extent permitted by Laws and Regulations, CONTRACTOR shall indemnify and hold harmless OWNER, ENGINEER, ENGINEER's Consultants, and the officers, directors, partners, employees, agents, and other consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to the performance of the Work, provided that any such claim, cost, loss, or damage:

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 CONTRACTOR, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work or anyone for whose acts any of them may be liable, regardless of whether or not caused in part by any negligence or omission of an individual or entity indemnified hereunder or whether liability is imposed upon such indemnified party by Laws and Regulations regardless of the negligence of any such individual or entity.

B. In any and all claims against OWNER or ENGINEER or any of their respective consultants, agents, officers, directors, partners, or employees by any employee (or the survivor or personal representative of such employee) of CONTRACTOR, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, the indemnification obligation under paragraph 6.20.A shall not be limited in any way by any limitation on the amount or type of damages, compensation, or benefits payable by or for CONTRACTOR or any such Subcontractor, Supplier, or other individual or entity under workers' compensation acts, disability benefit acts, or other employee benefit acts.

C. The indemnification obligations of CONTRACTOR under paragraph 6.20.A shall not extend to the liability of ENGINEER and ENGINEER's Consultants or to the officers, directors, partners, employees, agents, and

other consultants and subcontractors of each and any of them arising out of:

1. the preparation or approval of, or the failure to prepare or approve, maps, Drawings, opinions, reports, surveys, Change Orders, designs, or Specifications; or

2. giving directions or instructions, or failing to give them, if that is the primary cause of the injury or damage.

ARTICLE 7 - OTHER WORK

7.01 *Related Work at Site*

A. OWNER may perform other work related to the Project at the Site by OWNER's employees, or let other direct contracts therefor, or have other work performed by utility owners. If such other work is not noted in the Contract Documents, then:

1. written notice thereof will be given to CONTRACTOR prior to starting any such other work; and

2. if OWNER and CONTRACTOR are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times that should be allowed as a result of such other work, a Claim may be made therefor as provided in paragraph 10.05.

B. CONTRACTOR shall afford each other contractor who is a party to such a direct contract and each utility owner (and OWNER, if OWNER is performing the other work with OWNER's employees) proper and safe access to the Site and a reasonable opportunity for the introduction and storage of materials and equipment and the execution of such other work and shall properly coordinate the Work with theirs. Unless otherwise provided in the Contract Documents, CONTRACTOR shall do all cutting, fitting, and patching of the Work that may be required to properly connect or otherwise make its several parts come together and properly integrate with such other work. CONTRACTOR shall not endanger any work of others by cutting, excavating, or otherwise altering their work and will only cut or alter their work with the written consent of ENGINEER and the others whose work will be affected. The duties and responsibilities of CONTRACTOR under this paragraph are for the benefit of

such utility owners and other contractors to the extent that there are comparable provisions for the benefit of CONTRACTOR in said direct contracts between OWNER and such utility owners and other contractors.

C. If the proper execution or results of any part of CONTRACTOR's Work depends upon work performed by others under this Article 7, CONTRACTOR shall inspect such other work and promptly report to ENGINEER in writing any delays, defects, or deficiencies in such other work that render it unavailable or unsuitable for the proper execution and results of CONTRACTOR's Work. CONTRACTOR's failure to so report will constitute an acceptance of such other work as fit and proper for integration with CONTRACTOR's Work except for latent defects and deficiencies in such other work.

7.02 *Coordination*

A. If OWNER intends to contract with others for the performance of other work on the Project at the Site, the following will be set forth in Supplementary Conditions:

1. the individual or entity who will have authority and responsibility for coordination of the activities among the various contractors will be identified;
2. the specific matters to be covered by such authority and responsibility will be itemized; and
3. the extent of such authority and responsibilities will be provided.

B. Unless otherwise provided in the Supplementary Conditions, OWNER shall have sole authority and responsibility for such coordination.

ARTICLE 8 - OWNER'S RESPONSIBILITIES

8.01 *Communications to Contractor*

A. Except as otherwise provided in these General Conditions, OWNER shall issue all communications to CONTRACTOR through ENGINEER.

8.02 *Replacement of ENGINEER*

A. In case of termination of the employment of ENGINEER, OWNER shall appoint an engineer to whom CONTRACTOR makes no reasonable objection, whose status under the Contract Documents shall be that of the former ENGINEER.

8.03 *Furnish Data*

A. OWNER shall promptly furnish the data required of OWNER under the Contract Documents.

8.04 *Pay Promptly When Due*

A. OWNER shall make payments to CONTRACTOR promptly when they are due as provided in paragraphs 14.02.C and 14.07.C.

8.05 *Lands and Easements; Reports and Tests*

A. OWNER's duties in respect of providing lands and easements and providing engineering surveys to establish reference points are set forth in paragraphs 4.01 and 4.05. Paragraph 4.02 refers to OWNER's identifying and making available to CONTRACTOR copies of reports of explorations and tests of subsurface conditions and drawings of physical conditions in or relating to existing surface or subsurface structures at or contiguous to the Site that have been utilized by ENGINEER in preparing the Contract Documents.

*See Supplementary Conditions

8.06* *Insurance*

A.* OWNER's responsibilities, if any, in respect to purchasing and maintaining liability and property insurance are set forth in Article 5.

8.07 *Change Orders*

A. OWNER is obligated to execute Change Orders as indicated in paragraph 10.03.

8.08 *Inspections, Tests, and Approvals*

A. OWNER's responsibility in respect to certain inspections, tests, and approvals is set forth in paragraph 13.03.B.

8.09 *Limitations on OWNER's Responsibilities*

A. The OWNER shall not supervise, direct, or have control or authority over, nor be responsible for, CONTRACTOR's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of CONTRACTOR to comply with Laws and Regulations applicable to the performance of the Work. OWNER will not be responsible for CONTRACTOR's failure to perform the Work in accordance with the Contract Documents.

8.10 *Undisclosed Hazardous Environmental Condition*

A. OWNER's responsibility in respect to an undisclosed Hazardous Environmental Condition is set forth in paragraph 4.06.

8.11 *Evidence of Financial Arrangements*

A. If and to the extent OWNER has agreed to furnish CONTRACTOR reasonable evidence that financial arrangements have been made to satisfy OWNER's obligations under the Contract Documents, OWNER's responsibility in respect thereof will be as set forth in the Supplementary Conditions.

ARTICLE 9 - ENGINEER'S STATUS DURING CONSTRUCTION

9.01 *OWNER'S Representative*

A. ENGINEER will be OWNER's representative during the construction period. The duties and responsibilities and the limitations of authority of ENGINEER as OWNER's representative during construction are set forth in the Contract Documents and will not be changed without written consent of OWNER and ENGINEER.

9.02 *Visits to Site*

A. ENGINEER will make visits to the Site at intervals appropriate to the various stages of construction as ENGINEER deems necessary in order to observe as an experienced and qualified design professional the progress that has been made and the quality of the various aspects of CONTRACTOR's executed Work. Based on information obtained during such visits and

observations, ENGINEER, for the benefit of OWNER, will determine, in general, if the Work is proceeding in accordance with the Contract Documents. ENGINEER will not be required to make exhaustive or continuous inspections on the Site to check the quality or quantity of the Work. ENGINEER's efforts will be directed toward providing for OWNER a greater degree of confidence that the completed Work will conform generally to the Contract Documents. On the basis of such visits and observations, ENGINEER will keep OWNER informed of the progress of the Work and will endeavor to guard OWNER against defective Work.

B. ENGINEER's visits and observations are subject to all the limitations on ENGINEER's authority and responsibility set forth in paragraph 9.10, and particularly, but without limitation, during or as a result of ENGINEER's visits or observations of CONTRACTOR's Work ENGINEER will not supervise, direct, control, or have authority over or be responsible for CONTRACTOR's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of CONTRACTOR to comply with Laws and Regulations applicable to the performance of the Work.

9.03* *Project Representative*

A. If OWNER and ENGINEER agree, ENGINEER will furnish a Resident Project Representative to assist ENGINEER in providing more extensive observation of the Work. The responsibilities and authority and limitations thereon of any such Resident Project Representative and assistants will be as provided in paragraph 9.10 and in the Supplementary Conditions. If OWNER designates another representative or agent to represent OWNER at the Site who is not ENGINEER's Consultant, agent or employee,

*See Supplementary Conditions

the responsibilities and authority and limitations thereon of such other individual or entity will be as provided in the Supplementary Conditions.

9.04 *Clarifications and Interpretations*

A. ENGINEER will issue with reasonable promptness such written clarifications or interpretations of the requirements of the Contract Documents as ENGINEER may determine necessary, which shall be consistent with the intent of and reasonably inferable from the Contract Docu-

ments. Such written clarifications and interpretations will be binding on OWNER and CONTRACTOR. If OWNER and CONTRACTOR are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times, or both, that should be allowed as a result of a written clarification or interpretation, a Claim may be made therefor as provided in paragraph 10.05.

9.05 *Authorized Variations in Work*

A. ENGINEER may authorize minor variations in the Work from the requirements of the Contract Documents which do not involve an adjustment in the Contract Price or the Contract Times and are compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. These may be accomplished by a Field Order and will be binding on OWNER and also on CONTRACTOR, who shall perform the Work involved promptly. If OWNER and CONTRACTOR are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times, or both, as a result of a Field Order, a Claim may be made therefor as provided in paragraph 10.05.

9.06 *Rejecting Defective Work*

A. ENGINEER will have authority to disapprove or reject Work which ENGINEER believes to be defective, or that ENGINEER believes will not produce a completed Project that conforms to the Contract Documents or that will prejudice the integrity of the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. ENGINEER will also have authority to require special inspection or testing of the Work as provided in paragraph 13.04, whether or not the Work is fabricated, installed, or completed.

9.07 *Shop Drawings, Change Orders and Payments*

A. In connection with ENGINEER's authority as to Shop Drawings and Samples, see paragraph 6.17.

B. In connection with ENGINEER's authority as to Change Orders, see Articles 10, 11, and 12.

C. In connection with ENGINEER's authority as to Applications for Payment, see Article 14.

9.08 *Determinations for Unit Price Work*

A. ENGINEER will determine the actual quantities and classifications of Unit Price Work performed by CONTRACTOR. ENGINEER will review with CONTRACTOR the ENGINEER's preliminary determinations on such matters before rendering a written decision thereon (by recommendation of an Application for Payment or otherwise). ENGINEER's written decision thereon will be final and binding (except as modified by ENGINEER to reflect changed factual conditions or more accurate data) upon OWNER and CONTRACTOR, subject to the provisions of paragraph 10.05.

9.09 *Decisions on Requirements of Contract Documents and Acceptability of Work*

A. ENGINEER will be the initial interpreter of the requirements of the Contract Documents and judge of the acceptability of the Work thereunder. Claims, disputes and other matters relating to the acceptability of the Work, the quantities and classifications of Unit Price Work, the interpretation of the requirements of the Contract Documents pertaining to the performance of the Work, and Claims seeking changes in the Contract Price or Contract Times will be referred initially to ENGINEER in writing, in accordance with the provisions of paragraph 10.05, with a request for a formal decision.

B. When functioning as interpreter and judge under this paragraph 9.09, ENGINEER will not show partiality to OWNER or CONTRACTOR and will not be liable in connection with any interpretation or decision rendered in good faith in such capacity. The rendering of a decision by ENGINEER pursuant to this paragraph 9.09 with respect to any such Claim, dispute, or other matter (except any which have been waived by the making or acceptance of final payment as provided in paragraph 14.07) will be a condition precedent to any exercise by OWNER or CONTRACTOR of such rights or remedies as either may otherwise have under the Contract Documents or by Laws or Regulations in respect of any such Claim, dispute, or other matter.

*See Supplementary Conditions

9.10 *Limitations on ENGINEER's Authority and Responsibilities*

A. Neither ENGINEER's authority or responsibility under this Article 9 or under any other provision of the Contract Documents nor any decision made by ENGINEER in good faith either to exercise or not exercise such

authority or responsibility or the undertaking, exercise, or performance of any authority or responsibility by ENGINEER shall create, impose, or give rise to any duty in contract, tort, or otherwise owed by ENGINEER to CONTRACTOR, any Subcontractor, any Supplier, any other individual or entity, or to any surety for or employee or agent of any of them.

B. ENGINEER will not supervise, direct, control, or have authority over or be responsible for CONTRACTOR's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of CONTRACTOR to comply with Laws and Regulations applicable to the performance of the Work. ENGINEER will not be responsible for CONTRACTOR's failure to perform the Work in accordance with the Contract Documents.

C. ENGINEER will not be responsible for the acts or omissions of CONTRACTOR or of any Subcontractor, any Supplier, or of any other individual or entity performing any of the Work.

D. ENGINEER's review of the final Application for Payment and accompanying documentation and all maintenance and operating instructions, schedules, guarantees, Bonds, certificates of inspection, tests and approvals, and other documentation required to be delivered by paragraph 14.07.A will only be to determine generally that their content complies with the requirements of, and in the case of certificates of inspections, tests, and approvals that the results certified indicate compliance with, the Contract Documents.

E. The limitations upon authority and responsibility set forth in this paragraph 9.10 shall also apply to ENGINEER's Consultants, Resident Project Representative, and assistants. See Article 18.

ARTICLE 10 - CHANGES IN THE WORK; CLAIMS

10.01 *Authorized Changes in the Work*

A. Without invalidating the Agreement and without notice to any surety, OWNER may, at any time or from time to time, order additions, deletions, or revisions in the Work by a Written Amendment, a Change Order, or a Work Change Directive. Upon receipt of any such document, CONTRACTOR shall promptly proceed with the Work involved which will be performed under the

applicable conditions of the Contract Documents (except as otherwise specifically provided).

B. If OWNER and CONTRACTOR are unable to agree on entitlement to, or on the amount or extent, if any, of an adjustment in the Contract Price or Contract Times, or both, that should be allowed as a result of a Work Change Directive, a Claim may be made therefor as provided in paragraph 10.05.

10.02 *Unauthorized Changes in the Work*

A. CONTRACTOR shall not be entitled to an increase in the Contract Price or an extension of the Contract Times with respect to any work performed that is not required by the Contract Documents as amended, modified, or supplemented as provided in paragraph 3.04, except in the case of an emergency as provided in paragraph 6.16 or in the case of uncovering Work as provided in paragraph 13.04.B.

10.03 *Execution of Change Orders*

A. OWNER and CONTRACTOR shall execute appropriate Change Orders recommended by ENGINEER (or Written Amendments) covering:

1. changes in the Work which are: (i) ordered by OWNER pursuant to paragraph 10.01.A, (ii) required because of acceptance of defective Work under paragraph 13.08.A or OWNER's correction of defective Work under paragraph 13.09, or (iii) agreed to by the parties;

2. changes in the Contract Price or Contract Times which are agreed to by the parties, including any undisputed sum or amount of time for Work actually performed in accordance with a Work Change Directive; and

3. changes in the Contract Price or Contract Times which embody the substance of any written decision rendered by ENGINEER pursuant to paragraph 10.05; provided that, in lieu of executing any such Change Order, an appeal may be taken from any such decision in accordance with the provisions of the Contract Documents and applicable Laws and Regulations, but during any such appeal, CONTRACTOR shall carry on the Work and adhere to the progress schedule as provided in paragraph 6.18.A.

10.04 *Notification to Surety*

A. If notice of any change affecting the general scope of the Work or the provisions of the Contract Documents (including, but not limited to, Contract Price or Contract Times) is required by the provisions of any Bond to be given to a surety, the giving of any such notice will be CONTRACTOR's responsibility. The amount of each applicable Bond will be adjusted to reflect the effect of any such change.

10.05 *Claims and Disputes*

A. *Notice:* Written notice stating the general nature of each Claim, dispute, or other matter shall be delivered by the claimant to ENGINEER and the other party to the Contract promptly (but in no event later than 30 days) after the start of the event giving rise thereto. Notice of the amount or extent of the Claim, dispute, or other matter with supporting data shall be delivered to the ENGINEER and the other party to the Contract within 60 days after the start of such event (unless ENGINEER allows additional time for claimant to submit additional or more accurate data in support of such Claim, dispute, or other matter). A Claim for an adjustment in Contract Price shall be prepared in accordance with the provisions of paragraph 12.01.B. A Claim for an adjustment in Contract Time shall be prepared in accordance with the provisions of paragraph 12.02.B. Each Claim shall be accompanied by claimant's written statement that the adjustment claimed is the entire adjustment to which the claimant believes it is entitled as a result of said event. The opposing party shall submit any response to ENGINEER and the claimant within 30 days after receipt of the claimant's last submittal (unless ENGINEER allows additional time).

B. *ENGINEER's Decision:* ENGINEER will render a formal decision in writing within 30 days after receipt of the last submittal of the claimant or the last submittal of the opposing party, if any. ENGINEER's written decision on such Claim, dispute, or other matter will be final and binding upon OWNER and CONTRACTOR unless:

1. an appeal from ENGINEER's decision is taken within the time limits and in accordance with the dispute resolution procedures set forth in Article 16; or

2. if no such dispute resolution procedures have been set forth in Article 16, a written notice of intention to appeal from ENGINEER's written decision is delivered by OWNER or CONTRACTOR to the other and to ENGINEER within 30 days

after the date of such decision, and a formal proceeding is instituted by the appealing party in a forum of competent jurisdiction within 60 days after the date of such decision or within 60 days after Substantial Completion, whichever is later (unless otherwise agreed in writing by OWNER and CONTRACTOR), to exercise such rights or remedies as the appealing party may have with respect to such Claim, dispute, or other matter in accordance with applicable Laws and Regulations.

C. If ENGINEER does not render a formal decision in writing within the time stated in paragraph 10.05.B, a decision denying the Claim in its entirety shall be deemed to have been issued 31 days after receipt of the last submittal of the claimant or the last submittal of the opposing party, if any.

D. No Claim for an adjustment in Contract Price or Contract Times (or Milestones) will be valid if not submitted in accordance with this paragraph 10.05.

ARTICLE 11 - COST OF THE WORK; CASH ALLOWANCES; UNIT PRICE WORK

11.01 *Cost of the Work*

A. *Costs Included:* The term Cost of the Work means the sum of all costs necessarily incurred and paid by CONTRACTOR in the proper performance of the Work. When the value of any Work covered by a Change Order or when a Claim for an adjustment in Contract Price is determined on the basis of Cost of the Work, the costs to be reimbursed to CONTRACTOR will be only those additional or incremental costs required because of the change in the Work or because of the event giving rise to the Claim. Except as otherwise may be agreed to in writing by OWNER, such costs shall be in amounts no higher than those prevailing in the locality of the Project, shall include only the following items, and shall not include any of the costs itemized in paragraph 11.01.B.

1. Payroll costs for employees in the direct employ of CONTRACTOR in the performance of the Work under schedules of job classifications agreed upon by OWNER and CONTRACTOR. Such employees shall include without limitation superintendents, foremen, and other personnel employed full time at the Site. Payroll costs for employees not employed full time on the Work

shall be apportioned on the basis of their time spent on the Work. Payroll costs shall include, but not be limited to, salaries and wages plus the cost of fringe benefits, which shall include social security contributions, unemployment, excise, and payroll taxes, workers' compensation, health and retirement benefits, bonuses, sick leave, vacation and holiday pay applicable thereto. The expenses of performing Work outside of regular working hours, on Saturday, Sunday, or legal holidays, shall be included in the above to the extent authorized by OWNER.

2. Cost of all materials and equipment furnished and incorporated in the Work, including costs of transportation and storage thereof, and Suppliers' field services required in connection therewith. All cash discounts shall accrue to CONTRACTOR unless OWNER deposits funds with CONTRACTOR with which to make payments, in which case the cash discounts shall accrue to OWNER. All trade discounts, rebates and refunds and returns from sale of surplus materials and equipment shall accrue to OWNER, and CONTRACTOR shall make provisions so that they may be obtained.

3. Payments made by CONTRACTOR to Subcontractors for Work performed by Subcontractors. If required by OWNER, CONTRACTOR shall obtain competitive bids from subcontractors acceptable to OWNER and CONTRACTOR and shall deliver such bids to OWNER, who will then determine, with the advice of ENGINEER, which bids, if any, will be acceptable. If any subcontract provides that the Subcontractor is to be paid on the basis of Cost of the Work plus a fee, the Subcontractor's Cost of the Work and fee shall be determined in the same manner as CONTRACTOR's Cost of the Work and fee as provided in this paragraph 11.01.

4. Costs of special consultants (including but not limited to engineers, architects, testing laboratories, surveyors, attorneys, and accountants) employed for services specifically related to the Work.

5. Supplemental costs including the following:

a. The proportion of necessary transportation, travel, and subsistence expenses of

CONTRACTOR's employees incurred in discharge of duties connected with the Work.

b. Cost, including transportation and maintenance, of all materials, supplies, equipment, machinery, appliances, office, and temporary facilities at the Site, and hand tools not owned by the workers, which are consumed in the performance of the Work, and cost, less market value, of such items used but not consumed which remain the property of CONTRACTOR.

c. Rentals of all construction equipment and machinery, and the parts thereof whether rented from CONTRACTOR or others in accordance with rental agreements approved by OWNER with the advice of ENGINEER, and the costs of transportation, loading, unloading, assembly, dismantling, and removal thereof. All such costs shall be in accordance with the terms of said rental agreements. The rental of any such equipment, machinery, or parts shall cease when the use thereof is no longer necessary for the Work.

d. Sales, consumer, use, and other similar taxes related to the Work, and for which CONTRACTOR is liable, imposed by Laws and Regulations.

e. Deposits lost for causes other than negligence of CONTRACTOR, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, and royalty payments and fees for permits and licenses.

f. Losses and damages (and related expenses) caused by damage to the Work, not compensated by insurance or otherwise, sustained by CONTRACTOR in connection with the performance of the Work (except losses and damages within the deductible amounts of property insurance established in accordance with paragraph 5.06.D), provided such losses and damages have resulted from causes other than the negligence of CONTRACTOR, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable. Such losses shall include settlements made with the written consent and approval of OWNER. No such losses, damages, and expenses shall be included in the Cost of the Work for the purpose of determining CONTRACTOR's fee.

g. The cost of utilities, fuel, and sanitary facilities at the Site.

h. Minor expenses such as telegrams, long distance telephone calls, telephone service at the Site, expressage, and similar petty cash items in connection with the Work.

i. When the Cost of the Work is used to determine the value of a Change Order or of a Claim, the cost of premiums for additional Bonds and insurance required because of the changes in the Work or caused by the event giving rise to the Claim.

j. When all the Work is performed on the basis of cost-plus, the costs of premiums for all Bonds and insurance CONTRACTOR is required by the Contract Documents to purchase and maintain.

B. *Costs Excluded:* The term Cost of the Work shall not include any of the following items:

1. Payroll costs and other compensation of CONTRACTOR's officers, executives, principals (of partnerships and sole proprietorships), general managers, engineers, architects, estimators, attorneys, auditors, accountants, purchasing and contracting agents, expeditors, timekeepers, clerks, and other personnel employed by CONTRACTOR, whether at the Site or in CONTRACTOR's principal or branch office for general administration of the Work and not specifically included in the agreed upon schedule of job classifications referred to in paragraph 11.01.A.1 or specifically covered by paragraph 11.01.A.4, all of which are to be considered administrative costs covered by the CONTRACTOR's fee.

2. Expenses of CONTRACTOR's principal and branch offices other than CONTRACTOR's office at the Site.

3. Any part of CONTRACTOR's capital expenses, including interest on CONTRACTOR's capital employed for the Work and charges against CONTRACTOR for delinquent payments.

4. Costs due to the negligence of CONTRACTOR, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, including but not

limited to, the correction of defective Work, disposal of materials or equipment wrongly supplied, and making good any damage to property.

5. Other overhead or general expense costs of any kind and the costs of any item not specifically and expressly included in paragraphs 11.01.A and 11.01.B.

C. *CONTRACTOR's Fee:* When all the Work is performed on the basis of cost-plus, CONTRACTOR's fee shall be determined as set forth in the Agreement. When the value of any Work covered by a Change Order or when a Claim for an adjustment in Contract Price is determined on the basis of Cost of the Work, CONTRACTOR's fee shall be determined as set forth in paragraph 12.01.C.

D. *Documentation:* Whenever the Cost of the Work for any purpose is to be determined pursuant to paragraphs 11.01.A and 11.01.B, CONTRACTOR will establish and maintain records thereof in accordance with generally accepted accounting practices and submit in a form acceptable to ENGINEER an itemized cost breakdown together with supporting data.

11.02 *Cash Allowances*

A. It is understood that CONTRACTOR has included in the Contract Price all allowances so named in the Contract Documents and shall cause the Work so covered to be performed for such sums as may be acceptable to OWNER and ENGINEER. CONTRACTOR agrees that:

1. the allowances include the cost to CONTRACTOR (less any applicable trade discounts) of materials and equipment required by the allowances to be delivered at the Site, and all applicable taxes; and

2. CONTRACTOR's costs for unloading and handling on the Site, labor, installation costs, overhead, profit, and other expenses contemplated for the allowances have been included in the Contract Price and not in the allowances, and no demand for additional payment on account of any of the foregoing will be valid.

B. Prior to final payment, an appropriate Change Order will be issued as recommended by ENGINEER to reflect actual amounts due CONTRACTOR on account of

Work covered by allowances, and the Contract Price shall be correspondingly adjusted.

11.03 *Unit Price Work*

A. Where the Contract Documents provide that all or part of the Work is to be Unit Price Work, initially the Contract Price will be deemed to include for all Unit Price Work an amount equal to the sum of the unit price for each separately identified item of Unit Price Work times the estimated quantity of each item as indicated in the Agreement. The estimated quantities of items of Unit Price Work are not guaranteed and are solely for the purpose of comparison of Bids and determining an initial Contract Price. Determinations of the actual quantities and classifications of Unit Price Work performed by CONTRACTOR will be made by ENGINEER subject to the provisions of paragraph 9.08.

B. Each unit price will be deemed to include an amount considered by CONTRACTOR to be adequate to cover CONTRACTOR's overhead and profit for each separately identified item.

C. OWNER or CONTRACTOR may make a Claim for an adjustment in the Contract Price in accordance with paragraph 10.05 if:

1. the quantity of any item of Unit Price Work performed by CONTRACTOR differs materially and significantly from the estimated quantity of such item indicated in the Agreement; and
2. there is no corresponding adjustment with respect any other item of Work; and
3. if CONTRACTOR believes that CONTRACTOR is entitled to an increase in Contract Price as a result of having incurred additional expense or OWNER believes that OWNER is entitled to a decrease in Contract Price and the parties are unable to agree as to the amount of any such increase or decrease.

ARTICLE 12 - CHANGE OF CONTRACT PRICE;
CHANGE OF CONTRACT TIMES

12.01* *Change of Contract Price*

A. The Contract Price may only be changed by a Change Order or by a Written Amendment. Any Claim for an adjustment in the Contract Price shall be based on written notice submitted by the party making the Claim to the ENGINEER and the other party to the Contract in accordance with the provisions of paragraph 10.05.

B.* The value of any Work covered by a Change Order or of any Claim for an adjustment in the Contract Price will be determined as follows:

1. where the Work involved is covered by unit prices contained in the Contract Documents, by application of such unit prices to the quantities of the items involved (subject to the provisions of paragraph 11.03); or
2. where the Work involved is not covered by unit prices contained in the Contract Documents, by a mutually agreed lump sum (which may include an allowance for overhead and profit not necessarily in accordance with paragraph 12.01.C.2); or
3. where the Work involved is not covered by unit prices contained in the Contract Documents and agreement to a lump sum is not reached under paragraph 12.01.B.2, on the basis of the Cost of the Work (determined as provided in paragraph 11.01) plus a CONTRACTOR's fee for overhead and profit (determined as provided in paragraph 12.01.C).

C. *CONTRACTOR's Fee:* The CONTRACTOR's fee for overhead and profit shall be determined as follows:

1. a mutually acceptable fixed fee; or
2. if a fixed fee is not agreed upon, then a fee based on the following percentages of the various portions of the Cost of the Work:
 - a. for costs incurred under paragraphs 11.01.A.1 and 11.01.A.2, the CONTRACTOR's fee shall be 15 percent;

b. for costs incurred under paragraph 11.01.A.3, the CONTRACTOR's fee shall be five percent;

c. where one or more tiers of subcontracts are on the basis of Cost of the Work plus a fee and no fixed fee is agreed upon, the intent of paragraph 12.01.C.2.a is that the Subcontractor who actually performs the Work, at whatever tier, will be paid a fee of 15 percent of the costs incurred by such Subcontractor under paragraphs 11.01.A.1 and 11.01.A.2 and that any higher tier Subcontractor and CONTRACTOR will each be paid a fee of five percent of the amount paid to the next lower tier Subcontractor;

*See Supplementary Conditions

d. no fee shall be payable on the basis of costs itemized under paragraphs 11.01.A.4, 11.01.A.5, and 11.01.B;

e. the amount of credit to be allowed by CONTRACTOR to OWNER for any change which results in a net decrease in cost will be the amount of the actual net decrease in cost plus a deduction in CONTRACTOR's fee by an amount equal to five percent of such net decrease; and

f. when both additions and credits are involved in any one change, the adjustment in CONTRACTOR's fee shall be computed on the basis of the net change in accordance with paragraphs 12.01.C.2.a through 12.01.C.2.e, inclusive.

12.02 *Change of Contract Times*

A. The Contract Times (or Milestones) may only be changed by a Change Order or by a Written Amendment. Any Claim for an adjustment in the Contract Times (or Milestones) shall be based on written notice submitted by the party making the claim to the ENGINEER and the other party to the Contract in accordance with the provisions of paragraph 10.05.

B. Any adjustment of the Contract Times (or Milestones) covered by a Change Order or of any Claim for an adjustment in the Contract Times (or Milestones)

will be determined in accordance with the provisions of this Article 12.

12.03 *Delays Beyond CONTRACTOR's Control*

A. Where CONTRACTOR is prevented from completing any part of the Work within the Contract Times (or Milestones) due to delay beyond the control of CONTRACTOR, the Contract Times (or Milestones) will be extended in an amount equal to the time lost due to such delay if a Claim is made therefor as provided in paragraph 12.02.A. Delays beyond the control of CONTRACTOR shall include, but not be limited to, acts or neglect by OWNER, acts or neglect of utility owners or other contractors performing other work as contemplated by Article 7, fires, floods, epidemics, abnormal weather conditions, or acts of God.

12.04 *Delays Within CONTRACTOR's Control*

A. The Contract Times (or Milestones) will not be extended due to delays within the control of CONTRACTOR. Delays attributable to and within the control of a Subcontractor or Supplier shall be deemed to be delays within the control of CONTRACTOR.

12.05 *Delays Beyond OWNER's and CONTRACTOR's Control*

A. Where CONTRACTOR is prevented from completing any part of the Work within the Contract Times (or Milestones) due to delay beyond the control of both OWNER and CONTRACTOR, an extension of the Contract Times (or Milestones) in an amount equal to the time lost due to such delay shall be CONTRACTOR's sole and exclusive remedy for such delay.

12.06 *Delay Damages*

A. In no event shall OWNER or ENGINEER be liable to CONTRACTOR, any Subcontractor, any Supplier, or any other person or organization, or to any surety for or employee or agent of any of them, for damages arising out of or resulting from:

1. delays caused by or within the control of CONTRACTOR; or

2. delays beyond the control of both OWNER and CONTRACTOR including but not limited to fires, floods, epidemics, abnormal weather conditions, acts of God, or acts or neglect by utility

owners or other contractors performing other work as contemplated by Article 7.

B. Nothing in this paragraph 12.06 bars a change in Contract Price pursuant to this Article 12 to compensate CONTRACTOR due to delay, interference, or disruption directly attributable to actions or inactions of OWNER or anyone for whom OWNER is responsible.

ARTICLE 13 - TESTS AND INSPECTIONS;
CORRECTION, REMOVAL OR ACCEPTANCE OF
DEFECTIVE WORK

13.01 *Notice of Defects*

A. Prompt notice of all defective Work of which OWNER or ENGINEER has actual knowledge will be given to CONTRACTOR. All defective Work may be rejected, corrected, or accepted as provided in this Article 13.

13.02* *Access to Work*

A. OWNER, ENGINEER, ENGINEER's Consultants, other representatives and personnel of OWNER, independent testing laboratories, and governmental agencies with jurisdictional interests will have access to the Site and the Work at reasonable times for their observation, inspecting, and testing. CONTRACTOR shall provide them proper and safe conditions for such access and advise them of CONTRACTOR's Site safety procedures and programs so that they may comply therewith as applicable.

13.03* *Tests and Inspections*

A. CONTRACTOR shall give ENGINEER timely notice of readiness of the Work for all required inspections, tests, or approvals and shall cooperate with inspection and testing personnel to facilitate required inspections or tests.

B.* OWNER shall employ and pay for the services of an independent testing laboratory to perform all inspections, tests, or approvals required by the Contract Documents except:

1. for inspections, tests, or approvals covered by paragraphs 13.03.C and 13.03.D below;

2. that costs incurred in connection with tests or inspections conducted pursuant to paragraph 13.04.B shall be paid as provided in said paragraph 13.04.B; and

3. as otherwise specifically provided in the Contract Documents.

C. If Laws or Regulations of any public body having jurisdiction require any Work (or part thereof) specifically to be inspected, tested, or approved by an employee or other representative of such public body, CONTRACTOR shall assume full responsibility for arranging and obtaining such inspections, tests, or approvals, pay all costs in connection therewith, and furnish ENGINEER the required certificates of inspection or approval.

D. CONTRACTOR shall be responsible for arranging and obtaining and shall pay all costs in connection with any inspections, tests, or approvals required for OWNER's and ENGINEER's acceptance of materials or equipment to be incorporated in the Work; or acceptance of materials, mix designs, or equipment submitted for approval prior to CONTRACTOR's purchase thereof for incorporation in the Work. Such inspections, tests, or approvals shall be performed by organizations acceptable to OWNER and ENGINEER.

E. If any Work (or the work of others) that is to be inspected, tested, or approved is covered by CONTRACTOR without written concurrence of ENGINEER, it must, if requested by ENGINEER, be uncovered for observation.

F. Uncovering Work as provided in paragraph 13.03.E shall be at CONTRACTOR's expense unless CONTRACTOR has given ENGINEER timely notice of CONTRACTOR's intention to cover the same and ENGINEER has not acted with reasonable promptness in response to such notice.

13.04 *Uncovering Work*

A. If any Work is covered contrary to the written request of ENGINEER, it must, if requested by ENGINEER, be uncovered for ENGINEER's observation and replaced at CONTRACTOR's expense.

B. If ENGINEER considers it necessary or advisable that covered Work be observed by ENGINEER or inspected or tested by others, CONTRACTOR, at ENGINEER's request, shall uncover, expose, or otherwise make available for observation, inspection, or testing as ENGINEER may require, that portion of the Work in

question, furnishing all necessary labor, material, and equipment. If it is found that such Work is defective, CONTRACTOR shall pay all Claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such uncovering, exposure, observation, inspection, and testing, and of satisfactory replacement or reconstruction (including but not limited to all costs of repair or replacement of work of others); and OWNER shall be entitled to an appropriate decrease in the Contract Price. If the parties are unable to agree as to the amount thereof, OWNER may make a Claim therefor as provided in paragraph 10.05. If, however, such Work is not found to be defective, CONTRACTOR shall be allowed an increase in the Contract Price or an extension of the Contract Times (or Milestones), or both, directly attributable to such uncovering, exposure, observation, inspection, testing, replacement, and reconstruction. If the parties are unable to agree as to the amount or extent thereof, CONTRACTOR may make a Claim therefor as provided in paragraph 10.05.

*See Supplementary Conditions

13.05 *OWNER May Stop the Work*

A. If the Work is defective, or CONTRACTOR fails to supply sufficient skilled workers or suitable materials or equipment, or fails to perform the Work in such a way that the completed Work will conform to the Contract Documents, OWNER may order CONTRACTOR to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, this right of OWNER to stop the Work shall not give rise to any duty on the part of OWNER to exercise this right for the benefit of CONTRACTOR, any Subcontractor, any Supplier, any other individual or entity, or any surety for, or employee or agent of any of them.

13.06 *Correction or Removal of Defective Work*

A. CONTRACTOR shall correct all defective Work, whether or not fabricated, installed, or completed, or, if the Work has been rejected by ENGINEER, remove it from the Project and replace it with Work that is not defective. CONTRACTOR shall pay all Claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such correction or removal (including but not limited to all costs of repair or replacement of work of others).

13.07 *Correction Period*

A. If within one year after the date of Substantial Completion or such longer period of time as may be prescribed by Laws or Regulations or by the terms of any applicable special guarantee required by the Contract Documents or by any specific provision of the Contract Documents, any Work is found to be defective, or if the repair of any damages to the land or areas made available for CONTRACTOR's use by OWNER or permitted by Laws and Regulations as contemplated in paragraph 6.11.A is found to be defective, CONTRACTOR shall promptly, without cost to OWNER and in accordance with OWNER's written instructions: (i) repair such defective land or areas, or (ii) correct such defective Work or, if the defective Work has been rejected by OWNER, remove it from the Project and replace it with Work that is not defective, and (iii) satisfactorily correct or repair or remove and replace any damage to other Work, to the work of others or other land or areas resulting therefrom. If CONTRACTOR does not promptly comply with the terms of such instructions, or in an emergency where delay would cause serious risk of loss or damage, OWNER may have the defective Work corrected or repaired or may have the rejected Work removed and replaced, and all Claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such correction or repair or such removal and replacement (including but not limited to all costs of repair or replacement of work of others) will be paid by CONTRACTOR.

B. In special circumstances where a particular item of equipment is placed in continuous service before Substantial Completion of all the Work, the correction period for that item may start to run from an earlier date if so provided in the Specifications or by Written Amendment.

C. Where defective Work (and damage to other Work resulting therefrom) has been corrected or removed and replaced under this paragraph 13.07, the correction period hereunder with respect to such Work will be extended for an additional period of one year after such correction or removal and replacement has been satisfactorily completed.

D. CONTRACTOR's obligations under this paragraph 13.07 are in addition to any other obligation or warranty. The provisions of this paragraph 13.07 shall not be construed as a substitute for or a waiver of the provisions of any applicable statute of limitation or repose.

13.08 *Acceptance of Defective Work*

A. If, instead of requiring correction or removal and replacement of defective Work, OWNER (and, prior to ENGINEER's recommendation of final payment, ENGINEER) prefers to accept it, OWNER may do so. CONTRACTOR shall pay all Claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) attributable to OWNER's evaluation of and determination to accept such defective Work (such costs to be approved by ENGINEER as to reasonableness) and the diminished value of the Work to the extent not otherwise paid by CONTRACTOR pursuant to this sentence. If any such acceptance occurs prior to ENGINEER's recommendation of final payment, a Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the Work, and OWNER shall be entitled to an appropriate decrease in the Contract Price, reflecting the diminished value of Work so accepted. If the parties are unable to agree as to the amount thereof, OWNER may make a Claim therefor as provided in paragraph 10.05. If the acceptance occurs after such recommendation, an appropriate amount will be paid by CONTRACTOR to OWNER.

13.09 *OWNER May Correct Defective Work*

A. If CONTRACTOR fails within a reasonable time after written notice from ENGINEER to correct defective Work or to remove and replace rejected Work as required by ENGINEER in accordance with paragraph 13.06.A, or if CONTRACTOR fails to perform the Work in accordance with the Contract Documents, or if CONTRACTOR fails to comply with any other provision of the Contract Documents, OWNER may, after seven days written notice

to CONTRACTOR, correct and remedy any such deficiency.

B. In exercising the rights and remedies under this paragraph, OWNER shall proceed expeditiously. In connection with such corrective and remedial action, OWNER may exclude CONTRACTOR from all or part of the Site, take possession of all or part of the Work and suspend CONTRACTOR's services related thereto, take possession of CONTRACTOR's tools, appliances, construction equipment and machinery at the Site, and incorporate in the Work all materials and equipment stored at the Site or for which OWNER has paid CONTRACTOR but which are stored elsewhere. CONTRACTOR shall allow OWNER, OWNER's representatives, agents and employees, OWNER's other contractors, and ENGINEER and ENGINEER's Consultants access to the Site to enable OWNER to exercise the rights and remedies under this paragraph.

C. All Claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) incurred or sustained by OWNER in exercising the rights and remedies under this paragraph 13.09 will be charged against CONTRACTOR, and a Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the Work; and OWNER shall be entitled to an appropriate decrease in the Contract Price. If the parties are unable to agree as to the amount of the adjustment, OWNER may make a Claim therefor as provided in paragraph 10.05. Such claims, costs, losses and damages will include but not be limited to all costs of repair, or replacement of work of others destroyed or damaged by correction, removal, or replacement of CONTRACTOR's defective Work.

D. CONTRACTOR shall not be allowed an extension of the Contract Times (or Milestones) because of any delay in the performance of the Work attributable to the exercise by OWNER of OWNER's rights and remedies under this paragraph 13.09.

ARTICLE 14 - PAYMENTS TO CONTRACTOR AND COMPLETION

14.01 *Schedule of Values*

A. The schedule of values established as provided in paragraph 2.07.A will serve as the basis for progress payments and will be incorporated into a form of Application for Payment acceptable to ENGINEER. Progress payments on account of Unit Price Work will be based on the number of units completed.

14.02 *Progress Payments*

A.* *Applications for Payments*

1. At least 20 days before the date established for each progress payment (but not more often than once a month), CONTRACTOR shall submit to ENGINEER for review an Application for Payment filled out and signed by CONTRACTOR covering the Work completed as of the date of the Application and accompanied by such supporting documentation as is required by the Contract Documents. If payment is requested on the basis of materials and equipment not incorporated in the Work but delivered and suitably stored at the Site or at another location agreed to in writing, the Application for Payment shall also be accompanied by a bill of sale, invoice, or other documentation warranting that OWNER has received the materials and equipment free and clear of all Liens and evidence that the materials and equipment are covered by appropriate property insurance or other arrangements to protect OWNER's interest therein, all of which must be satisfactory to OWNER.

2. Beginning with the second Application for Payment, each Application shall include an affidavit of CONTRACTOR stating that all previous progress payments received on account of the Work have been applied on account to discharge CONTRACTOR's legitimate obligations associated with prior Applications for Payment.

3. The amount of retainage with respect to pro-gress payments will be as stipulated in the Agreement.

*See Supplementary Conditions

B. *Review of Applications*

1. ENGINEER will, within 10 days after receipt of each Application for Payment, either indicate in writing a recommendation of payment and present the Application to OWNER or return the Application to CONTRACTOR indicating in writing ENGINEER's reasons for refusing to recommend payment. In the latter case, CONTRACTOR may make the necessary corrections and resubmit the Application.

2. ENGINEER's recommendation of any payment requested in an Application for Payment will constitute a representation by ENGINEER to OWNER, based on ENGINEER's observations on the Site of the executed Work as an experienced and qualified design professional and on ENGINEER's review of the Application for Payment and the accompanying data and schedules, that to the best of ENGINEER's knowledge, information and belief:

a. the Work has progressed to the point indicated;

b. the quality of the Work is generally in accordance with the Contract Documents (subject to an evaluation of the Work as a functioning whole prior to or upon Substantial Completion, to the results of any subsequent tests called for in the Contract Documents, to a final determination of quantities and classifications for Unit Price Work under paragraph 9.08, and to any other qualifications stated in the recommendation); and

c. the conditions precedent to CONTRACTOR's being entitled to such payment appear to have been fulfilled in so far as it is ENGINEER's responsibility to observe the Work.

3. By recommending any such payment ENGINEER will not thereby be deemed to have represented that: (i) inspections made to check the quality or the quantity of the Work as it has been performed have been exhaustive, extended to every aspect of the Work in progress, or involved detailed inspections of the Work beyond the responsibilities specifically assigned to ENGINEER in the Contract Documents; or (ii) that there may not be other matters or issues between the parties

that might entitle CONTRACTOR to be paid additionally by OWNER or entitle OWNER to withhold payment to CONTRACTOR.

4. Neither ENGINEER's review of CONTRACTOR's Work for the purposes of recommending payments nor ENGINEER's recommendation of any payment, including final payment, will impose responsibility on ENGINEER to supervise, direct, or control the Work or for the means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for CONTRACTOR's failure to comply with Laws and Regulations applicable to CONTRACTOR's performance of the Work. Additionally, said review or recommendation will not impose responsibility on ENGINEER to make any examination to ascertain how or for what purposes CONTRACTOR has used the moneys paid on account of the Contract Price, or to determine that title to any of the Work, materials, or equipment has passed to OWNER free and clear of any Liens.

5. ENGINEER may refuse to recommend the whole or any part of any payment if, in ENGINEER's opinion, it would be incorrect to make the representations to OWNER referred to in paragraph 14.02.B.2. ENGINEER may also refuse to recommend any such payment or, because of subsequently discovered evidence or the results of subsequent inspections or tests, revise or revoke any such payment recommendation previously made, to such extent as may be necessary in ENGINEER's opinion to protect OWNER from loss because:

- a. the Work is defective, or completed Work has been damaged, requiring correction or replacement;
- b. the Contract Price has been reduced by Written Amendment or Change Orders;
- c. OWNER has been required to correct defective Work or complete Work in accordance with paragraph 13.09; or
- d. ENGINEER has actual knowledge of the occurrence of any of the events enumerated in paragraph 15.02.A.

C. *Payment Becomes Due*

1. Ten days after presentation of the Application for Payment to OWNER with ENGINEER's recommendation, the amount recommended will (subject to the provisions of paragraph 14.02.D) become due, and when due will be paid by OWNER to CONTRACTOR.

D. *Reduction in Payment*

1. OWNER may refuse to make payment of the full amount recommended by ENGINEER because:

a. claims have been made against OWNER on account of CONTRACTOR's performance or furnishing of the Work;

b. Liens have been filed in connection with the Work, except where CONTRACTOR has delivered a specific Bond satisfactory to OWNER to secure the satisfaction and discharge of such Liens;

c. there are other items entitling OWNER to a set-off against the amount recommended; or

d. OWNER has actual knowledge of the occurrence of any of the events enumerated in paragraphs 14.02.B.5.a through 14.02.B.5.c or paragraph 15.02.A.

2. If OWNER refuses to make payment of the full amount recommended by ENGINEER, OWNER must give CONTRACTOR immediate written notice (with a copy to ENGINEER) stating the reasons for such action and promptly pay CONTRACTOR any amount remaining after deduction of the amount so withheld. OWNER shall promptly pay CONTRACTOR the amount so withheld, or any adjustment thereto agreed to by OWNER and CONTRACTOR, when CONTRACTOR corrects to OWNER's satisfaction the reasons for such action.

3. If it is subsequently determined that OWNER's refusal of payment was not justified, the amount wrongfully withheld shall be treated as an amount due as determined by paragraph 14.02.C.1.

14.03 *CONTRACTOR's Warranty of Title*

A. CONTRACTOR warrants and guarantees that title to all Work, materials, and equipment covered by any Application for Payment, whether incorporated in the Project or not, will pass to OWNER no later than the time of payment free and clear of all Liens.

14.04 *Substantial Completion*

A. When CONTRACTOR considers the entire Work ready for its intended use CONTRACTOR shall notify OWNER and ENGINEER in writing that the entire Work is substantially complete (except for items specifically listed by CONTRACTOR as incomplete) and request that ENGINEER issue a certificate of Substantial Completion. Promptly thereafter, OWNER, CONTRACTOR, and ENGINEER shall make an inspection of the Work to determine the status of completion. If ENGINEER does not consider the Work substantially complete, ENGINEER will notify CONTRACTOR in writing giving the reasons therefor. If ENGINEER considers the Work substantially complete, ENGINEER will prepare and deliver to OWNER a tentative certificate of Substantial Completion which shall fix the date of Substantial Completion. There shall be attached to the certificate a tentative list of items to be completed or corrected before final payment. OWNER shall have seven days after receipt of the tentative certificate during which to make written objection to ENGINEER as to any provisions of the certificate or attached list. If, after considering such objections, ENGINEER concludes that the Work is not substantially complete, ENGINEER will within 14 days after submission of the tentative certificate to OWNER notify CONTRACTOR in writing, stating the reasons therefor. If, after consideration of OWNER's objections, ENGINEER considers the Work substantially complete, ENGINEER will within said 14 days execute and deliver to OWNER and CONTRACTOR a definitive certificate of Substantial Completion (with a revised tentative list of items to be completed or corrected) reflecting such changes from the tentative certificate as ENGINEER believes justified after consideration of any objections from OWNER. At the time of delivery of the tentative certificate of Substantial Completion ENGINEER will deliver to OWNER and CONTRACTOR a written recommendation as to division of responsibilities pending final payment between OWNER and CONTRACTOR with respect to security, operation, safety, and protection of the Work, maintenance, heat, utilities, insurance, and warranties and guarantees. Unless OWNER and CONTRACTOR agree otherwise in writing and so inform ENGINEER in writing prior to ENGINEER's issuing the definitive certificate of Substantial Completion,

ENGINEER's aforesaid recommendation will be binding on OWNER and CONTRACTOR until final payment.

