

**CITY OF NEWBURYPORT
MASSACHUSETTS**

DEPARTMENT OF PUBLIC SERVICES

PROJECT MANUAL

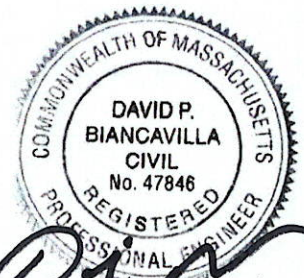
FOR

**ROADWAY, DRAINAGE & WATER MAIN
IMPROVEMENTS
PHILIPS DRIVE NEIGHBORHOOD**

APRIL 2022



**CITY OF NEWBURYPORT
DEPARTMENT OF PUBLIC SERVICES
ENGINEERING DIVISION
16C PERRY WAY
NEWBURYPORT, MA, 01950
(978) 465-4464**



 **BSC GROUP**



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** These Bid Forms are included in the Project Manual for reference purposes only and should not be extracted or used for electronic bidding. The ProjectDog website will provide these forms electronically. Please follow Instructions to Bidders.*

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SECTION 00010
INVITATION FOR BIDS

Sealed bids for furnishing the following LABOR AND MATERIALS will be received at the Newburyport Department of Public Services, through an Electronic Bidding Process hosted by www.projectdog.com, until the time specified below at which time the bids will be publicly released online for review by all.

<u>PROJECT</u>	<u>BID OPENING</u>
Philips Drive Neighborhood Roadway, Drainage and Watermain Improvements	Thursday, April 28, 2022, 1 PM

This project generally consists of the following:

1. The project includes the full depth reclamation and binder paving of Philips Drive, Sullivan Drive, Ryan Road, and Drew Street, including the replacement of the water main and service connections up to and including the curb stops, replacement of fire hydrants, replacement of drainage infrastructure, sidewalks and asphalt curbing. Top course paving is not in this contract and will be performed by others.

All bids for this project are subject to the applicable bidding laws of the Commonwealth of Massachusetts, including, but not limited to, General Laws Chapter 30, Section 39M, as amended.

The estimated value of this contract is \$4,200,000.

There will be a pre-bid meeting held on Philips Drive on April 13, 2022 in front of 23 Philips Drive.

All contractor questions shall be emailed to the Engineer no later than April 20, 2022 at Dbiancavilla@BSCGroup.com

It is anticipated that the work associated with this contract will take nine months to substantially complete. **This contract will be effective on the date specified in a Notice to Proceed and will expire one year from that date.**

There are no filed sub-bids for this project.

END OF SECTION

SECTION 00020

INSTRUCTIONS TO BIDDERS

1.01 Receipt and Opening of Bids

The CITY of Newburyport, Massachusetts, herein called the CITY, acting by and through its Mayor, will receive sealed bids through an on-line electronic bidding process for the project known as **Philips Drive Neighborhood Roadway, Drainage and Watermain Improvements**

Bid Documents will be released by ProjectDog on Wednesday, April 5, 2022, at 10:00am.

Bid Opening: General bids MUST be submitted online at our bid hosting web site, Projectdog.com by **1:00pm on Thursday, April 28, 2022**, at which time said bids will be electronically published on the web site for review by all interested parties.

Any bid may be withdrawn prior to the above scheduled time for the opening of bids or authorized postponement thereof. Any bid received after the time and date specified will not be considered. The bidder agrees that its bid shall be good and may not be withdrawn for a period of 30 days, Saturdays, Sundays, and legal holidays excluded, after the opening of bids.

Bidders are encouraged to contact Projectdog Inc. at 978.499.9014 if an e-mail is not received.

1.02 Location and Summary of Work

This water works project generally consists of the following:

1. The project includes the full depth reclamation and binder paving of Philips Drive, Sullivan Drive, Ryan Road, and Drew Street, including the replacement of the water main and service connections up to and including the curb stops, replacement of fire hydrants, replacement of drainage infrastructure, sidewalks and asphalt berm. Top course paving is not in this contract and will be performed by others.

2. Add Alternate #1 – The substitution of sloped granite edging for the base bid asphalt berms.

Additional drawings, specifications, or other requirements, or responses to written questions of bidders submitted during the bid phase may be furnished via written addendum to the bid and contract documents during the bidding period by the City or its City Representative, and shall then become a part of the bid and Contract Documents.

The Contractor shall furnish all labor, services, materials, equipment, plant, machinery, apparatus, appliances, tools, supplies, and all other things necessary to do all work required for the completion of each item of the Work and as specified in and reasonably inferable from the Contract Documents.

The Work to be done and paid for under any item shall not be limited to the exact extent mentioned or described but shall include all incidental work necessary or customarily done for the completion of that item. The intent of the payment items is to provide a complete group of payment items that will measure and pay for the entire Work performed, incidental or otherwise. If work to be performed is not covered under a payment item, then the Contractor shall notify the Engineer during the Bidding Phase to clarify.

All quantities are approximate and do not expressly or by implication agree that the actual quantities will correspond therewith, but the CITY reserves the right to increase or decrease the quantity. An increase or decrease in the quantity for any item shall not be regarded as cause for an increase or decrease in the unit prices.

All bids for this project are subject to the applicable bidding laws of the Commonwealth of Massachusetts, including, but not limited to, General Laws Chapter 30, Section 39M, as amended.

1.03 General

Failure to complete the bid forms adequately may result in the disqualification of the bidder. The foregoing notwithstanding, the CITY reserves the right, to the extent permitted by law, to waive any informalities in the bidding.

All bids shall be accompanied by a bid deposit in a form or forms outlined in Section 1.18. The amount of such bid deposit shall be 5% of the total value of the bid total or for each particular bid item where

applicable.

Bidders must thoroughly examine the bid and Contract Documents, including all addenda and requirements for certificates of insurance, bonds, etc. Failure of any bidder to acquaint themselves with the bid and Contract Documents shall in no way release that bidder from the obligations with respect to his/her bid.

By submitting his/her bid, the bidder agrees to execute the Contract, provide insurance certificates and bonds, and to commence work within the time limits stated in the Contract Documents. In the event the successful bidder fails or neglects to execute the Contract and provide certificates and bonds in the prescribed time, the CITY, at its sole option, may determine that the bidder has abandoned the Contract, that his/her proposal and acceptance are null and void and that his/her bid security has been forfeited to the CITY. The CITY may cancel the award to that bidder and re-award the Contract to another.

Bid prices must remain firm for the term of the contract.

1.04 Submission of E-Bids

Bid Forms will be posted online at www.Projectdog.com with the Contract Documents. The Bid Forms included in the Project Manual, marked "Sample", should not be extracted or used for electronic bidding. All required Bid Forms must be completed and submitted in PDF formatted files. The Bidder must fill-in all required fields and signatures either digitally or manually (print, fill-in, and scan to PDF).

The Bidder shall access the Projectdog.com E-Bidding System by entering Project Code 833847 in the project locator box and then selecting "GC E-Bid" from the project's "Project Details" page. The Bidder must enter their bid price as a numeric, whole dollar value only with no punctuation. The E-Bidding system automatically translates the numeric value into words and displays the bid price in both figures and words on the submitted bid form.

Timely submission of an E-Bid shall be the full responsibility of the Bidder. The server clock is displayed on the project's E-Bidding page and is the time of record. It is the Bidder's responsibility to review and confirm online that their bid has been submitted and/or retracted and that the bid is 100% true, complete, and accurate. All Bidders are required to review their submitted E-Bid by selecting "View My Bid Package" from the project's E-Bidding page.

Bid Security

Bid Security shall be at least five percent (5%) of the bid amount. The Bid Security in

the form of a Bid Bond shall be:

- a) with a surety company qualified to do business in the Commonwealth of Massachusetts and satisfactory to Owner;
- b) conditional upon the faithful performance by the principal of the agreements contained in the Bid; and
- c) submitted with your E-Bid online at www.Projectdog.com.

Bid Security in the form of certified check, treasurer's, or cashier's check issued by a responsible bank or trust company and made payable to the Owner must be submitted with a completed Bid Bond Affidavit form and received by the Owner before the bid deadline. In addition, the Bidder must also submit a completed Bid Bond Affidavit form with their E-Bid. Download the Bid Bond Affidavit PDF fill-in form at www.Projectdog.com.

Addenda

Addenda, if issued, will be posted to the Projectdog website and shall be accompanied by e-mail notification to every individual or firm on record as having received the Contract Documents. Hard copies of addenda will not be mailed or faxed. It shall be the sole responsibility of the Contractor to ascertain the existence of any and all addenda.

If a bid is submitted prior to an Addendum being issued, the Bidder will receive an e-mail notification for informational purposes only. The Bidder must review the addendum, retract the bid, acknowledge all addenda, and re-submit the bid. If a Bidder fails to acknowledge all addenda their bid may be rejected by the Awarding Authority.

Withdrawal of Bids (Before Opening of Bids)

Any bid may be withdrawn (retracted) prior to the time designated for receipt of bids by selecting "Retract My E-Bid" from the project's E-Bidding page. Upon retracting, the Bidder will receive a convenience e-mail for informational purposes only. Bidders are encouraged to contact Projectdog Inc. at 978.499.9014 if an e-mail is not received. It is the Bidder's responsibility to review and confirm online that their bid has been Submitted and/or Retracted successfully.

1.05 Bid Opening Procedure

The foregoing notwithstanding, the CITY reserves the right, to the extent permitted by law, to waive any informalities in the bids.

The total dollar amount of each bid will be displayed electronically on the bid hosting website Projectdog, Inc. Open bid proposals will be available to view on the ProjectDog website after the bid opening. No bid received after the closing time and date established in this Invitation to Bid for the receipt of bids will be considered, regardless of the cause for delay in the receipt of such bid.

1.06 Ability and Experience of Bidder

No award will be made to any bidder who cannot satisfy the CITY that he has sufficient ability and experience in this class of work and sufficient capital and plant to enable him to prosecute and complete the work successfully within the time named. The CITY's decision or judgment on these matters will be final, conclusive, and binding to the fullest extent permitted by law.

The CITY may make such investigations as it deems necessary, and the bidder shall furnish to the CITY, under oath if so required, all such information and data for this purpose as the CITY may request.

1.07 Conditions of Work

Each bidder must familiarize himself fully with the conditions relating to the construction of the project and the employment of labor thereon. Failure to do so will not relieve a successful bidder of his obligation to furnish all material and labor necessary to carry out the provisions of his contract. Insofar as possible the Contractor, in carrying out his work, must employ such methods or means as will not cause any interruption of or interference with the work of any other Contractor.

1.08 Addenda and Interpretations

Addenda may be issued during the bidding period to modify, clarify, or interpret the Specifications and Contract Documents, or for any other appropriate reason. It is intended, but not guaranteed, that such **Addenda notifications shall be emailed by ProjectDog 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 that have been issued and to secure any needed electronic copies from ProjectDog before submitting a bid. It is solely each bidder's responsibility to contact ProjectDog prior to submitting a bid to ensure that it has received all addenda.

No interpretation of the meaning of the plans, specifications or other pre-bid documents will be made to any bidder orally. All information given to bidders other than by means of the plans, specifications, or by written addenda is given informally and shall not be relied upon by the bidder, and shall not be used as the basis of a claim by the bidder against the CITY.

All questions regarding the bid/contract documents, including but not limited to a request for interpretation of such documents, must be sent by e-mail addressed Diane Gagnon, Assistant City Engineer at dgagnon@CityofNewburyport.com and to be given consideration **must be received by 5:00 PM, Wednesday, April 20, 2022**. Any and all responses to such requests, including any interpretations and any supplemental instructions, if given, will be in the form of written addenda which, when issued by ProjectDog, will be e-mailed to all prospective bidders (at the respective e-mail furnished by them for such purposes). Failure of any bidder to receive any such addendum or interpretation shall not relieve such bidder from any obligation under his bid as submitted. All addenda so issued shall become part of the Contract Documents.

1.09 Security for Faithful Performance

The Contractor shall furnish a construction performance bond and payment bond as security, respectively, for faithful performance of this contract and for the payment of all persons performing labor and materials under this contract, each in the amount equal to 100 percent of the contract price. The surety on such bond or bonds shall be a surety company qualified to do business under the laws of the Commonwealth and satisfactory to the CITY. The bonds shall remain in force for one year after final acceptance of the work by the CITY, unless the CITY, in writing, releases the Contractor from the obligation sooner.

1.10 Power of Attorney

Attorneys-in-fact who sign Contract bonds must file with each bond a certified and effectively dated copy of their power of attorney.

1.11 Laws and Regulations

The bidder's attention is directed to the fact that all applicable federal, State and local laws, municipal ordinances or bylaws, and the rules and regulations of all authorities having jurisdiction over

construction of the project and the construction contract shall apply to the contract throughout, and they will be deemed to be included in the Contract the same as though written out in full.

1.12 Project Inspection:

The CONTRACTOR shall make the project site and all project records available to Department of Public Services staff for review at all times during the course of the project. CITY staff and/or representative will monitor the progress of work for its own benefit, and not for the benefit of the contractor, to insure that the project is proceeding substantially as defined in the Scope of Work/Project Schedule. This monitoring is not intended to relieve, and under no circumstances shall it relieve, the contractor of its responsibility to perform its work in accordance with the Contract Documents and applicable federal, state and local law and regulations.

1.13 Project Audit Provisions:

The contractor(s) shall maintain all books, records, documents, and other evidence directly related to the performance of all work for the project in accordance with generally accepted professional practice and appropriate accounting procedures and practices. The contractor(s) shall also maintain the financial information and data used by the contractor(s) in the preparation or support of project invoices and associated progress reports prepared in connection with the project.

1.14 OSHA Certification under Chapter 30 of the General Laws:

The Contractor shall be required to make, among other certifications required by law, the OSHA certification required by G.L. c. 30, § 39S, as follows:

(1) that he is able to furnish labor that can work in harmony with all other elements of labor employed or to be employed in the work; (2) that all employees to be employed at the worksite will have successfully completed a course in construction safety and health approved by the United States Occupational Safety and Health Administration that is at least 10 hours in duration at the time the employee begins work and who shall furnish documentation of successful completion of said course with the first certified payroll report for each employee; and (3) that all employees to be employed in Construction Documents

INSTRUCTIONS TO BIDDERS

the work subject to this bid have successfully completed a course in construction safety and health approved by the United States Occupational Safety and Health Administration that is at least 10 hours in duration.

1.15 Failure to Enter into Contract

The successful bidder, upon his failure or refusal to execute and deliver the Contract and bonds required within 10 calendar days from Notice of Award, shall forfeit to the CITY, as liquidated damages for such failure or refusal, the security deposited with his/her bid, but the amount forfeited shall not exceed the difference between his/her bid price and the bid price of the next lowest responsible and eligible bidder.

1.16 Obligation of Bidder

At the time of the opening of bids, each bidder will be presumed to have read and to be thoroughly familiar with the Contract Documents (including all addenda). The failure or omission of any bidder to examine any form, instrument, or document shall in no way relieve any bidder from any obligation in respect of his bid.

1.17 Information Not Guaranteed

All information given in the Contract Documents relating to subsurface and other conditions, natural phenomena, existing pipes, and other structures is from certain sources at present available to the CITY. All such information is furnished only for the information and convenience of bidders and is not guaranteed.

It is agreed and understood that the CITY does not warrant or guarantee that the subsurface or other conditions, natural phenomena, existing pipes, or other structures encountered during construction will be the same as those indicated in the Contract Documents.

It is further agreed and understood that no bidder or Contractor shall use or be entitled to use any of the information made available to him or obtained in any examination made by him in any manner as a basis of or ground for any claim or demand against the CITY or the CITY Representative, arising from or by reason of any variance which may exist between the information made available and the actual

subsurface or other structures actually encountered during the construction work, except as may otherwise be expressly provided for in the Contract Documents or G.L. c. 30, § 39N.

1.18 Bid Deposit

A bid deposit in an amount that is not less than five percent (5%) of the value of the bid is required. Bid deposits shall be either in the form of;

1. A bid bond.
2. A certified check.
3. A treasurer's or cashier's check issued by, a responsible bank or trust company.

Bidders are reminded that the bid deposit covers the CITY for damages when a bidder withdraws its bid after the bid submission date. Such security of general bidders will be returned to all except the three lowest responsible and eligible bidders within five days, Saturdays, Sundays, and legal holidays excluded, after the opening of bids, and the remaining securities will be returned promptly after the CITY and the accepted bidder have executed the Contract, or if no notice of intent to award has been presented to the selected contractor within 30 days, Saturdays, Sundays and holidays excluded, after the date of the opening of bids, upon demand of the bidder at any time thereafter.

Bid Deposits in the form of a Bid Bond shall be uploaded and submitted at the same time as your bid is submitted electronically.

If the bidder is submitting Certified Check, Treasurer's Check, or Cashier's Check, they must be submitted and received by the CITY before the bid due date and time outlined in this contract. This form of Bid Deposit shall be delivered to the Newburyport Department of Public Services, 16A Perry Way, Newburyport MA, 01950. The Bid Deposit Affidavit Form (Section 00400) must also be completed by the Bidder and uploaded electronically along with the bid.

1.19 Right to Reject Bid

The CITY reserves the right to waive any informality in bids and to reject any and all bids, should the CITY deem it to be in the public interest to do so.

The CITY may also reject bids which in its sole judgment are incomplete, conditional, obscure or not responsive or which contain additions not called for, erasures not properly initialed, alterations, or similar irregularities, and for any reason permitted by law.

1.20 Time for Completion

It is anticipated that the work associated with this contract will take 2 years (730 days) to substantially complete. **This contract will be effective on the date specified in a Notice to Proceed and will expire one year thereafter.**

1.21 Comparison of Bids

Bids will be compared on the basis of prices set forth in the bid forms. In the event that there is a discrepancy between the lump sum or unit prices written in words and figures, the prices written in words shall govern.

1.22 Award of Contract

The Contract shall be awarded to "**the lowest eligible responsible bidder**" pursuant to General Laws Chapter 30, Section 39M as amended. Failure to bid on all items will result in a reject of said bid.

Such a bidder shall possess the skill, ability and integrity necessary for the faithful performance of the work, shall be able to furnish labor that can work in harmony with all other elements of labor employed, or to be employed, in the work, and shall otherwise comply with all applicable provisions of law. The contractor shall possess a positive work quality, public relations and satisfactory prior work experience for other cities and/or towns. Contract award shall be subject to availability of an appropriation for funding.

A Performance Bond and Payment Bond in the amount of One Hundred (100%) percent of the contract price will be required for the faithful performance of the Contract. The Contractor shall obtain and submit the bonds within ten (10) calendar days after notification of the bid award. The successful bidder's Bid Bond shall not be released until such time the Performance and Payment Bonds have been posted. Within seven (7) working days of receipt of acceptable Performance and Payment Bonds and Construction Documents

INSTRUCTIONS TO BIDDERS

Agreement signed by the contractor, the CITY shall sign the Agreement and return to such party an executed duplicate of the Agreement.

1.23 Statutes Regulating Competitive Bidding

Any bid which does not comply with the provisions of Massachusetts General Laws Chapter 30 Section 39M, as amended, need not be accepted and the CITY may reject every such bid.

1.24 Wage Rates

This is a prevailing wage contract. Prevailing Wage Rates as determined by the Commissioner of Department of Labor and Workforce Development under the provision of the Massachusetts General Laws, Chapter 149, Section 26 to 27G, as amended, apply to this project. It is the responsibility of the bidder, before bid opening, to request any additional information on Prevailing Wage Rates for those tradespeople who may be employed for the proposed work under this contract and those not listed on the Prevailing Wage Rate schedule (attached).

State schedules of Prevailing wage rates are included in the "Attachment" section of this documents.

1.25 Contractor Records

The Contractor shall, in addition to any other requirements in the Contract Documents concerning the keeping of records, comply with the provisions of Massachusetts General Laws, Chapter 30, Section 39R concerning Contractor records.

1.26 Insurance and Bonding

A. CONTRACTOR'S LIABILITY INSURANCE

The Contractor shall purchase and maintain in a company or companies lawfully authorized to do business in the jurisdiction in which the Project is located such insurance as will protect the Contractor
Construction Documents INSTRUCTIONS TO BIDDERS

from claims set forth below which may arise out of or result from the Contractor's operations under the Contract and for which the Contractor may be legally liable, whether such operations be by the Contractor or by a Subcontractor or by anyone directly or indirectly employed by any of them, or by anyone for whose acts any of them may be liable:

1. claims under workers' compensation, disability benefit and other similar employee benefit acts which are applicable to the Work to be performed;
2. claims for damages because of bodily injury, occupational sickness or disease, or death of the Contractor's employees;
3. claims for damages because of bodily injury, sickness or disease, or death of any person other than the Contractor's employees;
4. claims for damages insured by usual personal injury liability coverage;
5. claims for damages, other than to the Work itself, because of injury to or destruction of tangible property, including loss of use resulting there from;
6. claims for damages because of bodily injury, death of a person or property damage arising out of CITY, maintenance or use of a motor vehicle;
7. claims for bodily injury or property damage arising out of completed operations.

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

All insurance shall be written on an occurrence basis, unless the CITY approves in writing coverage on a claims-made basis. Coverage's, whether written on an occurrence or claims-made basis, shall be maintained without interruption from date of commencement of the Work until date of final payment and termination of any coverage required to be maintained after final payment. The CITY shall be named as an Additional Insured on all policies.

Coverage for such liability insurance shall be provided by a company or companies reasonably acceptable to the CITY and authorized to do business in Massachusetts.

Certificates of insurance acceptable to the CITY shall be filed with the CITY prior to commencement of the Work. These certificates and the insurance policies required by this Section shall contain a provision

that coverage's afforded under the policies will not be canceled or allowed to expire until at least 30 days' prior written notice has been given to the CITY. Information concerning reduction of coverage on account of revised limits or claims paid under the General Aggregate, or both, shall be furnished by the Contractor with reasonable promptness in accordance with the Contractor's information and belief. These certificates shall set forth evidence of all coverage required by all sections listed above. The Contractor shall furnish to the forthwith CITY copies of any endorsements that are subsequently issued amending limits of coverage.

B. CITY'S LIABILITY INSURANCE

The Contractor shall procure and pay for a policy of protective liability insurance insuring the CITY and its officers, employees and agents against claims which may arise from operations under the Contract or relating thereto.

C. PROPERTY INSURANCE

The Contractor shall purchase and maintain property insurance upon the entire Work at the site to the full insurable value thereof. Contractor shall furnish to CITY written confirmation as to the insurance carrier's most current financial ratings when it submits the Certificate of Insurance. Such insurance shall include the interests of the CITY, the Contractor, Subcontractors and Sub-subcontractors in the work and shall insure against the perils of fire and extended coverage and shall include "all risks" insurance for physical loss or damage including without duplication, theft, vandalism and malicious mischief. This insurance shall also cover portions of the Work stored off the site or in transit. If this insurance is written with stipulated amounts deductible, the CITY shall not be responsible for any difference between the payments made by the insurance carrier and the claim. The policy shall contain a provision that coverage's afforded under policies will not be canceled or allowed to expire until at least 30 days' written notice has been given to the CITY. The CITY shall be named insured within the policy.

Certificates from the insurance carrier shall be filed in triplicate with the CITY and shall state the type of coverage, limits of liability and the expiration date of each certificate, at the time of the signed contract.

With respect to insurance identified in paragraphs above (Comprehensive General Liability), such insurance shall name the CITY of Newburyport as additional insured in the Description of Operations/Locations/Vehicles box.

The Contractor shall pay Subcontractors their just shares of insurance proceeds received by the Contractor, and by appropriate agreements, written where legally required for validity, shall require Subcontractors to make payments to their Sub-subcontractors in similar manner.

The CITY shall have the power to adjust and settle with its insurers any loss for which it has obtained insurance.

Upon the occurrence of an insured loss, the CITY and the Contractor shall cooperate with each other and with each other's insurer in the submission of claims and related information and the distribution of any insurance proceeds. If after such a loss no other special agreement is made, replacement of damaged work shall be covered by an appropriate change order.

D. MINIMUM AMOUNT OF INSURANCE

In no case shall the limits of liability for the insurance required by this section be less than specified in the Supplemental General Conditions.

E. CONTRACTOR'S LIABILITY INSURANCE AMOUNTS REQUIRED

1. Worker's Compensation and Employers Liability Insurance

- a. Coverage as required by the Worker's Compensation laws of the Commonwealth of Massachusetts, M.G.L. 149 §34A.

2. General Liability

- a. Bodily Injury each occurrence limit \$1,000,000
- b. Bodily Injury aggregated limit \$3,000,000
- c. Property Damage each occurrence limit \$1,000,000
- d. Project Damage aggregated limit \$3,000,000
- e. Coverage must include Premises/Operations, Independent Contractors, Contractual Liability Assumed, Products/Completed Operations, Personal Injury, Pollution Liability,

and shall not be subject to any of the special property damage liability exclusions commonly referred to as XCU exclusions.

3. Automobile Liability

- | | |
|---|-------------|
| a. Bodily Injury each person limit | \$1,000,000 |
| b. Bodily Injury each occurrence limit | \$3,000,000 |
| c. Property Damage each occurrence limit | \$1,000,000 |
| d. Property Damage aggregated limit | \$3,000,000 |
| e. Coverage must include Owned Vehicles, Leased Vehicles, Hired Vehicles, and Non-Owned Vehicles. | |

4. Umbrella Liability

- | | |
|--|-------------|
| a. General aggregate limit | \$2,000,000 |
| b. Products - completed operations aggregate | \$2,000,000 |
| c. Each occurrence limit | \$2,000,000 |

5. Owner's Protective Liability Insurance

- a. The Contractor shall furnish the Certificates of Insurance naming the City of Newburyport as additionally insured as their interest may appear, and maintain the require insurances through the life of this Contract.

6. General Requirements for All Lines of Insurance to be Furnishing

- a. All policies shall be written so the CITY shall be notified of cancellation or addition of "restrictive amendments" by registered mail or by facsimile not later than ten (10) days prior to the effective date of such cancellation or amendment.
- b. If the initial policy/policies expire prior to the completion of the Work, renewal certificates shall be promptly filed with the Town for extension of said coverage. The full cost of insurance and renewing such coverage for additional amounts of time shall be the sole responsibility of the Contractor.
- c. The Contractor shall require that each subcontractor procure, and maintain, until completion of that subcontractor's work, insurance of the types and to the limits set forth in the above sections. All such coverage by subcontractors shall be in favor of the

Contractor, and the CITY shall be held harmless from liability in all such policies. Use of subcontractor(s) is subject to the specifications herein

F. PERFORMANCE BOND AND PAYMENT BOND

The Contractor awarded the Project shall furnish a Performance Bond in an amount at least equal to one hundred percent (100%) of the Contract price as security for the faithful performance of this Contract and also a Payment Bond in an amount not less than one hundred percent (100%) of the Contract price as security for the payment of all persons performing labor on the project under this Contract and furnishing materials in connection with this Contract. The Performance Bond and the Payment Bond may be in one or in separate instruments in accordance with local law, and in a form acceptable to the CITY, and shall remain in effect through the one-year warranty period.

1.27 Project Manager / CITY Representative

The CITY will assign a project engineer and /or staff to manage for the CITY's benefit and not the Contractor's benefit. The CITY's project manager will be the main communication between the contractor and the CITY.

A contact person must be designated by the Contractor upon award of the Contract who will be accessible to the CITY on a twenty-four hour per day basis for the duration of the contract period. A 24-hour contractor representative office and cell phone numbers must be supplied to the CITY within five days after the contract signing.

1.28 Payroll

Payroll Records, Labor, Maximum Hours of Employment: Every employee in public work shall lodge, board and trade where and with whom he elects; and no persons or his agents or employees under Contract with the Commonwealth, a county, CITY or with a department, board, commission or officer acting therefore, for the doing of public work, shall directly or indirectly require as a condition of employment therein, that the employee shall lodge, board or trade at a particular place or with a particular person (Chapter 149, Section 25 of the General Law).

No laborer, workman, mechanic, foreman or inspector working within this Commonwealth, in the employee of the Contractor, Sub-contractor or other persons doing or contracting to do the whole or a

part of the work contemplated by this Contract, shall be required or permitted to work no more than eight (8) hours in any one day or no more than 48 hours in any one week, or no more than six (6) days in any one week, except in cases of emergency, or in case any CITY subject to Section 149 of the General Laws is a party to such a Contract, more than eight (8) hours in any one day, except as aforesaid. The CITY or the Contractor or any Subcontractor may employ laborers, work-men, mechanics, foreman and inspectors for more than eight (8) hours in any one day in the work to be done or under Contract when in the opinion of the Commissioner of Labor and Industries, public necessity so require. (Chapter 149, Section 34 of the General Laws, as amended). Attention of Bidders is called to Section 148 of Chapter 149 of the General Laws and amendments thereof requiring the weekly payment of employees.

Upon request of the Engineer of the Massachusetts Department of Labor and Industries, the Contractor shall furnish certified copies of any or all payrolls for the Contract, showing the name, address, and occupational classification of each employee on said works, and the hours worked by, and the wages paid each such employee. Such payroll shall also include the rates paid for rented trucks or rental equipment of any kind used on the work. This requirement shall also apply to the work of any Subcontractor having a Subcontract for any of the work performed on the project. Such records shall be kept in such manner as the Commissioner of Labor and Industries shall prescribe, and shall be open to inspection by the CITY or any authorized representative of the Department of Labor and Industries at any reasonable time and as often as may be necessary.

1.29 Buy American

The Contractor agrees that preference will be given to domestic construction material by the Contractor, Subcontractor, material men, and suppliers in the performance of this Contract.

1.30 Compliance with Laws

The Contractor shall keep himself fully informed of all existing and future Federal, State and Local Laws, ordinances, rules and regulations affecting those engaged or employed on the Work, the materials and equipment used in the Work or the conduct of the Work, and of all orders, decrees and other requirements of bodies or tribunals having any jurisdiction or authority over the same. If any discrepancy or inconsistency is discovered in the Drawings, Specifications or other Contract Documents in relation to any such law, ordinance, rule, regulation, order, decree or other requirement, the Contractor shall forthwith report to the CITY in writing before it submits its bid to the CITY, failing which the consequences of any such discrepancy or inconsistency shall be borne solely by the bidder if it is selected as the successful bidder. The Contractor shall at all times observe and comply with, and cause all his agents, servants and employees to observe and comply with all such existing and future laws, Construction Documents

INSTRUCTIONS TO BIDDERS

ordinances, rules, regulations, orders, decrees and other requirements and he shall protect, indemnify and save harmless the CITY, its officers, agents, servants, employees and the CITY from and against any and all claims, demands, suits, liabilities, judgments, penalties, losses, damages, costs and expenses, including attorney's fee, arising from or based upon any violation or claimed violation of any such law, ordinance, rule regulation, order, decree or other requirements, whether committed by the Contractor or any of his agents, servants or employees.

Applicable provisions of Massachusetts General Laws and Regulations and/or the United States Code and Code of Federal Regulations govern this contract and any provision in violation of the foregoing shall be deemed null, void and of no effect. Where conflict between applicable provisions of the Code of Federal Regulations and State Laws and Regulations exist, the more stringent requirement shall apply.

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

1.31 Massachusetts Sales and Use Tax

Materials and supplies to be used in the work of this contract are exempt from the Sales and Use Tax of the Commonwealth of Massachusetts (Form ST-5) to the extent provided by Chapter 64H, Section 6(f) of the General Laws. The Contractor shall obtain proper certificates, maintain the necessary records and otherwise comply with the requirements of Chapter 14 of the Acts of 1966 and any amendments thereto. Each Bidder shall take this exemption into account in calculating his Bid for the Work.

1.32 Method of Payment to Contractor

The CITY, so long as the Contractor continues to carry on the Work, shall make monthly payments therefore as follows, subject to G.L. c. 30, § 39G: Each month prior to the completion of the work done to date of the estimate and thereupon the CITY may deduct such estimate five percent (5%) thereof, and shall pay the balance of such estimate to the Contractor. Thirty (30) days after the satisfactory completion of the Work as determined by the CITY, the CITY shall pay the Contractor the final amount due and remaining to be paid under this Contract, **deducting from said amount and keeping for its own, any expense incurred by the CITY on account of defects, omissions or mistakes of the Contractor**

in his Work, and for any other reason permitted by the Contract Documents and law. Provided, however, that no final payment shall be made until all liens and claims against the CITY and its officers, due to the work, are satisfied. The CITY will require certified payrolls before payments may be made for work performed.

Invoices shall clearly indicate quantities, hours, location, prices and other applicable measures that can be verified by The CITY on the basis of documented weight, service or delivery slips provided at the time work was performed or delivery/pick-up occurred.

1.33 Patented Devices, Materials and Processes

It is mutually understood and agreed that, without exception, contract prices are to include all royalties and costs arising from patents, trademarks and copyrights in any way involved in the work. It is the intent that whenever the Contractor is required or desires to use any design, device, material or process covered by letters patent or copyright, the rights for such use shall be provided for by suitable legal agreement with the patentee or CITY.

1.34 Utility Company Coordination

Written notice shall be given by the Contractor to all public service corporations or officials owning or having charge of publicly or privately owned utilities of his intention to commence operations affecting such utilities at least one (1) month in advance of the commencement of such operations that may affect their utilities and the Contractor shall at the same time file a copy of such notice with the CITY.

1.35 Dig Safe

The Contractor shall notify DIG SAFE and procure a DIG SAFE number of each location in advance of starting any construction.

"DIG SAFE" Call Center: Telephone 1-888-344-7233.

1.36 Estimated Quantities

These Contract Documents employ estimated quantities that may or may not be purchased during the contract term. The CITY reserves the right to exceed, reduce or not meet the estimated quantities as its needs dictate. Estimated quantities will be used for comparison of bids only, determining the Low Bidder and establishing the Bid Bond/Deposit Labor and Materials and Performance Bond amounts. The successful bidder shall have no claim on account of any variance between estimated and actual quantities except as may be provided, if at all, by M.G.L. c. 30, § 39N.

The CITY used good faith attempting to project future roadway and sidewalk work, however the Contractor must understand many of these decisions may be changed or modified based of emergency needs, and public and political demands.

1.37 Temporary Suspension of Work

The CITY shall have the authority to suspend the work wholly or any part thereof, for such period as he may deem necessary, because of unsuitable weather conditions, for the safety and convenience of the public, or for such other causes as are considered unfavorable for the satisfactory completion of the work, or for such time as he may deem necessary due to the failure of the Contractor to carry out orders given or to perform any provision of the Contract. The work shall be resumed when conditions so warrant or deficiencies have been corrected and the conditions of the Contract satisfied as ordered or approved by the CITY.

The CITY may also request and be granted the removal of any contractor employee or employees whom may have acted in a behavior that is considered unacceptable to city employee, resident or general public as determined by the Director of Public Services. The removal of such employee from the project may be temporary or permanent at the discretion of the CITY.

1.38 Contract Price Adjustments

The Contract Price of the hot mix asphalt mixture will be paid under the respective items in the Contract. A price adjustment for the Hot Mix Asphalt, as herein provided, upwards or downwards, will be made after the work has been performed, using the monthly period price for the month during which the work was performed.

The Price Adjustment will be based on the variance in price for the liquid asphalt component only from the Base Price to the Period Price. It shall not include transportation or other charges. This Price Adjustment will occur on a monthly basis.

Price of liquid asphalt for each monthly period as determined by MassDOT using the average selling price per standard ton of PG64-28 paving grade (primary binder classification) asphalt, FOB manufacturer's terminal, as listed under the "East Coast Market - New England, Boston, Massachusetts area" section of the Poten & Partners, Inc. "Asphalt Weekly Monitor". This average selling price is listed in the issue having a publication date of the second Friday of the month and will be posted as the Period Price for that month. MassDOT will post this Period Price on their website within two (2) business days following their receipt of the relevant issue of the "Asphalt Weekly Monitor". Poten and Partners has granted MassDOT the right to publish this specific asphalt price information sourced from the Asphalt Weekly Monitor.

The Base Price for this contract shall be the March 2022 Price of \$665.00 per ton of liquid asphalt per the aforementioned MassDOT procedure.

The Price Adjustment applies only to the actual virgin liquid asphalt content in the mixture placed on the job in accordance with the Standard Specifications for Highways and Bridges, Division III, Section M3.11.03.

This Price Adjustment will be paid only if the variance from the Base Price is 5% or more for a monthly period. The complete adjustment will be paid in all cases with no deduction of the 5% from either upward or downward adjustments.

END OF SECTION

SECTION 00030

FORM OF GENERAL BID

Bid of _____ (hereinafter called "Bidder")*
Company Name

Of: _____
Company Address

a corporation, organized and existing under the laws of the state of _____

a partnership

a joint venture

an individual doing business as _____

To the CITY of Newburyport, Massachusetts (hereinafter called "CITY").

A) The undersigned Bidder, in compliance with the invitation for bids for the project known as **Roadway, Drainage & Water Main Improvements Philips Drive** having examined the plans and specifications and related documents and the site of the proposed work, and being familiar with all of the conditions surrounding the construction 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 and the details and specifications within the time set forth below, 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 bid is a part.

The Bidder hereby agrees to commence work on or before the date to be specified in written "Notice to Proceed" issued by the CITY. **This contract will be effective on the date specified in a Notice to Proceed and will expire one year from that date.**

*Specify corporation, partnership or individual as applicable.

B) Bidder acknowledges receipt of and this bid includes the following Addenda:

No. _____ Dated: _____
No. _____ Dated: _____
No. _____ Dated: _____

C) **TOTAL BID AMOUNT:** The Bidder agrees to perform the Bid Work described in these Contract Documents for the following total contract price:

In figures: \$ _____

In words: _____

(The total bid stated above is the total bid amount as filled out in the Bid Schedule, Paragraph J below.) In the event there is a discrepancy in the Form of General Bid between the unit price written in words and that in figures the lowest price shall govern.

The above bid price includes all labor, materials, bailing, shoring, removal, overhead, profit, insurance, etc., to cover the finished work of the several kinds called for, and all such labor etc. specified in and reasonably inferable from the Contract Documents.

The Bidders understand that all bids for this project are subject to the applicable bidding laws of the Commonwealth of Massachusetts, including, but not limited to, General Laws Chapter 30, Section 39M, as amended.

The Bidder understands that the CITY reserves the right to reject any or all bids and to waive any informality in the bidding if it is in the public interest to do so.

The Bidder agrees that this bid shall be good and may not be withdrawn for a period of 30 days, Saturdays, Sundays and legal holidays excluded, after the opening of bids, and if an award of a contract is made within such period and its bid is one of the three lowest bids received by the CITY, it shall not withdraw its bid until a contract has been signed by the Contractor and the CITY.

Within 10 days of receipt of the written notice of acceptance of this bid, the Bidder will execute the formal Agreement set forth in accordance and as stipulated in the Instruction to Bidders section of this document.

Bid security is attached in the sum of five percent (5%) of the total bid in accordance with the conditions of the INSTRUCTIONS TO BIDDERS section here within. The bid security shall become the property of the CITY in the event the contract and bonds are not executed within the time set forth above.

The selected Contractor shall furnish a performance bond and a payment bond in an amount at least equal to one hundred percent (100%) of the contract price in accordance and as stipulated in the Instruction to Bidders section of this document.

D) Qualification Requirements

The undersigned offers the following information as evidence of his qualifications to perform the work as bid upon according to all the requirements of the plans and specifications. Any "NO" responses will result in rejection of this bid.

1. Have been in business under present name for 5 or more years YES / NO
2. Have the company been in business for 5 or more years? YES / NO
3. Capable of performing all necessary survey work (when needed to locate proposed work) associated with the construction outlined in this contract?
YES / NO

4. Does the contractor own, lease, rent or contract all equipment necessary to perform all work associated with this contract?
YES / NO

E) Interested Parties.

The names and addresses of all persons interested in the bid (if made by a partnership or corporation) as principals are as follows:

(attach supplementary list if necessary)

F) Sub-Contractor Information.

List the names of all sub-contractors that the bidder may or will utilize under this contract. The subcontractors may be denied a work permit from the CITY if the CITY may have prior negative experience with same sub-contractor. The contractor will be required to replace a rejected sub-contractor at no additional expense to the CITY with another subcontract approved by the CITY. The CITY may contact these sub-contractors to confirm work relationship with the Contractor. Notwithstanding the foregoing, the exercise or lack of exercise of the City's rights set forth in this paragraph, shall not constitute the approval of any subcontractor under G.L. c. 30, §39F.

Sub-contractor	Sub-contractor	Subcontractor	Type of work
<u>Company Name</u>	<u>Address</u>	<u>Lead Contact</u>	<u>performing under this contract</u>

If extra space is needed, fill out on a separate piece of paper.

G) References. (Experience)

The bidder is requested to state below what work of a similar characteristic to that included in this contract the Contractor has completed successfully in the past 5 years and in good standings with no outstanding judgements pending. The CITY may contact these references and use this information to determine if the Contractor is possess the skill, ability and integrity necessary for the faithful performance of the work. Negative responses may result in rejection of Bid.

Completion	Project	Contract	Reference	Telephone
<u>Date</u>	<u>Name</u>	<u>Amount</u>	<u>Name</u>	<u>No.</u>

1. _____

2. _____

3. _____

4. _____

5. _____

H) References. (Bank)

The bidder is requested to state below a financial institution that can confirm financial stability of the Contractor. The CITY may contact this reference and use this information to determine if the Contractor is capable of financially supporting such a Contract. Negative responses may result in rejection of Bid.

Bank reference _____

(Name)

(Bank)

(Address)

(Telephone No.)

I) Bidder Certification

Pursuant to M.G.L. CH. 62C, Sec. 49A, I certify hereby in writing, under penalties of perjury, that the within named Bidder/Contractor has complied with all laws of the commonwealth relating to taxes, reporting of employees and contractors, and withholding and remitting of child support.

The undersigned Bidder hereby certifies under penalties of perjury, as follows: (1) that he/she is able to furnish labor that can work in harmony with all other elements of labor employed or to be employed in the work; (2) that all employees to be employed at the worksite will have successfully completed a course in construction safety and health approved by the United States Occupational Safety and Health Administration (OSHA) that is at least 10 hours in duration at the time the employee begins work and who shall furnish documentation of successful completion of said course with the first certified payroll report for each employee; and (3) that all employees to be employed in the work subject to this bid have successfully completed a course in construction safety and health approved by the United States Occupational Safety and Health Administration that is at least 10 hours in duration.

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

The undersigned bidder 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 prevailing wage rates established for the project by the Massachusetts Department of Labor and Workforce Development. The undersigned bidder agrees to indemnify, defend and save harmless the awarding authority for, from and against any loss, expense, damages, actions 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 applicable prevailing wage rates.

The undersigned certifies under penalty of perjury that the below named contractor is not presently debarred from doing public construction work in the commonwealth under the provisions of section twenty-nine F of chapter twenty-nine, or any other applicable debarment provisions of any other chapter of the General Laws or any rule or regulation promulgated thereunder.

Respectfully submitted:

Date: _____ By: _____

(Signature)

(Type Name of Bidder)

(Title)

(Business Address)

(CITY and State)

(Telephone Number)

J) **BASE BID SCHEDULE**

The Bid Schedule is provided on the next page.

BASE BID PRICE FORM

Item #	Item With Unit Price Written in Words	Est. Qty.	Unit Price (in Figures)	Subtotal Amount (in Figures)
1	Mobilization, lump sum At _____ dollars and _____ cents	1 LUMP		
2	NPDES Stormwater Pollution Prevention Plan, lump sum At _____ dollars and _____ cents	1 LUMP		
3	Sawcutting Asphalt Pavement, per linear foot At _____ dollars and _____ cents	180 LF		
4	Sidewalk Removed, per square yard At _____ dollars and _____ cents	2,800 SY		
5	Drainage Structure Removed, each At _____ dollars and _____ cents	18 EA		
6	Drainage Structure Abandoned, each At _____ dollars and _____ cents	15 EA		
7	Dense Graded Crushed Stone for Sub-Base (Sidewalks and Roadway Blending), per cubic yard At _____ dollars and _____ cents	3,200 CY		

Item #	Item With Unit Price Written in Words	Est. Qty.	Unit Price (in Figures)	Subtotal Amount (in Figures)
8	Reclaimed Pavement for Base Course and/or Sub-Base, per square yard At _____ dollars and _____ cents	16,650 SY		
9	Controlled Density Fill, per cubic yard At _____ dollars and _____ cents	200 CY		
10	Rock Excavation, per cubic yard At _____ dollars and _____ cents	100 CY		
11	Catch Basin, each At _____ dollars and _____ cents	31 EA		
12	Special Catch Basin-Double Basin, each At _____ dollars and _____ cents	15 EA		
13	Drop Inlet, each At _____ dollars and _____ cents	1 EA		
14	Manhole, each At _____ dollars and _____ cents	25 EA		

Item #	Item With Unit Price Written in Words	Est. Qty.	Unit Price (in Figures)	Subtotal Amount (in Figures)
15	Manhole 5-ft I.D., each At _____ dollars and _____ cents	3 EA		
16	Manhole 8-ft I.D., each At _____ dollars and _____ cents	3 EA		
17	Water Quality Unit, each At _____ dollars and _____ cents	4 EA		
18	Sewer Frame and Cover Adjusted, each At _____ dollars and _____ cents	24 EA		
19	12-inch Corrugated Plastic (Polyethylene) Pipe, per linear foot At _____ dollars and _____ cents	720 LF		
20	15-inch Corrugated Plastic (Polyethylene) Pipe, per linear foot At _____ dollars and _____ cents	2,000 LF		
21	18-inch Corrugated Plastic (Polyethylene) Pipe, per linear foot At _____ dollars and _____ cents	250 LF		

Item #	Item With Unit Price Written in Words	Est. Qty.	Unit Price (in Figures)	Subtotal Amount (in Figures)
22	24-inch Corrugated Plastic (Polyethylene) Pipe, per linear foot At _____ dollars and _____ cents	1,080 LF		
23	30-inch Corrugated Plastic (Polyethylene) Pipe, per linear foot At _____ dollars and _____ cents	110 LF		
24	36-inch Corrugated Plastic (Polyethylene) Pipe, per linear foot At _____ dollars and _____ cents	390 LF		
25	18-inch Corrugated Plastic (Polyethylene) Pipe Flared End, each At _____ dollars and _____ cents	1 EA		
26	36-inch Corrugated Plastic (polyethylene) Pipe Flared End, each At _____ dollars and _____ cents	1 EA		
27	6-inch Slot-Perforated Corrugated Plastic Pipe (Stub), per linear foot At _____ dollars and _____ cents	350 LF		
28	10-inch Slot-Perforated Corrugated Plastic Pipe (Subdrain), per linear foot At _____ dollars and _____ cents	3,030 LF		

Item #	Item With Unit Price Written in Words	Est. Qty.	Unit Price (in Figures)	Subtotal Amount (in Figures)
29	Temporary Water Supply, lump sum At _____ dollars and _____ cents	1 LUMP		
30	6-inch Ductile Iron Water Pipe (Rubber Gasket), per linear foot At _____ dollars and _____ cents	2,440 LF		
31	8-inch Ductile Iron Water Pipe (Rubber Gasket), per linear foot At _____ dollars and _____ cents	3,800 LF		
32	6-inch Gate Valve and Valve Box, each At _____ dollars and _____ cents	14 EA		
33	8-inch Gate Valve and Valve Box, each At _____ dollars and _____ cents	17 EA		
34	6-inch Tee, each At _____ dollars and _____ cents	4 EA		
35	8-inch Tee, each At _____ dollars and _____ cents	11 EA		

Item #	Item With Unit Price Written in Words	Est. Qty.	Unit Price (in Figures)	Subtotal Amount (in Figures)
36	Water Service Connection, each At _____ dollars and _____ cents	76 EA		
37	Hydrant, each At _____ dollars and _____ cents	7 EA		
38	Temporary Asphalt Patching (2 Inch Application), per ton At _____ dollars and _____ cents	750 TON		
39	Hot Mix Asphalt Base Course Paving, per ton At _____ dollars and _____ cents	2,300 TON		
40	Hot Mix Asphalt Sidewalk and Driveway Aprons, per ton At _____ dollars and _____ cents	600 TON		
41	Hot Mix Asphalt Berm, per linear foot At _____ dollars and _____ cents	10,500 LF		
42	Cement Concrete Curb Ramp, per each At _____ dollars and _____ cents	13 EA		
43	Stop Sign and Post, per each At _____ dollars and _____ cents	5 EA		

Item #	Item With Unit Price Written in Words	Est. Qty.	Unit Price (in Figures)	Subtotal Amount (in Figures)
44	White Painted Stop Line Pavement Markings, per each At _____ dollars and _____ cents	5 EA		
45	White Painted Crosswalk Pavement Markings, per each At _____ dollars and _____ cents	6 EA		
46	Loam & Seed, per square yard At _____ dollars and _____ cents	5,000 SY		
47	Mailbox Posts, per each At _____ dollars and _____ cents	50 EA		
48	Wood Guardrail, per each At _____ dollars and _____ cents	1 EA		
49	Sewer Manhole Reconstructed, per each At _____ dollars and _____ cents	5 EA		
50	Unclassified Excavation, per CY At _____ dollars and _____ cents	350 CY		
51	Test Pits, per CY At _____ dollars and _____ cents	100 CY		

Item #	Item With Unit Price Written in Words	Est. Qty.	Unit Price (in Figures)	Subtotal Amount (in Figures)
52	Gravel Borrow, per CY At _____ dollars and _____ cents	500 CY		

k) **ALTERNATE #1 BID SCHEDULE**

The Alternate #1 Bid Schedule is as follows.

ALTERNATE #1 BID PRICE FORM

Item #	Item With Unit Price Written in Words	Est. Qty.	Unit Price (in Figures)	Subtotal Amount (in Figures)
A.1	Sloped Granite Edging, per liner foot At _____ dollars and _____ cents	10,500 LF		

END OF SECTION

SECTION 00040

BID DEPOSIT AFFIDAVIT FORM

(TO BE COMPLETED IN LIEU OF AN INSURANCE BID BOND CERTIFICATE)

Project: **Philips Drive Neighborhood Roadway, Drainage and Watermain Improvements**

Bidders **not** submitting an "Insurance Bid Bond Certificate" are required to complete this form. It is the bidder's responsibility to ensure that the Bid Deposit Affidavit form is completed and the Bid Deposit in the form of Cash, Certified Check, Treasurer's Check, or Cashier's Check has been submitted / received by the CITY prior to the closing of the Electronic Bid due date and time.

The Bidder understands and consents that any failure to do so whether his own or other fault will result in the rejection of said bid. The Bidder is solely responsible for the accuracy and value of the bid deposit. In the event that it is less than the required amount as outlined in the project specifications the bid will be rejected.

Total Bid Amount: _____ (from Section 00300 Form of General Bid)

5% Bid Deposit Amount: _____

CONTRACTOR COMPANY NAME: _____

By _____

(Name)

(Date)

(Title)

(Address)

(CITY and State)

END OF SECTION

SECTION 00050

CERTIFICATE OF VOTE

(to be filed if Contractor is a Corporation)

I, _____, hereby certify that I am the duly qualified
(Secretary of the Corporation)

and acting Secretary of _____ and I further certify that a
(Name of Corporation)

meeting of the Directors of said Company, duly called and held on _____
(Date of Meeting)

at which all Directors were present and voting, the following vote was unanimously passed:

VOTED: To authorize and empower

Anyone acting singly, to execute Forms of General Bid, Contracts or Bonds on behalf of the Corporation.

I further certify that the above vote is still in effect and has not been changed or modified in any respect.

By: _____
(Secretary of Corporation)

A True Copy:

Attest: _____
(Notary Public)

My Commission Expires: _____
(DATE)

END OF SECTION

SECTION 00060

CONFLICT OF INTEREST STATEMENT

The proposer hereby certifies, under the penalties of perjury, that:

1. The proposer has not given, offered, or agreed to give any person (as that term is defined below), or received, accepted, or agreed to accept from any person, any gift, contribution, offer of employment, or financial incentive of any kind as an inducement for, or in connection with, the award of the contract for services for which the proposer is applying.
2. No consultant to or subcontractor for the proposer has given, offered, or agreed to give any gift, contribution, offer of employment or financial incentive of any kind to the proposer or to any other person as an inducement for, or in connection with, the award to the consultant or subcontractor of a contract by the proposer.
3. No person, other than a bona fide full-time employee of the proposer has been retained or hired by the proposer to solicit for or in any way assist the proposer in obtaining the contract for services for which the proposer is applying, upon an agreement or understanding that such person be paid a fee or other consideration contingent upon the award of the contract to the proposer.
4. Throughout the duration of the contract, if awarded the contract, the proposer will not have any financial relationship in connection with the performance of the contract with any materials or system manufacturer, distributor or vendor.

As used in this certification, the word "person" shall mean any natural person, business, partnership, corporation, union, committee, club, or other organization, entity, or group of individuals. These provisions shall not apply to any stockholder of a corporation the stock of which is listed for sale to the general public with the Securities and Exchange Commission, if such stockholder holds less than ten percent of the outstanding stock entitled to vote at the annual meeting of such corporation

The proposer further hereby certifies, under the penalties for perjury, that all information provided in this proposal to provide services is true and correct.

Firm Name

Authorized Principal (Printed Name)

Authorized Principal (Signature)

Title

Date

END OF SECTION

SECTION 00070

TAX COMPLIANCE CERTIFICATION

Pursuant to M.G.L. c. 62C, §49A, I certify under the penalties of perjury that, to the best of my knowledge and belief, I am in compliance with all laws of the Commonwealth relating to taxes, reporting of employees and contractors, and withholding and remitting child support.

Signature of person submitting bid or proposal

Name of business

Name of business

CERTIFICATION

1. Pursuant to M.G.L. c.62C, §49A, I certify under the penalties of perjury that the Contractor has complied with all laws of the Commonwealth of Massachusetts relating to taxes, reporting of employees and contracts, and withholding and remitting child support.
2. I certify under the penalties of perjury that the Contractor has not given, offered, or agreed to give any person, corporation, or other entity other than a bona fide full-time employee of the Contractor any gift, contribution or offer of employment as an inducement for or in connection with the award of this contract, or the award of a contract to a subcontractor.

3. [if contract is for greater than \$100,000] I certify under the penalties of perjury that the Contractor has internal accounting controls as required by M.G.L. c.30, §39R(c), and that the Contractor has filed and will continue to file an audited financial statement as required by M.G.L. c.30, §39R(d).

Social Security Number or
Federal Identification Number

Corporate Name

Signature of Individual

By: _____
Corporate Office
(if applicable)

END OF SECTION

SECTION 00080

CERTIFICATE OF NON-COLLUSION

The undersigned certifies under penalties of perjury that this bid or proposal has been made and submitted in good faith and without collusion or fraud with any other person. As used in this certification, the word "person" shall mean any natural person, business, partnership, corporation, union, committee, club, or other organization, entity, or group of individuals.

Signature of individual submitting bid or proposal

Print Name

Name of business

END OF SECTION

SECTION 00090

CERTIFICATION REGARDING
PAYMENT OF PREVAILING WAGES

The undersigned Bidder hereby certifies, under the 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 prevailing wage rates established for the project by the Massachusetts Department of Labor and Workforce Development, Division of Occupational Safety. The undersigned bidder agrees to indemnify the awarding authority for, from and against an loss, expense, damages, actions 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 applicable prevailing wage rates.

NAME OF COMPANY: _____

SIGNATURE: _____

PRINT NAME: _____

TITLE: _____

DATED: _____

END OF SECTION

SAMPLE

SECTION 00100

Notice of Award

To: _____

PROJECT: **Philips Drive Neighborhood Roadway, Drainage and Water Main Improvements**

The CITY has considered the Bid submitted by you for the above-described Work in response to its Advertisement for Bids and Information for Bidders.

You are hereby notified that your Bid has been accepted at the Total Bid Price of

\$ _____.

You are required by the Information for Bidders to execute the Agreement and furnish the required CONTRACTOR's Performance Bond, Payment Bond and certificates of insurance within ten calendar days from the date of this Notice.

If you fail to execute said Agreement and to furnish said Bonds within the ten calendar days from the date of this Notice, said your Bid Security shall be forfeited to the CITY. The CITY will be entitled to such other rights as may be granted by law.

You are required to return an acknowledged copy of this Notice of Award to the CITY.

Dated this _____ day of _____, 20__.

Department of Public Services
Newburyport, Massachusetts (CITY)

END OF SECTION

SECTION 00110

AGREEMENT

THIS AGREEMENT made this _____ day of _____
in the year Two Thousand Nineteen, between _____, with a
usual place of business at _____, hereinafter
called the CONTRACTOR, and the City of Newburyport, acting by its Department of Public
Services, with a usual place of business at 16A Perry Way, Newburyport, MA 01950, hereinafter
called the OWNER.

The CONTRACTOR and the OWNER, for the consideration hereinafter named, agree as follows:

1. Project and Scope of Work

- A. The Contractor shall furnish all labor, materials, equipment, bonds and insurance necessary to perform all work required for the project known as **Philips Drive Neighborhood Roadway, Drainage, and Water Main Improvements**, in strict accordance with the Contract Documents and all related Drawings and Specifications. The said Documents, Specifications, Drawings and any supplemental general conditions are incorporated herein by reference and are made a part of this Agreement.

2. Contract Price

- A. The Owner shall pay the Contractor for the performance of this Agreement, subject to additions and deductions provided herein, in current funds, the sum of

_____.

3. Commencement and Completion of Work

- A. It is agreed that time is of the essence of this Agreement. The Contractor shall commence and prosecute the work under this Agreement upon execution hereof and shall complete the work on or before _____.
- B. Definition of Term: The Term "Substantial completion" shall mean the date certified by the Owner when construction is sufficiently complete, in accordance with the Contract Documents, so the Owner may occupy the project, or designated portion(s) thereof, for the use for which it is intended.
- C. Time as Essential Condition: It is understood and agreed that the commencement of and substantial completion of the work are essential conditions of this Agreement. It is further agreed that time is of the essence for each and every portion of the Contract Documents wherein a definite and certain length of time is fixed for the performance of any act whatsoever; and where under the Contract Documents any additional time is allowed for the completion of any work, the new time fixed by such extension shall be of the essence of this Agreement. It is understood and agreed that the times for the completion of the work are reasonable, taking into consideration the average climatic range and usual industrial conditions prevailing in this locality.
- D. Progress and Completion: Contractor shall commence work promptly upon execution of this Agreement and shall prosecute and complete the work regularly, diligently and uninterruptedly at such a rate of progress as will insure Substantial Completion within the stipulated number of calendar days.

4. Performance of the Work

- A. **Direction of the Work:** The Contractor shall supervise and direct the Work, using his best skills and attention which shall not be less than such state of skill and attention generally rendered by the contracting profession for projects similar to the Project in scope, difficulty and location. The Contractor shall maintain adequate supervisory personnel at the project site during the performance of the Work. He shall be solely responsible for all construction means, methods, techniques, sequences and procedures and for coordinating all portions of the Work under the Agreement.
- B. **Responsibility for the Work:** (1) The Contractor shall be responsible to the Owner for the acts and omissions of his employees, Subcontractors and their agents and employees, and other persons performing any of the Work under a contract with the Contractor. This obligation shall also extend to the presence on the Site of suppliers of materials or equipment, their employees, contractors, and agents engaged in the work.
- (2) The Contractor shall not be relieved from his obligations to perform the Work in accordance with the Contract Documents either by the activities or duties of the Owner in its administration of the Agreement, or by inspections, tests or approvals required or performed by persons other than the Contractor.
- C. **Permits and Fees:** Unless otherwise expressly provided, the Contractor shall secure and pay for all permits and fees, licenses and inspections necessary for the proper execution and completion of the Work which are customarily secured after execution of the Agreement and which are legally required at the time the bids are received, and the same shall at all times be the property of the Owner and shall be delivered to the Owner upon completion of the Project.
- D. **Notices, Compliance With Laws:** (1) The Contractor shall give all notices and comply with all federal, state and local laws, ordinances, rules, regulations and lawful orders of any public authority bearing on the performance of the Work. The Contractor shall provide the Owner with reproductions of all permits, licenses and receipts for any fees paid. The Owner represents that it has disclosed to the Contractor all orders and requirements known to the Owner of any public authority particular to this Agreement.

(2) If the Contractor observes that any of the Contract Documents are at variance with applicable laws, statutes, codes and regulations in any respect, he shall promptly notify the Owner in writing, and any necessary changes shall be accomplished by appropriate modification.

(3) If the Contractor performs any Work which he knows or should know is contrary to such laws, ordinances, rules and regulations, and without such notice to the Owner, he shall assume full responsibility therefor and shall bear all costs attributable thereto.

(4) In the performance of the Work, the Contractor shall comply with all applicable federal, state and local laws and regulations including those relating to workplace and employee safety. The Contractor shall notify the Owner immediately of any conditions at the place of the work which violate said laws and regulations and shall take prompt action to correct and eliminate any such violations.

E. Project Superintendent: The Contractor shall employ a competent superintendent and necessary assistants who shall be in attendance at the Project site at all times during the progress of the Work. The superintendent shall represent the Contractor and all communications given to the superintendent shall be as binding as if given to the Contractor. Important communications shall be confirmed in writing. Other communications shall be so confirmed on written request in each case.

F. Progress Schedule: The Contractor, immediately after being awarded the Contract, shall prepare and submit for the Owner's information an estimated progress schedule for the Work. The progress schedule shall be related to the entire Project to the extent required by the Contract Documents, and shall provide for expeditious and practicable execution of the Work.

G. Drawings, Specifications and Submittals:

(1) The Contractor shall maintain at the site for the Owner one record copy of all Drawings, Specifications, Addenda, Change Orders and other

Modifications, and "As-Built" Drawings and Specifications in good order and marked currently to record all changes made during construction, and approved Shop Drawings, Product Data and Samples. These shall be delivered to the Owner upon completion of the Work.

(2) By approving and submitting Shop Drawings, Product Data and Samples, the Contractor represents that he has determined and verified all materials, field measurements, and field construction criteria related thereto, or will do so, and that he has checked and coordinated the information contained within such submittals with the requirements of the Work and of the Contract Documents.

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

(4) The Contractor shall direct specific attention, in writing or on resubmitted Shop Drawings, Product Data or Samples, to revisions other than those requested by the Owner on previous submittals.

(5) No portion of the Work requiring submission of a Shop Drawing, Product Data or Sample shall be commenced until the submittal has been approved by the Owner. All such portions of the Work shall be in accordance with approved submittals.

H. Protection of the Work and Owner's Property: The Contractor shall at all times safely guard the Owner's property from injury or loss in connection with this Agreement. He shall at all times safely guard and protect his own work, and that of adjacent property from damage. The Contractor shall replace or make good any such damage, loss or injury. The Contractor shall clean the work area and restore it to its original condition upon completion of the work.

- I. **Quality of the Work:** The Contractor shall perform the work in a good, workmanlike manner. The Contractor hereby guarantees that the entire work constructed by him under the Agreement will meet fully all requirements thereof as to quality of workmanship and materials. The Contractor hereby agrees to make at his own expense any repairs or replacements made necessary by defects in materials or workmanship supplied to him that become evident within one (1) year after the date of the final payment, and to restore to full compliance with the requirements set forth herein any part of the work constructed hereunder, which during said one (1) year period is found to be deficient with respect to any provisions of the Contract Documents. The Contractor also agrees to hold the Owner harmless from claims of any kind arising from damage due to said defects. The Contractor shall make all repairs and replacements promptly upon receipt of written orders for same from the Owner. If the Contractor fails to make the repairs and replacements promptly, the Owner may do the work and the Contractor shall be liable to the Owner for the cost thereof.
- J. **Warranty:** The Contractor guarantees to Owner that all materials incorporated into the work will be new unless otherwise specified or agreed upon by both parties. Prior to final payment, the Contractor shall deliver to the Owner all manufacturers' warranties, together with such endorsements or assignments as are necessary to ensure to the Owner the full rights and benefits of such warranties.
5. Affirmative Action/Equal Employment Opportunity
- A. The Contractor is directed to comply with all applicable State Laws, Ordinances, Bylaws, and rules and regulations regarding affirmative action/equal employment opportunity requirements. Failure of the Contractor to comply with any such law, rule or regulation shall constitute grounds for the Owner to terminate the Agreement.
6. Site Information Not Guaranteed; Contractor's Investigation
- A. All information given in the Contract Documents relating to subsurface and other conditions, natural phenomena, existing pipes, and other structures is from the best sources at present available to the Owner. All such information is furnished only for the information and convenience of the Contractor and is not guaranteed.

- B. It is agreed and understood that the Owner does not warrant or guarantee that the subsurface or other conditions, natural phenomena, existing pipes, or other structures encountered during construction will be the same as those indicated in the Contract Documents.
- C. Contractor has familiarized himself with the nature and extent of the Contract Documents, work, locality, and with all local conditions and federal, state, and local laws, rules, ordinances, and regulations that in any manner may affect costs, progress, or performance of the work. Contractor has made, or has caused to be made, examinations, investigations, and tests and studies of such reports and related data in addition to those referred to in the paragraph above as he deems necessary for the performance of the work at the Contract Price, within the Contract Time, and in accordance with the other Terms and Conditions of the Contract Documents; and no additional examinations, tests, investigations, reports, and similar data are or will be required by the Contractor for such purposes.
- D. Contractor has correlated the results of all such observations, examinations, investigations, tests, reports, and data with the Contract Documents. Contractor has given the Owner written notice of all conflicts, errors, or discrepancies that he has discovered in the Contract Documents, and the resolution thereof by the Owner is acceptable to the Contractor.
- E. It is further agreed and understood that the Contractor shall not use or be entitled to use any of the information made available to him or obtained in any examination made by him in any manner as a basis of or ground for any claim or demand against the Owner, arising from or by reason of any variance which may exist between the information made available and the actual subsurface conditions or other conditions or structures actually encountered during the construction work, except as may otherwise be expressly provided for in the Contract Documents.

7. Project Engineer

- A. There project engineer for this project will be the City Engineer. Except as otherwise indicated in the Contract Documents, the Engineer shall be a representative of the Owner and the Contractor shall direct all communications,

questions and comments on the work and the performance thereof to the Engineer. Except as otherwise provided, the Engineer shall have all the authority of the Owner set forth in the Contract Documents. In general, the Engineer shall have the authority to review the performance of the work, reject work which is defective or otherwise does not comply with the Contract Documents and to order the Contractor to remedy defective work and take such actions which are necessary to make the work conform to the Contract Documents.

8. Wage Rates

- A. Prevailing Wage Rates as determined by the Commissioner of the Department of Labor and Workforce Development under the provisions of Massachusetts General Laws, Chapter 149, Section 26 to 27G, as amended, apply to this project. It is the responsibility of the Contractor to provide the City with certified payrolls and to comply with all requirements of the above-cited statutes.
- B. The schedules of prevailing wage rates are included in the Contract Documents and are good for one (1) year from the date on the document.

9. Payments to the Contractor

- A. Upon receipt from the Contractor of a proper and satisfactory periodic estimate requesting payment of the amount due for the preceding month, the Owner shall make payment for:
 - i. The work performed during the preceding month.
 - ii. 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.
 - iii. Less the following retention items:

1. A retention based on an estimate of the fair value of the Owner's claims against the Contractor.
 2. A retention for direct payments to Subcontractors, if any, based on demands for same in accordance with the provisions of Section 39F of Chapter 30 of the General Laws.
 3. A retention not exceeding five percent (5%) of the approved amount of the periodic payment.
- B. After the receipt of a periodic estimate requesting final payment and within sixty-five (65) days after the Contractor fully completes the Work, or substantially completes the Work so that the value of the Work remaining to be done is, on the estimate of the Owner, less than 1% of the original Contract Price, or substantially completes the Work and the Owner takes possession or occupancy, whichever occurs first, the Owner shall pay the Contractor the entire balance due on the Contract less:
- i. A retention based on an estimate of the fair value of the Owner's claims against the Contractor and of the cost of completing the incomplete and unsatisfactory items of work.
 - ii. A retention for direct payments to Subcontractors, if any, based on demands of same in accordance with the provisions of Section 39F of Chapter 30 of the General Laws, 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 of Chapter 30 of the General Laws.
- C. The Owner may make changes to any periodic estimate submitted by the Contractor. The payment due on said periodic estimate shall be computed in accordance with the changes so made, and such changes and any requirements for a corrected periodic estimate shall not affect the due date for the periodic payment, as provided herein. The Owner may, within seven (7) days after receipt, return to the Contractor for correction, any periodic estimate which is not in

acceptable form or which contains computations not arithmetically correct, and in that event, the date of receipt of such periodic estimate shall be the date of receipt of the corrected periodic estimate in proper form and with arithmetically correct computations. The date of receipt of a periodic estimate received on a Saturday shall be the first working day thereafter.

D. Changes in the Work: No changes in the work covered by the approved Contract Documents shall be made without prior written approval of the Owner. Charges or credits for the work covered by the approved change shall be determined by one or more, or a combination of the following methods:

- i. Unit bid prices previously approved.
- ii. An agreed lump sum.
- iii. The actual cost of:
 - (1) Labor.
 - (2) Materials entering permanently into the work.
 - (3) The ownership or rental cost of construction equipment during the time of use on the extra work.
 - (4) Power and consumable supplies for the operation of power equipment.
 - (5) Wages to be paid.

To the cost under (3) there shall be added a fixed fee to be agreed upon but not to exceed ten percent (10%) of the actual cost of work. The fee shall be compensation to cover the cost of supervision, overhead, bond, profit and any other general expenses.

- E. Claims for Additional Costs: If the Contractor wishes to make a claim for an increase in the Contract Sum, he shall give the Owner written notice thereof within twenty days after the occurrence of the event giving rise to such claim. This notice shall be given by the Contractor before proceeding to execute the Work, except in an emergency endangering life or property. No such claim shall be valid unless so made. Any change in the Contract Sum resulting from such claim shall be authorized by Change Order.

- F. The Contractor hereby agrees that the Contractor shall have no claim for damages of any kind against the City on account of any delay in the commencement or performance of the work and/or any hindrance, delay or suspension of any portion of the work including, but not limited to, any claims or damages on account of having to perform out of sequence work, claims for damages on account of loss of production or other interference with the work whether such delay is caused by the City or otherwise, except as and to the extent expressly provided under G.L. c.30, §39O in the case of written orders by the City. The Contractor acknowledges that the Contractor's sole remedy for any such claim will be an extension of time as provided herein.

10. Final Payment, Effect

- A. The acceptance of final payment by the Contractor shall constitute a waiver of all claims by the Contractor arising under the Agreement.

11. Contract Documents

- A. The Contract Documents consist of the following, together with this Agreement:

This Agreement

Addenda

Invitation for Bids

Construction Documents

AGREEMENT

00110-11

Instructions to Bidders
Form of General Bid
Bid Deposit Affidavit Form
Certificate of Vote
Conflict of Interest Statement
Statement of Tax Compliance
Certificate of Non-Collusion
Certificate Regarding Payment of Prevailing Wages
Notice of Award
Construction Performance Bond
Construction Payment Bond
Notice to Proceed
Prevailing Wages
Specifications
Drawings

- B. In case of any conflict among the Contract Documents, the Contractor shall provide the greater quality or quantity to the City, otherwise the order of precedence shall be in the same order set forth above.

12. Terms Required By Law

- A. This Agreement shall be considered to include all terms required to be included in it by the Massachusetts General Laws, and all other laws, as though such terms were set forth in full herein.

13. Indemnification

Construction Documents

AGREEMENT

00110-12

- A. The Contractor shall indemnify and hold harmless the Owner from and against any and all claims, damages, losses, and expenses, including attorney's fees, arising out of the performance of this Agreement when such claims, damages, losses, and expenses are caused, in whole or in part, by the acts, errors, or omissions of the Contractor or his employees, agents, subcontractors or representatives.

14. Insurance

- A. The Contractor shall purchase and maintain such insurance as will protect both the Owner and the Contractor from claims which may arise under the Agreement, including operations performed for the named insured by independent contractors and general inspection thereof by the named insured. In addition, the Contractor shall require its subcontractors to maintain such insurance. Coverage shall be provided for:
- i. claims under workers' or workmen's compensation, disability benefit and other applicable employee benefit acts;
 - ii. claims for damages because of bodily injury, occupational sickness or disease, or death of Contractor's employees;
 - iii. claims for damages because of bodily injury, sickness or disease, or death of any person other than Contractor's employees;
 - iv. claims for damages insured by usual personal injury liability coverage which are sustained (1) by any person as a result of an offense directly or indirectly related to the employment of such person by the Contractor, or (2) by any other person;
 - v. claims for damages, including damages to the Work itself, because of injury to or destruction of tangible property, including loss of use resulting therefrom; and

- vi. 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.
 - vii. claims involving contractual liability applicable to the Contractor's obligations under Article 13.
- B. The limits of liability for coverage required under the preceding paragraph are Specified in Section 26B of the Instructions to Bidders, which are incorporated and made part of the Contract Documents herein.
- C. Except for Workmen's Compensation, all liability coverage shall name the City as an additional insured and shall provide for 30 days prior written notice to the City of any modification or termination of coverage provided thereby. The Contractor shall provide the Owner with appropriate certificate(s) of insurance evidencing compliance with this provision prior to the commencement of any work under this Agreement.

15. Notice

- A. All notices required to be given hereunder shall be in writing and delivered to, or mailed first class to, the parties' respective addresses stated above. In the event that immediate notice is required, it may be given by telephone or facsimile, but shall, to the extent possible, be followed by notice in writing in the manner set forth above.

16. Termination

- A. Each party shall have the right to terminate this Agreement in the event of a failure of the other party to comply with the terms of the Agreement. Such termination shall be effective upon seven days' notice to the party in default and the failure within that time of said party to cure its default.

- B. The Owner shall have the right to terminate the Agreement without cause, upon ten (10) days' written notice to the Contractor. In the event that the Agreement is terminated pursuant to this subparagraph, the Contractor shall be reimbursed in accordance with the Contract Documents for all Work performed up to the termination date, and for all materials or equipment not incorporated in the Work, but delivered and suitably stored at the site. Payment for material or equipment stored at the site shall be conditioned upon submission by the Contractor of bills of sale or such other evidence as is satisfactory to Owner to establish the Owner's title to such material or equipment or otherwise protect the Owner's interests.

17. Miscellaneous

- A. Royalties and Patents: The Contractor shall pay all royalties and license fees. He shall defend all suits or claims for infringement of any patent rights and shall save the Owner harmless from loss on account thereof, except that the Owner shall be responsible for all such loss when a particular design, process or the product of a particular manufacturer or manufacturers is specified; but if the Contractor believes or has reason to believe that the design, process or product specified is an infringement of a patent, he shall be responsible for such loss unless he promptly gives such information to the Owner, and thereafter the Owner insists on the use of the design, process or products specified.
- B. Assignment: The Contractor shall not assign or transfer any of its rights, duties or obligations under this Agreement without the written approval of the Owner.
- C. Governing Law: This Agreement shall be governed by and construed in accordance with the law of the Commonwealth of Massachusetts.
- D. Incorporation of Applicable Provisions of Massachusetts General Laws: Certain provisions of the Massachusetts General Laws are applicable to Construction contracts including, but not limited to, those contained in Chapter 30 and Chapter 149. All applicable provisions of the Massachusetts General Laws are incorporated into the Contract as if fully set forth herein, and shall prevail over any conflicting provisions of the Contract Documents.

- E. By its signature hereon, the Contractor certifies, under the pains and penalties of perjury, that it has complied with all laws of the Commonwealth of Massachusetts relating to taxes, reporting of employees and contractors, and withholding and remitting child support.

In WITNESS WHEREOF, the parties hereto have executed this Agreement on the day and year first written.

CITY OF NEWBURYPORT:

I certify that an appropriation is available in the amount of this contract.

CITY AUDITOR

DATE

By its MAYOR

MAYOR

DATE

CONTRACTOR:

COMPANY NAME

SIGNATURE

DATE

PRINTED NAME AND TITLE

STREET ADDRESS, CITY, STATE, ZIP CODE

In accordance with M.G.L. C.44 Section 3JC this is to certify that an appropriation in the amount of this contract is available therefore.

END OF SECTION

SECTION 00120

CONSTRUCTION PERFORMANCE BOND

KNOW ALL MEN BY THESE PRESENTS: That we _____

(Name of Contractor)

a _____ hereinafter called "Principal" and

(Corporation, Partnership, Joint Venture or Individual)

_____ of _____, State of _____

(Surety)

hereinafter called the "Surety" and licensed by the State Division of Insurance to do business under the laws of the Commonwealth of Massachusetts, are held and firmly bound to the CITY of Newburyport, Massachusetts, hereinafter called "CITY", in the sum of;

_____ Dollars (\$_____)

(100% of the bid price)

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 CITY, dated the _____ day of _____, 20__ (the "Construction Contract"), for the construction described as follows:

Philips Drive Neighborhood Roadway, Drainage and Water Main Improvements

NOW, THEREFORE, if the Principal shall well, truly and faithfully perform its duties, all the undertakings, covenants, terms, conditions, and agreements of the Construction Contract during the original term thereof, and any extensions thereof which may be granted by the CITY, with or without notice to the

Surety, and if he shall satisfy all claims and demands incurred under the Construction Contract, and shall fully indemnify and save harmless the CITY from all costs and damages which it may suffer by reason of failure to do so, and shall reimburse and repay the CITY all outlay and expense which the CITY 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 Surety's obligation under this Bond shall arise after (1) the CITY has declared the Principal in default of the Construction Contract or any provision thereof or (2) has declared that the Principal has failed, or is otherwise unable or unwilling, to execute the work consistent with, and in conformance to, the Construction Contract (collectively referred to as a "Contractor Default"). The determination of a Contractor Default shall be made solely by the CITY. The CITY need not terminate the Construction Contract to declare a Contractor Default or to invoke its rights under this Bond.

When the Surety's obligation under this Bond arises, the Surety, at its sole expense and at the consent and election of the CITY, shall promptly take one of the following steps: (1) arrange for the Principal to perform and complete the work of the Construction Contract; (2) arrange for a contractor other than the Principal to perform and complete the work of the Construction Contract; (3) reimburse the CITY, in a manner and at such time as the CITY shall decide, for all costs and expenses incurred by the CITY in performing and completing the work of the Construction Contract. Surety will keep CITY reasonably informed of the progress, status and results of any investigation of any claim of the CITY.

If the Surety does not proceed as provided in this Bond with due diligence and all deliberate speed, the Surety shall be deemed to be in default of this Bond, and the CITY shall be entitled to promptly enforce any remedy available to the CITY notwithstanding any defenses or objections raised by the Principal.

After the Surety's obligation under this Bond arises, the Surety is obligated, to the limit of the amounts of this Bond, for (1) the correction of defective work and completion of the Construction Contract; (2) additional design, professional services, and legal costs, including attorneys' fees, resulting from the Contractor Default or from the default of the Surety under this Bond; (3) any additional work beyond the Construction Contract made necessary by the Contractor Default or default of the Surety under this Bond; (4) indemnification obligation of the Principal, if any, as provided in the Construction Contract; and (5) liquidated damages as provided in the Construction Contract, or if none are so specified, actual and foreseeable consequential damages resulting from the Contractor Default or default of the Surety under this Bond. Any proceeding, legal or equitable, under this Bond shall be instituted in any court of competent jurisdiction in the Commonwealth of Massachusetts.

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

IN WITNESS WHEREOF, this instrument is executed in _____ () counterparts, each one of

which shall be deemed an original, this the _____ day of _____, 20__

ATTEST:

Principal

By

(Principal Secretary)

(Address-Zip Code)

_____ (SEAL)

Witness as to Principal

(Address-Zip Code)

ATTEST:

Surety

Philips Drive Neighborhood
Roadway, Drainage & Watermain Improvements

City of Newburyport
April 2022

_____ By _____
(Attorney-in-Fact)

(Address-Zip Code)

_____ (SEAL)
Witness as to Surety

(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 SECTION

SECTION 00130

CONSTRUCTION PAYMENT BOND

KNOW ALL MEN BY THESE PRESENTS: That we _____

(Name of Contractor)

a _____ hereinafter called "Principal" and

(Corporation, Partnership, Joint Venture or Individual)

_____ of _____, State of _____

(Surety)

hereinafter called the "Surety" and licensed by the State Division of Insurance to do business under the laws of the Commonwealth of Massachusetts, are held and firmly bound to the CITY of Newburyport, Massachusetts, hereinafter called "CITY", in the sum of;

_____ Dollars (\$_____)

(100% of the bid price)

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 CITY, dated the _____ day of _____, 20__ (the "Construction Contract"), for the construction described as follows:

Philips Drive Neighborhood Roadway, Drainage and Water Main Improvements

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 way affect its obligation on this bond, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of this contract or to the work or to the specifications.

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

IN WITNESS WHEREOF, this instrument is executed in ____ () counterparts, each one of which shall be deemed an original, this the _____ day of _____, 20__.

ATTEST:

(Surety)

By _____
(Attorney-in-Fact)

(Address-Zip Code)

_____ (SEAL)
(Witness as to Surety)

(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 SECTION

Philips Drive Neighborhood
Roadway, Drainage & Watermain Improvements

City of Newburyport
April 2022

SECTION 00140

NOTICE TO PROCEED

To: _____ Date: _____

Project: **PHILIPS DRIVE ROADWAY, DRAINAGE AND WATER MAIN IMPROVEMENTS**
NEWBURYPORT, MA

You are hereby notified to commence Work in accordance with the Agreement dated;

_____, 20__ on or before _____, 20__ and the

contract will terminate on _____, 20__.

Department of Public Services
Newburyport, Massachusetts

(Signature)

NAME/TITLE: _____

DATE: _____

ACCEPTANCE OF NOTICE TO BE COMPLETED BY CONTRACTOR

*Receipt of the above NOTICE TO
PROCEED is hereby acknowledged*

By: _____ (COMPANY / CORPORATION NAME)

this the _____ day of _____, 20__

By: _____
(Name) (Signature)

Title: _____

END OF SECTION

DIVISION 1

GENERAL REQUIREMENTS

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**SECTION 01010
SUMMARY OF WORK**

PART 1-GENERAL

1.01 DESCRIPTION

- A. The work shall be done in accordance with these Specifications, including General and Supplementary Conditions and other Division 1 Specification Sections, and the Contract Drawings entitled “ROADWAY, DRAINAGE & WATER MAIN IMPROVEMENTS, PHILIPS DRIVE NEIGHBORHOOD, NEWBURYPORT, MASSACHUSETTS” dated **February 2022**.

1.02 WORK TO BE DONE

- A. The project includes the full depth reclamation and binder paving of Philips Drive, Sullivan Drive, Ryan Road, and Drew Street, including the replacement of the water main and service connections up to and including the curb stops, replacement of fire hydrants, replacement of drainage infrastructure, sidewalks and asphalt berm. Top course paving is not in this contract and will be performed by others.
- B. Contractor shall obtain a permit for excavation of trenches from the DPS and otherwise comply with 520 CMR 14.00.
- C. The work done under this Contract shall be in conformance with the Massachusetts Department of Transportation-Highway Division latest editions of the STANDARD SPECIFICATIONS FOR HIGHWAYS AND BRIDGES, and all SUPPLEMENTAL SPECIFICATIONS, MASSDOT ENGINEERING DIRECTIVES, CONSTRUCTION STANDARD DETAILS, THE STANDARD DRAWINGS FOR SIGNS AND SUPPORTS, THE 2009 MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, and THE WORK ZONE SAFETY GUIDELINES, except as otherwise indicated in these Contract Documents (Drawings and/or Specifications). Any discrepancy between the aforementioned MDOT documents and these Contract Documents shall be brought to the attention of the Engineer for resolution prior to performing the work. The intention is to follow MDOT standards with few exceptions.
- D. All work in this contract shall conform to the rules and regulations of the ARCHITECTURAL ACCESS BOARD (521 CMR 1.00 et. seq.).
- E. Work shall be done under a unit price contract.
- F. In general, work under this Contract consists of:
1. All Work is either shown on the Drawings or included in the specifications unless specifically indicated as not to be done.
 2. Furnishing and installing 12”, 15” 18”, 24”, 30”, and 36” Corrugated Plastic Drainage Pipe with all appurtenances.

3. Furnishing and installing 6” and 10” Slot-Perforated Corrugated Plastic Pipe with all appurtenances.
 4. Furnishing and installing Precast Drainage Catch Basins with all appurtenances.
 5. Furnishing and installing Precast Water Quality Structures with all appurtenances.
 6. Furnishing and installing Precast Drainage Manholes with all appurtenances.
 7. Furnishing and installing 6” and 8” Cement Lined Ductile Iron Watermain Pipe with all appurtenances.
 8. Furnishing and installing 3/4” Copper Type “K” Water Service Pipe with all appurtenances.
 9. Furnishing and installing Temporary Water Supply with all appurtenances.
 10. Furnishing and installing Fire Hydrants, Gate Valves, and Water Fittings with all appurtenances.
 11. Furnishing and installing Dense Graded Crushed Stone for Sidewalk and Roadway Subgrade Blending as specified on the Plans.
 12. Furnishing and installing Hot Mix Asphalt Pavement for Temporary Trench Repair, Roadway Base Course Pavement, and Sidewalks as specified on the Plans.
 13. Furnishing and installing Hot Mix Asphalt Berms as specified on the Plans.
- B. In addition, the Work under the Contract includes:
1. The restoration of any items impacted, damaged or destroyed by the proposed improvements or by encroaching upon areas outside the Project Site.
 2. Providing and restoring, where appropriate, all disturbed areas and providing all temporary facilities.

2.01 TIME OF COMPLETION

- A. In accordance with the General Conditions, the Work shall not start until a Preconstruction Conference is held. Work is to be completed within the following.
- Base Bid - **730** consecutive calendar days from the Preconstruction Conference.
Alternate 1 – **ADD 30** consecutive calendar days to the Base Bid schedule.
- B. The Contractor agrees that the work shall be executed regularly, diligently and uninterrupted, and at such rate of progress as will ensure full completion thereof within the Contract Time stated above and in accordance with the above schedule. It is expressly understood and agreed, by and between the Contractor and Owner, that the Contract Time is reasonable for the completion of the work, taking into consideration the average climatic range and usual industrial conditions prevailing in this locality.
- C. The Contract schedule is based on the Contractor maintaining **multiple crews** on site to perform the work.

2.02 CONSTRUCTION SEQUENCE

- A. The Contractor is coordinate the work in each roadway with the City prior to beginning any work on another street unless approved by the Engineer and/or the City. The Contractor is not to perform any work activities in areas that are not scheduled for improvements immediately.

2.03 USE OF PREMISES

- A. Contractor shall limit their use of premises for work, storage, and access, and shall allow:
1. Owner occupancy on Owner's property.
 2. Normal public use of public property, right-of-ways, etc.
 3. Access to private property.
- B. Coordinate use of premises under direction of the Engineer.
- C. Obtain and pay for use of additional storage or work areas needed for operations under this Contract.

END OF SECTION 01010

**SECTION 01020
UNIT PRICES**

PART 1-GENERAL

1.01 GENERAL PROVISIONS

The Unit Prices for items set forth in Section 00300, Bid Form shall be used to determine adjustments to the Contract Sum when changes in the Work involving said items are made in accordance with the General Conditions of the Contract Documents.

2.01 REQUIREMENTS

- A. Unit Price will be paid in accordance with Unit Prices listed by the General Contractor on Section 00300, Bid Form, based on quantities provided by the Engineer.
- B. All Unit Prices shall include their pro-rata share of all costs for overhead, profit, bond, materials, equipment, and disposal required to complete the work item.
- C. The Contractor shall compute the Unit Prices based on a potential variance of plus or minus 25 percent from the quantities listed on Section 00300, Bid Form.
- D. The Owner may choose not to approve any or all unit prices prior to Award of the Contract if it deems the Unit Price unreasonable. In this case, the change order process described in the General Conditions will be used for Work described in the Unit Price Schedule, when any change of the base contract scope is required.

3.01 APPLICABILITY OF UNIT PRICES

- A. The payment lines shall be as indicated in the Contract Documents.
- B. Prior to commencing removal or placement of materials set forth in Section 00300, Bid Form, the Contractor shall notify the Engineer in sufficient time to permit proper measurements to be taken on behalf of the Owner. Only quantities which have been approved in writing by the Engineer will be considered in the determination of adjustments to the Contract Sum.
- C. Performance of Work which is not required under the Contract Documents or which is not authorized by Change Order, whether or not such Work item is set forth hereunder as a Unit Price item, shall not be considered cause for extra payment. The Contractor will be held fully responsible for such unauthorized work, including the performance of all corrective measures required by the Engineer.

END OF SECTION

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**SECTION 01025
MEASUREMENT AND PAYMENT**

PART 1-GENERAL

1.01 GENERAL

- A. The following subsections describe the measurement of and payment for the work to be done under the items listed in Section 00300, Bid Form.
- B. All work performed as described in these contract documents shall be paid for under one or more of the items listed in Section 00300, Bid Form. All other activities required in connection with performance of the work, including all work required under Division 1 GENERAL REQUIREMENTS, whether described in the contract documents or mandated by applicable codes, permits and laws, will not be separately paid for unless specifically provided for in Section 00300, Bid Form, but will be considered incidental to performance of the overall project.
- C. Under the price specified to be paid for each item, the Contractor shall furnish all materials and equipment, furnish all labor and plant and do all operations necessary to complete all work specified or shown. All supervision, overhead items, protection and precautions and all other costs, incidental to the construction work, complete, and as specified, shall be included.
- D. A complete, finished, working job, as intended by the general nature of these specifications, shall be produced whether or not any particular wording or direction is omitted or inadvertently not clearly stated.
- E. Measurement for payment shall be by the Owner's Representative, except where noted elsewhere in this specification. Measurement of payment for lump sum items shall require the Contractor to submit a breakdown of all lump sum items. The Engineer and Contractor must agree on all breakdowns prior to any partial payments of these items.
- F. Each unit or lump sum price stated in Section 00300, Bid Form shall constitute full compensation as herein specified for each item of work completed in accordance with the drawings and specifications.
- G. The payment items listed herein and in Section 00300, Bid Form, are intended to provide full payment for the work shown on the drawings and specified herein. Any work called for or implied in the documents but not listed, as a payment item shall be considered incidental to the overall project.
- H. Unless otherwise noted, all earthworks shall be included under any item requiring excavation. Unless otherwise noted, each item specified or shown on the drawings shall be furnished and installed in accordance with the technical section whether a specific applicable payment item exists or not.

- I. The prices for those items, which involve excavation, shall include compensation for handling water. In items, which compensate the Contractor for the removal of unsuitable soil or rock, it shall include the cost of replacement with properly compacted clean fill if necessary.
- J. In items that compensate the Contractor for the removal of unsuitable soil or rock, it shall include the cost of replacement with properly compacted soil.
- K. The prices for all pipe items shall constitute full compensation for cutting and removing existing pavement, clearing and grubbing, trench excavation (except rock and boulder excavation), backfilling and compaction, impervious dams, restoring the trench surface to grade, and, furnishing, laying, jointing, cleaning and testing the pipe, driving and removing sheeting and bracing, cleanup and all else incidental thereto.
- L. In all items involving excavation, the price shall be based on doing the entire excavation in earth. Where rock is excavated, the price thereof shall be in addition to the cost of excavating earth, and no deduction will be made in the amount for earth excavation.
- M. Tree pruning is not a separate bid item. It is incidental to the work included in Section 00300, Bid Form if required for the Contractor to perform the work.
- N. The items of work required by the General Conditions, Supplementary Conditions, Special Conditions, Division 1 of the Contract Documents, and any other Specification Section that requires work to be performed but not specifically under any particular payment item shall not be measured nor paid separately, except as expressly indicated herein, but shall be included in the unit prices for the Contract.
- O. The Contract Price of the hot mix asphalt mixture will be paid under the respective items in the Contract. A price adjustment for the Hot Mix Asphalt, as herein provided, upwards or downwards, will be made after the work has been performed, using the monthly period price for the month during which the work was performed.

The Price Adjustment will be based on the variance in price for the liquid asphalt component only from the Base Price to the Period Price. It shall not include transportation or other charges. This Price Adjustment will occur on a monthly basis.

Price of liquid asphalt for each monthly period as determined by MassDOT using the average selling price per standard ton of PG64-28 paving grade (primary binder classification) asphalt, FOB manufacturer's terminal, as listed under the "East Coast Market - New England, Boston, Massachusetts area" section of the Poten & Partners, Inc. "Asphalt Weekly Monitor". This average selling price is listed in the issue having a publication date of the second Friday of the month and will be posted as the Period Price for that month. MassDOT will post this Period Price on their website within two (2) business days following their receipt of the relevant issue of the "Asphalt Weekly Monitor". Poten and Partners has granted MassDOT the right to publish this specific asphalt price information sourced from the Asphalt Weekly Monitor.

The Base Price for this contract shall be the March 2022 Price of \$665.00 per ton of liquid asphalt per the aforementioned MassDOT procedure.

The Price Adjustment applies only to the actual virgin liquid asphalt content in the mixture placed on the job in accordance with the Standard Specifications for Highways and Bridges, Division III, Section M3.11.03.

This Price Adjustment will be paid only if the variance from the Base Price is 5% or more for a monthly period. The complete adjustment will be paid in all cases with no deduction of the 5% from either upward or downward adjustments.

1.02 ITEM DESCRIPTIONS

A. MOBILIZATION (Item 1)

Item 1 will be measured per lump sum for Mobilization.

Payment for furnishing and installing Item 1 shall be made at the lump sum bid in Section 00300, Bid Form. Payment shall be full compensation for all costs associated with initiating the contract, exclusive of the cost of materials. Payment shall be included compensation for all insurance, bonds, project signs as required, site preparation, traffic management, and in general the costs associated with establishing the work on site to assure that it is proceeding in a continuous manner. Payment shall not exceed five (5) percent of the total bid cost.

B. NPDES STORMWATER POLLUTION PREVENTION PLAN (Item 2)

Measurement of Item 2 will be measured per lump sum.

Payment for NPDES Stormwater Pollution Prevention Plan, Item 2 shall be made at the lump sum bid in Section 00300, Bid Form. Payment shall include full compensations for furnishing, installing, and maintaining haybales, silt fence, and other erosion control devices, including daily street sweeping and removing and disposing siltation material, removal of erosion control upon completion of the work, as directed by the Engineer, and in accordance with the NPDES construction activities permit, and all incidentals necessary for the satisfactory completion of the work. Work includes full compliance with the NPDES Construction Activities permit, including but not limited to, filing for a NPDES e-NOI permit, site inspections, inspection reports, and filing of a Notice of Project Termination of said Permit along with the Payment of all penalty fees imposed by EPA if the Project is not in compliance with the NPDES Permit. Payment shall be upon final acceptance of the SWPPP by the City of Newburyport a payment equal to 50% of the Contract Lump Sum price shall be paid. The remaining 50% of the Lump Sum shall be paid in 10% increments distributed equally throughout the remaining period of the Contract. The City will prepare the SWPPP for the project.

C. DEMOLITION (Items 3, 4 ,5 & 6)

Measurement of Items **3 through 6**, will be based on the units in Section 00300, Bid Form.

Payment for remove and dispose Items **3 through 6**, shall be made at the contract unit prices in Section 00300, Bid Form. Payment shall be full compensation for all cutting, removing, dust control, and disposing of materials and all incidentals required to complete the work in accordance with the plans and specifications.

D. DENSE GRADED CRUSHED STONE FOR SUB-BASE (SIDEWALKS AND ROADWAY BLENDING) (Item 7)

Measurement of Item 7, Dense Grade Crushed Stone for Sub-Base will be based on each cubic yard of material installed, graded and compacted.

Payment for furnishing and installing Item 7, Dense Graded Stone for Sub-Base will be made at the time of installation at the unit prices in Section 00300, Bid Form, based on actual delivery trucking slips. This payment shall be full compensation for furnishing, installing, blending, grading, compacting, maintaining, and all else incidental thereto for which payment is not provided under other items.

E. RECLAIMED PAVEMENT FOR BASE COURSE AND/OR SUB-BASE (Item 8)

Measurement of Item 8, Reclaimed Pavement for Base Course and/or Sub-Base will be based on each square yard of roadway pavement pulverized, blended, graded, and compacted.

Payment for furnishing and installing Item 8, Reclaimed Pavement for Base Course and/or Sub-Base will be made at the time of installation at the unit prices in Section 00300, Bid Form, based on producing a stabilized base course and sub-base through the recycling of the existing pavement structure. This combination of pavement and sub-base material is to be uniformly crushed, pulverized and blended, then spread, graded and compacted to the lines and grades shown on the plans, and all else incidental thereto for which payment is not provided under other items. Any additional base course material required will be furnished and measured under Item 7, Dense Graded Crushed Stone for Sub-Base. Any excess base course material will be disposed of by the contractor at no additional cost.

F. CONTROLLED DENSITY FILL – TYPE 1E (Item 9)

Measurement of Item 9, Controlled Density Fill – Type 1E will be based on each cubic yard of material installed.

Payment for furnishing and installing Item 9, Controlled Density Fill – Type 1E will be made at the time of installation at the unit prices in Section 00300, Bid Form, based on actual delivery trucking slips. This payment shall be full compensation for furnishing, installing, maintaining, and all else incidental thereto for which payment is not provided under other items.

G. ROCK EXCAVATION (Item 10)

Measurement of Item **10**, Rock Excavation will be based on each cubic yard of material measured from existing conditions by cross-section, planimetric method or by such other method determined accurate and appropriate by the Engineer. Boulders will be measured by the Engineer at the point of removal.

Rock excavation shall be measured to the following limits:

1. Manholes and structures: 12-inches from outside limits of structure and 6-inches below the bottom of base or base slab.
2. Pipe: 6-inches below pipe and the width of rock excavation shall be 2-feet plus pipe diameter.
3. No allowance will be made for rock excavation beyond these specified lines.

Payment of the Bid Price per cubic yard of Rock Excavation shall constitute full compensation for all labor, materials, and equipment required for or incidental to the completion of the work as specified. Note that no payment will be made for any rock or boulder excavation unless the Engineer witnesses its removal, measures the rock, and marks the rock paid.

H. UTILITY STRUCTURES (Item 11, 12, 13, 14, 15, 16, & 17)

Items **11** through **17**, will be based on the units in Section 00300, Bid Form, installed complete.

Payment for furnishing and installing Items **11** through **17**, shall be made at the contract unit prices in Section 00300, Bid Form. Payment shall be full compensation for all excavation (except rock and boulder), backfilling, furnishing and installing, basin rungs, plugs or caps, frames, covers, grates, pipe hoods, sumps, crushed stone bedding, all forms, dewatering, reinforcing, concrete and masonry materials, inverts, installing and adjusting frames and covers as required to accommodate paving activities, top slabs for shallow manholes if used, testing, connection to existing or proposed pipes and all else incidental thereto to have a complete installation as shown on the Contract Documents.

I. SEWER FRAME AND COVER ADJUSTED (Item 18)

Measurement of Item **18**, Sewer Frame and Cover Adjusted will be per each adjusted once.

Payment for Item **18**, Sewer Frame and Cover Adjusted will be made at the time of the adjustment at the unit prices in Section 00300, Bid Form, per each one time. This payment shall be full compensation for sawcutting pavement, rings, brick, concrete, backfill, hot mix asphalt, compaction and all else incidental to the adjustment of a sewer frame and cover one time. Multiple adjustments will be at the contractor's expense. Note: There is no separate

pavement of the adjustment of gas service gate covers and boxes. This is incidental to the work.

J. 12-INCH, 15-INCH AND 18-INCH , 24-INCH, 30-INCH, AND 36-INCH CORRUGATED PLASTIC (POLYETHYLENE) PIPE (Items 19, 20, 21, 22, 23, & 24)

Measurement of Items **19** through **24**, will be on a linear foot basis along the horizontal centerline of the pipe with no deduction for fittings and will be measured from actual pipe installed.