B. OWNER shall have the right to exclude CONTRACTOR from the Site after the date of Substantial Completion, but OWNER shall allow CONTRACTOR reasonable access to complete or correct items on the tentative list.

14.05 *Partial Utilization*

A. Use by OWNER at OWNER's option of any substantially completed part of the Work which has specifically been identified in the Contract Documents, or which OWNER, ENGINEER, and CONTRACTOR agree constitutes a separately functioning and usable part of the Work that can be used by OWNER for its intended purpose without significant interference with CONTRACTOR's performance of the remainder of the Work, may be accomplished prior to Substantial Completion of all the Work subject to the following conditions.

1. OWNER at any time may request CONTRACTOR in writing to permit OWNER to use any such part of the Work which OWNER believes to be ready for its intended use and substantially complete. If CONTRACTOR agrees that such part of the Work is substantially complete, CONTRACTOR will certify to OWNER and ENGINEER that such part of the Work is substantially complete and request ENGINEER to issue a certificate of Substantial Completion for that part of the Work. CONTRACTOR at any time may notify OWNER and ENGINEER in writing that CONTRACTOR considers any such part of the Work ready for its intended use and substantially complete and request ENGINEER to issue a certificate of Substantial Completion for that part of the Work. Within a reasonable time after either such request, OWNER, CONTRACTOR, and ENGINEER shall make an inspection of that part of the Work to determine its status of completion. If ENGINEER does not consider that part of the Work to be substantially complete, ENGINEER will notify OWNER and CONTRACTOR in writing giving the reasons therefor. If ENGINEER considers that part of the Work to be substantially complete, the provisions of paragraph 14.04 will apply with respect to certification of Substantial Completion of that part of the Work and the division of responsibility in respect thereof and access thereto.

2. No occupancy or separate operation of part of the Work may occur prior to compliance with the requirements of paragraph 5.10 regarding property insurance.

14.06 *Final Inspection*

A. Upon written notice from CONTRACTOR that the entire Work or an agreed portion thereof is complete, ENGINEER will promptly make a final inspection with OWNER and CONTRACTOR and will notify CONTRACTOR in writing of all particulars in which this inspection reveals that the Work is incomplete or defective. CONTRACTOR shall immediately take such measures as are necessary to complete such Work or remedy such deficiencies.

14.07 *Final Payment*

A. *Application for Payment*

1. After CONTRACTOR has, in the opinion of ENGINEER, satisfactorily completed all corrections identified during the final inspection and has delivered, in accordance with the Contract Documents, all maintenance and operating instructions, schedules, guarantees, Bonds, certificates or other evidence of insurance certificates of inspection, marked-up record documents (as provided in paragraph 6.12), and other documents, CONTRACTOR may make application for final payment following the procedure for progress payments.

2. The final Application for Payment shall be accompanied (except as previously delivered) by: (i) all documentation called for in the Contract Documents, including but not limited to the evidence of insurance required by subparagraph 5.04.B.7; (ii) consent of the surety, if any, to final payment; and (iii) complete and legally effective releases or waivers (satisfactory to OWNER) of all Lien rights arising out of or Liens filed in connection with the Work.

3. In lieu of the releases or waivers of Liens specified in paragraph 14.07.A.2 and as approved by OWNER, CONTRACTOR may furnish receipts or releases in full and an affidavit of CONTRACTOR that: (i) the releases and receipts include all labor, services, material, and equipment for which a Lien could be filed; and (ii) all payrolls, material and equipment bills, and other

indebtedness connected with the Work for which OWNER or OWNER's property might in any way be responsible have been paid or otherwise satisfied. If any Subcontractor or Supplier fails to furnish such a release or receipt in full, CONTRACTOR may furnish a Bond or other collateral satisfactory to OWNER to indemnify OWNER against any Lien.

B. *Review of Application and Acceptance*

1. If, on the basis of ENGINEER's observation of the Work during construction and final inspection, and ENGINEER's review of the final Application for Payment and accompanying documentation as required by the Contract Documents, ENGINEER is satisfied that the Work has been completed and CONTRACTOR's other obligations under the Contract Documents have been fulfilled, ENGINEER will, within ten days after receipt of the final Application for Payment, indicate in writing ENGINEER's recommendation of payment and present the Application for Payment to OWNER for payment. At the same time ENGINEER will also give written notice to OWNER and CONTRACTOR that the Work is acceptable subject to the provisions of paragraph 14.09. Otherwise, ENGINEER will return the Application for Payment to CONTRACTOR, indicating in writing the reasons for refusing to recommend final payment, in which case CONTRACTOR shall make the necessary corrections and resubmit the Application for Payment.

C. *Payment Becomes Due*

1. Thirty days after the presentation to OWNER of the Application for Payment and accompanying documentation, the amount recommended by ENGINEER will become due and, when due, will be paid by OWNER to CONTRACTOR.

14.08 *Final Completion Delayed*

A. If, through no fault of CONTRACTOR, final completion of the Work is significantly delayed, and if ENGINEER so confirms, OWNER shall, upon receipt of CONTRACTOR's final Application for Payment and recommendation of ENGINEER, and without terminating the Agreement, make payment of the balance due for that portion of the Work fully completed and accepted. If the remaining balance to be held by OWNER for Work not

fully completed or corrected is less than the retainage stipulated in the Agreement, and if Bonds have been furnished as required in paragraph 5.01, the written consent of the surety to the payment of the balance due for that portion of the Work fully completed and accepted shall be submitted by CONTRACTOR to ENGINEER with the Application for such payment. Such payment shall be made under the terms and conditions governing final payment, except that it shall not constitute a waiver of Claims.

14.09 *Waiver of Claims*

A. The making and acceptance of final payment will constitute:

1. a waiver of all Claims by OWNER against CONTRACTOR, except Claims arising from unsettled Liens, from defective Work appearing after final inspection pursuant to paragraph 14.06, from failure to comply with the Contract Documents or the terms of any special guarantees specified therein, or from CONTRACTOR's continuing obligations under the Contract Documents; and

2. a waiver of all Claims by CONTRACTOR against OWNER other than those previously made in writing which are still unsettled.

ARTICLE 15 - SUSPENSION OF WORK AND TERMINATION

15.01 *OWNER May Suspend Work*

A. At any time and without cause, OWNER may suspend the Work or any portion thereof for a period of not more than 90 consecutive days by notice in writing to CONTRACTOR and ENGINEER which will fix the date on which Work will be resumed. CONTRACTOR shall resume the Work on the date so fixed. CONTRACTOR shall be allowed an adjustment in the Contract Price or an extension of the Contract Times, or both, directly attributable to any such suspension if CONTRACTOR makes a Claim therefor as provided in paragraph 10.05.

15.02 *OWNER May Terminate for Cause*

A. The occurrence of any one or more of the following events will justify termination for cause:

1. CONTRACTOR's persistent failure to perform the Work in accordance with the Contract Documents (including, but not limited to, failure to supply sufficient skilled workers or suitable materials or equipment or failure to adhere to the progress schedule established under paragraph 2.07 as adjusted from time to time pursuant to paragraph 6.04);

2. CONTRACTOR's disregard of Laws or Regulations of any public body having jurisdiction;

3. CONTRACTOR's disregard of the authority of ENGINEER; or

4. CONTRACTOR's violation in any substantial way of any provisions of the Contract Documents.

B. If one or more of the events identified in paragraph 15.02.A occur, OWNER may, after giving CONTRACTOR (and the surety, if any) seven days written notice, terminate the services of CONTRACTOR, exclude CONTRACTOR from the Site, and take possession of the Work and of all CONTRACTOR's tools, appliances, construction equipment, and machinery at the Site, and use the same to the full extent they could be used by CONTRACTOR (without liability to CONTRACTOR for trespass or conversion), incorporate in the Work all materials and equipment stored at the Site or for which OWNER has paid CONTRACTOR but which are stored elsewhere, and finish the Work as OWNER may deem expedient. In such case, CONTRACTOR shall not be entitled to receive any further payment until the Work is finished. If the unpaid balance of the Contract Price exceeds all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) sustained by OWNER arising out of or relating to completing the Work, such excess will be paid to CONTRACTOR. If such claims, costs, losses, and damages exceed such unpaid balance, CONTRACTOR shall pay the difference to OWNER. Such claims, costs, losses, and damages incurred by OWNER will be reviewed by ENGINEER as to their reasonableness and, when so approved by ENGINEER, incorporated in a Change Order. When exercising any rights or remedies under this paragraph OWNER shall not be required to obtain the lowest price for the Work performed.

C. Where CONTRACTOR's services have been so terminated by OWNER, the termination will not affect any rights or remedies of OWNER against CONTRACTOR then existing or which may thereafter accrue. Any retention or payment of moneys due CONTRACTOR by OWNER will not release CONTRACTOR from liability.

15.03 *OWNER May Terminate For Convenience*

A. Upon seven days written notice to CONTRACTOR and ENGINEER, OWNER may, without cause and without prejudice to any other right or remedy of OWNER, elect to terminate the Contract. In such case, CONTRACTOR shall be paid (without duplication of any items):

1. for completed and acceptable Work executed in accordance with the Contract Documents prior to the effective date of termination, including fair and reasonable sums for overhead and profit on such Work;

2. for expenses sustained prior to the effective date of termination in performing services and furnishing labor, materials, or equipment as required by the Contract Documents in connection with uncompleted Work, plus fair and reasonable sums for overhead and profit on such expenses;

3. for all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) incurred in settlement of terminated contracts with Subcontractors, Suppliers, and others; and

4. for reasonable expenses directly attributable to termination.

B. CONTRACTOR shall not be paid on account of loss of anticipated profits or revenue or other economic loss arising out of or resulting from such termination.

15.04 *CONTRACTOR May Stop Work or Terminate*

A. If, through no act or fault of CONTRACTOR, the Work is suspended for more than 90 consecutive days by OWNER or under an order of court or other public authority, or ENGINEER fails to act on any Application for Payment within 30 days after it is submitted, or OWNER fails for 30 days to pay CONTRACTOR any sum finally determined to be due, then CONTRACTOR may, upon

seven days written notice to OWNER and ENGINEER, and provided OWNER or ENGINEER do not remedy such suspension or failure within that time, terminate the Contract and recover from OWNER payment on the same terms as provided in paragraph 15.03. In lieu of terminating the Contract and without prejudice to any other right or remedy, if ENGINEER has failed to act on an Application for Payment within 30 days after it is submitted, or OWNER has failed for 30 days to pay CONTRACTOR any sum finally determined to be due, CONTRACTOR may, seven days after written notice to OWNER and ENGINEER, stop the Work until payment is made of all such amounts due CONTRACTOR, including interest thereon. The provisions of this paragraph 15.04 are not intended to preclude CONTRACTOR from making a Claim under paragraph 10.05 for an adjustment in Contract Price or Contract Times or otherwise for expenses or damage directly attributable to CONTRACTOR's stopping the Work as permitted by this paragraph.

ARTICLE 16 - DISPUTE RESOLUTION*

16.01 *Methods and Procedures*

A. Dispute resolution methods and procedures, if any, shall be as set forth in the Supplementary Conditions. If no method and procedure has been set forth, and subject to the provisions of paragraphs 9.09 and 10.05, OWNER and CONTRACTOR may exercise such rights or remedies as either may otherwise have under the Contract Documents or by Laws or Regulations in respect of any dispute.

ARTICLE 17 - MISCELLANEOUS*

17.01 *Giving Notice*

A. Whenever any provision of the Contract Documents requires the giving of written notice, it will be deemed to have been validly given if delivered in person to the individual or to a member of the firm or to an officer of the corporation for whom it is intended, or if delivered at or sent by registered or certified mail, postage prepaid, to the last business address known to the giver of the notice.

17.02 *Computation of Times*

A. When any period of time is referred to in the Contract Documents by days, it will be computed to

exclude the first and include the last day of such period. If the last day of any such period falls on a Saturday or Sunday or on a day made a legal holiday by the law of the applicable jurisdiction, such day will be omitted from the computation.

17.03 *Cumulative Remedies*

A. The duties and obligations imposed by these General Conditions and the rights and remedies available hereunder to the parties hereto are in addition to, and are not to be construed in any way as a limitation of, any rights and remedies available to any or all of them which are otherwise imposed or available by Laws or Regulations, by special warranty or guarantee, or by other provisions of the Contract Documents, and the provisions of this paragraph will be as effective as if repeated specifically in the Contract Documents in connection with each particular duty, obligation, right, and remedy to which they apply.

17.04 *Survival of Obligations*

A. All representations, indemnifications, warranties, and guarantees made in, required by, or given in accordance with the Contract Documents, as well as all continuing obligations indicated in the Contract Documents, will survive final payment, completion, and acceptance of the Work or termination or completion of the Agreement.

17.05 *Controlling Law*

A. This Contract is to be governed by the law of the state in which the Project is located.

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SUPPLEMENTARY CONDITIONS

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Article Number	Title
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6	CONTRACTOR'S RESPONSIBILITIES
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SUPPLEMENTARY CONDITIONS

AMENDMENTS TO GENERAL CONDITIONS

These Supplementary Conditions amend or supplement the Standard General Conditions of the Construction Contract (No. 1910-8, 1996 edition) and other provisions of the Contract Documents as indicated below. All provisions which are not so amended or supplemented remain in full force and effect.

ARTICLE I. DEFINITIONS AND TERMINOLOGY

Add the following language at the beginning of definition I.QI A.12 entitled "Contract Documents" in the General-Conditions:

"The Advertisement for Bids, Instructions to Bidders, State Regulations, ..."

Delete the words "The individual or entity named as such in the Agreement" in 1.01.A.19 and insert the following in their place:

"The individual or entity duly appointed by the Owner to undertake the duties and powers herein assigned to the Engineer, acting either directly or through duly appointed representatives."

Delete the words "and who is identified as such in the Supplementary Conditions" at the end of definition 1.01 A.20, entitled "ENGINEER'S Consultant."

Delete definition 1.01 A.41 entitled "Specifications" in the General Conditions in its entirety and insert the following in its place:

"Sections included under Division 1 through Division 16 of the Contract Documents:"

ARTICLE 2. PRELIMINARY MATTERS

SC-2.05

Delete paragraph 2.0SC of the General Conditions in its entirety and insert the following in its place:

"C. Evidence of Insurance: CONTRACTOR shall deliver to OWNER, with a copy to the ENGINEER, Certificates of Insurance within 10 days after receipt of the notice of the acceptance of bid (and other evidence requested by OWNER) which CONTRACTOR is required to purchase and maintain in accordance with the requirements of Article 5."

ARTICLE 3. CONTRACT DOCUMENTS: INTENT, AMENDING, REUSE
SC-3.0

Add the following sentence at the end of Paragraph 3.01A of the General Conditions:

"...by all. Each and every provision of law and clause required by law to be inserted in these Contract Documents shall be deemed to be inserted herein, and they shall be read and enforced as though it were included herein, and if through mistake or otherwise, any such provision is not inserted, or if not correctly inserted, then upon the application of either party, the Contract Documents shall forthwith be physically amended to make such insertion."

ARTICLE 4. AVAILABILITY OF LANDS; SUBSURFACE AND PHYSICAL CONDITIONS;
REFERENCE POINTS

SC-4.02

Delete the term "Supplementary Conditions" of paragraph 4.02 A of the General Conditions and replace it with "Contract Documents".

SC-4.04

Change "of" to "or" on line 6 of paragraph 4.04 B.2 of the General Conditions. Delete the following words from lines 8 and 9 of paragraph 4.04 B.2 of the General Conditions:

"...Or not shown or indicated with reasonable accuracy..."

SC-4.05

Add a new paragraph immediately after paragraph 4.05A of the General Conditions which is to read as follows:

B. ENGINEER may check the lines elevations and reference marks set by CONTRACTOR, and CONTRACTOR shall correct any errors disclosed by such check. Such a check shall not be considered as approval of CONTRACTOR'S work and shall not relieve CONTRACTOR of the responsibility for construction of the entire Work in accordance with the Contract Documents. CONTRACTOR shall furnish personnel to assist ENGINEER in checking lines and grades."

SC-4.06

Delete the term Supplementary Conditions in paragraph 4.06A of the General Conditions and replace it with "Contract Documents".

ARTICLE 5. BOND AND INSURANCE

NOTICE TO CONTRACTOR:

1. Proof of Insurance coverage shall be furnished to the OWNER in accordance with the schedule for submittal of Bonds and Agreements.
2. Additionally refer to Article 2. PRELIMINARY MATTERS, Paragraph SC-2.05.C

SC-5.01

Insert these sentences following SC-5.01.A: The Surety Company providing the bonds shall have a rating of A or better within the Best Key Rating Guide and be licensed by the Massachusetts Division of Insurance. The contractor shall pay the premiums for such Bonds.

SC-5.03

Delete the second sentence following SC-5.03.A: of the General Conditions, which beings "OWNER shall deliver to..."

SC-5.04

The limits of liability for the insurance required by paragraph 5.04A of the General Conditions shall provide coverage for not less than the following amounts or greater where required by law:

5.4 A.1 and 5.04 A.2 Worker's Compensation

(1) Worker's Compensation	Statutory Requirements
(2) Coverage B - Employer's Liability	\$100,000/\$500,000/\$100,000

5.04 A.3, 5.04 A.4, and 5.04 A.5 Commercial General Liability Limits shall include Coverage for... independent Contractors, Personal Injury, Owners and Contractors Protective Liability, Explosion, Underground and Collapse, Broad Form Property Damage, Blanket Contractual Liability per locations/project endorsement.

Commercial General Liability	\$1,000,000/\$2,000,000
Products/completed Operations	\$2,000,000 Aggregate

5.4 A.6 Automobile Liability for owned, hired and non-owned vehicles:

(1) Bodily injury:	\$1,000,000/\$1,000,000	Each person
	\$1,000,000/\$1,000,000	Each accident
(2) Property damage	\$1,000,000	Each occurrence

The following indemnity agreement: shall be made part of this contract:

1.To the fullest extent permitted by law, Contractor(s) hereby acknowledges and agrees that it shall indemnify, hold harmless and defend the Engineer, the Owner, the Engineer and any of their officers, directors, employees, agents, affiliates, subsidiaries and partners 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 contractor's work under this contract, provided that any such claim, damage, loss or expense (1) is attributable to bodily injury to or destruction of tangible property (other than to the work itself) including loss of use resulting therefrom, and (2) is (CAUSED) in whole or in part by any

negligent acts omissions of the contractor, its employees, agents or contractors or anyone directly or indirectly employed by any of them, or anyone whose acts any of them may be liable.

2. The Contractor hereby acknowledges its obligation under the foregoing paragraph to indemnify the Engineer and Owner against judgments suffered because of the contractor's work and to assume the cost of defending the Engineer and Owner against claims as described in the foregoing paragraph.

A. Engineer and Owner shall be named as Additional Insured on contractors General Liability and Umbrella Liability Contractors.

The Contractual Liability required by paragraph s.04n.4 of the General Conditions shall provide coverage for not less than the following amounts:

- | | |
|--|---|
| (1) Bodily injury: | \$1,000,000 Each occurrence
\$1,000,000 Annual aggregate |
| (2).Property damage, including explosion, collapse and underground coverage: | \$1,000,000 Each occurrence
\$1,000,000 Annual aggregate |

SC-5.04

Add two new paragraphs immediately after paragraph-5.04B of the General Conditions, which are to read as follows:

"C. The CONTRACTOR shall also provide:

1. CONTRACTOR shall, as a minimum, purchase and maintain excess liability insurance in the umbrella form with a combined single limit of not less than \$5,000,000 per claim and in the aggregate. Evidence of such excess liability shall be delivered to OWNER in accordance with paragraph 2.0SC in the form of a certificate indicating the policy numbers and limits of liability of all underlying insurance.

A. General Liability, Workers' Compensation, Automobile Liability and Umbrella Liability Policies will contain waivers of subrogation in favor of the Engineer and Owner.

2. If the aggregate limits of liability indicated in CONTRACTOR' insurance provided in accordance with paragraphs 5.03 and 5.04 are not sufficient to cover all claims for damages arising from his operations under this Contract and from any other work performed by him or if policies of insurance do not provide that the aggregate limits of liability for bodily injury and property damage apply to each contract or project separately, CONTRACTOR shall have such policies amended so that the aggregate limits of liability required by this Contract will be available to cover all claims for damages due to operations under this Contract."

SC-5.05

Delete paragraph 5 .05 of the General Conditions in its entirety.

SC-5.06

Delete Paragraph 5.06 A of the General Conditions in its entirety and insert the following in its place:

"A. CONTRACTOR shall purchase and maintain, until final payment, property insurance upon the Work at the site in an amount equal to the total bid price for the completed construction. This insurance shall include the interests of OWNER, CONTRACTOR, Subcontractors, ENGINEER and ENGINEERS consultants in the Work, shall insure against the perils of fire and extended coverage, shall include "all risk" insurance for physical loss and damage including theft, vandalism and malicious mischief, collapse and water damage, and shall include damages, losses and expenses rising out of or resulting from any insured loss or incurred in the repair or replacement of any insured property (including but not limited to fees and charges of engineers, architects, attorneys and other professionals). This insurance shall be provided on the completed value form.' If not covered under the "all risk" insurance or otherwise provided in these Supplementary Conditions, CONTRACTOR shall purchase and maintain similar property insurance on portions of the Work stored on and off the site or in transit when such portions of the Work are to be included in an Application for Payment." A \$20,000 deductible shall be acceptable. Any other deductible amount shall be approved in advance by the OWNER and any deductible amount shall be borne by the CONTRACTOR.

Delete paragraph 5.068 of the General Conditions in its entirety.

Delete Paragraph 5.06C of the General Conditions in its entirety and insert the following in its place:

"C. All the policies of insurance (or the certificates or other evidence thereof) required to be purchased and maintained by CONTRACTOR in accordance with paragraphs 5.06 will contain a provision or endorsement that the coverage afforded will not be canceled or materially changed or renewal refused until at least thirty days' prior written notice has been given to OWNER by certified mail and will contain waiver provisions in accordance with paragraph 5.078. The words "**Endeavor** to" shall be struck from the Certificate Of Insurance in the Cancellation Statement"

Delete paragraph 5.06D of the General Conditions in its entirety.

Delete paragraph 5.06E of the General Conditions in its entirety.

SC-5.07

Amend the last sentence of paragraph 5.07A of the General Conditions by striking out the words "held by OWNER as trustee or." As so amended, paragraph 5.07A remains in effect.

SC-5.08

Delete paragraph 5.08A of the General Conditions in its entirety.

Delete paragraph 5.0813 of the General Conditions in its entirety.

SC-5.09

Delete paragraph 5.09A of the General Conditions in its entirety and insert the following in its place:

"A. If OWNER has any objection to the coverage afforded by or other provisions of the insurance required to be purchased and maintained by CONTRACTOR in accordance with this Article 5 on the basis of its not complying with the Contract Documents, OWNER will notify CONTRACTOR in writing thereof within thirty days of the date of delivery of such certificates to OWNER in accordance with paragraph 2.0SC. CONTRACTOR will provide such additional information in respect of insurance provided by him as OWNER may reasonably request."

ARTICLE 6. CONTRACTOR'S RESPONSIBILITIES

SC-6.01

Delete paragraph 6.01B of the General Conditions in its entirety and replace with the following:

"B. At the site of the Work the CONTRACTOR shall employ a full-time construction superintendent or foreman who shall have full authority to act for the CONTRACTOR. It is understood that such representative shall be acceptable to the ENGINEER and shall be one who will be continued in the capacity for the particular job involved unless the representative ceases to be on the CONTRACTOR'S payroll. If at any time during the Work the representative is deemed by the ENGINEER to be no longer acceptable, the representative shall be promptly replaced by the CONTRACTOR. All communications to the superintendent shall be as binding as if given to the CONTRACTOR."

SC-6.04

Add the following paragraph after paragraph 6.04 A.2 of the General Conditions: -

"B. The CONTRACTOR's resident superintendent shall attend monthly progress meetings at the site of the work with the ENGINEER and others as appropriate to review schedule status and such other pertinent subjects as may be listed on the agenda by the ENGINEER."

SC-6.17

In paragraph 6.17 E.1 of the General Conditions, delete the word "timely" from the first line.

SC-6.20

Delete paragraph 6.20A of the General Conditions in its entirety and replace with the following:

"A. To the fullest extent permitted by law, the CONTRACTOR shall indemnify and hold harmless the OWNER, the ENGINEER, ENGINEER'S consultants, and their agents and employees from and against all claims, damages, losses and expenses, including but not limited to attorneys fees, arising out of or resulting from the performance of the Work, provided that such claim, damage, loss or expense is attributable to bodily injury, sickness,

disease or death, or to injury to or destruction of tangible property (other than the Work itself) including loss of use resulting therefrom, but only to the extent caused in whole or in part by acts or omissions of the CONTRACTOR, a subcontractor, anyone directly or indirectly employed by them or anyone for whose acts they may be liable, regardless of whether or not such claim, damage, loss or expense is caused in part by a party indemnified hereunder. Such obligation shall apply to any such claims, damages, losses and expenses which arise and/or are incurred by any person or entity either during the performance of the Work and/or alter completion of construction. Nothing in this paragraph shall be construed to negate, abridge, or reduce other rights or obligations of indemnity or contribution which would otherwise exist as to a party or person indemnified hereunder. CONTRACTOR hereby assumes the responsibility and liability for injury to or death of any and all persons, including the. CONTRACTOR's employees, and for any and all damage to property caused by, resulting from, or arising out of any act, omission or neglect on the part of the CONTRACTOR, or of any Subcontractor or of anyone directly or indirectly employed by any of them or of anyone for whose acts, any of them may be liable."

Delete paragraph 6.20C of the General Conditions in its entirety.

ARTICLE 8. OWNER'S RESPONSIBILITIES

SC-8.06

Delete paragraph 8.06A of the General Conditions in its entirety.

ARTICLE 9. ENGINEER'S STATUS DURING CONSTRUCTION

SC-9.01

Add a new paragraph 9.0113 after paragraph 9.01A of the General Conditions, which is to read as follows:

"B. Nothing contained in the Contract Documents shall be construed to create a contractual relationship of any kind (1) between the ENGINEER and CONTRACTOR, (2) between the OWNER and a Subcontractor or Subcontractors, or (3) between any person or entities other than the OWNER and CONTRACTOR. The ENGINEER shall, however, be entitled to performance and enforcement of obligations under the CONTRACT DOCUMENTS intended to facilitate performance of the ENGINEERS duties."

ARTICLE 11. COST OF THE WORK; CASH ALLOWANCES; UNIT PRICE WORK

Delete Article 11 of the General Conditions in its entirety and replace with the following:

"A. The unit price of an item of Unit Price work shall be subject to reevaluation and adjustment under the following conditions:

(1) If the total extended bid price [Estimated Quantity times the Bid Unit Price] of a particular item of Unit Price Work amounts to 5 percent or more of the Original Contract Price and the variation in the quantity of the particular item of Unit Price Work performed by CONTRACTOR differs by more than 15 percent from the estimated quantity of such item indicated in the Agreement;
and

(2) If there is no corresponding adjustment with respect to any other item of work; and

(3) If CONTRACTOR believes that CONTRACTOR has incurred additional expense as a result thereof, CONTRACTOR may make a claim for an adjustment in the Contract Price in accordance with Article 11- if the parties are unable to agree as to the effect of any such variations in the quantity of Unit Price Work performed. If OWNER believes that the quantity variation entitles OWNER to an adjustment in the unit price, OWNER shall be entitled to an adjustment in the unit price in an amount determined by the ENGINEER. ENGINEER shall not be liable in connection with any determination relating to adjustments which is rendered in good faith."

ARTICLE 12. CHANGE OF CONTRACT PRICE; CHANGE OF CONTRACT TIMES

SC-12.06

Add the following new paragraphs after paragraph 12.06 of the General Conditions:

"12.07 Liquidated Damages:

A. If the CONTRACTOR shall neglect, fail or refuse to complete the work within the time herein specified, or any proper extension thereof granted by the OWNER, then the CONTRACTOR does hereby agree, as a part consideration for the awarding of this Contract, to pay to the OWNER the amount specified in the Contract, not as a penalty but as liquidated damages for such breach of contract as hereinafter set forth, for each and every calendar day that the Contract shall be in default after the time stipulated in the Contract for completing the work. Such damages may be retained from time to time by the OWNER from progress payments or any amounts owing to the CONTRACTOR, or otherwise collected.

B. The said amount is fixed and agreed upon by and between the CONTRACTOR and the OWNER because of the impracticability and extreme difficulty of fixing and ascertaining the actual damages the OWNER would in such event sustain, and said amount is agreed to be the amount of damages which the OWNER would sustain and said amount shall be retained from time to time by the OWNER from current periodical estimates.

C. It is further agreed that time is of the essence of each and every portion of this Contract and of the specifications wherein as definite and certain length of times is fixed for the performance of any act whatsoever; and where under the Contract an additional time is allowed for the completion of any work, the new time limit fixed by such extension shall be of the essence of this Contract. Provided that the CONTRACTOR shall not be charged with liquidated damages of any excess cost when the OWNER determines that the CONTRACTOR is without fault and the CONTRACTOR'S reasons for the time extension are acceptable to the OWNER; Provided, further, that the CONTRACTOR shall not be charged with liquidated damages or any excess cost when the delay in completion of the work is due:

1) to any preference, priority or allocation order duly issued by the Government;

2) to unforeseeable cause beyond the control and without the fault or negligence of the CONTRACTOR, including, but not restricted to, acts of God, or of the public enemy, acts of the OWNER, acts of another CONTRACTOR in the performance of a contract with the OWNER, fires, floods, epidemics, quarantine restrictions, strikes, freight embargoes, and severe weather; and

3) to any delays of subcontractors or suppliers occasioned by any of the causes specified in subsections C(1) and C(2) above;

D. Provided, further, that the CONTRACTOR shall, within ten (10) days from the beginning of such delay, unless the OWNER shall grant a further period of time prior to the date of final settlement of the Contract, notify the OWNER, in writing, of the causes of the delay, who shall ascertain the facts and extent of the delay and notify the CONTRACTOR within a reasonable time of its decision in the matter."

ARTICLE 13. TESTS AND INSPECTIONS; CORRECTION, REMOVAL OR ACCEPTANCE OF DEFECTIVE WORK

SC-13.07

Delete paragraph 3.07A of the General Conditions and insert the following in its place:

"A. If within one year after the date of Substantial Completion or such longer period of time as may be prescribed by Laws or Regulations or by the terms of any applicable special guarantee required by the Contract Documents or by any specific provision of the Contract Documents, any work is found to be defective, CONTRACTOR shall promptly, without cost to OWNER and in accordance with OWNER's written instructions: (i) correct such defective work, or, if it has been rejected by OWNER, remove it from the site and replace it with work that is not defective, and (ii) satisfactorily correct or remove and replace any damage to other work or the work of others therefrom. If CONTRACTOR does not begin the repairs ten (10) days of receipt of written notification and promptly comply with the terms of OWNER's written instructions, or in an emergency when delay would cause serious risk, loss or damage, OWNER may have the defective work corrected or the rejected work removed and replaced, and all claims, costs, losses and damages caused by or resulting from such removal and replacement (including but not limited to all costs of repair or replacement of work of others) will be paid by CONTRACTOR."

SC-13.09

Revise paragraph 13.09A of the General Conditions

A. Delete the word "seven" and replace it with the word "ten" so that it reads "after ten days written notice to CONTRACTOR."

ARTICLE 14. PAYMENTS TO CONTRACTOR AND COMPLETION

SC-14.02

Delete paragraph 14.02A.3 and insert the following in its place:

"3. Retainage with respect to progress payments will be five percent or, if stipulated, the maximum allowed by law."

Add Paragraph 4. to read as follows:

"4. The CONTRACTOR shall submit Weekly Payroll Records Report and Statement of

Compliance verifying compliance with the Minimum Prevailing Wage Law, MGL ch. 149, Sections 26-27H. "These Statements of Compliance shall be submitted as a condition of payment for work performed during the period the reports apply."

SC-14.03

Delete paragraph 14.03A in its entirety and insert the following in its place:

"A CONTRACTOR warrants and guarantees that title to all work, material and equipment covered by any Application for Payment, whether incorporated in the Project or not, will pass to OWNER no later than at the time of Application for Payment free and clear of all liens. CONTRACTOR shall provide written transfer of title and a certified paid invoice provided by the supplier."

ARTICLE 15. SUSPENSION OF WORK AND TERMINATION

SC-15.02

Add a new paragraph immediately after paragraph 15.02 AA of the General Conditions which is to read as follows:

"5. If the Work to be done under this Contract shall be abandoned, or if this Contract or any part thereof shall be sublet, without the previous written consent of OWNER, or if the contract or any claim thereunder shall be assigned by CONTRACTOR otherwise than as herein specified;"

ARTICLE 17. MISCELLANEOUS

SC-17.06, 17.07, 17.08, 17.09

Add the following new paragraphs after paragraph 17.05 of the General Conditions:

"17.06 Assignment:

A. The CONTRACTOR shall not assign the whole or any part of this Contract or any moneys due or to become due hereunder until thirty (30) days prior notice in writing has been given to the OWNER of the intention to assign, which notice shall state the identity and address of the prospective assignee. No assignment shall be made without the OWNER's prior written consent. Such consent shall not be unreasonably withheld. In case the CONTRACTOR assigns all or any part of the moneys due or to become due under this Contract, the instrument of assignment shall contain a clause substantially to the effect that it is agreed that the right of the assignee in and to any moneys due or to become due to the CONTRACTOR shall be subject to prior claims of all persons, firms and corporations of services rendered or materials supplied for the performance of the work called for in this Contract."

17.7 Liability

It is understood and agreed that members of the OWNER or the ENGINEER' or any agent or employees of the OWNER signing this Agreement shall not be personally liable hereunder for any action incurred in connection with this Agreement.

17.8 State Statutes and Regulations

See Superseding Changes To General & Supplementary Conditions 12/29/04 for further modifications of the General Conditions due to state statutes and regulations.

17.9 Severability

If any provision of this Agreement shall be invalid or unenforceable to any extent or in any application, then the remainder of this Agreement and of such terms and conditions, except to such extent or in such application, shall not be affected thereby, and each and every term and condition of this Agreement shall be valid and enforced to the fullest extent and in the broadest application permitted by law."

END OF SECTION

**STATE STATUTES AND REGULATIONS
COMMONWEALTH OF MASSACHUSETTS**

A. REVISIONS TO GENERAL CONDITIONS

1. Definitions
2. Subsurface Conditions Found Different
3. Subcontracting
4. Permits
5. Contractor Records
6. Massachusetts Sales and Use Tax I
7. Clarifications and Interpretations
8. Change of Contract Price
9. Payments
10. Suspension of Work and Termination
11. Labor Classification and Minimum Wage Rates

B. OTHER REGULATORY REQUIREMENTS

1. Working Hours
2. DEP Community Sound Level Criteria

ATTACHMENT A – Wage Rates

ATTACHMENT B

Excerpts from Chapter 149 and Chapter 30 of the Massachusetts General Law

ATTACHMENT C - (not used on this project)

Special Provisions for Minority/Women Business Enterprises and the Commonwealth of Massachusetts Supplemental Equal Employment Opportunity Anti-Discrimination and Affirmative Action Program.

ATTACHMENT D--

Change Orders

A. REVISIONS TO GENERAL CONDITIONS:

1. Definitions

The term "AWARDING AUTHORITY," as used herein, shall be considered to be synonymous with the term "OWNER," described in definition 1.01 A.30.

Delete definition 1.01 A.43 entitled "Substantial Completion" in the General Conditions in its entirety and insert the following in its place:

"Substantial Completion shall be interpreted in accordance with Massachusetts General Law Chapter 30, Section 39G or -39K as appropriate."

2. Subsurface Conditions Found Different

Add the following sentence to the end of paragraph 4.03A of the General Conditions:

"...to do so. Adjustments resulting from subsurface or latent physical conditions will be in accordance with Massachusetts General Law Chapter 30, Section 39N."

3. Subcontracting

Add the following language at the end of paragraph 6.06F of the General Conditions:

"Except as required otherwise by Massachusetts General Law Chapter 149, Section 44F, for Work governed by Chapter 149, sections 44A through 44H."

4. Permits

Delete paragraph 6.08A of the General Conditions in its entirety and insert the following in its place:

"A. The AWARDING AUTHORITY shall be responsible for identifying and obtaining all federal, state, and local permits required by the nature and location of construction, including but not limited to railroad permits, building construction permits, and permits for street and highway cuts and openings. CONTRACTOR shall be responsible for obtaining all permits required of his equipment, work force, or particular operations (such as blasting) in the performance of the Work and not otherwise specified to be obtained by the AWARDING AUTHORITY. These permit fees shall be paid by CONTRACTOR. CONTRACTOR shall pay all governmental charges and inspection fees necessary for the prosecution of the Work, which are applicable at the time of opening of bids, or, if there are no Bids, on the Effective Date of the Agreement."

5. Contractor Records

Add a new paragraph immediately after paragraph 6.09C of the General Conditions, which is to read as follows:

"D. The CONTRACTOR shall comply with all applicable provisions Chapter 30, Section 39R of the Massachusetts General Laws Regarding, CONTRACTOR'S records."

6. Massachusetts Sales and Use Tax

Add the following paragraph after paragraph 6.10A of the General Conditions:

"B. The material and supplies to be used by the CONTRACTOR in the Work of this Contract are exempt from the Sales and Use Tax of the Commonwealth of Massachusetts. The AWARDING AUTHORITY tax exemption certificate number will be furnished to the CONTRACTOR."

7. Clarifications and Interpretations

Add the following language at the end of paragraph 9.04A of the General Conditions:

"The ENGINEER'S interpretation will be made in accordance with the requirements of Massachusetts General Law Chapter 30, Section 39P."

8. Change of Contract Price

Delete paragraphs 11.01, 11.02, and 12.01 of the General Conditions, having to do with Change of Contract Price. Changes in contract price will be governed by the section called "Change Orders" in Attachment D, Section XXX and Article 11 in the Supplementary Conditions.

9. Payments

Delete paragraph 12.028.1 of the General Conditions, in its entirety and insert the following in its place:

"1. Progress Payments will be made in accordance with the Massachusetts General Law Chapter 30, Section 39G or 39K, as applicable."

Add the following new paragraph following paragraph 14.02C.1 of the General Conditions:

"2. The CONTRACTOR shall make payments to Subcontractors in accordance with the requirements of Massachusetts General Law Chapter 30, Section 39F."

Delete paragraph 14.07B of the General Conditions in its entirety and insert the following in its place:

"1. If, on the basis of the ENGINEER's observation of the Work during construction and final inspection and, upon the ENGINEER's review of the final Application for Payment and accompanying documentation, the ENGINEER is satisfied that the Work has been completed and that the CONTRACTOR's other obligations under the Contract Documents have been fulfilled, the ENGINEER will indicate in writing his recommendation of payment and present the Application to the AWARDING AUTHORITY for payment. Thereupon the ENGINEER will give written notice to the AWARDING AUTHORITY and the CONTRACTOR that the Work is acceptable subject to the provisions of paragraph 14.15. Otherwise, the ENGINEER will return the Application to CONTRACTOR, indicating in writing the reasons for refusing to recommend final payment. In such case the CONTRACTOR shall make the

necessary corrections and resubmit the Application. If the Application and accompanying documentation are appropriate as to form and substance, the AWARDING AUTHORITY shall in accordance with the applicable Massachusetts General Law, pay the CONTRACTOR the amount recommended by the ENGINEER."

10. Suspension of Work and Termination

Delete paragraph 15.01A of the General Conditions in its entirety and insert the following in its place:

"A. The AWARDING AUTHORITY may order, at any time and without cause, the CONTRACTOR to suspend or delay the Work in accordance with Massachusetts General Law Chapter 30, Section 39-0."

11. Labor Classifications and Minimum Wage Rates

Add the following paragraphs under the heading "Wage Rates" after paragraph 17.10 of the Supplementary Conditions:

"17.11 Wage Rates

- A. Minimum wage rates as determined by the Commissioner of the Department of Labor and Industries under the provisions of Massachusetts General Laws Chapter 149, Sections 26-270 apply to this project. A copy of the wage schedule is included in the front end of the specifications under Federal Minimum Wage Rates. If, after the Notice of Award, it becomes necessary to employ any person in a trade or occupation not classified in the wage determinations, such person shall be paid at not less than such rates as shall be determined by the Commissioner. Such approved minimum rate shall be retro- active to the time of the initial employment of such person in such trade or occupation. The CONTRACTOR shall notify the AWARDING AUTHORITY of its intention to employ persons in trades or occupations not classified in the wage determinations as soon as possible in order to allow sufficient time for the AWARDING AUTHORITY to obtain approved rates for such trades or occupations.
- B. The schedule of wages referred to above are minimum rates only, and the AWARDING AUTHORITY will not consider any claims for additional compensation made by CONTRACTOR because of payment by the CONTRACTOR of any wage rate in excess of the applicable rate contained in the Contract.
- C. The said schedule of wages shall continue to be the minimum rates to be paid during the life of this Agreement and a legible copy of said schedule shall be kept posted in a conspicuous place at the site of the Work.
- D. CONTRACTOR and subcontractors shall submit a copy of weekly payroll records to the AWARDING AUTHORITY and the AWARDING AUTHORITY shall retain the records of a minimum of three years."

B. OTHER REGULATORY REQUIREMENTS:

1. Working Hours

No laborer, workman, mechanic, foreman, or inspector, working within the Commonwealth, in the employ of the CONTRACTOR, subcontractor, or other person doing or contracting to do the whole or a part of the work contemplated by this contract, shall be required or permitted to work more than eight hours in any one day or more than forty-eight hours in any one week, or more than six days in any one week, except in cases of emergency.

2. DEP Community sound Level Criteria

The Community Sound Level Criteria as established by the Commonwealth of Massachusetts Department of Environmental Protection (DEP) must be conformed to prior to the AWARDING AUTHORITY's acceptance of the structure. The following sound level criteria must be met at the construction site:

- A. The increase in the broad band noise level shall not be in excess of ten (10) dB(A) above ambient at the station boundary. The ambient level is defined as the A-weighted noise level that is exceeded ninety (90) percent of the time measured during the period in question.
- B. The primary noise source(s) shall not produce a puretone condition. Puretone is any given octave band center frequency that exceeds the two adjacent center frequencies by three (3) or more decibels.

END OF SECTION

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**SUPERSEDING CHANGES TO
GENERAL AND SUPPLEMENTARY CONDITIONS**

1. GENERAL CONDITIONS

2.06A - insert at end: Said conference shall be scheduled and arranged by the Contractor. I

4.01B - delete

4.06G - delete

5.07B - delete

6.17E - restore the word "timely" in the first line. Delete the word "only" from the 5" line. Where "only" has been deleted, insert "to determine their general conformance with the contract documents, in accordance with good and accepted engineering practices, and".

8.02A - delete "to whom contractor makes no reasonable objection".

9.02A - Insert, after "Work" in the 6" line, "While construction is active at the project, said visits and inspections will take place at least once per week."

12.06 - delete subparts A and B, and replace with the following: "The Contractor hereby agrees that the Contractor shall have no claim for damages of any kind against the Owner or the Engineer on account of any delay in the commencement of the Work and/or any delay in, or suspension of any portion of the Work, whether such delay is caused by the Owner, the Engineer, or otherwise. The Contractor acknowledges that the Contractor's sole remedy for any such delay and/or suspension will be an extension of time as provided in these general conditions.

No claims shall be allowed on account of the failure of the Engineer to furnish Drawings, specifications or instructions or to return Shop Drawings or Samples until the expiration of the applicable time period referenced in Mass. Gen. L. c. 30, §39P, and not then unless such claim be reasonable.

No extension of time shall be granted because of seasonable or abnormal variations in temperature, humidity or precipitation, which conditions shall be wholly at the risk of the Contract, whether occurring within the time originally scheduled for completion, or within any period of extension granted. There shall be no increase in the Contract Sum on account of any additional costs or operations or conditions resulting therefrom.

14.02C - change "Ten" to "Twenty-One"

14.07A(3) - delete the first three lines through the word "Owner,". In the third line, after Contractor, substitute "shall" for "may". In the fourth line, after the word "full" insert "on behalf of both Contractor and all of its Subcontractors,".

14.09A(1) - delete -

15.03B - add after "termination" ", with respect to this project or any other project of the Contractor."

Add "15.03C. If this Contract is terminated by Owner with or without cause, and regardless of whether said termination is rightful or wrongful, in no event shall the Contractor be paid a sum which, together with prior payments to Contractor, exceeds the sum payable to Contractor under the Agreement (Section 00520), as adjusted by any agreed change orders.

II. SUPPLEMENTARY CONDITIONS

Article V - Bonds and Insurance

Employer's liability coverage must be \$2 million per accident, \$2 million disease limits, and \$2 million per employee disease limits.

General liability insurance limits must be \$5 million aggregate, \$2 million dollars' products/completed operations aggregate; \$2 million personal injury and advertising; and \$2 million per occurrence.

The contractual liability insurance coverage must have limits corresponding to the foregoing. At 5.04A.6, the following changes should be made to paragraph I of the indemnity clause: four lines from the bottom, the parenthesis should be removed from the word "CAUSED" and the word "CAUSED" should be changed to lower-case (caused). Also, in the last line of said clause, insert the word "for" after the word "anyone."

At SC-5.04C 1 - insert the following sentence at the end: "The Contractor's excess liability insurance coverage must follow from with its underlying liability coverages."

SC-6.20A - insert the word "defend" after the word "shall" in the first line.

SC-14.02A.3 - insert the following sentence at the end: "Retainage for the entire project will be withheld until substantial completion of the entire project, at which time retainage shall be accounted for, subject to all of the other terms and conditions of payment at the time of substantial completion.

Add the following Article SC-18.

SC-I 8 Arbitration - J

18.1 Controversies and Claims Subject to Arbitration. Any Claim arising out of or related to the Contract, or the breach thereof, except claims relating to aesthetic effect, shall be settled by arbitration, subject to the provisions of Subparagraph 18.7. Arbitration will be conducted in accordance with the Construction Industry Arbitration Rules of the American Arbitration Association and judgment upon the award rendered by the Arbitrator or Arbitrators may be entered in any Court having jurisdiction thereof. In any such arbitration in which the amount stated in the demand is \$100,000 or less, a single arbitrator shall be appointed in accordance with the procedures set forth in the American Arbitration Association Construction Industry Arbitration Rules. In any such arbitration in which the amount stated in the demand is in excess of \$100,000, a panel of three arbitrators shall be appointed in accordance with the procedures set forth in the American Arbitration

Association Construction Industry Arbitration Rules. The parties may agree to use any arbitration service. In the absence of such agreement, the American Arbitration Association shall be utilized.

18.2 Rules For Arbitration. If the neutral arbitrator is appointed by the American Arbitration Association, the said Association shall administer the arbitration and its Construction Industry Arbitration Rules shall govern all aspects of the proceeding including the enforcement of any award. If the neutral arbitrator is not appointed by the American Arbitration Association, then the panel of arbitrators shall act as the administrator of the arbitration but the Construction Industry Arbitration Rules of the Association shall nonetheless govern all aspects of the proceeding, including the enforcement of any award. The arbitration panel shall have all the powers and duties conferred on the Association pursuant to said rules.

In addition, the following rules shall govern the selection of arbitrators and the proceedings:

18.2.1 Neither party may appoint as arbitrator an employee or an owner of that party, nor the parent, spouse or child of an employee or owner of that party.

18.2.2 After the neutral arbitrator has been appointed, neither party may engage in ex parte communication with the arbitrator appointed by that party.

18.2.3 Contract Performance During Arbitration. During arbitration proceedings, the Owner and Contractor shall otherwise continue their performances hereunder.

18.3 When a written decision of the Engineer states that the decision is final, any demand for arbitration of the matter covered by such decision must be made within two months after substantial completion of the project, as determined by the Engineer in accordance with the provisions hereof. The failure to demand arbitration within said two month period will result in the Engineer's decision becoming final and binding upon the Owner and the Contractor.

18.4 A Demand for arbitration shall be made with the time limits specified in Subparagraph 18.3, and in no event shall be made after the date when the institution of legal or equitable proceedings based on such Claim would be barred by the applicable statute of limitations.

18.5 Claims and Timely Assertion of Claims. A party who files a notice of demand for arbitration must assert in the demand all Claims then known to that party on which arbitration is permitted to be demanded. When a party fails to include a claim through oversight, inadvertence or excusable neglect, or when a Claim has matured or been acquired subsequently, the arbitrator or arbitrators may permit amendment.

18.6 Judgment on Final Award. The award rendered by the arbitrator or arbitrators shall be final, and the judgment may be entered upon it in accordance with applicable law in any court having jurisdiction thereof.