Payment for furnishing and installing Items **19** through **24**, 12-inch, 15-inch, 18-inch, 24-inch, 30-inch, and 36-inch corrugated plastic (polyethylene) pipe shall be made at the contract unit prices in Section 00300, Bid Form. Payment shall be full compensation for disposing of existing pipe, capping and abandoning existing pipe that remains, earth excavation (except rock and boulder excavation), dewatering, backfilling and compaction, clay dams, pipe bedding, fittings, connections, and concrete encasement (if required), furnishing, laying, jointing, cleaning and testing the pipe, driving and removing sheeting and bracing and all else incidental thereto.

K. CORRUGATED PLASTIC (POLYETHYLENE) PIPE FLARED END (Items 25 & 26)

Measurement of Items **25** and **26**, 18 inch and 36-inch corrugated plastic pipe flared ends will be per each installed.

Payment for Items **25** and **26**, 18 inch and 36-inch corrugated plastic pipe flared ends will be made at the time of the installation at the unit prices in Section 00300, Bid Form, per each installed. This payment shall be full compensation for excavation, soil disposal, backfill, compaction, connection, filter fabric, rip rap stone protection and all else incidental to the installation of each plastic pipe flared end.

L. 6-INCH AND 10-INCH SLOT-PERFORATED CORRUGATED PLASTIC PIPE (Items 27 & 28)

Measurement of Items **27** through **28**, 6-inch and 10-inch slot-perforated corrugated plastic pipe will be on a linear foot basis along the horizontal centerline of the pipe with no deduction for fittings and will be measured from actual pipe installed.

Payment for furnishing and installing Items **27** through **28**, 6-inch and 10-inch slot-perforated corrugated plastic pipe shall be made at the contract unit prices in Section 00300, Bid Form. Payment shall be full compensation for disposing of existing pipe, earth excavation (except rock and boulder excavation), connections to existing pipes and homeowner drains (ones that have discharges or connections currently to the stormwater system), fittings, tee fittings, dewatering, backfilling and compaction, pipe bedding,

furnishing, laying, wrapping in geo-textile fabric, double-washed stone, jointing, capping, cleaning and testing the pipe, driving and removing sheeting and bracing and all else incidental thereto.

M. TEMPORARY WATER SUPPLY (Item 29)

Measurement of Item 29, temporary water supply will be paid lump sum.

Payment for Items 29, temporary water supply will be made at the time of the installation at the lump sum unit price in Section 00300, Bid Form, per lump sum. This payment shall be full compensation for sawcutting, excavation, soil disposal, backfill, compaction, connections, furnishing all pipe and materials, bedding, backfill, temporary control of flows, connections to all piping, and all service connections, prevention from freezing and protection from damage, such as, by vehicles and construction equipment, maintenance of temporary system, including disinfecting and water quality testing, and all else incidental to the installation of a complete and operational temporary water service supply system.

**N. 6-INCH AND 8-INCH DUCTILE IRON WATER PIPE (RUBBER GASKET)
(Items 30 & 31)**

Items 30 and 31 will be measured per linear foot of each 6 inch and 8-inch ductile iron water pipe installed, complete in place along the horizontal centerline of the pipe with no deduction for fittings.

Payment for furnishing and installing Items 30 and 31 will be measured per linear foot of each 6 inch and 8-inch ductile iron water pipe shall be made at the unit price bid in Section 00300, Bid Form. Payment shall be full compensation for, earth excavation (except rock and boulder excavation), dewatering, backfilling and compaction, pipe bedding, concrete encasement (if required), furnishing, laying, jointing, including all fittings, bends, couplings, insulation, connection to existing lines, thrust blocks, driving and removing sheeting and bracing, chlorination and testing, and all else incidental there to a complete installation. There will be no separate payment for pipe fittings and restraint mechanisms. Separate payment will be made for tees and gates.

O. 6-INCH AND 8-INCH GATE VALVE AND VALVE BOX (Items 32 & 33)

Measurement of Item 32 and 33, 6-inch and 8-inch gates valve and valve boxes will be per each installed.

Payment for Items 32 and 33, 6-inch and 8-inch gate valve and valve box will be made at the time of the installation at the unit prices in Section 00300, Bid Form, per each installed. This payment shall be full compensation for sawcutting, excavation, soil disposal, backfill, compaction, installing gate valve, box, cover, and all else incidental to the installation of each 6 inch and 8-inch gate valve and box installed.

P. 6-INCH AND 8-INCH WATERMAIN TEES (Items 34 & 35)

Measurement of Item **34** and **35**, 6 inch and 8-inch watermain tees will be per each installed.

Payment for Items **34** and **35**, 6 inch and 8-inch watermain tees will be made at the time of the installation at the unit prices in Section 00300, Bid Form, per each installed. This payment shall be full compensation for sawcutting, excavation, soil disposal, backfill, compaction, installing tee, thrust blocks, and all else incidental to the installation of each 6 inch and 8-inch watermain tee installed.

Q. WATER SERVICE CONNECTIONS (Item 36)

Item **36**, water service connections will be measured per each service installed complete.

Payment for furnishing and installing Items **36**, water service connections shall be made at the unit price bid in Section 00300, Bid Form. Payment shall be full compensation for, earth excavation (except rock and boulder excavation), dewatering, backfilling and compaction, pipe bedding, concrete encasement (if required), furnishing, laying, jointing, cleaning and testing the pipe, including all piping, tubing, curb stops, sleeves, covers, fittings, couplings, insulation, connection to existing lines, driving and removing sheeting and bracing and all else incidental there to a complete installation.

Q. HYDRANT (Item 37)

Measurement of Item **37**, hydrant will be per each installed.

Payment for Item **37**, hydrant will be made at the time of the installation at the unit prices in Section 00300, Bid Form, per each installed. This payment shall be full compensation for sawcutting, excavation, soil disposal, backfill, compaction, installing furnishing and installing hydrant, thrust blocks, mechanical thrust restraints as required or directed, and all else incidental to the installation of each hydrant installed. Hydrant piping and gate valves are paid for separately.

S. HOT MIX ASPHALT PAVING (Items 38, 39, & 40)

Items **38** through **40**, hot mix bituminous asphalt paving measurement for payment will be per ton installed and shall be the actual and verified tonnage complete in-place to the depth shown on the Drawings, verified by weight slips signed by the Engineer at the time of delivery, and accepted by the City.

Payment for Items **38** through **40**, hot mix bituminous asphalt paving shall be made at the unit price bid in Section 00300, Bid Form. This payment shall be full compensation for sawing or cutting back the existing pavement as may be required, removal and disposal of temporary pavement, removal and disposal of any excess gravel base, compaction, furnishing and placing tack coat, adjusting gas service gate covers, furnishing, placing and compacting the bituminous asphalt, maintaining through the guarantee period, and all else incidental thereto.

T. HOT MIX BITUMINOUS ASPHALT BERM (Item 41)

Item **41**, hot mix bituminous asphalt berm measurement for payment will be per linear foot installed.

Payment for Item **41**, hot mix bituminous asphalt berm shall be made at the unit price bid in Section 00300, Bid Form. This payment shall be full compensation for furnishing and placing tack coat, furnishing, machine forming and placing the hot mix bituminous asphalt berm and all else incidental thereto.

U. CEMENT CONCRETE CURB RAMPS (Item 42)

Item **42**, cement concrete curb ramps will be measured by each installed complete.

Payment for furnishing and installing Item **42**, cement concrete curb ramp will be made at the unit price in Section 00300, Bid Form. This payment shall be full compensation for cleaning and priming the edges of the existing pavement, removing of any temporary pavement, cleaning and preparing the surface of the gravel base, furnishing, placing concrete, rebar or wire mesh, furnishing and installing detectable warning panels, protecting, and maintaining including labor, materials, and all else incidental thereto for which payment is not provided under other items.

V. STOP SIGN AND POST (Item 43)

Item **43**, cement concrete stop sign and post will be measured by each installed complete.

Payment for furnishing and installing Item **43**, stop sign and post will be made at the unit price in Section 00300, Bid Form. This payment shall be full compensation for excavation, furnishing, placing concrete, protecting, and maintaining including labor, materials, and all else incidental thereto for which payment is not provided under other items.

W. PAVEMENT MARKINGS (Items 44 & 45)

Item **44** and **45**, pavement markings measurement for payment will be per each installed.

Payment for Items **44** and **45**, pavement markings shall be made at the unit price bid in Section 00300, Bid Form. This payment shall be full compensation for preparing surface furnishing, placing, and protecting pavement markings and all else incidental thereto.

X. LOAM AND SEED (Item 46)

Measurement of Item **46**, Loam and Seed will be based on each square yard of seeded area.

Payment for furnishing and installing Item **46**, Loam and Seed will be made at the time of seeding at the unit prices in Section 00300, Bid Form. This payment shall be full compensation for furnishing, seed, mulch, fertilizer and 6" depth of topsoil, installing, watering and maintaining including labor, materials, for a fully established seeded area, and all else incidental thereto for which payment is not provided under other items.

Y. MAILBOX POSTS (Item 47)

Item 47 will be measured per each mailbox post installed.

Payment for Item 47 shall be made at the time of installation at the unit prices in Section 00300, Bid Form, per each installed. This payment shall be full compensation for the removing of the existing mailbox, the installation of a new mailbox post, the installing of the existing mailbox on the new post, including full compensation for excavation, soil disposal, concrete, backfill, compaction and all else incidental to the installation of a complete mailbox.

Z. WOOD GUARDRAIL (Item 48)

Measurement of Item 48, wood guardrail will be per each installed.

Payment for Item 48, wood guardrail will be made at the time of the installation at the unit prices in Section 00300, Bid Form, per each installed. The guardrail is located at the end of Ryan Road and shown on the Construction Drawings. This payment shall be full compensation for sawcutting, excavation, soil disposal, backfill, compaction, installing furnishing and installing, concrete, and all else incidental to the installation of each wood guardrail installed complete as shown on the drawings.

AA. SEWER MANHOLE RECONSTRUCTED (Item 49)

Measurement of Item 49, sewer manhole reconstructed will be per each reconstructed.

Payment for Item 49, sewer manhole reconstructed will be made at the time of the reconstruction at the unit prices in Section 00300, Bid Form, per each reconstructed. This payment shall be full compensation for sawcutting, excavation, soil disposal, backfill, compaction, installing furnishing and installing, concrete, pre-cast sewer manhole sections, brick, mortar, resetting of the frame and cover, and all else incidental to the reconstruction of each sewer manhole complete as required.

BB. UNCLASSIFIED EXCAVATION (Item 50)

Measurement of Item 50, unclassified excavation will be measured on a per cubic yard basis from existing conditions by cross-section, planimetric methods or by such other method determined accurate and appropriate by the Engineer and shall be based on each cubic yard of material excavated.

Payment for furnishing and installing Item 50, unclassified excavation will be made at the time of excavation at the unit prices in Section 00300, Bid Form, based on actual in situ volume calculation. This payment shall be full compensation for excavation, removal, stockpiling and/or removal of material for which payment is not provided under other items. This pay item is intended to be used for the removal of earth required for the base material associated with the widened and new sidewalk locations.

CC. TEST PITS (Item 50)

Measurement of Item **50**, test pits will be per cubic yard, as directed by the Engineer and accepted by the City.

Payment for performing Item **50**, will be made at the time of excavation at the unit prices in Section 00300, Bid Form, per cubic yard and shall be full compensation for excavation, removal and disposal of roadway or sidewalk pavement, backfill using excavated material, and all incidentals necessary for the satisfactory completion of the work.

DD. CALCIUM CHLORIDE (Item 51)

Measurement of Item **51**, calcium chloride will be per pound of calcium chloride applied by bag measure as directed by the Engineer, and accepted by the City.

Payment for furnishing and applying Item **51**, calcium chloride will be made at the time of application at the unit prices in Section 00300, Bid Form, based on bag measure, per pound and shall be full compensation for furnishing and applying to the satisfaction of the Engineer.

EE. GRAVEL BORROW (Item 52)

Measurement of Item **52**, gravel borrow will be based on each cubic yard of material installed, graded and compacted.

Payment for furnishing and installing Item **52**, gravel borrow will be made at the time of installation at the unit prices in Section 00300, Bid Form, based on the measured cubic yards of material after compaction in-place. This payment shall be full compensation for furnishing, installing, grading, compacting, maintaining, and all else incidental thereto for which payment is not provided under other items.

1.05 ALTERNATE 1 (ADD)

A. FURNISH AND INSTALL SLOPED GRANITE EDGING (Item A.1)

Item **A.1**, slope granite edging measurement for payment will be per linear foot installed in lieu of the Base Asphalt Berm throughout the project. Curvature of granite edging shall

match geometry shown on the Contract plans.

Payment for Item **A.1**, slope granite edging shall be made at the unit price bid in Section 00300, Bid Form. This payment shall be full compensation for excavation, soil disposal, sawcutting, concrete, fill material, compaction, furnishing and, installing sloped granite edging and all else incidental thereto.

END OF SECTION 01025

**SECTION 01040
EXISTING CONDITIONS**

PART 1-GENERAL

1.01 GENERAL PROVISIONS

- A. The Conditions of the Contract and other Sections of Division 1, General Requirements apply to this section.

2.01 EXISTING CONDITIONS

- A. Before submitting a bid, the Contractor shall make a thorough examination of the conditions at the site, checking the requirements of the Plans and Specifications with the existing conditions.
- B. No claim for extra compensation or extension of time will be allowed on account of the Contractor's failure to estimate properly the quantities, locations, and measurements of all items required to complete the work which could be discerned from visiting the site.
- C. The Contractor shall report any discrepancies to the Engineer and request an interpretation.
- D. The Existing Conditions Plans provided as part of the Contract Documents where created by digitizing old record plans, limited on the ground survey, and visual inspections.

3.01 SUBSURFACE DATA

- A. Subsurface soil investigations are included in the Construction Plans.

END OF SECTION 01040

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**SECTION 01045
CUTTING AND PATCHING**

PART 1-GENERAL

1.01 RELATED DOCUMENTS

- A. This section supplements the General Conditions.
- B. Consult the individual sections of the specifications for specific items required under those sections.

1.02 WORK INCLUDED

- A. Unless specified elsewhere, the Contractor shall be responsible for:
 - 1. All cutting and patching required for the project construction.
 - 2. Products and installation for patching and extending Work.
 - 3. Transition and adjustments.
 - 4. Repair of damaged surfaces, finishes, and cleaning.
- B. Cut existing construction to provide for installation of other components or performance of other construction activities and the subsequent fitting and patching required to restore surfaces to their original condition.

1.03. EXAMINATION

- A. Examine surfaces to be cut and patched and conditions under which cutting and patching is to be performed before cutting, including elements subject to damage or movement during cutting and patching. If unsafe or unsatisfactory conditions are encountered, take corrective action before proceeding.
- B. Do not cut and patch construction exposed on the exterior or in occupied spaces in a manner that would, in the Engineer's opinion, reduce the site's aesthetic qualities. Do not cut and patch construction in a manner that would result in visual evidence of cutting and patching. Remove and replace construction cut and patched in a visually unsatisfactory manner.
- C. Avoid interference with use of adjoining areas or interruption of free passage to adjoining areas.
- D. Beginning of cutting or patching means acceptance of existing conditions.
- E. After uncovering existing Work, assess conditions affecting performance of work.

1.04. PREPARATION

- A. Employ skilled workmen to perform cutting and patching. Proceed with cutting and patching at the earliest feasible time and complete without delay.
- B. Before proceeding, meet at the Project Site with parties involved in cutting and patching, including mechanical and electrical trades. Review areas of potential interference and conflict. Coordinate procedures and resolve potential conflicts before proceeding.

- C. Provide temporary supports to ensure structural integrity of the Work. Provide devices and methods to protect other portions of Project from damage.
- D. Close openings in exterior surfaces to protect existing work [and salvage items] from weather and extremes of temperature and humidity. Insulate duct work and piping to prevent condensation in exposed areas.
- E. Cut, move, or remove items as necessary for access to alterations and renovation Work. Replace and restore at completion.
- F. Remove unsuitable material not marked for salvage, such as rotted wood, corroded metals, and deteriorated masonry and concrete. Replace materials as specified for finished Work.
- G. Remove debris and abandoned items from area and from concealed spaces.
- H. Prepare surface and remove surface finishes to provide for proper installation of new work and finishes.

1.05 CUTTING

- A. Execute all cutting and fitting necessary to complete the Work.
- B. Where services are required to be remove, relocated, or abandoned, by-pass utility services, such as pipe or conduit, before cutting. Cut-off pipe or conduit in walls or partitions to be removed. Cap, valve, or plug and seal the remaining portion of pipe or conduit to prevent entrance of moisture or other foreign matter after by-passing and cutting.
- C. Uncover work to install improperly sequenced work.
- D. Remove and replace defective or non-conforming work.
- E. Provide openings in the Work for penetration of mechanical and electrical work. Cut holes and slots as small as possible, nearly to size required, and with minimum disturbance of adjacent surfaces. Temporarily cover opening when not in use.
- F. Employ skilled and experienced workers to perform cutting for weather exposed and moisture resistant elements, and sight-exposed surfaces.
- G. Cut rigid materials using power saw or core drill. Cut through concrete and masonry using a cutting machine, such as a Carborundum saw or a diamond-core drill. Pneumatic tools shall not be allowed without prior approval.
- H. Cut existing construction using methods least likely to damage elements retained or adjoining construction. Where possible, review proposed procedures with the original Installer; comply with the original Installer's recommendations.
- I. To avoid marring existing finished surfaces, cut or drill from the exposed or finished side into concealed surfaces.
- J. Comply with requirements of applicable Division 2 Sections where cutting and patching requires excavating and backfilling.
- K. Do not cut structural elements in a manner that would change their load-carrying capacity or load-deflection ratio.
- L. Do not cut operating elements or related components in a manner that would result in reducing their capacity to perform as intended. Do not cut operating elements or related

components in a manner that would result in increased maintenance or decreased operational life or safety.

1.06 PATCHING

- A. Execute patching to complement adjacent, undisturbed finishes.
- B. Fit products together to integrate with other Work.
- C. Execute work by methods to avoid damage to other Work, and which will provide appropriate surfaces to receive patching and finishing.
- D. Restore work with new products in accordance with requirements of Contract Documents.
- E. Fit work tight to pipes, sleeves, ducts, conduit, and other penetrations through surfaces.
- F. Where new work abuts or aligns with existing, perform a smooth and even transition. Patch work to match existing adjacent work in texture and appearance. Refinish surfaces to match adjacent finish. For continuous surfaces, refinish to nearest intersection or natural break. For an assembly, refinish entire unit.
- G. Use materials identical to existing materials. For exposed surfaces, use materials that visually match existing adjacent surfaces to the fullest extent possible if identical materials are unavailable or cannot be used. Use materials whose installed performance will equal or surpass that of existing materials.
- H. Patch with durable seams that re as invisible as possible. Comply with specified tolerances.
- I. Where feasible, inspect and test patched areas to demonstrate integrity of the installation.
- K. Restore exposed finishes of patched areas and extend finish restoration into retained adjoining construction in a manner that will eliminate evidence of patching and refinishing.
- J. Where walls or partitions are to be removed, patch and repair voids left in floor, wall and ceiling surfaces where the existing construction is removed. Provide an even surface of uniform color and appearance. Remove existing floor and wall coverings and replace with new materials, if necessary, to achieve uniform color and appearance.
- K. Where patching occurs in a smooth painted surface, extend final paint coat over entire unbroken surface containing the patch after the area has received primer and second coat.
- L. Patch, repair, or re-hang existing ceilings as necessary to provide an even-plane surface of uniform appearance.

1.07 CLEANING

- A. In addition to cleaning specified in Section 01520, clean all areas affected by the work of this Section.
- B. Completely remove paint, mortar, oils, putty, and similar items.
- C. Thoroughly clean piping, conduit, and similar features before applying paint or other finishing materials. Restore damaged pipe covering to its original condition.

END OF SECTION 01045

**SECTION 01050
CONDUCT OF THE WORK**

PART 1-GENERAL

1.01 GENERAL PROVISIONS

- A. The Conditions of the Contract and other Sections of Division 1, General Requirements apply to this section.

1.02 PROJECT MANAGEMENT

- A. All residences will be occupied during construction. The Contractor shall take all necessary precautions to ensure the public safety and convenience of the occupants during construction.
- B. The work must be completed in a continuous uninterrupted operation. The Contractor must use sufficient personnel and adequate equipment to complete all the necessary work requirements within a minimum period of time.
- C. Unless specifically authorized by the Owner, in writing, the work must be conducted between the hours of **8:00 a.m. and 4:30 p.m.** on Monday through Friday. No work is to be done on holidays, Saturdays, or Sundays other than for emergencies.
- D. The Contractor is responsible for the security of partially completed work until the project is accepted by the Architect/Engineer and Owner.
- E. Only materials and/or equipment intended and necessary for immediate use shall be brought to the site. At the end of each work day and at the completion of each phase of work, equipment and leftover or unused materials shall be removed from each dwelling unit.
- F. The Contractor is to maintain access to the residences at all times.

1.03 SHUTDOWN OF SERVICES

- A. The Contractor's attention is especially called to the fact that the continuous operation of services for neighborhood is mandatory. If the neighborhood is to be left without domestic water, electricity, gas, sanitary facilities or any other services for more than an eight hour period, the Contractor shall submit a letter, 72 hours prior to a planned shut down and obtain written approval from the Owner before proceeding. If the Owner will not allow this shutdown, but wants instead a temporary means of supplying said services, the Contractor shall supply all labor, materials or whatever may be required to supply said temporary services at no extra cost to the Owner and in accordance with the state and local regulations on health and safety.

1.04 COORDINATION

- A. The Contractor shall submit for approval to the Architect/Engineer a detailed operational plan showing the sequence of operations prior to commencement of any work at the site. The Owner must approve any changes to this operational plan.

- B. The Contractor must retain, during its progress, a competent full time representative, satisfactory to the Architect/Engineer. This representative shall not be changed, except with the consent of the Architect/Engineer. The representative shall be in full charge of the work and all instructions given to this person by the Architect/Engineer shall be binding.
- C. The Contractor must supply to the Architect/Engineer the home telephone number of a responsible person who may be contacted during non-work-hours for emergencies on the Project.

1.05 OWNER'S COOPERATION

- A. The Owner shall assist the Contractor to perform the Work in accordance with the approved operational plan by removing obstructions that may be in the Contractor's way, upon proper notice from the Contractor.
- B. The Contractor is to coordinate with the residents in fulfilling the following, at no additional cost to the Owner:
 - 1. Notifying all residents two (2) weeks before any work is scheduled in their area.
 - 2. Notify the Owner of any resident who refuses to cooperate with the proposed operational plan.

END OF SECTION 01050

**SECTION 01170
SPECIAL PROVISIONS**

PART 1-GENERAL

- 1.01 COORDINATION OF WORK
- 1.02 EMERGENCY TELEPHONE NUMBERS
- 1.03 HOURS OF CONSTRUCTION ACTIVITY
- 1.04 PROGRESS SCHEDULE
- 1.05 CONSTRUCTION PLANT AND EQUIPMENT
- 1.06 CARE AND PROTECTION OF PROPERTY
- 1.07 EXISTING STRUCTURES AND UTILITIES
- 1.08 PROTECTION AND RELOCATION OF EXISTING STRUCTURES AND UTILITIES
- 1.09 PROPOSED PIPING LOCATIONS
- 1.10 PROPOSED WORK
- 1.11 TEST PITS
- 1.12 PRECONSTRUCTION SURVEY
- 1.13 MAINTENANCE OF TRAFFIC
- 1.14 OPEN EXCAVATIONS
- 1.15 WATER FOR CONSTRUCTION PURPOSES
- 1.16 MAINTENANCE OF FLOW
- 1.17 NOISE LIMITATIONS
- 1.18 CLEANUP AND DISPOSAL OF EXCESS MATERIAL
- 1.19 SANITARY REGULATIONS
- 1.20 HEALTH AND SAFETY REGULATIONS
- 1.21 HAZARDOUS WASTE
- 1.22 DEBRIS AND CLEANUP

1.01 COORDINATION OF WORK

- A. The Contractor shall supply the Owner, and the Engineer with the following information:
 - 1. A schedule of the proposed work.
 - 2. Areas where approved detours are in effect.
 - 3. Immediate notification of any utility line breaks.
- B. The Contractor shall coordinate all work involving utilities and shall satisfy himself as to the existing conditions of the areas in which he is to perform his work. He shall conduct and arrange his work so as not to impede or interfere with the work of other contractors working in the same or adjacent areas.
- C. The Contractor shall comply with the requirements of the Commonwealth of Massachusetts Acts of 1983 – Chapter 353 “An Act Further Regulating Excavations in Public Ways”. Compliance shall include the following:
 - 1. The Contractor shall notify public and private utility companies in writing at least 72 hours (excluding Saturdays, Sundays, and legal holidays) but not more than 60 days before any excavation

1.02 EMERGENCY TELEPHONE NUMBERS

- A. The Contractor shall provide a list of telephone numbers that will allow the Owner or Engineer to contact the Contractor during normal business hours and also a 24-hour number so the Contractor may be contacted for any emergencies.

1.03 HOURS OF CONSTRUCTION ACTIVITY

- A. The Contractor shall conduct all construction activity between 7:00 a.m. and 4:00 p.m., Monday through Friday. No construction work shall be allowed outside of these hours or on Saturdays, Sundays or holidays without written authorization from the Owner.

1.04 PROGRESS SCHEDULE

- A. The Contractor shall submit a progress schedule before starting any work, in accordance with the General Conditions.
- B. The Contractor shall review the progress schedule with the Engineer periodically. Such review shall be made on a monthly basis or more frequently as required by the Engineer. The progress schedule shall be updated as required by the Engineer.

1.05 CONSTRUCTION PLANT AND EQUIPMENT

- A. The Contractor shall furnish plant and equipment that will be efficient, appropriate and large enough to secure a satisfactory quality of work and a rate of progress which will insure the completion of the work within the time stipulated in the Bid Form. If at any time such plant appears to the Engineer to be inefficient, inappropriate or insufficient for securing the quality of work required or for producing the rate of progress aforesaid, he may order the Contractor to increase the efficiency, change the character or increase the plant equipment, and the Contractor shall conform to such order. Failure of the Engineer to give such order shall in no way relieve the Contractor of his obligations to secure the quality of the work and rate of progress required.

1.06 CARE AND PROTECTION OF PROPERTY

- A. The Contractor shall be responsible for the preservation of all public and private property, and shall use every precaution necessary to prevent damage thereto. If any direct or indirect damage is done to public or private property by or on account of any act, omission, neglect, or misconduct in the execution of the work on the part of the Contractor, such property shall be promptly restored by the Contractor, at his expense, to a condition equal to or better than the condition that existed before the damage was done, to the satisfaction of the Engineer.
- B. The Contractor shall confine own apparatus and storage to those locations as shown on the Contract Drawings and to such additional areas as the Contractor may provide at no additional cost to the Owner. The Contractor shall obtain permits and written approvals from appropriate jurisdictional agency and property owner for use of premises not furnished by the Owner.
- C. The Contractor shall comply with all applicable laws, ordinances, rules and regulations regarding the safety of persons or property or with regard to protecting them from damage,

injury, or loss and shall not load or permit any part of the Work to be placed so as to endanger the safety of the Work.

- D. All methods and precautions for the public safety and convenience shall be subject to approval of the Engineer.
- E. The Contractor shall keep public streets and private properties clean of all soil, rock, dirt and other debris resulting from Contractor's operations and hauling of material.
- F. Nothing contained herein shall be construed as relieving the Contractor of any of his responsibilities for protection of persons and property under the terms of the Contract, for any and all loss or damage due to any cause whatsoever as may occur by reason of his failure to keep the streets clean.

1.07 EXISTING STRUCTURES AND UTILITIES

- A. The location of existing underground services and utilities and structures shown on the drawings is based on available records. It is not warranted that all existing utilities and services are shown, nor that the locations as shown are correct.
- B. Where the dimensions and locations of existing structures are of critical importance in the installation or connections of new work, the Contractor shall verify such dimensions and locations in the field before the fabrication of any material or equipment which is dependent on the correctness of such information. All costs or charges resulting from damage thereto shall be the responsibility of the Contractor at no additional cost to the Owner.

1.08 PROTECTION AND RELOCATION OF EXISTING STRUCTURES AND UTILITIES

- A. The Contractor shall assume full responsibility for the protection of all buildings, structures, and utilities, public or private, including, but not limited to, poles, signs, services to buildings, utilities in the street, utilities overhead, and hydrants, whether or not they are shown on the Drawings. The Contractor shall carefully support and protect all such structures and utilities from damage of any kind. Any damage resulting from the Contractor's operations shall be repaired by him at his expense to the satisfaction of the Engineer and Utility Owner.
- B. Unless otherwise indicated or authorized in writing by the Engineer, all utility facilities shall be maintained complete-in-place.
- C. Conform to the specifications and standard practices of the affected utility owners. Coordinate with utility owners, which work shall be done by the Contractor and which work shall be done by the utility owner at the Contractor's expense. Ensure continuity of all existing utility services to all users except when the utility owner determines that temporary interruption is required.
- D. If, in the opinion of the Engineer, permanent relocation of a utility is required, he may direct the Contractor, in writing to perform the work. Work so ordered will be paid for at the Contract unit prices, if applicable, or as extra work under the General and Supplementary Conditions. If relocation of a privately owned utility is required, the Owner will notify the Utility to perform the work as expeditiously as possible. The Contractor shall fully

cooperate with the Owner and Utility.

- E. Abandoned Facilities:
1. Demolish and remove abandoned utility facilities in conflict with the Work.
 2. Do not undertake demolition or removal of the service until written approval for such work has been obtained from the utility owner.
 3. When abandoned facilities are indicated to be left in place, plug (minimum 3-feet into pipe) or cap the ends of conduits and pipes, as indicated or directed by the Engineer. Remove abandoned utility manholes, junction boxes and similar structures to a minimum depth of two feet below finish grade and fill the remaining void with sand or select fill. Puncture or break the bottom slabs of manholes and similar structures to provide drainage.
- F. Provide, install, and maintain all temporary facilities necessary to provide interim utility service when a utility facility is to be relocated and when a utility facility to be replaced is abandoned prior to replacement.
- G. Where an existing utility facility is encountered which is not indicated, or which is determined to be a different utility service than that indicated, promptly notify the Engineer for further direction on the disposition of the facility.
- H. If, upon exposure, the condition or location of a utility facility to be supported complete-in-place is found by the Engineer or Utility Owner to be unsafe for support or for maintenance of service, replace or reconstruct the facility as directed by the Engineer and utility owner.
- I. Adjust to grade utility castings for all castings impacted by the work.
- J. The Contractor shall immediately notify utility companies of any damage to their utilities resulting from construction operations.

1.09 PROPOSED PIPING LOCATIONS

- A. Proposed utilities shall be installed at the locations indicated on the Drawings. The Engineer reserves the right to make such modifications in locations as may be found desirable to avoid interference with existing structures or for other reasons during the course of the work.
- B. Where fittings are noted on the Drawings, such notations are for the Contractor's convenience and does not relieve him from laying and jointing different or additional items as necessary to complete the pipe installation.

1.10 PROPOSED WORK

- A. The materials and installation procedures for the majority of the work of this project must comply with the Massachusetts Highway Department, Standard Specifications for Highway and Bridges (MHDSSHB), latest editions, as specified herein. The sections of the MHDSSHB as referenced throughout these Specifications are hereby made part of these

Contract Documents. In addition, the Contractor shall have a copy of the MHDSSHB available at the site at all times.

1.11 TEST PITS

- A. Test pits shall be excavated at locations and to the limits as directed by the Engineer to determine the exact location of existing utility conduits, sewer and drain pipes, structural footings and foundations, and underground structures.
- B. Due to the nature of the excavation, all work shall be done by hand or with light machinery and equipment acceptable to the Engineer. When the depth of excavation exceeds 5 feet (below existing ground), the pit shall be sheeted or shored with lumber or metal in compliance with OSHA regulations.
- C. Any pipe, utility conduit, or underground structure or facility, which is damaged or destroyed by the Contractor's excavation operation, whether through negligence, carelessness, inattentiveness, or failure to follow the directions of the Engineer, shall be repaired or replaced to the satisfaction of the Engineer at no additional cost to the Owner.
- D. Test pits shall not remain open overnight. Suitable coverings, barricades, warning lights and other safe-guards acceptable to the Engineer shall be in place prior to dusk.
- E. Test pits shall be backfilled only after authorization by the Engineer. Pits shall be backfilled in six inch lifts with suitable material from excavation, supplemented with gravel borrow when necessary, and compacted to the satisfaction of the Engineer. Unless the Engineer directs otherwise, the ground surface shall be restored to its original condition using materials and methods acceptable to the Engineer.

1.12 MAINTENANCE OF TRAFFIC

- A. Unless permission to close a street is received in writing from the proper authority, the work schedule shall be performed so that unimpeded vehicular and pedestrian traffic is maintained at all times.
- B. Detours around construction will be subject to the approval of the appropriate authority. Where detours are permitted, the Contractor shall provide all necessary barricades and signs as required to divert the flow of traffic. While traffic is detoured the Contractor shall expedite construction operations to minimize detouring time.
- C. Police details will be provided by the City at no cost to the contract.
- D. Roadways and sidewalks wholly or partly closed to traffic shall be protected by suitable barricades, barrier fences, traffic signs and other traffic devices, furnished and erected at locations shown on the Contract Drawings, or at locations that present a hazard to motorists or pedestrians, or as directed by the Engineer. Type, amount, location and duration of such devices shall be in accordance with Part VI of the Manual on Uniform Traffic Control Devices (MUTCD), 1993 edition as published by the U.S. Department of Transportation, latest edition, and as directed by the Engineer.
- E. The Contractor shall be responsible for maintaining all existing vehicular and pedestrian

areas within, adjacent to or intersecting the work area. These areas are to be kept free from snow, debris, potholes, trenches, equipment, defects and hazards.

- F. Emergency access to abutting property shall be provided at all times. No street combination of closures shall be employed which shall result in restraint of access for emergency vehicles. Access to all fire hydrants shall be maintained throughout the construction period.
- G. Nothing contained herein shall be construed as relieving the Contractor of any of his responsibilities for protection of persons and property under the terms of the Contract.
- H. The Contractor shall at his own expense, as directed by the Engineer and/or Owner, provide and erect acceptable barricades, barrier fences, traffic signs, and all other traffic devices not specifically covered in a bid item, to protect the work from traffic, pedestrians, and animals. He shall provide sufficient temporary lighting such as lanterns/flashers (electric battery operated) or other approved illuminated traffic signs and devices to afford adequate protection to the traveling public at no additional cost to the Owner.

1.13 OPEN EXCAVATIONS

NOTICE: The Contractor is forewarned of the safety issues regarding open excavations within a residential neighborhood. Children can easily enter an excavation pit without notice.

- A. All open excavations shall be safeguarded by providing temporary barricades, caution signs, lights and other means to prevent accidents to persons (including children), and damage to property. The Contractor shall, at his own expense, provide suitable and safe bridges and other crossings for accommodating travel by pedestrians and workmen. Bridges provided for access during construction shall be removed when no longer required. The length or size of excavation will be controlled by the particular surrounding conditions, but shall always be confined to the limits prescribed by the Engineer. If the excavation becomes a hazard, or if it excessively restricts traffic at any point, the Engineer may require special construction procedures, such as limiting the length of the open trench or prohibiting stacking excavated material in the street.
- B. All excavations shall be completely closed at the end of each workday. Backfilling or the use of steel plates of adequate strength to carry traffic loads shall be used. All trenches, excavated material, equipment, and other obstacles, which could be dangerous to the public, shall be well lighted at night.

1.14 WATER FOR CONSTRUCTION PURPOSES

- A. The express approval of the Owner shall be obtained before the Contractor uses water from the public water system. Waste of water by the Contractor shall be sufficient cause for withdrawing the privilege of use. The Contractor shall supply and use a backflow prevention device on all connections to the public water system.
- B. If no water is available, the Contractor shall supply water at no additional cost to the Owner.

1.15 NOISE LIMITATIONS

A. Construction Noise:

1. Use every effort and every means possible to minimize noises caused by construction operations, which the Engineer may consider as objectionable. Provide working machinery and equipment designed to operate with the least possible noise, and when gearing is used, such gearing shall be of a type designed to reduce noise to a minimum. Equip compressors with silencers on intake lines. Equip gas or oil operated equipment with silencers or mufflers on intake and exhaust lines. Wherever practicable electricity shall be used for power to reduce noise. Dumping bins, hoppers, and trucks used for disposal of excavated materials shall be lined with wood or other sound-deadening material if required.
2. The Contractor and all sub-contractors are required to comply with all regulations for the control of noise, irrespective of where construction activities occur.
3. Impact Devices, including but not limited to demolition tools and impact wrenches, shall be operated only during daytime hours (8:00 AM to 3:30 PM daily except Saturdays, Sundays and holidays when such operations are prohibited).
4. Implement noise abatement measures and a noise control plan when directed by the Engineer.

1.16 CLEANUP AND DISPOSAL OF EXCESS MATERIAL

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

1.17 SANITARY REGULATIONS

- A. Sanitary conveniences for the use of all persons employed on the work, properly screened

from public observation, shall be provided in sufficient numbers in such manner and at such locations as may be approved. The contents shall be removed and disposed of in a satisfactory manner, as the occasion requires. The Contractor shall rigorously prohibit the committing of nuisances within, on or about the work. Any employees found violating these provisions shall be discharged and not again employed on the work without the written consent of the Engineer. The sanitary conveniences specified above shall be the obligation of the Contractor.

1.18 HEALTH AND SAFETY REGULATIONS

- A. This project is subject to the Health and Safety regulations of the U.S. Department of Labor set forth in 29 CFR, Part 1926, and to the Massachusetts Department of Labor and Industries, Division of Industrial Safety “Rules and Regulations for the Prevention of Accidents in Construction Operations (454 CMR 10.0 et. Seq.)” Contractors shall be familiar with the requirements of these regulations.

1.19 HAZARDOUS WASTE

- A. Should the Contractor, while performing work under this contract, uncover hazardous materials, as defined in Massachusetts Hazardous Waste Regulations 310 CMR 30.00, he shall immediately notify the Engineer. The Contractor shall not assume the role of a handler, generator, operator or disposer of hazardous or toxic substances found or identified at the site.

1.20 DEBRIS AND CLEANUP

- A. Debris shall not be permitted to accumulate; the Work shall at all times be kept satisfactorily clean. Remove debris and rubbish as required by the Engineer. Debris shall not be disposed of on-site. Under no circumstances shall open fires or incinerators be used for disposal of rubbish or debris.
- B. Do not throw rubbish, debris, and waste material from windows, platforms, or other parts of the facility. Wet down rubbish, dirt, and other dust-producing materials from time to time. Immediately after unpacking, remove and dispose of all packaging materials, case lumber, excelsior, wrapping, or other rubbish from the site.
- C. The Contractor shall have full responsibility for cleaning up during and immediately upon completion of his work, shall remove all rubbish, waste, equipment and appurtenances caused by and used in the execution of his work, leaving the site clean, free of debris and in proper condition, at no additional cost to the Owner.
- D. Equipment or material shall not be left within any of the aforementioned areas after acceptance of the Contract without the written permission of the Owner or Engineer. Do not abandon any material at or near the site regardless of whether or not it has any value.

END OF SECTION 01170

SECTION 01300
SUBMITTALS – SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES

PART 1-GENERAL

1.01 RELATED DOCUMENTS

- A. This Section supplements the General Conditions.
- B. Consult the individual sections of the specifications for the specific submittals required under those sections and for further details and descriptions of the requirements.

1.02 GENERAL PROCEDURES FOR SUBMITTALS

- A. **Timeliness** - The Contractor shall transmit each submittal to the Engineer sufficiently in advance of performing related Work or other applicable activities so that the installation is not delayed by processing times, including disapproval and resubmittal (if required), coordination with other submittals, testing, purchasing, fabrication, delivery, and similar sequenced activities. No extension of time will be authorized because of the Contractor's failure to transmit submittals to the Architect in advance of the Work.
- B. **Sequence** - The Contractor shall transmit each submittal in a sequence which will not result in the Engineer's approval having to be later modified or rescinded by reason of subsequent submittals which should have been processed earlier or concurrently for coordination.
- C. **Contractor's Review and Approval** - Only submittals received from and bearing the stamp of approval of the Contractor will be considered for review by the Engineer. Submittals shall be accompanied by a transmittal notice stating name of Project, date of submittal, "To", "From" (Contractor, Subcontractor, Installer, Manufacturer, Supplier), Specification Section, or Drawing No. to which the submittal refers, purpose (first submittal, resubmittal), description, remarks, distribution record, and signature of transmitter.
- D. **Engineer 's Action** - The Engineer will review the Contractor's submittals and return them with one of the following actions recorded thereon by appropriate markings within 30 days:
 - 1. **Final Unrestricted Release:** Where marked "No Exception Taken" the Work covered by the submittal may proceed provided it complies with the requirements of the Contract Documents.
 - 2. **Final-But-Restricted Release:** When marked "Furnish as Corrected" the Work may proceed provided it complies with the Architect/Engineer notations or corrections on the submittal and complies with the requirements of the Contract Documents. Acceptance of the Work will depend on these compliances.
 - 3. **Returned for Resubmittal:** When marked "Revise and Resubmit" or "Disapproved" the Work covered by the submittal (such as purchasing, fabrication, delivery, or other activity) should not proceed. The submittal should be revised or a new submittal resubmitted without delay, in accordance with the Engineer 's notations stating the reasons for returning the submittal.

4. **Rejected:** When marked "Rejected" the Work covered by the submittal should not proceed. A new submittal shall be resubmitted without delay, in accordance with the Engineer's notations stating the reasons for the rejection.
- E. **Processing** - All costs for printing, preparing, packaging, submitting, resubmitting, and mailing, or delivering submittals required by this contract shall be included in the Contract Sum.

1.03 OR EQUALS

- A. **Definition** - Whenever a specification section names one or more brands for a given item, and the Contractor wishes to submit, for consideration, another brand, the submission shall be considered an "or-equal" or a "material substitution". For the purposes of this Contract, the terms "or-equal" and "material substitution" shall be considered synonymous.
- B. In no case may an item be furnished on the Work other than the item named or described, unless the Engineer, with the Owner's written concurrence, shall consider the item equal to the Item so named or described, as provided by M.G.L. c.30 § 39M.
- C. The equality of items offered as "equal" to items named or described shall be proved to the satisfaction of the Engineer at the expense of the Contractor submitting the substitution.
- D. The Engineer and/or the Owner may require that full size samples of both the specified and proposed products be submitted for review and evaluation. The Contractor shall bear full cost for providing, delivering, and disposal of all such samples.
- E. The Contractor shall assume full responsibility for the performance of any item submitted as an "Or-Equal" and assume the costs of any changes in any Work that may be caused by such substitution.
- F. **Or Equal Approval Process** - On the transmittal, or on a separate sheet attached to the submission, the Contractor shall direct attention to any deviations, including minor limitations and variations, from the Contract Documents.
 1. The Contractor shall submit to the Engineer for consideration of any or-equal substitution a written point-by-point comparison containing the name and full particulars of the proposed product and the product named or described in the Contract Documents.
 2. Such submittal shall in no event be made later than 120 calendar days prior to the incorporation of the item into the Work. In any case in which the time period specified in the Contract Documents from the Notice to Proceed to Substantial Completion is less than 120 days, this requirement can be waived by the Engineer.
 3. Upon receipt of a written request for approval of an or-equal substitution, the Engineer shall investigate whether the proposed item shall be considered equal to the item named or described in the Contract Documents. Upon conclusion of the investigation, the Engineer shall promptly advise the Contractor that the item is, or is not, considered acceptable as an Or-Equal substitution.

1.04 SUBMISSION OF PRODUCT DATA

- A. The Contractor shall submit 7 copies of Product Data to the Engineer. All such data shall be specific and identification of material or equipment submitted shall be clearly marked in ink. Data of general nature will not be accepted.
- B. Product Data shall be accompanied by a transmittal notice. The Contractor's stamp of approval shall appear on the printed information itself, in a location which will not impair legibility.
- C. Product Data returned by the Engineer, as "Rejected" or "Revise & Resubmit" shall be resubmitted in 7 copies until the Engineer approval is obtained.
- D. When the Product Data are acceptable, the Engineer will stamp them "No Exceptions Taken" or "Furnish as Corrected", retain 3 copies, and return 4 copies to the Contractor. The Contractor shall provide and distribute additional copies as may be required to complete the Work.
- E. The Contractor shall maintain one full set of approved, original, Product Data at the site.

1.05 SUBMISSION OF SHOP DRAWINGS

- A. Shop Drawings shall be complete, giving all information necessary or requested in the individual section of the specifications. They shall also show adjoining Work and details of connection thereto.
- B. Shop Drawings shall be for whole systems. Partial submissions will not be accepted.
- C. The Engineer reserves the right to review and approve shop drawings only after approval of related product data and samples.
- D. Shop drawings shall be properly identified and contain the name of the project, name of the firm submitting the shop drawings, shop drawing number, date of shop drawings and revisions, Contractor's stamp of approval, and sufficient spaces near the title block for the Engineer's stamp.
- E. The Contractor shall submit to the Engineer two black line prints of each shop drawing. Prints shall be mailed or delivered in roll form. Each submittal shall be accompanied by a transmittal notice.
- F. When the Engineer returns a print with the stamp "Revise and Resubmit" or "Rejected", the Contractor shall correct the original drawing or prepare a new drawing and resubmit two prints thereof to the Engineer for approval. This procedure shall be repeated until the Engineer's approval is obtained.
- G. When the Engineer returns a print with the stamp "No Exceptions Taken" or "Furnish as Corrected", the Contractor shall provide and distribute the prints for all Contractor and Subcontractors use, and in addition submit, within 10 calendar days after approval, 4 additional prints to the Engineer.
- H. The Contractor shall maintain one full set of approved shop drawings at the site.

1.06 SUBMISSION OF SAMPLES

- A. Unless otherwise specified in the individual section, the Contractor shall submit two specimens of each sample.
- B. Samples shall be of adequate size to permit proper evaluation of materials. Where variations in color or in other characteristics are to be expected, samples shall show the maximum range of variation. Materials exceeding the variation of approved samples will not be approved on the Work.
- C. Samples that can be conveniently mailed shall be sent directly to the Engineer, accompanied by a transmittal notice. All transmittals shall be stamped with the Contractor's approval stamp of the material submitted.
- D. All other samples shall be delivered at the field office of the Project Representative with sample identification tag attached and properly filled in. Transmittal notice of samples so delivered with the Contractor's stamp of approval shall be mailed to the Engineer.
- E. If a sample is rejected by the Engineer, a new sample shall be resubmitted in the specified manner. This procedure shall be repeated until the Engineer approves the sample.
- F. Samples will not be returned unless return is requested at the time of submission. The right is reserved to require submission of samples whether or not particular mention is made in the specifications, at no additional cost to the Owner.

END OF SECTION 01300

**SECTION 01500
TEMPORARY FACILITIES**

PART 1-GENERAL

1.01 GENERAL REQUIREMENTS

- A. The Contractor shall be responsible for providing and maintaining all temporary facilities until Substantial Completion. Removal of such prior to Substantial Completion must be with the concurrence of the Engineer. The Contractor bears full responsibility for re-providing any facility removed prior to Substantial Completion
- B. Removal of all temporary facilities shall be a condition precedent to Substantial Completion unless directed otherwise by the Engineer or specifically noted in the specifications.
- C. The Contractor must comply with all safety laws and regulations of the Commonwealth of Massachusetts, the United States Government, and local government agencies applicable to Work under this contract. The Contractor's attention is directed to the Commonwealth of Massachusetts, Department of Labor and Workforce Development Regulations.

1.02 FIELD OFFICES

- A. The Contractor is not required to provide a field office for this Contract

1.04 TEMPORARY TOILETS

- A. The Contractor shall provide and service an adequate number of toilet booths with chemical type toilets.
- B. The toilets shall be erected in a location approved by the Engineer and shall be maintained by the Contractor in a clean and orderly condition in compliance with all local and state health requirements.
- D. Under no circumstances will the Contractor's personnel be allowed to use Resident's toilets.

1.05 TEMPORARY CONSTRUCTION FENCE

- A. The Contractor shall be responsible for providing and maintaining temporary fencing or barricades around the construction as may be necessary to assure the safety of all persons authorized or unauthorized. Such protective measures shall be located and constructed as required by local, state, and federal ordinances, laws, codes, or regulations.

1.06 TEMPORARY STRUCTURES AND MATERIAL HANDLING

- A. The Contractor shall provide such storage sheds, temporary buildings, or trailers as required for the performance of the Contract. Subcontractors shall provide their own temporary buildings and trailers.
- B. Materials shall be handled, stored, installed, cleaned, and protected in accordance with the

best practice in the industry and, except where otherwise specified in the Contract Documents, in accordance with manufacturer's specifications and directions.

- C. The Contractor must obtain the permission of the Owner for the use of any storage facilities available on site, but the Owner assumes no responsibility for articles stored.

1.07 TEMPORARY WATER

- A. The Contractor may make use of the available water supply at the site for construction purposes, provided the permission of the Owner is obtained beforehand and only as long as the water is not used wastefully.
- B. The Contractor shall provide all necessary piping and hoses to utilize the available sources of water.
- C. The Contractor shall provide an adequate supply of cool drinking water with individual drinking cups for personnel on the job.

1.08 TEMPORARY ELECTRICITY

- A. The Contractor may make use of the electricity available at the site, metered and paid for by the Owner, provided that the Contractor shall supply proper adapters and extension cords.
 - 1. Where heavy duty electric equipment drawing current in excess of 15 amperes is involved, the Contractor shall provide temporary service to supply the power.
 - 2. The temporary electric service shall include, but not be limited to labor, materials, and equipment necessary to supply temporary power of adequate capacity for the project.
 - 3. Transformers and meters, when required by the power company, will be furnished by the power company and the contractor shall pay the costs therefore.
- B. Temporary electrical Work shall be performed under the direct supervision of at least one master electrician, who will be present on the project at all times when such work is being performed.