18.7 Notwithstanding any provision contained in this Paragraph 18 or elsewhere in the Contract Documents, the Owner reserves the following right in connection with claims and disputes between the Owner and Contractor:

1. the right to institute the legal action against the Contractor in any court of competent jurisdiction in-lieu of demanding arbitration pursuant to this paragraph 18, in which case the dispute or disputes which are the subject of such action shall be decided by such court, and not by arbitration.

2. the right to obtain from any court of competent jurisdiction a stay of any arbitration instituted by the Contractor, provided that the application for such stay is made before the appointment of the neutral arbitrator in such arbitration, in which case the dispute or disputes which are the subject of such arbitration shall be decided by such court, and not by arbitration;

3. the right to require the Contractor to join as a party in any arbitration between the Owner and Architect relating to the Project in which case the Contractor agrees to be bound by that decision of the arbitrator arbitrators in such arbitration.

In case the Owner elects to proceed in accordance with 18.7.1 or 18.7.2 above, the word "litigation", shall be deemed to replace the word "arbitration" wherever the latter word appears in the Contract Documents.

SC-19 MBE and WBE participation

The Contractor shall comply with the provision of G.L.c. 7 40N, and any associated regulations effective during the time of the project, relative to the participation of minority and women-owned businesses in connection with the project. At present, the current participation goals are 7.4% MBE and 4% WBE.

END OF SECTION

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INSURANCE REQUIREMENTS

1. GENERAL

A. This section specifies the Owner's requirements for insurance and relates to the General Conditions of the Contract for Construction and Supplementary Conditions of the Contract for Construction.

B. Provisions of the General Conditions of the Contract for Construction and Supplementary General Conditions of the Contract for Construction, which are not modified by the following insurance Requirements, remain in full effect.

2. INSURANCE REQUIREMENTS

A. Insurance Limits: The insurance required should be written for not less than the limits of liability required by law or the following limits, whichever is greater: State and federal Workmen's Compensation Statutory Benefits required by union contract as required.

GENERAL LIABILITY*

General Liability- Bodily Injury and Property Damage Each Occurrence	\$1,000,000.00
General Liability — Bodily Injury and Property Damage Aggregate	\$2,000,000.00

General Liability shall include coverage for the following:

- Comprehensive form
- Premise/Operations Liability
- Explosion, Collapse and Underground (XCU). Products/Completed Operations (aggregate limit \$2,000,000.00) Contractual Liability
- Independent Contractors Broad
- Form Property Damage
- Personal Injury Including Libel and Slander Coverage Broad
- Form CGL Endorsement

AUTOMOBILE LIABILITY**

Comp. Automobile Liability** Bodily Injury and Property Damage Per Accident	\$1,000,000.00
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**Provide coverage for All Owned, Non-Owned, and Hired vehicles.

EXCESS LIABILITY – Umbrella Form

Each occurrence	\$5,000,000.00
Aggregate	\$5,000,000.00

B. Exclusions: The Owner's property insurance shall not cover tools, equipment, shoring, staging, forms, temporary buildings or other equipment owned or rented by the Contractor, its Subcontractors, or any Worker.

C. Named Insured: Each Insurance policy certificate of insurance provided by the Contractor shall name the Town of Arlington as an additional insured. Each insurance policy and certificate of insurance provided by the Contractor shall contain a provision that the Owner shall be notified of cancellation or restrictive amendment at least thirty (30) days prior to the effective date of such cancellation or amendment.

D. Insurance Certificates: Submit insurance certificates for the Owner's review and approval prior to commencement of the work. The Contractor and all subcontractors who are required to provide insurance under the Contract shall provide accurate and bona fide "Certificates of insurance "issued by a responsible agent of the insurance company.

1. Certificate Content: Such "Certificates of Insurance" shall clearly indicate the insurance coverage. Each "Certificate of Insurance" shall be accompanied by a sworn and duly notarized statement from the responsible agent of the insurance company issuing the certificate clearly stating that all insurance specified and required by the Contract Documents is provided and in force, and also a clear statement of all exceptions and deviations, if any, from the Contract Document issuance requirements.

2. Responsibility: The insurance agent issuing and authorizing the "Certificate of Insurance" shall be responsible and liable for the accuracy and validity of the "Certificate of Insurance". Each insured party shall certify by sworn and duly notarized statement that the "Certificate of Insurance" issued for them are bona fide.

3. Disclaimers Prohibited: "Certificates of Insurance" shall not contain any disclaimers such as: "This Certificate is issued as a matter of information only and confers no right upon the certificate holder. This Certificate does not amend, extend, or alter the coverage afforded by the policies listed below." Disclaimers are not acceptable.

4. Certificates of Insurance Can Be Relied Upon: Parties receiving "Certificates of insurance" shall be entitled to rely upon the "Certificates of insurance" and shall have the right to claim the benefits and protection provided by the insurance as it applies to them.

5. Alternate to "Certificates of Insurance": Instead of providing the "Certificates of Insurance" and the sworn statements required above, the insured may provide bona fide and accurate copies of all insurance policies and riders accompanied by a sworn and duly notarized statement from the insured that the policies, riders, and documents submitted are bona fide and valid, and that parties receiving the insurance documents may rely on the documents as satisfaction of the Contract insurance requirements.

E. The Contractor shall provide "builder's risk" insurance as described in the General Conditions of the Contract for Construction and with limits equal to the full insurable completed value of the building under construction. The "Builder's Risk" insurance shall include "all risk" insurance for physical loss and damage including theft, vandalism, and malicious mischief. The "Builder's Risk" insurance shall be amended to delete any and all endorsements relating to cancellation of the policy due to partial occupancy by the Owner.

1. Builder's Risk Deductible Amount: \$1,000,000.00

END OF SECTION

SECTION 00 43 23 - ALTERNATES

1.1 GENERAL

- A. Each bidder shall submit with his bid alternate prices stating the difference in price, addition or deduction, from the lump sum base bid for substituting, omitting or changing the following materials or construction from that specified or shown on the Drawings.
- B. The difference in prices shall include all omissions, additions, and adjustments of all trades as may be necessary because of each change, substitution or omission.
- C. The Owner may accept ADD or DEDUCT alternates at time of bid for inclusion in the general contract. Alternates not accepted at time of bid shall remain in full force and effect for Owner's acceptance during the full term of the Contract, or until construction operations have progressed to the point where the addition of the alternate will result in changes to the work completed or materials ordered by the Contractor.

1.2 ALTERNATE NO. 1: INSTALL NEW BENCHES

- A. State the amount to be ADDED to the base bid for installing (5) five new 6' long benches and (2) two new 8' long benches. Benches will be surface mounted onto new concrete pads installed in the Base Bid. Benches shall be purchased by the Town and installed by the Contractor.

1.3 ALTERNATE NO. 2: INSTALL NEW PICNIC TABLES

- A. State the amount to be ADDED to the base bid for installing (2) two standard picnic tables and (1) one accessible picnic table. Picnic tables will be surface mounted onto new concrete pads installed in the Base Bid. Picnic tables shall be purchased by the Town and installed by the Contractor.

1.4 ALTERNATE NO. 3: NEW TRASH RECEPTACLE

- A. State the amount to be ADDED to the base bid for providing and surface mounting one new trash receptacle onto new concrete pad installed in the Base Bid. Trash receptacle will be purchased and provided by the Town and installed by the Contractor.

1.5 ALTERNATE NO. 4: NEW SAND BOX

- A. State the amount to be ADDED to the base bid for installing one new timber sand box and playground sand, as shown on details.

1.6 ALTERNATE NO. 5: NEW LOG CLIMBER

- A. State the amount to be ADDED to the base bid for installing one log climber with cast in place concrete footings. Log Climber play equipment shall be purchased by the Town and installed by Contractor.

1.7 ALTERNATE NO. 6: NEW WATERLINE, WATER SPIGOT AND CONNECTION

- A. State the amount to be ADDED to the base bid for providing and installing one new water spigot, water line and making the connection to existing water supply and new water spigot.

1.8 ALTERNATE NO. 7: INSTALL BOULDERS

- A. State the amount to be ADDED to the base bid for installing boulders in locations as shown on Drawings. Boulders are provided by Town.

1.9 ALTERNATE NO. 8: NEW FENCE SURROUND AT SANITARY STATION

- A. State the amount to be ADDED to the base bid for installing fence surround as shown on Drawings.

1.10 ALTERNATE NO. 9: INSTALL BIKE RACKS

- A. State the amount to be ADDED to the base bid for installing (5) five bike racks in location as shown on Drawings. Bike racks will be surface mounted onto new concrete pads installed in the Base Bid. Picnic tables shall be purchased by the Town and installed by the Contractor.

END OF SECTION
00 43 23

SECTION 02 41 13 – SITE PREPARATION

PART 1 - GENERAL

1.1 REFERENCE

- A. Attention is directed to the printed form of the Contract of the Town of Arlington and Division 1 of which these specifications are hereby made a part.

1.2 SECTION INCLUDES

- A. Protection of existing paving, fencing, vegetation and utilities to remain within and adjacent to the property.
- B. Removal of existing bituminous concrete paving, resilient rubber surface, play equipment, benches, timber and plastic edging, timber railing, sand, vegetation, lawn and other miscellaneous items.
- C. Installation of a 6' height chain link construction fence with gate location determined by Owner's Representative.
- D. Disposal of all debris legally off site.
- E. Erosion control and catch basin filters.
- F. Dust control.
- G. Removal of existing trees.
- H. Selective clearing and grubbing.
- I. Strip existing lawn.
- J. Sawcutting pavement.
- K. Cleaning the existing drainage structures and drain lines.

1.3 RELATED WORK

- A. Section 00 43 23 - Alternates
- B. Section 03 30 00 - Cast in Place Concrete
- C. Section 31 00 00 - Earthwork

1.4 SUBMITTALS

- A. The Contractor shall, prior to any removal of rubbish or debris from the site, submit written evidence satisfactory to the Owner's Representative that he has an approved dumping location for debris and/or spoil from his demolition and excavation activities.
- B. Prior to beginning the work of this Contract, the Contractor shall submit a plan indicating stockpile areas and equipment and materials storage areas to the Owner's Representative for review and approval. The Contractor shall provide any security measures necessary to protect his work and equipment at no additional costs to the Owner.
- C. The Contractor shall provide the manufacturer's literature, material specification, and installation instructions for sedimentation and erosion control materials and devices for approval.

1.5 EXAMINATION OF SITE AND DOCUMENTS

- A. By submitting a bid the Contractor affirms that he has carefully examined the site and all conditions affecting work under this Section. No claim for additional costs will be allowed because of lack of full knowledge of existing conditions.
- B. Plans, surveys, measurements, and dimensions under which the work is to be performed are believed to be correct, but the Contractor shall have examined them for himself during the

bidding period, as no additional compensation will be made for errors or inaccuracies that may be found therein.

1.6 DESCRIPTION OF EROSION CONTROL WORK

- A. Control measures to prevent all erosion, siltation and sedimentation shall occur in areas of construction within limit of work, adjacent areas and off-site areas outside the limit of work.
 - 1. Control measures shall be accomplished adjacent to or in the following work areas:
 - a. Soil stockpiles and on-site storage and staging areas.
 - b. Cut and fill slopes and other stripped and graded areas.
 - c. At existing drainage structures.
 - 2. The Contractor shall install all measures as needed to control sediment and erosion as required by the Contractor's construction methods and operations, the weather conditions, and as directed by the Owner's Representative.
 - 3. Additional means of protection shall be provided by the Contractor as required for continued or unforeseen erosion problems, at no additional cost to the Owner.
 - 4. Periodic maintenance of all sediment control structures shall be provided to ensure intended purpose is accomplished. Sediment control measures shall be in working condition at the end of each day.
 - 5. After any significant rainfall, sediment control structures shall be inspected for integrity. Any damaged device shall be corrected immediately.

1.7 PERMITS, CODES AND REGULATIONS

- A. Follow all Local, State and Federal laws and ordinances which apply to the work of this Section.
- B. Comply with all applicable regulations of the Commonwealth of Massachusetts Department of Environmental Protection (DEP) and the EPA.

1.8 REFERENCES

- A. MassDOT: "Standard Specifications for Highways and Bridges", Massachusetts Highway Department, Commonwealth of Massachusetts, latest edition.
- B. The following standards are applicable to the work of this Section to the extent referenced herein:
 - 1. Massachusetts Erosion and Sedimentation Control Guidelines for Urban and Suburban Areas, A Guide for Planners, Designers and Municipal Officials", prepared by the Massachusetts Dept. of Environmental Protection, Bureau of Resource Protection, dated March 1997, reprinted May 2003.
- C. Work operations shall meet American National Standards Institute [ANSI] Standard Z-133.1.

1.9 PUBLIC SAFETY

- A. The Contractor shall be solely responsible for pedestrian and vehicular safety and control within the work site.

- B. All equipment to be used on this project and all work to be performed shall be in full compliance with all OSHA standards including, but not limited to, those regulations concerning noise levels, protective devices and operator safety. Immediately discontinue any obviously hazardous practice.

1.10 QUALITY ASSURANCE

- A. Erosion control measures shall be established at the beginning of construction and maintained during the entire period of construction. On-site areas which are subject to severe erosion, and off-site areas which are especially vulnerable to damage from erosion and/or sedimentation, are to be identified and receive special attention.
- B. It shall be the responsibility of the Contractor to render the site erosion free. Approval by Owner's Representative of any method to accomplish this does not relieve the Contractor of full responsibility for controlling erosion and/or sedimentation throughout the construction process.
- C. Install filter barriers prior to any site clearing, removals or general earthwork and maintain in place in good functioning condition until all work is complete or as otherwise directed by the Owner's Representative. Repair as required.
- D. All land-disturbing activities are to be planned and conducted so as to minimize off-site sedimentation damage.
- E. The Contractor is responsible for cleaning out and disposing of all sediment once the storage capacity of the sediment facility is reduced by one-half.
- F. Inspect, repair, and maintain erosion and sedimentation control measures during construction until permanent vegetation has been established.
- G. At the conclusion of the site work, remove erosion and sedimentation controls and restore and stabilize areas disturbed during removal.

1.11 DIG SAFE

- A. Contractor is required to contact Dig Safe (1-888-344-7233) a minimum of 3 business days prior to start of construction.

1.12 SPECIAL PROTECTION FOR MAINTAINING STREETS AND PUBLIC WAYS

- A. Do not close or obstruct streets or sidewalks within the public right of way without a permit. Do not place or store material in streets or sidewalks.
- B. Conduct operations with minimum interference to the abutting streets.

1.13 ACCESS TO JOB SITE

- A. No access to the job site shall be allowed on or through the abutting private properties. Access to the job site shall be along the public rights of way.

PART 2 – PRODUCTS

2.1 MATERIALS

A. CONSTRUCTION FENCE: Erect a 6' high galvanized chain link construction fence along the lines shown on the Drawings with double gate location to be determined in the field. Erect the fence immediately after receiving the Notice to Proceed and maintain the fence in a secure and sightly condition until instructed by the Owner's Representative to remove it or portions thereof. Second hand fencing materials meeting the requirements specified herein and in good condition may be used to provide the necessary barrier during construction on this project. Equivalent tubular sections, H-sections or roll formed sections may be substituted for pipe sections if acceptable to the Owner's Representative. Gate location shall be approved by the Owner's Representative.

B. TREE PROTECTION: 6' chain link fence and posts as approved by Owner's Representative.

2.2 FILTER BARRIER

A. STRAW WATTLES

1. Straw wattles shall consist of weed free rice straw inside biodegradable netting.
2. Straw wattles shall measure at least nine (9) inches in diameter.
3. Stakes:
 - a. Stakes for wattles shall be one of the following materials:
 - i. Wood stakes of sound hardwood, one inch by one inch (1" x 1") in size by 2' length min.
 - ii. Steel reinforcing bars of at least No. 4 size, by 2' length min.

2.3 PROTECTIVE MEASURES

- A. As temporary coverings on ground areas subject to erosion, provide one of the following protective measures, and as directed by the Owner's Representative:
1. Hay or straw temporary mulch, 100 pounds per 1,000 square feet.
 2. Wood fiber cellulose temporary mulch, 35 pounds per 1,000 square feet.
 3. Tackifier for anchoring mulch or straw shall be a non-petroleum based liquid bonding agent specifically made for anchoring hay or straw.
 4. Provide natural (jute, wood excelsior) covering with suitable staples or anchors to secure to ground surface. Note that wire staples and non-biodegradable coverings shall not be used for any area that will be mown turf.
 5. Temporary vegetative cover for graded areas shall be undamaged, air dry threshed straw or hay free of undesirable weed seed.

2.4 CATCH BASIN FILTER

- A. Catch basin filters shall be manufactured from a woven polypropylene geotextile and sewn by a double needle machine, using a high strength nylon thread. Seams have a certified average wide width strength per ASTM D-4884 of 165.0 lbs./in.
- B. The filters will be manufactured to fit the opening of the existing catch basin or drop inlet.
- C. Catch basin filter's geotextile fabric shall have the following properties:

Property(ASTM Test Method)	Unit	Typical Values
Grab Strength (D-4632-86)	lbs	300
Puncture (D-4632)	Lbs.	120

Grab Elongation (D-4632-86)	%	20(max)
Trapezoid Tear Strength (D-4533-85)	Lbs	120
Mullen Burst Strength (D-3786-80a)	Psi	800
Coeff. of Permeability (D-4491-85)	Cm/sec	0.55
Water Flow Rate (D-4491-85)	Gal/min/(ft)(ft)	40
Ultraviolet Stability (D-4355-84)	%	80

- D. Use only commercially available sacks that are certified in writing by the manufacturer for the purpose intended.
- E. Siltation Sacks shall be one of the following. Siltation Sacks other than those specified shall be subject to review and acceptance by the Owner’s Representative:

<u>Product</u>	<u>Manufacturer</u>
Siltsack	ACF Environmental, Inc VA
Stream Guard	FOSS Environmental
Dandy Bag	Dandy Products, Inc CO

1. The siltation sack shall be manufactured to fit the opening of the catch basin or drop inlet.
2. The sack shall have a colored cord approximately halfway up the sack to keep the sack away from the sides of the catch basin. This colored cord shall serve as a visual indicator by which the sack shall be emptied. Once the cord is covered with sediment, the sack shall be emptied, cleaned and placed back into the catch basin.
3. The sack will have the following features: two dump straps attached at the bottom to facilitate the emptying of the filters; the filters will also have lifting loops as an integral part of the system to be used to lift the filters from the basin.

PART 3 - EXECUTION

3.1 STAKING OUT PROJECT COMPONENTS

- A. All lines and grades not presently established at the site shall be laid out by the Contractor in accordance with the Drawings. Maintain all established bounds and benchmarks and replace as directed any which are destroyed or disturbed.
- B. Prior to starting any construction work, stake out all limits of proposed paving and playground areas. Promptly upon completion of layout work and before any other construction work is begun on the site, notify the Owner’s Representative, who shall conduct a field inspection of the stake-out.
 1. Contractor shall indicate on site locations of proposed erosion control measures for approval by Owner’s Representative.

3.2 CLEARING AND GRUBBING: Shrub and Vine material to be grubbed, together with logs and other organic debris not suitable for re-use shall be removed to a depth of not less than 12 inches below the original surface level of the ground in areas indicated to be grubbed and areas of new work. Depressions made by grubbing shall be filled with suitable material and compacted to make the surface conform with the original adjacent surface of the ground.

3.3 TREE REMOVALS

- A. Where tree removal is designated on the Drawings, remove completely all trees, root systems and stumps below grade and as directed by the Owner's Representative. Stumps shall be removed at a 2' depth minimum below existing finish grade.
1. Chips from the stump material shall be removed and disposed of off-site.
 2. Backfill all holes from which stumps are removed with material equal to or better than adjacent areas and compact in accordance with Section 31 00 00 - EARTHWORK, of these Specifications. Do not use brush, chips, stumps or other organic debris as fill for these holes.

3.4 STRIP EXISTING LAWN

- A. The Contractor shall remove existing lawn turf in proposed areas of regrading and reseeding and as directed by the Owner.
- B. The work shall consist of stripping by mechanical rake or by hand the existing turf vegetation present on all grassed areas within the job site as directed by the Owner. The stripping shall remove turf vegetation only. The Contractor will be responsible for disposal of all stripped material in an off-site location provided by Contractor.

3.5 SAWCUTTING PAVEMENT

- A. Saw cut existing pavements in locations as shown on Drawings. All sawn edges of paving shall be protected from damage until new paving is placed against it. Existing pavement which is damaged, disturbed or settled, shall be cut back by the same method and replaced as directed by the Owner's Representative at no additional cost. This Item shall include the removal of all layers of pavement and of gravel or other base or sub-base materials as required beneath pavements removed. Cut all paving with an approved diamond blade concrete saw on a neat, straight line to the dimensions given, or directed. Remove the portion behind the cut with proper tools, keeping noise and disturbance to a minimum.

3.6 CLEANING EXISTING STORM DRAINS

- A. Existing storm drains and basins shall be cleaned with use of high-pressure water jetting or hydrojetting to clear away debris and buildup. Contractor shall clean up to a length of 150' in drains that run beyond the existing Drain Manhole.

3.7 REMOVALS AND DISPOSAL OF MATERIALS

- A. Within the actual construction area, remove all existing obstructions such pavements, and the like, which are to be abandoned to at least 1 foot below final finish grades and to greater depths as required by new construction.
1. The use of explosives will not be permitted.
 2. At the Owner's discretion, certain obstructions may not be removed to full depth if removal, in the Owner's opinion, will negatively affect materials to remain.
 3. Bituminous concrete paving.
 4. Miscellaneous soils, topsoil and granular base materials not appropriate for reuse.

3.7 FILTER BARRIERS

- A. Install straw wattles in locations as shown on Contract Drawings and as directed in the field.
 - 1. Wattles shall be placed in a row with ends overlapping a minimum of two (2) feet.
 - 2. Each wattle shall be embedded in the soil a minimum of two (2) and a maximum of six (6) inches.
 - 3. Wattles shall be securely anchored in place by stakes or rebars driven through the wattles with a minimum twelve (12) inches into the soil. Stakes shall be placed four (4) feet on center.
- B. Inspection shall be frequent and repair or replacement shall be made as needed.
- C. Wattles shall be removed when they have served their usefulness so as not to block or impede stormwater flows or drainage.

3.8 CATCH BASIN FILTERS

- A. Install catch basin filters prior to disturbance of soils uphill from inlet.
- B. Catch basin filters shall be inspected after each rain event and at a minimum every two weeks.
- C. Debris and silt shall be cleaned from filter on a regular basis.

3.9 TEMPORARY PROTECTIVE COVERINGS

- A. Place temporary soil coverings to control erosion and sedimentation on all disturbed or graded areas as required by the construction methods employed and as directed by the Owner's Representative. Erosion control matting shall be installed in all areas seeded or hydroseeded with slopes of one vertical foot to three-foot horizontal, or steeper, immediately after such areas have been seeded and a hay mulch applied as follows:
 - 1. The area to receive matting shall have been recently seeded and shall have a smooth surface free from stones, clods or depressions.
 - 2. Install matting according to manufacturer's instructions.

3.10 TEMPORARY PROTECTIVE COVERINGS (AFTER GROWING SEASON)

- A. Place temporary covering for erosion and sedimentation control on all areas that have been graded and left exposed after October 30. Contractor shall have the choice to use either or both of the methods described herein.
- B. Hay or straw shall be anchored in-place by one of the following methods and as approved by the Owner's Representative: Mechanical 'crimping' with a tractor drawn device specifically devised to cut mulch into top two inches of soil surface or application of non-petroleum based liquid tackifier, applied at a rate and in accordance with manufacturer's instruction for specific mulch material utilized.
- C. Placement of mesh or blanket matting and anchoring in place shall be in accordance with manufacturer's printed instructions.
- D. Inspect protective coverings periodically and reset or replace materials as required.

3.11 REMOVALS, SALVAGE AND DISPOSAL

- A. Within the actual construction area, remove all existing obstructions such as pavements, ledge, playground mulch surface, granular base courses, debris and the like, which are to be abandoned to at least 1 foot below final finish grades and to greater depths as required by new construction.
1. The use of explosives will not be permitted.
 2. At the Owner's discretion, certain obstructions may not be removed to full depth if removal, in the Owner's opinion, will negatively affect materials to remain.
 3. Backfill all holes from which obstructions are removed with material equal to or better than adjacent areas and compact in accordance with Section 31 00 00 - EARTHWORK, of these Specifications. Do not use brush, chips, stumps or other organic debris as fill for these holes.
- B. The Contractor shall be responsible for the methods used in this work including properly protecting against damage to all site improvements, utility lines, trees, etc. Check with the municipality and local utility companies for locations of all existing utilities which may be in use or abandoned. Investigate and ascertain that underground utilities are correctly located and that they have been shut off and/or abandoned before disturbing them.
- C. Legally dispose of all demolished material not to be reused and rubbish off the site. Provide Owner with written affidavits confirming legal disposal. On site burning will not be allowed.
- D. Salvage:
1. The Owner retains the first right of refusal of anything found on the site..

3.12 DUST CONTROL

- A. Throughout the construction period, Contractor shall carry on an active program for the control of fugitive dust within all site construction zones, or areas disturbed as a result of construction. Control methods shall include the following: Apply calcium chloride at a uniform rate of one and one-half (1 ½) pounds per square yard in areas subject to blowing. For emergency control of dust apply water to affected areas. The source of supply and the method of application for water are the responsibility of the Contractor.
- B. The frequency and methods of application for fugitive dust control shall be as directed by the Owner's Representative.

3.13 REMOVAL AND FINAL CLEANUP

- A. Once the site has been fully stabilized against erosion and with the approval of the Owner, Contractor shall remove sediment control devices and all accumulated silt. Dispose of silt and waste materials off-site. Regrade all areas disturbed during this process and stabilize against erosion with surfacing materials as indicated. Reseed turf areas as needed.

END OF SECTION
02 41 13

DIVISION 3 - CONCRETE

SECTION 03 30 00 - CAST IN PLACE CONCRETE

PART 1 - GENERAL

1.1 REFERENCE

- A. Attention is directed to the printed form of the Contract of the Town of Arlington and Division 1 of which these specifications are hereby made a part.

1.2 SECTION INCLUDES

- A. Provide all equipment and materials, and do all work necessary to complete the work which includes, but is not limited to the following:
 - 1. Furnishing cast in place footings, paving and foundations for site improvements.
 - 2. Erection and removal of form work.
 - 3. Furnishing and placing of reinforcing steel and related accessories.

1.3 RELATED WORK

- A. Section 00 43 23 - Alternates
- B. Section 31 00 00 - Earthwork
- C. Section 32 12 16 - Bituminous Concrete Paving
- D. Section 32 18 16 - Resilient Surfacing
- E. Section 32 30 00 - Site Improvements

1.4 REFERENCES

- A. MassDOT: "Standard Specifications for Highways and Bridges", Massachusetts Department of Transportation, latest edition.
- B. AASHTO: American Association of State Highway and Transportation Officials.
- C. ACI 306: Recommended Practice for Cold Weather Concreting.
- D. ACI 315: Manual of Standard Practice for Detailing Concrete Structures.
- E. ACI 318: Building Code Requirements for Reinforced Concrete.
- F. ACI 347: Recommended Practice for Concrete Formwork.
- G. ACI 604: Recommended Practice for Winter Concreting.
- H. ACI 605: Recommended Practice for Hot Weather Concreting.
- I. ACI 614: Recommended Practice for Measuring, Mixing and Placing Concrete.
- J. ASTM C94: Standard Specification for Ready Mixed Concrete, American Society for Testing and Materials.
- K. ASTM C143: Standard Method of Test for Slump of Portland Cement Concrete.
- L. CRSI: Concrete Reinforcing Steel Institute, latest standards.

1.5 QUALITY ASSURANCE

- A. Codes and Standards: Comply with provisions of following codes, specifications, and standards, except where more stringent requirements are shown or specified:
 - 1. Massachusetts State Building Code, Latest Edition.
 - 2. ACI 117-90 "Standard Specifications for Tolerances for Concrete Construction and Materials".
 - 3. ACI 214 "Recommended Practice for Evaluation of Strength Test Results of Concrete."
 - 4. ACI 311 "Guide for Concrete Inspections".

5. ACI 315 "Details and Detailing of Concrete Reinforcement".
 6. ACI 211.1-91 "Standard Practice for Selecting Proportions for Normal, Heavyweight and Mass Concrete".
 7. ACI 211.2 "Guide for Selecting Proportions for No Slump Concrete".
 8. ACI 304 "Guide for Measuring, Mixing, Transporting and Placing Concrete".
 9. ACI 302 1R-96 Guide for Concrete Floor and Slab Construction.
 10. ACI 305 R-99 Hot Weather Concreting.
 11. ACI 306 R-97 Cold Weather Concreting.
 12. ACI 308-97 Standard Practice for Curing Concrete.
 13. ACI 347 R-99 "Guide to Formwork of Concrete".
 14. ACI 309 "Guide for Consolidation of Concrete".
 15. CRSI-WCRSI "Placing Reinforcing Bars".
 16. The ACI Field Reference Manual, SP-15 shall be kept at the job site, and the practices set forth therein shall be strictly adhered to.
 17. ASTM C 494 Standard Specification for Chemical Admixtures for Concrete.
 18. Concrete Reinforcing Steel Institute, (CRSI) "Manual of Standard Practice".
- B. Concrete Testing Service: Contractor will engage a testing laboratory acceptable to Owner's Representative to perform material evaluation tests and to design concrete mixes.
- C. Materials and installed work may require testing and retesting at anytime during progress of work. Tests, including retesting of rejected materials for installed work, shall be done at Contractor's expense.
- D. Engage an installer who has successfully completed within the last 3 years at least 6 exposed aggregate concrete paving applications similar in type to that of this project and who will assign mechanics from these earlier applications to this project, of which one will serve as lead mechanic.
- E. Comply with all laws, rules and regulations of governmental authorities having jurisdiction over concrete work. Design all concrete work in accordance with the applicable specifications and standards specified herein.
- 1.6 PROJECT CONDITIONS
- A. The Contractor, before commencing work, shall examine all adjoining work on which this work is in any way dependent for proper installation and workmanship according to the intent of this specification, and shall report to the Owner's Representative any condition that prevents this contractor from performing first class work.
- B. Protection of Footings against Freezing: Cover completed work at footing level with sufficient temporary or permanent cover as required to protect footings and adjacent subgrade against possibility of freezing; maintain cover for time period as necessary.
- C. Protect adjacent finish materials against spatter during concrete placement.
- D. Provide all barricades and safeguards at all pits and holes etc. to prevent injury to workmen and others within and about the premises. Also provide all safeguards as required by the Building Code, OSHA, or any other departments having jurisdiction. Take full responsibility for all safety precautions and methods.
- E. Procedure of Work: The Contractor shall keep himself constantly informed as to the progress of the work in the field, materials and men ready to start work immediately when conditions of preceding work are available or ready, wholly or in part, so as not to delay the progress of concrete work or to interfere with the progress of work of other contractors, and in any event he shall, within 24 hours after notice from the Owner, proceed with such work as directed to maintain the uninterrupted progress of the work.

1.7 SUBMITTALS

- A. **PRODUCT DATA:** Submit data for proprietary materials and items, including reinforcement and forming accessories, admixtures, curing compounds, and others as requested by Owner's Representative.
 - 1. Provide certification from admixture manufacturers that chloride content complies with specification requirements.
- B. **Laboratory Test Reports:** Submit test reports for concrete design mix including report on design strength test.
- C. **Compression Test Reports and Slump Tests on placed concrete:**
 - 1. Submit 3 test cylinders and 1 slump test per every 10 cubic yards of concrete.

1.8 TESTING LABORATORY SERVICE

- A. The testing laboratory will be responsible for conducting and interpreting tests. Each report shall state whether or not the test specimens conform to all requirements of the Contract Documents and will specifically note any deviation there from if any. Specific test and inspection requirements shall be as specified herein.

PART 2 - PRODUCTS

2.1 FORM MATERIALS

- A. **Forms for Finish Concrete:** Unless otherwise indicated, construct forms of plywood, metal, metal-framed plywood faced, or other acceptable panel-type materials, to provide continuous, straight, smooth, exposed surfaces. Furnish in largest practicable sizes to minimize number of joints and to conform to joint system shown on drawings. Provide form material with sufficient strength and thickness to withstand pressure of newly placed concrete without bow or deflection and to retain horizontal and vertical alignment until removal.
 - 1. Use plywood complying with U.S. Product Standard PS-1 "B-B (Concrete Form) Plywood", Class I, Exterior Grade or better mill oiled and edge-sealed, with each piece bearing legible inspection trademark.
- B. **Forms for Unexposed Finish Concrete:** Form concrete surfaces which will be unexposed in finished structure with plywood, lumber, metal, or other acceptable material. Provide lumber dressed on at least two edges and one side for tight fit.
- C. **Cylindrical Columns and Supports:** Form round section members with metal, fiberglass reinforced plastic, or paper or fiber tubes. Construct paper or fiber tubes of laminated plies using water-resistant adhesive with wax-impregnated exterior for weather and moisture protection. Provide units with sufficient wall thickness to resist loads imposed by wet concrete without deformation.
- D. **Form Coatings:** Provide VOC compliant commercial formulation form-coating compounds that will not bond with, stain nor adversely affect concrete surfaces, and will not impair subsequent treatments of concrete surfaces.
- E. **Form Oil:** Nonstaining type specifically manufactured for concrete forms.

2.2 REINFORCING MATERIALS

- A. Welded Wire Mesh: conforming to Sections M8.00.0, M8.01.0 and M8.01.2 of MassDOT except as herein modified. Furnish welded wire mesh in flat sheets, not rolls.
- B. Supports for Reinforcement: Bolsters, chairs, spacers and other devices for spacing, supporting and fastening reinforcing bars and welded wire fabric in place. Use wire bar type supports complying with CRSI specifications.
- C. Reinforcing and accessories shall be free of excessive rust, scale or other coatings that will reduce bond.

2.3 CONCRETE MATERIALS

A. CEMENT CONCRETE

- 1. Cement concrete shall be of an air entrained type conforming to the current specifications of Section M4 of the MassDOT. Cement concrete shall have a 28 day compressive strength of 4000 PSI using 3/4 inch aggregate, and with an entrained air content of $7.0 \pm 1.0\%$.
 - a. All concrete shall be transit mix and shall conform to the current specifications of A.S.T.M. C-94. Hand mix concrete or machine mixed on the job concrete shall be used only when permitted by the Owner's Representative in writing.

B. Water: conforming to Section M4.02.04 of MassDOT.

C. Air-Entraining Admixture: ASTM C 260, certified by manufacturer to be compatible with other required admixtures.

- 1. Products: Subject to compliance with requirements, provide one of the following:
 - "Air-Mix or AEA 92", by Euclid Chemical Co.
 - "MB-VR or MB-AE", by Master Builders.
 - "Sika Aer", by Sika Corporation.
 - "Darex II AEA" or "Daravair", by W. R. Grace.

D. Water-Reducing Admixture: ASTM C 494, Type A, and containing not more than 0.05 percent chloride ions.

- 1. Products: Subject to compliance with requirements, provide one of the following:
 - "Eucon WR-75, WR-89 or MR", by Euclid Chemical Co.
 - "Pozzolith 322N", by Master Builders.
 - "Plastocrete 161", by Sika Corporation.
 - "WRDA with Hycol", by W. R. Grace.

E. Prohibited Admixtures: Calcium chloride, thiocyanates or admixtures containing more than 0.05 percent chloride ions are not permitted.

F. Certification: Written conformance to the above-mentioned requirements and the chloride ion content of admixtures will be required from the admixture manufacturer prior to mix design review by the Owner's Representative.

G. Contractor will be required to provide information demonstrating successful use in prior placement involving all admixtures.

2.4 MISCELLANEOUS MATERIALS

- A. Non-Shrink, Non-Metallic Grout: The non-shrink grout shall be a factory pre-mixed grout and shall conform to ASTM C1107, "Standard Specification for Packaged Dry, Hydraulic-Cement Grout (Non-Shrink)." In addition, the grout manufacturer shall furnish test data from an

independent laboratory indicating that the grout when placed at a fluid consistency shall achieve 95% bearing under a 4' x 4' base plate.

1. Products: Subject to compliance with requirements, provide one of the following:
 - a. "Euco-NS", by Euclid Chemical Co.
 - b. "Five Star Grout", by Five Star Products, Fairfield CT.
 - c. "Masterflow 713" by Master Builders.
 - d. or approved equal.

B. Moisture-Retaining Blanket for concrete curing complying with ASTM C 171:

1. 'Hydra-Cure S-16' as distributed by A. H. Harris, Dorchester MA, tel: 617-269-4800, or approved equal.
2. Polyethylene sheeting
3. Burlap

C. Fine Aggregate: conforming to Section M4.02.02 of MassDOT.

D. Coarse Aggregate: conforming to Section M4.02.03 of MassDOT except that 3/4 inch shall be the maximum aggregate size.

2.5 CONCRETE PROPORTIONING, MIXING, STRENGTH AND QUALITY

A. Concrete shall conform to ASTM C94. The design strength of concrete shall be as follows:

1. 4,000 psi minimum at 28 days for above grade use.
2. 3,000 psi minimum at 28 days for below grade use.

B. All concrete exposed to weather shall be air entrained with a total air content of 5 to 8%.

C. Use no more water in the mixture than is necessary to produce concrete that is workable and plastic within the limits specified herein for slump. Use the least amount of water and proportion of mortar to coarse aggregate that will produce uniformly dense concrete, free from aggregate pockets or honeycomb. Make corrections for the amount of moisture contained in the aggregates. Make allowances for absorption of moisture by the aggregates during the period of mixing and handling. Maintain a continuous uniform consistency.

D. In all cases, provide concrete of such consistency and mix composition that it can be worked readily into the corners and angles of forms and around reinforcement, concrete inserts and castings without permitting the materials to segregate or free water to collect on the surface.

E. The consistency of the concrete at time of deposit as measured by ASTM C143 shall be as follows:

<u>PORTION OF WORK</u>	<u>SLUMP RECOMMENDED</u>	<u>SLUMP MAXIMUM RANGE</u>
Base slabs on ground	2-1/2 inches	2-3 inches
Footings	3 inches	2-4 inches

2.6 CONCRETE MIXING

A. Ready-Mix Concrete: Comply with requirements of ASTM C 94, and as herein specified.

- B. Provide batch ticket for each batch discharged and used in work, indicating project identification name and number, date, mix type, mix time, quantity, and amount of water introduced.
- C. During hot weather, or under conditions contributing to rapid setting of concrete, a shorter mixing time than specified in ASTM C 94 may be required. When air temperature is between 85°F (30°C) and 90°F (32°C), reduce maximum mixing and delivery time from 1-1/2 hours to 75 minutes, and when air temperature is above 90°F (32°C), reduce maximum mixing and delivery time to 60 minutes.
- D. Cold weather mixing procedures shall be submitted to the Owner's Representative for approval.
- E. No water shall be added after mixing to concrete containing HRWR (Superplasticizer). If loss of slump occurs, the concrete treated with HRWR may be re-dosed as long as a "flash set" has not occurred. Re-dosage procedures must be discussed and approved by the Owner's Representative and the manufacturer.

PART 3 – EXECUTION

3.1 INSPECTION

- A. Examine all work prepared by others to receive work of this section and report any defects affecting installation to the contractor for correction. Commencement of work will be construed as complete acceptance of preparatory work by others.

3.2 CONCRETE

- A. Concrete shall develop the minimum compressive strengths at 28 days when sampled and tested in accordance with ASTM C31 and C39 with the maximum slump in accordance with the approved mix design.
- B. Concrete shall be in accordance with the requirements and specifications of MassDOT.

3.3 FORMS

- A. Design, erect, support, brace and maintain formwork to support vertical and lateral, static, and dynamic loads that might be applied until such loads can be supported by concrete structure. Construct formwork so that concrete members and structures are of the correct size, shapes, alignment, elevation and position. Maintain formwork construction tolerances complying with ACI 347. Provide Class A tolerances for concrete exposed to view. Provide Class C tolerances for other concrete surfaces.
 - 1. Design formwork to be readily removable without impact, shocks or damage to cast-in-place concrete surfaces and adjacent materials.
- B. Construct forms to size shapes, lines and dimensions shown, and to obtain accurate alignment, location, grades, level and plumb work in finished structures. Provide for openings, recesses, chamfers, anchorages and other features required in work. Use selected materials to obtain required finishes. Solidly butt joints and provide back-up at joints to prevent leakage of cement paste.
- C. Fabricate forms for easy removal without hammering or prying against concrete surfaces. Provide crush plates or wrecking plates where stripping may damage cast concrete surfaces. Provide top forms for inclined surfaces where slope is too steep to place concrete with bottom forms only.
- D. Provisions for Other Trades: Provide openings in concrete formwork to accommodate work of other trades. Determine size and location of openings, recesses and chases from trades providing such items. Accurately place and securely support items built into forms.

- E. Cleaning and Tightening: Thoroughly clean forms and adjacent surfaces to receive concrete. Remove chips, wood, sawdust, dirt or other debris just before concrete is placed. Retightening forms and bracing after concrete placement is required to eliminate mortar leaks and maintain proper alignment.

3.4 PLACING REINFORCEMENT

- A. Comply with Concrete Reinforcing Steel Institute's recommended practice for "Placing Reinforcing Bars", for details and methods of reinforcement placement and supports, and as herein specified.
- B. Clean reinforcement of loose rust and mill scale, earth, ice, and other materials, which reduce or destroy bond with concrete.
- C. Accurately position, support and secure reinforcement against displacement by formwork, construction, or concrete placement operations. Locate and support reinforcing by metal chairs, runners, bolsters, spacers, and hangers, as required.
- D. Place reinforcement to obtain at least minimum coverage's for concrete protection. Set wire ties so ends are directed into concrete, not toward exposed concrete surfaces.

3.5 JOINTS

- A. Construction Joints: Locate and install construction joints as indicated, or if not indicated, locate so as not to impair strength and appearance of the structure, as acceptable to Owner's Representative.
- B. Contraction (Control) Joints in Slabs-on-Ground: Maximum joint spacing shall be 36 times the slab thickness unless otherwise noted on the drawings. A dry cut saw shall be used immediately after final finishing and to a depth of 1". A conventional saw shall be used as soon as possible without dislodging aggregate and to a depth of 1/4 slab thickness.

3.6 PREPARATION OF FORM SURFACES

- A. If using re-used forms, Contractor shall clean forms of concrete matrix residue, repair and patch as required to return forms to acceptable surface condition.
- B. Coat contact surfaces of forms with a form-coating compound before reinforcement is placed.
- C. Thin form-coating compounds only with thinning agent of type, and amount, and under conditions of form-coating compound manufacturer's directions. Do not allow excess form-coating material to accumulate in forms or to come into contact with in-place concrete surfaces against which fresh concrete will be placed. Apply in compliance with manufacturer's instructions.
- D. Coat steel forms with a non-staining, rust-preventative form oil or otherwise protect against rusting. Rust-stained steel formwork is not acceptable.

3.7 CONCRETE PLACEMENT

- A. Ready-mix concrete shall comply with the requirements of ASTM C94 and ACI 304. All plant and transporting equipment shall comply with the concrete plant standards and truck mixer and agitator standards of the National Ready Mix Concrete Association.
- B. Notify Owner's Representative and testing organization at least 36 hours (1 1/2 regular working days) before each pour so that forms and reinforcing may be examined. Do not place concrete until inspection has been made or waived.

- C. Pre-placement Inspection: Before placing concrete, inspect and complete formwork installation, reinforcing steel, and items to be embedded or cast-in. Notify other crafts to permit installation of their work; cooperate with other trades in setting such work. Moisten wood forms immediately before placing concrete where form coatings are not used.
- D. General: Comply with ACI 304 "Recommended Practice for Measuring, Mixing, Transporting, and Placing Concrete", and as herein specified. Deposit concrete continuously or in layers of such thickness that no concrete will be placed on concrete that has hardened sufficiently to cause the formation of seams or planes of weakness. If a section cannot be placed continuously, provide construction joints as herein specified. Deposit concrete as nearly as practicable to its final location to avoid segregation.
- E. Placing Concrete in Forms: Deposit concrete in forms in horizontal layers not deeper than 18" and in a manner to avoid inclined construction joints. Where placement consists of several layers, place each layer while preceding layer is still plastic to avoid cold joints. Use internal vibrators penetrating both the top and preceding layers.
- F. Consolidate placed concrete by mechanical vibrating equipment supplemented by hand-spading, rodding or tamping. Use equipment and procedures for consolidation of concrete in accordance with ACI recommended practices.
- G. Use and type of vibrators shall conform to ACI 309 "Recommended Practice for Consolidation of Concrete". Do not use vibrators to transport concrete inside forms. Insert and withdraw vibrators vertically at uniformly spaced locations not farther than visible effectiveness of machine. Place vibrators to rapidly penetrate placed layer and at least 6" into preceding layer. Do not insert vibrators into lower layers of concrete that have begun to set. At each insertion limit duration of vibration to time necessary to consolidate concrete and complete embedment of reinforcement and other embedded items without causing segregation of mix.
- H. Placing Concrete Slabs: Deposit and consolidate concrete slabs in a continuous operation, within limits of construction joints, until the placing of a panel or section is completed.
- I. Consolidate concrete during placing operations so that concrete is thoroughly worked around reinforcement and other embedded items and into corners.
- J. Bring subslab surfaces to correct level with straightedge and strikeoff. Use highway straightedge, bull floats or darbies to smooth surface free of humps or hollows. Do not disturb slab surfaces prior to beginning finishing operations.
- K. Maintain reinforcing in proper position during concrete placement operations.
- L. Cold Weather Placing: Protect concrete work from physical damage or reduced strength which could be caused by frost, freezing actions, or low temperatures, in compliance with ACI 306 and as herein specified.
 - 1. When air temperature has fallen to or is expected to fall below 40°F (4°C), uniformly heat water and aggregates before mixing to obtain a concrete mixture temperature of not less than 50°F (10°C), and not more than 80°F (27°C) at point of placement.
 - 2. Do not use frozen materials or materials containing ice or snow. Do not place concrete on frozen subgrade or on subgrade containing frozen materials.
 - 3. Use only a non-corrosive, non-chloride accelerator. Calcium chloride, thiocyanates or admixtures containing more than 0.05% chloride ions are NOT permitted.
- M. Hot Weather Placing: When hot weather conditions exist that would seriously impair quality and strength of concrete, place concrete in compliance with ACI 305 and as herein specified.

1. Cool ingredients before mixing to maintain concrete temperature at time of placement below 90°F (32°C). Mixing water may be chilled, or chopped ice may be used to control temperature provided water equivalent of ice is calculated to total amount of mixing water. Use of liquid nitrogen to cool concrete is Contractor's option.
2. Cover reinforcing steel with water-soaked burlap if it becomes too hot, so that steel temperature will not exceed the ambient air temperature immediately before embedment in concrete.
3. Fog spray forms, reinforcing steel and subgrade just before concrete is placed.
4. Use water-reducing retarding admixture (Type D) when required by high temperatures, low humidity, or other adverse placing condition.

3.8 FINISH OF FORMED SURFACES

- A. Rough Form Finish: For formed concrete surfaces not exposed-to-view, unless otherwise indicated. This is the concrete surface having texture imparted by form facing material used, with tie holes and defective areas repaired and patched and fins and other projections exceeding 1/4" in height rubbed down or chipped off.
- B. Light Broom Finish: For new concrete pads exposed to view.
- C. Subpavement Slabs and other Concealed Surfaces: Form finish.

3.9 CONCRETE CURING AND PROTECTION

- A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures.
- B. Protect and cure finished concrete using moist curing methods for initial curing whenever possible in accordance with ACI 301. Protect from drying out by covering with concrete curing blankets, polyethylene sheeting, or wet burlap.
- C. Begin final curing procedures immediately following initial curing and before concrete has dried. Continue final curing for at least 7 days in accordance with ACI 301 procedures. Perform curing as soon as possible after concrete placement and in any event within 12 hours. Keep concrete continuously moist for a period of 7 days and maintain at a temperature of at least 50 degrees F. Protect against low and extremely high temperatures, and against loss of moisture. Avoid rapid drying at end of final curing period.
- D. Do not use commercial type curing agents which might discolor or otherwise damage the surface.
- E. Allow concrete to cure for a minimum of 14 days before the erection of load bearing units on anchor bolts, plates, etc.
- F. Curing Method: Perform curing of concrete by curing and sealing compound, by moist curing, by moisture-retaining cover curing, and by combinations thereof, as herein specified.
 1. Provide moisture-cover curing as follows:
 - a. Cover concrete surfaces with moisture-retaining cover for curing concrete, placed in widest practicable width with sides and ends lapped at least 3" and sealed by waterproof tape or adhesive. Immediately repair any holes or tears during curing period using cover material and waterproof tape.

3.10 REMOVAL OF FORMS

- A. Formwork not supporting weight of concrete may be removed after cumulatively curing at not less than 50°F (10°C) for 24 hours after placing concrete, provided concrete is sufficiently hard to not be damaged by form removal operations, and provided curing and protection operations are maintained.
- B. Formwork supporting weight of concrete, such as slabs and other structural elements, may not be removed in less than 14 days and until concrete has attained design minimum compressive strength at 28-days. Determine potential compressive strength of in-place concrete by testing field-cured specimens representative of concrete location or members.

3.11 MISCELLANEOUS CONCRETE ITEMS

- A. Filling-In: Fill-in holes and openings left in concrete structures for passage of work by other trades, unless otherwise shown or directed, after work of other trades is in place. Mix, place and cure concrete as herein specified, to blend with in-place construction. Provide other miscellaneous concrete filling shown or required to complete work.

3.12 CUTTING AND PATCHING

- A. Contractor for concrete work shall be responsible for all cutting, removing and patching work where concrete surfaces are not installed within the limits shown on the drawings or specified herein. All such work shall meet with the approval of the Owner's Representative.
- B. Where cutting and patching is required to accommodate the work of other subcontractors, such cutting shall be done at the expense of said subcontractors but shall be performed by the contractor for concrete work.
- C. The location and extent of cutting in completed concrete work and the patching thereof shall meet with the approval of the Owner's Representative.

3.13 QUALITY CONTROL TESTING DURING CONSTRUCTION

- A. The Contractor will employ a testing laboratory to perform tests and to submit test reports.
- B. Sampling and testing for quality control during placement of concrete shall include the following, as directed by Owner's Representative:
 - 1. Slump: ASTM C 143; one test at point of discharge for each truck; additional tests when concrete consistency seems to have changed.
 - 2. Compression Test Specimen: ASTM C 31; one set of 5 standard cylinders for each compressive strength test, unless otherwise directed. Mold and store cylinders for laboratory cured test specimens except when field-cure test specimens are required.
- C. When strength of field-cured cylinders is less than 85 percent of companion laboratory-cured cylinders, evaluate current operations and provide corrective procedures for protecting and curing the in-place concrete.
- D. Strength level of concrete will be considered satisfactory if averages of sets of three consecutive strength test results equal or exceed specified compressive strength, and no individual strength test result falls below specified compressive strength by more than 500 psi.
- E. Test results will be reported in writing to Owner's Representative and Owner within 24 hours after tests. Reports of compressive strength tests shall contain the project identification name and number, date of concrete placement, name of concrete testing service, concrete type and class, location of concrete batch in structure, design compressive strength at 28 days, concrete

mix proportions and materials; compressive breaking strength and type of break for both 7-day tests and 28-day tests.

- F. Non-Compliance: All test reports indicating non-compliance shall be faxed immediately to all parties on the test report distribution list and the hard copies submitted on different colored paper.
- G. Nondestructive Testing: Windsor probes, sonoscope, or other non-destructive device may be permitted but shall not be used as the sole basis for acceptance or rejection.
- H. Additional Tests: The testing service will make additional tests of in-place concrete when test results indicate specified concrete strengths and other characteristics have not been attained in the structure, as directed by Architect. Testing service may conduct tests to determine adequacy of concrete by cored cylinders complying with ASTM C 42, or by other methods as directed. Contractor shall pay for such tests when unacceptable concrete is verified.

END OF SECTION
03 30 00

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SECTION 04 00 00 - MASONRY

PART 1 - GENERAL

1.1 REFERENCE

- A. Attention is directed to the printed form of the Contract of the Town of Arlington and Division 1 of which these specifications are hereby made a part.
- B. Examine all other Sections of the Specifications for requirements which affect work of this Section whether or not such work is specifically mentioned in this Section.

1.2 SECTION INCLUDES

- A. Install large and small reclaimed granite blocks.
- B. Alt #7: Install boulders provided by Town.
- C. Alt #6: Install granite bollard for hose bibb.

1.3 RELATED WORK

- A. Section 00 43 23 - Alternates
- B. Section 02 41 13 - Site Preparation
- C. Section 31 00 00 - Earthwork
- D. Section 32 30 00 - Site Improvements
- E. Section 33 10 00 - Water System

1.4 PRODUCT DELIVERY, STORAGE AND HANDLING

- A. Provide all labor, materials, equipment, services and transportation required to complete stone wall as shown on Drawings.
- B. Stone Sources: Reclaimed granite blocks and boulders shall be provided and off-loaded at the project site by the Town of Arlington.

1.5 SUBMITTALS

- A. Packing and Loading of Stone: Carefully pack and load finished stone for shipment using all reasonable and customary precautions against damage in transit. Do not use any material which may cause staining or discoloration for blocking or packing.
- B. Site Storage of Stone: Upon receipt at the project site, stone materials shall be stacked on timber platforms at least 4" above the ground. Take extreme care to prevent staining during storage. If storage is to be for a prolonged period, place polyethylene or other suitable plastic film between any wood and finished surfaces. Do not use salt for the melting of ice formed in Lewis holes or on pieces, or for any purpose involving its contact with the stone.
- C. Store and handle stone units to prevent their deterioration or damage due to moisture, temperature changes, contaminants, corrosion or other causes.

1.6 PROJECT CONDITIONS

- A. Remove all stone determined to be frozen or damaged by freezing conditions.

PART 2 - MATERIALS

2.1 RECLAIMED GRANITE

- A. Weathered, reclaimed granite blocks and boulders shall be provided by Owner. Contractor shall install, per Drawings.
- B. Stones shall be carefully picked up with nylon straps or chains and placed on trucks for delivery. Stones shall be secured with wood blocking to keep chains and adjacent stones from scratching weathered surface of stones. No dumping of boulders is permitted.

2.2 GRANITE POSTS AND HANGERS

- A. Provide gray granite fence post of hard and durable stone, free from cracks, seams, chinks, spalling, or any surface flaws. Post shall be cut from a light gray New England granite.
 - 1. Post dimensions and finish shall be as shown in the Drawings.
- B. Hose hanger brackets shall #BLUE-502, 'Small Stainless Steel Hose Rack' in solid stainless steel, as available from Blue Mule Professional Cleaning Systems. Provide stainless steel lag bolts for attaching brackets to granite posts.

2.3 AGGREGATE BASE

- A. Provide crushed stone for base course as specified under Earthwork Section 31 00 00, in this Specification.

PART 3 - EXECUTION

3.1 INSTALLATION OF GRANITE BLOCKS AND SEATS

- A. Town shall deliver and off-load stones being careful to prevent scratches. Contractor shall provide all necessary equipment, chains and labor for picking stones, conveying them to their locations on the construction site, shimming the stones to be at the intended heights and orientations.
- B. Assemble and install granite blocks in accordance with the Drawings.
- C. Excavate to lines and grades shown on drawings and provide crushed stone foundation.
- D. All granite blocks shall be positioned under the direction of the Owner's Representative.

3.2 INSTALLATION OF GRANITE POST AND HANGERS

- A. Install granite post as detailed in the Drawings and as specified herein.
- B. Attach hanger to granite post according to Drawings. Brackets shall be secured to post with stainless steel lag bolts secured into drill with lead anchors.

3.3 CLEANING AND PROTECTION

- A. After installation is completed, carefully clean all work, removing all dirt, excess mortar, stains and/or other site incidental defacements. Clean soiled masonry surfaces using a nonacidic solution which will not harm masonry or adjacent materials. Do not use wire brushes, acid or

other solutions which may cause discoloration. Use nonmetallic tools in cleaning operation.
Apply in accordance with cleaner manufacturer recommendations.

- B. Protect work in progress and after completion. Keep the premises neat and clean at all times.

END OF SECTION
04 00 00

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SECTION 06 20 00 – EXTERIOR CARPENTRY

PART 1 - GENERAL

1.1 REFERENCE

- A. Attention is directed to the printed form of the Contract of the Town of Arlington and Division 1 of which these specifications are hereby made a part.

1.2 SECTION INCLUDES

- A. Alt #4: Sand Box
- B. Alt #8: Cedar Fence.

1.3 RELATED WORK

- A. Section 00 43 23 - Alternates
- B. Section 03 30 00 - Cast in Place Concrete

1.4 QUALITY ASSURANCE

- A. Codes and Standards: Perform all work in accordance with all applicable safety codes. Comply with the standards of the following associations except as otherwise required:
 - 1. AITC: American Institute of Timber Construction
 - a. AITC 100: Timber Construction Standards.
 - b. AITC 104: Typical Construction Details.
 - 2. NFPA: National Forest Products Association, National Design Specification for Wood Construction.
 - 3. FSC: Forest Stewardship Council.

1.5 SUBMITTALS

- A. Manufacturer's specifications and installation instructions for the required work, covering lumber, fabrication, treatment and fasteners.

1.6 PRODUCT HANDLING

- A. Cedar: Store materials off ground, well ventilated and covered. Keep dry at all times. Handle carefully to prevent damage to visible surfaces.

1.7 JOB CONDITIONS

- A. Time delivery and installation of carpentry work to avoid extended site storage, and to avoid delaying work of other trades.

1.8 SUBMITTALS

- A. Manufacturer's catalog data and specification sheets for each type of manufactured product, including certification that each product complies with specified requirements. Include instructions for handling, storage, installation and protection.
- B. SHOP AND ERECTION DRAWINGS showing elevations and sections for fence and sand box including fabrication and erection tolerances for all types of materials, types and details of connections.

PART 2 - PRODUCTS

2.1 MATERIALS

A. LUMBER - GENERAL

1. Lumber Standards: Manufacture lumber to comply with AITC and with applicable grading rules of inspection agencies certified by American Lumber Standards Committee's [ALSC] Board of Review.
2. Inspection Agencies: Inspection agencies with the abbreviations used to reference with lumber grades and species include the following:
 - a. NELMA: Northeast Lumber Manufacturing Association
3. Nominal sizes are indicated, except as shown by detail dimensions. Provide actual sizes as required by AITC, for moisture content specified for each use.
 - a. Provide dressed lumber, S4S, unless otherwise indicated.
 - b. Provide seasoned lumber with 15% maximum moisture content, "S-DRY", at time of dressing and shipment for sizes 2 inches or less in nominal thickness, and 19% maximum moisture content, "S-DRY", at time of dressing and shipment for sizes more than 2 inches in nominal thickness, unless other indicated.

B. LUMBER

1. Fence components shall be solid wood (not laminated) cut from Eastern White Cedar. It shall meet the grading requirements for select wood. Fence boards shall have shiplap joinery on each long edges such that boards will fit cleanly together without any gaps. Boards will be surfaced on top and bottom, and sanded on exposed surfaces.
2. Sand box timbers shall be preservative treated with an arsenic and chromium free pressure treatment equal to ACQ Preserve as manufactured by Chemical Specialties, Inc. Charlotte NC. Pressure treated wood shall comply with AWPA C22 with preservative retention of 0.60 pounds per cubic foot. Kiln dry after treatment to 19 percent maximum moisture content.
 - a. Complete fabrication including cutting, trimming, surfacing and sanding of treated items prior to treatment where possible. If cut after treatment, coat cut surfaces with heavy brush treatment of same chemical used for treatment and to comply with AWPA M4.
 - b. Inspect each piece of lumber after drying and discard bowed, warped, twisted, checked, damaged or defective pieces affected by treatment, to the extent of causing a detrimental effect.

C. FASTENERS AND ANCHORAGES

1. Provide size, type, material and finish as indicated and as recommended by applicable standards, complying with applicable Federal Specifications for nails, screws, bolts, nuts, washers and anchoring devices. Provide metal hangers and framing anchors of the size and type recommended by the manufacturer for each use including nails.
 - a. Provide all fasteners and anchorages of stainless steel, AISI Type 316.
 - b. Use ring shank or spiral shank nails.

- c. For lateral nailing of fencing units, use 1/4 inch diameter by 8 inch long stainless steel nails.
- d. All bolts, nuts and washers shall be stainless steel. Bolts shall be of such length that 1/2 of the bolt diameter projects beyond the nut when tightened. Nuts to be tamperproof (tri-groove). Washers shall be plain round or square as indicated on the Drawings.

2.2 MISCELLANEOUS MATERIALS

- A. PLAYGROUND SAND shall be chosen from one of the following: Sakrete Play Sand, Sandtastik or approved equal.
 - 1. Sand shall be free of dust and silica. Product shall carry the ACMI seal ensuring non-toxic materials.
- B. FILTER FABRIC: The compacted base course and vertical sides of the sand box shall be covered with a filter fabric equal to Amoco 4545, or approved equal. All seams shall be overlapped with a minimum 4 inches.

2.3 WOOD FINISH

- A. Finish for Cedar Fence components shall be selected from one of the following:
 - 1. Penofin 'Penetrating Oil Finish for Hardwoods'.
 - 2. Waterlox Original Marine Sealer/Finish.
 - 3. Cabot 'Australian Timber Oil Series 3400'.
 - a. Provide color samples of chosen finish for selection by Owner's Representative.

2.4 CONCRETE FOOTINGS

- A. CONCRETE shall conform to ASTM C94 using 3/4 inch maximum size aggregate and have a minimum compressive strength of 3,000 psi at 28 days.

2.5 FABRICATION

- A. General: Comply with width, thickness, pattern and length requirements as shown and specified. Except as otherwise indicated, fabricate members to lengths required for span applications as indicated. Random length fence boards are not acceptable.

PART 3 - EXECUTION

3.1 PRE-WORK INSPECTION

- A. Examine the footings and conditions under which wood fencing is to be installed, and notify the Owner's Representative in writing of conditions detrimental to proper completion of the work. Do not proceed with installation until unsatisfactory conditions have been corrected in a manner satisfactory to the Installer.

3.2 CONCRETE FENCE BASES

- A. EXCAVATION: Drill holes for post footings in firm, undisturbed or compacted soil of diameters and spacings shown. Unless otherwise indicated, excavate hole depths approximately 3" lower than the post bottom, with bottom of posts set not less than 48" below the surface when in firm, undisturbed soil. Excavate deeper as required for adequate support in soft and loose soils and for posts with heavy lateral loads. Remove excess excavated material from the site.

- B. SETTING POSTS: Remove loose and foreign materials from sides and bottoms of holes, and moisten soil prior to placing concrete. Center and align posts in holes 3" below bottom of excavation. Place concrete around posts in a continuous pour, and vibrate or tamp for consolidation. Check each post for horizontal, vertical and top alignment, and hold in position during placement and finishing operations.
 - 1. Trowel finish tops of footings, and slope or dome to direct water away from posts. Keep top of concrete 12" below finish grade. Set keeps, stops, sleeves and other accessories into concrete as required. Keep exposed concrete surfaces moist for at least 7 days after placement, or cure with membrane curing materials, or other acceptable curing method.
- C. CONCRETE STRENGTH: Allow concrete to attain at least 75% of its minimum 28 day compressive strength, but in no case sooner than 7 days after placement, before additional weight is installed. Do not hang gates until the concrete has attained its full design strength.

3.3 INSTALLATION

- A. Perform all carpentry work by workmen skilled and experienced in the trade in a neat and clean fashion. Install all work in straight and true lines, square, plumb and true to line and grade, and cut and fitted.
- B. Discard units of material with defects which might impair quality of work, and units which are too small to use in fabricating work with minimum joints or optimum joint arrangement.
- C. Rigidly anchor or attach all items. Secure carpentry items securely together by anchoring and fastening as shown and as required by recognized standards. Make tight connections between members. Make joints tight, even and free of offsets. Install fasteners without splitting of wood. Pre-drill wood items as required. Select fasteners of size that will not penetrate members where opposite side will be exposed to view or will receive finish materials.
 - 1. Fence posts, panels and sand box timbers shall be installed plumb when viewed from every direction.
- D. Maintain expansion spaces as shown and as required by applicable AITC standards, and as recommended by manufacturer. Comply with manufacturer's instructions and with AITC recommendations for nailing lumber.
- E. Install fence boards in accordance with the drawings and manufacturer's instructions. Align for uniform appearance. Field cut as required in accordance with manufacturer's instructions.
 - 1. Nail and lag screw as indicated, or if not otherwise indicated, comply with manufacturer's instructions and with AITC recommendations for nailing wood boards. Toenail each piece at each support with one 40d nail and face nail with one 60d nail.
- F. Sand or otherwise prepare all exposed surfaces. Wood fence components will be left natural.
- G. Repair damaged surfaces and finishes after completion of installation. Where damage is beyond satisfactory repair, replace damaged members.

3.4 SAND BOX

- A. After installation of PT timbers, filter fabric, crushed stone and playground sand shall be placed on inside of box, at depths as shown on Drawings.

END OF SECTION
06 20 00

SECTION 31 00 00 - EARTHWORK

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Attention is directed to the printed form of the Contract of the Town of Arlington and Division 1 of which these specifications are hereby made a part.
- B. Examine all other Sections of the Specifications for requirements which affect work of this Section whether or not such work is specifically mentioned in this Section.

1.2 DESCRIPTION OF WORK

- A. Stripping and stockpiling of loam.
- B. Excavating, filling, backfilling and grading as required for the construction of paving, rubber surfacing, site improvements and other site work.
- C. Providing, furnishing and placing of all fill and backfill materials as specified herein, as shown on the Drawings or as required.
- D. Compaction and decompaction procedures.
- E. Protecting all existing structures, utilities, pavements, planting and other site improvements from damage due to construction.
- F. Performing all dewatering necessary to maintain excavated areas free from water from any source.
- G. Removing and disposing of all unsuitable and surplus excavated materials from the site.
- H. Work under this Section shall include an Allowance, for bidding purposes, for the removal of rock, concrete and other subsurface materials up to and including four [4] cubic yards in volume encountered during excavation that can be removed by normal power excavation equipment. Excavation of this material shall be at the Contractor's expense.

- 1. Such removals shall be measured by the Contractor by notifying the Designer prior to the removal. If not performed, credit to the extent of ledge, boulder, or foundation removal less than four (4) cubic yards in the measurements shall be applied to the contract price at a value of \$80.00 per cubic yard. The contract price shall be reduced by the extent of work not undertaken as called for in this Section. The contract price shall be increased, if additional work is authorized by the Designer and verified by the Owner, at a value of \$100.00 per cubic yard.
- 2. Rock excavation shall be measured in place by a Civil Engineer employed by the Contractor with quantities verified by the Designer. No rock removals shall be credited to the Contractor without prior measurements and verifications.

1.3 RELATED WORK

- A. The following items of related work are specified and included in other Sections of the Specifications:
 - 1. Section 02 41 13 - Site Preparation
 - 2. Section 03 30 00 - Cast In Place Concrete
 - 3. Section 32 12 16 - Bituminous Concrete Paving
 - 4. Section 21 18 16 - Resilient Surfacing
 - 5. Section 32 30 00 - Site Improvements
 - 6. Section 32 90 00 - Lawns and Planting

1.4 REFERENCES

- A. AASHTO: American Association of State Highway and Transportation Officials.
- B. ANSI A10 Series standards: American National Standards Institute, "Safety Requirements for Construction and Demolition".
- C. ASTM: American Society of Testing Materials.
- D. MassDOT: "Standard Specifications for Highways and Bridges", Massachusetts Highway Department, Commonwealth of Massachusetts, latest edition.

1.5 QUALITY ASSURANCE

- A. Comply with all codes, laws, ordinances and regulations of governmental authorities having jurisdiction over this part of the work.
- B. Provide protection for all persons and property in accordance with ANSI/NFPA 241, Building Construction and Demolition Operations. Execute all work in such a manner as to protect existing buildings, streets, curbs, paving, utility lines, structures, fences and adjoining property from damage by equipment, settlement, undermining, washout, frost and other hazards created by earthwork operations.

1.6 TESTING SERVICES

- A. The testing laboratory will be responsible for conducting and interpreting tests, state in each report whether or not the test specimens conform to all requirements of the Contract Documents and specifically note any deviation there from. Specific test and inspection requirements shall be as specified herein.

1.7 SUBMITTALS

- A. Test Reports:
 - 1. Gradation tests for all soil materials.
 - 2. Optimum moisture - maximum density of soils.
 - 3. Field density tests.

1.8 PRODUCT DELIVERY, STORAGE AND HANDLING

- A. Protect and handle manufactured materials during loading, shipping, unloading at the site, storage and erection as required to prevent damage.

1.9 BENCH MARKS AND ENGINEERING

- A. Line and grade work in accordance with the Drawings and Specifications shall be laid out by a registered Civil Engineer or Land Surveyor employed by the Contractor. Establish permanent bench marks, as required, to which access can be easily had during the progress of the work. Maintain all established bounds and bench marks and replace as directed any which are disturbed or destroyed. Establish lines and grades in conformity with the Drawings. Provide sufficient grade stakes to witness correct lines and grades.
- B. Verify dimensions and elevations on the ground and report any discrepancies immediately to the Owner's Representative. Any discrepancies not reported prior to construction shall not be the basis for claims for extra compensation.

- C. The Drawings indicate, in general, alignment and finish grade elevations. The Owner's Representative, however, may make such adjustments in grades and alignments as are found necessary in order to avoid interference with any special conditions encountered.

1.10 DEFINITIONS

- A. Fill and backfill shall be, for the purpose of this Specification, considered interchangeable terms and shall mean material to be used to bring existing or construction grades up to finish subgrade levels.
- B. The words "finish grade" as used herein mean the required final grade elevations indicated on the Drawings. Where not otherwise directed, areas outside buildings shall be given uniform slopes between points for which finish grades are shown, or between such point and existing grade, except that vertical curves or roundings shall be provided at abrupt changes in slope.
- C. The word "subgrade" as used herein, means the required surface of subsoil, borrow fill or compacted fill. This surface is immediately beneath the site improvements, specially dimensioned fill, paving, loam or other surfacing materials.
- D. Excavation is defined as the removal of materials from the construction area to the lines and grades shown on the plans.
 - 1. Unclassified Excavation is defined as the removal of all material encountered regardless of its nature. All material excavated will be considered as Unclassified Excavation unless the Special Provisions specify Classified Materials.
- E. "Unsuitable Materials" shall include the following:
 - 1. Pavements, utility structures, building foundations and other manmade structures.
 - 2. Peat, muck, organic silt and other organic materials subject to decomposition, consolidation or decay.
 - 3. Miscellaneous fill including cinders, ash, glass, wood, masonry and metal.
 - 4. Ledge and boulders except as specified herein for fills.
- F. "Trench" shall be defined as an excavation of any length where the width is less than twice the depth. All other excavations shall be unclassified.

1.11 EXISTING CONDITIONS

- A. Subsurface Information: The Owner's Representative assumes no responsibility for the Contractor's failure to make his own site investigation and makes no representation regarding the character of the soil or subsurface conditions which may be encountered during the performance of the work. Bidders are expected to examine the site and then decide for themselves the character of materials to be encountered.
- B. Existing Utilities
 - 1. Before starting earthwork, locate existing underground utilities in areas of work. If utilities are to remain in place, provide adequate means of support and protection during earthwork operations.
 - 2. Should uncharted, or incorrectly charted, piping or other utilities be encountered during excavation, consult utility Owner immediately for directions. Cooperate with Owner and utility companies in keeping respective services and facilities in operation. Repair damaged utilities to satisfaction of Owner.

3. Do not interrupt existing utilities serving facilities occupied or used by Owner and others, during occupied hours, except when permitted in writing by Owner and then only after acceptable temporary utility services have been provided. Provide minimum of 48 hour notice to Owner, and receive written notice to proceed before interrupting any utility.
- C. Retaining Structures: Provide bracing, shoring, sheeting, temporary tie backs, rock anchors and rock bolts, sheet piling, underpinning or other retaining structures necessary to prevent any movement or settlement of existing or new construction, utilities, paving, piping or conduit.

PART 2 - PRODUCTS

2.1 SOIL MATERIALS

- A. ORDINARY FILL shall conform to the requirements of Section M1.01.0 of MassDOT. In addition it shall be clean, mostly granular, natural inorganic soil. It shall be free of organic or other weak or compressive materials, frozen materials, cinders, trash, rubble and stone larger than six (6) inches maximum dimension.
1. Material from excavation on the site meeting the above requirements may be used as ordinary fill provided it has not been contaminated with unsuitable material.
- B. GRANULAR FILL shall conform to the requirements of Section M1.03.0, Type c of MassDOT.
- C. GRAVEL, as noted in the Drawings, shall be DENSE GRADED CRUSHED STONE conforming to the requirements of Section M2.01.7 of MassDOT.
- D. WASHED CRUSHED STONE shall be 3/4" minus irregular stone with fines conforming to the requirements of Section M2.01.4 of MassDOT.
- E. FILTER FABRIC: one of the following:
1. Amoco 4545 as manufactured by Amoco
 2. AEF 480HS as manufactured by American Engineering Fabrics, Inc., New Bedford, MA.
 3. 80NW as manufactured by US Fabrics, Cincinnati, OH.
 4. Typar 3201 as manufactured by E. I. DuPont de memoirs & Co., Inc., Wilmington, DE.

2.2 USE OF FILL MATERIALS

- A. Ordinary Fill may be utilized as fill in landscaped areas up to subgrade.
- B. Granular Fill shall be utilized as fill in the following locations:
1. To replace unsuitable material.
 2. All walk embankments to subgrade.
 3. Elsewhere as shown on the Drawings or specified. Wherever fill materials such as Ordinary Fill or Gravel have not been specified herein or shown on the Drawings.
- C. Gravel shall be utilized as sub-base material for all paved surfaces, where so indicated on the Drawings or specified herein.

PART 3 - EXECUTION

3.1 STRIPPING TOPSOIL

- A. Stripping: Prior to starting general excavation, all topsoil shall be stripped to their entire depth from areas to be occupied by new walk areas, or any areas where the existing grade is to be changed.
- B. The Contractor shall segregate excavated material into stockpiles depending on the type and reuse potential of the material. At a minimum, the following materials shall be segregated separately:
 - 1. Topsoil
 - 2. Fill soils deemed suitable for reuse on site.

3.2 STOCKPILING

- A. Stockpiled material shall be stored so as not to interfere with the established sequence of the construction. Determine whether there is sufficient space for stockpiling and work with the Owner to establish stockpile zones outside of the limit of work.
- B. Should conditions make it impracticable or unsafe to stack material adjacent to excavations, the material that is not contaminated shall be hauled and stored at an approved location. When required, it shall be re-handled and used in backfilling at no additional cost to the Owner.
- C. Stockpile soil materials without intermixing. Place, grade, and shape stockpiles to drain surface water away from existing drainage structures.
- D. All stockpiled loam shall be protected from wind and water erosion as specified in Section 02 41 13, SITE PREPARATION.
- E. Hand Excavation: In general, stripping by machine will be permitted with the exception of work in the vicinity of trees to remain and existing utilities which might be disturbed or damaged during stripping operations.

3.3 EXCAVATION

- A. Excavation is "Unclassified", and includes excavation to subgrade elevations indicated, or required to accommodate new construction, regardless of character of materials and obstructions encountered and shall be understood to include rock, shale, boulders, earth, hardpan, fill, foundations, pavements, curbs, piping and debris. It shall include the removal of all rubble, debris, foundations, pavement, utilities and appurtenances to two (2) feet minimum below finish grade.
- B. Excavate to the following basic subgrades:
 - 1. Footings and other site improvements: To exact elevations required.
 - 2. Paving: To elevations indicated on the Drawings.
- C. Unauthorized Excavation: When suitable bearing material is encountered at subgrade elevations shown and excavation is made to greater depth, bring grade back to elevation required by providing granular fill at no additional cost to the City.

D. Rock Excavation

1. The material to be excavated shall be assumed for bidding purposes to be earth and other materials that can be removed by normal power excavation equipment. This includes rock, concrete and other subsurface materials up to and including two [2] cubic yards in volume encountered during excavation. Excavation of this material shall be at the Contractor's expense.
2. Rock or ledge shall be defined as follows:
 - a. Open Ledge - Class A: Rock, stone or boulders over two [2] cubic yards in volume to be removed and disposed of from an open area normally by bulldozer, power shovel or similar type equipment.
 - b. Trench Ledge - Class A: Rock, stone or boulders over one [1] cubic yard in volume to be removed and disposed of from a confined area normally by backhoe or similar type equipment.
 - c. Open Ledge - Class B: Rock, stone or boulders over two [2] cubic yards in volume that can be removed only by blasting or pneumatic equipment.
 - d. Trench Ledge - Class B: Rock, stone or boulders over one [1] cubic yard in volume that can be removed only by blasting or pneumatic equipment.
 - e. Anything other is "earth" insofar as removal of the material to be excavated is concerned.
3. When, during the process of excavation, rock is encountered, uncover such materials and free them of loose material. Notify the Owner's Representative before proceeding further. The area in question shall be cross sectioned as stipulated herein. Do not proceed with excavation of material claimed as rock until the material has been classified by the Owner's Representative. Failure on the part of the Contractor to uncover such materials or notify the Owner's Representative or take cross sections will forfeit the Contractor's right of claim to any credits. The quantity of rock to be removed shall be based upon the pay line limits as established herein. The quantity of rock to be removed shall be approved by the Owner's Representative prior to blasting.
4. The Contractor shall employ and pay for a Land Surveyor or Civil Engineer registered in Massachusetts to take cross sections of rock before removal of same and to provide computations of cross sections within the pay line limits. Complete current records of actual quantities of rock excavated, methods of excavation used and extent of labor and equipment involved shall be maintained jointly by the Contractor and Owner's Representative, and shall be dated and signed by both with duplicate copies retained by the Owner's Representative for record. Such records shall include plot plans showing at a suitable scale all elevations, locations and measurements or computed volumes of rock or boulders encountered. All labor and equipment necessary to make these plot plans and take these measurements shall be furnished by the Contractor. No payment will be considered for rock which has been removed without obtaining the above required data.
5. Excavate rock encountered in grading the site areas to depths as follows:
 - a. Under utility structure footings and subsurface piping: to six [6] inches below the required subgrade for such footing or piping.
 - b. Outside of utility structures: to one [1] foot outside [measured horizontally] of such structure.
 - c. Outside of subsurface piping: to six [6] inches outside [measured horizontally] of such piping.
6. Blasting: The use of explosives will not be permitted.
7. If rock is encountered the Contract Price will be adjusted in accordance with industry standard prices.

8. The additional price for rock removal shall include filling the void created by removal of the rock beyond the indicated limits of excavation with suitable materials in accordance with paragraphs on Fill, Backfill and Compaction at no added cost to the Owner. No allowance shall be made by the Contractor on account of rock or ledge, if encountered, reducing the amount of ordinary fill material available for filling operations, the Contractor being responsible to provide all such required material whether obtained from on or off the site.
 9. The Owner's Representative reserves the right to adjust the proposed elevations to conform to any rock conditions.
- E. Slope sides of excavations to comply with local codes and ordinances having jurisdiction. Shore and brace where sloping is not possible because of space restrictions or stability of material excavated.
- F. Dewatering: Prevent water and subsurface or ground water from flowing into excavations and from flooding project site and surrounding area.
1. Do not allow water to accumulate in the excavations. Remove water to prevent softening of foundation bottoms, undercutting footings and soil changes detrimental to stability of subgrades and foundations. Provide and maintain pumps, suction and discharge lines, and other dewatering system components necessary to convey water away from excavations.
 2. Establish and maintain temporary drainage ditches and their diversions outside excavation limits to convey rain water and water removed from excavations to collecting or runoff areas. Do not use trench excavations as temporary drainage ditches. The disposal of water from excavations shall not cause damage to adjacent property and shall be in compliance with all applicable laws and regulations, in particular, those related to protection of water resources and other environmental features.
 3. Keep the water level in areas being compacted at least two (2) feet below the level at which compaction is being done at all times. Under no circumstances lay pipe or install appurtenances in water. Keep all trenches free from water until they have been backfilled.
- G. Material Storage: Stockpile satisfactory excavated materials where directed until required for backfill or fill. Place, grade and shape stockpiles for proper drainage. Do not store within drip line of trees to remain.
- H. Excavation for Structures: Conform to elevations and dimensions shown within a tolerance of plus or minus 0.10 feet, and extending a sufficient distance from footings and foundations to permit placing and removal of formwork, installation of services, other construction and for inspection.
- I. Frost Protection:
1. Make no excavations to full depth indicated when freezing temperature may be expected unless intended improvements can be accomplished immediately after the excavations have been completed. Protect bottom so excavated from frost if progress is delayed. Protect the subgrade of in place footings from frost. Should protection fail remove frozen materials and replace with concrete or granular fill as directed at no cost to Department.
 2. Keep the site clear and free of accumulations of snow within the limit of the Contract lines as necessary to carry out the work of the Contract.
 3. Fill materials containing frost shall not be utilized, nor shall filling be done over frozen material.
 4. Protect the underside of all in place construction from frost penetration during the construction period of this Contract. Such protection shall include all in place footings and slabs, during all periods of freezing temperatures until such time as the entire project is

complete. Minimum frost protection shall consist of a 4 foot thickness of earth, or equivalent in insulating properties.

3.4 BACKFILL AND FILL

- A. Place acceptable soil material in layers to required subgrade elevations, for each area classification listed below.
1. Under lawns: Use satisfactory excavated or borrow material.
 2. Under paving and surfacing: Use subbase material, or satisfactory excavated or borrow material, or combination of both.
- B. Backfill excavations as promptly as work permits, but not until completion of the following:
1. Acceptance of construction below finish grade.
 2. Backfilling of voids with satisfactory materials.
- C. Placement and Compaction: Place backfill and fill materials in uniform lifts of not more than 12 inches in loose depth for ordinary fill and 8 inches in loose depth for other materials compacted by heavy compaction equipment, and not more than 6 inches in loose depth for material compacted by hand operated mechanical compactors.
1. Before compaction, moisten or aerate each layer as necessary to provide optimum moisture content. Compact each layer to required percentage of maximum dry density or relative dry density for each area classification.
 2. Place backfill and fill materials adjacent to structures, piping or conduit evenly to required elevations. Take care to prevent wedging action of backfill against structures or displacement of piping or conduit by carrying material uniformly around structure, piping or conduit to approximately the same elevation in each lift.
 3. Do not place any fill material until structural components involved have sufficient strength to withstand the pressure to be imposed. Remove from spaces to be filled all unstable material, including all rubbish, trash, refuse and other debris.
 4. Do not place backfill or fill material on surfaces that are muddy, frozen, or contain frost or ice.
 5. Coordinate backfilling with the installation of the work of all trades.
 6. Compact backfill to match adjacent areas as specified above. Correct settlement of fill by filling to subgrade levels in all areas where settlement occurs.
 7. No wheel loads are allowed within 3 feet of the slope face. Compact backfill within 3 feet of the slope face by hand operated mechanical compactors.

3.5 DECOMPACTION OF SOILS

- A. General:
1. All existing in-place soil within the limit of new lawn turf and new tree plantings that has been subject to compaction, vehicular traffic, equipment storage or material stockpiling prior to and during the performance of this Contract shall be deep ripped to a depth of 12 inches in accordance with the requirements of this Specification.
- B. Decompaction Operations:
1. Vertically fracture all exposed subsoil material in specified areas as noted above within the Limits of Work through deep turnover and ripping, decompaction, restoring soil porosity and

permeability and aiding infiltration and reducing runoff. Fracture the subsoil to a depth of 12 inches.

2. Effective fracturing of compressed subsoil material is achieved only when the soil material is moderately dry to moderately moist. Perform subsoiling only when soil has suitable moisture content as described in this Specification.
3. Contractor shall take care to stage operations of loam placement so that newly placed soils are not compacted after placement. Contractor shall demonstrate that his/her protocols for re-spreading topsoil will not cause extensive compaction.

3.6 SUBGRADE PREPARATION AND GRAVEL PLACEMENT FOR PAVEMENTS

- A. Clean the rough subgrade of all loose, soft, foreign or other unsuitable material and reshape as required. Add suitable fill material to meet required grade.
- B. Compact to required grades and sections for paving. Tamp traces of trenches. Remove spongy or otherwise unsuitable material and replace with approved material. Loosen exceptionally hard spots and recompact. Take every precaution to obtain a foundation of uniform bearing power. In absence of specific requirement, compact foundation by such means as will provide firm base and insurance against settlement of superimposed work.
- C. Roll with wheeled roller having a weight per inch of width not less than 400 pounds. Begin rolling longitudinally at sides, overlapping each pass by one-half of rear wheel. Fill all depressions or settlements which occur. Continue until all stones are firmly interlocked and surface is true and unyielding. Compaction shall be in accordance with these Specifications. After final rolling, surface is to be free of depressions or irregularities greater than 3/8 inch in 10 feet.
- D. Construct base course as detailed on the Drawings for all areas of new paved surfaces in this Section. Placement of gravel base course shall conform to the requirements of MHD except as herein modified.
- E. Spread gravel from self-spreading vehicles, approved type of power grader or by hand upon prepared subgrade. Spread evenly in layers so as to avoid separation of aggregates. Layers shall not exceed 6 inches in depth after compaction. Remove stones larger than 3 inches. When spread and rolled on the prepared surface, it shall form a stable surface. Compaction shall have a density of not less than 95% of maximum density determined in accordance with AASHTO-T-180 Method D. All rolling shall be done with a roller weighing 8 to 10 tons. Compact any portion which is not accessible to a roller by mechanical or hand tamper.
- F. Final rolled surface shall be true to the lines and grades indicated on the Drawings or as directed by the Owner's Representative. Fill any depression that may appear during and after rolling the gravel and re-roll until the surface is true and even. Tolerance shall be 3/8 inch maximum above or below the cross-section grades and 3/8 inch maximum under a 10 foot line longitudinally.
- G. Maintain the surface of any layer in its finished condition until succeeding layer is placed. Properly drain the subbase at all times.

3.7 COMPACTION

- A. Control soil compaction during construction providing minimum percentage density specified for each area classification.

- B. Percentage of Maximum Density Requirements: Compact soil to not less than the following percentages of maximum density of soils which exhibit a well defined moisture density relationship determined in accordance with ASTM D1557, Method C.
 - 1. Pavements and Site Improvements: Compact top 12 inches of subgrade and each layer of backfill or fill material at 85 percent maximum density.
- C. Moisture Control: Where subgrade or layer of soil material must be moisture conditioned before compaction, uniformly apply water to surface of subgrade or layer of soil material, to prevent free water from appearing on surface during or subsequent to compaction operations.
 - 1. Remove and replace, or scarify and air dry, soil material that is too wet to permit compaction to specified density.
 - 2. Soil material that has been removed because it is too wet to permit compaction may be stockpiled or spread and allowed to dry.

3.8 GRADING

- A. Uniformly grade areas within limits of grading under this section, including adjacent transition areas. Smooth finished surface within specified tolerances, compact with uniform levels or slopes between points where elevations are indicated, or between such points and existing grades.
- B. Grade areas to drain away from structures and to prevent ponding. Finish surfaces free from irregular surface changes, and as follows:
 - 1. Plant beds, lawns or unpaved areas: Finish areas to receive topsoil to within not more than 0.10 foot above or below required subgrade elevations.
 - 2. Paved areas: Shape surface of areas under paved surfaces to line, grade and cross section, with finish surface not more than 0.10 foot above or below required subgrade elevations.
- C. Compaction: After grading, compact subgrade surfaces to the depth and indicated percentage of maximum or relative density for each area classification.
- D. Do all cutting, filling, reshaping, re-grading and re-compacting as necessary to meet the requirements of the Drawings and this Section of the Specifications. Maintain subgrades at the levels specified until turned over to subsequent construction. Bring to required subgrade levels any areas where settlement, erosion or other grade changes occur.

3.9 PROTECTION AND REPAIR

- A. Protect newly graded areas from traffic and erosion. Keep free of trash and debris.
- B. Repair and re-establish grades in settled, eroded and rutted areas to specified tolerances.
- C. Where completed compacted areas are disturbed by subsequent construction operations or adverse weather, scarify surface, reshape and compact to required density prior to further construction.

3.10 DISPOSAL OF UNSUITABLE AND SURPLUS EXCAVATED MATERIALS

- A. Remove excess excavated materials, including unacceptable excavated material, trash and debris, and legally dispose of it off the project site.

3.11 FIELD QUALITY CONTROL

- A. Quality Control Testing During Construction: Allow testing service to inspect and approve subgrades and fill layers before further construction work is performed.
- B. If in the opinion of the Owner, based on testing service reports and inspection, subgrade of fills which have been placed are below specified density, provide additional compaction and testing at no additional expense.

3.12 TESTS

- A. Testing laboratory will perform the following general services:
 - 1. Determine maximum dry density and optimum moisture content of soils in accordance with standards herein before specified.
 - 2. Provide optimum moisture - maximum density curves for undisturbed soil used for bearing and material used for compacted fill.
 - 3. Test and approve all subgrades and compacted fill layers before construction thereon.
- B. Testing laboratory will perform the following field tests:
 - 1. Determine frequency of field tests to assure densities required. Unless otherwise determined, minimum field testing shall be a density test for each 5,000 square feet of undisturbed subgrade and for each 5,000 square feet of overlying compacted fill.

END OF SECTION
31 00 00

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SECTION 32 12 16 - BITUMINOUS CONCRETE PAVEMENT

PART 1 - GENERAL

1.1 REFERENCE

- A. Attention is directed to the printed form of the Contract of the Town of Arlington and Division 1 of which these specifications are hereby made a part.

1.2 SECTION INCLUDES

- A. Bituminous Concrete Walk Paving

1.3 RELATED WORK

- A. Section 02 41 13 - Site Preparation
- B. Section 03 30 00 - Cast in Place Concrete
- C. Section 31 00 00 - Earthwork
- D. Section 32 18 16 - Resilient Surfacing
- E. Section 32 30 00 - Site Improvements

1.4 REFERENCES

- A. The following standards shall apply to the work of this Section.
 - 1. American Association of State Highway and Transportation Officials (AASHTO):
 - M 20 Penetration Graded Asphalt Cement
 - M 82 Cut-Back Asphalt (Medium Curing Type)
 - M 140 Emulsified Asphalt
 - 2. American Society for Testing and Materials (ASTM):
 - D 1557 Moisture-Density Relations of Soils and Soil Aggregate Mixtures Using 10-pounds Rammer and 18-in. Drop.
 - 3. MassDOT: "Standard Specifications for Highways and Bridges", Massachusetts Department of Transportation, latest edition.
 - 4. Federal Specifications (Fed. Spec.):
 - SS-S-1401 Sealing Compound, Hot Applied, for Concrete and Asphalt Pavements

1.5 SUBMITTALS

- A. At least 30 days prior to intended use, the Contractor shall provide job mix formula for all bituminous concrete specified in this Section, listing quantities and pertinent ingredient properties for review and approval by the Owner's Representative. Do not order materials until Owner's Representative's approval of mix formula has been obtained. Delivered materials shall closely match the approved samples.
- B. Report on test of in place construction of bottom and top courses of bituminous pavements.

1.6 QUALITY ASSURANCE

- A. Unless otherwise specified, work and materials for construction of the bituminous concrete pavement shall conform to the applicable portions of the following:

1. MassDOT Specifications Section 701 for bituminous concrete sidewalks, and Section 402 for dense graded crushed stone for base course.

- B. Paving work, base course installation, top coarse installation and the like, shall be done only after excavation and construction work that might have damaged them has been completed. Damage caused during construction shall be repaired before acceptance.
- C. Pavement subbase shall not be placed on a muddy or frozen subgrade. Pavement courses shall not be placed on frozen or contaminated base course or binder course.
- D. Existing pavement to remain shall, if damaged during the course of this project, be repaired or replaced as specified. Materials and construction shall match local or state paving standards and cross sections, whichever is most stringent.

1.7 TESTING AND INSPECTION

- A. The Owner's Representative reserves the right to retain an independent testing laboratory to perform inspection and testing of paving and associated work in accordance with Division 1.

1.8 ENVIRONMENTAL REQUIREMENTS

- A. Install bituminous concrete pavements in accordance with temperature and weather limitations specified by MassDOT.
 - 1. No mix shall be placed on wet or damp surfaces. No mix shall be placed when ambient temperatures are 40°F and falling.

PART 2 - PRODUCTS

2.1 BASE COURSE

- A. Base course shall be dense graded crushed stone as specified, provided and installed under Section 31 00 00, EARTHWORK, of this Specification.

2.2 BITUMINOUS CONCRETE

- A. Bituminous Concrete shall be a standard plant-mixed, hot-laid paving material for walk work, consisting of clean, crushed rock aggregate, mineral filler, and asphalt.
- B. Bituminous Concrete Mixtures: Bituminous concrete for walkways shall be Class I, Type I-1, furnished in accordance with ½" Standard Top Course per MassDOT Specifications Section M3.11.03 Table A and Section 701.62.

2.3 BITUMINOUS MATERIALS

- A. Tack coat shall consist of asphalt emulsion, Type RS-1 or RS-2 conforming to MassDOT Specifications.
- B. Prime coat shall be Asphalt Primer conforming to MassDOT Specifications, M3.02.1, Asphalt Primer, and in accordance with the requirements of AASHTO M116.

PART 3 – EXECUTION

3.1 GRADING

- A. Areas to be paved shall be compacted and brought approximately to subgrade elevation as specified and performed under the work of Section 31 00 00 - EARTHWORK, before work of this Section is performed. Final fine grading, filling, and compaction of subgrade to receive paving, as required to form a firm, uniform, accurate, and unyielding subgrade at required elevations and to required lines, shall be specified and performed under Section 31 00 00 - EARTHWORK, of this Specification.
- B. Existing subgrade material that will not readily compact as required shall be removed and replaced with satisfactory materials. Additional materials needed to bring subgrade to required line and grade and to replace unsuitable material removed shall be material specified, delivered, and installed under the Section 31 00 00 - EARTHWORK, of this Specification.
- C. Subgrade of areas to be paved shall be recompacted as required to bring top 8 inches of material immediately below gravel base course to a compaction of at least 95 percent of maximum density, as determined by ASTM D 1557, Method D. Subgrade compaction shall extend for a distance of at least 12 inches beyond pavement edge.
- D. Excavation required in pavement subgrade shall be completed before fine grading and final compaction of subgrade are performed. Where excavation must be performed in completed subgrade or subbase subsequent backfill and compaction shall be performed as directed by the Owner's Representative. Completed subgrade after filling such areas shall be uniformly and properly graded.
- E. Areas being graded or compacted shall be kept shaped and drained during construction. Ruts greater than or equal to 2 inches deep in subgrade, shall be graded out, reshaped as required, and recompacted before placing pavement.
- F. Materials shall not be stored or stockpiled on subgrade.
- G. Prepared subgrade will be inspected by the Owner's Representative. Subgrade will be approved by the Owner's Representative before installation of paving base course. Disturbance to subgrade caused by inspection procedures shall be repaired as specified and performed under Section 31 00 00, Earthwork, of this Specification.

3.2 AGGREGATE BASE COURSE

- A. Aggregate base course for bituminous paving shall be provided and installed under the Section 31 00 00, Earthwork of this Specification.

3.3 INSTALLATION OF BITUMINOUS CONCRETE PAVING

- A. Make any corrections necessary to gravel borrow furnished and installed under Section 31 00 00 - Earthwork, to bring to the sections and elevations shown on the Drawings.
- B. Construct bituminous concrete paving in accordance with the MassDOT Standard Specification Sections 420 and 420.60 to and including 460.68 and Section 701.65.
 - 1. The finished surface of the top course shall be spread parallel to the existing pavement surfaces to remain and shall conform to the grades shown on the Drawings and to the tolerances specified in Section 460.67 of MassDOT. New surface shall be free of valleys and dips.

2. Bituminous binder and wearing surface courses shall each be applied individually, in single lifts of full thickness indicated on the Contract Documents.
- C. The Owner's Representative may require the Contractor to remove and replace at this own expense any defective mix not conforming to the specified job mix formula.
1. If, at any time before the final acceptance of the work, any soft, imperfect places or spots shall develop in the surface, all such places shall be removed and replaced with new materials and then compacted until the edges at which the new work connects with the old become invisible.
- D. Adjacent paving and masonry work shall be protected from stain and damage during entire operation. Damaged and stained areas shall be replaced or repaired to equal their original condition. Do any repair or patching to pavements outside the project site damaged by the work of the Contract.
- E. Application of Tack Coat: Areas to receive tack coat prior to paving operations shall be swept clean of loose materials, dirt or other extraneous materials. Application of tack coat shall be at a rate of 0.10 gallon per square yard. The following areas shall be treated:
1. All cut edges of existing bituminous concrete pavement adjacent to placement of new paving.
 2. Against all vertical structures located adjacent to new paving area.
 3. As a tack coat for all bituminous base courses that do not have the top course installed within a 24 hr. period after placement of the base course.
- F. Spreading and Finishing:
1. The equipment for spreading and finishing shall be mechanical, self-powered pavers, capable of spreading and finishing the mixture true to lines, grade, width and crown by means of fully automated controls for both longitudinal and transverse slope.
 2. If, during construction, it is found that the spreading and finishing equipment in use leaves tracks or indented areas, or produces other permanent blemishes in the pavement, which are not satisfactorily corrected by the scheduled operations, the use of such equipment shall be discontinued and other satisfactory spreading and finishing equipment shall be provided by the Contractor.
 3. The mixtures shall be placed and compacted only at such times as to permit the proper inspection and checking by the Owner's Representative.
 4. The mixtures shall be placed only upon approved surfaces that are clean from foreign materials and dry; and when weather conditions are suitable.
 5. The contact surfaces of stone walls or other appurtenant structures in pavement shall be painted thoroughly with a thin uniform coating of bitumen (MassDOT Specifications RS-1) just before any mixture is placed against them. This requirement shall be included as work incidental to paving operations.
 6. Machine Spreading: All mixtures shall be deposited in an approved mechanical spreader and immediately spread thereby, and then struck off in a uniform layer to the full width required and of such depth that each course, when compacted, shall have the required thickness and shall conform to the grade and cross section contour specified.
 7. Hand Spreading: Spreading by hand methods will be permitted only for particular locations in the work which because of irregularity, inaccessibility or other unavoidable obstacles do not allow mechanical spreading and finishing.