1.09 WEATHER PROTECTION

- A. The Contractor shall provide temporary enclosures and heat to permit work to be carried on during the months of November through March in compliance with MGL c.149 §44G (d). These specifications are not to be construed as requiring enclosures or heat for operations that are not economically feasible in the opinion of the Architect/Engineer.
- B. "Weather Protection" means the temporary protection of that Work adversely affected by moisture, wind, and cold by covering, enclosing, and/or heating. This protection shall provide adequate working areas during the months of November through March as determined by the Architect/Engineer and consistent with the construction schedule to permit the continuous progress of all Work necessary to maintain an orderly and efficient sequence of construction operations. The Contractor shall furnish and install "Weather Protection" material and be responsible for all costs, including heating required to maintain

a minimum of 40 degrees F. at the working surface. This provision does not supersede any specific requirements for methods of construction, curing of materials, or the applicable conditions set forth in the Contract Documents with added regard to performance obligations of the Contractor.

- C. Within 30 calendar days after award of the Contract, the Contractor shall submit in writing, to the Architect/Engineer for approval, three (3) copies of the proposed methods for "Weather Protection".
- D. The Contractor shall assume the entire responsibility for weather protection during construction (until Substantial Completion), and shall be liable for any damage to any Work caused by failure to supply proper weather protection and proper ventilation.
- E. Work damaged by frost shall be removed and replaced by and at the Contractor's expense and as directed by the Architect.
- F. It is to be specifically understood that the Contractor shall do no work under any conditions deemed unsuitable by the Contractor to the execution of the Work. This provision shall not constitute any waiver, release, or lessening of the Contractor's obligation to bring the Work to Substantial Completion within the period of time set forth in the Contract Documents.

END OF SECTION 01500

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**SECTION 01560
ENVIRONMENTAL PROTECTION**

PART 1-GENERAL

1.01 GENERAL

- A. The work covered by this section of the specifications consists of furnishing all labor, materials, tools and equipment and performing all work required for the prevention of environmental pollution during and as a result of construction operations under this contract.
- B. The requirements set forth in this section of the specifications apply to all phases and areas of construction.
- C. The Contractor shall comply with all applicable federal, state and local regulations, laws and guidelines regarding environmental protection during the duration of the construction contract, whether or not the regulation, law or guideline is provided herein.
- D. Prior to commencement of work, the Contractor shall meet with representatives of the Engineer to develop mutual understandings relative to compliance with this Section.
- E. Contractor shall comply with the issued Order of Condition for the project, DEP #051-1058. Contractor shall comply will all of the requirement of the Order at no additional cost to Contract. A copy of the Order can be found in Attachment B.

1.02 NOTIFICATION

- A. The Engineer will notify the Contractor in writing of any non-compliance with the foregoing provisions. The Contractor shall, after receipt of such notice, immediately take corrective action. Such notice, when delivered to the Contractor or his authorized representative at the site of the work, shall be deemed sufficient for the purpose. If the Contractor fails to act promptly, the Engineer may order stoppage of all or part of the work until satisfactory corrective action has been taken. No claim for an extension of time or for excess costs or damage incurred by the Contractor as a result of time lost due to any stop work orders shall be made unless it was later determined that the Contractor was in compliance.

1.03 AIR POLLUTION CONTROL

- A. The burning of trees, brush and other combustible materials will not be permitted. Provide satisfactory methods of disposal without additional compensation.
- B. Comply with the Massachusetts Department of Environmental Protection Regulation 7.07 – Open Burning, and Regulation 7.09 – Dust, Odor, Construction, and Demolition, and attention is called to Regulation 7.25 – Enforcement Provisions.

1.04 PREVENTION OF WATER POLLUTION AND PROTECTION OF WILDLIFE

- A. Comply with the requirements of Section 42 of the Massachusetts Clean Waters Act, Chapter 21 of the Massachusetts General Laws, as amended.
- B. During the performance of the work, the Contractor shall take sufficient precautions in the conduct of operations necessary to avoid contaminating water in adjacent waterways. All earthwork, grading, moving of equipment, water control in foundation areas, and other operations likely to create silting, shall be planned and conducted so as to avoid or minimize pollution in adjacent waterways. Water that has been used for any purpose that has been contaminated with oil, bitumen, salt or other pollutants, shall be treated prior to discharge in accordance with applicable regulations so as to avoid affecting nearby waterways. Under no circumstance shall pollutants or polluted water be discharged into the environment.

1.05 AREA OF CONSTRUCTION ACTIVITY

- A. Insofar as possible, the Contractor shall confine his construction activities to those work areas defined by the plans and specifications. All land resources within the project boundaries and outside the limits of permanent work performed under this contract shall be preserved in their present condition or be restored to a condition after completion of construction at least equal to that, which existed prior to work under this contract.

1.06 CHEMICAL CONSTRUCTION CONTROL

- A. Exercise every reasonable precaution to prevent or minimize the chemical contamination of soil on the job site caused by spilling or leaking of oil and other chemicals used in the construction operations.

1.07 PROTECTING AND MINIMIZING EXPOSED AREAS

- A. The Contractor shall control erosion and sedimentation as stated herein and in accordance with Section 02270 – Erosion and Sedimentation Control.
- B. Leave existing pavement or ground covering in place until the last possible moment prior to earth excavation for purposes of erosion and dust control. The Contractor shall limit the area of land that is exposed and free from vegetation during construction.

1.08 LOCATION OF STORAGE AREAS

- A. The location of Contractor's storage areas for equipment and/or materials shall be clear of existing vegetation or shall be on areas that are to be cleared of vegetation as part of this project. The Contractor's storage and staging area locations shall require written approval of the Engineer prior to use. Plans showing storage facilities for equipment and materials shall be submitted for approval of the Engineer.
- B. Provisions must be made in and around storage areas to contain any spills or rupture of storage supplies. The Engineer may designate a particular area or areas where the Contractor may store materials used in his operations. Refer to Section 02261.

1.09 PROTECTION OF LANDSCAPE

- A. The Contractor shall not deface, injure, or destroy trees or shrubs nor remove or cut them without written authority from the Owner and Architect/Engineer. No ropes, cables, or guys shall be fastened to or attached to any existing nearby trees for anchorages unless specifically authorized by the Engineer. Excavating machinery and cranes shall be of suitable type and be operated with care to prevent injury to trees that are not to be removed, particularly overhanging branches and limbs. The Contractor shall, in any event, be responsible for any damage resulting from such use.
- B. Branches, limbs, and roots shall not be cut except by permission of the Engineer and Owner. All cutting shall be smoothly and neatly done without splitting or crushing. When there is unavoidable injury to branches, limbs and trunks of trees, the injured portions shall be neatly trimmed and covered with an application of grafting wax or tree healing paint as directed.
- C. Where, in the opinion of the Engineer, trees may possibly be defaced, bruised, injured, or otherwise damaged by the Contractor's equipment or by his blasting or other operations, the Engineer may direct the Contractor to adequately protect such trees by placing boards, planks, poles or fencing around them. Any trees or landscape feature scarred or damaged by the Contractor's equipment or operations shall be restored as nearly as possible to its original condition at the expense of the Contractor. The Engineer will decide what method of restoration shall be used, and whether damaged trees shall be treated and healed or removed and disposed of under the provisions of Section 02100 – Site Preparation.
- D. Cultivated hedges, shrubs, and other plants that could be injured by the Contractor's operations shall be protected by suitable means or shall be dug up, balled and temporarily replanted and maintained. After construction operations have been substantially completed, they shall be replanted in their original positions and cared for until growth is re-established. If cultivated hedges, shrubs, and plants are injured to such a degree as to affect their growth or diminish their beauty or usefulness, they shall be replaced by items of a kind and quality at least equal to that existing at the start of the work, in accordance with Section 02900 – Planting, and as directed by the Engineer.

1.10 DISCHARGE OF DEWATERING OPERATIONS

- A. Any water that is pumped and discharged from the trench and/or excavation shall be filtered by an approved method prior to its discharge into a receiving water or drainage system, in accordance with Section 02140 – Dewatering and Drainage Control.
- B. The pumped water shall be filtered through baled hay, a vegetative filter strip or a vegetative channel to trap sediment occurring as a result of the construction operations. The vegetated channel shall be constructed such that the discharge flow rate shall not exceed a velocity of more than 1 foot per second. Accumulated sediment shall be cleared from the channel periodically.

1.11 DUST CONTROL

- A. During the progress of the work, the Contractor shall conduct his operations and maintain the area of his activities, including sweeping and sprinkling of streets as necessary, to minimize creation and dispersion of dust. If the Engineer decides it is necessary to use calcium chloride for more effective dust control, the contractor shall furnish and spread the material, as directed and specified under Section 01562 – DUST CONTROL.
- B. Calcium chloride shall only be used in areas allowed by state and local regulations.

END OF SECTION 01560

**SECTION 01562
DUST CONTROL**

PART 1-GENERAL

1.01 DESCRIPTION

- A. This section of the Specifications covers the control of dust at the work site.
- B. Dust control shall be the responsibility of the Contractor and dust control operations shall meet the requirements of the Commonwealth of Massachusetts Department of Environmental Protection 310 CMR 7.09: Air Pollution Control Regulations. Water and/or calcium chloride are acceptable for controlling dust.

1.02 RELATED WORK

- A. The following Sections contain work related to this Section:
 - 1. Section 01560 Environmental Protection
 - 2. Section 02200 Earthwork
 - 3. Section 02261 Storm Water Pollution Prevention Plan
 - 4. Section 02270 Erosion and Sedimentation Control

PART 2-MATERIALS

2.01 MISCELLANEOUS

- A. Acceptable materials and equipment for dust control use shall consist of the following or equivalent thereof:
 - 1. Twenty (20) mil thick PVC coverings.
 - 2. Potable water.
 - 3. Motorized street sweeper.

2.02 CALCIUM CHLORIDE

- A. Calcium chloride shall conform to the requirements of AASHTO-M 144, Type I or Type II and Specification for Calcium Chloride, ASTM D98. The calcium chloride shall be packaged in moisture proof bags or in airtight drums with the manufacturer, name of product, net weight, and percentage of calcium chloride guaranteed by the manufacturer legibly marked on each container.
- B. Calcium chloride failing to meet the requirements of the aforementioned specifications or which has become caked or sticky in shipment may be rejected by the Engineer.

PART 3-EXECUTION

3.01 GENERAL

- A. Maintain dust control at all times throughout the construction period. Control measures will be required in all areas as well as for stockpiles, temporary traffic ways, and all other areas where dust may develop.
- B. Leave existing pavement or ground covering in place until the last possible moment prior to earth excavation for purposes of dust control.
- C. Provide positive methods and apply dust control materials to minimize raising dust from construction operations, and provide positive means to prevent air-borne dust from dispersing into the atmosphere. These provisions do not supersede any specific requirements for methods of construction or applicable Conditions of the Contract with regard to performance obligations of the General Contractor.
- D. Dust control procedures shall be monitored by the City (or person of similar position in responsible charge of the construction site) and shall be subject to on-site review by authorities having jurisdiction, including the Engineer.
- E. Earthwork may be halted as deemed necessary should dust control procedures prove inadequate.
- F. Stockpiles
 - 1. Cover stockpiles in their entirety at the end of each day with a PVC, polypropylene or mylar covering. Securely anchor covering to prevent its removal and tearing during heavy winds. Maintain coverings and replace as necessary to assure constant covering and protection of all stockpiled materials.
- G. Construction Vehicles
 - 1. Clean all soil and debris from wheels of all construction vehicles and cover earth loads prior to leaving the construction site. The Contractor shall use the construction entrance/exit shown on the plans.
- H. Ramps and Public Streets
 - 1. All temporary ramps and streets **shall be swept daily** or more often as required to prevent dust being a public nuisance.

3.02 CALCIUM CHLORIDE

- A. Calcium chloride shall be applied when ordered by the Engineer and only in areas that will not be adversely affected by the application. See Section 01560, ENVIRONMENTAL PROTECTION.
- B. Calcium chloride shall be uniformly applied at the rate of 1 1/2 pounds per square yard or at any other rate as directed by the Engineer. Application shall be by means of a mechanical spreader, or other approved methods. The Engineer shall determine the number and frequency of applications.

END OF SECTION 01562

**SECTION 01720
SURVEYS AND RECORD DRAWINGS**

PART 1-GENERAL

1.00 RECORD DRAWINGS

- A. Record Drawings shall consist of all the Contract Drawings.
- B. From the sets of drawings furnished by the Owner, the Contractor shall reserve one set for record purposes.
- C. The Contractor and the their Subcontractors shall keep their marked up As Built set on the site at all times and note on it in colored ink or pencil, neatly and accurately, at the end of each working day, the exact location of their work as actually installed. This shall include the location and dimensions of underground and concealed Work, and any variations from the Contract Drawings. All changes, including those issued by Addendum, Change Order, or instructions by the Engineer shall be recorded. Marked up As Built drawings shall be prepared for the entire project and include all Work, including but not limited to:
 - 1. The location of all underground utilities and appurtenances referenced to permanent surface improvements, both horizontally and vertically at ten (10) foot intervals and at all changes of direction.
- D. The Engineer may periodically inspect the marked up As Built drawings at the site. The proper and current maintenance of the information required on these drawings shall be a condition precedent to approval of the monthly applications for payment.
- E. At Substantial Completion the Contractor shall submit the complete set of marked up As Built drawings to the Engineer. The Contractor shall check all marked up As Built prepared by subcontractors and certify in writing on the title sheet of the drawings that they are complete and correct, prior to submission to the Architect.
- F. The Engineer shall review the marked up As Built drawings and verify by letter to the Owner that the Work is complete. The Engineer shall incorporate all changes onto to original drawings.
- G. The Contractor may make a written request for copies of the completed Record Drawings. The Contractor shall reimburse the Owner directly for the cost of printing of any requested Record Drawings.
- H. Submission of accurate marked up As Built drawings and their approval by the Architect/Engineer shall be a condition precedent to final payment.

END OF SECTION 01720

DIVISION 2

SITE CONSTRUCTION

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SECTION 02100
SITE PREPARATION

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and General Provisions of the Contract, including General and Supplementary Conditions, are hereby made a part of this Section.

1.02 SUMMARY

- A. Provide all labor, equipment, materials and perform all operations necessary to complete the work of this Section as indicated within the Drawings and specified herein which shall include but is not limited to the following:
1. Protection of existing site conditions to remain.
 2. Protection of existing trees to remain.
 3. Selective clearing and thinning.
 4. Removal of trees and other vegetation.
 5. Clearing and grubbing of vegetation, refuse, trash, and debris within the indicated limits
 6. Topsoil stripping, stockpiling and/or removal off-site, storage and return to the site.
 7. Filling of voids and excavations resulting from the work.
 8. Removal of pavement.
 9. Removal or relocation of existing site features.
 10. Demolition of miscellaneous structures, signage, fencing, light standards, and other appurtenances that interfere with construction
 11. Abandonment and/or removal of manholes, catch basins and utility lines.
 12. Erosion control.
 13. Construction fence
- B. Related Work: The following Sections contain work related to this Section:
1. Section 1560 Environmental Protection
 2. Section 01562 Dust Control
 3. Section 02200 Earthwork
 4. Section 02261 SWPPP
 5. Section 02270 Erosion and Sedimentation Control.

1.03 SUBMITTALS

- A. Prior to ordering the below listed materials, submit product literature to Engineer for approval as follows. Do not order materials until Engineer's approval has been obtained.
 - 1. Erosion control materials
 - 2. Catch basin filters.

1.04 CODES AND STANDARDS

- A. Perform demolition and clearing work in accordance with applicable rules, regulations, codes and ordinances of Local, State and Federal Authorities, and in accordance the public utility corporations having jurisdiction over the work.

1.05 FEES AND PERMITS

- A. Obtain and pay for all necessary permits, licenses and certificates and give all notices as required during the performance of the demolition work.

1.06 PROJECT CONDITIONS

- A. Examination of Conditions
 - 1. The Contractor shall be solely responsible for judging the full extent of work requirements involved, including but not limited to the potential need for storing materials temporarily and/or rehandling items prior to final installation.
 - 2. Traffic: Conduct site-clearing operations to ensure minimum interference with roads and other used facilities. Do not close or obstruct roads or used facilities without permission from authorities having jurisdiction.

1.07 EXISTING SERVICES

- A. All locations of existing utilities shown on the plan have been developed from existing utility records and/or above ground inspection of the site. Completeness or accuracy of locations or depth of underground utility or structures cannot be guaranteed. Contractor must verify the location and depth of all underground utilities or structures prior to the start of work.
 - 1. Call Dig-Safe at 1-888-344-7233 seventy-two (72) hours prior to excavation and construction. Record locations on Project Record Documents from Dig-Safe field location markings.
- B. Notify affected utility companies in advance and obtain written approval prior to commencing this Work.
 - 1. Coordinate and pay all applicable fees for disconnecting, removing, capping, and plugging utility services.
- C. The Contractor shall be responsible for the location, sealing, disconnection and/or protection of all existing utilities such as water, sewers, drains, electricity and telephone in accordance with the regulations of the utility concerned.
- D. Place markers to indicate location of disconnected services. Identify service lines and capping locations on Project Record Documents.

1.08 MATERIALS OWNERSHIP

- A. Except for items or materials indicated to be reused, salvaged, reinstalled, or otherwise indicated to remain on the Owner's property, demolished materials shall become the Contractor's property and shall be removed from the site and disposed of in a legal manner.
- B. Historical items, relics, and similar objects including, but not limited to, cornerstones and their contents, commemorative plaques and tablets, antiques, and other items of interest or value to the Owner, which may be encountered during site preparation, remain the Owner's property. Carefully remove and salvage each item or object in a manner to prevent damage and deliver promptly to the Owner.

1.09 STANDARDS

- A. Except as modified by governing codes and by the Contract Documents, comply with applicable provisions and recommendations of the following:
 - 1. Standard Specification: Commonwealth of Massachusetts, Department of Public Works, Standard Specifications for Highways and Bridges, latest edition.
 - 2. AASHTO: American Association of State Highway and Transportation Officials, latest edition.
 - 3. ASTM: American Society of Testing and Materials, latest edition.
 - 4. ADA: Americans with Disabilities Act, latest edition.
 - 5. ABB: Architectural Barriers Board, Commonwealth of Massachusetts Regulation 521 CMR.

PART 2 - PRODUCTS

2.01 CONSTRUCTION FENCE

- A. Provide minimum six (6) foot high chain link construction fence barrier as directed by the Engineer.

2.02 TREE PROTECTION FENCING

- A. Tree protection fencing shall be wire bound woodroll snow fence, 4 feet high minimum with 3/8 inch by 1-1/2 inch wide pickets, spaced approximately 2 inches apart and bound together with 13 gauge (minimum) galvanized steel wire, or equivalent plastic construction fencing. Stakes shall be 8-foot steel posts driven a minimum of 3 feet into ground. Posts shall be spaced 10 feet (maximum) on center.

PART 3 - EXECUTION

3.01 GENERAL

- A. Before commencing Site Preparation work, the Contractor shall meet jointly with the Owner and the Engineer in order to discuss the procedures to be utilized. Contractor shall be held responsible for any damage to all vegetation designated to remain. The Engineer will be sole judge as to damage inflicted.

1. The Engineer shall make the final determination of action required regarding any and all items indicated for removals, stockpiling, disposal, adjustment and protection.
- B. The Contractor shall give the Owner adequate advance notice of his readiness to start Site Preparation work in order that the Owner can review the Contractor's plans for parking and access to the construction site.
- C. The work shall be conducted with prime consideration given to the following:
 1. Compliance with governing laws and building codes.
 2. Safety, protection, and convenience of the public and workmen.
 3. Minimization of dirt and dust proliferation.
 4. Neat and accurate cutting and trimming of elements to be partially removed, subject to the Engineer's approval.
 5. Avoidance of any damage to existing vegetation to remain.

3.02 UTILITIES

- A. Notify all corporations, companies, individuals or local authorities owning, or having jurisdiction over, utilities running to, through or across areas to be affected by demolition operations.
- B. Locate and identify existing utilities that are to remain and protect them from damage.
- C. Have all discontinued utility services disconnected in accordance with the requirements of the utility owner.

3.03 EROSION CONTROL

- A. Install erosion control as required prior to commencement of site preparation operations, in accordance with Section 02270.

3.04 PROTECTION OF EXISTING CONDITIONS

- A. Protection of Existing Improvements: Provide protections necessary to prevent damage to existing improvements indicated to remain in place. In the event of damage, immediately make all repairs and replacements necessary to the approval of the Engineer at no additional cost to the Owner.
 1. Protect improvements on adjoining properties and on Owner's property.
- B. Before clearing begins, protect designated trees with tree protection fencing to the approximate diameter of foliage (dripline) to prevent damage to the trunk, foliage and root system by construction equipment and procedures. Do not stockpile materials within the drip line of existing trees to remain.
- C. Place tree protection fencing as required protecting other plants, monuments, existing improvements and adjacent property areas that are designated to remain from damage.
- D. The Contractor shall repair or replace immediately any damage to existing trees or root systems that are to remain. The Contractor shall employ an arborist licensed in the

Commonwealth of Massachusetts to determine the repair and replacement needs and methods for approval by the Engineer.

- E. Replace damaged shrubs and other vegetation designated to remain with the same size and species.
- F. Tree-protection fencing shall be maintained for the duration of construction operations. The work shall include immediate replacement of any damaged fence.
- G. Maintain protected vegetation in a healthy growing condition during construction.
- H. The Contractor shall be liable for all damage and/or disturbance to existing trees and shrubs not otherwise designated for clearing and removal. When the Contractor's operations damage trees and/or other vegetation to remain, comparable replacement shall be performed as approved by the Engineer at full replacement cost to the Contractor

3.05 DEMOLITION REQUIREMENTS

- A. Conduct demolition operations in accordance with the accepted demolition plan and in a manner that will prevent damage to adjacent structures, utilities, pavements and other facilities to remain.
- B. Cease operations immediately if any damage, settlement or other adverse effect on adjacent structures occurs. Immediately notify the Engineer and regulatory authorities. Do not resume operations until conditions are corrected, damage repaired and approval has been received from the Engineer.
- C. Provide hoses and water connections. Spray water on demolition debris to minimize dust.
- D. Clean adjacent structures and improvements of dust, dirt, and debris caused by demolition operations. Return adjacent areas to condition existing prior to start of work.
- E. Locate demolition equipment and remove materials in a manner that prevents excessive loading to supporting walls, floors, or framing.
- F. All hazardous waste removal shall be performed by a hazardous waste Contractor qualified and duly licensed by the Commonwealth of Massachusetts to remove, transport and dispose of each type of hazardous substance.

3.06 SITE CLEARING

- A. General: Remove trees, shrubs, grass, and other vegetation, improvements, or obstructions, as indicated within the Drawings and as required to permit installation of new construction. Remove similar items elsewhere on site or premises as specifically indicated. Removal includes digging out and off-site disposal of stumps and roots.

3.07 CLEARING AND GRUBBING

- A. The Contractor shall accept the site as he finds it and shall remove and legally dispose off site all plants designated for removal and all debris, organic matter, and objectionable material which is not suitable at no additional cost to the Owner.
- B. Trees, shrubs, and vines and all stumps to be removed under clearing and grubbing shall be as indicated on the Drawings and as directed by the Engineer. No burning shall be allowed on site. Dispose of all material legally off site at no additional cost to the Owner.

1. Before any tree, shrub, vine, or stump removal is initiated, the Contractor shall arrange a conference on the site with the Engineer and Landscape Architect to review procedures for protection of existing vegetation to remain, removal of existing vegetation and clearing and grubbing operations.
- C. Clearing and Grubbing: Clear site of trees, shrubs, and other vegetation, except for those indicated to remain.
1. Completely remove all stumps and roots to a depth not less than eighteen inches (18") below original ground level for shrubs and three feet (3') below original ground level for trees.
 - a. Use only hand methods for grubbing inside drip line of trees indicated to remain.
 2. Cut minor roots and branches of trees indicated to remain in a clean and careful manner where such roots and branches obstruct installation of new construction.
 3. Unless further excavation is required, fill depressions caused by clearing and grubbing operations with Ordinary Borrow material.
 - a. Place borrow material in horizontal layers not exceeding six (6) inches loose depth, and thoroughly compact each layer to a density equal to adjacent original ground.

3.08 REMOVAL AND ABANDONMENT OF UTILITIES

- A. All existing utility structures, conduits, and appurtenances of any kind shall be completely removed within the limits of excavation for new buildings, unless noted otherwise on the Drawings.
- B. Manholes and catch basins to be abandoned shall have all lines plugged with brick and mortar prior to filling with sand or gravel. The top 4 feet of these structures shall be removed and the bottom slab broken up prior to filling.

3.09 TOPSOIL STRIPPING AND STOCKPILING

- A. Topsoil: Topsoil is defined as friable clay loam surface soil found in a depth of not less than four (4) inches. Satisfactory topsoil is reasonably free of subsoil, clay lumps, stones, and other objects over one (1) inch in diameter, and without weeds, roots, and other objectionable material.
 1. Strip topsoil to whatever depths encountered in a manner to prevent intermingling with underlying subsoil or other objectionable material. Topsoil that is contaminated with subsoil shall not be used as loam borrow. Remove heavy growths of grass from areas before stripping.
 - a. Topsoil excavation and stockpiling shall consist of discing and harrowing grassed areas at ninety (90) degrees to each prior operation, and removing topsoil from all areas of proposed work, screening it and storing in approved topsoil stockpiles to ensure organic matter decomposition.

- b. Where existing trees are indicated to remain, leave existing topsoil in place within drip lines to prevent damage to root system.
2. Stockpile topsoil in storage piles in on-site areas as directed by the Engineer and Owner. Construct storage piles to provide free drainage of surface water. Cover storage piles to prevent erosion; install silt fence and hay bales around entire perimeter.
3. Topsoil is to remain and be reused on site if appropriate. Unsuitable topsoil is to be classified as Urban Fill as specified in Section 02200 Earthworks.
4. When required for site work, all existing topsoil to be reused shall be screened.

3.10 REMOVAL OF EXISTING PAVEMENT AND CURBS

- A. All items to be removed, stockpiled or designated for reuse shall include, but are not limited to those items as indicated on the Contract Drawings.
- B. Remove existing bituminous concrete pavement, concrete pavement, concrete slabs and all other pavements as indicated on the Drawings. All material shall be removed from the site and returned to a recycling plant for reuse. Said pavements and concrete materials shall not be transported to landfills, incinerators or other disposal areas.

Note: The Contractor shall provide the Architect/Engineer and Owner with the name and location of the facility for approval before any removal of material is to occur.

- C. Included in this item will be all saw cutting of pavement, in areas where existing pavement is to remain as indicated within the Drawings. All sawed edges of paving shall be protected from damage until new is placed against it. Existing pavement that is damaged, disturbed or settled, shall be cut back by the same method and replaced as directed by the Engineer at no additional cost to the Owner.
- D. If, after the existing pavement and base materials are removed to the depth required, and the Engineer deems the underlying gravel satisfactory for pavement subbase, he shall direct the Contractor to leave the existing gravel in place and/or supplement it with additional material as required to bring the subbase to the proper grade. Existing material shall be compacted as specified under Section 02200 Earthwork.

3.11 REMOVALS/REMOVE AND REINSTALL

- A. All items to be removed, stockpiled or for reuse shall include, but are not limited to those items as indicated on the Contract Drawings.
 1. The Contractor shall be responsible for delivering all items designated for stockpiling and or reuse to a designated area on the site, and as directed by the Owner's representative.
- B. The Contractor shall demolish and remove all items necessary to complete the Work as shown and as indicated within the Drawings. Use methods required to complete work within limitations of governing regulations and as follows:

1. Dispose of demolished and abandoned items and materials promptly. On-site storage or sale of removed items is prohibited.
2. The items to be removed may include, but is not limited to, piping, basins, manholes, concrete and bituminous sidewalks, stairs and all associated footings, accessories and hardware when applicable, light standards and bases, signs, monuments, benches and similar material.

3.15 PATCHING AND REPAIRS

- A. Promptly patch and repair holes and damaged surfaces caused to adjacent construction by selective demolition operations.

3.16 DISPOSAL OF DEMOLISHED MATERIALS

- A. General: Promptly dispose of demolished materials. Do not allow demolished materials to accumulate on-site.
- B. Burning: Burning is not permitted.
- C. Disposal: Transport demolished materials off Owner's property and legally dispose of them.

3.17 GENERAL CLEAN-UP

- A. Remove from site all trash, litter and debris and leave site in a neat and orderly condition on a daily basis and to the satisfaction and approval of the Owner's Representative.

END OF SECTION

SECTION 02140

DEWATERING

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and General Provisions of the Contract, including General and Supplementary Conditions, are hereby made a part of this Section.

1.02 PERMITS

- A. Contractor is responsible to obtain any and all permits required, at no additional cost to the Owner.

1.03 SUMMARY

- A. This Section specifies designing, furnishing, installing, maintaining, operating and removing temporary dewatering systems and the requirements for control of surface water within the site.
- B. The work includes:
1. Control of surface water runoff to prevent flooding of excavations, trenches and adjacent properties, and the loosening and saturation of soils.
 2. Removal and disposal of subsurface water from excavations and trenches as required to lower and control water levels during construction.
 3. Provision of equipment and facilities to remove sediment and control the rates and volumes of disposal of surface and subsurface waters removed from the work areas.
- C. Sections which directly relate to the work of this Section include:
1. Section 02100 Site Preparation
 2. Section 02200 Earthwork
 3. Section 02270 Erosion and Sedimentation Control

1.04 DEWATERING SYSTEM REQUIREMENTS

- A. The Contractor shall design the dewatering systems to:
1. Effectively reduce the hydrostatic pressure and lower the groundwater levels to a minimum of two feet (2') below the bottom of excavations;
 2. Develop a substantially dry and stable subgrade for the proposed work;
 3. Prevent damage to adjacent properties, buildings, structures, utilities and other facilities;

4. Ensure that, after twelve (12) hours of initial pumping, no soil particles will be present in the discharge.
- B. Locate dewatering facilities where they will not interfere with utilities and construction work to be done by others.
- C. Modify dewatering equipment and procedures when operations threaten to cause damage to new or existing facilities.
- D. Disposal of discharge waters shall be in accordance with applicable regulations.
- E. The Contractor shall be solely responsible for the proper design and execution methods for controlling surface and groundwater. Design review and/or field monitoring activities by the Owner or Owner's representative shall not relieve the Contractor of his responsibilities for the work specified herein.

1.05 SUBMITTALS

- A. Prior to installation of the dewatering system and at least two weeks prior to performing any excavation in areas that require dewatering, submit working drawings and design data for review by the Engineer with the following information:
 1. The proposed types of dewatering system;
 2. Arrangement, location and depths of system components;
 3. Complete description of equipment and instrumentation to be used including installation, operation and maintenance procedures;
 4. Types and sizes of filters;
 5. Design calculations demonstrating adequacy of the proposed system and equipment; and
 6. Provisions and methods of sediment removal and disposal.
 7. Provisions and methods of water removal and disposal.
- B. It is anticipated that the initial dewatering plan will have to be modified to suit the variable soil/water conditions encountered during construction. Modify the dewatering plan as often as necessary to meet the Specifications.

PART 2 - PRODUCTS

2.01 MATERIALS AND EQUIPMENT

- A. Furnish pumps, pipe, appliances, and equipment of capacity capable to keep the excavations free from water as necessary to complete the work as specified herein.

PART 3 - EXECUTION

3.01 GENERAL

- A. The Contractor shall control surface water and ground water such that the excavation to final grade is made in the dry, the bearing soils are maintained undisturbed and softening

and/or instability or disturbance due to the presence or seepage of water not occur. All construction and backfilling shall proceed in the dry and floatation of completed portions of work shall be prevented.

3.02 SURFACE WATER CONTROL

- A. Intercept and divert surface water runoff away from excavations through the use of dikes, curb walls, ditches, pipes, sumps or other approved means.
- B. Provide and maintain ditches of adequate size to collect and prevent surface and subsurface water seepage from entering the excavations. Divert the water to settling basins or other approved equipment required to reduce the amount of fine particles before discharge into drainage pipes and natural watercourses. If a drainage system or watercourse becomes silted due to dewatering operation, the Contractor at no additional cost to the Owner shall clean it.

3.03 DEWATERING EXCAVATIONS

- A. Accomplish dewatering in accordance with the means and methods submitted as required in Section 1.05 and approved by the Engineer. Keep the Engineer advised of any changes required to accommodate field conditions and, on completion of the dewatering system installation, revise and resubmit the information required to show the installed system.
- B. Perform dewatering operations to lower the groundwater level in excavations as required to provide a stable, dry subgrade for the prosecution of the proposed work.
- C. Maintain dewatering operations in a manner that prevents buildup of excessive hydrostatic pressure and damage to structures, and the subgrade.
- D. Do not allow water to accumulate in excavations. The Contractor shall provide and maintain at all times ample means and devices to remove promptly, and to dispose of properly, all water entering excavations and to keep them dry until the proposed work is completed.
- E. If the Contractor's method of dewatering does not properly dewater the excavation as specified, then the Contractor shall install groundwater observation wells, as directed by the Engineer, and implement a revised dewatering plan that lowers the groundwater a minimum of 6 inches below the bottom of final excavation elevation, at no additional cost to the Owner.
- F. No pipe shall be laid in water. No masonry shall be laid in water, and no water shall be allowed to rise over concrete and brick masonry within 96 hours after being placed. Water shall not be allowed to rise over any concrete and masonry for four days. The Contractor shall constantly guard against the possibility of flotation of pipe or structures after installation. Backfill or other means shall be placed promptly to prevent this occurrence.
- G. Dewatering units used in the work shall be surrounded by suitable filter media such that no fines shall be removed by pumping. Pumping shall be continuous until pipe or structure is adequately backfilled. Stand-by pumps shall be provided.

END OF SECTION

**SECTION 02200
EARTHWORK**

PART 1—GENERAL

1.01 DESCRIPTION

- A. Provide facilities, labor, materials, tools, equipment, appliances, transportation, supervision, and related work necessary to complete the work specified in this section, and as shown on the Drawings.
- B. The work of this section includes but is not necessarily limited to:
1. Excavation, fill, and backfill, including compaction as indicated or required, to the lines and grades indicated on the Drawings.
 2. Excavation and disposal of unsuitable or excess materials off-site, unless other on-site locations are allowed. Excavation shall include removal and satisfactory disposal of all unclassified material encountered throughout the site.
 3. Rough grading, including placement, moisture conditioning and compaction of fills and backfills.
 4. Placement of base and subbase course materials under structures, slabs and footings, including compaction. Placement of base and subbase course materials under pavement is located under Section 02230 – Pavement Base.
 5. The removal, hauling and stockpiling of suitable excavated materials for subsequent use in the work. Stockpiling shall include protection to maintain materials in a workable condition at no additional cost to the owner.
 6. Rehandling, hauling and placing of stockpiled materials for use in refilling, filling, backfilling, grading and such other operations at no additional cost to the owner.
 7. Protection of existing buildings, pavements, and utilities to remain at no additional cost to the owner.
 8. Furnishing and installing all sheeting, shoring, and bracing of structural and trench excavations at no additional cost to the owner.
 9. Providing products in sufficient quantities to meet the project requirements.
 10. Obtaining all required permits, licenses, and approvals of appropriate municipal and utility authorities, prior to commencing the work of this Section, and pay costs incurred there from.

- C. Contractor shall be responsible for notifying all owners of affected utilities and for contacting Dig Safe at least 72 hours prior to excavation.

1.02 **RELATED SECTIONS**

- A. Carefully examine all of the Contract Documents for requirements which affect the work in this section. Other specification sections which directly relate to the work of this section include, but are not limited to, the following:
1. Section 01170 - Special Provisions
 2. Section 01560 - Environmental Protection
 3. Section 02140 – Dewatering
 4. Section 02261 - Storm Water Pollution Prevention Plan
 5. Section 02270 – Erosion and Sedimentation Control
 6. Section 02400 - Storm Drainage System
 7. Section 02610 – Water Supply System
 8. Section 02500 - Bituminous Concrete Pavement
 9. Section 02920 - Seeding and Sodding

1.03 **DEFINITIONS**

- A. Unacceptable material is soil material that contains organic silt, peat, vegetation, wood or roots, stones or rock fragments over 6 inches in diameter or exceeding 40 percent by weight of the backfill material, porous biodegradable matter, loose or soft fill, construction debris, or refuse, or material which cannot be compacted to the specified or indicated density. Percentage of rock shall be determined by the Contractor's independent testing laboratory. Acceptable material is material that is not "unacceptable material", classified as defined herein.
- B. Surplus material is excavated acceptable material that cannot be utilized elsewhere on the site as backfill or embankment fill, or as otherwise directed by the Engineer.

1.04 **EXCAVATION CLASSIFICATIONS**

- A. Excavation: Excavation shall be unclassified and no consideration will be given to the nature of the materials, with the exception of rock and hazardous materials. Excavation shall comprise and include the satisfactory removal and disposal of all materials encountered regardless of the nature of the materials and shall be understood to include, but not limited to, earth, fill, foundations, pavements, curbs, piping, railroad track and ties, cobblestones, footings, bricks, concrete, previously abandoned drainage structures and utility structures abandoned and not removed by the utility and debris.
- B. Rock Excavation: Rock is defined for payment purposes as stone or hard shale in original ledge, boulders over two cubic yards (2yd³) in volume in open areas and one cubic yard (1yd³) in volume in trenches, and masonry or concrete that cannot be broken or removed by normal job equipment (power shovels, scoops, or D-8 bulldozers with ripper attachment) without the use of explosives or drills. The classification does not include materials that can be removed by means other than drilling and blasting or drilling and wedging but which, for reasons of economy in excavating, the Contractor prefers to remove by drilling and blasting. The word "trenches" shall mean excavation

having vertical sides the depths of which exceed the width, made for drain, sewer, water, and gas pipes; electric and steam conduits; and the like.

C. Hazardous Waste

1. The Contractor shall be familiar with the State Department of Environmental Protection (DEP) Hazardous Waste Regulations 310 CMR 30.00 and the Massachusetts Contingency Plan (MCP) 310 CMP 40.00 when conducting earthwork operations.
2. In general, a hazardous waste (contaminated with oil or hazardous materials) is a waste or combination of wastes which, because of its quantity, concentration or physical, chemical or infectious characteristics, may cause, or significantly contribute to, an increase in mortality or an increase in serious irreversible or incapacitating reversible illness or pose a substantial present or potential hazard to human health, safety, or welfare, or to the environment when improperly stored, treated, transported, or disposed of, or otherwise managed. (Additional criteria and characteristics to determine if a waste is hazardous are contained in 310 CMR 30.111, 30.112 and 30.120 through 30.125).

1.05 LAWS AND REGULATIONS

- A. Work shall be accomplished in accordance with federal state and local laws and regulations of local, county and state agencies and national or utility company standards as they apply. Also refer to Section 01170 – Special Provisions.

1.06 QUALITY ASSURANCE

- A. Through the Engineer the Owner may retain and pay for the services of a Geotechnical Consultant to perform on-site observation and testing during the following phases of the construction operations. The scope of services will be determined by the Architect/Engineer and Owner and the Geotechnical Consultant. The Owner reserves the right to modify or waive Geotechnical Consultant services.
- B. The Geotechnical Consultant's presence does not include supervision or direction of the actual work by the Contractor, his employees or agents. Neither the presence of the Geotechnical Consultant, nor any observations and testing performed by him, nor any notice of failure to give notice shall excuse the Contractor from defects discovered in his work.
- C. Costs related to retesting due to failures shall be paid for by the Contractor at no additional expense to Owner. The Contractor will pay for all additional costs for re-testing.

1.07 SUBMITTALS

- A. Submit the name of each material supplier and specific type and source of each material. Submit necessary testing results to document that materials meet the requirements of the specific use for which it is intended.

- C. Any change in source throughout the job requires approval of the Engineer.
- D. For use of fabrics or geogrids, submit manufacturer's literature for approval by the Engineer.

1.08 COORDINATION

- A. Prior to start of earthwork the Contractor shall arrange an on-site meeting with the Engineer and Geotechnical Consultant for the purpose of establishing the Contractor's schedule of operations and scheduling observation and testing procedures and requirements.
- B. As construction proceeds, the Contractor shall be responsible for notifying the Engineer prior to the start of earthwork operations requiring observation and/or testing.

1.09 TOLERANCES

- A. Construct finished non-paved surfaces to plus or minus 1 inch of the elevations indicated. Complete embankment slopes to plus or minus six horizontal inches of the slope line (toe or tip) shown. Maintain the moisture content of fill materials as it is being placed within plus or minus two percent of the optimum moisture content of the material as determined by the laboratory tests herein specified.

1.10 APPROVALS

- A. No earthwork materials will be accepted on the jobsite without written approval from the Engineer.

1.11 OTHER SPECIFICATIONS

- A. The requirements of the Massachusetts Highway Department Standard Specification for Highways and Bridges are also made part of these Specifications.

PART 2—PRODUCTS

2.01 MATERIALS

- A. Common Fill/Ordinary Borrow shall conform to MHDSSHB Specification Section M1.01.0.
- B. Gravel Borrow shall conform to MHDSSHB Specification Section M1.03.0, Type c.
- C. Sand Borrow shall conform to MHDSSHB Specification Section M1.04.0.
- D. Crushed Stone shall conform to MHDSSHB Specification Section M2.01.1.
- E. Processed Gravel Base shall conform to MHDSSHB Specification Section M1.03.1.

- F. Topsoil shall conform to Specification Section 02920 Seeding and Sodding.
- G. 3/4-inch Crushed Stone: Crushed Stone shall conform to the requirements of item M2.01.4 of the MHDSSHB. Crushed Stone shall be used as indicated on the Drawings. Crushed Stone shall be washed to remove fine-grained soils prior to use on the project.
- H. Flowable Fill: Flowable Fill shall consist of a commercial mixture of flyash and cement with a minimum 28-day compressive strength of 200 psi.
- I. Stone For Pipe Ends shall conform to MHDSSHB Section M2.02.3.

PART 3—EXECUTION

3.01 GENERAL REQUIREMENTS

- A. The Contractor shall control the grading so that ground is pitched to prevent water from running to excavated areas, eroding slopes, damaging other structures, or adjacent properties.
- B. Perform dewatering operations in accordance with Section 02140 to maintain excavated subgrades in a dry condition.
- C. Control dust during the course of the contract in accordance with Section 01562.
- D. Construction Traffic. Disperse travel paths of traffic and construction equipment over entire width of compacted surfaces to aid in obtaining uniform compaction. Protect exposed soil layers with high moisture content from excessive wheel loads.
- E. Use of Materials Found of Site
 - 1. Suitable excavated materials shall be used for embankment, backfill, or any other purpose as directed and the material shall be placed and compacted in a manner conforming to the specifications for the particular type of work required at no additional cost to the Owner.
 - 2. Suitable material that cannot be readily placed shall be stockpiled at the jobsite in an area designated by the Engineer and used in the manner and purpose described above. All work necessary to stockpile and re-handle suitable material will be at no additional cost to the Owner and will be included in the Contract unit price for the particular excavation it was obtained from. If the Contractor desires to store suitable material off the jobsite, or remove suitable material from the jobsite, written permission shall be obtained from the Engineer.
 - 3. All unsuitable material and suitable material not required for the proper completion of the Contract will become the property of the Contractor and shall be removed and disposed of away from the job site at no additional cost to the Owner.
 - 4. Do not excavate or remove any material from within the site which is not within the excavation, as indicated, without written authorization from the Engineer.

- F. Salvaging Topsoil. Salvage topsoil within the neat lines as indicated, or as otherwise designated by the Engineer, and stockpile at the jobsite at locations approved by the Engineer. Prevent topsoil from contamination by other materials, and provide adequate drainage and erosion protection. Clear, grub, and rough-grade storage areas so that the maximum amount of stockpiled material will be available for reuse. Refer to Section 02100.
- G. Stockpiling of Excavated Material. Establish excavated material stockpiles on site only in locations where they will not interfere with the progress of the work and only as approved by the Engineer.
- H. Surplus and/or Unsuitable Material. Stockpile and dispose of excavated materials which are in excess and/or are determined to be unsuitable for topsoil, embankment and backfill, at no additional expense to the Owner. The Contractor shall assume that the material is urban fill and meets the criteria for disposal in lined or unlined Massachusetts landfills. When approved by the Engineer, such material may be disposed of at designated locations within the site. Offsite disposal facilities and any soil testing associated with offsite disposal must be approved by the Engineer.
- I. Unfavorable Weather. Do not place, spread, roll or compact fill material that is frozen or thawing, or during unfavorable weather conditions. If interrupted by heavy rain or other unfavorable conditions, do not resume until ascertaining that the moisture content and density of the previously placed soil are as specified.
- J. Maintenance of Excavation, Slopes and Embankments.
1. Excavate and remove material outside the limits of excavation which in the opinion of the Engineer, is unsuitable and constitutes potential slides, and material which comes into excavations for any reason including the driving of piles therein.
 2. Maintain slopes and embankments until final completion and acceptance of the work. Promptly repair slides, slipouts, washouts, settlements, and subsidence which occur for any reason, and refinish the slope or embankment to the original lines and grades or as required by the Engineer.
 3. Provide earth retention systems as required by federal, state and local regulations. Shoring and bracing of trenches and other excavations shall be in accordance with the latest OSHA Standards and Interpretation, Subpart P – Trenches and Shoring, and to all other applicable codes, rules and regulations of the federal, state and local authorities.
- K. Hazardous Material:
1. The Contractor shall immediately halt soil movement activities and notify the Engineer and Owner if visual, olfactory or other evidence suggests that soils are contaminated with oil or hazardous materials.

2. Any contaminated soils shall be managed and handled in compliance with the referenced state/federal regulations, guidelines and policies.

3.02 OBSTRUCTIONS NOT INDICATED AND NOT VISIBLE

- A. All available information was used to establish the location of pipes, drains, structures, and utilities, as shown on the Drawings. However, accuracy and completeness of such drawings cannot be guaranteed. Therefore, if the Contractor encounters such items within the indicated limits of excavation, which will be damaged if work is to continue or which will cause delays, notify the Engineer immediately so the obstruction can be addressed and documented for payment, as authorized by the Owner.

3.03 TEST PITS

- A. Test pits may be ordered by the Engineer during the course of contracted work, to locate existing pipes, drains, structures, or utilities. The Contractor shall perform the test pit operations in accordance with Section 01170, and as specified herein, as applicable.

3.04 GENERAL EXCAVATION REQUIREMENTS

- A. Excavate to the lines and grades indicated. Exercise care to preserve the material below and beyond the lines of excavation. Where excavation is carried out, through error, below indicated grade or beyond the lines of excavation, backfill to the indicated grade and compact with approved fill at no additional cost to the Owner, and at the direction of the Engineer.
- B. Limits of the excavation shall allow for adequate working space for installing forms and as required for safety of personnel. Cut excavations in solid rock accurately to the neat lines indicated, or, if not indicated, to the width of the trench.
- C. Excavation for the convenience of the Contractor shall conform to the limits acceptable to the Engineer and shall be at no additional cost to the Owner. Contractor shall not over excavate below proposed design grades for the purpose of obtaining borrow for use off-site.
- D. When any excavation is extended beyond the limits indicated, backfill and compact the additional excavated area with material indicated to be under the pipe, conduit, or structure which was being excavated for, at no additional cost to the Owner.
- E. Limit the length of trench open at any one time as to eliminate interference with traffic and the operations of others and to reduce conditions dangerous to personnel, equipment and existing site improvements, all according to site conditions.
- F. Excavate by use of hand tools when within 2 feet of existing pipes, conduits, or other structures.

3.05 TRENCH EXCAVATION

- A. Excavate trenches for utilities, drain and water pipes, and utility structures by the open cut method except where tunneling or jacking is indicated or approved by the Engineer.

- B. Excavate trench to permit pipe, conduit or structure to be laid or constructed at the elevation, slope and depth of cover indicated on the Drawings, and at uniform slopes between indicated elevations. Make trenches no wider than indicated and do not widen by scraping or loosening materials from the sides during construction or operation of equipment in or adjacent of the trench or by surcharging excavation with material piled next to the trench. Keep sides firm and undisturbed until backfilling and compaction has been completed.
- C. When pipe, conduit or structures are to be laid in gravel or crushed stone bedding, excavate trench by machine to indicated aggregate subgrade. Compact any disturbed material at the bottom of the trench to 95 percent prior to placing the bedding material.
- D. When pipe, conduit, or structures are to be laid directly on the bottom of the trench, do not excavate the lower part of the trenches to subgrade by machinery. Remove last of material by use of hand tools and form a flat or shaped bottom, true to grade, so that pipe or structure will have a uniform and continuous bearing.
- E. In paved areas, saw cut pavement on the neat lines at the width indicated for the trench. After compacting the backfill, restore pavement to a condition equivalent to that existing at the start of construction. Restore pavement damaged outside the neat lines at no additional cost to the Owner.
- F. Trench Excavation in Fill:
 - 1. Place and compact to 95 percent of maximum density indicated fill material to top of proposed fill or to a minimum height of 1 foot above top of pipe or structure, whichever is less, when pipe or structure is to be laid in fill.

3.06 ROCK EXCAVATION

- A. Cross Sectioning: When rock is encountered during excavation, it shall be uncovered and exposed, and the Engineer shall be notified in writing by the Contractor before blasting work proceeds. The areas in question shall then be measured, and payment shall be determined. Excavation of material in question before agreement by the Engineer as to the character of the material, or failure to notify the Engineer or to take measurements will forfeit the Contractor's right to payment for rock excavation. The quantity of rock to be removed shall be based on the limits established below. Measurements shall be made by a Registered Surveyor, paid for by the Contractor, and approved by the Engineer.
- B. Measurement: Excavation of rock, as defined in paragraph 1.04B, if ordered in writing by the Engineer with the prior written approval of the Owner, measured in place within the Contract limits as defined on the Plans or in any duly authorized modifications thereto. Measurement for rock excavation will be made for:
 - 1. Foundations within the limits of the concrete lines as defined by the working plans or by duly authorized modifications thereto, plus twelve inches (12") outside the vertical concrete lines and twelve inches (12") below base.