- G. Placing and rolling of mixture shall be as nearly continuous as possible. Rolling shall begin as soon after placing as mixture will bear the operation without undue displacement. Delays in rolling freshly spread mixture will not be permitted. Rolling shall proceed longitudinally, starting at edge of newly placed material and proceeding toward previously rolled areas. Rolling overlap on successive strips shall be greater than or equal to 1/2 width of roller rear wheel. Alternate trips of roller shall be of slightly different lengths. Corrections required in surface shall be made by removing or adding materials before rolling is completed. Skin patching of areas where rolling has been completed will not be permitted. Course shall be subjected to diagonal rolling, crossing lines of the first rolling while mixture is hot and in compactable condition. Displacement of mixture or other fault shall be corrected at once by use of rakes and application of fresh mixture or removal of mixture, as required. Rolling of each course shall be continued until roller marks are eliminated. Roller shall pass over unprotected edge of course only when paving is to be discontinued for sufficient time to permit mixture to become cold.
- H. In places not accessible to roller, mixture shall be compacted with hand tampers. Hand tampers shall weigh at least 50 pounds and shall have a tamping face less than or equal to 100 square inches. Mechanical tampers capable of equal compaction will be acceptable in areas in which they can be employed effectively.
1. After spreading and rolling the bituminous concrete walks, the walk edges shall be hand tamped.
 2. Pavement edge shall be trimmed neatly to line before placing earth or other approved material along edges.
- I. Compaction:
1. After the paving mixture has been properly spread, compaction shall be obtained by the use of power rollers of approved design and weight per inch of roller. The rollers shall be steel wheeled supplemented with pneumatic-tired rollers where required.
 2. Along curbs, structures and all places not accessible with a roller, the mixture shall be thoroughly compacted with mechanical tamping devices. The surface of the mixture after compaction shall be smooth and true to the established line and grade.
 3. The densities of the completed pavement shall be not less than 95 percent of the density obtained from laboratory compaction of a mixture composed of the same materials in like proportions.
- J. Portions of pavement courses which become mixed with foreign material or are in any way defective shall be removed, replaced with fresh mixture, and compacted to density of surrounding areas. Bituminous material spilled outside lines of finished pavement shall be immediately and completely removed. Such material shall not be employed in the work.
- K. Joints shall present same texture, density, and smoothness as other sections of the course. Continuous bond shall be obtained between portions of existing and new pavements and between successive placements of new pavement. New material at joints shall be thick enough to allow for compaction when rolling. Compaction of pavement, base, and subgrade at joints shall be such that there is no yielding of new pavement relative to existing pavement when subjected to traffic.
- L. Contact surfaces of previously constructed pavement (if greater than or equal to two days since binder placed), manholes, and similar structures shall be thoroughly cleaned and painted with a thin uniform coating of bitumen immediately before fresh mixture is placed. Tack coat shall be applied at rate that will leave bituminous residue of 5 to 7 gallons/100 yd.² after evaporation of

vehicle. Base surface shall be dry and clean when tack coat is applied. Bituminous paving material shall not be placed until vehicle has completely evaporated from tack coat. Adjoining new paving shall be placed before tack coat has dried or dusted over.

- M. Earth or other approved material shall be placed along pavement edges in such quantity as will compact to thickness of course being constructed, allowing at least 12 inches of shoulder width to be rolled and compacted simultaneously with rolling and compacting surface.
- N. Variations in pitch of finished surface shall be less than or equal to the following tolerances when tested with a 10 foot straightedge, applied both parallel to and at right angles to centerline of paved area.
1. For pavement surface course - 1/4 inch in 10 feet.
 2. At joints with existing pavement, and at other locations where an essentially flush transition is required, pavement elevation tolerance shall not exceed 0.01 feet.
 3. At other areas pavement elevation tolerance shall not exceed ± 0.05 feet.
 4. Irregularities exceeding these amounts or which retain water on surface shall be corrected by removing defective work and replacing with new material as specified and performed under this Section, BITUMINOUS CONCRETE PAVEMENT.
- O. **No vehicular traffic of any kind shall be allowed to pass over the newly finished surface until it has had time to set. Seventy two hours will be considered sufficient time for the pavement to set in most cases, but this period may be extended by the Owner's Representative as required by weather or other reasons. Under all circumstances, damage to the pavement caused by the Contractor's or public vehicles driving over the pavement before the pavement has fully cured shall be repaired as specified and performed under this Section, BITUMINOUS CONCRETE PAVEMENT, at no additional cost to the Owner.**

3.4 TESTING LABORATORY

- A. The testing laboratory shall make the following inspections and tests: Test aggregate materials for compliance with MassDOT or furnish accepted certificate of compliance from source of supply.
1. Test bituminous concrete in accordance with MassDOT, including:
 - a. Penetration Tests.
 - b. Marshall Stability Tests.
 - c. Voids Test.
 - d. Percent of Bitumen Test.
 - e. Aggregate Gradations.
 - f. Certifications required by MassDOT.
 2. Verify thickness of the finished bituminous pavement construction obtained from specimens cut by the testing laboratory with a core drill. The diameter of the specimens shall in no case be less than 3-7/8 inches or more than 4 inches.
- B. Testing laboratory will perform the following general services:
1. Determine maximum dry density and optimum moisture content of soils in accordance with standards herein before specified.
 2. Provide optimum moisture - maximum density curves.

3. Test and approve all compacted aggregate layers before construction thereon.

C. Testing laboratory will perform the following field tests:

1. Determine frequency of field tests to assure densities required. Unless otherwise determined, minimum field testing shall include one (1) density test for each 1,000 square feet.

D. If any of the above tests indicate that the Specifications have not been met, the Contractor shall pay for such additional tests as may be required to assure that compliance has been attained.

3.5 PROTECTION

A. Properly protect new resilient surfacing, play equipment and landscaping against splashing and spattering from bituminous concrete products during installation. Any materials so damaged shall be removed and replaced or satisfactorily cleaned with a pre-approved method no additional cost.

END OF SECTION
32 12 16

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Not Used

SECTION 32 18 16 – RESILIENT SURFACING

PART 1 - GENERAL

1.1 REFERENCE

- A. Attention is directed to the printed form of the Contract of the Town of Arlington and Division 1 of which these specifications are hereby made a part.

1.2 SECTION INCLUDES

- A. Resilient Rubber Playground Surface
- B. Resilient Rubber Tiles
- C. Resilient Rubber Mats
- D. Engineered Wood Fiber Playground Surface

1.3 RELATED WORK

- A. Section 02 41 13 - Site Preparation
- B. Section 03 30 00 - Cast in Place Concrete
- C. Section 31 00 00 - Earthwork
- D. Section 32 12 16 - Bituminous Concrete Pavement
- E. Section 32 30 00 - Site Improvements

1.4 REFERENCES

- A. AASHTO: American Association of State Highway and Transportation Officials.
- B. ADA: Americans with Disability Act
- C. ASTM: American Society for Testing and Materials.
- D. MassDOT: "Standard Specifications for Highways and Bridges", Massachusetts Department of Transportation, latest edition.
- E. ASTM F1292: Standard Specification for Impact Attenuation of Surfacing Materials within the Use Zone of Playground Equipment.
- F. ASTM F1951 Standard Specification for Determination of Accessibility of Surface Systems Under and Around Playground Equipment.
- G. CPSC: Consumer Products Safety Commission.

1.5 QUALITY ASSURANCE

- A. Paving on public property shall comply with all laws, rules and regulations of governmental authorities having jurisdiction over such work.
- B. It shall be the responsibility of the Contractor to render the site erosion free. Approval by Owner's Representative of any method to accomplish this does not relieve the Contractor of full responsibility for controlling erosion and/or sedimentation throughout the construction process.
- C. Construction Tolerances:
 - 1. Variations from slope as indicated for finished surface of paving: 1/4 inch in 10 feet.
- D. HANDICAP ACCESSIBILITY: When installed, all paving shall be handicap accessible and will comply with the Civil Rights Restoration Act of 1987 and the Americans with Disabilities Act of 1990, latest version.

- E. Qualifications: Utilize an installer approved and trained by the manufacturer of the playground surfacing system, having experience with other projects of the scope and scale of the work described in this section.
- F. Certifications: Certification by manufacturer that installer is an approved applicator of the playground surfacing system.
- G. International Play Equipment Manufacturers Association (IPEMA) certified.

1.6 TESTING LABORATORY SERVICE

- A. The testing laboratory will be responsible for conducting and interpreting tests. Each report shall state whether or not the test specimens conform to all requirements of the Contract Documents and will specifically note any deviation there from if any. Specific test and inspection requirements shall be as specified herein.

1.7 SUBMITTALS

- A. Product Data: Manufacturer's specifications and MSDS sheets for each product indicated including recommendations for their application and use. Include test reports and certifications substantiating that products comply with requirements.

- 1. Submit complete color selection for resilient rubber surface poured in place material and rubber tiles for Owner's Representative's approval.

- B. Resilient Playground Surface Submittals

- 1. Submit copies of testing procedures and results, performed by independent testing source on the installed playground, which demonstrates compliance with CPSC and ASTM guidelines. Supplier must certify that safety surface depth provided meets or exceeds ASTM and ADA requirements as referenced and US Consumer Product Safety Commission's Technical Guidelines for playground surfacing as follows:
 - a. "RECOMMENDATIONS – when tested in accordance with suggested test method in ASTM F355 procedure C: A surface should not impact a peak acceleration in excess of 200 G's to an instrumented ANSI head-form dropped on a surface from the maximum fall height as delineated in the standard specification for Impact Attenuation of Surface Systems Under and Around Playground Equipment Designated F1292-91"
 - b. The surface shall meet the Head Injury Criteria (HIC) of less than 1,000. Lab tests shall be performed at three (3) temperatures per ASTM F1292/F355E over concrete. Testing over aggregate will not be allowed.
- 2. **Supplier must provide copies of testing procedures and results (g-max and HIC score results) performed on-site by independent testing source (s) which demonstrates compliance with C.P.S.C. Guidelines as referenced. Contractor shall submit test results for review and approval by the Owner.**
- 3. Supplier must provide complete installation instructions.
- 4. A certificate of insurance must be provided by the supplier which shall provide coverage for products liability with the limit of liability not less than \$1,000,000.

5. Resilient Playground Installer Qualifications: Minimum of five years of experience installing resilient playground surfacing. Installer must provide Owner with 3 local references where installation can be inspected.
6. Resilient Rubber Tile and Mat Submittal:
 - a. Submit copies of testing procedures and results, performed by independent testing source, which demonstrates compliance with CPSC and ASTM guidelines. Supplier must certify that safety surface depth provided meets or exceeds ASTM and ADA requirements as referenced and US Consumer Product Safety Commission's Technical Guidelines for playground surfacing as follows:
 1. "RECOMMENDATIONS – when tested in accordance with suggested test method in ASTM F355 procedure C: A surface should not impact a peak acceleration in excess of 200 G's to an instrumented ANSI head-form dropped on a surface from the maximum fall height as delineated in the standard specification for Impact Attenuation of Surface Systems Under and Around Playground Equipment Designated F1292-91"
 2. The surface shall meet the Head Injury Criteria (HIC) of less than 1,000. Lab tests shall be performed at three (3) temperatures per ASTM F1292/F355E over concrete. Testing over aggregate will not be allowed.
 - b. Submit samples of tile for comparison to Poured in Place Surfacing. Submit full range of available colors for selection by Owner's Representative.
7. Engineered Wood Fiber Submittal
 - a. Submit copies of testing procedures and results, performed by independent testing source, which demonstrates compliance with CPSC and ASTM guidelines. Supplier must certify that safety surface depth provided meets or exceeds ASTM and ADA requirements as referenced and US Consumer Product Safety Commission's Technical Guidelines for playground surfacing as follows:
 1. F1292 for impact absorption, F2075 for material purity, and F1951 for wheelchair access.

1.8 ENVIRONMENTAL REQUIREMENTS

- A. Install resilient rubber surfacing system when minimum ambient temperature is 40 degrees F (1 degree C) and rising, and maximum ambient temperature is 90 degrees F (32 degrees C). Do not install in steady or heavy rain.
 1. Apply resilient playground surfacing, tiles and mats only to clean, dry and properly prepared surfaces.

1.9 GUARANTEE ON ACCEPTANCE/LIABILITY

- A. Safety surface shall be guaranteed against failure or defect during normal use and operation for a period of one year.
- B. Any defective elements or areas shall be replaced in part or whole by the Contractor at no cost to the Owner's Representative.

- C. The Contractor and the manufacturer shall hold the Owner's Representative harmless from any damages or liability resulting from negligent acts or omissions on the part of the Contractor or manufacturer or improperly installed material.

PART 2 - MATERIALS

2.1 RESILIENT PLAYGROUND SURFACE

- A. The resilient playground surface shall be a poured in place system by one of the following manufacturers:
 - 1. Poured in Place Rubber as manufactured by Gametime, and represented by MRC, Spring Lake NJ, tel: 800-922-0070; website: www.gametime.com.
 - 2. "Poured-in-Place" surface as manufactured by Playsites + Surfaces, 103 Brightside Ave., Central Islip, NY 11722, tel: 631-213-3559; website: sales@playsitesplus.com.
 - 3. "Playbound Poured-In Place System" as manufactured by Surface America, Inc., P.O. Box 157, Williamsville NY; phone: 800-999-0555.
- B. Resilient playground surface shall meet or exceed current Consumer Product Safety Commission (CPSC) guidelines issued in 'A Handbook for Public Playground Safety' (latest edition) for a minimum fall height of 8'-0".
- C. CUSHION COURSE- shall be a monolithic poured-in place cushion pad made from a field-mix blend of SBR recycled rubber buffings adhered with a 100% solids polyurethane binder to form a resilient porous material. The rubber shall arrive at the site packed in suitable bags and protected from moisture during transportation and handling.
 - 1. SBR chopped to 1-3 mm or 3/8" shredded granules and contain less than 4% dust
 - 2. Curing Time: Allow up to 24 hours. When the surface can be walked on without leaving depressions, it has cured enough to proceed with the installation of the Wearing Course.
 - 3. Composition:

Shredded SBR rubber particles	86% by weight
Polyurethane Binder	14% by weight
- D. WEARING COURSE- shall be a monolithic poured-in place top surface made from a blend of ethylene propylene diene monomer (EPDM) colored rubber containing a minimum 20% EPDM and having a density of 1.50 +/- 0.05 and chopped to 1-3 mm size. The EPDM rubber granules shall be protected from moisture during transportation and handling. A minimum of 2 pounds of material and .44 pounds of urethane shall be present in each square foot of rubber surfacing.
 - 1. Curing time: Allow 24 to 72 hours for curing. It is recommended to allow an additional 24 hours curing time prior to opening the area to play.
 - 2. Finished surface shall be slip resistant; supply ASTM E303 slip characteristic test results.
 - 3. Resilient surface material shall be ignition resistant; supply passing ASTM D2859 test results.
 - 4. Color Mix Blends shall be selected from the manufacturer's entire range of standard and premium colors including black (as high as 25%) and up to two additional colors. Final color selections shall be made by Owner's Representative.

5. Composition:

EPDM rubber granules	80% by weight
Aliphatic Binder	20% by weight

- E. ALIPHATIC BINDER: The binder for the synthetic resilient playground top wearing course shall be an MDI based one component, aliphatic-based binding agent. The binder shall be free of TDI Monomers. The binder must be clear in color and solvent free. The binder shall be specially formulated for compatibility with SBR and EPDM rubber granules. Specific gravity for the binder shall be 1.07 +/- 0.03. AROMATIC BINDERS ARE NOT ALLOWED.
- F. CRUSHED STONE BASE: shall conform with all requirements for dense graded crushed stone in Section 31 00 00 - EARTHWORK, except the mix shall be of the following sizes:

<u>Sieve Size</u>	<u>% Passing by Weight</u>
1"	90 - 100
5/8"	50 - 80
1/4"	30 - 50
#4	15 - 35
#8	10 - 30
#30	3 - 5
#200	0 - 3

1. The crushed stone must be compacted to a 95% Standard Proctor Compaction. The crushed stone shall be a homogeneous mixture complying with the chart above.

2.2 RESILIENT PLAYGROUND TILES

- A. The resilient rubber tiles for use in resilient rubber surface shall be provided by the following manufacturer, or approved equal:

1. "Play Tiles" by Dinoflex, P.O. Box 3309, 5590 – 46th Ave S.E., Salmon Arm, B.C., Canada V1E4S1, tel: 800 305-2109, website: sales@dinoflex.com.
2. Play Tiles will be provided in 24" x 24" sizes.
3. Color selections shall be made by Owner's Representative.

- B. Polyurethane Binder shall be equal to the binder used in the cushion course of the Resilient Playground Surface.

2.3 RESILIENT PLAYGROUND MATS

- A. Resilient rubber mats for use within the engineered wood fiber surface shall be provided by the following manufacturer, or approved equal.

1. "Woodcarpet Foam Mat" by Zeager Brothers Inc., 4000 Harrisburg Pike, Middletown, PA 17057, tel: 800-346-8524, website: info@zeager.com.
2. Mats will be provided in a 36" x 48" rectangular size with one inch depth.
3. Color selections shall be made by Owner's Representative.

2.4 ENGINEERED WOOD FIBER SURFACING

- A. The engineered wood fiber surfacing is manufactured from softwoods or hardwoods averaging 1" to 2" in length. It shall contain a maximum of 15% fines to aid in compaction. It shall be provided by one of the following manufacturers:

1. "Sof'Fall Engineered Wood Fiber" by Sof Solutions, tel: 800-523-8690.

2. "Fibar Bulk for Playgrounds", by The Fibar Group LLC, 80 Business Park Drive, Armonk NY 10504, tel: 800-342-2721.
 3. "GT Impax" by Gametime, Fort Wayne AL, tel: 800-235-2440.
 4. Or approved equal.
- B. FILTER FABRIC: The compacted base course shall be covered with a filter fabric equal to Amoco 4545, or approved equal. All seams shall be overlapped with a minimum 4 inches.
- C. CRUSHED STONE BASE: shall conform with all requirements for $\frac{3}{4}$ " washed crushed stone in Section 31 00 00 – EARTHWORK.
1. The crushed stone must be compacted to a 95% Standard Proctor Compaction. The crushed stone shall be a homogeneous mixture complying with the chart above.

PART 3 - EXECUTION

3.1 PLACEMENT OF AGGREGATE BASE COURSE

- A. Construct base course as detailed on the Drawings for all areas of resilient rubber surfacing in this Section. Make any corrections necessary to base materials furnished and installed under Section 31 00 00 - Earthwork, to the sections and elevations shown on the Drawings.
- B. Spread aggregate from self-spreading vehicles, approved type of power grader or by hand upon prepared subgrade. Spread evenly in layers so as to avoid separation of aggregates. Layers shall not exceed 6 inches in depth after compaction. Remove stones larger than 3 inches. When spread, rolled and compacted on the prepared surface, it shall form a stable surface. All rolling shall be done with a roller weighing 8 to 10 tons. Compact any portion which is not accessible to a roller by mechanical or hand tamper. Compact to 95% Proctor Density.
- C. Grading and Compaction of Subgrade
1. Do all necessary grading of the crushed stone subgrade in addition to that specified under Section 31 00 00 - Earthwork, of these Specifications to properly construct the Subgrade as detailed on the Drawings. Subgrade shall be compacted to 95% Proctor.
 2. Slope on the subgrade course shall be maintained at $\frac{1}{4}$ " per foot in any direction, and $\frac{1}{8}$ " per foot in any 3' direction.
- D. Final rolled surface shall be true to the lines and grades indicated on the Drawings or as directed by the Owner's Representative. Fill in any depression that may appear during and after rolling with aggregate and reroll until the surface is true and even.
- E. Tolerance: $\frac{1}{4}$ inch maximum above or below the cross-section grades and $\frac{1}{4}$ inch maximum under a 10 foot line longitudinally.
- F. Maintain the surface of any layer in its finished condition until succeeding layer is placed.

3.2 INSTALLATION OF RESILIENT PLAYGROUND SURFACE

- A. Installation shall be as recommended by the manufacturer and shall be to the depths and widths indicated on the Drawings.

- B. Contractor shall coordinate the delivery and installation of the playground surface. Resilient playground surface shall be installed immediately following the installation of the play equipment and curing of concrete footings.
- C. Resilient Playground Surface Installation shall be started when the crushed stone subgrade, in locations as shown on plans, have been approved by Owner's Representative. Prior to installation of the Cushion Course, the entire subgrade surface shall be clean and dry and free of any foreign and loose material and debris.
 - 1. Edge treatment where rubber surface abuts new bituminous walks shall be as shown in the Drawings.
 - 2. Wherever practical, Cushion Course shall be installed in one continuous pour on the same day. Rubber material shall cover all foundations and fill around all elements penetrating the surface.
 - 3. When a second pour is required, fully coat the edge of the previous work with polyurethane binder to ensure a 100 percent bond with the new work. Apply adhesive in small quantities so that new cushion layer can be placed before the adhesive dries.
 - 4. The temperature should be 40 degrees and rising during installation of the rubber surface.
 - 5. The rubber granules and binder are blended together at a ratio of 80/20 in a mechanical mixer until all the EPDM rubber granules are coated with aliphatic-based polyurethane binder. The blended material is then spread onto the cured cushion base and leveled to the proper elevation using gauge bars equal to the required thickness.
- D. Wear Course Installation: The Wear Course will be poured on and spread over the cushion course. Installers shall use a measured screed rod 1/16" thicker than the required depth. The installation shall be seamless. Wear Course shall be fully bonded to the Cushion Course. Apply adhesive to the Cushion Course in small quantities so that the Wear Course can be applied before the adhesive dries.
 - 1. Colored shall be the full wear course depth.
 - 2. Where the rubber surfacing meets bituminous concrete walk pavement, the bituminous concrete vertical surface shall be coated with primer adhesive prior to the spreading of the Wear Course.
 - 3. Where seams are required due to color change a step configuration will be constructed to maintain the Wear Course integrity. The edge of the initial pour shall be coated with adhesive and wearing surface mixture shall be immediately applied.
- E. Perimeter: The Bituminous Concrete walk edge must be saw cut to form a smooth vertical surface against which the new resilient rubber surface will be placed. Primer adhesive shall be applied to all vertical surfaces of the bituminous concrete walk surface.

3.3 INSTALLATION OF RESILIENT RUBBER TILES

- A. Installation shall be as recommended by the manufacturer with tiles laid out in locations as indicated on the Drawings.
- B. Contractor shall coordinate the installation of the rubber tiles with installation of the poured in place resilient rubber surface. Vertical surfaces of rubber tiles shall be fully coated with primer adhesive prior to installation of poured in place resilient playground surface.

3.4 INSTALLATION OF RESILIENT RUBBER MATS

- A. Rubber Mats shall be installed over a base of engineered wood fiber, according to Drawings.

3.5 INSTALLATION OF WOOD FIBER SURFACE

- A. Wood Mulch Surface shall be installed on a compacted washed crushed stone base course at depths according to the Drawings.

3.6 TESTING LABORATORY

- A. Safety Surfacing:
 - 1. Installed Surface performance Test: ASTM F1292.
 - a. Perform impact attenuation testing according to ASTM F1292 in presence of owner's representative within 30 days of installation.
 - 1) g-max Score: Less than 200.
 - 2) Head Injury Criteria (HIC) Score: Less than 1,000.
 - b. Test Equipment Operator Qualifications:
 - 1) National Recreation and Parks Association/National Playground Safety Institute (NRPA/NPSI) certified Playground Safety Inspector (CPSI).
 - 2) Trained in the proper operation of Triax test equipment by competent agency.
 - c. Determine compliance with ASTM F1292, unless otherwise specified in this section.

3.7 PROTECTION

- A. Properly protect new bituminous paving, playground equipment and landscaping against splashing and spattering from rubber surfacing material during installation. Any materials so damaged shall be removed and replaced or satisfactorily cleaned with a pre-approved method no additional cost.
- B. The resilient rubber surface shall be allowed to fully cure in accordance with manufacturer's instructions. The surface shall be protected by the Contractor from all traffic during the curing period of 48 hours or as instructed by the manufacturer.

END OF SECTION
32 18 16

SECTION 32 30 00 - SITE IMPROVEMENTS

PART 1 - GENERAL

1.1 REFERENCE

- A. Attention is directed to the printed form of the Contract of the Town of Arlington and Division 1 of which these specifications are hereby made a part.

1.2 SECTION INCLUDES

- A. Contractor shall install the following site improvements:
 - 1. Play Equipment
 - 2. Site Furnishings
 - 3. Drainage Grate

1.3 RELATED WORK

- A. Section 00 43 23 - Alternates
- B. Section 02 41 13 - Site Preparation
- C. Section 03 30 00 - Cast in Place Concrete
- D. Section 31 00 00 - Earthwork
- E. Section 32 12 16 - Bituminous Concrete Paving
- F. Section 32 18 16 - Resilient Surfacing

1.4 PRODUCT DELIVERY, STORAGE AND HANDLING

- A. Protect and handle materials, during loading, shipping, unloading at the site, storage and erection as required to prevent damage to finish surfaces, section contours, squareness, straightness and flatness of fabricated members

1.5 DEFECTIVE MATERIALS

- A. Do not install defective materials. No patching or hiding of defects will be permitted. Refer to Owner's Representative for decision on all materials showing flaws or imperfections upon delivery to the job site. The Owner's Representative's decision as to rejection of materials shall be understood to be final. Remove rejected material from the site and replace with new material.

1.6 REFERENCES

CPSC Handbook for Public Playground Safety National Bureau of Standards, for the U.S. Consumer Product Safety Commission. 8th and Final Draft, Volumes I & II.
American Standards for Testing Materials, latest edition; Standards A-120, VA569, 1487-98 (S), and A-500 (ASTM).

ASTM F1487: Standard Consumer Safety Performance Specification for Playground Equipment for Public Use.

Standard Steel Composition, Society of American Engineers

Standard Steel Composition, American Iron and Steel Institute

American Steel Institute (ASI), Standards for Structural Steel, latest edition.
Standards for Welding, American Welding Society, (AWS).
Specifications for Thermal Galvanizing

Structural Steel Painting Council SSPC-SP-5, SSPC-SP-10

Department of Defense DOD-Std 2138 (SH)

American Society of Testing and Materials ASTM D-4417

MAAB - Massachusetts Architectural Access Board

1.7 QUALITY ASSURANCE

- A. Engage a playground installer who have successfully completed within the last 3 years at least 6 applications similar in type to that of this project and who will assign mechanics from these earlier applications to this project, of which one will serve as lead mechanic.
- B. Provide a copy of the inspection certificate from a Certified Playground Safety Inspector confirming that the play equipment is in compliance with ASTM F1487, and all other applicable standards.
- C. Provide a letter from the playground installer stating that the playground equipment was installed according to the manufacturer's instructions.
- D. Construction Tolerances:
 - 1. Variations from plumb: 1/4 inch in 10 feet.
 - 2. Variations from level: 1/4 inch in 20 feet.
 - 3. Variation of linear line: 1/2 inch in 20 feet.
 - 4. Variations from slope as indicated for finished surface of paving: 1/4 inch in 10 feet.
 - 5. Variations from flush in unit to unit offset: 1/32 inch.

1.8 PRODUCT DELIVERY, STORAGE AND HANDLING

- A. Handle and ship all items so as to prevent damage in transit. Use only material that is not subject to staining or discoloration for blocking and packing. Deliver materials to site in manufacturer's original containers with labels intact and seals unbroken.
- B. Unload and handle all items carefully so as to prevent chipping and breakage. Protect all items during handling, storage and construction against moisture, soiling, staining and physical damage. Store on wood skids or pallets, covered with non-staining, waterproof membrane. Place and stack to distribute weight evenly and to prevent breakage or cracking. Protect stored materials from weather with waterproof, non-staining covers or enclosures, but allow air to circulate around materials. Replace materials damaged in any manner.
- C. Locate storage piles, stacks or bins to avoid and be protected from heavy and unnecessary traffic.

PART 2 - MATERIALS

2.1 PLAY EQUIPMENT

- A. GENERAL: All play equipment components shall conform to the requirements of ASTM F1487 and applicable sections of the Consumer Products Safety Commission (CPSC).

1. Play Equipment descriptions below are supplied for information to the Contractor. The Town of Arlington is purchasing the play equipment and Contractor will provide installation.

2.2 PLAY EQUIPMENT GROUP A

- A. Play Equipment listed is manufactured by Landscape Structures as represented by M.E. O'Brien, Medway, MA.

1. PLAY EQUIPMENT 'B' is a swing with eight belt seats for 5-12 year old children. Beam: Fabricated from 2.375" O.D. RS-40 galvanized steel tubing. Finish: ProShield with color specified. Swing legs shall be fabricated from formed 2.375" tubing.
2. PLAY EQUIPMENT 'C' is a swing with one adaptive seat and two bucket seats for 2-5 year old children.
 - a. Full Bucket Seat ProGuard Chains for 8' Beam Height. Full Bucket Seats shall be made of U.V. stabilized high-quality black rubber encapsulating a 24 GA (.024") stainless steel reinforcement plate.
 - b. Fasteners: Primary fasteners shall be socketed and pinned tamperproof in design, stainless steel (SST) per ASTM F 879 unless otherwise.
 - c. Molded Bucket Seat shall be provided with Harness and ProGuard Chains for 8' Beam Height.
3. PLAY EQUIPMENT 'D' is a climber for 2-5 year old children. The overall length is 29' inclusive of an overhead ladder on one end and a double slide on the other. A 12' square sun screen is mounted over the highest platform.
4. PLAY EQUIPMENT 'F' is a continuous climber for 5-12 year old children. Posts are directly buried in concrete footings that are 34" below finish grade.

- B. PLAY EQUIPMENT 'A' is a log climber composed of 4 logs for 5-12 year old children. It is manufactured by Columbia Cascade Co. and available from Park Street Playgrounds, North Reading MA, or approved equal.

- C. PLAY EQUIPMENT 'G' is a basket swing supported by two steel posts for 5-12 year old children. It is manufactured by Berliner and is available from Park Street Playgrounds, North Reading MA, or approved equal.

- D. PLAY EQUIPMENT 'E' is an inclusive rotating carousel that can accommodate wheelchairs. It is manufactured by Kompan. The equipment base is set level with finish grade.

2.2 SITE FURNISHINGS

- A. New site furnishings shall be manufactured by Dumor as represented by M.E. O'Brien and Sons, Inc., Medway, MA, tel: 866-873-3715, or approved equal. All furnishings shall be capable of being surface-mounted.

1. Site Furnishing descriptions below are supplied for information only to the Contractor. The Town of Arlington is purchasing the site furnishings and Contractor will provide installation.
 - a. Picnic Table shall be Model 100-60 PL/S-2 at a 6' length. Tables shall have recycled plastic slats in table top and benches with steel framework.
 - b. Accessible Picnic Table shall be Model 100-68-1PL /S-2 with a table that is 95" in length. Table shall have recycled plastic slats in table top and benches with steel framework.
 - c. Trash Receptacle shall be Model 84, 32 gallon size with flat top lid.
 - d. Benches shall be Model 138-PL, provided in 6' and 8' lengths.

2.3 BIKE RACK

- A. Bike rack shall be the Hoop Rack by Dero, Minneapolis, MN, provided by the Town of Arlington and installed by Contractor. The bike racks shall be capable of being surface-mounted.

2.4 DRAINAGE GRATE

- A. Drainage grate shall be a cast iron ADA grate equal to Model #1020M3 by EJ, Brockton MA, or approved equal.
- B. Grate shall be ordered to properly fit in existing frame.
- C. Grate shall have the following label on top surface: "DUMP NO WASTE! DRAINS TO WATERWAYS".

2.5 MISCELLANEOUS MATERIALS

1. CONCRETE FOR FOOTINGS shall conform to ASTM C94 using 3/4 inch maximum size aggregate and have a minimum compressive strength of 3,000 psi at 28 days.
2. EPOXY GROUT shall conforming to ASTM C-881 and equal to "Sikadur 32, Hi-Mod" high strength adhesive as manufactured by Sika Corporation, Lyndhurst NJ, or approved equal.

PART 3 - EXECUTION

3.1 INSTALLATION OF SITE IMPROVEMENTS - GENERAL

- A. Assemble and install site improvements in accordance with the Drawings and manufacturer's written instructions as required.
- B. Fasten items securely together by anchoring and fastening as shown and as required by recognized standards. Make tight connections between members. Discard units of material with defects which might impair quality of work, and units which are too small to use in fabricating work with minimum joints or optimum joint arrangement.
- C. Coordinate casting of supports into concrete or surface mounting site furnishings onto new concrete pad.
- D. Install epoxy and sealants in strict accordance with manufacturer's written instructions.

- E. Repair damaged surfaces and finishes after completion of installation, or replace damaged members as directed where damage is beyond satisfactory repair.
- F. Perform all excavation of every description and through whatever materials encountered to the depths indicated on the Drawings. In all other respects excavation shall conform to the requirements of Section 31 00 00 – Earthwork of these Specifications.
- G. Perform all work by workmen skilled and experienced in the trade in a neat and clean fashion. Install all work in accordance with the Drawings in straight and true lines, plumb and true to line and grade. Fasten items securely together.

3.2 CONCRETE FOUNDATIONS

- A. EXCAVATION: Drill holes for post footings in firm, undisturbed or compacted soil of diameters and spacing shown. If not shown on the Drawings, excavate holes at least 4 times the diameter of the post unless greater dimension is recommended by play equipment manufacturer. Unless otherwise indicated, excavate hole depths approximately 3" lower than the post bottom, with bottom of posts set not less than 48" below the surface when in firm, undisturbed soil. Excavate deeper as required for adequate support in soft and loose soils and for posts with heavy lateral loads. Remove excess excavated material from the site.
- B. SETTING POSTS: Remove loose and foreign materials from sides and bottoms of holes, and moisten soil prior to placing concrete. Center and align posts in holes 3" below bottom of excavation. Place concrete around posts in a continuous pour, and vibrate or tamp for consolidation. Check each post for horizontal, vertical and top alignment, and hold in position during placement and finishing operations.
 - 1. Trowel finish tops of footings, and slope or dome to direct water away from posts. Keep top of concrete 12" below finish grade. Set keeps, stops, sleeves and other accessories into concrete as required. Keep exposed concrete surfaces moist for at least 7 days after placement, or cure with membrane curing materials, or other acceptable curing method.
- C. CONCRETE STRENGTH: Allow concrete to attain at least 75% of its minimum 28 day compressive strength, but in no case sooner than 7 days after placement, before additional weight is installed.

3.3 INSTALLATION OF PLAY EQUIPMENT

- A. Equipment installation:
 - 1. Prior to installation and erection, the Contractor shall stake out the location of the play equipment for review and approval by the Owner's Representative.
 - 2. The Contractor shall assemble and install the specified play equipment in accordance with the manufacturer's instructions, contract drawings and these specifications. Set apparatus and equipment plumb, level and square to paving unless otherwise shown on the Drawings.
 - a. Adjust all equipment to suit site gradients; no sloping platforms, ladders, decks, or members intended to be horizontal shall be accepted.
 - b. Firmly secure apparatus and equipment in place.
 - 3. Erection of play equipment: Set support posts square and plumb and bolted to steel sill plates that lay on top of prepared subgrade or pavement as shown in the Drawings. Set sill

- plates level and to the grades required to assure level installation of platforms and components. Field welding of posts to sill plates shall not be permitted.
4. Set equipment plumb, level and square to paving unless otherwise shown on the Drawings. Firmly secure apparatus and equipment in place. Make all fastenings as shown on the drawings and securely tightened. All work shall be done so that no hazardous projections exist on the finished work.
 5. Coordinate casting of supports into concrete. All concrete foundations shall be poured to a frost depth of 4' minimum.
 6. The excavation for the footings shall be done as specified in Section 03 30 00, CAST IN PLACE CONCRETE of these Specifications.
 7. The equipment shall be located and brought to the heights as shown in the drawings and as recommended by the manufacturer with vertical and horizontal members set plumb and then braced to be held in place.
 8. The concrete shall be poured around the supporting pieces of the equipment to the grades detailed. The concrete shall be poured and cured according to Section 03 30 00 CAST IN PLACE CONCRETE of these Specifications. Slope tops of footings to drain; set bottom of vertical members into gravel base to ensure drainage; do not encase bottom in concrete.
 9. After the specified cure period of the concrete has passed the bracing may be removed.

3.4 CLEANING AND PROTECTION

- A. Protect work in progress and after completion. Keep the premises neat and clean at all times.

PART 4 - GUARANTEE AND ACCEPTANCE/LIABILITY

- 4.1 All operating parts and structural elements of the play equipment and safety surface shall be guaranteed against failure or defect during normal use and operation for the entire warranty period as established by the manufacturer.
- 4.2 Any defective elements shall be replaced in part or whole by the Contractor at no cost to the Owner.
- 4.3 The Contractor and the manufacturer shall hold the Owner's Representative harmless from any and all damages or liability resulting from negligent acts and omissions on the part of the Contractor or manufacturer, or resulting from defective parts, or improperly assembled equipment. Contractor shall provide secure storage for all equipment on job site.
- 4.4 The Contractor is responsible for securing a Certified Playground Safety Inspector to ensure ASTM and SPSC compliance. A certificate of compliance will be issued to the Owner prior to final inspection.

END OF SECTION
32 30 00

SECTION 32 90 00 – LAWNS AND PLANTING

PART 1 - GENERAL

1.1 REFERENCE

- A. Attention is directed to the printed form of the Contract of the Town of Arlington and Division 1 of which these specifications are hereby made a part.

1.2 SECTION INCLUDES

- A. Preparation of final subgrades in lawns; furnishing and spreading of topsoil; finish grading; application of soil conditioners; seeding; planting; maintenance; and guarantee.
- B. New trees shall be supplied by the Town of Arlington, and will be installed by the Contractor.

1.3 RELATED WORK

- A. Section 02 41 13 - Site Preparation
- B. Section 31 00 00 - Earthwork
- C. Section 32 30 00 - Site Improvements

1.4 REFERENCES

- A. ASNS: "American Standard for Nursery Stock", American Association of Nurserymen, 1973 Edition.
- B. ASTM: American Society for Testing and Materials.
- C. Federal Specification JJJ-S-181b, Seeds, Agricultural.
- D. Federal Specification O-F-241c(1), Fertilizers, Mixed, Commercial.
- E. SPN: "Standardized Plant Names", American Joint Committee on Horticultural Nomenclature, 1942 Edition.
- F. SRA-156: U.S. Department of Agriculture Rules and Regulations under the Federal Seed Act.

1.5 CERTIFICATES, INSPECTIONS, TESTS AND SUBMITTALS

- A. The subgrade shall be given a complete soil analysis by a competent laboratory approved by the Owner's Representative. The analysis shall include but not be limited to tests for soluble salts and other toxic elements or conditions which may be detrimental to plant growth. The report of the analysis shall include recommendations for the kinds and quantities of soil amendments to be used. The cost of the laboratory shall be paid by the Contractor. Submit the report of the analysis to the Owners Representative for approval.
- B. Topsoil from all sources shall be given a complete soil analysis by a competent laboratory approved by the Owner's Representative. The analysis shall be in accordance with ASTM D422. The analysis shall include, but not be limited to, tests for physical properties, grain size, hydrogen-ion value, organic matter content and available nitrogen, phosphoric acid, potash and iron. The analysis shall also include tests for soluble salts and other toxic elements or conditions which may be detrimental to plant growth. The report of the analysis shall include recommendations for the kinds and quantities of soil amendments to be used. The cost of the laboratory tests shall be paid by the Contractor. Submit the report of the analysis to the Owner's Representative at least 30 days prior to delivery of topsoil to the site or use in the work.
- C. If requested, furnish Owner's Representative with duplicate copies of invoices for soil amendments used. Each lot shall be subject to sampling and testing at the discretion of the Owners Representative.

1. If and when bulk delivery and/or custom mixing of soil amendments is authorized, provide Owners Representative with written notarized affidavit certifying the weight, analysis, name of manufacturer and warranty for each item.
 - D. Furnish Owner's Representative with manufacturer's certification of compliance to the Specifications prior to sowing seed. Furnish Owner's Representative with producer's test reports indicating the results of seed purity, germination tests and weed content dated within 9 months of sowing.
 - E. Plants and seed mixes shall comply with all applicable State and Federal laws in respect to inspection for plant diseases and infestation. Certificates of inspection shall accompany the invoice for each shipment as may be required by laws for transportation. File certificates with the Owners Representative prior to acceptance of material. Inspection by State and Federal governments at place of growth does not preclude rejection of material at the site.
 - F. Furnish full and complete written instructions for maintenance of lawn areas and plantings to the Owner's Representative at least 30 days prior to the end of the contractual maintenance period in order to familiarize the Owner with the maintenance requirements for the proper care and development of lawn areas and plantings.
 - G. Submit samples of the following materials in the quantities indicated for approval prior to use.
 1. Mulch for planting: 1 cubic foot.
 - H. SAMPLES:
 1. Planting Soil, imported and amended Loam Borrow, and Organic Compost proposed for use, complete with any necessary amendments and additives. Provide two 10-pound representative samples from each proposed source for testing and analysis. Provide a 2-pound sample for comparison with delivered soil. The Owners Representative may examine each planting soil delivery to the site, and may request further testing. No planting soil shall be delivered until the review of samples and test results by the Owner's Representative, but such review shall not constitute final acceptance. The Owner's Representative reserves the right to reject on or after delivery any material which does not meet specifications or match the sample.
- 1.6 DELIVERY, STORAGE AND HANDLING
- A. Do not deliver TOPSOIL to the site until soil analysis has been approved by the Owner's Representative. Do not deliver topsoil to the site in a frozen or muddy condition.
 - B. Deliver all SOIL AMENDMENTS and WOOD CELLULOSE FIBER MULCH to the site in manufacturer's standard containers showing weight, analysis, name of manufacturer and warranty. Append a summary of this product information to each invoice. Store in a weatherproof storage place in such a manner that they will be kept dry and their effectiveness not impaired. Caked or otherwise damaged soil amendments shall be rejected.
 - C. Deliver SEED in original sealed standard sized containers. Label all seed in accordance with State regulations and SRA-156. Store seed in such a manner that it will be protected from damage by heat, moisture, rodents or other causes. Seed which has become wet, moldy or otherwise damaged shall be rejected.
 - D. PLANT MATERIAL:
 1. Cover all plant material while in transit.

2. After delivery to job site, Contractor shall protect plants at all times from sun or drying winds. Keep plants that cannot be planted immediately upon delivery in the shade, well protected with soil, wet moss or other acceptable material and keep well watered. Plants shall not remain unplanted for longer than 3 days after delivery.
3. Do not bind plants with wire or rope at any time so as to damage the bark or break branches. Lift and handle plants from the bottom of ball only. Plants with cracked or broken balls before or during planting operations shall be rejected.

1.7 QUALIFICATIONS

- A. The fine grading, lawn installation and planting shall be performed by personnel familiar with the accepted procedure of lawn construction and planting and shall be under the constant supervision of a qualified foreman.

PART 2 - MATERIALS

2.1 TOPSOIL

- A. TOPSOIL stripped and stockpiled as required by Section 31 00 00 of these Specifications shall be used for part of this work. It shall be free of any admixture of subsoil, stones larger than one (1) inch, clods of hard earth, plant roots, sticks or other extraneous materials.
 1. If additional topsoil is required it shall be provided by the Contractor at no extra cost and shall be fertile, friable, natural loam capable of sustaining vigorous plant growth. Topsoil shall be a "sandy loam" or a "fine sandy loam" of uniform composition as determined by mechanical analysis and based on the USDA classification system. In addition it shall meet the requirements above as well as the following mechanical analysis:

<u>Sieve Size</u>	<u>% Retained</u>
1 inch	0
1/2 inch	0-3
No. 100	40-60

The clay content of the material passing U.S.S. No. 100 mesh shall not be greater than 60% as determined by the Bouyoucous Hydrometer or by the Decantation Method. The organic content shall be 5% to 20% as determined by the Thomas Rapid Test Method or by loss on ignition on moisture free samples dried at 100 degrees C. The pH value shall be between pH 6.0 and pH 6.5. It shall contain no toxic materials. Soluble salts shall not be greater than 75 parts per million. If soil amendments are required, they shall be added at no additional cost to the Owner.

2. The Contractor shall be responsible for estimating the quantity of topsoil stockpiled.

2.2 SOIL AMENDMENTS

- A. General: All soil amendments shall conform to the standards of the Association of Agricultural Chemists and shall comply with State and Federal regulations.
- B. LIMESTONE, if required, shall be free flowing Agricultural Grade Dolomitic Limestone ground to such fineness that 50% will pass a 100 mesh sieve and 98% will pass a 20 mesh sieve. Limestone shall contain at least 50% total oxides and not less than 85% total carbonates.
- C. ALUMINUM SULFATE, if required, shall be unadulterated commercial grade.

- D. GYPSUM, if required, shall be unadulterated commercial grade Calcium Sulfate.
- E. COMMERCIAL FERTILIZER shall be a complete fertilizer, uniform in composition and free flowing. At least 50% of the Nitrogen shall be derived from natural or synthetic organic sources. Available Phosphoric Acid shall be from superphosphate, bone or tankage. Potash shall be derived from Muriate of Potash containing at least 60% Potash. Percentages of Nitrogen, Available Phosphoric Acid and Water-soluble Potash in the fertilizer mix shall be based on laboratory test recommendations as approved by the Owners Representative.
- F. BONEMEAL shall be finely ground commercial raw bonemeal with 4% minimum Nitrogen and 20% minimum Phosphoric Acid.
- G. ORGANIC COMPOST shall be mature leaf compost, mature composted animal manure, other aged, composted vegetable materials that meet the requirements of the EPA and the State of Massachusetts for intended use. Raw (uncomposted or unprocessed) organic matter shall not be accepted.
 - 1. Peat moss or other material the harvesting of which depletes natural wetlands shall not be used.
 - 2. Organic material shall contain no bulking agents, such as visible, uncomposted wood chips, and be free from hard lumps. It may be shredded or granular in form. No plastic shall be present. The material shall be free of noxious odor. Organic compost shall be tested for % organics, carbon: nitrogen ratio, ammonium nitrate, moisture content, pH, and sieve analysis and test results shall be submitted for review before use may be approved as a soil component.
 - 3. Manure shall be well rotted, unleached cattle manure, free of harmful chemicals and other injurious substances. Manure shall be free of sawdust and refuse of any kind and shall not contain more than 25% straw, shavings, leaves or other organic material. Manure shall be not be aged more than 2 years or less than 9 months.
- H. MYCORRHIZAL FUNGI shall be 'PHC Tree Saver' manufactured by Plant Health Care, Inc.

2.3 PLANTING SOIL

- A. PLANTING SOIL shall consist of eight (8) parts topsoil and one (1) part compost by volume. It shall have a pH value between 6.0 and 6.

2.4 ANTI-TRANSPIRANT

- A. ANTI-TRANSPIRANT shall be suitable for spray application which upon drying shall produce a gas permeable, but water retarding, colorless film, having a moisture vapor transmission value of not more than 2.5 in accordance with ASTM E96. It shall be equal to "Wilt Pruf" by Nursery Specialty Products, Inc., Greenwich Conn. Apply in accordance with manufacturer's instructions.

2.5 GRASS SEED

- A. GRASS SEED: shall be the 'Valley Green Dark and Durable' seed mix, available at Valley Green, 642 S. Summer St., Holyoke MA, tel: 413-533-0726, or approved equal. Apply seed at 6-8 pounds per 1,000 square feet minimum.
 - 1. Mix contains: 26% Fury Tall Fescue, 26% Falcon IV Tall Fescue, 26% Pixie Tall Fescue, 10% Revenge GLX Perennial Rye and 10% Bonaire Kentucky Bluegrass.
 - 2. Weed seed shall not exceed 0.5% by weight.
 - 3. If special conditions exist which may warrant a variance in the above seed mixture, submit a written request to the Owners Representative stating conditions and proposed variance. Permission will be given if, in the opinion of the Owners Representative, the variance is warranted.