2. Pipe trenches to a depth of six inches (6") below the bottom of the bell and for a width equal to the inside diameter of the pipe, plus fifteen inches (15") beyond the inside diameter on each side, provided that overlapping computed volumes of any ledge or boulder excavation shall be paid for only once
 3. Paved areas to the underside of the respective subbase for such areas.
 4. Lawns and planting areas to a depth of twenty-four (24") below finished grade.
 5. Any foreseen rock or boulder encountered, which must be removed for construction of the work defined on the plans or in modification thereto, shall be measured in its original position to the limits of clearly defined vertical construction lines and to the depth required for the defined construction; payment will be at the unit prices stated above.
- C. Blasting:
1. Blasting is not allowed

3.07 UNACCEPTABLE SUBGRADE

- A. If unacceptable material (defined in paragraph 1.03A) is encountered below or at the subgrade which excavation was indicated to be taken to, remove such materials and dispose of it as specified herein. Limits of removal shall be as directed by the Engineer. After removal of unsuitable materials, backfill with crushed stone or gravel borrow, and compact to specified density requirements. For such work not caused by the Contractor's operations or lack of surface drainage control, the Contractor shall be paid as Extra Work, as approved by the Architect/Engineer and Owner.
- B. Where subgrade has been softened or eroded by flooding, equipment traffic or placement during unfavorable weather, it shall be considered "unacceptable material" and handled in accordance with paragraph A above, at no additional cost to the Owner.

3.08 SUBGRADE PREPARATION AND PROTECTION

- A. General Requirements

All subgrade areas shall be made ready for fill by removal of all organic material, topsoil, loose fill, unsuitable soils and deleterious materials, as directed by the Engineer.
- B. Proof Rolling Subgrades

Prior to placement of fill, proof roll natural ground above groundwater levels by making a minimum of two passes with approved compaction equipment.
- C. Deep Compaction (In areas of loose fill where applicable)

D. Rock Subgrades

1. Subgrades outside building area may have a maximum 2-foot zone of overblast rock provided that:
 - a. Loose rock is covered with suitable layer of crushed stone or choke stone; and
 - b. Prior to placing crushed stone or choke stone, the area is rolled with at least four passes of a heavy vibratory roller.
2. Bottom of rock excavations for support of foundations shall be cleaned of all loose materials.
3. Rock surface for footings shall have a maximum slope of 4 horizontal to 1 vertical.
4. Rock excavations for footings carried below design grades shall be backfilled by placement of concrete with same strength as footing at the Contractor's cost. At the discretion of the structural engineer, footings could be dropped below design elevation onto competent rock.

3.09 PLACEMENT AND COMPACTION OF MATERIALS

A. General Requirements

1. The soils testing laboratory will determine the optimum moisture content to achieve the maximum dry density for all soils specified or indicated to be compacted to a percentage of its maximum dry density.
2. Unless other material is indicated or specified, place excavated acceptable material for backfilling trenches and around structures and filling for embankments. The composition of these materials and tests performed to determine moisture-density relationships will govern both their acceptability for backfill and method best suited for their placement and compaction. If sufficient excavated acceptable material is not available from the excavations, provide backfill material of ordinary borrow, or as otherwise directed by the Engineer.
3. Provide adequate pumping and drainage facilities to keep the excavation area dry from groundwater and/or surface runoff so that it does not adversely affect construction procedures or cause excessive disturbance of underlying natural ground. Refer to Section 02140.
4. Compaction by puddling or jetting is prohibited.
5. Protect fill area by grading to drain and providing a smooth surface, which will readily shed water. Grade the surface of the areas in such a manner as to prevent ponding of surface runoff water in areas to receive compacted fill. Refer to Section 02140.

6. Do not place frozen fill. Do not place fill on frozen ground.
7. Placement of fill shall not begin prior to observation and approval of subgrade conditions by Engineer.
8. To the extent that is practicable, each layer of fill shall be compacted to the specified density the same day it is placed. Fill shall be placed in horizontal layers. Where the horizontal layer meets a natural rising slope, the layer shall be keyed into the slope by cutting a bench during spreading of preceding lift.
9. Prior to backfilling between foundation wall and excavation limits, remove unsuitable material, including rubbish, organic materials or other debris.
10. Do not commence filling operations until Engineer and/or Architect have observed conditions.
11. Protect foundations, footings, foundation waterproofing, and site utilities during backfilling. Repair damage at no cost to Owner.
12. Backfill shall not be placed against masonry, concrete or walls until they are braced or have cured sufficiently to develop strength necessary to withstand, without damage, pressure from backfilling and compacting operations.
13. Provide shoring, sheeting, and/or bracing of excavations as required to assure complete safety against collapse of the earth at the side of excavations. Alternatively, lay back excavations to a stable slope.
14. Upon completion of the work, the final ground surface shall be left in a firm, unyielding, true, uniform condition, free from ruts. Repair disturbed areas caused by equipment traffic at no cost to Owner.

B. Equipment

1. Compaction equipment used in open areas where space permits shall consist of vibratory rollers weighing at least 10,000 pounds.
2. Compaction equipment for fill against foundation walls and in other confined areas shall be accomplished by means of drum-type, power-driven, or by hand-guided vibratory plate compactors.

C. Compaction

1. Compaction Requirements
 - a. The degree of compaction is expressed as a percentage of the maximum dry density at optimum moisture content as determined by ASTM Test D1557, Method C. The compaction requirements are as follows:

Minimum Degree

Area	of Compaction
Below footings	95%
Below slabs	95%
Pavement base and subbase courses	95%
General fill below pavement subbase	95%
Trench backfill (inside bldg.)	95%
Trench backfill (outside bldg.):	
- Below pipe to spring line	95%
- Spring line to 1 ft. above pipe	95%
- 1 ft. above pipe to pavement subbase or finish grade	95%
Landscape areas	95%

Compactions percentages are based on the laboratory derived Maximum Density values.

2. Moisture Control

- a. Discontinue backfilling and compaction from November to April (wet season) unless the Contractor demonstrates successful moisture and compaction control techniques to achieve the indicated or specified density requirements.
- b. Fill material that is too wet for proper compaction shall be harrowed, or otherwise dried to a proper moisture content to allow compaction to the required density. If fill cannot be dried within 24 hours of placement, it shall be removed and replaced with drier fill at his expense.
- c. Fill material that is too dry for proper compaction shall receive water uniformly applied over the surface of the loose layer. Sufficient water shall be applied until the optimum moisture content is reached, as determined by the soil testing laboratory, as specified in paragraph 3.09.A.1.
- d. In no case shall fill be placed over material that is frozen. No fill material shall be placed, spread or rolled during unfavorable weather conditions. When work is interrupted by heavy rains, fill operations shall not be resumed until the moisture content and the density of the previously placed fill are as specified.
- e. The Contractor shall continue to compact until the indicated or specified density requirements are achieved.

3. Placement and Lift Thickness of Material

Distribute material such that stones and lumps do not become nested, causing voids between stones. Distribute such that voids are completely filled with fine materials regardless of compaction method.

Deposit and spread material in uniform parallel layers not to exceed 12 inches (12") in thickness when utilizing heavy compaction equipment, and 6 inches (6") when utilizing light hand-operated compaction equipment.

D. Trench backfill and compaction:

1. Begin backfilling and proceed until completed after the pipes and conduits have been laid, joints have acquired maximum degree of hardness, pipelines and conduits have successfully passed tests and inspections required under their applicable specification sections, and concrete or masonry within the trench have reached their design strength to support all loads.
2. Utilize compaction devices which will not damage the pipe, conduit, or structure within the trench.
3. Compact material around circumference of pipe by hand tamping 6 inch layers of indicated material in the area between the trench wall and the pipe to meet density requirements stated herein.
4. Compact material above the pipe by tamping or mechanical means if trench width is wide enough to accommodate the compaction equipment and if the load from the equipment does not damage the pipe.

E. Fill and Backfill Under and Around Structures:

1. Use gravel borrow, crushed stone, or fine aggregate for fill and backfill material under structures. Place and compact material in 6 inch lifts to the specified degree of compaction as specified herein.
2. Use excavated acceptable material (as defined in paragraph 1.03A) to backfill around structures, except as otherwise indicated on the Drawings or specified herein. Backfill around retaining walls shall be crushed stone or gravel, as indicated on the Drawings.
3. Do not place backfill against or on concrete structures until they have attained the strength capable of withstanding the loading to which they will be subjected.
4. Place material evenly around structures to maintain equal soil pressure on all sides of structure.

3.10 OBSERVATION AND TESTING

- A. The Owner may retain a Geotechnical Consultant to perform on-site observation and testing during the earthwork phase of the construction operations. The Contractor shall allow the Geotechnical Consultant sufficient time to make necessary observations and tests. The services of Geotechnical Consultant shall include, but not be limited to, the following:
1. Observation during excavation and dewatering of building and controlled fill areas.
 2. Observation during backfilling and compacting operations within that area defined as building area or controlled fill area and other areas as appropriate.
 3. Laboratory testing and analysis of fill materials specified, as required.
 4. Observation of construction and performance of water content, gradation and compaction tests at a frequency and locations that he shall select. The results of these tests will be submitted to the Owner, on a timely basis so that action can be taken to remedy indicated deficiencies. During the course of construction, the Geotechnical Consultant will advise the Owner in writing if at any time in his opinion or failure to give notice, shall excuse the Contractor from defects discovered in his work.

3.11 DISPOSAL OF SURPLUS, UNACCEPTABLE OR HAZARDOUS MATERIAL

- A. No excavated material shall be removed from the site or disposed of by the Contractor unless approved by the Engineer.
- B. Surplus excavated acceptable materials (as defined in paragraph 1.03B) shall be used to backfill normal excavations in rock or to replace other materials unacceptable for use as backfill or as otherwise directed by the Engineer. Upon written approval of the Engineer, surplus excavated materials shall be neatly deposited and graded so as to make or widen fills, flatten side slopes, or fill depressions; or shall be neatly deposited for other purposes as indicated by the Architect/Engineer and Owner, within its jurisdictional limits; all at no additional cost to the Owner.
- C. Surplus excavated material not needed as specified above shall be hauled away and disposed of by the Contractor at no additional cost to the Owner, at appropriate locations, and in accordance with arrangements made by him.
- D. Disposal of all unacceptable, surplus, and hazardous materials shall be in accordance with all applicable local, state and federal regulations.

END OF SECTION 02200

**SECTION 02230
PAVEMENT BASE**

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and General Provisions of the Contract, including General and Supplementary Conditions, are hereby made a part of this Section.

1.02 SUMMARY

- A. This Section specifies requirements for the preparation for and placement of granular pavement subbase and base materials.
- B. The work includes:
1. Fine grading and compaction of pavement subgrade.
 2. Furnishing, placing and compacting of subbase and base materials.
- C. Related Work: The following Sections contain work related to this Section:
1. Section 02200 Earthwork
 2. Section 02500 Bituminous Concrete Pavement
 3. Section 03300 Concrete
- D. Work in this section shall conform to the requirements of Massachusetts Highway Department Standard Specifications for Highways and Bridges, latest edition.

PART 2 - PRODUCTS

2.01 GRAVEL SUBBASE AND BASE

- A. Gavel of Base and Subbase shall consist of inert material that is hard, durable stone and coarse sand, free from loam and clay, surface coatings and deleterious materials.
- B. Gradation requirements for the Base and Subbase shall be determined by AASHTO-T11 and T27 and shall conform to the following;

<u>Sieve Designation</u>	<u>Percent Passing</u>
½ in.	80-85
No. 4	40-75
No. 50	8-28
No. 200	0-10

- C. Maximum size of stone in gravel shall be as follows:
M1.03.0 Type C – 2-inches largest dimension

PART 3 - EXECUTION

3.01 SUBGRADE PREPARATION

- A. All subsurface utility construction shall be completed before fine grading is begun.
- B. The pavement and curb subgrade shall be fine graded to the location, elevations and cross slope shown on the Drawings.
- C. Subgrades in in-situ soils in excavation areas and in embankment areas shall be compacted during fine grading to 90% of maximum dry density.

3.02 BASE MATERIAL PLACEMENT

- A. Base material shall not be placed until the Engineer has approved the fine grading, compaction and condition of the subgrade.
- B. Base material shall be spread on the approved subbase in layers not exceeding four inches in thickness by approved self spreading equipment. Any displacement of the subbase material by equipment shall be restored to the required grade and recompact before of the base material.
- C. Base material shall be compacted to 95% of dry density.
- D. The surface of the base material shall be fine graded to the proposed location, elevations and cross slope shown on the Drawings during final layer compaction operations.

END OF SECTION

SECTION 02261
STORM WATER POLLUTION PREVENTION PLAN

PART 1-GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and General Provisions of the Contract, including General and Supplementary Conditions, are hereby made a part of this Section.

1.02 SUMMARY

- A. This Section specifies requirements for compliance with the Storm Water Pollution Prevention Plan (SWPPP), a Draft of which is enclosed herein. The City will be responsible for preparing the SWPPP document and the Contractor will be required to comply with it.
- B. For construction areas greater than 1-acre in size, the Contractor shall NOT begin construction without submitting evidence that an EPA National Pollution Discharge Elimination System (NPDES) Notice of Intent governing the discharge of storm water from the construction site for the entire construction period has been filed and posted at least seven days prior to construction. It is the Contractor's responsibility to complete and file the NPDES Notice of Intent.
- C. The Contractor shall conduct his/her storm water management practices in accordance with local regulations and governing authorities, the NPDES permit requirements, and shall comply with any enforcement action taken or imposed by Federal or State agencies. The cost of any fines, construction delays and remedial actions resulting from the Contractor's failure to comply with all provisions of local regulations and Federal NPDES permit requirements shall be paid for by the Contractor at no additional cost to the Owner.
- D. As a requirement of the EPA's NPDES permitting program, each Contractor and Subcontractor shall execute a Contractor's Certification form, a copy of which is included herein.
- E. Related Work: The following Sections contain work related to this Section:
1. Section 02100 Site Preparation
 2. Section 02140 Dewatering and Drainage Control
 3. Section 02300 Earthwork
 4. Section 02230 Pavement Base
 5. Section 02270 Erosion and Sedimentation Control
 6. Section 02400 Storm Drainage System
 7. Section 02610 Water Supply System
 8. Section 02920 Seeding and Sodding

1.03 REFERENCES

- A. Guidance Manual—"Storm Water Management for Construction Activities, Developing Pollution Prevention Plans and Best Management Practices" (EPA 832-R-005).
- B. Summary of Guidance Manual—"Storm Water Management for Construction Activities, Developing Pollution Prevention Plans and Best Management Practices" (EPA).
- C. Massachusetts Stormwater Management Policy Handbook (Volume I) and Technical Handbook (Volume II) issued by the Massachusetts Department of Environmental Protection, March 1997.
- D. Massachusetts Sediment and Erosion Control Guideline for Urban and Suburban Areas, March, 1997.

1.03 SUBMITTALS

- A. A signed Contractor's Certification form for both the General Contractor and each Subcontractor involved with disturbing the earth.
- B. Names, addresses, and telephone numbers of Contractors and Subcontractors responsible personnel who can be contacted under emergency conditions.
- C. A construction schedule which indicates specific activities related to the SWPPP (also see Erosion Control, Section 02270).
- D. A supplemental plan indicating location of laydown and staging areas, etc., and their incorporation into the SWPPP.

1.04 INSPECTIONS

- A. The Contractor shall inspect disturbed areas of the site at least once per week or bi-weekly or within 24 hours of a storm of 0.5 inches or greater, or as otherwise required by the Contractors General Permit. Such inspections may be performed in conjunction with the provisions for the maintenance of Erosion Control Measures in Section 02270.
- B. A maintenance inspection report shall be prepared after each inspection and a copy shall be provided to the Contractor. The Contractor and all responsible Subcontractors will be required to comply with the directives and/or mitigation requirements of said report.

PART 2 - PRODUCTS

2.01 NOT USED

PART 3 - EXECUTION

3.01 EROSION CONTROL DEVICES

- A. Erosion Control Devices shall be constructed in accordance with the SWPPP and as specified in Section 02270.

3.02 STORM WATER POLLUTION PREVENTION PRINCIPLES

The following general principles shall be followed by the Contractor during the construction phase:

- A. Protect and maintain existing vegetation wherever possible.

- B. Minimize the area of disturbance.
- C. To the extent possible, route unpolluted flows around disturbed areas.
- D. Install mitigation devices as early as possible.
- E. Minimize the time disturbed areas are left unstabilized.
- F. Maintain siltation control devices in proper condition.

3.03 STORM WATER POLLUTION PREVENTION PLAN

- A. Contractor shall prepare the Storm Water Pollution Prevention Plan for review and approval by the City.

END OF SECTION

SECTION 02270

EROSION AND SEDIMENTATION CONTROL

PART - GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and General Provisions of the Contract, including General and Supplementary Conditions, are hereby made a part of this Section.
- B. Issued Order of Conditions, MassDEP File #051-1058.

1.02 SUMMARY

- A. This Section specifies requirements for temporary erosion and sedimentation control (ESC) provisions.
- B. The work includes:
 - 1. Providing all temporary erosion control measures as required during the life of the Contract to control soil erosion and water pollution.
 - 2. The installation and maintenance of silt fence, berms, ditches, sedimentation basins, construction exits, fiber mats, catch basin filters, straw, netting, gravel, trenches, mulches, grasses, slope drains and other approved erosion control devices or methods.

1.03 SUBMITTALS

- A. Prior to the start of the construction, the Contractor shall submit to the Engineer for acceptance, schedules for the construction of required stormwater detention basins, temporary and permanent erosion and sedimentation control work, clearing and grubbing, grading, structures at watercourses, construction, and paving. No work shall be started until control schedules and methods of operations have been accepted by the Engineer.
- B. Submit catalog cuts of ESC materials in accordance with Section 01330 – Submittals.

1.04 REFERENCES

- A. Commonwealth of Massachusetts Department of Transportation Standard Specification for Highways and Bridges (MDTSSHB) 2021 or latest edition and the rules and regulations for the Town of Norton.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Erosion Seed for quick growing grasses, such as wheat, rye or oats, shall be in accordance with MDTSSHB Section M6.03.1 Erosion Seed.

- B. Straw wattles shall be a minimum diameter of nine inches of 100% wheat straw and bound with synthetic netting. Stakes for straw wattles shall be standard one-half inch (1/2") reinforcing steel rods, steel pickets, one inch by one inch (1"x1") wood stakes or approved equivalent.
- C. Hay bales shall be individually banded with twine (nylon or other synthetic material is not acceptable) a minimum of two bands for bale, approximately two feet six inches (2'-6") in length. Stakes for hay bales shall be standard two-inch by two-inch (2"x2") wood stakes or approved equivalent.
- D. Silt fence fabric shall be 100X, as manufactured by Mirafi, or approved equal.
- E. Filter fabric at construction entrance shall be 600X, as manufactured by Mirafi, or approved equal.
- F. Catch Basin Filters shall be "Silt Sak" by Jennian, "Dandy Bag" by Dandy Products, "Drain Pac", or approved equivalent.

PART 3 - EXECUTION

3.01 GENERAL

- A. Erosion and sediment controls shall be in placed prior to any soil disturbing activities including, but not limited to, clearing and grubbing, earthwork, dewatering, and excavation work.
- B. All disturbed soils shall be stabilized, either permanently or temporarily, within two (2) weeks of disturbance.
- C. At a minimum, the following shall apply:
 - 1. Staked bales of hay shall be provided at low points where drainage from the work leaves the site to filter the sediment out of the water. Sufficient bales of hay shall be provided such that all flow will filter through the hay. Other methods which reduce the sediment content to an equal or greater degree may be used as approved by the Engineer.
 - 2. Drainage leaving the site shall flow to water courses in such a manner as to prevent erosion.
 - 3. Loaming and seeding or mulching areas shall take place as soon after the work as practicable.
- D. When it becomes necessary, the Engineer will inform the Contractor of construction procedures and operations that jeopardize erosion control provisions. If these construction procedures and operations are not corrected promptly, the Engineer may suspend the performance of any or all construction activities until corrections have been made, and such suspension shall not be the basis of any claim by the Contractor for additional compensation from the Owner nor for an extension of time to complete the Work.

- E. The Engineer has the authority to order immediate, additional, temporary control measures to prevent contamination of adjacent streams or other watercourses, or other areas of water impoundment and damage by erosion at no additional cost to the owner.
- F. The Contractor shall construct all permanent erosion and sediment control features at the earliest practical time as outlined in the accepted schedule. Temporary erosion and sediment control measures shall be used to correct conditions that develop during construction which were unforeseen, but are needed prior to installation of permanent control features, or that are needed temporarily to control erosion or sedimentation which develops during construction operations.
- G. Where erosion is likely to be a problem, clearing and grubbing operations shall be scheduled and performed so that grading operations and permanent erosion and sediment control features can follow immediately thereafter, if conditions permit; otherwise, temporary control measures will be required between successive construction stages.
- H. Failure by the Contractor to control erosion, pollution, and siltation shall be cause for the Owner to employ outside assistance to provide the necessary corrective measures. The cost of such assistance, including engineering costs, will be charged to the Contractor and appropriate deductions made to the Contractor's monthly progress payment request.
- I. Temporary and permanent erosion and sedimentation control measures are shown on the Drawings. The Contractor shall strictly adhere to the provisions. Additionally, temporary measures shall be constructed to accommodate field conditions that develop during construction.
- J. Temporary sedimentation traps or basins shall be employed as required during construction. The Contractor shall direct all possible site runoff to the temporary sedimentation basins.

3.02 **STRAW WATTLES**

- A. Straw wattles shall be installed at the following locations, as required by the Engineer and as shown on the Drawings:
 - 1. Toe of slope of embankment construction to filter all runoff flowing to off-site discharges.
 - 2. Toe of temporary earthwork stockpile slopes.
 - 3. Across construction ditch prior to entry into drainage system or waterway.

4. Each side of completed drainage inlets.
 5. Other locations shown on the Contract Drawings or designated by the Engineer.
- B. Tightly abut straw wattles to form a continuous barrier. Secure wattles in place with stakes four feet on center. The wattles shall be trenched 2 inches into the ground, unless noted otherwise by the local Conservation Commission. Soil shall be constructed on the upside slope side of the wattles. Deteriorated, destroyed or rotted wattles shall be replaced immediately. Sediment shall be removed and disposed of periodically from behind the wattles. The accumulated sediment shall not be allowed to rise above the mid height of the wattle. All sediment, wattles and appurtenances shall be removed and disposed of at the completion of the Contract, and as otherwise directed by the Engineer.

3.03 HAY BALES

- A. Hay bales shall be installed at the following locations, as required by the Engineer and as shown on the Drawings:
1. Toe of slope of embankment construction to filter all runoff flowing off-site.
 2. Toe of temporary earthwork stockpile slopes.
 3. Across construction ditch prior to entry into drainage system or waterway.
 4. Around the perimeter of drainage inlets.
- B. Tightly abut hay bales to form a continuous barrier. Secure bales in place with two stakes per bale. The bales shall be trenched four inches (4") into the ground, unless directed otherwise by the Engineer.

3.04 SILT FENCE

- A. Silt fence shall be installed as shown on the Drawings.
- B. Supporting posts shall be spaced four feet (4') on center, and driven at least two feet into the ground. Posts shall be two-inch (1") square or heavier wood posts, or standard steel posts.
- C. Fabric shall be anchored in a four-inch (4") deep trench dug on the upslope side of the posts. The trench shall be at least six inches (6") wide. The fabric shall be laid in the trench, backfilled and compacted.
- D. Fabric rolls shall be spliced at posts. The fabric shall be overlapped 6 inches, folded over and securely fastened to posts.

3.05 MAINTENANCE AND CLEAN UP

- A. The Contractor shall inspect erosion control devices weekly, immediately after each storm event and daily during prolonged rainfall and maintain them in good operating

condition for the life of the contract. Hay bales shall be replaced when deteriorated, rotted or destroyed, and as directed by the Engineer.

- B. The Contractor shall inspect the condition of diversion dikes and ditches, filter berms, interceptor dikes, sediment basins and other erosion and sedimentation control devices after each rainstorm and during major storm events. Repairs shall be made as necessary and as directed by the Engineer.
- C. Accumulated sediment trapped by erosion and sedimentation control devices shall be removed as follows or as otherwise directed by the Engineer:
 - 1. Silt fences: remove sediment buildup if greater than four (4) inches deep
 - 2. Sedimentation traps: remove sediment buildup if greater than ½ the depth of the trap
 - 3. Silt sacks: remove sediment buildup if greater than two (2) inches deep or if sediment is preventing flow from entering basin; replace sacks if they are torn or have been punctured
 - 4. Haybales: remove sediment buildup if greater than ½ the height of the haybale
- D. During construction, temporary outlets of the drainage systems shall direct the flow to temporary or permanent sedimentation basins.
- E. Temporary soil erosion and sedimentation control devices shall be removed and adjacent areas outside the limits of grading restored upon completion of the work or when directed by the Engineer. Upon removal of the temporary controls, the site shall be restored to original condition.

END OF SECTION 31 25 10

SECTION 02400
STORM DRAINAGE SYSTEM

PART 1 – GENERAL

1.01 DESCRIPTION

- A. This Section specifies requirements for the site storm drainage system.
- B. The work includes:
 - 1. Site storm drainage system.
- C. All drainage work shall be in strict conformance with the City of Newburyport standards and requirements.

1.02 RELATED SECTIONS

- A. Sections which directly relate to the work of this Section include:
 - 1. Section 02140 – Dewatering and Drainage Control
 - 2. Section 02270 – Erosion and Sedimentation Control
 - 3. Section 02200 – Earthwork
 - 4. Section 02261- SWPPP

1.03 SUBMITTALS

- A. Shop Drawings
 - 1. Material list of items proposed for the work.
 - 2. Shop drawings or descriptive literature, or both, showing dimensions, joints and other details of all materials proposed for the work. Shop drawings shall be submitted to the Engineer for approval prior to ordering material.
- B. As-Built Drawings
 - 1. Submit three (3) copies of As-Built Drawings upon completion and acceptance of work.
 - 2. As-Built Drawings shall be complete and shall indicate the true measurement and location, horizontal and vertical, of all new drainage system construction. As-Built drawings include a minimum of three ties showing the distance to each catch basin and manhole from fixed permanent objects such as property lines and corners. As-Built drawings shall also contain any additional information required by The Boston Water and Sewer Commission, which may include the following;
 - a. The locations of any abandoned items, such as pipes, water gates and manholes

- b. Location of all new installations, such as gates, manholes, and all other appurtenances.
- c. Tie measurements from all new items to property lines and corners.
- d. Profiles of all new drain lines.
- e. Invert elevation of all drain lines at manholes and catchbasins.
- f. Depth of water pipe at all crossings.
- g. Size and type of all pipes installed.
- h. Rim elevations of all manholes and catchbasins.

PART 2 – PRODUCTS

2.01 GENERAL

- A. All materials for storm drainage systems shall be new and unused.

2.02 PIPE

- A. High Density Polyethylene Pipe (HDPE): shall meet AASHTO M 294, latest edition. Pipe shall be type N-12, as manufactured by Advanced Drainage Systems, Inc. (ADS), Columbus, OH, or approved equivalent.
- B. SLOT-PERFORATED CORRUGATED PLASTIC PIPE: All Slot-Perforated Corrugated Plastic Pipe shall conform to M5.03.9 of the 2021 MassDOT Standard Specifications for Highways and Bridges for the specified Class as shown on the plans.

2.03 STORM DRAIN MANHOLES

- A. Precast Units
 1. Structure: 48-inch minimum inside diameter, precast concrete units (4,000 psi minimum compressive strength) with eccentric cone section tapering to 24-inch diameter and monolithic base section meeting the requirements of ASTM C478. All structures shall be designed for HS-20 loading.
 2. Precast Unit Joint Seals: Butyl rubber O-ring type seals meeting the requirements of ASTM C990.
 3. Openings for pipe and materials to be embedded in the walls of the manholes sections for joint seals shall be cast in the sections at the required locations during manufacture. Sections with incorrectly cast and patched pipe openings will be rejected.
 4. Openings shall be cast into the manhole sections to receive entering pipes during manufacture. The openings shall be sized to provide a uniform 2 inch maximum annular space between the outside of the pipe wall and the opening in the riser. After the pipe is in position, the annular space shall be solidly filled with nonshrink mortar. Care shall be taken to assure that the openings are located to permit setting of the entering pipe at its correct elevation.

5. The date of manufacture, trademark and name of the manufacturer shall be clearly marked on the inside of each precast section.

B. Masonry Units

1. Brick shall conform to Sewer Brick (made from Clay or Shale), ASTM designation C32, Grade MS or Building Brick (Solid Masonry Units Made from Clay or Shale), ASTM C62, Grade GW.
 2. Concrete block shall be solid block and shall conform to the Specifications for Concrete Masonry Units for Construction of Catch Basins and Manholes, ASTM designation C139.
 3. Mortar shall be in conformance with ASTM C270, Type M. The mortar shall be composed of Portland cement hydrated lime, and sand, in the proportions of 1 part cement to ¼ part hydrated lime to 3-1/2 parts sand by volume.
 4. Cement shall be Type I or II Portland cement conforming to ASTM C150, Standard Specification for Portland Cement. Where masonry is exposed to salt water, Type II shall be used.
 5. Hydrated lime shall be Type S conforming to ASTM D207.
 6. Sand for masonry mortar shall conform to the gradation requirements of ASTM C144.
- C. Manhole Frame and Cover: Grey iron casting conforming to ASTM A48, heavy duty, with word "DRAIN" embossed on cover. Letter size shall be three inches. Frame and cover shall be East Jordan Iron Works Manhole Catalog Number 00211025 or approved equivalent or approved equivalent.

2.04 CATCH BASINS AND DROP INLET

- A. Precast catch basins, leaching catch basins and drop inlets shall be manufactured in accordance with ASTM Designation C478 (4,000 psi minimum compressive strength) to the diameters and depths shown on the Drawings. All structures shall be designed for HS-20 loading. Precast unit joints shall be sealed with butyl rubber in accordance with ASTM 990.
- B. Where required for hood, a slot and opening shall be cast in the catch basin wall for mounting the cast iron hood over the outlet pipe.
- C. When approved by the Engineer, catch basins and drop inlets may be constructed with brick or concrete block walls and poured reinforced concrete bases as an alternative to precast concrete units.
- D. Brick and concrete block and other materials shall conform to paragraph 2.03B.
- E. All cast iron frames and grates shall conform to ASTM A48, Class 30, suitable for H-20 loadings.

- F. Single catch basin and drop inlet frames and grates shall be cascade type on all roadway sloped areas, and standard grate openings for all low areas to be approved by the City.
- G. Catch basin traps shall be East Jordan Iron Works Catch Basin Hood Catalog Number 5902 sized for the outlet pipes, or approved equivalent.

PART 3 – EXECUTION

3.01 PIPE INSTALLATION

- A. As soon as the trench is excavated to the normal grade of the bottom of the trench, the Contractor shall immediately place the bedding material in the trench. The pipe shall be firmly bedded in the compacted bedding material accurately to the lines and grades shown on the Drawings.
- B. Install pipe, fittings, and accessories in accordance with manufacturer's instructions.
- C. Notch under pipe bells and joints where required to provide for uniform bearing under entire length of pipe.
- D. Excavation, backfilling and compaction shall be as specified in Section 02200.
- E. Maintain optimum moisture content of bedding material to attain required compaction density.

3.02 DRAINAGE STRUCTURES

- A. Drainage structures shall be installed at the locations and to the lines, grades, dimensions and design shown on Drawings or as required by the Engineer and in accordance with the manufacturer's instructions.
- B. Precast Concrete Units shall be installed in a manner that ensures watertight construction and all leaks in precast concrete structures shall be sealed. If required, precast concrete structures shall be repaired or replaced to obtain watertight construction.
- C. Stubs shall be short pieces of pipe cut from the bell ends of the pipe. Stubs shall be plugged with brick masonry unless otherwise directed by the Engineer.
- D. Manhole Inverts shall conform accurately to the size of the adjoining pipes.
 - 1. Manhole inverts shall be constructed of 3,500 psi concrete as shown on the Drawings.
 - 2. Inverts shall be laid out in smooth diameter curves of the longest possible radius to provide uniform flow channels.

3. Invert shelves shall be graded with a 1-inch drop per 1-foot length sloped from the manhole walls.
- E. All holes in sections used for their handling shall be thoroughly plugged with rubber plugs made specifically for this purpose or with mortar. The mortar shall be one part cement to 1-1/2 parts sand, mixed slightly damp to the touch, hammered into the holes until it is dense and an excess of paste appears on the surface, and finished smooth and flush with the adjoining surfaces.
- F. Precast sections shall be level and plumb with approved joint seals. Water shall not be permitted to rise over newly made joints until after inspection and acceptance. All joints shall be watertight.
- G. Openings which have to be cut in the sections in the field shall be carefully made to prevent damage to the riser. Damaged risers will be rejected and shall be replaced at no additional cost to the Owner.
- H. All drainage structures are to be placed on a 12-inch support bed of compacted crushed stone.

3.03 BRICK MASONRY

- A. Brick masonry structures shall be watertight. All leaks in brick masonry structures shall be sealed. All brick masonry shall be laid by skilled workmen.
- B. All beds on which masonry is to be laid shall be cleaned and wetted properly. Brick shall be wetted as required to be damp, but free of any surface water when placed in the work. Bed joints shall be formed of a thick layer of mortar which shall be smoothed or furrowed slightly. Head joints shall be formed by applying a full coat of mortar on the entire brick end, or on the entire side, and then shoving the mortar covered end or side of the brick tightly against the bricks laid previously. The practice of buttering at the corners of the brick and then throwing the mortar or crapping's in the empty joints will not be permitted. Dry or butt joints will not be permitted. Joints shall be uniform in thickness and approximately 1/4 inch thick.
- C. Brickwork shall be constructed accurately to the required structure dimensions and tapered at the top to the dimensions of the flanges of the cast-iron frames, as shown on the Drawings.
- D. Joints on the inside face of walls shall be tooled slightly concave with an approved jointer when mortar is thumbprint hard. The mortar shall be compressed with complete contact along the edges to seal the surface of the joints.
- E. All castings to be embedded in the brickwork shall be accurately set and built-in as the work progresses.
- F. Water shall not be allowed to flow against brickwork or to rise on the masonry for 60 hours after it has been laid, and any brick masonry damaged in this manner shall be

replaced as directed at no additional cost to the Owner. Adequate precautions shall be taken in freezing weather to protect the masonry from damage by frost.

3.04 CONCRETE MASONRY UNITS

- A. Concrete masonry units shall be soaked in water before laying. As circular concrete block walls are laid-up, the horizontal joints and keyways shall be flushed full with mortar. As rectangular blocks are laid-up, all horizontal and vertical joints shall be flushed full with mortar. Plastering of the outside of block structures will not be required. No structure shall be backfilled until all mortar has completely set.

3.05 CASTINGS

- A. Cast-iron frames for grates and covers shall be well bedded in cement mortar and accurately set to the proposed grades.
- B. All voids between the bottom flange and the structure shall be completely filled to make a watertight fit. A ring of mortar, at least one-inch thick and pitched to shed water away from the frame shall be placed over and around the outside of the bottom flange. The mortar shall extend to the outer edge of the masonry all around its circumference and shall be finished smooth. No visible leakage will be permitted.
- C. Structures within the limits of bituminous concrete pavement shall be temporarily set at the elevation of the bottom of the binder course. After the binder course has been compacted, the structures shall be set at their final grade. Backfill necessary around such structures after the binder course has been completed shall be made with 3,500 psi concrete.

3.06 CLEANING

- A. At the completion of the work, clean all pipes, structures, and open drainage courses through and to which water from the site is discharged.

END OF SECTION

**SECTION 02500
HOT MIX ASPHALT PAVEMENT**

PART 1—GENERAL

1.01 RELATED DOCUMENTS

- A. The BIDDING REQUIREMENTS, CONTRACTING REQUIREMENTS and CONDITIONS OF THE CONTRACT, and applicable parts of DIVISION 1 – GENERAL REQUIREMENTS, as listed in the Table of Contents, shall be included in and made a part of this Section.

1.02 DESCRIPTION

- A. This Section specifies the requirements for hot mix asphalt roadway, temporary trench, parking area, driveway and sidewalk pavements.
- B. The work includes:
1. Preparation for bituminous concrete paving.
 2. Hot mix asphalt pavement for roadways, driveways and sidewalks
 3. Temporary trench pavements.
 4. Sawcutting existing pavements.
 5. Pavement markings.

1.03 RELATED SECTIONS

- A. Sections which directly relate to the work of this Section include:
1. Section 02200 - Earthwork
 2. Section 02220 – Pavement Base
 3. Section 02525 - Curbing

1.04 REFERENCE STANDARDS

- A. References herein are made in accordance with the following abbreviations and all work under this Section shall conform to the latest editions as applicable:
- MS-2: Mix Design Methods for Asphalt Concrete and Other Hot-Mix Types—The Asphalt Institute (AI).
- MS-3: Asphalt Plant Manual—The Asphalt Institute (AI)
- Hot Mix Asphalt Paving Handbook—US Army Corps of Engineers, UN-13 (CE MP-ET)
- MS-19: Basic Asphalt Emulsion Manual—The Asphaltic Institute (AI)

ASTM D946—Specification for Penetration - Graded Asphalt Cement for use in Pavement Construction

MassDOT – Massachusetts Highway Department Standards Specifications for Bridges and Highways, latest edition.

1.05 WEATHER LIMITATIONS

- A. Construct paving when atmospheric temperature is above 40°F and when base is dry.
- B. The required temperature of the bituminous concrete mixture, within a tolerance of plus or minus 15°F, when delivered at the site, will be governed by the temperature of the base upon which the mix is placed, as follows:

Base Temperature in Degrees F	Required Material Temperature in Degrees F For Course Thickness in Inches			
	<u>1</u>	<u>1-1/2</u>	<u>2</u>	<u>3 and Greater</u>
35-40	-	305	295	280
41-50	310	300	285	275
51-60	300	295	280	270
61-70	290	285	275	265
71-80	285	280	270	265
81-90	275	270	265	260
91 & over	270	265	260	255

- C. Tack coat shall be applied only when the ambient temperature is above 40°F, and when the temperature has been above 35°F for 12 hours immediately prior to application. Do not apply when base is wet, contains excess moisture, or during rain.

1.06 SUBMITTALS

- A. Design Mix: Before any paving is constructed, submit actual design mix to the Engineer for review and approval. Design mix submittal shall follow MassDOT Standards and Specifications; and shall include the type/name of the mix, gradation analysis, grade of asphalt cement used, Marshall Stability (lbs.), flow, and effective asphalt content (percent).
- B. Material Certificates: Submit materials certificate signed by the material producer and Contractor, to the independent testing laboratory certifying that materials comply with, or exceed, the requirements herein.

1.07 COORDINATION

- A. The Contractor shall coordinate paving with all other work, especially underground utility construction, to prevent covering up unfinished or uninspected work and loss of time or labor by improper scheduling. Any repaving required shall be done at no additional cost to the Owner.

1.08 GUARANTEE

- A. All pavement placed shall be maintained by the Contractor for a period of one year. During this period, all areas have settled or are unsatisfactory for traffic shall be replaced at no additional cost to the Owner.

1.09 RECYCLE EXISTING BITUMINOUS PAVEMENT MATERIALS

- A. All existing bituminous pavement material identified on the Drawings to be removed shall be transported to a recycling plant and reused. Refer to Section 02100.

PART 2 - PRODUCTS

2.01 ASPHALT EMULSION TACK COAT

- A. Tack Coat: AASHTO M 140 emulsified asphalt or AASHTO M 208 cationic emulsified asphalt, slow setting, diluted in half with water in accordance with Subsectin M3.03.0 of the MASSDOT Standard Specifications.

2.02 HMA JOINT SEALANT

- A. Joint Sealant A. Joint Sealer: Hot-poured rubber compound, ASTM C 6690-Type 2 in accordance with Subsection M3.05.0 of the MASSDOT Specifications.

2.03 HMA PAVEMENT MIXES

- A Roadway Bituminous Concrete: Dense, hot-laid, bituminous concrete plant mixes approved by authorities having jurisdiction in accordance with Subsection M3.11.0 of the MASSDOT Standard Specifications and complying with the following requirements:
1. Provide mixes with a history of satisfactory performance in geographical area where Project is located in accordance with Subsection 450.30 of the MASSDOT Standard Specifications.
 - a. Surface Course: Class and depth as indicated on the Contract Drawings. (NIC)
 - b. Binder Course: As indicated on the Contract Drawings.
 2. Temporary Pavement Repair (Cold Mix):
 - a. Use only when hot mix is not available or as directed by Engineer.
- B. Driveway and Entrance Bituminous Concrete: Dense, hot-laid, bituminous concrete plant mixes approved by authorities having jurisdiction in accordance with Subsection M3.11.0 of the MASSDOT Standard Specifications and complying with the following requirements.
1. Provide mixes with a history of satisfactory performance in geographical area where Project is located in accordance with Subsection 450.30 of the MASSDOT Standard Specifications.
 - a. Surface Course: Class and depth as indicated on the Contract Drawings. (NIC)
 - b. Binder Course: Class and depth as indicated on the Contract Drawings.

- C. Temporary Patching/Pavement Repairs: Dense, hot-laid, bituminous concrete plant mixes approved by authorities having jurisdiction in accordance with Subsection 472 of the MASSDOT Standard Specifications and complying with the following requirements:
1. Provide mixes with a history of satisfactory performance in geographical area where Project is located in accordance with Subsection 450.30 of the MASSDOT Standard Specifications.
 - a. Hot Mix Asphalt: Shall consist of HMA Superpave Intermediate Course (SIC 19.0) and conform to Subsection M3.11.0 of the MASSDOT Standard Specifications to the depth as indicated on the Contract Drawings or approved by Engineer.
 - b. Cold Patch for Temporary Repairs: Shall conform to Subsection M3.12.0 of the MASSDOT Standard Specifications to the depth as indicated on the Contract Drawings or approved by Engineer.

PART 3 - EXECUTION

3.01 GENERAL

- A. The Contractor shall install all pavements in the location and to the grades shown on the Drawings, or approved by the Engineer. The type and thickness of pavement courses shall be as shown on the Drawings. The Work shall also be in accordance with MHD Section 460.
- B. Equipment. Maintain equipment in satisfactory operating condition and correct breakdowns in a manner that will not delay or be detrimental to progress of paving operations.

3.02 PREPARATION

- A. Proof roll prepared base material surface to identify areas requiring removal and re-compaction, and to provide a uniform degree of compaction over the entire pavement area.
- B. Do not begin paving work until deficient base material areas have been corrected and are ready to receive paving. Paving shall not be applied until the Engineer inspects and approves the finished base.
- C. Check all frames, covers, grates, water valve boxes and other miscellaneous castings that are located in the proposed pavement areas to ensure that all have been correctly positioned and set to the proper slope and elevation. All covers and grates shall be set flush with the required finished surface. No depressions or mounds will be permitted in the pavement to accommodate inaccuracies in the setting of castings.
- D. All vertical surfaces of structures and existing concrete surfaces in contact with new bituminous pavement shall be painted with a uniform coating of an approved tack coat material. Extreme care shall be exercised in the application of this material to prevent

splattering or staining of surfaces that will be exposed after the paving is completed. Surfaces that are stained as a result of the Contractor's operation shall be repaired or replaced at no additional cost to the Owner.

- E. All existing paved surfaces to be overlaid shall be thoroughly cleaned by a self-propelled sweeper. Areas inaccessible by power sweeper shall be broom swept until the pavement surface is clean.

3.03 APPLICATION

A. Tack Coat

1. Apply to contact surfaces of all cement concrete and other surfaces abutting or projecting into pavement.
2. Apply tack coat to existing pavement surfaces to receive bituminous concrete overlay at a rate of 0.05 gallons per square yard of surface.
3. Allow to dry until at proper condition to receive paving.

3.04 HOT MIX ASPHALT PAVEMENT

- A. Install bituminous concrete base course bituminous concrete pavement in accordance with MHD Section 460.
- B. Whenever possible, all pavement shall be spread by a self-propelled finishing machine. At inaccessible or irregular areas, pavement may be placed by hand methods. If hand methods are used, the hot mixture shall be spread uniformly to the required depth with hot shovels and rakes. After spreading, the hot mixture shall be carefully smoothed to remove all segregated coarse aggregate and rake marks. Rakes and lutes used for hand spreading shall be of the type designed for this use. Material loads shall not be dumped faster than they can be properly spread. Workers shall not stand on the loose mixture while spreading.
- C. Paving Machine Placement: In the larger parking fields, the binder course shall be placed in a transverse direction to the top course. The top course shall be placed in the direction of surface-water flow. Place in typical strips not less than 10 feet wide.
- D. Joints: Make joints between old and new pavements, and between successive days' work, to ensure continuous bond between adjoining work. Construction joints shall have same texture, density, and smoothness as other sections of paving. Clean contact surfaces and apply tack coat.

3.05 ROLLING AND COMPACTION

- A. The mixture, after being spread, shall be thoroughly compacted by rollers having a minimum weight of 240 pounds per inch of wheel width as soon as it will bear the weight of the rollers without undue displacement. The number, weight, and types of rollers and sequences of rolling operations shall be such that the required density and surface are consistently attained while the mixture is in a workable condition.

- B. Compact mixture with hot hand tampers or hand rollers in areas inaccessible by self-propelled rollers.
- C. Accomplish breakdown or initial rolling immediately following rolling of joints and outside edge. Check surface after breakdown rolling, and repair displaced areas by loosening and filling, if required, with hot material.
- D. Follow breakdown rolling as soon as possible, while mixture is hot. Continue second rolling until mixture has been thoroughly compacted.
- E. Perform finish rolling while mixture is still warm enough for removal of roller marks. Continue rolling until roller marks are eliminated and course has attained maximum density.
- F. Remove and replace paving areas mixed with foreign materials and defective areas and fill with fresh, hot top or binder course material. Compact by rolling to maximum surface density and smoothness.
- G. After final rolling, do not permit vehicular traffic on pavement until it has cooled and hardened. Erect barricades to protect paving from traffic.

3.06 BITUMINOUS CONCRETE SIDEWALKS

- A. Forms: Where walls, curbing or other suitable permanent supports are not present, satisfactory forms shall be installed to assist in securing alignment and adequate compaction of the courses. All forms shall be removed after paving has been completed and the area backfilled and compacted.
- B. Placing Bituminous Concrete: The bituminous concrete walkway surface shall be laid in two courses to a depth after compaction of 2 1/2 inches. The bottom course shall be 1 1/2 inch in thickness after compaction, and its surface after rolling shall be parallel to the proposed grade of the finished surface. The top course shall be 1 inch in thickness after compaction.

Unless otherwise directed, the walkway shall have a 1.50% cross slope to provide for proper drainage and to conform to handicap accessibility requirements. This cross slope may vary by a maximum of plus or minus 0.50%.

1. Spreading Mixture. The mixture shall be dumped, as needed, in wheel barrows or an approved steel dump sheets outside the areas on which it is to be placed. It shall then be immediately distributed into place by means of shovels and raked into a uniformly loose layer to the full width required and of such depth that, when the work is completed, it shall conform to the grade and surface contour required.
2. Rolling. The surface shall be rolled with a self-propelled tandem roller weighing not less than 1-1/2 tons and not more than 5 tons. In places accessible to a power roller, compaction shall be obtained by means of mechanical rammers or by hand tampers weighing not less than 50 pounds and having a tamping face not exceeding 100 square inches.

3. Testing Surface. When tested with a 10-foot straightedge placed parallel to the center line of the courses, there shall be no deviation from a true surface in excess of 1/4 of an inch.

3.07 TEMPORARY TRENCH PAVEMENT

- A. Where specified and as directed by the Engineer and after placement of the gravel subbase, temporary bituminous concrete pavement shall be placed above the trench, between the edges of the existing pavement. Temporary trench pavement shall be installed to the dimensions shown on the drawings.
- B. The temporary trench pavement shall be repaired as necessary to maintain the surface of the pavement until completion of the contract.
- C. Final pavement shall not be placed over trenches until the Base Course pavement has been in place over an entire winter season (November 15 to April 15) unless otherwise directed in writing by the Engineer.

3.08 FIELD QUALITY CONTROL

- A. Independent Testing Laboratory, selected and paid by Owner, shall be retained to perform construction testing of in-place bituminous concrete courses for compliance with requirements for thickness and surface smoothness. Top and base courses will be randomly cored by the testing laboratory technicians at a minimum rate of one core for every 20,000 square feet of paving, however, no less than three cores in light duty areas and three cores in heavy duty areas will be obtained. Core holes shall be immediately filled with bituminous or cement concrete by the Contractor. Pavement samples will be tested for conformance with the mix design.
- B. Grade Control: Establish and maintain required lines and elevations.
- C. Thickness: In-place compacted thickness shall not be less than thickness specified on the drawings. Areas of deficient paving thickness shall receive a tack coat and a minimum 1-inch compacted thickness overlay; or shall be removed and replaced to the proper thickness, at the discretion of the Engineer, until specified thickness of the course is met or exceeded at no additional cost to the Owner.
- D. Surface Smoothness: Testing shall be performed on the finished surface of each course for smoothness, using 10-foot straightedge applied parallel with, and at right angles to centerline of paved area. The results of these tests shall be made available to the Owner upon request. Surfaces will not be acceptable if they exceed the following tolerances for smoothness:

Base and binder course surface:	1/4 inch
Top course surface:	3/16 inch (NIC)
- E. Check surface areas at intervals necessary to eliminate ponding areas. Remove and replace unacceptable paving as directed by Owner.