2.6 MULCH FOR SEEDED AREAS

A. MULCH for seeded areas shall be natural and suited to horticultural use. It shall not contain lumps, roots or other foreign matter over one (1) inch in diameter. It shall be free from noxious weeds, seeds and other elements harmful to lawns. Mulch shall be subject to inspection and approval by the Owners Representative at the source and upon delivery. Mulch shall contain not more than 35% moisture by weight. Mulch shall be one of the following at the Contractor's option:

1. Hay: Mowed and properly cured grass, clover or other acceptable plants. Salt hay is not acceptable.
2. Straw: Stalks or stems of grain after threshing.
3. Wood cellulose fiber: "Conwed Hydro Mulch" by Conwed Corporation, Minneapolis, Minnesota; "Silva-Fiber Mulch" by Weyerhaeuser Company, Tacoma, Washington; or approved equal.

2.7 PLANT MATERIALS

A. PLANTS shall be of specimen quality, exceptionally heavy, symmetrical, tightly knit plants so trained or favored in development and appearance so as to be unquestionably and outstandingly superior in form, number of branches, compactness and symmetry.

1. Plants shall be nursery grown in accordance with good horticultural practices, unless specifically authorized to be collected, and grown under climatic conditions similar to those in the locality of the project for at least two years. They shall have been root pruned within the past two years.
2. Plants shall be freshly dug at time of delivery. No heeled-in plants or plants from cold storage will be accepted.
3. Plants shall be sound, healthy and vigorous, well branched and densely foliated when in leaf. They shall be free of disease, insect pests, eggs or larvae and shall have healthy, well developed fibrous root systems. They shall be free from physical damage or adverse conditions that would prevent thriving with the specified result.
4. Plants shall be true to species and variety and shall conform to the measurements specified in the Plant List except that plants larger than specified may be used without an increase in Contract price if approved by the Owners Representative. Substitutions of plant materials will not be permitted unless authorized in writing by the Owners Representative.
5. Plants shall be measured when branches are in their normal position. Height and spread dimensions specified refer to the main body of the plant and not from branch tip to tip.
6. If a range of size is given, no plant shall be less than the minimum size and not less than 50% of the plants shall be as large as the upper half of the specified range. The measurements specified are the minimum size acceptable and are the measurements after pruning where pruning is required.
7. Plants that meet the measurements specified, but do not possess a normal balance between height and spread shall be rejected. Thin, poorly branched or sparsely rooted plants will be rejected, regardless of whether they meet the minimum technical requirements of ASNS.
8. Container grown material shall have sufficient roots to hold the soil together, firm and intact after removal, without being root bound.
9. In case of any discrepancy between the Plant List and the Planting Plan, the Planting Plan will govern.

2.8 MULCH FOR PLANTED AREAS

A. MULCH for planting shall be shredded pine bark, passing a one inch square mesh and retained on a 1/8 inch square mesh. Moisture content shall not exceed 35%.

2.9 GUYING APPARATUS

- A. WOOD STAKES shall be 2" x 2" x 8 feet in length from sound Cedar pointed at one end and reasonably free of knots. Binding and guying shall be with biodegradable webbing. Stake fastenings shall be galvanized 10 penny nails. Trees shall not be wrapped.

2.10 WATER

- A. WATER shall be free of substances harmful to plant growth. It shall be provided by the Contractor. Furnish all necessary hose, hose connections and watering equipment.

2.11 WATERING BAGS

- A. Watering Bags shall be provided equal to the Treegator by Treegator.com, or approved equal. Contractor shall provide one watering bag per newly installed tree. Bag shall be sized to fit a 2-3 inch caliper tree.

PART 3 - INSTALLATION

3.1 PREPARATION OF SITE

- A. After the subgrade of the areas required to be seeded or planted has been brought to the grades shown on the Drawings, thoroughly till the subgrade to a depth of 6 inches by an approved method. Loosen subgrade which has been consolidated or compacted during construction so as to interfere with the porosity of the soil, or where the natural void ratio has been changed, to a depth of no less than 12 inches. The top 3 inches shall be free from stones, rock or other foreign matter 2 inches or greater in dimension.
- B. Thoroughly and evenly incorporate soil amendments into subgrade by an approved method if indicated necessary by the subgrade analysis. Perform this work only when soil is in a friable condition. If the subgrade analysis recommends the incorporation of soil amendments, the Contract Price will be adjusted.
- C. When tilling within the branch spread of trees scheduled to remain, do so in a manner which will cause minimum damage to root systems.
- D. Before spreading topsoil, establish new finish grades and regrade subgrade as necessary to a true smooth slope parallel to and to the required depth below lawn areas and to eliminate depressions and ridges. Spread topsoil to meet finish grades smoothly and evenly. Provide sufficient grade stakes to insure correct line and grade of subgrade and finished grade. Where no grades are shown, areas shall have a smooth and continual grade between existing or fixed controls and elevations shown on the Drawings. Subgrade shall be inspected and approved by the Owners Representative before the placing of topsoil.
- E. During the spreading operation, rake the topsoil and remove all rubbish and all stones in excess of one inch in diameter. Do not spread topsoil while either topsoil or subgrade is in an excessively dry, frozen or muddy condition. Uniformly distribute the topsoil with a minimum thickness of 6 inches regardless of the amount stockpiled under Section 31 00 00. Thickness shall be measured after natural settlement and light rolling. Place topsoil only when it can be followed within a reasonable time by seeding operations. Mechanically remove any weed growth prior to seeding. Do not permit weed growth to go to seed.
- F. Prior to seeding operations Contractor shall request an inspection be made of the newly graded topsoil areas. No seeding shall take place until the Owners Representative approves topsoil grade. All topsoil areas shall slope to drain. Correct finished surfaces to eliminate depressions holding water.

- G. Surplus topsoil not required to fulfill the requirements of the Contract shall be overspread on new lawn areas as directed by the Owners Representative.

3.2 SEED BED PREPARATION

- A. After the topsoil has been spread and graded, apply soil amendments at the rate recommended in the topsoil analysis. Apply limestone at least 5 days prior to application of fertilizer. Apply commercial fertilizer within 10 days of seeding or planting. Spread organic compost at the rate of 4 cubic yards per 1,000 square feet.
- B. Thoroughly and evenly incorporate soil amendments into the soil to a depth of 4 inches by discing or other approved method. In areas inaccessible to power equipment, use hand tools. After the incorporation of soil amendments into the soil, fine grade the bed to remove all ridges and depressions, and clear the surface of all stones one inch or more in diameter and other debris. Remove excessive quantities of smaller stones as directed by the Owners Representative.
- C. Seeding or planting may be done immediately thereafter provided the bed has remained in a good friable condition and has not become muddy or hard. If it has become hard, till to a friable condition. Water dry soil to a depth of 4 inches 48 hours prior to seeding or planting.

3.3 SCHEDULE FOR SEEDING AND PLANTING

- A. The actual seeding of lawns and planting shall be done only during periods within the season which are normal for such work as determined by weather conditions and by accepted practice in this locality. At the option of, and on the responsibility of, the Contractor seeding of lawns and planting may be done under unseasonable conditions, or out of season, without additional compensation subject to the approval at the time of work and methods of operation by the Owners Representative. Lawn maintenance will be the same as for normal planting. Plant guarantee periods remain as specified. No frozen ground planting will be allowed.
- B. Seeding and Planting shall be done within the following dates:

1. Trees	Spring:	April 1 to May 15
	Fall:	Oct. 15 to Nov. 30
2. Lawns	Spring:	May 1 to June 1
	Fall:	August 15 to October 15

3.4 SEEDING

- A. Fine grade and seed the areas as indicated on the Drawings within the limit of work not covered by structures, paving and all areas disturbed by construction inside and outside the limit of work.
- B. Employ an approved method of sowing, using approved mechanical power seeders, mechanical hand seeders or other approved methods. When delays in operations extend the work beyond the most favorable planting season for species designated or when conditions are such that satisfactory results are not likely to be obtained, halt work as directed and resume only when conditions are favorable or when approved alternate or corrective measures and procedures have been effected. No seeding shall be done when the ground is frozen, excessively wet or otherwise nontillable.
- C. Broadcast seeding: Broadcast seed either by hand or with other approved sowing or hydraulic seeding equipment at the specified rate. Distribute seeds uniformly over designated areas. Sow half the seed with the sower moving in one direction and the remainder with the sower moving at right angles to the first sowing. Do not broadcast seed when wind velocity exceeds 15 mph. Use wood cellulose fiber mulch when hydroseeding at a rate of one ton per acre. Use hay or straw mulch with other seeding methods at a rate of one and one half tons per acre.

- D. Cultipacker or other approved similar equipment may be used to cover the seed and firm the seed bed in one operation. In areas inaccessible to cultipacker, lightly rake the seeded ground and roll in two directions with a water ballast roller. Take extreme care during seeding and raking to insure that no change occurs in the finished grades and that seed is not raked from one spot to another.
- E. On banks having a slope of 3:1 or greater in areas to be seeded, or if seeding is authorized between May 15 and August 15, add one (1) pound of annual rye grass per 1,000 square feet to the specified seed mix.

3.5 EROSION CONTROL

- A. It shall be the responsibility of the Contractor to render all lawn areas and plant beds erosion free. The Contractor may accomplish this by any of several alternate methods, any of which may be used provided such method is acceptable to the Owners Representative. Approval of method by Owners Representative does not free Contractor of responsibility for controlling erosion.

3.6 PLANTING

- A. Inform the Owner's Representative when planting will commence and the anticipated delivery date of plant material. Failure to notify the Owner's Representative in advance, in order to arrange proper scheduling, may result in loss of time or removal of any plant or plants not installed as specified or directed.

B. EXCAVATION OF PLANT PITS:

1. Stake out on the ground locations for plants and obtain approval of Owner's Representative before excavation is begun. Make adjustments in locations as directed.
2. Establish finish grades for plant beds and tree pits. Excavate to depths required and regrade subgrade as necessary. Separate subgrade soils from upper "topsoil" portions and remove subgrade soils immediately wherever encountered during planting operations. Loosen top 6 inches of subgrade in pits and beds immediately prior to placing planting soil.
3. If stone, underground construction work, tree roots, poor drainage or obstructions are encountered in the excavation of plant pits, alternate locations may be selected by the Owner's Representative without additional cost. Where locations cannot be changed as determined by the Owner's Representative submit cost required to remove obstructions to a depth of not less than 6 inches below the required pit depth. Proceed with work only after approval of Owners Representative.
4. Notify Owner's Representative in writing of all soil or drainage conditions which the Contractor considers detrimental to the growth of plant material.

C. PLANTING OPERATIONS FOR TREES

1. Set plants at the same relationship to finished grade as they bore to the ground from which they were dug. After settlement, the crown of the plant ball shall not be more than one inch lower than the surrounding finished grade. Backfill planting soil in layers of not more than 8 inches and tamp each layer before the next layer is placed. When plants have been backfilled approximately 2/3 full, water thoroughly before installing remainder of planting soil to top of bed, eliminating all air pockets.
2. Set plants in the center of pits, plumb and straight. Brace rigidly in position until the planting soil has been tamped solidly around the ball and roots. Cut ropes or strings from top of ball after plant has been set. Leave burlap wrapping intact around ball. Turn under and bury portions of burlap exposed at top of ball.
3. Mulch and water all plants immediately after planting. Flood plants with water twice within 24 hours of planting. Smooth planting areas to conform to specified grades after full settlement has occurred and mulch has been applied. Form saucers around trees and shrubs planted in lawn areas.

4. After plants have been installed and prior to placement of mulch, place 1 packet of "PHC Tree Saver" around in the top ½" of planting soil. Work into planting soil so that the material is incorporated.
5. After installation and spreading of mulch in saucer, Contractor shall place one watering bag around new tree and fill bag to capacity with water.

D. FERTILIZING:

1. For Spring planting only add commercial fertilizer to the planting soil at the rate recommended in the topsoil analysis. Mix thoroughly.
2. Fertilize Fall planting the following Spring. Use commercial fertilizer at the following rates:

Trees: 2 pounds per inch of caliper

E. PRUNING

1. Prune new plants only at time of planting and in accordance with American Association of Nurserymen standards in such a manner as to preserve the natural character of the plant. Pruning shall be done by experienced personnel under the supervision of the Owners Representative.
2. Remove all dead wood, suckers and badly bruised or broken branches. In addition, remove approximately 1/4 of all small branching leaf canopy of deciduous plants by thinning out and shortening branches. Do not cut the leader. Trees with leaders removed shall be rejected. Use only clean sharp tools. Make all cuts flush with the trunk or branch.
3. Paint cuts over 3/4 inch diameter with tree paint as specified. Cover all exposed cambium as well as other exposed living tissue.

- F. CLEANUP: Upon completion of planting and pruning operations, remove all excess soil and debris from the site and repair any damage caused by these operations.

3.7 MAINTENANCE AND PROTECTION

- A. Maintenance and protection shall begin immediately upon completion of seeding operations and after each plant is planted and shall continue until acceptance or for at least 30 days or as much longer as necessary to establish a uniform stand of the specified grasses or until substantial completion, whichever is later with the following requirements.

1. In the event that lawn operations are completed too late in the Fall for adequate germination and/or growth of grass, maintenance shall continue into the following Spring.
2. Maintenance of lawn areas shall consist of watering, weeding, cutting, raking of leaves, repair of all erosion, reseeding as necessary to establish a uniform and knitted stand of the specified grass mix.
3. Maintenance of new planting shall consist of pruning, watering, cultivating, weeding, mulching, resetting plants to proper grades and/or upright position and restoration of planting saucers.
4. Furnish and apply such pesticides as are necessary to keep these areas free of insects and disease. Pesticides shall be approved by the Owner's Representative prior to use. Use in accordance with the specifications of the prevailing Public Health Authority.
5. Provide temporary protection fences, barriers and signs, where deemed necessary and all other work incidental to proper maintenance. Remove temporary protection devices at the completion of maintenance period.
6. Protect planting areas and plants at all times against trespassing and damage of all kinds for the duration of the maintenance period. If any plants become damaged or injured, treat or replace them as directed by the Owner's Representative at no additional cost to the Owner.
7. In seeded areas, keep soil moist during germination period. After germination, supplement natural rainfall to produce a total of 2 inches per week. Water lawns not less than twice per week until acceptance.

8. Do not attempt first mowing until seeded areas reach 2-1/2 inches in height. Do not remove more than 40% of the grass leaf in initial or subsequent mowings. Maintain grass at 2 inches in height. Remove grass clippings. Lawns shall receive at least 3 mowings before acceptance.
9. Reseed areas greater than one foot square which fail to show a uniform stand of grass. To be acceptable, a stand of grass shall have a uniform count of at least 100 plants per square foot.
10. Immediately prior to the end of the maintenance period after Spring seeding, or early the following Spring for lawns established in the Fall, apply ammonium nitrate at the rate of 20 pounds per 1,000 square feet over lawn areas. Apply only when grass blades are dry. Water thoroughly after application.

3.8 INSPECTION AND ACCEPTANCE

- A. At the end of the maintenance and protection period, submit a written request to the Owners Representative to inspect all work for acceptance at least 10 calendar days before the anticipated date of inspection.
- B. Until this portion of the work is finally accepted, the Contractor shall be required to repair and replace any lawn area that is defective or becomes damaged when, in the judgment of the Owners Representative, such defects or damages are the result of poor workmanship or failure to meet the requirements of the specifications. The cost of necessary repairs or replacements shall be borne by the Contractor.
- C. Acceptance of plant material by the Owners Representative shall be for general conformance to the specified size, character and quality and shall not relieve the Contractor of responsibility for full conformance to the Contract Documents including correct species.
- D. If a substantial number of plants are sickly or dead at the time of inspection, acceptance will not be granted, and the Contractor's responsibility for maintenance of all plants shall be extended until replacements are made. Replacements shall conform in all respects to the Specifications for new plants and shall be planted in the same manner.
- E. Upon acceptance of the work, the Contractor shall be relieved of further responsibility for care and maintenance of the accepted areas. The Owner will be responsible for the maintenance of new lawns and planting upon acceptance of the work, and continuing through the guarantee period.

3.9 GUARANTEE PERIOD AND REPLACEMENTS

- A. The guarantee period for plant material shall begin at the date of acceptance. All plant material shall be guaranteed by the Contractor, for a period of one year from the date of acceptance, to be in a good healthy and flourishing condition.
- B. Lawn turf installed in the spring, shall be guaranteed until the fall.
- C. Replace without cost to the Owner, and as soon as weather permits, and within a specified planting period, all dead plants and all plants not in a vigorous, thriving condition, as determined by the Owners Representative during and at the end of the guarantee period. Plants shall be free of dead or dying branches and branch tips, and shall bear foliage of a normal density, size and color. Replacements shall closely match adjacent specimens of the same species. Replacements shall be subject to all requirements stated in this Specification. Make all necessary repairs due to plant replacements at no additional cost to the Owner.
- D. The guarantee of all replacement plants shall extend for an additional period of one year from the date of their acceptance after replacement. In the event that a replacement plant is not acceptable during or at the end of said extended guarantee period, the Owner may elect subsequent replacement or credit for each item.

- E. Make periodic inspections as necessary, at no extra cost to the Owner, during the guarantee period to determine what changes, if any, should be made to the Owner's maintenance program. Submit in writing to the Owner's Representative and Owner any recommended changes.

3.10 FINAL INSPECTION AND ACCEPTANCE

- A. At the end of the guarantee period, submit a written request to the Owner's Representative to inspect all guaranteed work for final acceptance at least 10 calendar days before the anticipated date for final inspection.

END OF SECTION
32 90 00

This Page Intentionally
Not Used

SECTION 33 10 00 - WATER SYSTEM

PART 1 - GENERAL

1.1 GENERAL REQUIREMENTS

- A. Attention is directed to the printed form of the Contract of the Town of Arlington and Division 1 of which these specifications are hereby made a part.
- B. Examine all other Sections of the Specifications and drawings for requirements which affect work of this Section whether or not such work is specifically mentioned in this Section or implied on the drawings.
- C. Coordinate work with that of all other trades affecting, or affected by work of this Section. Cooperate with such trades to assure the steady progress of all work under the Contract.
- D. All work shall conform to the Town of Arlington Water Department Standards for Materials and Construction.

1.2 RELATED DOCUMENTS

- A. Section 00 43 23 - ALTERNATES
- B. Section 02 41 13 - SITE PREPARATION
- C. Section 31 00 00 - EARTHWORK

1.3 ARLINGTON WATER DEPARTMENT (AWD)

- A. The Contractor shall notify the AWD sufficiently in advance of connecting new main to existing main. All work and materials shall be subject to approval by the AWD and shall conform to the applicable Town Specifications.
- B. The Contractor shall be responsible for making all arrangements with the Town and paying all fees associated with the water system installation.

1.4 DESCRIPTION OF WORK

- A. Add Alt #6: Furnish and install new water lines, reducers, water spigot, valves, etc. Make connection at existing backflow preventer and new water spigot. Contractor shall install water spigot in approximate location as shown on Drawings.

1.5 REFERENCE STANDARDS

- A. American National Standards Institute/American Water Works Association (ANSI/AWWA):
 - C601 Disinfecting Water Mains
- B. American Society for Testing and Materials (ASTM):
 - A 120 Black and Hot-Dipped Zinc-Coated (Galvanized) Welded and Seamless Steel Pipe for Ordinary Uses
 - D-2239 Standard for pressure rated SDR polyethylene (NSF®-pw-G)
 - B 61 Steam or Valve Bronze Castings
 - B 62 Composition Bronze or Metal Castings

1.6 SUBMITTALS

- A. Manufacturer's product data shall be submitted for the following:

Couplings
Pipe and fittings
Water Spigot

1.7 INSPECTION AND TESTING

- A. Pipe and fittings shall be inspected and tested at the foundry as required by the standard specifications to which the material is manufactured. The Contractor shall furnish to the Owner in duplicate sworn certificates of such tests.
- B. The Owner reserves the right to have any or all pipe, fittings and special castings inspected and/or tested by an independent testing agency at either the manufacturer's plant or elsewhere. Such inspections and/or tests shall be at the Owner's expense.

PART 2 - PRODUCTS

2.1 WATER SERVICE PIPE

- A. Water distribution lines shall be Sil-O-Flex ¾" water service pipe. All new waterlines to be located minimum 3'-6" below ground.

2.2 WATER SPIGOT

- A. Water Spigot shall have a 4' bury depth, lead free and frost free yard hydrant by Campbell, or approved equal.
1. Outlet size is ¾" hose. Head material is cast iron with self-draining bleeder valve and lockable handle.
 2. Overall length is 81".

2.3 EMBEDMENT MATERIALS

- A. Water pipe backfill shall conform to MassDOT Highway Standard Specifications Section M1.04.1.

PART 3 – EXECUTION

2.1 PIPE INSTALLATION

- A. Piping shall be installed as indicated on the Drawings. Where exact dimensions of piping are not indicated on the Drawings, the Owner's approval shall be obtained for proposed locations before installation.
- B. Water service line shall be installed in accordance with AWWA C800 and as indicated on the Drawings.

- C. Piping shall be properly graded, free from pockets.
- D. Pipe shall be thoroughly cleaned before installation, and shall be maintained free from foreign matter during installation.
 - 1. Where necessary, tight-fitting temporary wood bulkheads shall be employed to close ends of pipeline at end of each day's work.
 - 2. Entire length of pipe shall be thoroughly flushed clean following completion of backfill.

2.2 TESTING

- A. All portions of the water system shall be tested for leakage. System may be tested by the use of either water or low-pressure air.
- B. General test requirements.
 - 1. Piping shall be adequately restrained against movement before testing. Pressure line shall have thrust blocks installed and the concrete shall have attained full design strength before test pressure is applied to the line.
 - 2. Piping system shall be flushed clean, and sediment, scale, dirt, and debris removed before piping is tested.
 - 3. Adequate provision shall be made for carrying off flushing water without causing erosion or other damage.
 - 4. Piping shall be tested before joints are concealed or made inaccessible.
 - 5. Tests shall be made in the presence of an Inspector of the authority having jurisdiction.
- C. Notice of tests shall be made in writing to the Owner's Representative, the Water Department and the Plumbing Inspector, and received by them not less than five days before the date of test.
- D. Pressure and Leakage Tests.
 - 1. Pressure pipe shall be given combined pressure and leakage tests in sections of acceptable length.
 - 2. The Contractor shall furnish and install suitable temporary testing plugs or caps; all necessary pressure pumps, pipe connections, meters, gages, and other necessary equipment; and all labor required.
 - 3. Unless it has already been done, the section of pipe to be tested shall be filled with water of approved quality, and all air shall be expelled from the pipe. If hydrants or blowoffs are not available at high points for releasing air, the Contractor shall make the necessary excavations and do the necessary backfilling and shall make the necessary taps at such points, and shall plug said holes after completion of the test.
 - 4. The section under test shall be maintained full of water for a period of 24 hours prior to the combined pressure and leakage test being applied.
 - 5. The meter and gage shall be installed by the Contractor and shall be kept in use during the test in such a manner that all water entering the water main under test will be measured
 - 6. The pressure test shall consist of first raising the water pressure (based on the elevation of the lowest point of the section under test and corrected to the gage location) to a pressure of 150 lbs. per sq. in. If the Contractor cannot achieve the specified pressure and maintain it for a period of two hours with no additional pumping, the section shall be considered as having failed to pass the test.
 - 7. Following a successful pressure test, or concurrently therewith, the Contractor shall make a leakage test by metering the flow of water into the pipe while maintaining in the watermain a pressure equal to the specified test pressure. If the average leakage during the 4-hour period exceeds a rate of 20 gallons per 24 hours per inch of inside diameter per mile of pipeline, the section shall be considered as having failed the leakage test.
 - 8. If the section shall fail to pass the pressure test, the leakage test, or both, the Contractor shall do everything necessary to locate, uncover, and repair or replace defective pipes, fittings, or joints, all at his own expense, and without extension of the time for completion of the work. Additional tests and repairs shall be made until the section passes the specified tests.

9. All joints within vaults shall have no visible leakage. Joints from which water continues to run or squirt in an active manner will not be accepted.
 10. Upon successful completion of the tests, plugs or caps installed for the testing shall be removed.
 11. If, in the judgment of the Engineer, it is impracticable to follow the foregoing procedure exactly for any reason, modifications in the procedure shall be made as required and accepted, but in any event the Contractor shall be responsible for the ultimate tightness of the line within the above leakage and pressure requirements.
- E. Before submitting system for final approval of the authorities having jurisdiction, the Contractor shall submit to the Owner's Representative a written statement stating that the work has been completed in accordance with the Specifications and Drawings.
- F. Promptly following satisfactory completion of leakage testing, a report fully describing test procedures and listing test results shall be submitted to the Owner. The report shall be signed by the Contractor's Superintendent.

2.3 DISINFECTION

- A. The Contractor shall disinfect the lines carrying potable water. The work shall be supervised or performed by an approved chemical testing laboratory at the Contractor's cost. Test results shall be sent to the Owner.
- B. The Contractor shall furnish all equipment and materials necessary to do the work of disinfection, and shall perform the work in accordance with the procedure outlined in AWWA C601, except as otherwise specified herein.
- C. The dosage shall be such so as to produce a chlorine concentration of not less than 10 ppm after a contact period of not less than 24 hours.
- D. After treatment, the pipeline shall be flushed with clean water until the residual chlorine content does not exceed 0.2 ppm.
- E. During the disinfection period, care shall be exercised to prevent contamination of water in existing mains.

END OF SECTION

33 10 00

"General Decision Number: MA20200021 02/14/2020

Superseded General Decision Number: MA20190021

State: Massachusetts

Construction Type: Highway

County: Middlesex County in Massachusetts.

HIGHWAY CONSTRUCTION PROJECTS

Note: Under Executive Order (EO) 13658, an hourly minimum wage of \$10.80 for calendar year 2020 applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2015. If this contract is covered by the EO, the contractor must pay all workers in any classification listed on this wage determination at least \$10.80 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract in calendar year 2020. If this contract is covered by the EO and a classification considered necessary for performance of work on the contract does not appear on this wage determination, the contractor must pay workers in that classification at least the wage rate determined through the conformance process set forth in 29 CFR 5.5(a)(1)(ii) (or the EO minimum wage rate, if it is higher than the conformed wage rate). The EO minimum wage rate will be adjusted annually. Please note that this EO applies to the above-mentioned types of contracts entered into by the federal government that are subject to the Davis-Bacon Act itself, but it does not apply to contracts subject only to the Davis-Bacon Related Acts, including those set forth at 29 CFR 5.1(a)(2)-(60). Additional information on contractor requirements and worker protections under the EO is available at www.dol.gov/whd/govcontracts.

Modification Number	Publication Date
0	01/03/2020
1	02/14/2020

* ELEC0103-007 09/01/2019

	Rates	Fringes
ELECTRICIAN.....	\$ 53.10	32.74

ENGI0004-026 12/01/2019

	Rates	Fringes
POWER EQUIPMENT OPERATOR		
Group 1.....	\$ 48.73	29.25+A
Group 2.....	\$ 48.23	29.25+A

FOOTNOTE FOR POWER EQUIPMENT OPERATORS:

- A. PAID HOLIDAYS: New Year's Day, Washington's Birthday, Labor Day, Memorial Day, Independence Day, Patriot's Day, Columbus Day, Veteran's Day, Thanksgiving Day, Christmas Day

POWER EQUIPMENT OPERATORS CLASSIFICATIONS

Group 1: Backhoe/Excavator/Trackhoe; Bobcat/Skid Steer/Skid Loader; Broom/Sweeper; Gradall; Loader; Paver (Asphalt,

Aggregate, and Concrete)
Group 2: Bulldozer; Grader/Blade; Milling Machine; Roller

IRON0007-031 03/16/2019

	Rates	Fringes
IRONWORKER (ORNAMENTAL, REINFORCING, AND STRUCTURAL).....	\$ 46.66	36.90

LAB00039-002 06/01/2018

	Rates	Fringes
LABORER Asphalt, Includes Raker, Shoveler, Spreader and Distributor.....	\$ 33.50	22.92
Landscape.....	\$ 33.25	22.92

PAIN0035-023 07/01/2019

	Rates	Fringes
PAINTER (Steel).....	\$ 50.66	30.90

SUMA2014-011 01/11/2017

	Rates	Fringes
CARPENTER, Includes Form Work....	\$ 47.93	19.46
CEMENT MASON/CONCRETE FINISHER...	\$ 56.70	21.08
LABORER: Common or General.....	\$ 36.58	19.40
LABORER: Concrete Saw (Hand Held/Walk Behind).....	\$ 41.78	18.37
LABORER: Guardrail Installation.....	\$ 37.70	15.37
OPERATOR: Crane.....	\$ 57.61	0.00
OPERATOR: Forklift.....	\$ 64.67	0.00
OPERATOR: Mechanic.....	\$ 48.14	17.02
OPERATOR: Piledriver.....	\$ 44.46	16.94
OPERATOR: Post Driver (Guardrail/Fences).....	\$ 41.49	23.07
PAINTER: Spray (Linestriping)....	\$ 40.87	13.86
PILEDRIVERMAN.....	\$ 45.65	23.33
TRAFFIC CONTROL: Flagger.....	\$ 23.00	20.44
TRAFFIC CONTROL: Laborer-Cones/ Barricades/Barrels - Setter/Mover/Sweeper.....	\$ 44.49	12.41

TRUCK DRIVER: Concrete Truck....\$ 33.69	15.79
TRUCK DRIVER: Dump Truck.....\$ 38.92	9.73
TRUCK DRIVER: Flatbed Truck.....\$ 48.53	0.00

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

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Note: Executive Order (EO) 13706, Establishing Paid Sick Leave for Federal Contractors applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2017. If this contract is covered by the EO, the contractor must provide employees with 1 hour of paid sick leave for every 30 hours they work, up to 56 hours of paid sick leave each year. Employees must be permitted to use paid sick leave for their own illness, injury or other health-related needs, including preventive care; to assist a family member (or person who is like family to the employee) who is ill, injured, or has other health-related needs, including preventive care; or for reasons resulting from, or to assist a family member (or person who is like family to the employee) who is a victim of, domestic violence, sexual assault, or stalking. Additional information on contractor requirements and worker protections under the EO is available at www.dol.gov/whd/govcontracts.

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29CFR 5.5 (a) (1) (ii)).

The body of each wage determination lists the classification and wage rates that have been found to be prevailing for the cited type(s) of construction in the area covered by the wage determination. The classifications are listed in alphabetical order of ""identifiers"" that indicate whether the particular rate is a union rate (current union negotiated rate for local), a survey rate (weighted average rate) or a union average rate (weighted union average rate).

Union Rate Identifiers

A four letter classification abbreviation identifier enclosed in dotted lines beginning with characters other than ""SU"" or ""UAVG"" denotes that the union classification and rate were prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2014. PLUM is an abbreviation identifier of the union which prevailed in the survey for this classification, which in this example would be Plumbers. 0198 indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. 07/01/2014 is the effective date of the most current negotiated rate, which in this example is July 1, 2014.

Union prevailing wage rates are updated to reflect all rate

changes in the collective bargaining agreement (CBA) governing this classification and rate.

Survey Rate Identifiers

Classifications listed under the "SU" identifier indicate that no one rate prevailed for this classification in the survey and the published rate is derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As this weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SULA2012-007 5/13/2014. SU indicates the rates are survey rates based on a weighted average calculation of rates and are not majority rates. LA indicates the State of Louisiana. 2012 is the year of survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. 5/13/2014 indicates the survey completion date for the classifications and rates under that identifier.

Survey wage rates are not updated and remain in effect until a new survey is conducted.

Union Average Rate Identifiers

Classification(s) listed under the UAVG identifier indicate that no single majority rate prevailed for those classifications; however, 100% of the data reported for the classifications was union data. EXAMPLE: UAVG-OH-0010 08/29/2014. UAVG indicates that the rate is a weighted union average rate. OH indicates the state. The next number, 0010 in the example, is an internal number used in producing the wage determination. 08/29/2014 indicates the survey completion date for the classifications and rates under that identifier.

A UAVG rate will be updated once a year, usually in January of each year, to reflect a weighted average of the current negotiated/CBA rate of the union locals from which the rate is based.

WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

- * an existing published wage determination
- * a survey underlying a wage determination
- * a Wage and Hour Division letter setting forth a position on a wage determination matter
- * a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour Regional Office for the area in which the survey was conducted because those Regional Offices have responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the

Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.

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END OF GENERAL DECISION"

Federal Labor Standards Provisions

U.S. Department of Housing
and Urban Development
Office of Labor Relations

Applicability

The Project or Program to which the construction work covered by this contract pertains is being assisted by the United States of America and the following Federal Labor Standards Provisions are included in this Contract pursuant to the provisions applicable to such Federal assistance.

A. 1. (i) **Minimum Wages.** All laborers and mechanics employed or working upon the site of the work will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act (29 CFR Part 3), the full amount of wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the contractor and such laborers and mechanics. Contributions made or costs reasonably anticipated for bona fide fringe benefits under Section 1(b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of 29 CFR 5.5(a)(1)(iv); also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs, which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period.

Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill, except as provided in 29 CFR 5.5(a)(4). Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein: Provided, That the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classification and wage rates conformed under 29 CFR 5.5(a)(1)(ii) and the Davis-Bacon poster (WH-1321) shall be posted at all times by the contractor and its subcontractors at the site of the work in a prominent and accessible, place where it can be easily seen by the workers.

(ii) (a) Any class of laborers or mechanics which is not listed in the wage determination and which is to be employed under the contract shall be classified in conformance with the wage determination. HUD shall approve an additional classification and wage rate and fringe benefits therefor only when the following criteria have been met:

(1) The work to be performed by the classification requested is not performed by a classification in the wage determination; and
(2) The classification is utilized in the area by the construction industry; and

(3) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.

(b) If the contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and HUD or its designee agree on the classification and wage rate (including the amount designated for fringe benefits where

appropriate), a report of the action taken shall be sent by HUD or its designee to the Administrator of the Wage and Hour Division, Employment Standards Administration, U.S. Department of Labor, Washington, D.C. 20210. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise HUD or its designee or will notify HUD or its designee within the 30-day period that additional time is necessary. (Approved by the Office of Management and Budget under OMB control number 1215-0140.)

(c) In the event the contractor, the laborers or mechanics to be employed in the classification or their representatives, and HUD or its designee do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), HUD or its designee shall refer the questions, including the views of all interested parties and the recommendation of HUD or its designee, to the Administrator for determination. The Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise HUD or its designee or will notify HUD or its designee within the 30-day period that additional time is necessary. (Approved by the Office of Management and Budget under OMB Control Number 1215-0140.)

(d) The wage rate (including fringe benefits where appropriate) determined pursuant to subparagraphs (1)(ii)(b) or (c) of this paragraph, shall be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.

(iii) Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the contractor shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof.

(iv) If the contractor does not make payments to a trustee or other third person, the contractor may consider as part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program. Provided, That the Secretary of Labor has found, upon the written request of the contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the contractor to set aside in a separate account assets for the meeting of obligations under the plan or program. (Approved by the Office of Management and Budget under OMB Control Number 1215-0140.)

2. **Withholding.** HUD or its designee shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld from the contractor under this contract or any other Federal contract with the same prime contractor, or any other Federally-assisted contract subject to Davis-Bacon prevailing wage requirements, which is held by the same prime contractor so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees and helpers, employed by the contractor or any subcontractor the full amount of wages required by the contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee or helper, employed or working on the site of the work, all or part

of the wages required by the contract, HUD or its designee may, after written notice to the contractor, sponsor, applicant, or owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased. HUD or its designee may, after written notice to the contractor, disburse such amounts withheld for and on account of the contractor or subcontractor to the respective employees to whom they are due. The Comptroller General shall make such disbursements in the case of direct Davis-Bacon Act contracts.

3. (f) **Payrolls and basic records.** Payrolls and basic records relating thereto shall be maintained by the contractor during the course of the work preserved for a period of three years thereafter for all laborers and mechanics working at the site of the work. Such records shall contain the name, address, and social security number of each such worker, his or her correct classification, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in Section 1(b)(2)(B) of the Davis-Bacon Act), daily and weekly number of hours worked, deductions made and actual wages paid. Whenever the Secretary of Labor has found under 29 CFR 5.5 (a)(1)(iv) that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in Section 1(b)(2)(B) of the Davis-Bacon Act, the contractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs. (Approved by the Office of Management and Budget under OMB Control Numbers 1215-0140 and 1215-0017.)

(ii) (a) The contractor shall submit weekly for each week in which any contract work is performed a copy of all payrolls to HUD or its designee if the agency is a party to the contract, but if the agency is not such a party, the contractor will submit the payrolls to the applicant sponsor, or owner, as the case may be, for transmission to HUD or its designee. The payrolls submitted shall set out accurately and completely all of the information required to be maintained under 29 CFR 5.5(a)(3)(i). This information may be submitted in any form desired. Optional Form WH-347 is available for this purpose and may be purchased from the Superintendent of Documents (Federal Stock Number 029-005-00014-1), U.S. Government Printing Office, Washington, DC 20402. The prime contractor is responsible for the submission of copies of payrolls by all subcontractors. (Approved by the Office of Management and Budget under OMB Control Number 1215-0149.)

(b) Each payroll submitted shall be accompanied by a "Statement of Compliance," signed by the contractor or subcontractor or his or her agent who pays or supervises the payment of the persons employed under the contract and shall certify the following:

(1) That the payroll for the payroll period contains the information required to be maintained under 29 CFR 5.5 (a)(3)(i) and that such information is correct and complete;

(2) That each laborer or mechanic (including each helper, apprentice, and trainee) employed on the contract during the payroll

period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in 29 CFR Part 3;

(3) That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of work performed, as specified in the applicable wage determination incorporated into the contract.

(c) The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 shall satisfy the requirement for submission of the "Statement of Compliance" required by subparagraph A.3.(ii)(b).

(d) The falsification of any of the above certifications may subject the contractor or subcontractor to civil or criminal prosecution under Section 1001 of Title 18 and Section 231 of Title 31 of the United States Code.

(iii) The contractor or subcontractor shall make the records required under subparagraph A.3.(i) available for inspection, copying, or transcription by authorized representatives of HUD or its designee or the Department of Labor, and shall permit such representatives to interview employees during working hours on the job. If the contractor or subcontractor fails to submit the required records or to make them available, HUD or its designee may, after written notice to the contractor, sponsor, applicant or owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR 5.12.

4. Apprentices and Trainees.

(i) **Apprentices.** Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Office of Apprenticeship Training, Employer and Labor Services, or with a State Apprenticeship Agency recognized by the Office, or if a person is employed in his or her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Office of Apprenticeship Training, Employer and Labor Services or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice. The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman's hourly rate) specified in the contractor's or subcontractor's registered program shall be observed. Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the

journeymen hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination. In the event the Office of Apprenticeship Training, Employer and Labor Services, or a State Apprenticeship Agency recognized by the Office, withdraws approval of an apprenticeship program, the contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(ii) Trainees. Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the U.S. Department of Labor, Employment and Training Administration. The ratio of trainees to journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration. Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman wage rate on the wage determination which provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. In the event the Employment and Training Administration withdraws approval of a training program, the contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(iii) Equal employment opportunity. The utilization of apprentices, trainees and journeymen under 29 CFR Part 6 shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR Part 30.

5. Compliance with Copeland Act requirements. The contractor shall comply with the requirements of 29 CFR Part 3 which are incorporated by reference in this contract

6. Subcontracts. The contractor or subcontractor will insert in any subcontracts the clauses contained in subparagraphs 1 through 11 of this paragraph A and such other clauses as HUD or its designee may by appropriate instructions require, and a copy of the applicable prevailing wage decision, and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in this paragraph.

7. Contract termination; debarment. A breach of the contract clauses in 29 CFR 5.5 may be grounds for termination of the contract and for debarment as a contractor and a subcontractor as provided in 29 CFR 5.12.

8. Compliance with Davis-Bacon and Related Act Requirements. All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 CFR Parts 1, 3, and 5 are herein incorporated by reference in this contract

9. Disputes concerning labor standards. Disputes arising out of the labor standards provisions of this contract shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR Parts 5, 6, and 7. Disputes within the meaning of this clause include disputes between the contractor (or any of its subcontractors) and HUD or its designee, the U.S. Department of Labor, or the employees or their representatives.

10. (i) Certification of Eligibility. By entering into this contract the contractor certifies that neither it (nor he or she) nor any person or firm who has an interest in the contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of Section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1) or to be awarded HUD contracts or participate in HUD programs pursuant to 24 CFR Part 24.

(ii) No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of Section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1) or to be awarded HUD contracts or participate in HUD programs pursuant to 24 CFR Part 24.

(iii) The penalty for making false statements is prescribed in the U.S. Criminal Code, 18 U.S.C. 1001. Additionally, U.S. Criminal Code, Section 1010, Title 18, U.S.C., "Federal Housing Administration transactions", provides in part: "Whoever, for the purpose of . . . influencing in any way the action of such Administration . . . makes, utters or publishes any statement knowing the same to be false . . . shall be fined not more than \$5,000 or imprisoned not more than two years, or both."

11. Complaints, Proceedings, or Testimony by Employees. No laborer or mechanic to whom the wage, salary, or other labor standards provisions of this Contract are applicable shall be discharged or in any other manner discriminated against by the Contractor or any subcontractor because such employee has filed any complaint or instituted or caused to be instituted any proceeding or has testified or is about to testify in any proceeding under or relating to the labor standards applicable under this Contract to his employer.

B. Contract Work Hours and Safety Standards Act. The provisions of this paragraph B are applicable only where the amount of the prime contract exceeds \$100,000. As used in this paragraph, the terms "laborers" and "mechanics" include watchmen and guards.

(1) Overtime requirements. No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which he or she is employed on such work to work in excess of 40 hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of 40 hours in such workweek.

(2) Violation; liability for unpaid wages; liquidated damages. In the event of any violation of the clause set forth in subpara-

graph (1) of this paragraph, the contractor and any subcontractor responsible therefor shall be liable for the unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in subparagraph (1) of this paragraph, in the sum of \$10 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of 40 hours without payment of the overtime wages required by the clause set forth in subparagraph (1) of this paragraph.

(3) Withholding for unpaid wages and liquidated damages. HUD or its designee shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld, from any moneys payable on account of work performed by the contractor or subcontractor under any such contract or any other Federal contract with the same prime contractor, or any other Federally-assisted contract subject to the Contract Work Hours and Safety Standards Act which is held by the same prime contractor such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in subparagraph (2) of this paragraph.

(4) Subcontracts. The contractor or subcontractor shall insert in any subcontracts the clauses set forth in subparagraph (1) through (4) of this paragraph and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in subparagraphs (1) through (4) of this paragraph.

C. Health and Safety. The provisions of this paragraph C are applicable only where the amount of the prime contract exceeds \$100,000.

(1) No laborer or mechanic shall be required to work in surroundings or under working conditions which are unsanitary, hazardous, or dangerous to his health and safety as determined under construction safety and health standards promulgated by the Secretary of Labor by regulation.

(2) The Contractor shall comply with all regulations issued by the Secretary of Labor pursuant to Title 29 Part 1926 and failure to comply may result in imposition of sanctions pursuant to the Contract Work Hours and Safety Standards Act, 40 USC 3701 et seq.

(3) The Contractor shall include the provisions of this paragraph in every subcontract so that such provisions will be binding on each subcontractor. The Contractor shall take such action with respect to any subcontract as the Secretary of Housing and Urban Development or the Secretary of Labor shall direct as a means of enforcing such provisions.

Section 3 Clause

A. The work to be performed under this contract is subject to the requirements of section 3 of the Housing and Urban Development Act of 1968, as amended, 12 U.S.C. 1701u (Section 3). The purpose of Section 3 is to ensure that employment and other economic opportunities generated by HUD assistance or HUD-assisted projects covered by Section 3, shall, to the greatest extent feasible, be directed to low- and very low-income persons, particularly persons who are recipients of HUD assistance for housing.

B. The parties to this contract agree to comply with HUD's regulations in 24 CFR part 135, which implement Section 3. As evidenced by their execution of this contract, the parties to this contract certify that they are under no contractual or other impediment that would prevent them from complying with the part 135 regulations.

C. The contractor agrees to send to each labor organization or representative of workers with which the contractor has a collective bargaining agreement or other understanding, if any, a notice advising the labor organization or workers' representative of the contractor's commitments under this Section 3 clause, and will post copies of the notice in conspicuous places at the work site where both employees and applicants for training and employment positions can see the notice. The notice shall describe the Section 3 preference, shall set forth minimum number and job titles subject to hire, availability of apprenticeship and training positions, the qualifications for each; and the name and location of the person(s) taking applications for each of the positions; and the anticipated date the work shall begin.

D. The contractor agrees to include this Section 3 clause in every subcontract subject to compliance with regulations in 24 CFR part 135, and agrees to take appropriate action, as provided in an applicable provision of the subcontract or in this Section 3 clause, upon a finding that the subcontractor is in violation of the regulations in 24 CFR part 135. The contractor will not subcontract with any subcontractor where the contractor has notice or knowledge that the subcontractor has been found in violation of the regulations in 24 CFR part 135.

E. The contractor will certify that any vacant employment positions, including training positions, that are filled (1) after the contractor is selected but before the contract is executed, and (2) with persons other than those to whom the regulations of 24 CFR part 135 require employment opportunities to be directed, were not filled to circumvent the contractor's obligations under 24 CFR part 135.

F. Noncompliance with HUD's regulations in 24 CFR part 135 may result in sanctions, termination of this contract for default, and debarment or suspension from future HUD assisted contracts.

G. With respect to work performed in connection with Section 3 covered Indian housing assistance, section 7(b) of the Indian Self-Determination and Education Assistance Act (25 U.S.C. 450e) also applies to the work to be performed under this contract. Section 7(b) requires that to the greatest extent feasible (i) preference and opportunities for training and employment shall be given to Indians, and (ii) preference in the award of contracts and subcontracts shall be given to Indian organizations and Indian-owned Economic Enterprises. Parties to this contract that are subject to the provisions of Section 3 to the maximum extent feasible, but not in derogation of compliance with section 7(b).

To view and print Weekly Payroll & Statement of Compliance Forms, click on www.mass.gov/dols/pw.

PLEASE NOTE: The attached Prevailing Wage Schedule is valid for 90 days. An Awarding Authority should re-request an up to date Prevailing Wage Schedule if it has NOT opened bids or selected a contractor within 90 days of the issuance date of the attached prevailing wage schedule.

*For MULTI-YEAR projects bid on or after 8/8/08, Awarding Authorities must request an Annual Update to this Prevailing Wage Schedule each year for the duration of the project, no later than two weeks before the anniversary date of the execution of the general contract. Annual updates are not required for projects that last LESS THAN ONE YEAR.

*For CM AT RISK projects (bid pursuant to GL c.149A), Awarding Authorities must request a Prevailing Wage Schedule NOT sooner than 90-days before the earlier of: (a) the execution date of the GMP Amendment, or (b) the bid for the first construction scope of work.

*For MULTI-YEAR CM AT RISK projects, Awarding Authorities must request an Annual Update to this Prevailing Wage Schedule each year for the duration of the project, no later than two weeks before the anniversary date, which is the earlier of: (a) the execution date of the GMP Amendment, or (b) the execution date of the first amendment to procure construction scopes of work.

Apprentice wages (expressed as dollar figures) and the required benefits are listed on the Prevailing Wage Schedule. For further details, please see opinion letter PW-2010-03-03.16.10 (dated March 18, 2010) at www.mass.gov/dols/pw.

Request Prevailing Wage Rates online at: www.mass.gov/dols/pw.

THIS IS A SYSTEM-GENERATED EMAIL. PLEASE DO NOT REPLY TO THIS EMAIL. TO CONTACT DLS REGARDING PREVAILING WAGE MATTERS, CALL 617-626-6953.