- F. Compaction: Field density test for in-place materials shall be performed by examination of field cores and shall have a minimum compacted density of 95% of laboratory Marshall Density in accordance with one of the following standards:
1. Bulk Specific Gravity and Density of Compacted Bituminous Mixture Using Paraffin-Coated Specimens: ASTM D-1188.
 2. Bulk Specific Gravity of Compacted Bituminous Mixtures Using Saturated Surface Dry Specimens: ASTM D-2726.

Areas of insufficient compaction shall be delineated, removed, and replaced in compliance with the specifications at no additional cost to the Owner.

3.09 MEETING EXISTING PAVEMENTS

- A. Where new pavements will abut existing pavements, the Contractor shall sawcut the existing pavements to produce a uniform, smooth joint surface. Sawcutting of existing pavements shall be neat, straight and even lines, and done in a manner that prevents damage to the pavement to remain.
- B. Full-Depth Pavement—Sawcut by approved method to the full depth of the pavement prior to placement of any new pavement. The sawcut surface shall be a neat true line with straight vertical edges free from irregularities. The sawcut surface shall be tack coated immediately prior to the installation of the new abutting bituminous concrete material to provide a bond between the old and new pavement. The new compacted pavement surface shall be finished flush with the abutting pavement.

END OF SECTION

**SECTION 02525
CURBING**

PART 1—GENERAL

1.01 DESCRIPTION

- A. This Section specifies requirements for all types of granite, concrete and bituminous concrete curbs, edging and berms.
- B. The work includes:
 - 1. Furnishing and installing granite curb, granite edging, curb inlets, and curb corners, precast concrete curb, cast-in-place concrete curb, and bituminous concrete curb and berms.
 - 2. All associated items and operations required to complete the installations, including surface preparation, concrete support, jointing and finishing.

1.02 RELATED SECTIONS

- A. Sections which directly relate to the work of this Section include:
 - 1. Section 02100 - Site Preparation
 - 2. Section 02200 – Earthwork
 - 3. Section 02220 – Pavement Base
 - 4. Section 02500 – Hot Mix Asphalt Pavement
 - 5. Section 03301 - Site Cast-in-Place Concrete

1.03 REFERENCE STANDARDS

- A. References herein are made in accordance with the following abbreviations and, all work under this Section shall conform to the latest editions as applicable.
- B. ACI 304—Recommended Practice for measuring, mixing, transporting and placing concrete.
- C. ANSI/ASTM D1751—Preformed Expansion Joint Fillers for Concrete Paving and Structural Construction (Non extruding and Resilient Bituminous Types).
- D. ANSI/ASTM D1752—Preformed Sponge Rubber and Cork Expansion Joint Fillers for Concrete Paving and Structural Construction.
- E. ASTM C33—Concrete Aggregates.
- F. ASTM C94—Ready-Mixed Concrete.
- G. ASTM C150—Portland Cement.
- H. ASTM C260—Air-Entraining Admixtures for Concrete.

- I. ASTM C309—Liquid Membrane-Forming Compounds for Curbing Concrete.
- J. ASTM C494—Chemical Admixtures for Concrete.

1.04 **SUBMITTALS**

- A. Submit Shop Drawings and Manufacturer's literature for granite and precast curb, edging, corners and inlets, indicating size, shape and dimensions, finish and setting method for Engineer's approval.
- B. Copies of tests on representative samples of the concrete used in the manufacture of precast units showing a compressive strength of 5,000 pounds must be received by the Engineer prior to shipping any units.

1.05 **DELIVERY, STORAGE AND HANDLING**

- A. Granite and precast curb units shall be adequately protected from damage during transit to the site.
- B. Curbing shall be protected against staining, chipping, and other damage. Cracked, badly chipped, or stained units will be rejected and shall not be employed in the work.

1.06 **SAMPLES**

- A. The Contractor shall supply to the site three samples of all curb types for approval prior to ordering materials. Approved sample material may be used in the work upon approval by the Engineer.

PART 2—PRODUCTS

2.01 **SLOPED GRANITE EDGING (ALTERNATE 1)**

Granite edging shall conform to the current edition of the Massachusetts Highway Department Standard Specifications for State Highways and Bridges (MHDSSHB). Granite edging shall be Type SB, as specified in Section M9.04.2.

2.05 **HOT MIX ASPHALT BERM**

Bituminous concrete curb shall conform to the requirements for Dense Mix as specified in Section 02500, Bituminous Concrete Pavement.

2.06 **CEMENT MORTAR**

- A. Cement mortar shall be composed of one part Portland Cement and two parts of sand by volume with sufficient water to form a workable mix. Cement shall be Portland Cement Type II.

2.07 **TRANSITION SECTIONS**

Horizontal transition sections shall be provided at all locations where curb sections change (i.e., vertical to sloped). Vertical transition sections shall also be provided for precast curb sections at

wheelchair ramps. Vertical transition sections for granite curb shall be made as shown on the Drawings.

PART 3—EXECUTION

3.01 GENERAL

- A. Trenching, excavation, backfilling, and compaction shall be completed in accordance with Section 02200 Earthwork, except as modified within this Section.
- B. Cement mortar bedding, if required, shall be placed as shown on the drawings and in accordance with Section 03301, Cast-in-Place Concrete.

3.02 GRANITE CURB INSTALLATION

- A. Excavation
 - 1. The trench for curb shall be excavated to a width of 18 inches. The gravel base shall be placed in the excavated area, compacted, and graded to above the proposed curb subgrade.
 - 2. The subgrade of the trench shall be a depth below the proposed finished grade of the curb equal to 6 inches plus the depth of the curbstone.
- B. The foundation for the curb shall consist of gravel spread upon the subgrade and after being thoroughly compacted by tamping shall be 6 inches in depth
- C. The curbing shall be set on edge and settled into place with a heavy wooden hand-rammer, to the line and grade required, straight and true for the full depth.
 - 1. The joints of curb and edging shall be filled with mortar for the full depth and width of the curb, and neatly pointed on the top and front exposed portions. After pointing, the curb and edging shall be cleaned of all excess mortar.
 - 2. The ends of the stone curb at driveways and intersections shall be cut at a bevel or rounded, as shown on the Drawings.
 - 3. Wheelchair ramps shall be constructed with transition sections, as shown on the Drawings.
- D. Immediately after curb is set and jointed, the trench shall be backfilled with concrete and approved material and compacted. The first layer to be 4 inches in depth, thoroughly rammed; the other layers to be not more than 6 inches in depth and thoroughly rammed until the trench is filled.
- E. Procedures for removal and resetting of existing granite curb, and new granite curb, in existing pavements shall include the following:
 - 1. Prior to excavation for existing granite curb removal, the pavement surface shall be cut a minimum of one foot from the face of curb with appropriate pavement cutting equipment.
 - 2. Existing curb shall be carefully excavated, and removed in a manner that protects the curb and existing pavement to remain from damage.

3. Existing granite curb shall be cleaned by sandblasting as required to remove of bituminous material, paint and concrete from exposed surfaces prior to resetting in the proposed work.
4. New granite curb shall be set to match the top of existing granite curb remaining in place at abutting sections and, if required, transitioned to the typical section shown on Drawings within the first section of curb.

3.04 **HOT MIX ASPHALT BERM**

A. General Requirements

1. Bituminous curb shall be constructed by the use of an approved self-propelled extruding curb machine equipped with a material hopper, distributing screw and curb forming device capable of placing the bituminous mixture to the required lines, grades and proper curb cross-section. Prior to the placement of any curb, the Contractor shall submit a detail of the cross-section of the curb mold to the Engineer for approval.

B. Surface Preparation

1. Before curbing is to be placed on pavement, the pavement surface shall be thoroughly swept and cleaned by mechanical sweepers and allowed to dry. If the curb is to be placed on cement concrete pavement, the concrete shall receive a coating of tack coat material prior to placement of the curb.

C. Placing and Compaction

1. The hot bituminous mixture shall be placed in the hopper of the curb paver without segregation and extruded through the mold form to provide the proper compaction and surface texture.
2. The curb paver shall be properly supported and weighted during operation along the edge of the pavement and shall be guided along string or chalk lines to maintain the proper alignment and level of the completed curb.
3. Any portions of the completed curb, which are not satisfactorily compacted, show signs of sagging, cracking, and distortion, do not conform to the required lines, grades or cross section, and which cannot be satisfactorily repaired, shall be removed and replaced at no additional cost to the Owner.

- D. Joints: Bituminous curb construction shall be a continuous operation in one direction only without joints. When placing of the curb is discontinued for a length of time that permits the mixture to cool, the curb shall be cut in a true vertical plane and the exposed end painted with tack coat material just prior to placing the fresh curb mixture against the previously constructed curb to achieve a continuous bond.

- E. Curing: The newly completed curb shall be protected from traffic or other disturbance by barricades or other suitable methods until adequate stability has been obtained, but in no case less than twelve hours.

END OF SECTION 02525

SECTION 02584

PAVEMENT MARKINGS AND SIGNAGE

PART 1 - GENERAL

1.01 SUMMARY

- A. This Section specifies requirements for removal of old pavement markings and installation of new pavement markings as well as installation of permanent signage.
- B. The work includes:
 - 1. Pavement surface preparation
 - 2. Furnishing and installing new pavement markings
 - 3. Furnishing and installing permanent regulatory and way finding signs

1.02 SITE CONDITIONS

- A. The Contractor shall cordon off areas where markings are being applied, but maintain access for vehicular and pedestrian traffic as required for other construction activities. Flagmen, barricades, drums, warning signs, warning lights and similar devices shall be used as required.

1.03 SUBMITTALS

- A. Submit material certificate to the City, signed by the material producer and contractor, certifying that materials comply with these specifications and have been approved for use by the Commonwealth of Massachusetts, Department of Transportation (MassDOT) Highways Division.

PART 2 - PRODUCTS

2.01 PAVEMENT MARKINGS

- A. Pavement markings shall conform to Commonwealth of Massachusetts Highway Department Standard Specifications for Highways and Bridges (MHDSSHB) Section 860 ReflectORIZED Pavement Markings, M7.01.23, and the latest edition of the Manual of Uniform Traffic Control Devices (MUTCD).

2.02 SIGNAGE

- A. All signs shall be supplied by the Contractor as shown on the Drawings and shall be in accordance with MHDSSHB Section 828 Traffic Signs.
- B. Sign posts shall be of type shown on the Drawings and shall be in accordance with MHDSSHB Section 840 Sign Supports.

PART 3 - EXECUTION

3.01 PREPARATION

- A. The Contractor shall clean the pavement of dust, dirt, old pavement markings, concrete curing compounds and other foreign material which may be detrimental to the adhesion of the marking material.

3.02 PAVEMENT MARKING APPLICATION

- A. The material shall be applied to the pavement by equipment designed and manufactured specifically for the application of pavement markings and in accordance with MHDSSHB Specification Section 860 ReflectORIZED Pavement Markings.
- B. Pavement markings shall be applied in accordance with the layout shown on the drawings.
- C. All parking stall markings shall be straight with sharp corners and clean edges. Stop lines and cross walk lines shall be to the size, length, and spacing shown on the Drawings.
- D. Use only skilled workmen who are experienced and normally employed in the work of installing pavement markings. Supply all the necessary equipment and materials required for the work.
- E. Traffic shall not be permitted on the pavement until the markings are thoroughly dry.

3.03 SIGN INSTALLATION

- A. Signs shall be installed at the locations and directions as shown on the Contract Drawings and in accordance with the latest edition of the MUTCD with Massachusetts Amendments, the latest edition of the MHDSSHB, and any local requirements.

END OF SECTION

**SECTION 02610
WATER SUPPLY SYSTEM**

PART 1 - GENERAL

1.01 DESCRIPTION

- A. This Section specifies requirements for the proposed water system pipe, fittings appurtenances and services.
- B. The work includes:
 - 1. Furnishing and installing a temporary water distribution system during the entire replacement of the existing until the permanent system has been installed, tested, and approved.
 - 2. Furnishing and installation of water distribution pipe, valves and valve boxes, hydrants, pipe fittings, anchors, thrust blocks, required accessories and connections to existing water systems.
 - 3. Disinfection and pressure testing of the system.

1.02 COORDINATION WITH THE MUNICIPALITY

- A. The Contractor shall coordinate with the Water Division of the Department of Public Services prior to performing any work. Notices shall be delivered to abutting properties informing them that their water system will be momentarily interrupted during the project and that a temporary distribution system will be installed until the permanent system is operational.
- B. The closing of valves necessary for making connections with existing municipal system will be done by DPS employees, assisted by the Contractor. Sufficient notice shall be given DPS of planned connection. No allowance will be made for any delay in closing of valves. A 48-hour notice shall be given to residents or businesses affected by the shutdown, and shall be done by the Contractor under the direction of the Engineer. The DPS may require the work to be done at night during the low use time period.

1.04 SUBMITTALS

- A. Shop Drawings
 - 1. Submit Shop Drawings or descriptive literature, or both, showing dimensions, joints and other details of all materials to be furnished. Shop Drawings shall be submitted to the Engineer for approval prior to ordering materials.

B. As-Built Drawings

1. As-Built Drawings shall be complete and shall indicate the true measurements and locations, horizontal and vertical, of all new construction. As-Built Drawings shall include a minimum of three ties to each gate valve box from fixed permanent objects. As-Built Drawings shall also contain any additional information required by the municipality, and shall be stamped with the seal of a Licensed Land Surveyor and Licensed Professional Engineer.

1.05 DELIVERY, STORAGE AND HANDLING

- A. Storage of pipe, fittings, valves, hydrants and other water line appurtenances on the site shall be in accordance with the manufacturer's recommendations, subject to the approval of the Engineer.
- B. Care shall be taken in loading, transporting and unloading to prevent injury to the pipe, fittings, valves, hydrants, and other water line appurtenances. Pipe or fittings shall not be dropped. All pipe or fittings shall be examined before laying and no piece shall be installed which is found to be defective. Any damage to pipe and fitting coatings shall be repaired as directed by the Engineer.
- C. Pipe, fittings, valves, hydrants and other water system appurtenances which are defective from any cause, including damage caused by handling, and determined by the Engineer as unrepairable, shall be unacceptable for installation and shall be replaced at no cost to the Owner.
- D. Pipe and all water system appurtenances that are damaged or disturbed through any cause prior to acceptance of the work shall be repaired, realigned or replaced as required by the Engineer at no additional cost to the Owner.

PART 2—PRODUCTS

2.01 GENERAL

- A. The Drawings are diagrammatic only and are intended to indicate the extent, but not all details, of the system which shall be constructed. All materials are not shown (i.e. fittings, couplings, etc.) but the Contractor shall furnish and install all materials required for the complete system.
- B. All water supply system materials for this project shall comply with the City of Newburyport Water Department Standards.

2.02 DUCTILE IRON PIPE

- A. Ductile iron pipe shall be designed in accordance with ANSI A21.50/AWWA C150 and manufactured in accordance with ANSI A21.51/AWWA C151. Fittings shall

be either mechanical joint or push-on joint complying with ANSI/AWWA C110/A21.10 or ANSI/AWWA C111/A21.11.

- B. Ductile iron pipe shall be Pressure Class 52 furnished in 18-foot or 20-foot nominal lengths.
- C. Restrained joint assemblies for mechanical fittings shall be EBAA Iron Sales MEGALUG or approved equivalent.
- D. Pipes shall be cement-mortar lined in accordance with ANSI A21.4/AWWA C104, except that the cement lining shall be double thickness.
- E. The exterior of all pipes shall be factory coated, with a double coat of asphaltic material conforming to ANSI A21.51/AWWA C151. The interior of all pipes shall have a seal coat of asphaltic material applied over the cement lining in accordance with ANSI A21.4/AWWA C104.

2.03 DUCTILE IRON PIPE FITTINGS

- A. All ductile iron pipe fittings shall conform to ANSI/AWWA C110/A21.10 [gray and ductile iron standard fittings] or ANSI/AWWA C153/A21.53-84 [ductile iron compact fittings 3-inch through 16 inch].
- B. The type of fittings for pipe and valve connections shall be determined by the Contractor in accordance with the requirements shown on the Drawings prior to ordering the fittings.
- C. All fittings shall be cement-mortar lined and coated as specified for pipe.

2.04 DUCTILE IRON PIPE COUPLINGS

- A. Couplings and accessories shall be pressure rated at least equal to that of the pipe. Couplings shall be Dresser Style 153, Smith Blair 441 style or approved equivalent. The couplings shall be provided with corrosion resistant nuts and bolts.
- B. Transition couplings for joining pipe of different diameters shall be Dresser Style 162 or approved equivalent. Coupling shall be provided with corrosion resistant nuts and bolts.
- C. After assembly, all exterior surfaces including the bolts and nuts shall be completely coated with two coats of a heavy-duty protective asphaltic coating. The interior of the coupling shall be epoxy-coated. Epoxy coating shall conform to AWWA C550.

2.05 DUCTILE IRON PIPE JOINTS

- A. Joints shall be either push-on or mechanical joints conforming to ANSI A21.11/AWWA C111. Push-on and mechanical joints shall be provided with required gaskets, lubricants and accessories conforming to ANSI A21.11/AWWA C111.

2.06 COPPER PIPE

- A. Services two inches or smaller shall be copper water tubing, Type K, for underground water service and shall be in accordance with ANSI/AWWA C800.
- B. Water service fittings including couplings and adapters, check valves and service saddles shall be in conformance with ANSI/AWWA C800, Underground Service Line Valves and Fittings.

- C. Joints in copper tubing shall be made with three part compression couplings or an approved equal.

2.07 VALVES

- A. Gate valves shall be ductile iron, epoxy coated in conformance with AWWA C550, with O-ring seals, urethane coated wedge, stainless steel nuts and bolts, and anti-rotation seats to prevent t-bolts from turning. Valves with open right using a 2-inch operating nut with an arrow cast in the metal.
- B. Curb stops shall be ball type that seat by compression and shall be installed within the roadway public right-of-way. Curb stops shall be installed with a buffalo type telescoping (not screw type) box for access and shall be free draining. Curb stops shall be no less than 4.5-feet deep and no more than 5.5-feet deep.

2.08 VALVE BOXES

- A. Each gate valve shall be provided with a valve box and cover.
- B. Valve boxes shall be of the buffalo-style, adjustable, telescoping, heavy-pattern type designed and constructed to prevent the direct transmission of traffic loads to the pipe or valve.
- C. Valve boxes shall be cast iron, asphalt coated with cast iron covers. The smallest inside diameter of the shaft shall not be less than 5-1/4 inches. The lower section of the box shall be designed to enclose the operating nut and stuffing box of the valve. Provisions shall be made for adjustment through at least 6-inches vertically while retainage lap of at least 4 inches between sections.
- D. Covers shall be close fitting and substantially dirt-tight. The top of the cover shall be flush with the top of the box rim. The word "WATER" shall be cast in the top surface of the cover.

2.09 HYDRANTS

- A. Hydrants shall be Waterous Pacer WB-67.
- B. Hydrants shall have a 6-inch barrel with 4.5-feet to 6-feet burial depth and **open right**.
- C. All below grade hardware shall be stainless steel.
- D. Each hydrant shall be set vertically and be properly braced. Hydrants shall be installed with thrust blocks and retaining glands or retaining glands and rods. All hydrants shall be installed with a minimum of two (2) means of restraint. Care shall be taken to ensure that thrust block concrete does not plug the drain ports.

2.10 THRUST BLOCKS

- A. Thrust restraints [cement concrete thrust blocks and/or clamps and tie rods] shall be installed in accordance with the details shown on the Drawings and as required by the City.
- B. The Contractor shall discuss with the City the method[s] to be used to restrain thrust prior to installing fittings and hydrant. Test pits may be required in areas of existing utilities to determine the exact location and dimensions of thrust restraints required.

- C. Concrete for thrust blocks shall have a minimum 28-day comprehensive strength of 3,000-psi.

2.11 SERVICE BOXES

- A. Service boxes shall be cast iron improved extension type with arch pattern base. Covers shall be held in place with bronze bolts and the word Water shall be cast into the top surface of the cover. Service box shafts shall have a minimum inside diameter of 2-1/2 inches. Service boxes shall be as manufactured by Mueller Corp. or approved equivalent.

PART 3—EXECUTION

3.01 GENERAL

- A. All water pipes, fittings, valves, hydrants and other appurtenances shall be installed at the locations as shown on the Drawings.

The proposed location, and vertical alignment may be altered to avoid conflicts with existing and proposed utilities, as approved by the Engineer.

3.02 LAYING DUCTILE IRON PIPE AND FITTINGS

- A. Ductile iron pipe and fittings shall be installed in accordance with the requirements of ANSI/AWWA C600 and the City Standards.
- B. Each length of pipe shall be laid with firm, full and even bearing throughout its entire length, in a trench prepared and maintained in accordance with Section 02300, Earthwork. The type of materials to be used in bedding and backfilling and method of placement shall conform to the requirements of Section 02300.
- C. All pipe shall be clean before laying. When laying is stopped for any reason, the open ends of the pipe shall be closed by watertight plugs or other approved means. If water is in the trench when work is resumed, the plug shall not be removed until the trench has been dewatered and all danger of water entering the pipe has been eliminated.

Fittings, in addition to those shown on the Drawings, shall be provided if required to avoid utility conflicts.

- D. When cutting of pipe is required, the cutting shall be done by machine, leaving a smooth cut at right angles to the axis of the pipe. Cut ends of pipe to be used with a push-on bell shall be beveled to conform to the manufactured spigot end. Cement lining shall be undamaged.
- E. Maximum allowable deflection for pipe laid without fittings shall not exceed the allowable amount established by the pipe manufacturer and shall not exceed those shown in AWWA C600.

- F. The pipe shall be laid with a minimum cover of per municipality requirements, below finished grade.

3.03 JOINTING DUCTILE IRON PIPE [PUSH-ON TYPE]

- A. Push-on joints shall be made in strict accordance with the manufacturer's instructions. A rubber gasket shall be inserted in the groove of the bell end of the pipe and the joint surface cleaned and lubricated using the pipe manufacturer's suggested methods and materials. The plain end of the pipe to be laid shall be inserted in alignment with the bell of the pipe to which it is to be jointed and pushed home with a jack or by other means. After joining the pipe, a metal feeler gauge shall be used to make certain that the rubber gasket is correctly located and has not been twisted or otherwise displaced.

3.04 JOINTING MECHANICAL JOINT PIPE AND FITTINGS

- A. Mechanical joints shall be made in strict accordance with the manufacturer's instructions. Mechanical joints shall be made by first cleaning the surfaces against which the gaskets will come in contact with a wire brush. The gasket, bell, and spigot shall be lubricated by washing with soapy water just prior to assembling the joint. After the nuts have been made up finger tight, the bottom nut, then top and then diametrically opposite nuts shall be progressively tightened. Bolts shall be tightened to the torques recommended by the fitting manufacturer.

Under no conditions shall extension wrenches or a pipe over the handle of an ordinary ratchet wrench be used to secure greater leverage. After installation, a heavy bitumastic coating shall be applied to all bolts and nuts.

Restraining device shall be ductile iron and shall have dimensions such that it can be used with the standardized mechanical joint bell and tee-head bolts conforming to ANSI/AWWA Z21.11 and ANSI/AWWA C153 latest revision.

3.05 CONCRETE THRUST BLOCKS

- A. Where pipes change horizontal and vertical direction, at hydrants, tees and other fittings, and wherever abnormal thrust forces may be developed, the Contractor shall construct thrust and anchor blocks as detailed on the Drawings. They shall be concrete, of minimum dimensions as detailed on the Drawings or of adequate additional size to suit actual conditions to withstand pressures anticipated, and shall be founded in undisturbed soil.
- B. Concrete for thrust blocks shall have a minimum 28-day compressive strength of 3,000 psi, 1-1/2, 470 Cement Concrete masonry.
- C. Fittings which do not use thrust blocks resting against natural occurring material with passive resistance pressure of 1,500 psf shall be installed with a restrained joint system as specified in Article 3.06.

3.06 RESTRAINED JOINTS

- A. Pipe with restrained joints shall be installed at locations shown on the Drawings. Restrained joints shall be installed at bends, reducers, tees, valves, dead ends, and hydrants. The minimum length of pipe to be restrained on either side of the joint shall be as shown on the table below. The fittings of the new piping shall be for restrained joints, as marked on the Drawings.

Number of Joints to Restraint
on Either Side of Fitting

<u>Fitting</u>	<u>Number of Joints to Restraint on Either Side of Fitting [Based on 18-Foot Pipe Length]</u>
90 degree bend	3
45 degree bend	2
22-1/2 degree bend	2
Tee:	
Branch	3
Run	2

- B. No restraining is required in the direction of the existing pipe if only a short length of it is exposed in the trench for making a connection.
- C. Restrained joint assemblies for push-on pipe and fittings shall be made in strict accordance with the manufacturer's recommended installation procedures.
- D. Restrained joint assemblies for mechanical joint pipe shall be EBAA Iron Sales MEGALUG or approved equivalent.

3.07 WATER/SEWER SEPARATION

- A. When a sewer pipe crosses above or below a water pipe, the following procedures shall be utilized. The Contractor shall comply with these following procedures:

1. Relation to Water Mains:

- a. *Horizontal Separation:* Whenever possible sewers shall be laid at a minimum at least 10 feet, horizontally, from any existing or proposed water main. Should local conditions prevent a lateral separation of 10 feet, a sewer may be laid closer than 10 feet to a water main if:
- i. It is laid in a separate trench, or if
 - ii. It is laid in the same trench with the water mains located at one side on a bench of undistributed earth, and if
 - iii. If either case the elevations of the top (crown) of the sewer is at least 18 inches below the bottom (invert) of the water main.
- b. *Vertical Separation:* Whenever sewers must cross under water mains, the sewer shall be laid at such an elevation that the top of the sewer is at least 18 inches below the

bottom of the water main. When the elevation of the sewer cannot be varied to meet the above requirements, the water main shall be relocated to provide this separation or reconstructed with mechanical-joint pipe for a distance of 10 feet on each side of the sewer. One full length of water main should be centered over the sewer so that both joints will be as far from the sewer as possible.

- B. When it is impossible to obtain horizontal and/or vertical separation as stipulated above, both the water main and sewer shall be constructed of mechanical-joint cement lined ductile iron pipe or other equivalent based on water tightness and structural soundness. Both pipes shall be pressure tested by an approved method to assure water tightness or both pipes shall be encased in concrete.

3.08 GATE VALVES AND BOXES

- A. Valves shall be set in firmly compacted and shaped soil. Where the soil in the trench subgrade is found to be soft, loose, freshly filled earth, unstable or unsuitable as a base, the unsuitable material shall be excavated to such additional depth and width as required. The excavated area shall be backfilled with gravel or crushed stone, compacted and shaped.
- B. Valve boxes shall be set centered and plumb over the operating nuts of all valves. The top of each valve box shall be set to finished grade with at least 10 inches of overlap remaining between the upper sections for vertical adjustment. Minimum overlap for lower, extension pieces shall be 4 inches.
- C. Boxes shall be adequately supported during backfilling to maintain vertical alignment.

3.09 TAPPING SLEEVES AND GATE VALVES

- A. Installation shall be made under pressure and the flow of water through the existing pipe shall be maintained at all times. The diameter of the tap shall be a minimum of 1/4 inch less than the inside diameter of the branch line.
- B. The entire operation shall be conducted by workmen thoroughly experienced in the installation of tapping sleeves and valves, and under supervision of qualified personnel furnished by the manufacturer. The tapping machine shall be furnished by the Contractor.
- C. The Contractor shall determine the location of the existing pipe to be tapped to confirm that interference will not be encountered from existing utilities or a joint or a fitting. No tap shall be made closer than 3 feet from a pipe joint.
- D. Pipe upon which tapping sleeve is to be installed shall be thoroughly cleaned of all foreign matter with scraping tools and wire brushes to a minimum of six inches beyond each side of the sleeve. The cleaned area shall be washed with a hypochlorite solution. The interior of tapping valve shall also be washed with hypochlorite solution.

- E. Tapping sleeves (Mueller H615) and valves with boxes shall be set vertically and squarely centered on the pipe to be tapped. Adequate support shall be provided under the sleeve and valve during the tapping operation. Thrust blocks shall be provided behind all tapping sleeves. The supporting earth around and under the valve and sleeve shall be compacted. After completing the tap, the valve shall be flushed to ensure that the valve set is clean.
- F. Before backfilling, all exposed portions of any bolts used to hold the two halves of the sleeve together shall be heavily coated with two coats of bituminous paint equivalent to Bitumastic No. 50, by Kopper Company, Inc.

3.10 WATER SERVICES

- A. Service Pipe: Care shall be exercised in placing and laying of services to prevent kinks or sharp bends and contact with sharp stones or ledge which would damage to the pipe. At least 6 inches of sand shall be placed adjacent to, under, and above the pipe, and no stone larger than 2 inches shall be placed over the pipe until the depth of backfill above the pipe is in excess of 1 foot.
- B. Corporation Stop: Taps to the pipe shall be threaded and shall be made at the horizontal diameter of the main. The tap shall be made by means of a tapping machine manufactured for this purpose and supplied by the Contractor. The tap and drill shall be kept sharp and shall have threads matching those of the stop. Corporation stop threads shall be coated with sealing compound and the stop screwed firmly into the water with the key upward and the inlet end projecting at least 1/8-inch beyond the inside face of the pipe. Corporation stop shall be left in the on open position after installation of the service pipe.
- C. Curb Stop and Curb Boxes shall be of a size equal to the size of the service pipe and shall be installed in the locations shown on the Drawings or as ordered by the Engineer. The boxes shall be set in a vertical position and flush with the proposed finish grade.
- D. Ductile Iron Service Pipe: Ductile iron service pipe connections to the water pipe shall be made with tee fittings or tapping sleeves.

3.11 PRESSURE TESTING

- A. Hydrostatic and leakage test shall be conducted in accordance with AWWA Standard C600, and as directed by the City. Testing shall be conducted by a certified independent water testing company.
- B. Conduct pipe tests after concrete thrust blocks have cured to the required 3000-psi strength. Fill pipe 24 hours prior to testing, and apply test pressure to stabilize system. Use only potable water.
- C. Prior to pressure testing, the entire pipe section shall be flushed to remove any rocks or debris, which may have inadvertently entered the pipe during construction.

- D. Once the pipe section has been filled at normal pressure and all entrapped air removed, the Contractor shall raise the pressure to 150 psi or two times the operating pressure (whichever is greater) by a special pressure pump, taking water from a small tank of proper dimensions for satisfactorily measuring the rate of pumpage into the pipe. This pressure shall be maintained for a minimum of 2 hours, during which time the line shall be checked for leaks. Measured rate of water leakage shall not exceed the allowable leakage listed below.
- E. Allowable leakage in gallons per hour, per 1,000 feet of exterior pipeline:
- | Test Pressure | Nominal Pipe Diameter [inches] | | | | | |
|---------------|--------------------------------|------|------|------|------|------|
| | 4 | 6 | 8 | 10 | 12 | 16 |
| 150 psi | 0.36 | 0.55 | 0.74 | 0.92 | 1.10 | 1.47 |
- F. Interior piping in vaults, buildings, etc. shall have zero leakage.
- G. Should leakage exceed this rate, the Contractor shall immediately locate the leak or leaks and repair them. Pipe will be accepted only when leakage is zero, or less than the allowable amount. Approval does not absolve the Contractor from responsibility if leaks develop later within the period of warranty.

3.12 DISINFECTION

- A. Before being placed in service, all new water pipe shall be chlorinated in accordance with ANSI/AWWA C651 Standard for Disinfecting Water Mains.
- B. The location of the chlorination and sampling points will be determined by the City in the field. Taps for chlorination and sampling shall be installed by the Contractor. The Contractor shall uncover and backfill the taps as required.
- C. The pipe section being disinfected shall be flushed to remove discolored water and sediment from the pipe. A 25-mg/l chlorine solution in approved dosages shall be inserted through a tap at one end while water is being withdrawn at the other end of the pipe section. The chlorine concentration in the water in the pipe shall be maintained at a minimum 25 mg/l available chlorine during filling. To assure that this concentration is maintained, the chlorine residual shall be measured at regular intervals in accordance with procedures described in Standard Methods and AWWA M12, Simplified Procedure for Water Examination [Section K].
- D. During the application of the chlorine, valves shall be manipulated to prevent the treatment dosage from flowing back into the pipe supplying the water. Chlorine application shall not cease until the entire pipe section is filled with chlorine solution. The chlorinated water shall be retained in the pipe for at least a twenty-four hour period. The treated water shall contain a chlorine residual throughout the length of the pipe section as indicated in AWWA C651.
- E. Following the chlorination period, all treated water shall be flushed from the pipe section and replaced with water from the distribution system. Prior to disposal of treated water the Contractor shall check with local authorities to determine if the discharge will cause damage to the receiving body or sewer and, if required, the Contractor shall neutralize the chlorinated water in accordance with Appendix B,

AWWA C650. Bacteriological sampling and analysis of the replacement water may then be made by the Contractor in full accordance with AWWA Specification C651. A minimum of three samples shall be taken by the Contractor at locations directed by the City along the length of water pipe being chlorinated and sent to a State approved private laboratory for analyses. The Contractor shall re-chlorine if the samples show presence of coliform, and the pipe section shall not be placed in service until all of the repeat samples show no presence of coliform.

- F. Furnish two copies of a Certificate of Disinfection Report to the City.
- G. The Contractor shall pay all costs for all testing, flushing, chlorinating; laboratory analyses, sampling, water supply and municipal charges.

END OF SECTION 02610

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**SECTION 02753
CEMENT CONCRETE PAVEMENT**

PART 1 - GENERAL

1.01 SUMMARY

- A. Section Includes:
 - 1. Concrete Curb Ramps
- B. Related Sections:
 - 1. Section 02300 - Earthwork: Earthwork for pavement.
 - 2. Section 02500 - Bituminous Concrete Paving.

1.02 REFERENCES

- A. American Concrete Institute (ACI):
 - 1. ACI 301 - Specifications for Structural Concrete for Buildings.
 - 2. ACI 308 - Standard Practice for Curing Concrete.
- B. American society for Testing and Materials (ASTM):
 - 1. ASTM A 185 - Specification for Steel Welded Wire, Fabric, Plain, for Concrete Reinforcement.
 - 2. ASTM A 615 - Specification for Deformed and Plain Billet-Steel Bars for Concrete Reinforcement.
 - 3. ASTM D 1751 - Specification for Preformed Expansion Joint Fillers for Concrete Paving and Structural Construction (Nonextruding and Resilient Bituminous Types).
- C. The Commonwealth of Massachusetts Department of Public Works (now the Highway Department) Standard Specifications for Highways and Bridges latest edition as amended.

1.03 SUBMITTALS

- A. Procedures for submittals.
 - 1. Product Data: Submit product data for the following:
 - a. Joint filler.
 - b. Joint sealant.
 - c. Concrete admixtures.
 - d. Concrete curing compounds.
 - 2 Assurance/Control Submittals:
 - a. Concrete Mix Design: Submit three copies of each proposed mix design for each class of concrete in accordance with ACI 301, Sections 3.9 "Proportioning on the basis of previous field experience or trial mixture", or 3.10 "Proportioning based

on empirical data". Submit separate mix design for concrete to be placed by pumping, in addition to the mix design for concrete to be placed directly from the truck chute.

- b. Include the following information in concrete mix design:
 - 1) Proportions of cement, fine and coarse aggregate, and water.
 - 2) Water-cement ratio, 28-day compressive design strength, slump, and air content.
 - 3) Type of cement and aggregate.
 - 4) Aggregate gradation.
 - 5) Type and dosage of admixtures.
 - 6) Special requirements for pumping.
 - 7) Range of ambient temperature and humidity for which design is valid.
 - 8) Special characteristics of mix which require precautions in mixing, placing, or finishing techniques to achieve finished product specified.

1.04 QUALITY ASSURANCE

- A. Perform work in accordance with ACI 301.
- B. Conform to ACI 305R when mixing and placing concrete during hot weather.
- C. Conform to ACI 306R when mixing and placing concrete during cold weather.
- C. Regulatory Requirements:
 - 1. Conform to applicable requirements for paving work on public property.
 - 2. Contractor shall maintain access for vehicular and pedestrian traffic as required for other construction activities. Utilize temporary striping, flagmen, barricades, warning signs, and warning lights as required.

PART 2 - PRODUCTS

2.01 FORM AND REINFORCING MATERIAL

- A. Forms: Steel, wood, or other suitable material of size and strength to resist movement during concrete placement and to retain horizontal and vertical alignment until removal. Use straight forms, free of distortion and defects. Use flexible spring steel forms or laminated boards to form radius bends as required.
 - 1. APA Exterior Plyform BB with a medium density, smooth, hard, fused resin fiber overlay, or metal forms.
 - 2. Form Oil: Coat forms with nonstaining type coating that will not discolor or deface surface of concrete. Subject to compliance with requirements, manufacturers offering specified items, which may be incorporated in the work, include the following.
 - a. "Eucoslip" - Euclid Chemical Co., Cleveland, OH (216) 631-0226.
 - b. "Form Coating" - Nox-Crete Chemicals, Omaha, NE (402) 341-2080.
 - c. Substitutions: Under provisions of Section 01600.

- C. Reinforcing:

1. Welded Wire Mesh: Welded plain cold-drawn steel wire fabric, ASTM A 185. Furnish in flat sheets, not rolls, unless otherwise acceptable to Owner.
2. Reinforcing Bars: Deformed steel bars, ASTM A 615, Grade 60.

D. Reinforcing Accessories:

1. Reinforcing Accessories: Subject to compliance with requirements, manufacturers offering specified items, which may be incorporated in the work, include the following.
 - a. Dayton Superior Corp., Miamisburg, OH (513) 866-0711.
 - b. Heckman Building Products, Inc., Chicago, IL (800) 621-4140.
 - c. Hohmann & Barnard, Inc., Hauppauge, NY (516) 234-0600.
 - d. Richmond Screw Anchor Co., Inc., Ft. Worth, TX (817) 284-4981.
 - e. Superior Concrete Accessories, Inc., San Diego, CA (714) 452-9000.
2. Conform to Concrete Reinforcing Steel Institute Manual of Standard Practice. Include spacers and chairs with plastic tipped legs, ties and other devices necessary for properly assembling, placing, spacing and supporting forms and reinforcement in place.
3. Section 01600 - Product Requirements: Product options and substitutions. Substitutions: Permitted.

2.02 CONCRETE MATERIALS

- A. Comply with requirements of applicable Section 03300 for concrete materials, admixtures, bonding materials, curing materials, surface sealers and others as required.
- B. Cement:
 1. Portland Cement: ASTM C150 Type 1.
 2. High-early Strength Portland Cement: ASTM C150, Type III.
- C. Aggregates: ASTM C33.
 1. Fine aggregate shall be natural sand, or sand prepared from stone or gravel. Grains shall; be clean, hard, durable, uncoated and free from silt, loam and clay.
 2. Coarse Aggregates: Crushed stone, gravel, or other approved inert materials of similar characteristics, or combinations thereof, having hard, strong, durable pieces free from adherent coatings. Maximum size of pieces shall be 3/4" to #4 except for footings, which may be 1-1/2". The maximum size of aggregate may also be not larger than one fifth of the narrowest dimension between forms, nor larger than three fourths of the minimum clear spacing between reinforcing bars.
- D. Water: Clean and free from injurious amounts of oil, acids, salts, organic or other deleterious matter.
- D. Air Entrainment: ASTM C260.
 1. Use air-entrained concrete for exterior exposed concrete including walls, walks, paving, etc. where minimum daily temperatures are expected below 38 degrees F during pouring or subsequent 38 day curing period.

2. Proportion air-entraining concrete to attain minimum 28-day compressive strength specified.
3. Total Air Entrainment in Concrete: Not less than four percent nor more than six percent volume of concrete.

E. Admixtures:

1. May be used at Contractor's option to provide workability at low slumps, increased compressive strength, retardation or acceleration of the concrete.
2. Chemical Admixtures: ASTM C494. Mineral Admixtures: ASTM C618.
3. The cement factor shall not be reduced and changes shall be made in the other mix proportions to ensure the minimum strength requirements.
4. Use of admixtures approved in writing by Architect. No additional expense to the Owner will be allowed.
5. No calcium chloride shall be used.
6. Before any admixture is accepted for use, the Contractor shall submit certified laboratory reports on each additive material to the architectural consultant. The report shall show the following:
 - a. Confirmation of compliance with the applicable ASTM Standard.
 - b. Evaluation of the effects of the admixture on the properties of the concrete to be made on the job, including consideration of the anticipated ambient conditions on the job, and proposed construction procedures.
 - c. Determination of within-lot uniformity of product proposed for use.

2.03 CONCRETE MIXES

A. Concrete Proportions:

1. Concrete shall be homogenous, and when hardened, shall have the required strength, resistance to deterioration, durability, water tightness and the properties as specified. Minimum concrete strength at 28 days shall be 3,000 psi unless otherwise specified on Drawings. Minimum 28-day compressive strength for concrete paving shall be 4,000 psi.
2. Slump of concrete:
 - a. Slabs on ground: 2-1/2 inch minimum to 4 inch maximum.
 - b. Basement walls, footings and retaining walls: 3-inch minimum to 5-inch maximum.
 - c. Columns: 3 inch minimum to 4 inch maximum.
 - d. Floor slabs: 3" minimum to 4 inch maximum.
 - e. Ramps and sloping surfaces: Not more than 3 inches.

B. Ready-Mix Concrete:

1. Ready-mix concrete shall conform to ASTM C94. The mixing agitation shall begin within 30 minutes, and the concrete shall be discharged from the truck within one hour after the water has been added to the concrete mix.
2. Delivery tickets are to accompany each concrete truck and shall be kept in the job superintendent's file. Delivery tickets must indicate the following information or be subject to rejection:
 - a. Name of project.
 - b. Supplier of concrete.

- c. Truck identity and ticket serial number.
 - d. Date of delivery.
 - e. Brand of cement.
 - f. Cement content.
 - g. Strength classification.
 - h. Batching time.
 - i. Point of deposit.
 - j. Total amount of water.
 - k. Weight of aggregate.
 - l. Daily temperature.
 - m. Number of cubic yards in load.
 - n. Admixture content.
 - o. Name of Contractor.
 - p. Name of drive.
 - q. Time loaded and first mixing of concrete.
 - r. Reading of revolution counter.
3. Quantity of water used for each batch shall be accurately measured.

2.04 JOINT MATERIALS

- A. Sealed expansion and contraction joints: Filler of nonbituminous rubber or cork conforming to ASTM D1752.
- B. Non-sealed joints:
 1. Non-sealed Joints: Subject to compliance with requirements, manufacturers offering specified items, which may be incorporated in the work, include the following.
 - a. "Elastite" - Philip Carey.
 - b. "Flexcell" - Celotex Corp., Tampa, FL (813) 871-4811.
 - c. "Seal Tight Fiber Expansion Joint" - W.R. Meadows, Inc., Elgin, IL (312) 742-4501.
 2. Filler premolded bituminous type conforming to ASTM D17561.
 3. Section 01600 - Product Requirements: Product options and substitutions. Substitutions: Permitted.
- C. Noncompressive Filler:
 1. Noncompressive Filler: Subject to compliance with requirements, manufacturers offering specified items, which may be incorporated in the work, include the following.
 - a. "Styrofoam SM" - Dow Chemical Co., Midland, MI (517) 636-0754.
 - b. "Formular" - U.C. Industries.
 2. Two (2) inch or 1 inch thick sheets.
 3. Section 01600 - Product Requirements: Product options and substitutions. Substitutions: Permitted.
- D. Compressive Filler:
 1. Compressive Filler: Subject to compliance with requirements, manufacturers offering specified items, which may be incorporated in the work, include the following.
 - a. "Ethafoam" - Dow Chemical Co., Midland, MI (517) 636-0754.

- b. "Rodofast No. 423" - Electrovert, Inc.
 2. Two (2) inch or 1 inch thick sheets, compression modulus within the range of 15 to 25 pounds per square inch per inch.
 3. Section 01600 - Product Requirements: Product options and substitutions. Substitutions: Permitted.
- E. Filler Adhesive for Noncompressive Filler and Compressive Filler:
1. Filler Adhesive: Subject to compliance with requirements, manufacturers offering specified items which may be incorporated in the work include the following.
 - a. "General Purpose Mastic No. 11" - Dow Chemical Co., Midland, MI (517) 636-0754.
 - b. "Rodofast" - Electrovert, Inc.
 3. Section 01600 - Product Requirements: Product options and substitutions. Substitutions: Permitted.
- F. Slab-on-grade Construction Joints: Provide a full slab depth 24 gauge metal preshaped key, approximate depth of key to be 1/4 slab thickness and a key width of about 1/10 slab thickness.
- G. Joint Sealants: ASTM C920. Non-priming, pourable, self-leveling polyurethane. Subject to compliance with project requirements manufacturers offering joint sealants, which may be incorporated in the Work, include, but are not limited to the following:
1. Sonolastic Paving Joint Sealant, by Sonneborn.
 2. Sonomeric CT 1 Sealant, by Sonneborn.
 3. Sonomeric CT 2 Sealant, by Sonneborn.
 4. Vulkem 45, by Mameco.
 5. Chem-Caulk, by Woodmont Products.
 6. "THC-900" - Tremco, Cleveland, OH (216) 292-5000.
 7. Section 01600 - Product Requirements: Product options and substitutions. Substitutions: Permitted.

2.05 CURING MATERIALS

- A. Sealers:
1. Sealers: Subject to compliance with requirements, manufacturers offering specified items, which may be incorporated in the work, include the following.
 - a. "Polyseal" - Chem-Masters, Inc., Chagrin Falls, OH (216) 247-4277.
 - b. "Kure-N-Seal" - Sonneborn Div., Witco Chemical Corp., New York, NY (212) 605-3652.
 - c. "Cure-Hard" - W.R. Meadows, Inc., Elgin, IL (312) 683-4500.
 2. ASTM C156 and ASTM C309, Type I. Material shall become integral part of concrete and leave slab free of residue or film.
 3. Section 01600 - Product Requirements: Product options and substitutions. Substitutions: Permitted.
- B. Membrane: Opaque-white polyethylene sheet, 0.006-inch thick, meeting requirements of ASTM C171.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Section 01700 - Execution Requirements: Verification of existing conditions before starting work.
- B. Verification of Conditions: Verify that field measurements, surfaces, substrates and conditions are as required, and ready to for earthwork operations to begin.
 - 1. Verify gradients and elevations of base are correct, and base is dry.
- C. Report in writing to Contracting Officer prevailing conditions that will adversely affect satisfactory execution of the Work of this Section. Do not proceed with Work until unsatisfactory conditions have been corrected.
- D. By beginning Work, Contractor accepts conditions and assumes responsibility for correcting unsuitable conditions encountered at no additional cost to the United States Postal Service.

3.02 SUBGRADE PREPARATION

- A. Conform with the requirements specified in Section 02230.
- B. Thoroughly wet subgrade and then compact with two passes of a 500-pound roller.
- C. Pumping: Where concrete paving or sidewalks, and curbs are to be placed, yielding material deflecting more than 1/2 inch under a 500 lb roller shall be removed to a depth of not less than 4 inches below subgrade elevation and replaced with an approved granular material which shall then be compacted as described above.
- D. The subgrade shall be in a moist condition when the concrete is placed. In cold weather the subgrade shall be prepared and protected so as to provide a subgrade free from frost when the concrete is deposited.

3.02 FORM CONSTRUCTION

- A. Comply with the requirements of Section 03300. Install sufficient quantity of forms to allow continuous progress of the work and so that forms can remain in place at least 24 hours after concrete placement.
- C. Check complete formwork for grade and alignment to the following tolerances:
 - 1. Top of form: Not more than 1/8 inch in 10 feet.
 - 2. Vertical face: Longitudinal axis not more than 1/4 inch in 10 feet.

3.03 PLACING REINFORCEMENT

- A. Support reinforcing and wire securely together to prevent displacement by construction loads and traffic, or the placing of concrete. For slabs on grade, supporting pieces of concrete blocks or bricks may be used.
- B. Place wire mesh reinforcing two inches above bottom of slab unless otherwise indicated.
- C. Reinforcement shall be kept clean from oil, dirt and loose mill scale or other coatings, which might destroy the concrete bond. Remove tags and markings prior to concrete placement.
- D. Do not place concrete until reinforcement has been inspected and approved by local authorities, if required.

3.04 CONCRETE PLACEMENT AND FINISHING

- A. Tamp and consolidate concrete with a suitable wood or metal tamping bar and the surface shall be finished to grade with a wood float.
- B. Finished surfaces shall not vary more than 3/16 inch from the testing edge of a 10-foot straightedge.
- C. Curb Expansion Joints: Fill joints with 1/2-inch thick joint filler strips conforming to ASTM D1751 or ASTM D1752.
- D. Contraction Joints: Divide the surface of paving, walks and terraces into rectangular areas not to exceed 5 feet 0 inches each way.
 - 1. Cut a groove in the top portion of the slab to a depth of at least one-fourth of the slab thickness using a jointer or by sawing a groove in the hardened concrete with a power-driven saw.
 - 2. Membrane-cured surface damaged during the sawing operations shall be resprayed as soon as the surface becomes dry.
- D. Slab Finishes: ACI 301, paragraph 11.7 and as follows:
 - 1. Broom Finish: On stair treads with abrasive nosings and on walks, unless other finishes have been indicated or specified.
 - 2. Broom or Belt Finish: On level walks. Broom in direction perpendicular to travel and approved sample panel. Submit joint pattern layout prior to starting work.

3.05 TOLERANCES

- A. Horizontal slabs: Finished surfaces true with no deviation in excess of 1/8 inch when tested with a 10 foot straightedge, non-accumulative. No coarse aggregate showing.