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APPROVAL/DENIAL COMMENTS



**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

ROSALIN ACOSTA
Secretary

MICHAEL FLANAGAN
Interim Director

KARYN E. POLITO
Lt. Governor

Awarding Authority: Town of Arlington
Contract Number: 20-24 **City/Town:** ARLINGTON
Description of Work: Improvements to the Lussiano/North Union Playground, includes demolition of playground, site prep, bituminous concrete walkway, play equipment, safety surfacing, play equipment, grading, landscaping
Job Location: Everett St

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 <i>TEAMSTERS JOINT COUNCIL NO. 10 ZONE A</i>	12/01/2019	\$35.35	\$12.41	\$13.72	\$0.00	\$61.48
	06/01/2020	\$36.25	\$12.41	\$13.72	\$0.00	\$62.38
	08/01/2020	\$36.25	\$12.91	\$13.72	\$0.00	\$62.88
	12/01/2020	\$36.25	\$12.91	\$14.82	\$0.00	\$63.98
	06/01/2021	\$37.05	\$12.91	\$14.82	\$0.00	\$64.78
	08/01/2021	\$37.05	\$13.41	\$14.82	\$0.00	\$65.28
	12/01/2021	\$37.05	\$13.41	\$16.01	\$0.00	\$66.47
(3 AXLE) DRIVER - EQUIPMENT <i>TEAMSTERS JOINT COUNCIL NO. 10 ZONE A</i>	12/01/2019	\$35.42	\$12.41	\$13.72	\$0.00	\$61.55
	06/01/2020	\$36.32	\$12.41	\$13.72	\$0.00	\$62.45
	08/01/2020	\$36.32	\$12.91	\$13.72	\$0.00	\$62.95
	12/01/2020	\$36.32	\$12.91	\$14.82	\$0.00	\$64.05
	06/01/2021	\$37.12	\$12.91	\$14.82	\$0.00	\$64.85
	08/01/2021	\$37.12	\$13.41	\$14.82	\$0.00	\$65.35
	12/01/2021	\$37.12	\$13.41	\$16.01	\$0.00	\$66.54
(4 & 5 AXLE) DRIVER - EQUIPMENT <i>TEAMSTERS JOINT COUNCIL NO. 10 ZONE A</i>	12/01/2019	\$35.54	\$12.41	\$13.72	\$0.00	\$61.67
	06/01/2020	\$36.44	\$12.41	\$13.72	\$0.00	\$62.57
	08/01/2020	\$36.44	\$12.91	\$13.72	\$0.00	\$63.07
	12/01/2020	\$36.44	\$12.91	\$14.82	\$0.00	\$64.17
	06/01/2021	\$37.24	\$12.91	\$14.82	\$0.00	\$64.97
	08/01/2021	\$37.24	\$13.41	\$14.82	\$0.00	\$65.47
	12/01/2021	\$37.24	\$13.41	\$16.01	\$0.00	\$66.66
ADS/SUBMERSIBLE PILOT <i>PILE DRIVER LOCAL 56 (ZONE 1)</i>	08/01/2019	\$102.78	\$9.90	\$21.15	\$0.00	\$133.83
For apprentice rates see "Apprentice- PILE DRIVER"						
AIR TRACK OPERATOR <i>LABORERS - ZONE 1</i>	12/01/2019	\$39.90	\$8.10	\$16.60	\$0.00	\$64.60
	06/01/2020	\$40.89	\$8.10	\$16.60	\$0.00	\$65.59
	12/01/2020	\$41.87	\$8.10	\$16.60	\$0.00	\$66.57
	06/01/2021	\$42.89	\$8.10	\$16.60	\$0.00	\$67.59
	12/01/2021	\$43.90	\$8.10	\$16.60	\$0.00	\$68.60
For apprentice rates see "Apprentice- LABORER"						
ASBESTOS REMOVER - PIPE / MECH. EQUIPT. <i>HEAT & FROST INSULATORS LOCAL 6 (BOSTON)</i>	12/01/2019	\$37.00	\$12.50	\$8.85	\$0.00	\$58.35
	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 <i>LABORERS - ZONE 1</i>	12/01/2019	\$39.40	\$8.10	\$16.60	\$0.00	\$64.10
	06/01/2020	\$40.39	\$8.10	\$16.60	\$0.00	\$65.09
	12/01/2020	\$41.37	\$8.10	\$16.60	\$0.00	\$66.07
	06/01/2021	\$42.39	\$8.10	\$16.60	\$0.00	\$67.09
	12/01/2021	\$43.40	\$8.10	\$16.60	\$0.00	\$68.10
For apprentice rates see "Apprentice- LABORER"						
ASPHALT/CONCRETE/CRUSHER PLANT-ON SITE <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2019	\$48.73	\$12.50	\$15.70	\$0.00	\$76.93
	06/01/2020	\$49.83	\$12.50	\$15.70	\$0.00	\$78.03
	12/01/2020	\$50.98	\$12.50	\$15.70	\$0.00	\$79.18
	06/01/2021	\$52.08	\$12.50	\$15.70	\$0.00	\$80.28
	12/01/2021	\$53.23	\$12.50	\$15.70	\$0.00	\$81.43
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
BACKHOE/FRONT-END LOADER <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2019	\$48.73	\$12.50	\$15.70	\$0.00	\$76.93
	06/01/2020	\$49.83	\$12.50	\$15.70	\$0.00	\$78.03
	12/01/2020	\$50.98	\$12.50	\$15.70	\$0.00	\$79.18
	06/01/2021	\$52.08	\$12.50	\$15.70	\$0.00	\$80.28
	12/01/2021	\$53.23	\$12.50	\$15.70	\$0.00	\$81.43
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
BARCO-TYPE JUMPING TAMPER <i>LABORERS - ZONE 1</i>	12/01/2019	\$39.40	\$8.10	\$16.60	\$0.00	\$64.10
	06/01/2020	\$40.39	\$8.10	\$16.60	\$0.00	\$65.09
	12/01/2020	\$41.37	\$8.10	\$16.60	\$0.00	\$66.07
	06/01/2021	\$42.39	\$8.10	\$16.60	\$0.00	\$67.09
	12/01/2021	\$43.40	\$8.10	\$16.60	\$0.00	\$68.10
For apprentice rates see "Apprentice- LABORER"						
BLOCK PAVER, RAMMER / CURB SETTER <i>LABORERS - ZONE 1</i>	12/01/2019	\$39.90	\$8.10	\$16.60	\$0.00	\$64.60
	06/01/2020	\$40.89	\$8.10	\$16.60	\$0.00	\$65.59
	12/01/2020	\$41.87	\$8.10	\$16.60	\$0.00	\$66.57
	06/01/2021	\$42.89	\$8.10	\$16.60	\$0.00	\$67.59
	12/01/2021	\$43.90	\$8.10	\$16.60	\$0.00	\$68.60
For apprentice rates see "Apprentice- LABORER"						
BOILER MAKER <i>BOILERMAKERS LOCAL 29</i>	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) <i>BRICKLAYERS LOCAL 3 (BOSTON)</i>	02/01/2020	\$54.40	\$10.75	\$21.94	\$0.00	\$87.09
	08/01/2020	\$55.75	\$10.75	\$22.09	\$0.00	\$88.59
	02/01/2021	\$56.39	\$10.75	\$22.09	\$0.00	\$89.23
	08/01/2021	\$57.79	\$10.75	\$22.25	\$0.00	\$90.79
	02/01/2022	\$58.38	\$10.75	\$22.25	\$0.00	\$91.38

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - BRICK/PLASTER/CEMENT MASON - Local 3 Boston

Effective Date - 02/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$27.20	\$10.75	\$21.94	\$0.00	\$59.89
2	60	\$32.64	\$10.75	\$21.94	\$0.00	\$65.33
3	70	\$38.08	\$10.75	\$21.94	\$0.00	\$70.77
4	80	\$43.52	\$10.75	\$21.94	\$0.00	\$76.21
5	90	\$48.96	\$10.75	\$21.94	\$0.00	\$81.65

Effective Date - 08/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$27.88	\$10.75	\$22.09	\$0.00	\$60.72
2	60	\$33.45	\$10.75	\$22.09	\$0.00	\$66.29
3	70	\$39.03	\$10.75	\$22.09	\$0.00	\$71.87
4	80	\$44.60	\$10.75	\$22.09	\$0.00	\$77.44
5	90	\$50.18	\$10.75	\$22.09	\$0.00	\$83.02

Notes:

Apprentice to Journeyworker Ratio:1:5

BULLDOZER/GRADER/SCRAPER	12/01/2019	\$48.23	\$12.50	\$15.70	\$0.00	\$76.43
<i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2020	\$49.31	\$12.50	\$15.70	\$0.00	\$77.51
	12/01/2020	\$50.45	\$12.50	\$15.70	\$0.00	\$78.65
	06/01/2021	\$51.54	\$12.50	\$15.70	\$0.00	\$79.74
	12/01/2021	\$52.68	\$12.50	\$15.70	\$0.00	\$80.88

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

CAISSON & UNDERPINNING BOTTOM MAN	12/01/2019	\$40.25	\$8.10	\$16.80	\$0.00	\$65.15
<i>LABORERS - FOUNDATION AND MARINE</i>	06/01/2020	\$41.24	\$8.10	\$16.80	\$0.00	\$66.14
	12/01/2020	\$42.22	\$8.10	\$16.80	\$0.00	\$67.12
	06/01/2021	\$43.24	\$8.10	\$16.80	\$0.00	\$68.14
	12/01/2021	\$44.25	\$8.10	\$16.80	\$0.00	\$69.15

For apprentice rates see "Apprentice- LABORER"

CAISSON & UNDERPINNING LABORER	12/01/2019	\$39.10	\$8.10	\$16.80	\$0.00	\$64.00
<i>LABORERS - FOUNDATION AND MARINE</i>	06/01/2020	\$40.09	\$8.10	\$16.80	\$0.00	\$64.99
	12/01/2020	\$41.07	\$8.10	\$16.80	\$0.00	\$65.97
	06/01/2021	\$42.09	\$8.10	\$16.80	\$0.00	\$66.99
	12/01/2021	\$43.10	\$8.10	\$16.80	\$0.00	\$68.00

For apprentice rates see "Apprentice- LABORER"

CAISSON & UNDERPINNING TOP MAN	12/01/2019	\$39.10	\$8.10	\$16.80	\$0.00	\$64.00
<i>LABORERS - FOUNDATION AND MARINE</i>	06/01/2020	\$40.09	\$8.10	\$16.80	\$0.00	\$64.99
	12/01/2020	\$41.07	\$8.10	\$16.80	\$0.00	\$65.97
	06/01/2021	\$42.09	\$8.10	\$16.80	\$0.00	\$66.99
	12/01/2021	\$43.10	\$8.10	\$16.80	\$0.00	\$68.00

For apprentice rates see "Apprentice- LABORER"

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
CARBIDE CORE DRILL OPERATOR <i>LABORERS - ZONE 1</i>	12/01/2019	\$39.40	\$8.10	\$16.60	\$0.00	\$64.10
	06/01/2020	\$40.39	\$8.10	\$16.60	\$0.00	\$65.09
	12/01/2020	\$41.37	\$8.10	\$16.60	\$0.00	\$66.07
	06/01/2021	\$42.39	\$8.10	\$16.60	\$0.00	\$67.09
	12/01/2021	\$43.40	\$8.10	\$16.60	\$0.00	\$68.10

For apprentice rates see "Apprentice- LABORER"

CARPENTER <i>CARPENTERS -ZONE 2 (Eastern Massachusetts)</i>	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 <i>CARPENTERS -ZONE 2 (Wood Frame)</i>	10/01/2019	\$27.95	\$7.07	\$7.86	\$0.00	\$42.88
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All Aspects of New Wood Frame Work

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - CARPENTER (Wood Frame) - Zone 2

Effective Date - 10/01/2019

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$16.77	\$7.07	\$0.00	\$0.00	\$23.84
2	60	\$16.77	\$7.07	\$0.00	\$0.00	\$23.84
3	65	\$18.17	\$7.07	\$7.86	\$0.00	\$33.10
4	70	\$19.57	\$7.07	\$7.86	\$0.00	\$34.50
5	75	\$20.96	\$7.07	\$7.86	\$0.00	\$35.89
6	80	\$22.36	\$7.07	\$7.86	\$0.00	\$37.29
7	85	\$23.76	\$7.07	\$7.86	\$0.00	\$38.69
8	90	\$25.16	\$7.07	\$7.86	\$0.00	\$40.09

Notes:

% Indentured After 10/1/17; 45/45/55/55/70/70/80/80
Step 1&2 \$19.65/ 3&4 \$27.19/ 5&6 \$34.50/ 7&8 \$37.29

Apprentice to Journeyworker Ratio:1:5

CEMENT MASONRY/PLASTERING BRICKLAYERS LOCAL 3 (BOSTON)	01/01/2020	\$49.07	\$12.75	\$22.41	\$0.62	\$84.85
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Apprentice - CEMENT MASONRY/PLASTERING - Eastern Mass (Boston)

Effective Date - 01/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$24.54	\$12.75	\$15.41	\$0.00	\$52.70
2	60	\$29.44	\$12.75	\$17.41	\$0.62	\$60.22
3	65	\$31.90	\$12.75	\$18.41	\$0.62	\$63.68
4	70	\$34.35	\$12.75	\$19.41	\$0.62	\$67.13
5	75	\$36.80	\$12.75	\$20.41	\$0.62	\$70.58
6	80	\$39.26	\$12.75	\$21.41	\$0.62	\$74.04
7	90	\$44.16	\$12.75	\$22.41	\$0.62	\$79.94

Notes:

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

Apprentice to Journeyworker Ratio:1:3

CHAIN SAW OPERATOR LABORERS - ZONE 1	12/01/2019	\$39.40	\$8.10	\$16.60	\$0.00	\$64.10
	06/01/2020	\$40.39	\$8.10	\$16.60	\$0.00	\$65.09
	12/01/2020	\$41.37	\$8.10	\$16.60	\$0.00	\$66.07
	06/01/2021	\$42.39	\$8.10	\$16.60	\$0.00	\$67.09
	12/01/2021	\$43.40	\$8.10	\$16.60	\$0.00	\$68.10

For apprentice rates see "Apprentice- LABORER"

CLAM SHELLS/SLURRY BUCKETS/HEADING MACHINES OPERATING ENGINEERS LOCAL 4	12/01/2019	\$49.73	\$12.50	\$15.70	\$0.00	\$77.93
	06/01/2020	\$50.83	\$12.50	\$15.70	\$0.00	\$79.03
	12/01/2020	\$51.98	\$12.50	\$15.70	\$0.00	\$80.18
	06/01/2021	\$53.08	\$12.50	\$15.70	\$0.00	\$81.28
	12/01/2021	\$54.23	\$12.50	\$15.70	\$0.00	\$82.43

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
COMPRESSOR OPERATOR <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2019	\$32.47	\$12.50	\$15.70	\$0.00	\$60.67
	06/01/2020	\$33.22	\$12.50	\$15.70	\$0.00	\$61.42
	12/01/2020	\$34.00	\$12.50	\$15.70	\$0.00	\$62.20
	06/01/2021	\$34.75	\$12.50	\$15.70	\$0.00	\$62.95
	12/01/2021	\$35.54	\$12.50	\$15.70	\$0.00	\$63.74
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
DELEADER (BRIDGE) <i>PAINTERS LOCAL 35 - ZONE 2</i>	01/01/2020	\$50.96	\$8.20	\$22.10	\$0.00	\$81.26
	07/01/2020	\$52.06	\$8.20	\$22.10	\$0.00	\$82.36
	01/01/2021	\$53.16	\$8.20	\$22.10	\$0.00	\$83.46

Apprentice - PAINTER Local 35 - BRIDGES/TANKS

Effective Date - 01/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$25.48	\$8.20	\$0.00	\$0.00	\$33.68
2	55	\$28.03	\$8.20	\$5.94	\$0.00	\$42.17
3	60	\$30.58	\$8.20	\$6.48	\$0.00	\$45.26
4	65	\$33.12	\$8.20	\$7.02	\$0.00	\$48.34
5	70	\$35.67	\$8.20	\$18.86	\$0.00	\$62.73
6	75	\$38.22	\$8.20	\$19.40	\$0.00	\$65.82
7	80	\$40.77	\$8.20	\$19.94	\$0.00	\$68.91
8	90	\$45.86	\$8.20	\$21.02	\$0.00	\$75.08

Effective Date - 07/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$26.03	\$8.20	\$0.00	\$0.00	\$34.23
2	55	\$28.63	\$8.20	\$5.94	\$0.00	\$42.77
3	60	\$31.24	\$8.20	\$6.48	\$0.00	\$45.92
4	65	\$33.84	\$8.20	\$7.02	\$0.00	\$49.06
5	70	\$36.44	\$8.20	\$18.86	\$0.00	\$63.50
6	75	\$39.05	\$8.20	\$19.40	\$0.00	\$66.65
7	80	\$41.65	\$8.20	\$19.94	\$0.00	\$69.79
8	90	\$46.85	\$8.20	\$21.02	\$0.00	\$76.07

Notes:

Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

DEMO: ADZEMAN <i>LABORERS - ZONE 1</i>	12/01/2019	\$39.30	\$8.10	\$16.60	\$0.00	\$64.00
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For apprentice rates see "Apprentice- LABORER"

DEMO: BACKHOE/LOADER/HAMMER OPERATOR <i>LABORERS - ZONE 1</i>	12/01/2019	\$40.30	\$8.10	\$16.60	\$0.00	\$65.00
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For apprentice rates see "Apprentice- LABORER"

DEMO: BURNERS <i>LABORERS - ZONE 1</i>	12/01/2019	\$40.05	\$8.10	\$16.60	\$0.00	\$64.75
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For apprentice rates see "Apprentice- LABORER"

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
DEMO: CONCRETE CUTTER/SAWYER <i>LABORERS - ZONE 1</i>	12/01/2019	\$40.30	\$8.10	\$16.60	\$0.00	\$65.00
For apprentice rates see "Apprentice- LABORER"						
DEMO: JACKHAMMER OPERATOR <i>LABORERS - ZONE 1</i>	12/01/2019	\$40.05	\$8.10	\$16.60	\$0.00	\$64.75
For apprentice rates see "Apprentice- LABORER"						
DEMO: WRECKING LABORER <i>LABORERS - ZONE 1</i>	12/01/2019	\$39.30	\$8.10	\$16.60	\$0.00	\$64.00
For apprentice rates see "Apprentice- LABORER"						
DIRECTIONAL DRILL MACHINE OPERATOR <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2019	\$48.23	\$12.50	\$15.70	\$0.00	\$76.43
	06/01/2020	\$49.31	\$12.50	\$15.70	\$0.00	\$77.51
	12/01/2020	\$50.45	\$12.50	\$15.70	\$0.00	\$78.65
	06/01/2021	\$51.54	\$12.50	\$15.70	\$0.00	\$79.74
	12/01/2021	\$52.68	\$12.50	\$15.70	\$0.00	\$80.88
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
DIVER <i>PILE DRIVER LOCAL 56 (ZONE 1)</i>	08/01/2019	\$68.52	\$9.90	\$21.15	\$0.00	\$99.57
For apprentice rates see "Apprentice- PILE DRIVER"						
DIVER TENDER <i>PILE DRIVER LOCAL 56 (ZONE 1)</i>	08/01/2019	\$48.94	\$9.90	\$21.15	\$0.00	\$79.99
For apprentice rates see "Apprentice- PILE DRIVER"						
DIVER TENDER (EFFLUENT) <i>PILE DRIVER LOCAL 56 (ZONE 1)</i>	08/01/2019	\$73.41	\$9.90	\$21.15	\$0.00	\$104.46
For apprentice rates see "Apprentice- PILE DRIVER"						
DIVER/SLURRY (EFFLUENT) <i>PILE DRIVER LOCAL 56 (ZONE 1)</i>	08/01/2019	\$102.78	\$9.90	\$21.15	\$0.00	\$133.83
For apprentice rates see "Apprentice- PILE DRIVER"						
DRAWBRIDGE OPERATOR (Construction) <i>ELECTRICIANS LOCAL 103</i>	03/01/2020	\$53.50	\$13.00	\$19.20	\$0.00	\$85.70
	09/01/2020	\$54.93	\$13.00	\$19.25	\$0.00	\$87.18
	03/01/2021	\$56.13	\$13.00	\$19.28	\$0.00	\$88.41
	09/01/2021	\$57.56	\$13.00	\$19.33	\$0.00	\$89.89
	03/01/2022	\$58.76	\$13.00	\$19.36	\$0.00	\$91.12
	09/01/2022	\$60.19	\$13.00	\$19.41	\$0.00	\$92.60
	03/01/2023	\$61.39	\$13.00	\$19.44	\$0.00	\$93.83
For apprentice rates see "Apprentice- ELECTRICIAN"						
ELECTRICIAN <i>ELECTRICIANS LOCAL 103</i>	03/01/2020	\$53.50	\$13.00	\$19.20	\$0.00	\$85.70
	09/01/2020	\$54.93	\$13.00	\$19.25	\$0.00	\$87.18
	03/01/2021	\$56.13	\$13.00	\$19.28	\$0.00	\$88.41
	09/01/2021	\$57.56	\$13.00	\$19.33	\$0.00	\$89.89
	03/01/2022	\$58.76	\$13.00	\$19.36	\$0.00	\$91.12
	09/01/2022	\$60.19	\$13.00	\$19.41	\$0.00	\$92.60
	03/01/2023	\$61.39	\$13.00	\$19.44	\$0.00	\$93.83

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - ELECTRICIAN - Local 103

Effective Date - 03/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	\$21.40	\$13.00	\$0.64	\$0.00	\$35.04
2	40	\$21.40	\$13.00	\$0.64	\$0.00	\$35.04
3	45	\$24.08	\$13.00	\$14.62	\$0.00	\$51.70
4	45	\$24.08	\$13.00	\$14.62	\$0.00	\$51.70
5	50	\$26.75	\$13.00	\$15.04	\$0.00	\$54.79
6	55	\$29.43	\$13.00	\$15.46	\$0.00	\$57.89
7	60	\$32.10	\$13.00	\$15.87	\$0.00	\$60.97
8	65	\$34.78	\$13.00	\$16.29	\$0.00	\$64.07
9	70	\$37.45	\$13.00	\$16.70	\$0.00	\$67.15
10	75	\$40.13	\$13.00	\$17.12	\$0.00	\$70.25

Effective Date - 09/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	\$21.97	\$13.00	\$0.66	\$0.00	\$35.63
2	40	\$21.97	\$13.00	\$0.66	\$0.00	\$35.63
3	45	\$24.72	\$13.00	\$14.64	\$0.00	\$52.36
4	45	\$24.72	\$13.00	\$14.64	\$0.00	\$52.36
5	50	\$27.47	\$13.00	\$15.06	\$0.00	\$55.53
6	55	\$30.21	\$13.00	\$15.49	\$0.00	\$58.70
7	60	\$32.96	\$13.00	\$15.90	\$0.00	\$61.86
8	65	\$35.70	\$13.00	\$16.32	\$0.00	\$65.02
9	70	\$38.45	\$13.00	\$16.73	\$0.00	\$68.18
10	75	\$41.20	\$13.00	\$17.16	\$0.00	\$71.36

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

Apprentice to Journeyworker Ratio:2:3***

ELEVATOR CONSTRUCTOR	01/01/2020	\$61.42	\$15.73	\$18.41	\$0.00	\$95.56
ELEVATOR CONSTRUCTORS LOCAL 4	01/01/2021	\$63.47	\$15.88	\$19.31	\$0.00	\$98.66
	01/01/2022	\$65.62	\$16.03	\$20.21	\$0.00	\$101.86

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - ELEVATOR CONSTRUCTOR - Local 4

Effective Date - 01/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$30.71	\$15.73	\$0.00	\$0.00	\$46.44
2	55	\$33.78	\$15.73	\$18.41	\$0.00	\$67.92
3	65	\$39.92	\$15.73	\$18.41	\$0.00	\$74.06
4	70	\$42.99	\$15.73	\$18.41	\$0.00	\$77.13
5	80	\$49.14	\$15.73	\$18.41	\$0.00	\$83.28

Effective Date - 01/01/2021

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$31.74	\$15.88	\$0.00	\$0.00	\$47.62
2	55	\$34.91	\$15.88	\$19.31	\$0.00	\$70.10
3	65	\$41.26	\$15.88	\$19.31	\$0.00	\$76.45
4	70	\$44.43	\$15.88	\$19.31	\$0.00	\$79.62
5	80	\$50.78	\$15.88	\$19.31	\$0.00	\$85.97

Notes:

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

Apprentice to Journeyworker Ratio:1:1

ELEVATOR CONSTRUCTOR HELPER <i>ELEVATOR CONSTRUCTORS LOCAL 4</i>	01/01/2020	\$42.99	\$15.73	\$18.41	\$0.00	\$77.13
	01/01/2021	\$44.43	\$15.88	\$19.31	\$0.00	\$79.62
	01/01/2022	\$45.93	\$16.03	\$20.21	\$0.00	\$82.17

For apprentice rates see "Apprentice - ELEVATOR CONSTRUCTOR"

FENCE & GUARD RAIL ERECTOR <i>LABORERS - ZONE 1</i>	12/01/2019	\$39.40	\$8.10	\$16.60	\$0.00	\$64.10
	06/01/2020	\$40.39	\$8.10	\$16.60	\$0.00	\$65.09
	12/01/2020	\$41.37	\$8.10	\$16.60	\$0.00	\$66.07
	06/01/2021	\$42.39	\$8.10	\$16.60	\$0.00	\$67.09
	12/01/2021	\$43.40	\$8.10	\$16.60	\$0.00	\$68.10

For apprentice rates see "Apprentice- LABORER"

FIELD ENG.INST.PERSON-BLDG,SITE,HVY/HWY <i>OPERATING ENGINEERS LOCAL 4</i>	11/01/2019	\$44.18	\$12.00	\$15.60	\$0.00	\$71.78
	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 <i>OPERATING ENGINEERS LOCAL 4</i>	11/01/2019	\$45.68	\$12.00	\$15.60	\$0.00	\$73.28
	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"

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
FIELD ENG.ROD PERSON-BLDG,SITE,HVY/HWY <i>OPERATING ENGINEERS LOCAL 4</i>	11/01/2019	\$22.57	\$12.00	\$15.60	\$0.00	\$50.17
	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 <i>ELECTRICIANS LOCAL 103</i>	03/01/2020	\$53.50	\$13.00	\$19.20	\$0.00	\$85.70
	09/01/2020	\$54.93	\$13.00	\$19.25	\$0.00	\$87.18
	03/01/2021	\$56.13	\$13.00	\$19.28	\$0.00	\$88.41
	09/01/2021	\$57.56	\$13.00	\$19.33	\$0.00	\$89.89
	03/01/2022	\$58.76	\$13.00	\$19.36	\$0.00	\$91.12
	09/01/2022	\$60.19	\$13.00	\$19.41	\$0.00	\$92.60
	03/01/2023	\$61.39	\$13.00	\$19.44	\$0.00	\$93.83
For apprentice rates see "Apprentice- ELECTRICIAN"						
FIRE ALARM REPAIR / MAINTENANCE / COMMISSIONING <i>ELECTRICIANS LOCAL 103</i>	03/01/2020	\$40.13	\$13.00	\$17.12	\$0.00	\$70.25
	09/01/2020	\$41.20	\$13.00	\$17.16	\$0.00	\$71.36
	03/01/2021	\$42.66	\$13.00	\$17.27	\$0.00	\$72.93
	09/01/2021	\$44.32	\$13.00	\$17.38	\$0.00	\$74.70
	03/01/2022	\$45.83	\$13.00	\$17.49	\$0.00	\$76.32
	09/01/2022	\$47.55	\$13.00	\$17.62	\$0.00	\$78.17
	03/01/2023	\$49.11	\$13.00	\$17.73	\$0.00	\$79.84
For apprentice rates see "Apprentice- TELECOMMUNICATIONS TECHNICIAN"						
FIREMAN (ASST. ENGINEER) <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2019	\$39.89	\$12.50	\$15.70	\$0.00	\$68.09
	06/01/2020	\$40.80	\$12.50	\$15.70	\$0.00	\$69.00
	12/01/2020	\$41.75	\$12.50	\$15.70	\$0.00	\$69.95
	06/01/2021	\$42.66	\$12.50	\$15.70	\$0.00	\$70.86
	12/01/2021	\$43.61	\$12.50	\$15.70	\$0.00	\$71.81
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
FLAGGER & SIGNALER <i>LABORERS - ZONE 1</i>	12/01/2019	\$23.50	\$8.10	\$16.60	\$0.00	\$48.20
	06/01/2020	\$23.50	\$8.10	\$16.60	\$0.00	\$48.20
	12/01/2020	\$24.50	\$8.10	\$16.60	\$0.00	\$49.20
	06/01/2021	\$24.50	\$8.10	\$16.60	\$0.00	\$49.20
	12/01/2021	\$24.50	\$8.10	\$16.60	\$0.00	\$49.20
For apprentice rates see "Apprentice- LABORER"						
FLOORCOVERER <i>FLOORCOVERERS LOCAL 2168 ZONE 1</i>	03/01/2020	\$47.05	\$9.40	\$19.25	\$0.00	\$75.70
	09/01/2020	\$47.85	\$9.40	\$19.25	\$0.00	\$76.50
	03/01/2021	\$48.65	\$9.40	\$19.25	\$0.00	\$77.30
	09/01/2021	\$49.45	\$9.40	\$19.25	\$0.00	\$78.10
	03/01/2022	\$50.25	\$9.40	\$19.25	\$0.00	\$78.90

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - FLOORCOVERER - Local 2168 Zone I

Effective Date - 03/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$23.53	\$9.40	\$1.79	\$0.00	\$34.72
2	55	\$25.88	\$9.40	\$1.79	\$0.00	\$37.07
3	60	\$28.23	\$9.40	\$13.88	\$0.00	\$51.51
4	65	\$30.58	\$9.40	\$13.88	\$0.00	\$53.86
5	70	\$32.94	\$9.40	\$15.67	\$0.00	\$58.01
6	75	\$35.29	\$9.40	\$15.67	\$0.00	\$60.36
7	80	\$37.64	\$9.40	\$17.46	\$0.00	\$64.50
8	85	\$39.99	\$9.40	\$17.46	\$0.00	\$66.85

Effective Date - 09/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$23.93	\$9.40	\$1.79	\$0.00	\$35.12
2	55	\$26.32	\$9.40	\$1.79	\$0.00	\$37.51
3	60	\$28.71	\$9.40	\$13.88	\$0.00	\$51.99
4	65	\$31.10	\$9.40	\$13.88	\$0.00	\$54.38
5	70	\$33.50	\$9.40	\$15.67	\$0.00	\$58.57
6	75	\$35.89	\$9.40	\$15.67	\$0.00	\$60.96
7	80	\$38.28	\$9.40	\$17.46	\$0.00	\$65.14
8	85	\$40.67	\$9.40	\$17.46	\$0.00	\$67.53

Notes: Steps are 750 hrs.
 % After 09/1/17; 45/45/55/55/70/70/80/80 (1500hr Steps)
 Step 1&2 \$32.36/ 3&4 \$38.80/ 5&6 \$58.01/ 7&8 \$64.50

Apprentice to Journeyworker Ratio:1:1

FORK LIFT/CHERRY PICKER <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2019	\$48.73	\$12.50	\$15.70	\$0.00	\$76.93
	06/01/2020	\$49.83	\$12.50	\$15.70	\$0.00	\$78.03
	12/01/2020	\$50.98	\$12.50	\$15.70	\$0.00	\$79.18
	06/01/2021	\$52.08	\$12.50	\$15.70	\$0.00	\$80.28
	12/01/2021	\$53.23	\$12.50	\$15.70	\$0.00	\$81.43
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
GENERATOR/LIGHTING PLANT/HEATERS <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2019	\$32.47	\$12.50	\$15.70	\$0.00	\$60.67
	06/01/2020	\$33.22	\$12.50	\$15.70	\$0.00	\$61.42
	12/01/2020	\$34.00	\$12.50	\$15.70	\$0.00	\$62.20
	06/01/2021	\$34.75	\$12.50	\$15.70	\$0.00	\$62.95
	12/01/2021	\$35.54	\$12.50	\$15.70	\$0.00	\$63.74
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
GLAZIER (GLASS PLANK/AIR BARRIER/INTERIOR SYSTEMS) <i>GLAZIERS LOCAL 35 (ZONE 2)</i>	01/01/2020	\$40.46	\$8.20	\$22.10	\$0.00	\$70.76
	07/01/2020	\$41.56	\$8.20	\$22.10	\$0.00	\$71.86
	01/01/2021	\$42.66	\$8.20	\$22.10	\$0.00	\$72.96

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - GLAZIER - Local 35 Zone 2

Effective Date - 01/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$20.23	\$8.20	\$0.00	\$0.00	\$28.43
2	55	\$22.25	\$8.20	\$5.94	\$0.00	\$36.39
3	60	\$24.28	\$8.20	\$6.48	\$0.00	\$38.96
4	65	\$26.30	\$8.20	\$7.02	\$0.00	\$41.52
5	70	\$28.32	\$8.20	\$18.86	\$0.00	\$55.38
6	75	\$30.35	\$8.20	\$19.40	\$0.00	\$57.95
7	80	\$32.37	\$8.20	\$19.94	\$0.00	\$60.51
8	90	\$36.41	\$8.20	\$21.02	\$0.00	\$65.63

Effective Date - 07/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$20.78	\$8.20	\$0.00	\$0.00	\$28.98
2	55	\$22.86	\$8.20	\$5.94	\$0.00	\$37.00
3	60	\$24.94	\$8.20	\$6.48	\$0.00	\$39.62
4	65	\$27.01	\$8.20	\$7.02	\$0.00	\$42.23
5	70	\$29.09	\$8.20	\$18.86	\$0.00	\$56.15
6	75	\$31.17	\$8.20	\$19.40	\$0.00	\$58.77
7	80	\$33.25	\$8.20	\$19.94	\$0.00	\$61.39
8	90	\$37.40	\$8.20	\$21.02	\$0.00	\$66.62

Notes:

Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

HOISTING ENGINEER/CRANES/GRADALLS	12/01/2019	\$48.73	\$12.50	\$15.70	\$0.00	\$76.93
OPERATING ENGINEERS LOCAL 4	06/01/2020	\$49.83	\$12.50	\$15.70	\$0.00	\$78.03
	12/01/2020	\$50.98	\$12.50	\$15.70	\$0.00	\$79.18
	06/01/2021	\$52.08	\$12.50	\$15.70	\$0.00	\$80.28
	12/01/2021	\$53.23	\$12.50	\$15.70	\$0.00	\$81.43

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - OPERATING ENGINEERS - Local 4

Effective Date - 12/01/2019

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	55	\$26.80	\$12.50	\$0.00	\$0.00	\$39.30
2	60	\$29.24	\$12.50	\$15.70	\$0.00	\$57.44
3	65	\$31.67	\$12.50	\$15.70	\$0.00	\$59.87
4	70	\$34.11	\$12.50	\$15.70	\$0.00	\$62.31
5	75	\$36.55	\$12.50	\$15.70	\$0.00	\$64.75
6	80	\$38.98	\$12.50	\$15.70	\$0.00	\$67.18
7	85	\$41.42	\$12.50	\$15.70	\$0.00	\$69.62
8	90	\$43.86	\$12.50	\$15.70	\$0.00	\$72.06

Effective Date - 06/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	55	\$27.41	\$12.50	\$0.00	\$0.00	\$39.91
2	60	\$29.90	\$12.50	\$15.70	\$0.00	\$58.10
3	65	\$32.39	\$12.50	\$15.70	\$0.00	\$60.59
4	70	\$34.88	\$12.50	\$15.70	\$0.00	\$63.08
5	75	\$37.37	\$12.50	\$15.70	\$0.00	\$65.57
6	80	\$39.86	\$12.50	\$15.70	\$0.00	\$68.06
7	85	\$42.36	\$12.50	\$15.70	\$0.00	\$70.56
8	90	\$44.85	\$12.50	\$15.70	\$0.00	\$73.05

Notes:

Apprentice to Journeyworker Ratio:1:6

HVAC (DUCTWORK) SHEETMETAL WORKERS LOCAL 17 - A	02/01/2020	\$49.36	\$13.35	\$24.12	\$2.61	\$89.44
	08/01/2020	\$50.96	\$13.35	\$24.12	\$2.66	\$91.09
	02/01/2021	\$52.61	\$13.35	\$24.12	\$2.71	\$92.79
	08/01/2021	\$54.36	\$13.35	\$24.12	\$2.76	\$94.59
	02/01/2022	\$56.11	\$13.35	\$24.12	\$2.81	\$96.39

For apprentice rates see "Apprentice- SHEET METAL WORKER"

HVAC (ELECTRICAL CONTROLS) ELECTRICIANS LOCAL 103	03/01/2020	\$53.50	\$13.00	\$19.20	\$0.00	\$85.70
	09/01/2020	\$54.93	\$13.00	\$19.25	\$0.00	\$87.18
	03/01/2021	\$56.13	\$13.00	\$19.28	\$0.00	\$88.41
	09/01/2021	\$57.56	\$13.00	\$19.33	\$0.00	\$89.89
	03/01/2022	\$58.76	\$13.00	\$19.36	\$0.00	\$91.12
	09/01/2022	\$60.19	\$13.00	\$19.41	\$0.00	\$92.60
	03/01/2023	\$61.39	\$13.00	\$19.44	\$0.00	\$93.83

For apprentice rates see "Apprentice- ELECTRICIAN"

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
HVAC (TESTING AND BALANCING - AIR) <i>SHEETMETAL WORKERS LOCAL 17 - A</i>	02/01/2020	\$49.36	\$13.35	\$24.12	\$2.61	\$89.44
	08/01/2020	\$50.96	\$13.35	\$24.12	\$2.66	\$91.09
	02/01/2021	\$52.61	\$13.35	\$24.12	\$2.71	\$92.79
	08/01/2021	\$54.36	\$13.35	\$24.12	\$2.76	\$94.59
	02/01/2022	\$56.11	\$13.35	\$24.12	\$2.81	\$96.39
For apprentice rates see "Apprentice- SHEET METAL WORKER"						
HVAC (TESTING AND BALANCING -WATER) <i>PIPEFITTERS LOCAL 537</i>	03/01/2020	\$56.19	\$10.95	\$19.74	\$0.00	\$86.88
	09/01/2020	\$57.69	\$10.95	\$19.74	\$0.00	\$88.38
	03/01/2021	\$59.19	\$10.95	\$19.74	\$0.00	\$89.88
For apprentice rates see "Apprentice- PIPEFITTER" or "PLUMBER/PIPEFITTER"						
HVAC MECHANIC <i>PIPEFITTERS LOCAL 537</i>	03/01/2020	\$56.19	\$10.95	\$19.74	\$0.00	\$86.88
	09/01/2020	\$57.69	\$10.95	\$19.74	\$0.00	\$88.38
	03/01/2021	\$59.19	\$10.95	\$19.74	\$0.00	\$89.88
For apprentice rates see "Apprentice- PIPEFITTER" or "PLUMBER/PIPEFITTER"						
HYDRAULIC DRILLS <i>LABORERS - ZONE 1</i>	12/01/2019	\$39.90	\$8.10	\$16.60	\$0.00	\$64.60
	06/01/2020	\$40.89	\$8.10	\$16.60	\$0.00	\$65.59
	12/01/2020	\$41.87	\$8.10	\$16.60	\$0.00	\$66.57
	06/01/2021	\$42.89	\$8.10	\$16.60	\$0.00	\$67.59
	12/01/2021	\$43.90	\$8.10	\$16.60	\$0.00	\$68.60
For apprentice rates see "Apprentice- LABORER"						
INSULATOR (PIPES & TANKS) <i>HEAT & FROST INSULATORS LOCAL 6 (BOSTON)</i>	09/01/2019	\$48.44	\$12.80	\$16.40	\$0.00	\$77.64

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

Effective Date - 09/01/2019

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$24.22	\$12.80	\$11.90	\$0.00	\$48.92
2	60	\$29.06	\$12.80	\$12.80	\$0.00	\$54.66
3	70	\$33.91	\$12.80	\$13.70	\$0.00	\$60.41
4	80	\$38.75	\$12.80	\$14.60	\$0.00	\$66.15

Notes:

Steps are 1 year

Apprentice to Journeyworker Ratio:1:4

IRONWORKER/WELDER <i>IRONWORKERS LOCAL 7 (BOSTON AREA)</i>	03/16/2019	\$46.66	\$8.00	\$23.50	\$0.00	\$78.16
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Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - IRONWORKER - Local 7 Boston

Effective Date - 03/16/2019

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$28.00	\$8.00	\$23.50	\$0.00	\$59.50
2	70	\$32.66	\$8.00	\$23.50	\$0.00	\$64.16
3	75	\$35.00	\$8.00	\$23.50	\$0.00	\$66.50
4	80	\$37.33	\$8.00	\$23.50	\$0.00	\$68.83
5	85	\$39.66	\$8.00	\$23.50	\$0.00	\$71.16
6	90	\$41.99	\$8.00	\$23.50	\$0.00	\$73.49

Notes:

** Structural 1:6; Ornamental 1:4

Apprentice to Journeyworker Ratio:**

JACKHAMMER & PAVING BREAKER OPERATOR LABORERS - ZONE 1	12/01/2019	\$39.40	\$8.10	\$16.60	\$0.00	\$64.10
	06/01/2020	\$40.39	\$8.10	\$16.60	\$0.00	\$65.09
	12/01/2020	\$41.37	\$8.10	\$16.60	\$0.00	\$66.07
	06/01/2021	\$42.39	\$8.10	\$16.60	\$0.00	\$67.09
	12/01/2021	\$43.40	\$8.10	\$16.60	\$0.00	\$68.10

For apprentice rates see "Apprentice- LABORER"

LABORER LABORERS - ZONE 1	12/01/2019	\$39.15	\$8.10	\$16.60	\$0.00	\$63.85
	06/01/2020	\$40.14	\$8.10	\$16.60	\$0.00	\$64.84
	12/01/2020	\$41.12	\$8.10	\$16.60	\$0.00	\$65.82
	06/01/2021	\$42.14	\$8.10	\$16.60	\$0.00	\$66.84
	12/01/2021	\$43.15	\$8.10	\$16.60	\$0.00	\$67.85

Apprentice - LABORER - Zone 1

Effective Date - 12/01/2019

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$23.49	\$8.10	\$16.60	\$0.00	\$48.19
2	70	\$27.41	\$8.10	\$16.60	\$0.00	\$52.11
3	80	\$31.32	\$8.10	\$16.60	\$0.00	\$56.02
4	90	\$35.24	\$8.10	\$16.60	\$0.00	\$59.94

Effective Date - 06/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$24.08	\$8.10	\$16.60	\$0.00	\$48.78
2	70	\$28.10	\$8.10	\$16.60	\$0.00	\$52.80
3	80	\$32.11	\$8.10	\$16.60	\$0.00	\$56.81
4	90	\$36.13	\$8.10	\$16.60	\$0.00	\$60.83

Notes:

Apprentice to Journeyworker Ratio:1:5

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
LABORER: CARPENTER TENDER <i>LABORERS - ZONE 1</i>	12/01/2019	\$39.15	\$8.10	\$16.60	\$0.00	\$63.85
	06/01/2020	\$40.14	\$8.10	\$16.60	\$0.00	\$64.84
	12/01/2020	\$41.12	\$8.10	\$16.60	\$0.00	\$65.82
	06/01/2021	\$42.14	\$8.10	\$16.60	\$0.00	\$66.84
	12/01/2021	\$43.15	\$8.10	\$16.60	\$0.00	\$67.85
For apprentice rates see "Apprentice- LABORER"						
LABORER: CEMENT FINISHER TENDER <i>LABORERS - ZONE 1</i>	12/01/2019	\$39.15	\$8.10	\$16.60	\$0.00	\$63.85
	06/01/2020	\$40.14	\$8.10	\$16.60	\$0.00	\$64.84
	12/01/2020	\$41.12	\$8.10	\$16.60	\$0.00	\$65.82
	06/01/2021	\$42.14	\$8.10	\$16.60	\$0.00	\$66.84
	12/01/2021	\$43.15	\$8.10	\$16.60	\$0.00	\$67.85
For apprentice rates see "Apprentice- LABORER"						
LABORER: HAZARDOUS WASTE/ASBESTOS REMOVER <i>LABORERS - ZONE 1</i>	12/01/2019	\$39.30	\$8.10	\$16.60	\$0.00	\$64.00
For apprentice rates see "Apprentice- LABORER"						
LABORER: MASON TENDER <i>LABORERS - ZONE 1</i>	12/01/2019	\$39.40	\$8.10	\$16.60	\$0.00	\$64.10
	06/01/2020	\$40.39	\$8.10	\$16.60	\$0.00	\$65.09
	12/01/2020	\$41.37	\$8.10	\$16.60	\$0.00	\$66.07
	06/01/2021	\$42.39	\$8.10	\$16.60	\$0.00	\$67.09
	12/01/2021	\$43.40	\$8.10	\$16.60	\$0.00	\$68.10
For apprentice rates see "Apprentice- LABORER"						
LABORER: MULTI-TRADE TENDER <i>LABORERS - ZONE 1</i>	12/01/2019	\$39.15	\$8.10	\$16.60	\$0.00	\$63.85
	06/01/2020	\$40.14	\$8.10	\$16.60	\$0.00	\$64.84
	12/01/2020	\$41.12	\$8.10	\$16.60	\$0.00	\$65.82
	06/01/2021	\$42.14	\$8.10	\$16.60	\$0.00	\$66.84
	12/01/2021	\$43.15	\$8.10	\$16.60	\$0.00	\$67.85
For apprentice rates see "Apprentice- LABORER"						
LABORER: TREE REMOVER <i>LABORERS - ZONE 1</i>	12/01/2019	\$39.15	\$8.10	\$16.60	\$0.00	\$63.85
	06/01/2020	\$40.14	\$8.10	\$16.60	\$0.00	\$64.84
	12/01/2020	\$41.12	\$8.10	\$16.60	\$0.00	\$65.82
	06/01/2021	\$42.14	\$8.10	\$16.60	\$0.00	\$66.84
	12/01/2021	\$43.15	\$8.10	\$16.60	\$0.00	\$67.85
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 <i>LABORERS - ZONE 1</i>	12/01/2019	\$39.40	\$8.10	\$16.60	\$0.00	\$64.10
	06/01/2020	\$40.39	\$8.10	\$16.60	\$0.00	\$65.09
	12/01/2020	\$41.37	\$8.10	\$16.60	\$0.00	\$66.07
	06/01/2021	\$42.39	\$8.10	\$16.60	\$0.00	\$67.09
	12/01/2021	\$43.40	\$8.10	\$16.60	\$0.00	\$68.10
For apprentice rates see "Apprentice- LABORER"						
MARBLE & TILE FINISHERS <i>BRICKLAYERS LOCAL 3 - MARBLE & TILE</i>	02/01/2020	\$41.49	\$10.75	\$20.12	\$0.00	\$72.36
	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

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

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

Effective Date - 02/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$20.75	\$10.75	\$20.12	\$0.00	\$51.62
2	60	\$24.89	\$10.75	\$20.12	\$0.00	\$55.76
3	70	\$29.04	\$10.75	\$20.12	\$0.00	\$59.91
4	80	\$33.19	\$10.75	\$20.12	\$0.00	\$64.06
5	90	\$37.34	\$10.75	\$20.12	\$0.00	\$68.21

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

Notes:

Apprentice to Journeyworker Ratio:1:3

MARBLE MASONS, TILELAYERS & TERRAZZO MECH	02/01/2020	\$54.42	\$10.75	\$21.93	\$0.00	\$87.10
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 - 02/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$27.21	\$10.75	\$21.93	\$0.00	\$59.89
2	60	\$32.65	\$10.75	\$21.93	\$0.00	\$65.33
3	70	\$38.09	\$10.75	\$21.93	\$0.00	\$70.77
4	80	\$43.54	\$10.75	\$21.93	\$0.00	\$76.22
5	90	\$48.98	\$10.75	\$21.93	\$0.00	\$81.66

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

Notes:

Apprentice to Journeyworker Ratio:1:5

MECH. SWEEPER OPERATOR (ON CONST. SITES) <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2019	\$48.23	\$12.50	\$15.70	\$0.00	\$76.43
	06/01/2020	\$49.31	\$12.50	\$15.70	\$0.00	\$77.51
	12/01/2020	\$50.45	\$12.50	\$15.70	\$0.00	\$78.65
	06/01/2021	\$51.54	\$12.50	\$15.70	\$0.00	\$79.74
	12/01/2021	\$52.68	\$12.50	\$15.70	\$0.00	\$80.88

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

MECHANICS MAINTENANCE <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2019	\$48.23	\$12.50	\$15.70	\$0.00	\$76.43
	06/01/2020	\$49.31	\$12.50	\$15.70	\$0.00	\$77.51
	12/01/2020	\$50.45	\$12.50	\$15.70	\$0.00	\$78.65
	06/01/2021	\$51.54	\$12.50	\$15.70	\$0.00	\$79.74
	12/01/2021	\$52.68	\$12.50	\$15.70	\$0.00	\$80.88

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

MILLWRIGHT (Zone 1) <i>MILLWRIGHTS LOCAL 1121 - Zone 1</i>	04/01/2019	\$42.22	\$9.90	\$18.50	\$0.00	\$70.62
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Apprentice - MILLWRIGHT - Local 1121 Zone 1

Effective Date - 04/01/2019

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	55	\$23.22	\$9.90	\$5.31	\$0.00	\$38.43
2	65	\$27.44	\$9.90	\$15.13	\$0.00	\$52.47
3	75	\$31.67	\$9.90	\$16.10	\$0.00	\$57.67
4	85	\$35.89	\$9.90	\$17.06	\$0.00	\$62.85

Notes:

Steps are 2,000 hours

Apprentice to Journeyworker Ratio:1:5

MORTAR MIXER <i>LABORERS - ZONE 1</i>	12/01/2019	\$39.40	\$8.10	\$16.60	\$0.00	\$64.10
	06/01/2020	\$40.39	\$8.10	\$16.60	\$0.00	\$65.09
	12/01/2020	\$41.37	\$8.10	\$16.60	\$0.00	\$66.07
	06/01/2021	\$42.39	\$8.10	\$16.60	\$0.00	\$67.09
	12/01/2021	\$43.40	\$8.10	\$16.60	\$0.00	\$68.10

For apprentice rates see "Apprentice- LABORER"

OILER (OTHER THAN TRUCK CRANES,GRADALLS) <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2019	\$23.08	\$12.50	\$15.70	\$0.00	\$51.28
	06/01/2020	\$23.63	\$12.50	\$15.70	\$0.00	\$51.83
	12/01/2020	\$24.20	\$12.50	\$15.70	\$0.00	\$52.40
	06/01/2021	\$24.75	\$12.50	\$15.70	\$0.00	\$52.95
	12/01/2021	\$25.33	\$12.50	\$15.70	\$0.00	\$53.53

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

OILER (TRUCK CRANES, GRADALLS) <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2019	\$27.64	\$12.50	\$15.70	\$0.00	\$55.84
	06/01/2020	\$28.29	\$12.50	\$15.70	\$0.00	\$56.49
	12/01/2020	\$28.97	\$12.50	\$15.70	\$0.00	\$57.17
	06/01/2021	\$29.61	\$12.50	\$15.70	\$0.00	\$57.81
	12/01/2021	\$30.29	\$12.50	\$15.70	\$0.00	\$58.49

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

OTHER POWER DRIVEN EQUIPMENT - CLASS II <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2019	\$48.23	\$12.50	\$15.70	\$0.00	\$76.43
	06/01/2020	\$49.31	\$12.50	\$15.70	\$0.00	\$77.51
	12/01/2020	\$50.45	\$12.50	\$15.70	\$0.00	\$78.65
	06/01/2021	\$51.54	\$12.50	\$15.70	\$0.00	\$79.74
	12/01/2021	\$52.68	\$12.50	\$15.70	\$0.00	\$80.88

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

PAINTER (BRIDGES/TANKS) <i>PAINTERS LOCAL 35 - ZONE 2</i>	01/01/2020	\$50.96	\$8.20	\$22.10	\$0.00	\$81.26
	07/01/2020	\$52.06	\$8.20	\$22.10	\$0.00	\$82.36
	01/01/2021	\$53.16	\$8.20	\$22.10	\$0.00	\$83.46

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - PAINTER Local 35 - BRIDGES/TANKS

Effective Date - 01/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$25.48	\$8.20	\$0.00	\$0.00	\$33.68
2	55	\$28.03	\$8.20	\$5.94	\$0.00	\$42.17
3	60	\$30.58	\$8.20	\$6.48	\$0.00	\$45.26
4	65	\$33.12	\$8.20	\$7.02	\$0.00	\$48.34
5	70	\$35.67	\$8.20	\$18.86	\$0.00	\$62.73
6	75	\$38.22	\$8.20	\$19.40	\$0.00	\$65.82
7	80	\$40.77	\$8.20	\$19.94	\$0.00	\$68.91
8	90	\$45.86	\$8.20	\$21.02	\$0.00	\$75.08

Effective Date - 07/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$26.03	\$8.20	\$0.00	\$0.00	\$34.23
2	55	\$28.63	\$8.20	\$5.94	\$0.00	\$42.77
3	60	\$31.24	\$8.20	\$6.48	\$0.00	\$45.92
4	65	\$33.84	\$8.20	\$7.02	\$0.00	\$49.06
5	70	\$36.44	\$8.20	\$18.86	\$0.00	\$63.50
6	75	\$39.05	\$8.20	\$19.40	\$0.00	\$66.65
7	80	\$41.65	\$8.20	\$19.94	\$0.00	\$69.79
8	90	\$46.85	\$8.20	\$21.02	\$0.00	\$76.07

Notes:

Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

PAINTER (SIGN, PICTORIAL & DISPLAY) PAINTERS LOCAL 35 - ZONE 2	06/01/2013	\$25.81	\$7.07	\$7.05	\$0.00	\$39.93
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Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - PAINTER SIGN - Local 35 Zone 2

Effective Date - 06/01/2013

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

Notes:
Steps are 4 mos.