- B. Steps:
 - 1. Variation in steps within a flight of stairs:
 - a. Rise: 1/8 inch.
 - b. Tread: 1/4 inch.
 - 2. Variation in consecutive steps:
 - a. Rise: 1/16 inch.
 - b. Tread: 1/8 inch.

3.06 EXPANSION JOINTS

- A. Install transverse expansion joints at returns and 15 feet on center.
- B. Install longitudinal expansion joints where curbs and paved areas abut each other, buildings, other concrete slabs and pads or vertical restraints.
- C. Place joint filler with top edge 1/4" below the surface and shall be held in place with steel pins or other devices to prevent warping of the filler during floating and finishing.
- D. Immediately after finishing operations are completed, round joint edges with edging tool having a radius of 1/8". Remove concrete over the joint filler.
- E. At the end of the curing period, clean and fill expansion joints with joint sealer. Fill joints flush with concrete surface. Dummy groove joints shall not be sealed.

3.07 CURING

- A. Immediately after the finishing operations, the exposed concrete surface shall be cured for 7 days by the mat, impervious sheet, or membrane-curing method.

3.08 BACKFILLING

- A. After curing, remove debris and backfill the adjoining areas, grade and compact to conform to the surrounding area in accordance with the lines and grades indicated.

3.09 PROTECTION

- A. Protect the completed work from damage. Repair damaged concrete and clean concrete discolored during construction. Remove work that is damaged and reconstruct to entire length between regularly scheduled joints. Refinishing damaged portion is not acceptable.
- B. Prevent cars and trucks from driving on new pavement for a minimum of 14 days.

END OF SECTION 02753

**SECTION 02920
SEEDING AND SODDING**

PART 1—GENERAL

1.01 DESCRIPTION

- A. This Section specifies requirements for amending topsoil, providing and amending loam borrow, seeding and sodding for site landscape areas.
- B. All work performed under this section of the specifications shall be subject to the General Conditions, Supplementary Conditions of the Contract, and Division 1 General Provisions.
- C. The work includes:
 - 1. Furnishing, amending, spreading, and fine grading of topsoil and 1/2" screened loam borrow.
 - 2. Application of organic matter, lime and fertilizer.
 - 3. Seeding, sodding and mulching.
 - 4. Maintenance of seeded and sodded areas including watering to secure the establishment of an acceptable stand of grass.

1.02 RELATED SECTIONS

- A. Sections which directly relate to the work of this Section include:
 - 1. Section 02200 - Earthwork
 - 2. Section 02270 - Erosion and Sediment Control

1.03 REFERENCE STANDARDS

- A. References herein to any technical society, organization, group or body are made in accordance with the following abbreviations and, unless otherwise noted or specified, all work under this section shall conform to the latest edition as applicable:
 - AOAC - Association of Official Agricultural Chemists
 - ANSI - American National Standard Institute

1.04 SUBMITTALS

- A. Submit a complete list of all materials proposed for use in this work, demonstrating complete conformance with the requirements specified.
- B. Approval shall not constitute final acceptance. The Architect/Engineer reserves the

right to reject, on or after delivery, any material that does not meet specifications.

1. Submit soil analysis with results and recommendations. Submit, to landscape architect, a one-half (1/2) cubic foot representative sample of material, address(es) identifying origin of the off site loam to be delivered.
 2. Submit seed mixtures for approval.
 3. Submit product information with mix ratios and amounts for hydro mulching to be utilized during hydroseeding operations for approval. Submit a certified statement as to the number of pounds and types of fertilizer, amounts and types of seed mixture and processed fiber per one (100) hundred gallons of water.
 4. Submit manufacturers or vendor's certified analysis for soil amendments and fertilizer materials.
- C. Seeding Schedule: Indicate dates for each type of seeding work proposed during normal seasons for such work in area of site. Correlate with specified maintenance periods to provide maintenance from date of substantial completion. Once accepted, revise dates only as approved in writing, after documentation of reasons for delays.
- D. Manufacturers Product Data
1. Submit material specifications and installation instructions where applicable attesting that the following materials meet the requirements specified:
 - a. Fertilizer
 - b. Seed
 - c. Lime
 - d. Organic Matter
- E. Soil Test Reports
1. Prior to ordering loam borrow submit soil test report to the Landscape Architect for review and approval. Do not order materials until approval has been obtained. Delivered materials shall closely match the approved samples. See "Testing Laboratory Services" for specific requirements.
 2. Prior to spreading topsoil, submit soil test report to the Landscape Architect for review and approval. Do not order materials until approval has been obtained. See "Testing Laboratory Services" for specific requirements.
- F. Certificates
1. A manufacturer's Certificate of Compliance to the specifications shall be submitted by the manufacturers with each shipment of each type of seed. These certificates shall include the guaranteed percentages of purity, weed content and

germination of the seed, and also the net weight and date of shipment. No seed shall be sown until the Contractor has submitted the certificates.

2. A manufacturer's Certificate of Compliance to the specifications shall be submitted by the manufacturers with each shipment of each type of sod. These certificates shall include the guaranteed percentages of species, net weight and date of shipment. No sod shall be ordered until the Contractor has submitted the certificates.

G. Maintenance Manual

1. The Contractor shall submit a written manual, prepared for the Owner, that outlines a schedule for proper maintenance of the lawns. This schedule should include timing and methods for mowing, adding organic matter, watering, aeration, fertilization, liming, and other lawn maintenance operations.

H. Submittal Schedule

1. Before installation:
 - a. Manufacturer's Product data
 - b. Soil Test Reports for loam borrow and topsoil
 - c. Seed Certification
 - d. Sod Certification
 - e. Hydroseed mix
 - f. Schedule for Installation
2. After Installation and before acceptance
 - a. Maintenance Manual

1.05 TESTING LABORATORY SERVICES

- A. All topsoil obtained from on-site and/or loam borrow obtained from off-site used for work of this section shall be tested prior to being spread or mixed. All testing shall be done by an approved independent test laboratory or by an agriculture unit of the State University System in accordance with the most current "Standards" of the Association of Official Agricultural Chemists. A single lab shall perform all testing. Contractor shall provide required representative samples of material proposed for use to testing facility for analysis and recommended treatment. Separate tests are required for each loam borrow source. The Contractor shall bear any and all costs incurred in testing and analysis. Test reports shall also contain specific recommendations as to the exact types, times and rates of application of soil additives and fertilizers based upon the soil test results and type of material to be planted. A copy of all soil test reports shall be provided to the Landscape Architect. Materials shall be stockpiled and covered so as not to interfere with other work or

with other subgrade or fill materials. Recommendations shall be followed during planting operations.

- B. Report shall have name of project, date of testing, and location of sample source. Analysis shall include:
- Classification of soil by mechanical sieve with soil classification
 - Percent sand, silt and clay particles
 - Percent organic content
 - Percent soluble salt index (1:2 soil-water ratio)
 - Percent pH (1:1 soil-water ratio and buffer)
 - Percent Nitrogen (nitrate and ammonium), Phosphorous and Potash
 - Calcium, Aluminum, Magnesium, Manganese, Ferric Iron and Sulfur
 - Lead

Recommendation shall include appropriate amendment requirements including their composition and rate and means of application. Recommendations shall be provided for various types of planting such as sod, seeding, deciduous and ericaceous plant material.

- C. Test reports shall have been conducted within the three (3) months prior to planting operations. If planting operations extend for more than one season, Contractor shall provide additional testing reports at no additional cost to the Owner.
- D. Note that any and all materials and procedures with respect to soil additive and fertilizers, contained herein, are approximate and that all soil additives will be adjusted to comply with test reports and with the recommendations of the Landscape Architect.

1.06 QUALITY ASSURANCE

- A. The Contractor must show previous evidence of having successfully installed and maintained landscape projects of similar scope to the subject project with regard to quantities of seeding and sodding involved, complexity and a minimum of five (5) years experience on projects similar to this one. The Landscape Architect shall have the right to review the qualifications and references of the Contractor for approval to work on this project.
- B. Loam borrow and topsoil (if available) shall be provided and spread by the landscape contractor.
- C. Source Quality Control:
1. Invasive plant material: Source of loam borrow and the surrounding area shall be certified free of invasive plants, especially knotweed, by a licensed plant scientist or horticulturalist.

2. Analysis and standards: Package standard products with manufacturers certified analysis. For other materials, provide analysis by recognized laboratory made in accordance with methods established by the Association of Official Agriculture Chemists, wherever applicable.
- D. All work shall be performed by personnel experienced in lawn installation under the full time supervision of a qualified foreman.
 - E. Work shall be coordinated with all other trades on site.

1.07 DELIVERY, STORAGE, AND HANDLING

- A. Deliver material to the site in original unopened packages, showing weight, manufacturer's name and guaranteed analysis.
- B. Store materials in a manner that their effectiveness and usability will not be diminished or destroyed. Materials shall be uniform in composition, dry, unfrozen and free flowing. Any material which has become caked or otherwise damaged or does not meet specified requirements will be rejected.

1.08 PROJECT CONDITIONS

- A. The Contractor shall be solely responsible for judging the full extent of work requirements involved. All areas to be seeded shall be inspected by the Contractor before starting work and any defects, such as incorrect grading, etc., shall be reported to the Landscape Architect prior to beginning this work. The commencement of work by the Contractor shall indicate his acceptance of the areas to be planted, and he shall assume full responsibility for the work of this Section.

PART 2—PRODUCTS

2.01 SOILS

- A. Utilize previously stripped and stockpiled topsoil prior to obtaining additional loam borrow from off-site sources. If quantity of stockpiled topsoil is insufficient, provide additional loam borrow as required to complete the landscape work at no additional cost to the Owner.
 1. Topsoil, which has been stockpiled on the site, may be used provided it can be made to comply with these Specifications herein for loam borrow/planting soil.
 2. Provide a minimum depth of six (6) inches of planting soil in all areas indicated for seeding.
 3. Provide a minimum depth of four (4) inches of planting soil in all areas indicated for sodding.

4. Provide 12" minimum depth for planting beds.
- B. The Contractor shall provide 1/2" screened loam borrow, which shall be a "loam", "sandy loam" or "fine sandy loam" as determined by mechanical analysis and based on the "USDA Textural Classification". It shall conform to the following mechanical analysis:

<u>Textural Class</u>	<u>% of Total Weight</u>	<u>Average %</u>	
Sand (.05-2.0mm dia. range)		45 to 75	60
Silt (.002-.05mm dia. range)		15 to 35	25
Clay (>0.002mm dia. range)		5 to 25	15

Maximum grain size shall be one-half (1/2) inch largest dimension. The maximum retained on the one-quarter inch sieve shall be 20 percent by weight of the total sample. Test shall be by combined hydrometer and wet sieving in compliance with ASTM D422 after destruction of organic matter by ignition.

Loam borrow shall consist of natural topsoil, free from subsoil, obtained from an area that has never been stripped. The location of the source of loam shall be submitted for approval. It shall be removed to a depth of one (1) foot or less if subsoil is encountered. Planting soil shall be of uniform quality screened free of hard clods, stiff clay, hardpan, sods, partially disintegrated stone, lime, cement, ashes, slag, concrete, tar residues, tarred paper, boards, chips, glass, sticks, or any other undesirable material.

Loam borrow shall be screened loam and shall be free of plants and their roots, debris, and other debris and other extraneous matter. It shall be uncontaminated by salt, water, foreign matter and substances harmful to plant growth. The electrical conductivity (EC2) of a 1:2 soil-water suspension shall be equal to or less than 1.0 milliohms/cm. (test material passing #4 sieve).

Loam borrow shall have an acidity range of pH 5.5 to pH 7.0 and shall contain not less than 7% nor more than 10% (20% for planting beds) organic matter as determined by the loss on ignition of oven-dried samples. Test samples shall be oven-dried to a constant weight at a temperature of 230°F ± 9°. To adjust organic matter content, the soil may be amended, prior to site delivery, by the addition of composted humus. Use of organic amendments is acceptable only if random soil sampling indicates thorough incorporation.

All soil provided from off-site sources shall be brought to the site meeting all specification requirements. There shall be no mixing or amending of imported soil on site. No loam shall be spread prior to screening and review and approval by the Landscape Architect. The loam borrow must not be handled or moved when in a wet or frozen condition.

To adjust organic matter content, the soil may be amended, prior to delivery, by the addition of composted leaf mold or other acceptable organic matter. Use of organic

amendments is accepted only if random soil sampling indicates a thorough incorporation of these materials.

If limestone is required to amend the screened loam to bring it within pH range, no more than 200 pounds of limestone per 1,000 square feet of loam may be incorporated into the soil, (or 50 pounds of limestone per 1,000 square feet if applied by surface application) within a single season.

Prior to placing loam for lawns, pH shall be adjusted by means of soil additives to not less than 6.0 nor more than 6.8, as recommended by soils tests.

To assure loam borrow fulfills specified requirements regarding textural analysis, organic matter content, and pH, soil testing results will be obtained by the Contractor and submitted to the Landscape Architect for approval one (1) month before any soil is delivered to the site.

- C. Commercial fertilizer, limestone, humus, organic matter or other additives shall be used to counteract soil deficiencies as recommended by the soil analysis and as directed by the Landscape Architect.
- D. The Contractor shall notify the Landscape Architect once the approved loam/planting soil has been delivered to the site. The Landscape Architect will take samples from each of the planting soil sources and will deliver the samples to the testing laboratory at the Owner's expense.
- E. Should the samples not meet the specified requirements, the Contractor shall compensate the Owner for the testing. The Contractor will be responsible for amendment of the soils to meet the specifications. The Contractor shall then notify the Landscape Architect for sampling of the soil sources for testing at the Contractor's expense. This process will be repeated and must be completed and soils approved prior to any seeding, sodding or plant installation.

2.02 SOIL CONDITIONING MATERIALS

- A. Lime - shall be an approved agricultural limestone containing no less than 50 percent total carbonates, and 25 percent total magnesium with a neutralizing value of at least 100 percent. The material shall be ground to such a fineness that 40 percent will pass through a No. 100 U.S. Standard Sieve, and 98 percent will pass through a No. 20 U.S. Standard Sieve. The lime shall be uniform in composition, dry and free flowing, and shall be delivered to the site in the original, unopened containers, each bearing the manufacturer's guaranteed analysis. Any lime that becomes caked or otherwise damaged (making it unsuitable for use) will be rejected.
- B. Fertilizer - shall be a complete, organic product complying with State and Federal Fertilizer Laws. The fertilizer shall be uniform in composition, dry and free flowing, and shall be delivered to the site in the original, unopened containers, each bearing the manufacturer's guaranteed analysis, and submitted to the Landscape

Architect for approval. Fertilizer shall contain the following minimum percentage of available plant food by weight: 5 percent nitrogen, 10 percent phosphorus, 5 percent potash, in which 75 percent of the nitrogenous elements shall be derived from organic sources. Exact percentages of fertilizer may vary in accordance with the soil test report. Any fertilizer that becomes caked or otherwise damaged (making it unsuitable for use) will be rejected.

- C. Humus – shall be natural humus, reed peat or sedge peat. It shall be free from excessive amounts of zinc, low in wood content, free from hard lumps and in a shredded or granular form. According to the methods of testing of A.O.A.C., latest edition, the acidity range shall be approximately 5.5 pH to 7.5 pH and the organic matter shall be not less than 85% as determined by loss on ignition. The minimum water absorbing ability shall be 200% by weight on an oven-dry basis.
- D. Manure - shall be well-rotted, unbleached stable manure not less than eight months and not more than two years old. It shall be free from sawdust, shavings or refuse of any kind and shall not contain over twenty-five (25) percent straw. The Contractor shall furnish information as to the kind of disinfectant or chemicals, if any, that may have been used in storage of the manure.
- E. Sulfur - shall be in elemental granular form, powder shall not be used. Aluminum sulfate shall not be used.
- F. Bonemeal - shall be of commercial quality, raw, finely ground; with 4 percent nitrogen and 20 percent phosphoric acid.
- G. Superphosphate - shall be composed of finely ground phosphate rock, as commonly used for agricultural purposes, and containing not less than 20 percent available phosphoric acid. The superphosphate shall be delivered to the site in the original, unopened containers, each bearing the manufacturer's guaranteed analysis and submitted to the Landscape Architect for approval. Any superphosphate that becomes caked or otherwise damaged (making it unsuitable for use) will be rejected.

2.03 **WATER**

Water shall be furnished by the Contractor, suitable for irrigation, and free from ingredients harmful to plant life. Hoses and other watering equipment required for the work shall be furnished by the Contractor.

2.04 **SEED**

- A. Lawn Seed-Seed species shall be improved varieties, “named” species, and shall be provided to the Landscape Architect for review and approval. Seed shall be fresh, clean and selected from the previous year's crop; weed seed content not to exceed 1 percent; complying with applicable Federal and State seed laws; furnished and delivered premixed in unopened containers in the following proportions:

	Percent Proportion	Percent Germination Minimum	Percent Purity Minimum
1. For Lawns:			
Creeping Red Fescue	50%	85%	95%
Kentucky Bluegrass (improved varieties 3 cultivar minimum)	40	85	95
Perennial Rye	10	90	95
2. For Temporary Lawns:			
Annual Rye	60%	90%	95%
Perennial Rye	40	90	95

All seed shall comply with State and Federal seed laws. Submit manufacturers Certificate of Compliance. Seed, which has become wet, moldy or otherwise damaged will not be acceptable.

Seed may be mixed by an approved method on the site or may be mixed by a dealer. If the seed is mixed on site, each variety shall be delivered in the original containers, which shall bear the dealers guaranteed statement of the composition of the mixture.

2.05 SOD

- A. Composition: Nursery grown sod on agricultural land cultivated specifically for sod; composed of grass mixtures recommended by the New England Sod Producers Association, as follows:

<u>Grass Species</u>	<u>Proportion of Seed by Weight</u>
<i>For Sunny Areas:</i>	
Kentucky Bluegrass	50-100%
(American, Touchdown Challenger 3 cultivar minimum)	0-50%
Red Fescue	
<i>For Shady Areas:</i>	
Kentucky Bluegrass	10-25%
Red Fescue	75-90%
Poa trivials	0-10%

- B. Characteristics—Sod shall be well-rooted turf, free from weeds, insect pests, and disease. Species shall be improved varieties or “named” species and shall be provided to the Landscape Architect for review and approval. It shall be machine-cut to a uniform soil thickness of 3/4-inch plus or minus (excluding thatch layer and

top growth), and to industry standard length and widths. Sod shall be harvested and replanted within 36 hours. Soil on sod pads shall be kept moist at all times.

2.06 HYDROMULCH

A. Wood Cellulose Fiber Mulch

1. Mulch to cover hydroseeded areas shall be fiber-processed from whole wood chips manufactured specifically for standard hydraulic mulching equipment. Fiber shall not be produced from recycled material such as sawdust, paper, or cardboard.
2. Moisture content shall not exceed 10 percent, plus or minus 3 percent, as defined by the pulp and paper industry standards. Fiber shall have a waterholding capacity of not less than 900 grams of water per 100 grams fiber.
3. The mulch shall disperse into a uniform slurry when mixed with water. It shall be nontoxic to plant life or animal life.
4. The mulch shall contain a non-petroleum based tackifier and a green dye for visual monitoring during application, both noninjurious to plant growth.

2.07 EROSION CONTROL

- A. Erosion-Control Blankets: Biodegradable wood excelsior, straw, or coconut-fiber mat enclosed in a photodegradable plastic mesh. Include manufacturer's recommended steel wire staples, 6 inches long.
- B. Erosion-Control Fiber Mesh: Biodegradable twisted jute or spun-coir mesh, a minimum of 0.92 lb/sq. yd with 50 to 65 percent open area. Include manufacturer's recommended steel wire staples, 6 inches long.
- C. Matting for erosion control shall be provided on all slopes of 1 foot rise to 2 feet and steeper and shall consist of undyed and unbleached smolder resistant jute yarn woven into a uniform, open, plain weave mesh. Jute matting shall be furnished in rolled strips and shall conform to the following:
- Width: 48 inches, plus or minus one inch
 78 warp ends per width of cloth
 41 weft ends per yard
- Weight: To average between 1.22 pound and 1.80 pounds per linear yard.
 Tolerance: plus or minus 5%
- D. Stakes for pegging erosion control matting shall be sound hardwood approximately 1 inch by 3 inches. Stakes shall be free from insects and fungi and capable of remaining intact in the ground for at least two years.

2.08 HYDROSEED MIX

The Contractor shall submit a certified statement as to number of pounds of fertilizer, amounts and types of grass seed, and processed fiber, per 100 gallons of water for review by the Landscape Architect.

PART 3—EXECUTION

3.01 PREPARATION OF PLANTING SOIL

- A. Landscape Contractor shall be responsible for the amending and spreading of all topsoil and loam borrow.
- B. Mix specified soil amendments and fertilizers with topsoil and/or loam borrow at rates specified by testing agency and landscape architect. Delay mixing of fertilizer if seeding will not follow placing of planting soil within a five (5) days period.
- C. Maintain at all times during the planting operations one or more stockpiles of approved planting soil.

3.02 FINE GRADING WITH PLANTING SOIL

- A. After all areas to receive planting soil have been brought to subgrade, and immediately prior to placing and spreading the planting soil (amended topsoil and amended loam borrow) the subgrade shall be loosened by disking or rototilling to a depth of at least three inches to permit bonding of the planting soil to the subsoil unless there are trees in the area. If large trees are present, review locations of disking/rototilling with Landscape Architect to reduce impact on tree roots. Remove all stones in the subgrade greater than one (1) inch in diameter and all debris or rubbish. Such material shall be removed from the site, at no additional cost to the Owner.
- B. Screened loam borrow or screened topsoil from stockpile shall be placed and spread over approved areas to a depth sufficiently greater than six inches so that after natural settlement by watering and light rolling, the completed work will conform to the lines, grades, and elevations indicated. Supply additional loam, after testing and approval as may be needed, to provide the specified depths and finished grades under the Contract without additional cost to the Owner.
- C. Disturbed areas outside the limit of seeding shall be spread with six (6) inches of screened loam or screened topsoil to the finished grade as specified herein above.
- D. No subsoil or planting soil shall be handled in any way if it is in a wet or frozen condition.

- E. Sufficient grade stakes be set for checking the finished grades. Stakes must be set in the bottom of swales and at top of slopes. Grades shall be established which are accurate to one tenth of a foot either way. Connect contours and spot elevations with an even slope.
- F. After loam/topsoil has been spread, it shall be carefully prepared by scarifying or harrowing and hand raking. All large stiff clods, lumps, brush, glass, roots, stumps, litter and other foreign matter, and stones over one quarter inch in diameter shall be removed from the loam. Loam/topsoil shall also be free of smaller stones in excessive quantities as determined by the Landscape Architect.
- G. Loam/topsoil shall be watered sufficiently to provide for settlement of newly placed soil. After soils dry, a second watering shall be provided. Additional soil, if needed due to settlement, shall be added and watered in 2 times until the settled soil meets proposed finish grade.
- H. The entire surface shall then be rolled with a hand roller weighing not more than one hundred (100) pounds per foot of width. During the rolling, all depressions caused by settlements or rolling shall be filled with additional planting soil and the surface shall be regraded and rolled until it presents a smooth and even finish to the required grade.
- I. Contractor shall obtain Landscape Architects written approval of fine grading and bed preparation before doing any seeding or sodding.

3.03 SEED AND SOD BED PREPARATION

- A. Grade all lawn areas to finish grades as indicated on the Drawings. When no grades are shown, areas shall have a smooth and continual grade between existing or fixed controls and elevations shown on Drawings. Roll, scarify, and rake, as required, to obtain uniform, even lawn surfaces. All lawn areas shall slope to drain. Finish grades shall be approved by the Landscape Architect.
- B. If no new topsoil is required, thoroughly loosen soil in areas to be seeded or sodded to a minimum depth of 6 inches with approved power or hand equipment. If large trees are present, review locations of disking/rototilling with Landscape Architect to reduce impact on tree roots. Remove rocks, debris, clods and other undesirable substances, and maintain grading and drainage patterns.
- C. When topsoil is required, place topsoil on previously scarified subsoil to a minimum depth of 6 inches. Subsoil shall be cleaned of debris and stones larger than 2 inches prior to topsoil spreading.
- D. Apply fertilizer, organic matter, superphosphate, lime, and any other amendments required at rates recommended by the testing agency and approved by the Landscape Architect. Thoroughly and evenly incorporate amendments into the soil to a depth of 3 inches, by discing or other approved methods. In areas inaccessible to power equipment, amendments shall be incorporated into the soil by manual

methods. At existing trees, the depth shall be adjusted to avoid disturbance of the roots, as agreed upon with the Landscape Architect.

- E. Seeding and sodding shall be done immediately after final grading, provided the bed has remained in a good, friable condition, and has not become muddy or compacted. Any undulations or irregularities in the surface resulting from the addition of amendments tilling, or other causes, shall be regraded prior to seeding and sodding. The surface shall be free of stones, cleared of all trash, debris, roots, brush, wire, grade stakes and other objects that would interfere with establishment of grass and grass maintenance operations.

3.04 HYDROSEED BED PREPARATION

- A. Prepare seed bed for hydroseeding the same as for seeding and sodding, but do not incorporate fertilizer into the top 3 inches of topsoil.
- B. Hydroseeding shall be applied with a spray machine designed for this purpose and approved by the Landscape Architect.

3.05 SEEDING

- A. All areas indicated on the plan shall be loamed and seeded only after written approval of the Landscape Architect of bed preparation. All disturbed areas outside the limit of seeding shall be seeded. Seeding shall be done between April 1 to June 1, or August 15 to October 15, except as otherwise authorized in writing by the Landscape Architect.
- B. All disturbed areas not covered by buildings, paving, or otherwise developed, shall be seeded.

3.06 HYDROSEEDING

- A. Designated areas shall be hydroseeded only after written approval of the finished grading by the Landscape Architect.
- B. Hydroseeding Operations: All work shall be accomplished using an approved spraying machine specifically designed for this work. Fertilizer amounts shall reflect recommendations indicated in the "Soil Analysis" or as directed by the Landscape Architect. A mobile tank with a capacity of at least 500 gallons shall be filled with water, and the required amounts of seed, wood cellulose mulch and fertilizer. The slurry shall be thoroughly mixed by means of positive agitation in the tank. The slurry shall be applied by means of a centrifugal pump using the turret or hose application technique from the mobile tank. The hose or turret shall be equipped with a seeding nozzle of a proper design to ensure even distribution of the solution over the area to be seeded and shall be operated by a person thoroughly familiar with this type of seeding operation.

- C. Seed shall be added to the hydroseeding slurry at the rate recommended by the manufacturer and approved by the Landscape Architect.
- D. Wood cellulose fiber mulch shall be added to the hydroseeding slurry at the rate of two tons per acre.

3.07 SODDING

- A. Before sod is laid, and after all grading is complete, the loam bed shall be lightly raked with a fine toothed harrow or hand rake. The loam bed shall be moist, but not wet, prior to laying the sod. Sod shall not be laid on soil that is dry and powdery.
- B. The first row of sod shall be laid in a straight line with subsequent rows placed parallel to, and tightly against, each other. Sod shall be placed so that edge strips are full width. Lateral joints shall be staggered to promote more uniform growth and strength. Care shall be exercised to ensure that the sod is not stretched or overlapped, and that all joints are butted tight to prevent voids. The Contractor shall rake sufficient screened loam into the sod to fill all small voids. All large voids shall be filled with sod plugs.
- C. Sod shall be laid with staggered joints and secured by pegging on slopes greater than 25%.
- D. Sod shall be placed from April 1 to June 1 and August 15 to October 15, provided that the ground is not frozen.
- E. Sod shall be harvested, delivered, and transplanted onto the site within a period of 36 hours.
- F. Sod shall be watered immediately, during and after installation, to a sufficient depth to thoroughly wet the underside of the new sod and the soil immediately below. The Contractor shall have adequate water available on the site prior to, and during, installation of the sod.

3.08 EROSION CONTROL MATTING

- A. Erosion Control matting shall be installed per manufacturers instructions and recommendations in all drainage swales and on all slopes indicated as 2:1 or steeper, as indicated within the grading plan or as configured on the site and directed by the Landscape Architect, immediately after such areas have been seeded.
 - 1. Matting shall be secured to the soil surface by U-shaped steel or plastic staples that penetrate the soil approximately six (6) inches and are placed at a rate of two (2) staples per square yard.

3.09 MAINTENANCE AND PROTECTION

- A. Maintenance shall begin immediately after an area is seeded or sodded and shall

continue until final acceptance, but in no case, less than the following period.

1. Sixty (60) days after substantial completion of seeding and thirty (30) days for sodding.
 - a. Maintenance may continue until the next growing season if in the opinion of the Landscape Architect the season enters winter dormancy and no maintenance should continue.
 - b. Seeded lawns shall be maintained until all areas have a close stand of grass which has received a minimum of three mowings, has no bare spots greater than two inches in diameter, and at least 90% of the grass established shall be permanent grass species.
- B. Maintenance shall include reseeding, mowing, watering, weeding, edging, fertilizing, replacement of dead sod, disease and insect pest control, repair of all erosion damage (including replacement of soil), and any other procedures consistent with good horticultural practice, required to ensure normal, vigorous, and healthy growth. Maintenance shall also include all temporary protection fences, barriers, signs, and all other work incidental to proper maintenance.
- C. Watering of Seeded Areas:
 1. The seeded and sodded areas shall be maintained in a continuous moist condition, satisfactory for good germination and growth of grass until acceptance. The Contractor shall provide all labor and arrange for all watering necessary to establish an acceptable lawn. In the absence of an adequate rainfall, watering shall be performed daily or as often as necessary during the first week and in sufficient quantities to maintain moist soil to a depth of at least four (4) inches.

Watering shall be done in a manner which will provide uniform coverage, prevent erosion due to application of excessive quantities over small areas, and prevent damage to the finished surface by the watering equipment. The Contractor shall furnish sufficient watering equipment to apply one complete coverage to the seeded areas in an eight (8) hour period.
- D. Protection:
 1. Seeded areas shall be protected by a three-foot high barrier constructed of two-by-four stakes or iron pipes set eighteen inches in the ground at ten-foot intervals and connected by No. 10 wire. Flags of white cloth shall be secured to the wire at center points between stakes.
 2. Barriers must be raised immediately after seeding and shall be maintained until acceptance.
- E. Reseeding: After the grass in seeded areas has appeared, all areas and parts of areas which, in the opinion of the Landscape Architect, fail to show a uniform stand of

grass, for any reason whatsoever, shall be reseeded and such areas and parts of areas shall be seeded repeatedly until all areas are covered with a satisfactory growth of grass. Reseeding together with necessary grading, fertilizing, and trimming shall be done at the expense of the Contractor.

- F. Resodding Areas: All areas and parts of areas which, in the opinion of the Landscape Architect, fail to show a uniform stand of grass, for any reason whatsoever, shall be resodded and such areas and parts of areas shall sodded repeatedly until all areas are covered with a satisfactory growth of grass. Minimum size of sod for resodding shall be two feet square (2'x2'). Resodding together with necessary grading, fertilizing, and trimming shall be done at the expense of the Contractor.
- G. Mowing:
1. Seeded Areas: The Contractor shall keep seeded areas mowed until written acceptance of the seeding by the Landscape Architect by cutting to a height of two (2) inches when growth reaches three (3) inches or as directed by the Landscape Architect.
 2. Mowing shall include removal of clippings.
- H. Fertilizing: A second application of fertilizer, as specified herein, shall be applied after one (1) season of growth of a minimum of two (2) months duration, but only during the months of April, May, August or September. Fertilizer shall be applied at the rate of thirty (30) pounds per one thousand (1,000) square feet. Sod shall be fertilized at the time of the second mowing.
- I. Liming: If more than one initial application of limestone is required by the soils analysis to bring the pH of the stockpiled topsoil/loam borrow to a specified range, the Contractor shall be responsible for all additional required lime applications.
- J. Scattered bare spots shall be allowed up to a maximum of 2 percent of any lawn area, provided none are larger than 16 square inches. After the grass has sprouted, all bare areas shall be re-seeded or re-sodded repeatedly until all areas are covered with a satisfactory growth of grass. At the time of the first cutting, lawn should be mowed not less than 2-1/2 inches high. Sod shall be maintained between 1-3/4 and 2-1/2 inches high. Do not remove more than one-third of the grass blade. All lawns shall receive at least three mowings before acceptance.

3.10 SITE CLEANUP

- A. The Contractor shall leave the site in a clean and neat condition. Final acceptance will not be granted until this condition is met.
- B. Protect seeding work and materials from damage due to landscape operations, operations by other contractors or trades, and trespassers.

- C. Maintain protection during installation and maintenance periods. Treat, repair, or replace damaged seeded areas as directed.

3.11 INSPECTION AND ACCEPTANCE

- A. After the minimum specified maintenance period, the Contractor shall request the Landscape Architect, in writing, for an inspection to determine whether the grass stand is acceptable.
 - 1. The request shall be received at least ten (10) days before the anticipated date of inspection.
 - 2. Inspection and acceptance of lawn areas may be requested and granted in part, provided the area for which acceptance is requested is relatively substantial in size and reasonably regular in shape with clearly defined boundaries.
- B. If the lawn material and workmanship are acceptable, written notice will be given by the Landscape Architect to the Contractor of a “Certificate of Acceptance”.
 - 1. If the lawn work is unacceptable the Contractor shall continue the maintenance of the lawn areas by over seeding, patching sod, replacing erosion control materials, applying additional amendments as required, and other work as necessary to achieve an acceptable stand of grass as determined by the Landscape Architect.
 - 2. The Contractor’s responsibility for maintenance of lawns or parts of lawns shall cease on receipt of the “Certificate of Acceptance”.
- C. Remove erosion control measures after grass establishment period.

3.12 CONDITIONS OF ACCEPTANCE

- A. Acceptance shall be given for the entire portion of the lawn areas. No partial acceptance will be given.
- B. Lawns shall exhibit a uniform, thick, well-developed stand of grass. Lawn areas shall have not bare spots in excess of four inches in diameter and bare spots shall comprise no more than two percent of the total area of that lawn.
- C. Lawn areas shall not exhibit signs of damage from erosion, washouts, gullies, or other causes.
- D. Pavement surfaces and site improvements adjacent to lawn areas shall be clean and free of spills or overspray from placing or handling of topsoil and seeding operations.

END OF SECTION 02920

ATTACHMENT A

PREVAILING WAGE RATE SHEETS

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CHARLES D. BAKER
Governor

KARYN E. POLITO
Lt. Governor

THE COMMONWEALTH OF MASSACHUSETTS
EXECUTIVE OFFICE OF LABOR AND WORKFORCE DEVELOPMENT
DEPARTMENT OF LABOR STANDARDS

Prevailing Wage Rates

As determined by the Director under the provisions of the
Massachusetts General Laws, Chapter 149, Sections 26 to 27H

ROSALIN ACOSTA
Secretary
MICHAEL FLANAGAN
Director

Awarding Authority: City of Newburyport
Contract Number: **City/Town:** NEWBURYPORT
Description of Work: Paving of Philips Drive, Sullivan Drive, Ryan Road, and Drew Street, including the replacement of the water main, services, drainage, curbing and sidewalks.
Job Location: Philips Drive, Sullivan Drive, Ryan Road, Drew 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.
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Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
Construction						
(2 AXLE) DRIVER - EQUIPMENT <i>TEAMSTERS JOINT COUNCIL NO. 10 ZONE B</i>	12/01/2021	\$35.95	\$13.41	\$16.01	\$0.00	\$65.37
(3 AXLE) DRIVER - EQUIPMENT <i>TEAMSTERS JOINT COUNCIL NO. 10 ZONE B</i>	12/01/2021	\$36.02	\$13.41	\$16.01	\$0.00	\$65.44
(4 & 5 AXLE) DRIVER - EQUIPMENT <i>TEAMSTERS JOINT COUNCIL NO. 10 ZONE B</i>	12/01/2021	\$36.14	\$13.41	\$16.01	\$0.00	\$65.56
ADS/SUBMERSIBLE PILOT <i>PILE DRIVER LOCAL 56 (ZONE 1)</i>	08/01/2020	\$103.05	\$9.40	\$23.12	\$0.00	\$135.57
For apprentice rates see "Apprentice- PILE DRIVER"						
AIR TRACK OPERATOR <i>LABORERS - ZONE 2</i>	12/01/2021	\$36.16	\$9.10	\$16.64	\$0.00	\$61.90
	06/01/2022	\$37.06	\$9.10	\$16.64	\$0.00	\$62.80
	12/01/2022	\$37.91	\$9.10	\$16.64	\$0.00	\$63.65
	06/01/2023	\$38.81	\$9.10	\$16.64	\$0.00	\$64.55
	12/01/2023	\$39.71	\$9.10	\$16.64	\$0.00	\$65.45
For apprentice rates see "Apprentice- LABORER"						
AIR TRACK OPERATOR (HEAVY & HIGHWAY) <i>LABORERS - ZONE 2 (HEAVY & HIGHWAY)</i>	12/01/2021	\$36.16	\$9.10	\$16.64	\$0.00	\$61.90
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"						
ASBESTOS REMOVER - PIPE / MECH. EQUIPT. <i>HEAT & FROST INSULATORS LOCAL 6 (BOSTON)</i>	12/01/2020	\$38.10	\$12.80	\$9.45	\$0.00	\$60.35
ASPHALT RAKER <i>LABORERS - ZONE 2</i>	12/01/2021	\$35.66	\$9.10	\$16.64	\$0.00	\$61.40
	06/01/2022	\$36.56	\$9.10	\$16.64	\$0.00	\$62.30
	12/01/2022	\$37.41	\$9.10	\$16.64	\$0.00	\$63.15
	06/01/2023	\$38.31	\$9.10	\$16.64	\$0.00	\$64.05
	12/01/2023	\$39.21	\$9.10	\$16.64	\$0.00	\$64.95
For apprentice rates see "Apprentice- LABORER"						
ASPHALT RAKER (HEAVY & HIGHWAY) <i>LABORERS - ZONE 2 (HEAVY & HIGHWAY)</i>	12/01/2021	\$35.66	\$9.10	\$16.64	\$0.00	\$61.40
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"						
ASPHALT/CONCRETE/CRUSHER PLANT-ON SITE <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2021	\$51.38	\$14.00	\$16.05	\$0.00	\$81.43
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
BACKHOE/FRONT-END LOADER <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2021	\$51.38	\$14.00	\$16.05	\$0.00	\$81.43
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
BARCO-TYPE JUMPING TAMPER <i>LABORERS - ZONE 2</i>	12/01/2021	\$35.66	\$9.10	\$16.64	\$0.00	\$61.40
	06/01/2022	\$36.56	\$9.10	\$16.64	\$0.00	\$62.30
	12/01/2022	\$37.41	\$9.10	\$16.64	\$0.00	\$63.15
	06/01/2023	\$38.31	\$9.10	\$16.64	\$0.00	\$64.05
	12/01/2023	\$39.21	\$9.10	\$16.64	\$0.00	\$64.95
For apprentice rates see "Apprentice- LABORER"						
BLOCK PAVER, RAMMER / CURB SETTER <i>LABORERS - ZONE 2</i>	12/01/2021	\$36.16	\$9.10	\$16.64	\$0.00	\$61.90
	06/01/2022	\$37.06	\$9.10	\$16.64	\$0.00	\$62.80
	12/01/2022	\$37.91	\$9.10	\$16.64	\$0.00	\$63.65
	06/01/2023	\$38.81	\$9.10	\$16.64	\$0.00	\$64.55
	12/01/2023	\$39.71	\$9.10	\$16.64	\$0.00	\$65.45
For apprentice rates see "Apprentice- LABORER"						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
BLOCK PAVER, RAMMER / CURB SETTER (HEAVY & HIGHWAY) <i>LABORERS - ZONE 2 (HEAVY & HIGHWAY)</i> For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"	12/01/2021	\$36.16	\$9.10	\$16.64	\$0.00	\$61.90
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 (LYNN)</i>	02/01/2022	\$57.15	\$11.39	\$22.34	\$0.00	\$90.88
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Apprentice - BRICK/PLASTER/CEMENT MASON - Local 3 Lynn

Effective Date - 02/01/2022

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$28.58	\$11.39	\$22.34	\$0.00	\$62.31
2	60	\$34.29	\$11.39	\$22.34	\$0.00	\$68.02
3	70	\$40.01	\$11.39	\$22.34	\$0.00	\$73.74
4	80	\$45.72	\$11.39	\$22.34	\$0.00	\$79.45
5	90	\$51.44	\$11.39	\$22.34	\$0.00	\$85.17

Notes:

Apprentice to Journeyworker Ratio:1:5

BULLDOZER/GRADER/SCRAPER <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2021	\$50.83	\$14.00	\$16.05	\$0.00	\$80.88
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For apprentice rates see "Apprentice- OPERATING ENGINEERS"

CAISSON & UNDERPINNING BOTTOM MAN <i>LABORERS - FOUNDATION AND MARINE</i>	12/01/2021	\$42.33	\$9.10	\$17.72	\$0.00	\$69.15
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For apprentice rates see "Apprentice- LABORER"

CAISSON & UNDERPINNING LABORER <i>LABORERS - FOUNDATION AND MARINE</i>	12/01/2021	\$41.18	\$9.10	\$17.72	\$0.00	\$68.00
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Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
For apprentice rates see "Apprentice- LABORER"						
CAISSON & UNDERPINNING TOP MAN <i>LABORERS - FOUNDATION AND MARINE</i>	12/01/2021	\$41.18	\$9.10	\$17.72	\$0.00	\$68.00
For apprentice rates see "Apprentice- LABORER"						
CARBIDE CORE DRILL OPERATOR <i>LABORERS - ZONE 2</i>	12/01/2021	\$35.66	\$9.10	\$16.64	\$0.00	\$61.40
	06/01/2022	\$36.56	\$9.10	\$16.64	\$0.00	\$62.30
	12/01/2022	\$37.41	\$9.10	\$16.64	\$0.00	\$63.15
	06/01/2023	\$38.31	\$9.10	\$16.64	\$0.00	\$64.05
	12/01/2023	\$39.21	\$9.10	\$16.64	\$0.00	\$64.95
For apprentice rates see "Apprentice- LABORER"						
CARPENTER <i>CARPENTERS -ZONE 2 (Eastern Massachusetts)</i>	09/01/2021	\$44.18	\$8.58	\$19.82	\$0.00	\$72.58
	03/01/2022	\$44.78	\$8.58	\$19.82	\$0.00	\$73.18
	09/01/2022	\$45.43	\$8.58	\$19.82	\$0.00	\$73.83
	03/01/2023	\$46.03	\$8.58	\$19.82	\$0.00	\$74.43

Apprentice - CARPENTER - Zone 2 Eastern MA

Effective Date - 09/01/2021

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$22.09	\$8.58	\$1.70	\$0.00	\$32.37
2	60	\$26.51	\$8.58	\$1.70	\$0.00	\$36.79
3	70	\$30.93	\$8.58	\$14.63	\$0.00	\$54.14
4	75	\$33.14	\$8.58	\$14.63	\$0.00	\$56.35
5	80	\$35.34	\$8.58	\$16.36	\$0.00	\$60.28
6	80	\$35.34	\$8.58	\$16.36	\$0.00	\$60.28
7	90	\$39.76	\$8.58	\$18.09	\$0.00	\$66.43
8	90	\$39.76	\$8.58	\$18.09	\$0.00	\$66.43

Effective Date - 03/01/2022

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$22.39	\$8.58	\$1.70	\$0.00	\$32.67
2	60	\$26.87	\$8.58	\$1.70	\$0.00	\$37.15
3	70	\$31.35	\$8.58	\$14.63	\$0.00	\$54.56
4	75	\$33.59	\$8.58	\$14.63	\$0.00	\$56.80
5	80	\$35.82	\$8.58	\$16.36	\$0.00	\$60.76
6	80	\$35.82	\$8.58	\$16.36	\$0.00	\$60.76
7	90	\$40.30	\$8.58	\$18.09	\$0.00	\$66.97
8	90	\$40.30	\$8.58	\$18.09	\$0.00	\$66.97

Notes:

% Indentured After 10/1/17; 45/45/55/55/70/70/80/80
Step 1&2 \$30.19/ 3&4 \$36.28/ 5&6 \$55.87/ 7&8 \$62.01

Apprentice to Journeyworker Ratio:1:5

CARPENTER WOOD FRAME <i>CARPENTERS-ZONE 3 (Wood Frame)</i>	04/01/2021	\$23.16	\$7.21	\$4.80	\$0.00	\$35.17
	04/01/2022	\$23.66	\$7.21	\$4.80	\$0.00	\$35.67
	04/01/2023	\$24.16	\$7.21	\$4.80	\$0.00	\$36.17

All Aspects of New Wood Frame Work

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - CARPENTER (Wood Frame) - Zone 3

Effective Date - 04/01/2021

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

Effective Date - 04/01/2022

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$14.20	\$7.21	\$0.00	\$0.00	\$21.41
2	60	\$14.20	\$7.21	\$0.00	\$0.00	\$21.41
3	65	\$15.38	\$7.21	\$0.00	\$0.00	\$22.59
4	70	\$16.56	\$7.21	\$0.00	\$0.00	\$23.77
5	75	\$17.75	\$7.21	\$3.80	\$0.00	\$28.76
6	80	\$18.93	\$7.21	\$3.80	\$0.00	\$29.94
7	85	\$20.11	\$7.21	\$3.80	\$0.00	\$31.12
8	90	\$21.29	\$7.21	\$3.80	\$0.00	\$32.30

Notes:

% Indentured After 10/1/17; 45/45/55/55/70/70/80/80
 Step 1&2 \$17.63/ 3&4 \$19.95/ 5&6 \$27.22/ 7&8 \$29.54

Apprentice to Journeyworker Ratio:1:5

CEMENT MASONRY/PLASTERING BRICKLAYERS LOCAL 3 (LYNN)	01/01/2020	\$49.07	\$12.75	\$22.41	\$0.62	\$84.85
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Apprentice - CEMENT MASONRY/PLASTERING - Eastern Mass (Lynn)

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

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
CHAIN SAW OPERATOR <i>LABORERS - ZONE 2</i>	12/01/2021	\$35.66	\$9.10	\$16.64	\$0.00	\$61.40
	06/01/2022	\$36.56	\$9.10	\$16.64	\$0.00	\$62.30
	12/01/2022	\$37.41	\$9.10	\$16.64	\$0.00	\$63.15
	06/01/2023	\$38.31	\$9.10	\$16.64	\$0.00	\$64.05
	12/01/2023	\$39.21	\$9.10	\$16.64	\$0.00	\$64.95
For apprentice rates see "Apprentice- LABORER"						
CLAM SHELLS/SLURRY BUCKETS/HEADING MACHINES <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2021	\$52.38	\$14.00	\$16.05	\$0.00	\$82.43
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
COMPRESSOR OPERATOR <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2021	\$33.69	\$14.00	\$16.05	\$0.00	\$63.74
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
DELEADER (BRIDGE) <i>PAINTERS LOCAL 35 - ZONE 2</i>	01/01/2022	\$53.66	\$8.65	\$23.05	\$0.00	\$85.36
	07/01/2022	\$54.86	\$8.65	\$23.05	\$0.00	\$86.56
	01/01/2023	\$56.06	\$8.65	\$23.05	\$0.00	\$87.76
	07/01/2023	\$57.26	\$8.65	\$23.05	\$0.00	\$88.96
	01/01/2024	\$58.46	\$8.65	\$23.05	\$0.00	\$90.16
	07/01/2024	\$59.66	\$8.65	\$23.05	\$0.00	\$91.36
	01/01/2025	\$60.86	\$8.65	\$23.05	\$0.00	\$92.56

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - PAINTER Local 35 - BRIDGES/TANKS

Effective Date - 01/01/2022

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$26.83	\$8.65	\$0.00	\$0.00	\$35.48
2	55	\$29.51	\$8.65	\$6.27	\$0.00	\$44.43
3	60	\$32.20	\$8.65	\$6.84	\$0.00	\$47.69
4	65	\$34.88	\$8.65	\$7.41	\$0.00	\$50.94
5	70	\$37.56	\$8.65	\$19.63	\$0.00	\$65.84
6	75	\$40.25	\$8.65	\$20.20	\$0.00	\$69.10
7	80	\$42.93	\$8.65	\$20.77	\$0.00	\$72.35
8	90	\$48.29	\$8.65	\$21.91	\$0.00	\$78.85

Effective Date - 07/01/2022

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$27.43	\$8.65	\$0.00	\$0.00	\$36.08
2	55	\$30.17	\$8.65	\$6.27	\$0.00	\$45.09
3	60	\$32.92	\$8.65	\$6.84	\$0.00	\$48.41
4	65	\$35.66	\$8.65	\$7.41	\$0.00	\$51.72
5	70	\$38.40	\$8.65	\$19.63	\$0.00	\$66.68
6	75	\$41.15	\$8.65	\$20.20	\$0.00	\$70.00
7	80	\$43.89	\$8.65	\$20.77	\$0.00	\$73.31
8	90	\$49.37	\$8.65	\$21.91	\$0.00	\$79.93

Notes:

Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

DEMO: ADZEMAN LABORERS - ZONE 2	12/01/2021	\$41.33	\$9.10	\$17.57	\$0.00	\$68.00
	06/01/2022	\$42.33	\$9.10	\$17.57	\$0.00	\$69.00
	12/01/2022	\$43.33	\$9.10	\$17.57	\$0.00	\$70.00
	06/01/2023	\$44.33	\$9.10	\$17.57	\$0.00	\$71.00
	12/01/2023	\$45.58	\$9.10	\$17.57	\$0.00	\$72.25

For apprentice rates see "Apprentice- LABORER"

DEMO: BACKHOE/LOADER/HAMMER OPERATOR LABORERS - ZONE 2	12/01/2021	\$42.33	\$9.10	\$17.57	\$0.00	\$69.00
	06/01/2022	\$43.33	\$9.10	\$17.57	\$0.00	\$70.00
	12/01/2022	\$44.33	\$9.10	\$17.57	\$0.00	\$71.00
	06/01/2023	\$45.33	\$9.10	\$17.57	\$0.00	\$72.00
	12/01/2023	\$46.58	\$9.10	\$17.57	\$0.00	\$73.25