Apprentice to Journeyworker Ratio:1:1

PAINTER (SPRAY OR SANDBLAST, NEW) *	01/01/2020	\$41.86	\$8.20	\$22.10	\$0.00	\$72.16
* 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	\$42.96	\$8.20	\$22.10	\$0.00	\$73.26
	01/01/2021	\$44.06	\$8.20	\$22.10	\$0.00	\$74.36

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

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

Effective Date - 01/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$20.93	\$8.20	\$0.00	\$0.00	\$29.13
2	55	\$23.02	\$8.20	\$5.94	\$0.00	\$37.16
3	60	\$25.12	\$8.20	\$6.48	\$0.00	\$39.80
4	65	\$27.21	\$8.20	\$7.02	\$0.00	\$42.43
5	70	\$29.30	\$8.20	\$18.86	\$0.00	\$56.36
6	75	\$31.40	\$8.20	\$19.40	\$0.00	\$59.00
7	80	\$33.49	\$8.20	\$19.94	\$0.00	\$61.63
8	90	\$37.67	\$8.20	\$21.02	\$0.00	\$66.89

Effective Date - 07/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$21.48	\$8.20	\$0.00	\$0.00	\$29.68
2	55	\$23.63	\$8.20	\$5.94	\$0.00	\$37.77
3	60	\$25.78	\$8.20	\$6.48	\$0.00	\$40.46
4	65	\$27.92	\$8.20	\$7.02	\$0.00	\$43.14
5	70	\$30.07	\$8.20	\$18.86	\$0.00	\$57.13
6	75	\$32.22	\$8.20	\$19.40	\$0.00	\$59.82
7	80	\$34.37	\$8.20	\$19.94	\$0.00	\$62.51
8	90	\$38.66	\$8.20	\$21.02	\$0.00	\$67.88

Notes:
Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

PAINTER (SPRAY OR SANDBLAST, REPAINT)	01/01/2020	\$39.92	\$8.20	\$22.10	\$0.00	\$70.22
PAINTERS LOCAL 35 - ZONE 2	07/01/2020	\$41.02	\$8.20	\$22.10	\$0.00	\$71.32
	01/01/2021	\$42.12	\$8.20	\$22.10	\$0.00	\$72.42

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

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

Effective Date - 01/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$19.96	\$8.20	\$0.00	\$0.00	\$28.16
2	55	\$21.96	\$8.20	\$5.94	\$0.00	\$36.10
3	60	\$23.95	\$8.20	\$6.48	\$0.00	\$38.63
4	65	\$25.95	\$8.20	\$7.02	\$0.00	\$41.17
5	70	\$27.94	\$8.20	\$18.86	\$0.00	\$55.00
6	75	\$29.94	\$8.20	\$19.40	\$0.00	\$57.54
7	80	\$31.94	\$8.20	\$19.94	\$0.00	\$60.08
8	90	\$35.93	\$8.20	\$21.02	\$0.00	\$65.15

Effective Date - 07/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$20.51	\$8.20	\$0.00	\$0.00	\$28.71
2	55	\$22.56	\$8.20	\$5.94	\$0.00	\$36.70
3	60	\$24.61	\$8.20	\$6.48	\$0.00	\$39.29
4	65	\$26.66	\$8.20	\$7.02	\$0.00	\$41.88
5	70	\$28.71	\$8.20	\$18.86	\$0.00	\$55.77
6	75	\$30.77	\$8.20	\$19.40	\$0.00	\$58.37
7	80	\$32.82	\$8.20	\$19.94	\$0.00	\$60.96
8	90	\$36.92	\$8.20	\$21.02	\$0.00	\$66.14

Notes:

Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

PAINTER (TRAFFIC MARKINGS)	12/01/2019	\$39.15	\$8.10	\$16.60	\$0.00	\$63.85
LABORERS - ZONE 1	06/01/2020	\$40.14	\$8.10	\$16.60	\$0.00	\$64.84
	12/01/2020	\$41.12	\$8.10	\$16.60	\$0.00	\$65.82
	06/01/2021	\$42.14	\$8.10	\$16.60	\$0.00	\$66.84
	12/01/2021	\$43.15	\$8.10	\$16.60	\$0.00	\$67.85
For Apprentice rates see "Apprentice- LABORER"						
PAINTER / TAPER (BRUSH, NEW) *	01/01/2020	\$40.46	\$8.20	\$22.10	\$0.00	\$70.76
* 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	\$41.56	\$8.20	\$22.10	\$0.00	\$71.86
	01/01/2021	\$42.66	\$8.20	\$22.10	\$0.00	\$72.96

Apprentice - PAINTER - Local 35 Zone 2 - BRUSH NEW

Effective Date - 01/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$20.23	\$8.20	\$0.00	\$0.00	\$28.43
2	55	\$22.25	\$8.20	\$5.94	\$0.00	\$36.39
3	60	\$24.28	\$8.20	\$6.48	\$0.00	\$38.96
4	65	\$26.30	\$8.20	\$7.02	\$0.00	\$41.52
5	70	\$28.32	\$8.20	\$18.86	\$0.00	\$55.38
6	75	\$30.35	\$8.20	\$19.40	\$0.00	\$57.95
7	80	\$32.37	\$8.20	\$19.94	\$0.00	\$60.51
8	90	\$36.41	\$8.20	\$21.02	\$0.00	\$65.63

Effective Date - 07/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$20.78	\$8.20	\$0.00	\$0.00	\$28.98
2	55	\$22.86	\$8.20	\$5.94	\$0.00	\$37.00
3	60	\$24.94	\$8.20	\$6.48	\$0.00	\$39.62
4	65	\$27.01	\$8.20	\$7.02	\$0.00	\$42.23
5	70	\$29.09	\$8.20	\$18.86	\$0.00	\$56.15
6	75	\$31.17	\$8.20	\$19.40	\$0.00	\$58.77
7	80	\$33.25	\$8.20	\$19.94	\$0.00	\$61.39
8	90	\$37.40	\$8.20	\$21.02	\$0.00	\$66.62

Notes:
Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

PAINTER / TAPER (BRUSH, REPAINT)	01/01/2020	\$38.52	\$8.20	\$22.10	\$0.00	\$68.82
PAINTERS LOCAL 35 - ZONE 2	07/01/2020	\$39.62	\$8.20	\$22.10	\$0.00	\$69.92
	01/01/2021	\$40.72	\$8.20	\$22.10	\$0.00	\$71.02

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - PAINTER Local 35 Zone 2 - BRUSH REPAINT

Effective Date - 01/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$19.26	\$8.20	\$0.00	\$0.00	\$27.46
2	55	\$21.19	\$8.20	\$5.94	\$0.00	\$35.33
3	60	\$23.11	\$8.20	\$6.48	\$0.00	\$37.79
4	65	\$25.04	\$8.20	\$7.02	\$0.00	\$40.26
5	70	\$26.96	\$8.20	\$18.86	\$0.00	\$54.02
6	75	\$28.89	\$8.20	\$19.40	\$0.00	\$56.49
7	80	\$30.82	\$8.20	\$19.94	\$0.00	\$58.96
8	90	\$34.67	\$8.20	\$21.02	\$0.00	\$63.89

Effective Date - 07/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$19.81	\$8.20	\$0.00	\$0.00	\$28.01
2	55	\$21.79	\$8.20	\$5.94	\$0.00	\$35.93
3	60	\$23.77	\$8.20	\$6.48	\$0.00	\$38.45
4	65	\$25.75	\$8.20	\$7.02	\$0.00	\$40.97
5	70	\$27.73	\$8.20	\$18.86	\$0.00	\$54.79
6	75	\$29.72	\$8.20	\$19.40	\$0.00	\$57.32
7	80	\$31.70	\$8.20	\$19.94	\$0.00	\$59.84
8	90	\$35.66	\$8.20	\$21.02	\$0.00	\$64.88

Notes:

Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

PANEL & PICKUP TRUCKS DRIVER <i>TEAMSTERS JOINT COUNCIL NO. 10 ZONE A</i>	12/01/2019	\$35.18	\$12.41	\$13.72	\$0.00	\$61.31
	06/01/2020	\$36.08	\$12.41	\$13.72	\$0.00	\$62.21
	08/01/2020	\$36.08	\$12.91	\$13.72	\$0.00	\$62.71
	12/01/2020	\$36.08	\$12.91	\$14.82	\$0.00	\$63.81
	06/01/2021	\$36.88	\$12.91	\$14.82	\$0.00	\$64.61
	08/01/2021	\$36.88	\$13.41	\$14.82	\$0.00	\$65.11
	12/01/2021	\$36.88	\$13.41	\$16.01	\$0.00	\$66.30
PIER AND DOCK CONSTRUCTOR (UNDERPINNING AND DECK) <i>PILE DRIVER LOCAL 56 (ZONE 1)</i> For apprentice rates see "Apprentice- PILE DRIVER"	08/01/2019	\$48.94	\$9.90	\$21.15	\$0.00	\$79.99
PILE DRIVER <i>PILE DRIVER LOCAL 56 (ZONE 1)</i>	08/01/2019	\$48.94	\$9.90	\$21.15	\$0.00	\$79.99

Apprentice - PILE DRIVER - Local 56 Zone 1

Effective Date - 08/01/2019

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$24.47	\$9.90	\$21.15	\$0.00	\$55.52
2	60	\$29.36	\$9.90	\$21.15	\$0.00	\$60.41
3	70	\$34.26	\$9.90	\$21.15	\$0.00	\$65.31
4	75	\$36.71	\$9.90	\$21.15	\$0.00	\$67.76
5	80	\$39.15	\$9.90	\$21.15	\$0.00	\$70.20
6	80	\$39.15	\$9.90	\$21.15	\$0.00	\$70.20
7	90	\$44.05	\$9.90	\$21.15	\$0.00	\$75.10
8	90	\$44.05	\$9.90	\$21.15	\$0.00	\$75.10

Notes:

Apprentice to Journeyworker Ratio:1:5

PIPEFITTER & STEAMFITTER	03/01/2020	\$56.19	\$10.95	\$19.74	\$0.00	\$86.88
PIPEFITTERS LOCAL 537	09/01/2020	\$57.69	\$10.95	\$19.74	\$0.00	\$88.38
	03/01/2021	\$59.19	\$10.95	\$19.74	\$0.00	\$89.88

Apprentice - PIPEFITTER - Local 537

Effective Date - 03/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	\$22.48	\$10.95	\$8.00	\$0.00	\$41.43
2	45	\$25.29	\$10.95	\$19.74	\$0.00	\$55.98
3	60	\$33.71	\$10.95	\$19.74	\$0.00	\$64.40
4	70	\$39.33	\$10.95	\$19.74	\$0.00	\$70.02
5	80	\$44.95	\$10.95	\$19.74	\$0.00	\$75.64

Effective Date - 09/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	\$23.08	\$10.95	\$8.00	\$0.00	\$42.03
2	45	\$25.96	\$10.95	\$19.74	\$0.00	\$56.65
3	60	\$34.61	\$10.95	\$19.74	\$0.00	\$65.30
4	70	\$40.38	\$10.95	\$19.74	\$0.00	\$71.07
5	80	\$46.15	\$10.95	\$19.74	\$0.00	\$76.84

Notes:

** 1:3; 3:15; 1:10 thereafter / Steps are 1 yr.
Refrig/AC Mechanic **1:1;1:2;2:4;3:6;4:8;5:10;6:12;7:14;8:17;9:20;10:23(Max)

Apprentice to Journeyworker Ratio:**

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
PIPELAYER <i>LABORERS - ZONE 1</i>	12/01/2019	\$39.40	\$8.10	\$16.60	\$0.00	\$64.10
	06/01/2020	\$40.39	\$8.10	\$16.60	\$0.00	\$65.09
	12/01/2020	\$41.37	\$8.10	\$16.60	\$0.00	\$66.07
	06/01/2021	\$42.39	\$8.10	\$16.60	\$0.00	\$67.09
	12/01/2021	\$43.40	\$8.10	\$16.60	\$0.00	\$68.10

For apprentice rates see "Apprentice- LABORER"

PLUMBERS & GASFITTERS <i>PLUMBERS & GASFITTERS LOCAL 12</i>	03/01/2020	\$58.69	\$12.07	\$17.26	\$0.00	\$88.02
	09/01/2020	\$60.19	\$12.07	\$17.26	\$0.00	\$89.52
	03/01/2021	\$61.69	\$12.07	\$17.26	\$0.00	\$91.02

Apprentice - PLUMBER/GASFITTER - Local 12

Effective Date - 03/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	35	\$20.54	\$12.07	\$6.24	\$0.00	\$38.85
2	40	\$23.48	\$12.07	\$7.08	\$0.00	\$42.63
3	55	\$32.28	\$12.07	\$9.63	\$0.00	\$53.98
4	65	\$38.15	\$12.07	\$11.33	\$0.00	\$61.55
5	75	\$44.02	\$12.07	\$13.03	\$0.00	\$69.12

Effective Date - 09/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	35	\$21.07	\$12.07	\$6.24	\$0.00	\$39.38
2	40	\$24.08	\$12.07	\$7.08	\$0.00	\$43.23
3	55	\$33.10	\$12.07	\$9.63	\$0.00	\$54.80
4	65	\$39.12	\$12.07	\$11.33	\$0.00	\$62.52
5	75	\$45.14	\$12.07	\$13.03	\$0.00	\$70.24

Notes:

** 1:2; 2:6; 3:10; 4:14; 5:19/Steps are 1 yr
Step4 with lic\$65.32, Step5 with lic\$72.89

Apprentice to Journeyworker Ratio:**

PNEUMATIC CONTROLS (TEMP.) <i>PIPEFITTERS LOCAL 537</i>	03/01/2020	\$56.19	\$10.95	\$19.74	\$0.00	\$86.88
	09/01/2020	\$57.69	\$10.95	\$19.74	\$0.00	\$88.38
	03/01/2021	\$59.17	\$10.95	\$19.74	\$0.00	\$89.86

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

PNEUMATIC DRILL/TOOL OPERATOR <i>LABORERS - ZONE 1</i>	12/01/2019	\$39.40	\$8.10	\$16.60	\$0.00	\$64.10
	06/01/2020	\$40.39	\$8.10	\$16.60	\$0.00	\$65.09
	12/01/2020	\$41.37	\$8.10	\$16.60	\$0.00	\$66.07
	06/01/2021	\$42.39	\$8.10	\$16.60	\$0.00	\$67.09
	12/01/2021	\$43.40	\$8.10	\$16.60	\$0.00	\$68.10

For apprentice rates see "Apprentice- LABORER"

POWDERMAN & BLASTER <i>LABORERS - ZONE 1</i>	12/01/2019	\$40.15	\$8.10	\$16.60	\$0.00	\$64.85
	06/01/2020	\$41.14	\$8.10	\$16.60	\$0.00	\$65.84
	12/01/2020	\$42.12	\$8.10	\$16.60	\$0.00	\$66.82
	06/01/2021	\$43.14	\$8.10	\$16.60	\$0.00	\$67.84
	12/01/2021	\$44.15	\$8.10	\$16.60	\$0.00	\$68.85

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
For apprentice rates see "Apprentice- LABORER"						
POWER SHOVEL/DERRICK/TRENCHING MACHINE <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2019	\$48.73	\$12.50	\$15.70	\$0.00	\$76.93
	06/01/2020	\$49.83	\$12.50	\$15.70	\$0.00	\$78.03
	12/01/2020	\$50.98	\$12.50	\$15.70	\$0.00	\$79.18
	06/01/2021	\$52.08	\$12.50	\$15.70	\$0.00	\$80.28
	12/01/2021	\$53.23	\$12.50	\$15.70	\$0.00	\$81.43
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
PUMP OPERATOR (CONCRETE) <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2019	\$48.73	\$12.50	\$15.70	\$0.00	\$76.93
	06/01/2020	\$49.83	\$12.50	\$15.70	\$0.00	\$78.03
	12/01/2020	\$50.98	\$12.50	\$15.70	\$0.00	\$79.18
	06/01/2021	\$52.08	\$12.50	\$15.70	\$0.00	\$80.28
	12/01/2021	\$53.23	\$12.50	\$15.70	\$0.00	\$81.43
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
PUMP OPERATOR (DEWATERING, OTHER) <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2019	\$32.47	\$12.50	\$15.70	\$0.00	\$60.67
	06/01/2020	\$33.22	\$12.50	\$15.70	\$0.00	\$61.42
	12/01/2020	\$34.00	\$12.50	\$15.70	\$0.00	\$62.20
	06/01/2021	\$34.75	\$12.50	\$15.70	\$0.00	\$62.95
	12/01/2021	\$35.54	\$12.50	\$15.70	\$0.00	\$63.74
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
READY MIX CONCRETE DRIVERS after 4/30/12 (Drivers Hired After 4/30/2012) <i>TEAMSTERS 25 (Metro) - Aggregate</i>	08/01/2019	\$26.65	\$10.41	\$13.07	\$0.00	\$50.13
	05/01/2020	\$27.90	\$10.41	\$14.12	\$0.00	\$52.43
	08/01/2020	\$27.90	\$10.91	\$14.12	\$0.00	\$52.93
	05/01/2021	\$29.15	\$10.91	\$15.25	\$0.00	\$55.31
	08/01/2021	\$29.15	\$11.41	\$15.25	\$0.00	\$55.81
	05/01/2022	\$30.40	\$11.41	\$15.25	\$0.00	\$57.06
	08/01/2022	\$30.40	\$11.91	\$15.25	\$0.00	\$57.56
READY-MIX CONCRETE DRIVER <i>TEAMSTERS 25 (Metro) - Aggregate</i>	08/01/2019	\$32.16	\$10.41	\$13.07	\$0.00	\$55.64
	05/01/2020	\$32.91	\$10.41	\$14.12	\$0.00	\$57.44
	08/01/2020	\$32.91	\$10.91	\$14.12	\$0.00	\$57.94
	05/01/2021	\$33.66	\$10.91	\$15.25	\$0.00	\$59.82
	08/01/2021	\$33.66	\$11.41	\$15.25	\$0.00	\$60.32
	05/01/2022	\$34.41	\$11.41	\$15.25	\$0.00	\$61.07
	08/01/2022	\$34.41	\$11.91	\$15.25	\$0.00	\$61.57
RECLAIMERS <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2019	\$48.23	\$12.50	\$15.70	\$0.00	\$76.43
	06/01/2020	\$49.31	\$12.50	\$15.70	\$0.00	\$77.51
	12/01/2020	\$50.45	\$12.50	\$15.70	\$0.00	\$78.65
	06/01/2021	\$51.54	\$12.50	\$15.70	\$0.00	\$79.74
	12/01/2021	\$52.68	\$12.50	\$15.70	\$0.00	\$80.88
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
RIDE-ON MOTORIZED BUGGY OPERATOR <i>LABORERS - ZONE 1</i>	12/01/2019	\$39.40	\$8.10	\$16.60	\$0.00	\$64.10
	06/01/2020	\$40.39	\$8.10	\$16.60	\$0.00	\$65.09
	12/01/2020	\$41.37	\$8.10	\$16.60	\$0.00	\$66.07
	06/01/2021	\$42.39	\$8.10	\$16.60	\$0.00	\$67.09
	12/01/2021	\$43.40	\$8.10	\$16.60	\$0.00	\$68.10
For apprentice rates see "Apprentice- LABORER"						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
ROLLER/SPREADER/MULCHING MACHINE <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2019	\$48.23	\$12.50	\$15.70	\$0.00	\$76.43
	06/01/2020	\$49.31	\$12.50	\$15.70	\$0.00	\$77.51
	12/01/2020	\$50.45	\$12.50	\$15.70	\$0.00	\$78.65
	06/01/2021	\$51.54	\$12.50	\$15.70	\$0.00	\$79.74
	12/01/2021	\$52.68	\$12.50	\$15.70	\$0.00	\$80.88

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

ROOFER (Inc.Roofing Waterproofing &Roofing Damproofg) <i>ROOFERS LOCAL 33</i>	03/01/2020	\$45.67	\$11.50	\$15.90	\$0.00	\$73.07
	08/01/2020	\$47.10	\$11.50	\$15.90	\$0.00	\$74.50
	02/01/2021	\$48.53	\$11.50	\$15.90	\$0.00	\$75.93
	08/01/2021	\$49.96	\$11.50	\$15.90	\$0.00	\$77.36
	02/01/2022	\$51.39	\$11.50	\$15.90	\$0.00	\$78.79

Apprentice - ROOFER - Local 33

Effective Date - 03/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$22.84	\$11.50	\$3.69	\$0.00	\$38.03
2	60	\$27.40	\$11.50	\$15.90	\$0.00	\$54.80
3	65	\$29.69	\$11.50	\$15.90	\$0.00	\$57.09
4	75	\$34.25	\$11.50	\$15.90	\$0.00	\$61.65
5	85	\$38.82	\$11.50	\$15.90	\$0.00	\$66.22

Effective Date - 08/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$23.55	\$11.50	\$3.69	\$0.00	\$38.74
2	60	\$28.26	\$11.50	\$15.90	\$0.00	\$55.66
3	65	\$30.62	\$11.50	\$15.90	\$0.00	\$58.02
4	75	\$35.33	\$11.50	\$15.90	\$0.00	\$62.73
5	85	\$40.04	\$11.50	\$15.90	\$0.00	\$67.44

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

Apprentice to Journeyworker Ratio:**

ROOFER SLATE / TILE / PRECAST CONCRETE <i>ROOFERS LOCAL 33</i>	03/01/2020	\$45.92	\$11.50	\$15.90	\$0.00	\$73.32
	08/01/2020	\$47.35	\$11.50	\$15.90	\$0.00	\$74.75
	02/01/2021	\$48.78	\$11.50	\$15.90	\$0.00	\$76.18
	08/01/2021	\$50.21	\$11.50	\$15.90	\$0.00	\$77.61
	02/01/2022	\$51.64	\$11.50	\$15.90	\$0.00	\$79.04

For apprentice rates see "Apprentice- ROOFER"

SHEETMETAL WORKER <i>SHEETMETAL WORKERS LOCAL 17 - A</i>	02/01/2020	\$49.36	\$13.35	\$24.12	\$2.61	\$89.44
	08/01/2020	\$50.96	\$13.35	\$24.12	\$2.66	\$91.09
	02/01/2021	\$52.61	\$13.35	\$24.12	\$2.71	\$92.79
	08/01/2021	\$54.36	\$13.35	\$24.12	\$2.76	\$94.59
	02/01/2022	\$56.11	\$13.35	\$24.12	\$2.81	\$96.39

Apprentice - SHEET METAL WORKER - Local 17-A

Effective Date - 02/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	42	\$20.73	\$13.35	\$5.89	\$0.00	\$39.97
2	42	\$20.73	\$13.35	\$5.89	\$0.00	\$39.97
3	47	\$23.20	\$13.35	\$11.13	\$1.43	\$49.11
4	47	\$23.20	\$13.35	\$11.13	\$1.43	\$49.11
5	52	\$25.67	\$13.35	\$12.08	\$1.53	\$52.63
6	52	\$25.67	\$13.35	\$12.33	\$1.54	\$52.89
7	60	\$29.62	\$13.35	\$13.70	\$1.70	\$58.37
8	65	\$32.08	\$13.35	\$15.15	\$1.80	\$62.38
9	75	\$37.02	\$13.35	\$16.56	\$2.01	\$68.94
10	85	\$41.96	\$13.35	\$17.96	\$2.20	\$75.47

Effective Date - 08/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	42	\$21.40	\$13.35	\$5.89	\$0.00	\$40.64
2	42	\$21.40	\$13.35	\$5.89	\$0.00	\$40.64
3	47	\$23.95	\$13.35	\$11.13	\$1.45	\$49.88
4	47	\$23.95	\$13.35	\$11.13	\$1.45	\$49.88
5	52	\$26.50	\$13.35	\$12.08	\$1.56	\$53.49
6	52	\$26.50	\$13.35	\$12.33	\$1.57	\$53.75
7	60	\$30.58	\$13.35	\$13.70	\$1.73	\$59.36
8	65	\$33.12	\$13.35	\$15.15	\$1.85	\$63.47
9	75	\$38.22	\$13.35	\$16.56	\$2.04	\$70.17
10	85	\$43.32	\$13.35	\$17.96	\$2.24	\$76.87

Notes:
Steps are 6 mos.

Apprentice to Journeyworker Ratio:1:4

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
SPECIALIZED EARTH MOVING EQUIP < 35 TONS	12/01/2019	\$35.64	\$12.41	\$13.72	\$0.00	\$61.77
TEAMSTERS JOINT COUNCIL NO. 10 ZONE A	06/01/2020	\$36.54	\$12.41	\$13.72	\$0.00	\$62.67
	08/01/2020	\$36.54	\$12.91	\$13.72	\$0.00	\$63.17
	12/01/2020	\$36.54	\$12.91	\$14.82	\$0.00	\$64.27
	06/01/2021	\$37.34	\$12.91	\$14.82	\$0.00	\$65.07
	08/01/2021	\$37.34	\$13.41	\$14.82	\$0.00	\$65.57
	12/01/2021	\$37.34	\$13.41	\$16.01	\$0.00	\$66.76

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
SPECIALIZED EARTH MOVING EQUIP > 35 TONS <i>TEAMSTERS JOINT COUNCIL NO. 10 ZONE A</i>	12/01/2019	\$35.93	\$12.41	\$13.72	\$0.00	\$62.06
	06/01/2020	\$36.83	\$12.41	\$13.72	\$0.00	\$62.96
	08/01/2020	\$36.83	\$12.91	\$13.72	\$0.00	\$63.46
	12/01/2020	\$36.83	\$12.91	\$14.82	\$0.00	\$64.56
	06/01/2021	\$37.63	\$12.91	\$14.82	\$0.00	\$65.36
	08/01/2021	\$37.63	\$13.41	\$14.82	\$0.00	\$65.86
	12/01/2021	\$37.63	\$13.41	\$16.01	\$0.00	\$67.05
SPRINKLER FITTER <i>SPRINKLER FITTERS LOCAL 550 - (Section A) Zone 1</i>	03/01/2020	\$60.82	\$9.68	\$20.55	\$0.00	\$91.05
	10/01/2020	\$62.32	\$9.68	\$20.55	\$0.00	\$92.55
	03/01/2021	\$63.82	\$9.68	\$20.55	\$0.00	\$94.05

Apprentice - SPRINKLER FITTER - Local 550 (Section A) Zone 1

Effective Date - 03/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	35	\$21.29	\$9.68	\$11.61	\$0.00	\$42.58
2	40	\$24.33	\$9.68	\$12.30	\$0.00	\$46.31
3	45	\$27.37	\$9.68	\$12.99	\$0.00	\$50.04
4	50	\$30.41	\$9.68	\$13.73	\$0.00	\$53.82
5	55	\$33.45	\$9.68	\$14.36	\$0.00	\$57.49
6	60	\$36.49	\$9.68	\$15.05	\$0.00	\$61.22
7	65	\$39.53	\$9.68	\$15.74	\$0.00	\$64.95
8	70	\$42.57	\$9.68	\$16.43	\$0.00	\$68.68
9	75	\$45.62	\$9.68	\$17.11	\$0.00	\$72.41
10	80	\$48.66	\$9.68	\$17.80	\$0.00	\$76.14

Effective Date - 10/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	35	\$21.81	\$9.68	\$11.61	\$0.00	\$43.10
2	40	\$24.93	\$9.68	\$12.30	\$0.00	\$46.91
3	45	\$28.04	\$9.68	\$12.99	\$0.00	\$50.71
4	50	\$31.16	\$9.68	\$13.73	\$0.00	\$54.57
5	55	\$34.28	\$9.68	\$14.36	\$0.00	\$58.32
6	60	\$37.39	\$9.68	\$15.05	\$0.00	\$62.12
7	65	\$40.51	\$9.68	\$15.74	\$0.00	\$65.93
8	70	\$43.62	\$9.68	\$16.43	\$0.00	\$69.73
9	75	\$46.74	\$9.68	\$17.11	\$0.00	\$73.53
10	80	\$49.86	\$9.68	\$17.80	\$0.00	\$77.34

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

Apprentice to Journeyworker Ratio:1:3

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
STEAM BOILER OPERATOR <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2019	\$48.23	\$12.50	\$15.70	\$0.00	\$76.43
	06/01/2020	\$49.31	\$12.50	\$15.70	\$0.00	\$77.51
	12/01/2020	\$50.45	\$12.50	\$15.70	\$0.00	\$78.65
	06/01/2021	\$51.54	\$12.50	\$15.70	\$0.00	\$79.74
	12/01/2021	\$52.68	\$12.50	\$15.70	\$0.00	\$80.88
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
TAMPERS, SELF-PROPELLED OR TRACTOR DRAWN <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2019	\$48.23	\$12.50	\$15.70	\$0.00	\$76.43
	06/01/2020	\$49.31	\$12.50	\$15.70	\$0.00	\$77.51
	12/01/2020	\$50.45	\$12.50	\$15.70	\$0.00	\$78.65
	06/01/2021	\$51.54	\$12.50	\$15.70	\$0.00	\$79.74
	12/01/2021	\$52.68	\$12.50	\$15.70	\$0.00	\$80.88
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
TELECOMMUNICATION TECHNICIAN <i>ELECTRICIANS LOCAL 103</i>	03/01/2020	\$40.13	\$13.00	\$17.12	\$0.00	\$70.25
	09/01/2020	\$41.20	\$13.00	\$17.16	\$0.00	\$71.36
	03/01/2021	\$42.66	\$13.00	\$17.27	\$0.00	\$72.93
	09/01/2021	\$44.32	\$13.00	\$17.38	\$0.00	\$74.70
	03/01/2022	\$45.83	\$13.00	\$17.49	\$0.00	\$76.32
	09/01/2022	\$47.55	\$13.00	\$17.62	\$0.00	\$78.17
	03/01/2023	\$49.11	\$13.00	\$17.73	\$0.00	\$79.84

Apprentice - TELECOMMUNICATION TECHNICIAN - Local 103

Effective Date - 03/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	45	\$18.06	\$13.00	\$0.54	\$0.00	\$31.60
2	45	\$18.06	\$13.00	\$0.54	\$0.00	\$31.60
3	50	\$20.07	\$13.00	\$14.00	\$0.00	\$47.07
4	50	\$20.07	\$13.00	\$14.00	\$0.00	\$47.07
5	55	\$22.07	\$13.00	\$14.31	\$0.00	\$49.38
6	60	\$24.08	\$13.00	\$14.62	\$0.00	\$51.70
7	65	\$26.08	\$13.00	\$14.94	\$0.00	\$54.02
8	70	\$28.09	\$13.00	\$15.25	\$0.00	\$56.34
9	75	\$30.10	\$13.00	\$15.56	\$0.00	\$58.66
10	80	\$32.10	\$13.00	\$15.87	\$0.00	\$60.97

Effective Date - 09/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	45	\$18.54	\$13.00	\$0.57	\$0.00	\$32.11
2	45	\$18.54	\$13.00	\$0.57	\$0.00	\$32.11
3	50	\$20.60	\$13.00	\$14.02	\$0.00	\$47.62
4	50	\$20.60	\$13.00	\$14.02	\$0.00	\$47.62
5	55	\$22.66	\$13.00	\$14.33	\$0.00	\$49.99
6	60	\$24.72	\$13.00	\$14.64	\$0.00	\$52.36
7	65	\$26.78	\$13.00	\$14.96	\$0.00	\$54.74
8	70	\$28.84	\$13.00	\$15.28	\$0.00	\$57.12
9	75	\$30.90	\$13.00	\$15.59	\$0.00	\$59.49
10	80	\$32.96	\$13.00	\$15.90	\$0.00	\$61.86

Notes:

Apprentice to Journeyworker Ratio:1:1

TERRAZZO FINISHERS	02/01/2020	\$53.34	\$10.75	\$21.94	\$0.00	\$86.03
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 - 02/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$26.67	\$10.75	\$21.94	\$0.00	\$59.36
2	60	\$32.00	\$10.75	\$21.94	\$0.00	\$64.69
3	70	\$37.34	\$10.75	\$21.94	\$0.00	\$70.03
4	80	\$42.67	\$10.75	\$21.94	\$0.00	\$75.36
5	90	\$48.01	\$10.75	\$21.94	\$0.00	\$80.70

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

Notes:

Apprentice to Journeyworker Ratio:1:3

TEST BORING DRILLER	12/01/2019	\$40.50	\$8.10	\$16.80	\$0.00	\$65.40
<i>LABORERS - FOUNDATION AND MARINE</i>	06/01/2020	\$41.49	\$8.10	\$16.80	\$0.00	\$66.39
	12/01/2020	\$42.47	\$8.10	\$16.80	\$0.00	\$67.37
	06/01/2021	\$43.49	\$8.10	\$16.80	\$0.00	\$68.39
	12/01/2021	\$44.50	\$8.10	\$16.80	\$0.00	\$69.40

For apprentice rates see "Apprentice- LABORER"

TEST BORING DRILLER HELPER	12/01/2019	\$39.22	\$8.10	\$16.80	\$0.00	\$64.12
<i>LABORERS - FOUNDATION AND MARINE</i>	06/01/2020	\$40.21	\$8.10	\$16.80	\$0.00	\$65.11
	12/01/2020	\$41.19	\$8.10	\$16.80	\$0.00	\$66.09
	06/01/2021	\$42.21	\$8.10	\$16.80	\$0.00	\$67.11
	12/01/2021	\$43.22	\$8.10	\$16.80	\$0.00	\$68.12

For apprentice rates see "Apprentice- LABORER"

TEST BORING LABORER	12/01/2019	\$39.10	\$8.10	\$16.80	\$0.00	\$64.00
<i>LABORERS - FOUNDATION AND MARINE</i>	06/01/2020	\$40.09	\$8.10	\$16.80	\$0.00	\$64.99
	12/01/2020	\$41.07	\$8.10	\$16.80	\$0.00	\$65.97
	06/01/2021	\$42.09	\$8.10	\$16.80	\$0.00	\$66.99
	12/01/2021	\$43.10	\$8.10	\$16.80	\$0.00	\$68.00

For apprentice rates see "Apprentice- LABORER"

TRACTORS/PORTABLE STEAM GENERATORS	12/01/2019	\$48.23	\$12.50	\$15.70	\$0.00	\$76.43
<i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2020	\$49.31	\$12.50	\$15.70	\$0.00	\$77.51
	12/01/2020	\$50.45	\$12.50	\$15.70	\$0.00	\$78.65
	06/01/2021	\$51.54	\$12.50	\$15.70	\$0.00	\$79.74
	12/01/2021	\$52.68	\$12.50	\$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 <i>TEAMSTERS JOINT COUNCIL NO. 10 ZONE A</i>	12/01/2019	\$36.22	\$12.41	\$13.72	\$0.00	\$62.35
	06/01/2020	\$37.12	\$12.41	\$13.72	\$0.00	\$63.25
	08/01/2020	\$37.12	\$12.91	\$13.72	\$0.00	\$63.75
	12/01/2020	\$37.12	\$12.91	\$14.82	\$0.00	\$64.85
	06/01/2021	\$37.92	\$12.91	\$14.82	\$0.00	\$65.65
	08/01/2021	\$37.92	\$13.41	\$14.82	\$0.00	\$66.15
	12/01/2021	\$37.92	\$13.41	\$16.01	\$0.00	\$67.34
TUNNEL WORK - COMPRESSED AIR <i>LABORERS (COMPRESSED AIR)</i>	12/01/2019	\$51.38	\$8.10	\$17.20	\$0.00	\$76.68
	06/01/2020	\$52.37	\$8.10	\$17.20	\$0.00	\$77.67
	12/01/2020	\$53.35	\$8.10	\$17.20	\$0.00	\$78.65
	06/01/2021	\$54.37	\$8.10	\$17.20	\$0.00	\$79.67
	12/01/2021	\$55.38	\$8.10	\$17.20	\$0.00	\$80.68
For apprentice rates see "Apprentice- LABORER"						
TUNNEL WORK - COMPRESSED AIR (HAZ. WASTE) <i>LABORERS (COMPRESSED AIR)</i>	12/01/2019	\$53.38	\$8.10	\$17.20	\$0.00	\$78.68
	06/01/2020	\$54.37	\$8.10	\$17.20	\$0.00	\$79.67
	12/01/2020	\$55.35	\$8.10	\$17.20	\$0.00	\$80.65
	06/01/2021	\$56.37	\$8.10	\$17.20	\$0.00	\$81.67
	12/01/2021	\$57.38	\$8.10	\$17.20	\$0.00	\$82.68
For apprentice rates see "Apprentice- LABORER"						
TUNNEL WORK - FREE AIR <i>LABORERS (FREE AIR TUNNEL)</i>	12/01/2019	\$43.45	\$8.10	\$17.20	\$0.00	\$68.75
	06/01/2020	\$44.44	\$8.10	\$17.20	\$0.00	\$69.74
	12/01/2020	\$45.42	\$8.10	\$17.20	\$0.00	\$70.72
	06/01/2021	\$46.44	\$8.10	\$17.20	\$0.00	\$71.74
	12/01/2021	\$47.45	\$8.10	\$17.20	\$0.00	\$72.75
For apprentice rates see "Apprentice- LABORER"						
TUNNEL WORK - FREE AIR (HAZ. WASTE) <i>LABORERS (FREE AIR TUNNEL)</i>	12/01/2019	\$45.45	\$8.10	\$17.20	\$0.00	\$70.75
	06/01/2020	\$46.44	\$8.10	\$17.20	\$0.00	\$71.74
	12/01/2020	\$47.42	\$8.10	\$17.20	\$0.00	\$72.72
	06/01/2021	\$48.44	\$8.10	\$17.20	\$0.00	\$73.74
	12/01/2021	\$49.45	\$8.10	\$17.20	\$0.00	\$74.75
For apprentice rates see "Apprentice- LABORER"						
VAC-HAUL <i>TEAMSTERS JOINT COUNCIL NO. 10 ZONE A</i>	12/01/2019	\$35.64	\$12.41	\$13.72	\$0.00	\$61.77
	06/01/2020	\$36.54	\$12.41	\$13.72	\$0.00	\$62.67
	08/01/2020	\$36.54	\$12.91	\$13.72	\$0.00	\$63.17
	12/01/2020	\$36.54	\$12.91	\$14.82	\$0.00	\$64.27
	06/01/2021	\$37.34	\$12.91	\$14.82	\$0.00	\$65.07
	08/01/2021	\$37.34	\$13.41	\$14.82	\$0.00	\$65.57
	12/01/2021	\$37.34	\$13.41	\$16.01	\$0.00	\$66.76
WAGON DRILL OPERATOR <i>LABORERS - ZONE 1</i>	12/01/2019	\$39.40	\$8.10	\$16.60	\$0.00	\$64.10
	06/01/2020	\$40.39	\$8.10	\$16.60	\$0.00	\$65.09
	12/01/2020	\$41.37	\$8.10	\$16.60	\$0.00	\$66.07
	06/01/2021	\$42.39	\$8.10	\$16.60	\$0.00	\$67.09
	12/01/2021	\$43.40	\$8.10	\$16.60	\$0.00	\$68.10
For apprentice rates see "Apprentice- LABORER"						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
WASTE WATER PUMP OPERATOR <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2019	\$48.73	\$12.50	\$15.70	\$0.00	\$76.93
	06/01/2020	\$49.83	\$12.50	\$15.70	\$0.00	\$78.03
	12/01/2020	\$50.98	\$12.50	\$15.70	\$0.00	\$79.18
	06/01/2021	\$52.08	\$12.50	\$15.70	\$0.00	\$80.28
	12/01/2021	\$53.23	\$12.50	\$15.70	\$0.00	\$81.43
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
WATER METER INSTALLER <i>PLUMBERS & GASFITTERS LOCAL 12</i>	03/01/2020	\$58.69	\$12.07	\$17.26	\$0.00	\$88.02
	09/01/2020	\$60.19	\$12.07	\$17.26	\$0.00	\$89.52
	03/01/2021	\$61.69	\$12.07	\$17.26	\$0.00	\$91.02
For apprentice rates see "Apprentice- PLUMBER/PIPEFITTER" or "PLUMBER/GASFITTER"						
Outside Electrical - East						
CABLE TECHNICIAN (Power Zone) <i>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104</i>	09/01/2019	\$28.83	\$8.75	\$1.86	\$0.00	\$39.44
	08/30/2020	\$29.67	\$9.25	\$1.89	\$0.00	\$40.81
For apprentice rates see "Apprentice- LINEMAN"						
CABLEMAN (Underground Ducts & Cables) <i>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104</i>	09/01/2019	\$40.84	\$8.75	\$10.02	\$0.00	\$59.61
	08/30/2020	\$42.03	\$9.25	\$10.27	\$0.00	\$61.55
For apprentice rates see "Apprentice- LINEMAN"						
DRIVER / GROUNDMAN CDL <i>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104</i>	09/01/2019	\$33.64	\$8.75	\$9.86	\$0.00	\$52.25
	08/30/2020	\$34.62	\$9.25	\$10.07	\$0.00	\$53.94
For apprentice rates see "Apprentice- LINEMAN"						
DRIVER / GROUNDMAN -Inexperienced (<2000 Hrs) <i>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104</i>	09/01/2019	\$26.43	\$8.75	\$1.79	\$0.00	\$36.97
	08/30/2020	\$27.20	\$9.25	\$1.82	\$0.00	\$38.27
For apprentice rates see "Apprentice- LINEMAN"						
EQUIPMENT OPERATOR (Class A CDL) <i>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104</i>	09/01/2019	\$40.84	\$8.75	\$14.10	\$0.00	\$63.69
	08/30/2020	\$42.03	\$9.25	\$14.35	\$0.00	\$65.63
For apprentice rates see "Apprentice- LINEMAN"						
EQUIPMENT OPERATOR (Class B CDL) <i>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104</i>	09/01/2019	\$36.04	\$8.75	\$10.65	\$0.00	\$55.44
	08/30/2020	\$37.09	\$9.25	\$10.87	\$0.00	\$57.21
For apprentice rates see "Apprentice- LINEMAN"						
GROUNDMAN <i>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104</i>	09/01/2019	\$21.62	\$8.75	\$1.65	\$0.00	\$32.02
	08/30/2020	\$22.25	\$9.25	\$1.67	\$0.00	\$33.17
For apprentice rates see "Apprentice- LINEMAN"						
GROUNDMAN -Inexperienced (<2000 Hrs.) <i>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104</i>	09/01/2019	\$26.43	\$8.75	\$1.79	\$0.00	\$36.97
	08/30/2020	\$27.20	\$9.25	\$1.82	\$0.00	\$38.27
For apprentice rates see "Apprentice- LINEMAN"						
JOURNEYMAN LINEMAN <i>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104</i>	09/01/2019	\$48.05	\$8.75	\$17.19	\$0.00	\$73.99
	08/30/2020	\$49.45	\$9.25	\$17.48	\$0.00	\$76.18

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - LINEMAN (Outside Electrical) - East Local 104

Effective Date - 09/01/2019

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$28.83	\$8.75	\$3.36	\$0.00	\$40.94
2	65	\$31.23	\$8.75	\$3.44	\$0.00	\$43.42
3	70	\$33.64	\$8.75	\$3.51	\$0.00	\$45.90
4	75	\$36.04	\$8.75	\$5.08	\$0.00	\$49.87
5	80	\$38.44	\$8.75	\$5.15	\$0.00	\$52.34
6	85	\$40.84	\$8.75	\$5.23	\$0.00	\$54.82
7	90	\$43.25	\$8.75	\$7.30	\$0.00	\$59.30

Effective Date - 08/30/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$29.67	\$9.25	\$3.39	\$0.00	\$42.31
2	65	\$32.14	\$9.25	\$3.46	\$0.00	\$44.85
3	70	\$34.62	\$9.25	\$3.54	\$0.00	\$47.41
4	75	\$37.09	\$9.25	\$5.11	\$0.00	\$51.45
5	80	\$39.56	\$9.25	\$5.19	\$0.00	\$54.00
6	85	\$42.03	\$9.25	\$5.26	\$0.00	\$56.54
7	90	\$44.51	\$9.25	\$7.34	\$0.00	\$61.10

Notes:

Apprentice to Journeyworker Ratio:1:2

TELEDATA CABLE SPLICER <i>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104</i>	02/04/2019	\$30.73	\$4.70	\$3.17	\$0.00	\$38.60
TELEDATA LINEMAN/EQUIPMENT OPERATOR <i>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104</i>	02/04/2019	\$28.93	\$4.70	\$3.14	\$0.00	\$36.77
TELEDATA WIREMAN/INSTALLER/TECHNICIAN <i>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104</i>	02/04/2019	\$28.93	\$4.70	\$3.14	\$0.00	\$36.77

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.