For apprentice rates see "Apprentice- LABORER"

DEMO: BURNERS LABORERS - ZONE 2	12/01/2021	\$42.08	\$9.10	\$17.57	\$0.00	\$68.75
	06/01/2022	\$43.08	\$9.10	\$17.57	\$0.00	\$69.75
	12/01/2022	\$44.08	\$9.10	\$17.57	\$0.00	\$70.75
	06/01/2023	\$45.08	\$9.10	\$17.57	\$0.00	\$71.75
	12/01/2023	\$46.33	\$9.10	\$17.57	\$0.00	\$73.00

For apprentice rates see "Apprentice- LABORER"

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
DEMO: CONCRETE CUTTER/SAWYER <i>LABORERS - ZONE 2</i>	12/01/2021	\$42.33	\$9.10	\$17.57	\$0.00	\$69.00
	06/01/2022	\$43.33	\$9.10	\$17.57	\$0.00	\$70.00
	12/01/2022	\$44.33	\$9.10	\$17.57	\$0.00	\$71.00
	06/01/2023	\$45.33	\$9.10	\$17.57	\$0.00	\$72.00
	12/01/2023	\$46.58	\$9.10	\$17.57	\$0.00	\$73.25
For apprentice rates see "Apprentice- LABORER"						
DEMO: JACKHAMMER OPERATOR <i>LABORERS - ZONE 2</i>	12/01/2021	\$42.08	\$9.10	\$17.57	\$0.00	\$68.75
	06/01/2022	\$43.08	\$9.10	\$17.57	\$0.00	\$69.75
	12/01/2022	\$44.08	\$9.10	\$17.57	\$0.00	\$70.75
	06/01/2023	\$45.08	\$9.10	\$17.57	\$0.00	\$71.75
	12/01/2023	\$46.33	\$9.10	\$17.57	\$0.00	\$73.00
For apprentice rates see "Apprentice- LABORER"						
DEMO: WRECKING LABORER <i>LABORERS - ZONE 2</i>	12/01/2021	\$41.33	\$9.10	\$17.57	\$0.00	\$68.00
	06/01/2022	\$42.33	\$9.10	\$17.57	\$0.00	\$69.00
	12/01/2022	\$43.33	\$9.10	\$17.57	\$0.00	\$70.00
	06/01/2023	\$44.33	\$9.10	\$17.57	\$0.00	\$71.00
	12/01/2023	\$45.58	\$9.10	\$17.57	\$0.00	\$72.25
For apprentice rates see "Apprentice- LABORER"						
DIRECTIONAL DRILL MACHINE OPERATOR <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2021	\$50.83	\$14.00	\$16.05	\$0.00	\$80.88
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
DIVER <i>PILE DRIVER LOCAL 56 (ZONE 1)</i>	08/01/2020	\$68.70	\$9.40	\$23.12	\$0.00	\$101.22
For apprentice rates see "Apprentice- PILE DRIVER"						
DIVER TENDER <i>PILE DRIVER LOCAL 56 (ZONE 1)</i>	08/01/2020	\$49.07	\$9.40	\$23.12	\$0.00	\$81.59
For apprentice rates see "Apprentice- PILE DRIVER"						
DIVER TENDER (EFFLUENT) <i>PILE DRIVER LOCAL 56 (ZONE 1)</i>	08/01/2020	\$73.60	\$9.40	\$23.12	\$0.00	\$106.12
For apprentice rates see "Apprentice- PILE DRIVER"						
DIVER/SLURRY (EFFLUENT) <i>PILE DRIVER LOCAL 56 (ZONE 1)</i>	08/01/2020	\$103.05	\$9.40	\$23.12	\$0.00	\$135.57
For apprentice rates see "Apprentice- PILE DRIVER"						
DRAWBRIDGE OPERATOR (Construction) <i>DRAWBRIDGE - SEIU LOCAL 888</i>	07/01/2020	\$26.77	\$6.67	\$3.93	\$0.16	\$37.53
ELECTRICIAN <i>ELECTRICIANS LOCAL 103</i>	09/01/2021	\$56.36	\$13.00	\$20.54	\$0.00	\$89.90
	03/01/2022	\$57.32	\$13.00	\$20.82	\$0.00	\$91.14
	09/01/2022	\$58.76	\$13.00	\$20.86	\$0.00	\$92.62
	03/01/2023	\$60.43	\$13.00	\$20.91	\$0.00	\$94.34

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - ELECTRICIAN - Local 103

Effective Date - 09/01/2021

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	\$22.54	\$13.00	\$0.68	\$0.00	\$36.22
2	40	\$22.54	\$13.00	\$0.68	\$0.00	\$36.22
3	45	\$25.36	\$13.00	\$15.36	\$0.00	\$53.72
4	45	\$25.36	\$13.00	\$15.36	\$0.00	\$53.72
5	50	\$28.18	\$13.00	\$15.84	\$0.00	\$57.02
6	55	\$31.00	\$13.00	\$16.31	\$0.00	\$60.31
7	60	\$33.82	\$13.00	\$16.77	\$0.00	\$63.59
8	65	\$36.63	\$13.00	\$17.25	\$0.00	\$66.88
9	70	\$39.45	\$13.00	\$17.71	\$0.00	\$70.16
10	75	\$42.27	\$13.00	\$18.19	\$0.00	\$73.46

Effective Date - 03/01/2022

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	\$22.93	\$13.00	\$0.69	\$0.00	\$36.62
2	40	\$22.93	\$13.00	\$0.69	\$0.00	\$36.62
3	45	\$25.79	\$13.00	\$15.62	\$0.00	\$54.41
4	45	\$25.79	\$13.00	\$15.62	\$0.00	\$54.41
5	50	\$28.66	\$13.00	\$16.10	\$0.00	\$57.76
6	55	\$31.53	\$13.00	\$16.58	\$0.00	\$61.11
7	60	\$34.39	\$13.00	\$17.04	\$0.00	\$64.43
8	65	\$37.26	\$13.00	\$17.52	\$0.00	\$67.78
9	70	\$40.12	\$13.00	\$17.98	\$0.00	\$71.10
10	75	\$42.99	\$13.00	\$18.46	\$0.00	\$74.45

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

Apprentice to Journeyworker Ratio:2:3***

ELEVATOR CONSTRUCTOR	01/01/2022	\$65.62	\$16.03	\$20.21	\$0.00	\$101.86
ELEVATOR CONSTRUCTORS LOCAL 4						

Apprentice - ELEVATOR CONSTRUCTOR - Local 4

Effective Date - 01/01/2022

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$32.81	\$16.03	\$0.00	\$0.00	\$48.84
2	55	\$36.09	\$16.03	\$20.21	\$0.00	\$72.33
3	65	\$42.65	\$16.03	\$20.21	\$0.00	\$78.89
4	70	\$45.93	\$16.03	\$20.21	\$0.00	\$82.17
5	80	\$52.50	\$16.03	\$20.21	\$0.00	\$88.74

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>	01/01/2022	\$45.93	\$16.03	\$20.21	\$0.00	\$82.17
For apprentice rates see "Apprentice - ELEVATOR CONSTRUCTOR"						
FENCE & GUARD RAIL ERECTOR (HEAVY & HIGHWAY) <i>LABORERS - ZONE 2 (HEAVY & HIGHWAY)</i>	12/01/2021	\$35.66	\$9.10	\$16.64	\$0.00	\$61.40
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"						
FIELD ENG.INST.PERSON-BLDG,SITE,HVY/HWY <i>OPERATING ENGINEERS LOCAL 4</i>	11/01/2021	\$46.53	\$13.75	\$15.80	\$0.00	\$76.08
	05/01/2022	\$47.86	\$13.75	\$15.80	\$0.00	\$77.41
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
FIELD ENG.PARTY CHIEF-BLDG,SITE,HVY/HWY <i>OPERATING ENGINEERS LOCAL 4</i>	11/01/2021	\$48.06	\$13.75	\$15.80	\$0.00	\$77.61
	05/01/2022	\$49.22	\$13.75	\$15.80	\$0.00	\$78.77
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
FIELD ENG.ROD PERSON-BLDG,SITE,HVY/HWY <i>OPERATING ENGINEERS LOCAL 4</i>	11/01/2021	\$23.16	\$13.75	\$15.80	\$0.00	\$52.71
	05/01/2022	\$23.83	\$13.75	\$15.80	\$0.00	\$53.38
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
FIRE ALARM INSTALLER <i>ELECTRICIANS LOCAL 103</i>	09/01/2021	\$56.36	\$13.00	\$20.54	\$0.00	\$89.90
	03/01/2022	\$57.32	\$13.00	\$20.82	\$0.00	\$91.14
	09/01/2022	\$58.76	\$13.00	\$20.86	\$0.00	\$92.62
	03/01/2023	\$60.43	\$13.00	\$20.91	\$0.00	\$94.34
For apprentice rates see "Apprentice- ELECTRICIAN"						
FIRE ALARM REPAIR / MAINTENANCE <i>LOCAL 103</i>	09/01/2021	\$43.40	\$13.00	\$18.37	\$0.00	\$74.77
	03/01/2022	\$44.71	\$13.00	\$18.74	\$0.00	\$76.45
	09/01/2022	\$46.42	\$13.00	\$18.87	\$0.00	\$78.29
	03/01/2023	\$48.34	\$13.00	\$19.01	\$0.00	\$80.35
For apprentice rates see "Apprentice- TELECOMMUNICATIONS TECHNICIAN"						
FIREMAN (ASST. ENGINEER) <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2021	\$41.76	\$14.00	\$16.05	\$0.00	\$71.81
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
FLAGGER & SIGNALER (HEAVY & HIGHWAY) <i>LABORERS - ZONE 2 (HEAVY & HIGHWAY)</i>	12/01/2021	\$24.50	\$9.10	\$16.64	\$0.00	\$50.24
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"						
FLOORCOVERER <i>FLOORCOVERERS LOCAL 2168 ZONE 1</i>	09/01/2021	\$49.38	\$8.58	\$20.12	\$0.00	\$78.08
	03/01/2022	\$50.18	\$8.58	\$20.12	\$0.00	\$78.88

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - FLOORCOVERER - Local 2168 Zone I

Effective Date - 09/01/2021

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$24.69	\$8.58	\$1.79	\$0.00	\$35.06
2	55	\$27.16	\$8.58	\$1.79	\$0.00	\$37.53
3	60	\$29.63	\$8.58	\$14.75	\$0.00	\$52.96
4	65	\$32.10	\$8.58	\$14.75	\$0.00	\$55.43
5	70	\$34.57	\$8.58	\$16.54	\$0.00	\$59.69
6	75	\$37.04	\$8.58	\$16.54	\$0.00	\$62.16
7	80	\$39.50	\$8.58	\$18.33	\$0.00	\$66.41
8	85	\$41.97	\$8.58	\$18.33	\$0.00	\$68.88

Effective Date - 03/01/2022

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$25.09	\$8.58	\$1.79	\$0.00	\$35.46
2	55	\$27.60	\$8.58	\$1.79	\$0.00	\$37.97
3	60	\$30.11	\$8.58	\$14.75	\$0.00	\$53.44
4	65	\$32.62	\$8.58	\$14.75	\$0.00	\$55.95
5	70	\$35.13	\$8.58	\$16.54	\$0.00	\$60.25
6	75	\$37.64	\$8.58	\$16.54	\$0.00	\$62.76
7	80	\$40.14	\$8.58	\$18.33	\$0.00	\$67.05
8	85	\$42.65	\$8.58	\$18.33	\$0.00	\$69.56

Notes: Steps are 750 hrs.
 % After 10/1/17; 45/45/55/55/70/70/80/80 (1500hr Steps)
 Step 1&2 \$32.59/ 3&4 \$39.26/ 5&6 \$59.69/ 7&8 \$66.41

Apprentice to Journeyworker Ratio:1:1

FORK LIFT/CHERRY PICKER <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2021	\$51.38	\$14.00	\$16.05	\$0.00	\$81.43
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
GENERATOR/LIGHTING PLANT/HEATERS <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2021	\$33.69	\$14.00	\$16.05	\$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>	01/01/2022	\$43.16	\$8.65	\$23.05	\$0.00	\$74.86
	07/01/2022	\$44.36	\$8.65	\$23.05	\$0.00	\$76.06
	01/01/2023	\$45.56	\$8.65	\$23.05	\$0.00	\$77.26
	07/01/2023	\$46.76	\$8.65	\$23.05	\$0.00	\$78.46
	01/01/2024	\$47.96	\$8.65	\$23.05	\$0.00	\$79.66
	07/01/2024	\$49.16	\$8.65	\$23.05	\$0.00	\$80.86
	01/01/2025	\$50.36	\$8.65	\$23.05	\$0.00	\$82.06

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - GLAZIER - Local 35 Zone 2

Effective Date - 01/01/2022

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$21.58	\$8.65	\$0.00	\$0.00	\$30.23
2	55	\$23.74	\$8.65	\$6.27	\$0.00	\$38.66
3	60	\$25.90	\$8.65	\$6.84	\$0.00	\$41.39
4	65	\$28.05	\$8.65	\$7.41	\$0.00	\$44.11
5	70	\$30.21	\$8.65	\$19.63	\$0.00	\$58.49
6	75	\$32.37	\$8.65	\$20.20	\$0.00	\$61.22
7	80	\$34.53	\$8.65	\$20.77	\$0.00	\$63.95
8	90	\$38.84	\$8.65	\$21.91	\$0.00	\$69.40

Effective Date - 07/01/2022

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$22.18	\$8.65	\$0.00	\$0.00	\$30.83
2	55	\$24.40	\$8.65	\$6.27	\$0.00	\$39.32
3	60	\$26.62	\$8.65	\$6.84	\$0.00	\$42.11
4	65	\$28.83	\$8.65	\$7.41	\$0.00	\$44.89
5	70	\$31.05	\$8.65	\$19.63	\$0.00	\$59.33
6	75	\$33.27	\$8.65	\$20.20	\$0.00	\$62.12
7	80	\$35.49	\$8.65	\$20.77	\$0.00	\$64.91
8	90	\$39.92	\$8.65	\$21.91	\$0.00	\$70.48

Notes:
Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

HOISTING ENGINEER/CRANES/GRADALLS OPERATING ENGINEERS LOCAL 4	12/01/2021	\$51.38	\$14.00	\$16.05	\$0.00	\$81.43
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Apprentice - OPERATING ENGINEERS - Local 4

Effective Date - 12/01/2021

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	55	\$28.26	\$14.00	\$0.00	\$0.00	\$42.26
2	60	\$30.83	\$14.00	\$16.05	\$0.00	\$60.88
3	65	\$33.40	\$14.00	\$16.05	\$0.00	\$63.45
4	70	\$35.97	\$14.00	\$16.05	\$0.00	\$66.02
5	75	\$38.54	\$14.00	\$16.05	\$0.00	\$68.59
6	80	\$41.10	\$14.00	\$16.05	\$0.00	\$71.15
7	85	\$43.67	\$14.00	\$16.05	\$0.00	\$73.72
8	90	\$46.24	\$14.00	\$16.05	\$0.00	\$76.29

Notes:

Apprentice to Journeyworker Ratio:1:6

HVAC (DUCTWORK) SHEETMETAL WORKERS LOCAL 17 - A	02/01/2022	\$53.70	\$13.80	\$25.60	\$2.79	\$95.89
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For apprentice rates see "Apprentice- SHEET METAL WORKER"

HVAC (ELECTRICAL CONTROLS) ELECTRICIANS LOCAL 103	09/01/2021	\$56.36	\$13.00	\$20.54	\$0.00	\$89.90
	03/01/2022	\$57.32	\$13.00	\$20.82	\$0.00	\$91.14
	09/01/2022	\$58.76	\$13.00	\$20.86	\$0.00	\$92.62
	03/01/2023	\$60.43	\$13.00	\$20.91	\$0.00	\$94.34

For apprentice rates see "Apprentice- ELECTRICIAN"

HVAC (TESTING AND BALANCING - AIR) SHEETMETAL WORKERS LOCAL 17 - A	02/01/2022	\$53.70	\$13.80	\$25.60	\$2.79	\$95.89
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For apprentice rates see "Apprentice- SHEET METAL WORKER"

HVAC (TESTING AND BALANCING - WATER) PIPEFITTERS LOCAL 537 (Local 138)	03/01/2021	\$54.86	\$10.95	\$19.74	\$0.00	\$85.55
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For apprentice rates see "Apprentice- PIPEFITTER" or "PLUMBER/PIPEFITTER"

HVAC MECHANIC PIPEFITTERS LOCAL 537 (Local 138)	03/01/2021	\$54.86	\$10.95	\$19.74	\$0.00	\$85.55
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For apprentice rates see "Apprentice- PIPEFITTER" or "PLUMBER/PIPEFITTER"

HYDRAULIC DRILLS LABORERS - ZONE 2	12/01/2021	\$36.16	\$9.10	\$16.64	\$0.00	\$61.90
	06/01/2022	\$37.06	\$9.10	\$16.64	\$0.00	\$62.80
	12/01/2022	\$37.91	\$9.10	\$16.64	\$0.00	\$63.65
	06/01/2023	\$38.81	\$9.10	\$16.64	\$0.00	\$64.55
	12/01/2023	\$39.71	\$9.10	\$16.64	\$0.00	\$65.45

For apprentice rates see "Apprentice- LABORER"

HYDRAULIC DRILLS (HEAVY & HIGHWAY) LABORERS - ZONE 2 (HEAVY & HIGHWAY)	12/01/2021	\$36.16	\$9.10	\$16.64	\$0.00	\$61.90
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For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"

INSULATOR (PIPES & TANKS) HEAT & FROST INSULATORS LOCAL 6 (BOSTON)	09/01/2021	\$51.40	\$13.80	\$17.14	\$0.00	\$82.34
	09/01/2022	\$53.85	\$13.80	\$17.14	\$0.00	\$84.79

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

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

Effective Date - 09/01/2021

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$25.70	\$13.80	\$12.42	\$0.00	\$51.92
2	60	\$30.84	\$13.80	\$13.36	\$0.00	\$58.00
3	70	\$35.98	\$13.80	\$14.31	\$0.00	\$64.09
4	80	\$41.12	\$13.80	\$15.25	\$0.00	\$70.17

Effective Date - 09/01/2022

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$26.93	\$13.80	\$12.42	\$0.00	\$53.15
2	60	\$32.31	\$13.80	\$13.36	\$0.00	\$59.47
3	70	\$37.70	\$13.80	\$14.31	\$0.00	\$65.81
4	80	\$43.08	\$13.80	\$15.25	\$0.00	\$72.13

Notes:

Steps are 1 year

Apprentice to Journeyworker Ratio:1:4

IRONWORKER/WELDER	09/16/2021	\$45.72	\$8.15	\$25.80	\$0.00	\$79.67
IRONWORKERS LOCAL 7 (LAWRENCE AREA)	03/16/2022	\$46.19	\$8.20	\$26.50	\$0.00	\$80.89

Apprentice - IRONWORKER - Local 7 Lawrence

Effective Date - 09/16/2021

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$27.43	\$8.15	\$25.80	\$0.00	\$61.38
2	70	\$32.00	\$8.15	\$25.80	\$0.00	\$65.95
3	75	\$34.29	\$8.15	\$25.80	\$0.00	\$68.24
4	80	\$36.58	\$8.15	\$25.80	\$0.00	\$70.53
5	85	\$38.86	\$8.15	\$25.80	\$0.00	\$72.81
6	90	\$41.15	\$8.15	\$25.80	\$0.00	\$75.10

Effective Date - 03/16/2022

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$27.71	\$8.20	\$26.50	\$0.00	\$62.41
2	70	\$32.33	\$8.20	\$26.50	\$0.00	\$67.03
3	75	\$34.64	\$8.20	\$26.50	\$0.00	\$69.34
4	80	\$36.95	\$8.20	\$26.50	\$0.00	\$71.65
5	85	\$39.26	\$8.20	\$26.50	\$0.00	\$73.96
6	90	\$41.57	\$8.20	\$26.50	\$0.00	\$76.27

Notes:

Structural 1:6; Ornamental 1:4

Apprentice to Journeyworker Ratio:

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
JACKHAMMER & PAVING BREAKER OPERATOR LABORERS - ZONE 2	12/01/2021	\$35.66	\$9.10	\$16.64	\$0.00	\$61.40
	06/01/2022	\$36.56	\$9.10	\$16.64	\$0.00	\$62.30
	12/01/2022	\$37.41	\$9.10	\$16.64	\$0.00	\$63.15
	06/01/2023	\$38.31	\$9.10	\$16.64	\$0.00	\$64.05
	12/01/2023	\$39.21	\$9.10	\$16.64	\$0.00	\$64.95

For apprentice rates see "Apprentice- LABORER"

LABORER LABORERS - ZONE 2	12/01/2021	\$35.41	\$9.10	\$16.64	\$0.00	\$61.15
	06/01/2022	\$36.31	\$9.10	\$16.64	\$0.00	\$62.05
	12/01/2022	\$37.16	\$9.10	\$16.64	\$0.00	\$62.90
	06/01/2023	\$38.06	\$9.10	\$16.64	\$0.00	\$63.80
	12/01/2023	\$38.96	\$9.10	\$16.64	\$0.00	\$64.70

Apprentice - LABORER - Zone 2

Effective Date - 12/01/2021

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$21.25	\$9.10	\$16.64	\$0.00	\$46.99
2	70	\$24.79	\$9.10	\$16.64	\$0.00	\$50.53
3	80	\$28.33	\$9.10	\$16.64	\$0.00	\$54.07
4	90	\$31.87	\$9.10	\$16.64	\$0.00	\$57.61

Effective Date - 06/01/2022

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$21.79	\$9.10	\$16.64	\$0.00	\$47.53
2	70	\$25.42	\$9.10	\$16.64	\$0.00	\$51.16
3	80	\$29.05	\$9.10	\$16.64	\$0.00	\$54.79
4	90	\$32.68	\$9.10	\$16.64	\$0.00	\$58.42

Notes:

Apprentice to Journeyworker Ratio:1:5

LABORER (HEAVY & HIGHWAY) LABORERS - ZONE 2 (HEAVY & HIGHWAY)	12/01/2021	\$35.41	\$9.10	\$16.64	\$0.00	\$61.15
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Apprentice - LABORER (Heavy & Highway) - Zone 2

Effective Date - 12/01/2021

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$21.25	\$9.10	\$16.64	\$0.00	\$46.99
2	70	\$24.79	\$9.10	\$16.64	\$0.00	\$50.53
3	80	\$28.33	\$9.10	\$16.64	\$0.00	\$54.07
4	90	\$31.87	\$9.10	\$16.64	\$0.00	\$57.61

Notes:

Apprentice to Journeyworker Ratio:1:5

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
LABORER: CARPENTER TENDER <i>LABORERS - ZONE 2</i>	12/01/2021	\$35.41	\$9.10	\$16.64	\$0.00	\$61.15
	06/01/2022	\$36.31	\$9.10	\$16.64	\$0.00	\$62.05
	12/01/2022	\$37.16	\$9.10	\$16.64	\$0.00	\$62.90
	06/01/2023	\$38.06	\$9.10	\$16.64	\$0.00	\$63.80
	12/01/2023	\$38.96	\$9.10	\$16.64	\$0.00	\$64.70
For apprentice rates see "Apprentice- LABORER"						
LABORER: CEMENT FINISHER TENDER <i>LABORERS - ZONE 2</i>	12/01/2021	\$35.41	\$9.10	\$16.64	\$0.00	\$61.15
	06/01/2022	\$36.31	\$9.10	\$16.64	\$0.00	\$62.05
	12/01/2022	\$37.16	\$9.10	\$16.64	\$0.00	\$62.90
	06/01/2023	\$38.06	\$9.10	\$16.64	\$0.00	\$63.80
	12/01/2023	\$38.96	\$9.10	\$16.64	\$0.00	\$64.70
For apprentice rates see "Apprentice- LABORER"						
LABORER: HAZARDOUS WASTE/ASBESTOS REMOVER <i>LABORERS - ZONE 2</i>	12/01/2021	\$35.50	\$9.10	\$16.70	\$0.00	\$61.30
	06/01/2022	\$36.40	\$9.10	\$16.70	\$0.00	\$62.20
	12/01/2022	\$37.25	\$9.10	\$16.70	\$0.00	\$63.05
	06/01/2023	\$38.15	\$9.10	\$16.70	\$0.00	\$63.95
	12/01/2023	\$39.05	\$9.10	\$16.70	\$0.00	\$64.85
For apprentice rates see "Apprentice- LABORER"						
LABORER: MASON TENDER <i>LABORERS - ZONE 2</i>	12/01/2021	\$35.66	\$9.10	\$16.64	\$0.00	\$61.40
	06/01/2022	\$36.56	\$9.10	\$16.64	\$0.00	\$62.30
	12/01/2022	\$37.41	\$9.10	\$16.64	\$0.00	\$63.15
	06/01/2023	\$38.31	\$9.10	\$16.64	\$0.00	\$64.05
	12/01/2023	\$39.21	\$9.10	\$16.64	\$0.00	\$64.95
For apprentice rates see "Apprentice- LABORER"						
LABORER: MASON TENDER (HEAVY & HIGHWAY) <i>LABORERS - ZONE 2 (HEAVY & HIGHWAY)</i>	12/01/2021	\$35.66	\$9.10	\$16.64	\$0.00	\$61.40
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"						
LABORER: MULTI-TRADE TENDER <i>LABORERS - ZONE 2</i>	12/01/2021	\$35.41	\$9.10	\$16.64	\$0.00	\$61.15
	06/01/2022	\$36.31	\$9.10	\$16.64	\$0.00	\$62.05
	12/01/2022	\$37.16	\$9.10	\$16.64	\$0.00	\$62.90
	06/01/2023	\$38.06	\$9.10	\$16.64	\$0.00	\$63.80
	12/01/2023	\$38.96	\$9.10	\$16.64	\$0.00	\$64.70
For apprentice rates see "Apprentice- LABORER"						
LABORER: TREE REMOVER <i>LABORERS - ZONE 2</i>	12/01/2021	\$35.41	\$9.10	\$16.64	\$0.00	\$61.15
	06/01/2022	\$36.31	\$9.10	\$16.64	\$0.00	\$62.05
	12/01/2022	\$37.16	\$9.10	\$16.64	\$0.00	\$62.90
	06/01/2023	\$38.06	\$9.10	\$16.64	\$0.00	\$63.80
	12/01/2023	\$38.96	\$9.10	\$16.64	\$0.00	\$64.70
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 2</i>	12/01/2021	\$35.66	\$9.10	\$16.64	\$0.00	\$61.40
	06/01/2022	\$36.56	\$9.10	\$16.64	\$0.00	\$62.30
	12/01/2022	\$37.41	\$9.10	\$16.64	\$0.00	\$63.15
	06/01/2023	\$38.31	\$9.10	\$16.64	\$0.00	\$64.05
	12/01/2023	\$39.21	\$9.10	\$16.64	\$0.00	\$64.95
For apprentice rates see "Apprentice- LABORER"						
LASER BEAM OPERATOR (HEAVY & HIGHWAY) <i>LABORERS - ZONE 2 (HEAVY & HIGHWAY)</i>	12/01/2021	\$35.66	\$9.10	\$16.64	\$0.00	\$61.40

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
MARBLE & TILE FINISHERS <i>BRICKLAYERS LOCAL 3 - MARBLE & TILE</i>	02/01/2022	\$43.69	\$11.39	\$20.37	\$0.00	\$75.45

For apprentice rates see "Apprentice- LABORER (Heavy and Highway)

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

Effective Date - 02/01/2022

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$21.85	\$11.39	\$20.37	\$0.00	\$53.61
2	60	\$26.21	\$11.39	\$20.37	\$0.00	\$57.97
3	70	\$30.58	\$11.39	\$20.37	\$0.00	\$62.34
4	80	\$34.95	\$11.39	\$20.37	\$0.00	\$66.71
5	90	\$39.32	\$11.39	\$20.37	\$0.00	\$71.08

Notes:

Apprentice to Journeyworker Ratio:1:3

MARBLE MASONS, TILELAYERS & TERRAZZO MECH <i>BRICKLAYERS LOCAL 3 - MARBLE & TILE</i>	02/01/2022	\$57.17	\$11.39	\$22.31	\$0.00	\$90.87
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Apprentice - MARBLE-TILE-TERRAZZO MECHANIC - Local 3 Marble & Tile

Effective Date - 02/01/2022

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$28.59	\$11.39	\$22.31	\$0.00	\$62.29
2	60	\$34.30	\$11.39	\$22.31	\$0.00	\$68.00
3	70	\$40.02	\$11.39	\$22.31	\$0.00	\$73.72
4	80	\$45.74	\$11.39	\$22.31	\$0.00	\$79.44
5	90	\$51.45	\$11.39	\$22.31	\$0.00	\$85.15

Notes:

Apprentice to Journeyworker Ratio:1:5

MECH. SWEEPER OPERATOR (ON CONST. SITES) <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2021	\$50.83	\$14.00	\$16.05	\$0.00	\$80.88
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For apprentice rates see "Apprentice- OPERATING ENGINEERS"

MECHANICS MAINTENANCE <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2021	\$50.83	\$14.00	\$16.05	\$0.00	\$80.88
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For apprentice rates see "Apprentice- OPERATING ENGINEERS"

MILLWRIGHT (Zone 2) <i>MILLWRIGHTS LOCAL 1121 - Zone 2</i>	01/03/2022	\$40.67	\$8.58	\$21.57	\$0.00	\$70.82
	01/02/2023	\$41.92	\$8.58	\$21.57	\$0.00	\$72.07

Apprentice - MILLWRIGHT - Local 1121 Zone 2

Effective Date - 01/03/2022

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	55	\$22.37	\$8.58	\$5.72	\$0.00	\$36.67
2	65	\$26.44	\$8.58	\$17.93	\$0.00	\$52.95
3	75	\$30.50	\$8.58	\$18.98	\$0.00	\$58.06
4	85	\$34.57	\$8.58	\$20.01	\$0.00	\$63.16

Effective Date - 01/02/2023

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	55	\$23.06	\$8.58	\$5.72	\$0.00	\$37.36
2	65	\$27.25	\$8.58	\$17.93	\$0.00	\$53.76
3	75	\$31.44	\$8.58	\$18.98	\$0.00	\$59.00
4	85	\$35.63	\$8.58	\$20.01	\$0.00	\$64.22

Notes: Step 1&2 Appr. indentured after 1/6/2020 receive no pension, but do receive annuity. (Step 1 \$5.72, Step 2 \$6.66)
Steps are 2,000 hours

Apprentice to Journeyworker Ratio:1:4

MORTAR MIXER LABORERS - ZONE 2	12/01/2021	\$35.66	\$9.10	\$16.64	\$0.00	\$61.40
	06/01/2022	\$36.56	\$9.10	\$16.64	\$0.00	\$62.30
	12/01/2022	\$37.41	\$9.10	\$16.64	\$0.00	\$63.15
	06/01/2023	\$38.31	\$9.10	\$16.64	\$0.00	\$64.05
	12/01/2023	\$39.21	\$9.10	\$16.64	\$0.00	\$64.95

For apprentice rates see "Apprentice- LABORER"

OILER (OTHER THAN TRUCK CRANES,GRADALLS) OPERATING ENGINEERS LOCAL 4	12/01/2021	\$23.48	\$14.00	\$16.05	\$0.00	\$53.53
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For apprentice rates see "Apprentice- OPERATING ENGINEERS"

OILER (TRUCK CRANES, GRADALLS) OPERATING ENGINEERS LOCAL 4	12/01/2021	\$28.44	\$14.00	\$16.05	\$0.00	\$58.49
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For apprentice rates see "Apprentice- OPERATING ENGINEERS"

OTHER POWER DRIVEN EQUIPMENT - CLASS II OPERATING ENGINEERS LOCAL 4	12/01/2021	\$50.83	\$14.00	\$16.05	\$0.00	\$80.88
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For apprentice rates see "Apprentice- OPERATING ENGINEERS"

PAINTER (BRIDGES/TANKS) PAINTERS LOCAL 35 - ZONE 2	01/01/2022	\$53.66	\$8.65	\$23.05	\$0.00	\$85.36
	07/01/2022	\$54.86	\$8.65	\$23.05	\$0.00	\$86.56
	01/01/2023	\$56.06	\$8.65	\$23.05	\$0.00	\$87.76
	07/01/2023	\$57.26	\$8.65	\$23.05	\$0.00	\$88.96
	01/01/2024	\$58.46	\$8.65	\$23.05	\$0.00	\$90.16
	07/01/2024	\$59.66	\$8.65	\$23.05	\$0.00	\$91.36
	01/01/2025	\$60.86	\$8.65	\$23.05	\$0.00	\$92.56

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - PAINTER Local 35 - BRIDGES/TANKS

Effective Date - 01/01/2022

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$26.83	\$8.65	\$0.00	\$0.00	\$35.48
2	55	\$29.51	\$8.65	\$6.27	\$0.00	\$44.43
3	60	\$32.20	\$8.65	\$6.84	\$0.00	\$47.69
4	65	\$34.88	\$8.65	\$7.41	\$0.00	\$50.94
5	70	\$37.56	\$8.65	\$19.63	\$0.00	\$65.84
6	75	\$40.25	\$8.65	\$20.20	\$0.00	\$69.10
7	80	\$42.93	\$8.65	\$20.77	\$0.00	\$72.35
8	90	\$48.29	\$8.65	\$21.91	\$0.00	\$78.85

Effective Date - 07/01/2022

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$27.43	\$8.65	\$0.00	\$0.00	\$36.08
2	55	\$30.17	\$8.65	\$6.27	\$0.00	\$45.09
3	60	\$32.92	\$8.65	\$6.84	\$0.00	\$48.41
4	65	\$35.66	\$8.65	\$7.41	\$0.00	\$51.72
5	70	\$38.40	\$8.65	\$19.63	\$0.00	\$66.68
6	75	\$41.15	\$8.65	\$20.20	\$0.00	\$70.00
7	80	\$43.89	\$8.65	\$20.77	\$0.00	\$73.31
8	90	\$49.37	\$8.65	\$21.91	\$0.00	\$79.93

Notes:

Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

PAINTER (SPRAY OR SANDBLAST, NEW) *	01/01/2022	\$44.56	\$8.65	\$23.05	\$0.00	\$76.26
* If 30% or more of surfaces to be painted are new construction, NEW paint rate shall be used. PAINTERS LOCAL 35 - ZONE 2	07/01/2022	\$45.76	\$8.65	\$23.05	\$0.00	\$77.46
	01/01/2023	\$46.96	\$8.65	\$23.05	\$0.00	\$78.66
	07/01/2023	\$48.16	\$8.65	\$23.05	\$0.00	\$79.86
	01/01/2024	\$49.36	\$8.65	\$23.05	\$0.00	\$81.06
	07/01/2024	\$50.56	\$8.65	\$23.05	\$0.00	\$82.26
	01/01/2025	\$51.76	\$8.65	\$23.05	\$0.00	\$83.46

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

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

Effective Date - 01/01/2022

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$22.28	\$8.65	\$0.00	\$0.00	\$30.93
2	55	\$24.51	\$8.65	\$6.27	\$0.00	\$39.43
3	60	\$26.74	\$8.65	\$6.84	\$0.00	\$42.23
4	65	\$28.96	\$8.65	\$7.41	\$0.00	\$45.02
5	70	\$31.19	\$8.65	\$19.63	\$0.00	\$59.47
6	75	\$33.42	\$8.65	\$20.20	\$0.00	\$62.27
7	80	\$35.65	\$8.65	\$20.77	\$0.00	\$65.07
8	90	\$40.10	\$8.65	\$21.91	\$0.00	\$70.66

Effective Date - 07/01/2022

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$22.88	\$8.65	\$0.00	\$0.00	\$31.53
2	55	\$25.17	\$8.65	\$6.27	\$0.00	\$40.09
3	60	\$27.46	\$8.65	\$6.84	\$0.00	\$42.95
4	65	\$29.74	\$8.65	\$7.41	\$0.00	\$45.80
5	70	\$32.03	\$8.65	\$19.63	\$0.00	\$60.31
6	75	\$34.32	\$8.65	\$20.20	\$0.00	\$63.17
7	80	\$36.61	\$8.65	\$20.77	\$0.00	\$66.03
8	90	\$41.18	\$8.65	\$21.91	\$0.00	\$71.74

Notes:

Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

PAINTER (SPRAY OR SANDBLAST, REPAINT)	01/01/2022	\$42.62	\$8.65	\$23.05	\$0.00	\$74.32
PAINTERS LOCAL 35 - ZONE 2	07/01/2022	\$43.82	\$8.65	\$23.05	\$0.00	\$75.52
	01/01/2023	\$45.02	\$8.65	\$23.05	\$0.00	\$76.72
	07/01/2023	\$46.22	\$8.65	\$23.05	\$0.00	\$77.92
	01/01/2024	\$47.42	\$8.65	\$23.05	\$0.00	\$79.12
	07/01/2024	\$48.62	\$8.65	\$23.05	\$0.00	\$80.32
	01/01/2025	\$49.82	\$8.65	\$23.05	\$0.00	\$81.52

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

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

Effective Date - 01/01/2022

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$21.31	\$8.65	\$0.00	\$0.00	\$29.96
2	55	\$23.44	\$8.65	\$6.27	\$0.00	\$38.36
3	60	\$25.57	\$8.65	\$6.84	\$0.00	\$41.06
4	65	\$27.70	\$8.65	\$7.41	\$0.00	\$43.76
5	70	\$29.83	\$8.65	\$19.63	\$0.00	\$58.11
6	75	\$31.97	\$8.65	\$20.20	\$0.00	\$60.82
7	80	\$34.10	\$8.65	\$20.77	\$0.00	\$63.52
8	90	\$38.36	\$8.65	\$21.91	\$0.00	\$68.92

Effective Date - 07/01/2022

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$21.91	\$8.65	\$0.00	\$0.00	\$30.56
2	55	\$24.10	\$8.65	\$6.27	\$0.00	\$39.02
3	60	\$26.29	\$8.65	\$6.84	\$0.00	\$41.78
4	65	\$28.48	\$8.65	\$7.41	\$0.00	\$44.54
5	70	\$30.67	\$8.65	\$19.63	\$0.00	\$58.95
6	75	\$32.87	\$8.65	\$20.20	\$0.00	\$61.72
7	80	\$35.06	\$8.65	\$20.77	\$0.00	\$64.48
8	90	\$39.44	\$8.65	\$21.91	\$0.00	\$70.00

Notes:
Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

PAINTER / TAPER (BRUSH, NEW) *	01/01/2022	\$43.16	\$8.65	\$23.05	\$0.00	\$74.86
* If 30% or more of surfaces to be painted are new construction, NEW paint rate shall be used. PAINTERS LOCAL 35 - ZONE 2	07/01/2022	\$44.36	\$8.65	\$23.05	\$0.00	\$76.06
	01/01/2023	\$45.56	\$8.65	\$23.05	\$0.00	\$77.26
	07/01/2023	\$46.76	\$8.65	\$23.05	\$0.00	\$78.46
	01/01/2024	\$47.96	\$8.65	\$23.05	\$0.00	\$79.66
	07/01/2024	\$49.16	\$8.65	\$23.05	\$0.00	\$80.86
	01/01/2025	\$50.36	\$8.65	\$23.05	\$0.00	\$82.06

Apprentice - PAINTER - Local 35 Zone 2 - BRUSH NEW

Effective Date - 01/01/2022

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$21.58	\$8.65	\$0.00	\$0.00	\$30.23
2	55	\$23.74	\$8.65	\$6.27	\$0.00	\$38.66
3	60	\$25.90	\$8.65	\$6.84	\$0.00	\$41.39
4	65	\$28.05	\$8.65	\$7.41	\$0.00	\$44.11
5	70	\$30.21	\$8.65	\$19.63	\$0.00	\$58.49
6	75	\$32.37	\$8.65	\$20.20	\$0.00	\$61.22
7	80	\$34.53	\$8.65	\$20.77	\$0.00	\$63.95
8	90	\$38.84	\$8.65	\$21.91	\$0.00	\$69.40

Effective Date - 07/01/2022

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$22.18	\$8.65	\$0.00	\$0.00	\$30.83
2	55	\$24.40	\$8.65	\$6.27	\$0.00	\$39.32
3	60	\$26.62	\$8.65	\$6.84	\$0.00	\$42.11
4	65	\$28.83	\$8.65	\$7.41	\$0.00	\$44.89
5	70	\$31.05	\$8.65	\$19.63	\$0.00	\$59.33
6	75	\$33.27	\$8.65	\$20.20	\$0.00	\$62.12
7	80	\$35.49	\$8.65	\$20.77	\$0.00	\$64.91
8	90	\$39.92	\$8.65	\$21.91	\$0.00	\$70.48

Notes:

Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

PAINTER / TAPER (BRUSH, REPAINT)	01/01/2022	\$41.22	\$8.65	\$23.05	\$0.00	\$72.92
PAINTERS LOCAL 35 - ZONE 2	07/01/2022	\$42.42	\$8.65	\$23.05	\$0.00	\$74.12
	01/01/2023	\$43.62	\$8.65	\$23.05	\$0.00	\$75.32
	07/01/2023	\$44.82	\$8.65	\$23.05	\$0.00	\$76.52
	01/01/2024	\$46.02	\$8.65	\$23.05	\$0.00	\$77.72
	07/01/2024	\$47.22	\$8.65	\$23.05	\$0.00	\$78.92
	01/01/2025	\$48.42	\$8.65	\$23.05	\$0.00	\$80.12

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - PAINTER Local 35 Zone 2 - BRUSH REPAINT

Effective Date - 01/01/2022

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$20.61	\$8.65	\$0.00	\$0.00	\$29.26
2	55	\$22.67	\$8.65	\$6.27	\$0.00	\$37.59
3	60	\$24.73	\$8.65	\$6.84	\$0.00	\$40.22
4	65	\$26.79	\$8.65	\$7.41	\$0.00	\$42.85
5	70	\$28.85	\$8.65	\$19.63	\$0.00	\$57.13
6	75	\$30.92	\$8.65	\$20.20	\$0.00	\$59.77
7	80	\$32.98	\$8.65	\$20.77	\$0.00	\$62.40
8	90	\$37.10	\$8.65	\$21.91	\$0.00	\$67.66

Effective Date - 07/01/2022

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$21.21	\$8.65	\$0.00	\$0.00	\$29.86
2	55	\$23.33	\$8.65	\$6.27	\$0.00	\$38.25
3	60	\$25.45	\$8.65	\$6.84	\$0.00	\$40.94
4	65	\$27.57	\$8.65	\$7.41	\$0.00	\$43.63
5	70	\$29.69	\$8.65	\$19.63	\$0.00	\$57.97
6	75	\$31.82	\$8.65	\$20.20	\$0.00	\$60.67
7	80	\$33.94	\$8.65	\$20.77	\$0.00	\$63.36
8	90	\$38.18	\$8.65	\$21.91	\$0.00	\$68.74

Notes:

Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

PAINTER TRAFFIC MARKINGS (HEAVY/HIGHWAY) LABORERS - ZONE 2 (HEAVY & HIGHWAY)	12/01/2021	\$35.41	\$9.10	\$16.64	\$0.00	\$61.15
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)						
PANEL & PICKUP TRUCKS DRIVER TEAMSTERS JOINT COUNCIL NO. 10 ZONE B	12/01/2021	\$35.78	\$13.41	\$16.01	\$0.00	\$65.20
PIER AND DOCK CONSTRUCTOR (UNDERPINNING AND DECK) PILE DRIVER LOCAL 56 (ZONE 1)	08/01/2020	\$49.07	\$9.40	\$23.12	\$0.00	\$81.59
For apprentice rates see "Apprentice- PILE DRIVER"						
PILE DRIVER PILE DRIVER LOCAL 56 (ZONE 1)	08/01/2020	\$49.07	\$9.40	\$23.12	\$0.00	\$81.59

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - PILE DRIVER - Local 56 Zone 1

Effective Date - 08/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$24.54	\$9.40	\$23.12	\$0.00	\$57.06
2	60	\$29.44	\$9.40	\$23.12	\$0.00	\$61.96
3	70	\$34.35	\$9.40	\$23.12	\$0.00	\$66.87
4	75	\$36.80	\$9.40	\$23.12	\$0.00	\$69.32
5	80	\$39.26	\$9.40	\$23.12	\$0.00	\$71.78
6	80	\$39.26	\$9.40	\$23.12	\$0.00	\$71.78
7	90	\$44.16	\$9.40	\$23.12	\$0.00	\$76.68
8	90	\$44.16	\$9.40	\$23.12	\$0.00	\$76.68

Notes:

% Indentured After 10/1/17; 45/45/55/55/70/70/80/80
Step 1&2 \$34.01/ 3&4 \$41.46/ 5&6 \$62.80/ 7&8 \$69.25

Apprentice to Journeyworker Ratio:1:5

PIPEFITTER & STEAMFITTER <i>PIPEFITTERS LOCAL 537 (Local 138)</i>	03/01/2021	\$54.86	\$10.95	\$19.74	\$0.00	\$85.55
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Apprentice - PIPEFITTER Local 537 (Local 138)

Effective Date - 03/01/2021

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	\$21.94	\$10.95	\$8.00	\$0.00	\$40.89
2	45	\$24.69	\$10.95	\$19.74	\$0.00	\$55.38
3	60	\$32.92	\$10.95	\$19.74	\$0.00	\$63.61
4	70	\$38.40	\$10.95	\$19.74	\$0.00	\$69.09
5	80	\$43.89	\$10.95	\$19.74	\$0.00	\$74.58

Notes:

** 1:3; 3:15; 1:10 thereafter / Steps are 1 yr.
Refrig/AC Mechanic **1:1;1:2;2:4;3:6;4:8;5:10;6:12;7:14;8:17;9:20;10:23(Max)

Apprentice to Journeyworker Ratio:**

PIPELAYER <i>LABORERS - ZONE 2</i>	12/01/2021	\$35.66	\$9.10	\$16.64	\$0.00	\$61.40
	06/01/2022	\$36.56	\$9.10	\$16.64	\$0.00	\$62.30
	12/01/2022	\$37.41	\$9.10	\$16.64	\$0.00	\$63.15
	06/01/2023	\$38.31	\$9.10	\$16.64	\$0.00	\$64.05
	12/01/2023	\$39.21	\$9.10	\$16.64	\$0.00	\$64.95

For apprentice rates see "Apprentice- LABORER"

PIPELAYER (HEAVY & HIGHWAY) <i>LABORERS - ZONE 2 (HEAVY & HIGHWAY)</i>	12/01/2021	\$35.66	\$9.10	\$16.64	\$0.00	\$61.40
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For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
PLUMBER <i>PLUMBERS & GASFITTERS LOCAL 12 (Local 138)</i>	09/01/2021	\$61.79	\$13.57	\$17.26	\$0.00	\$92.62
	02/27/2022	\$63.39	\$13.57	\$17.26	\$0.00	\$94.22
	09/04/2022	\$65.09	\$13.57	\$17.26	\$0.00	\$95.92
	02/26/2023	\$66.79	\$13.57	\$17.26	\$0.00	\$97.62
	09/03/2023	\$68.54	\$13.57	\$17.26	\$0.00	\$99.37
	03/03/2024	\$70.34	\$13.57	\$17.26	\$0.00	\$101.17
	09/01/2024	\$72.14	\$13.57	\$17.26	\$0.00	\$102.97
	03/02/2025	\$73.94	\$13.57	\$17.26	\$0.00	\$104.77

Apprentice - PLUMBER/GASFITTER - Local 12 (Local 138)

Effective Date - 09/01/2021

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	35	\$21.63	\$13.57	\$6.24	\$0.00	\$41.44
2	40	\$24.72	\$13.57	\$7.08	\$0.00	\$45.37
3	55	\$33.98	\$13.57	\$9.63	\$0.00	\$57.18
4	65	\$40.16	\$13.57	\$11.33	\$0.00	\$65.06
5	75	\$46.34	\$13.57	\$13.03	\$0.00	\$72.94

Effective Date - 02/27/2022

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	35	\$22.19	\$13.57	\$6.24	\$0.00	\$42.00
2	40	\$25.36	\$13.57	\$7.08	\$0.00	\$46.01
3	55	\$34.86	\$13.57	\$9.63	\$0.00	\$58.06
4	65	\$41.20	\$13.57	\$11.33	\$0.00	\$66.10
5	75	\$47.54	\$13.57	\$13.03	\$0.00	\$74.14

Notes: ** 1:2; 2:6; 3:10; 4:14; 5:19/Steps are 1 yr
Steps are 1 yr
Step 4 with lic\$69.00, Step5 with lic\$76.87

Apprentice to Journeyworker Ratio:**

PNEUMATIC CONTROLS (TEMP.) <i>PIPEFITTERS LOCAL 537 (Local 138)</i>	03/01/2021	\$54.86	\$10.95	\$19.74	\$0.00	\$85.55
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For apprentice rates see "Apprentice- PIPEFITTER" or "PLUMBER/PIPEFITTER"

PNEUMATIC DRILL/TOOL OPERATOR <i>LABORERS - ZONE 2</i>	12/01/2021	\$35.66	\$9.10	\$16.64	\$0.00	\$61.40
	06/01/2022	\$36.56	\$9.10	\$16.64	\$0.00	\$62.30
	12/01/2022	\$37.41	\$9.10	\$16.64	\$0.00	\$63.15
	06/01/2023	\$38.31	\$9.10	\$16.64	\$0.00	\$64.05
	12/01/2023	\$39.21	\$9.10	\$16.64	\$0.00	\$64.95

For apprentice rates see "Apprentice- LABORER"

PNEUMATIC DRILL/TOOL OPERATOR (HEAVY & HIGHWAY) <i>LABORERS - ZONE 2 (HEAVY & HIGHWAY)</i>	12/01/2021	\$35.66	\$9.10	\$16.64	\$0.00	\$61.40
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For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
POWDERMAN & BLASTER <i>LABORERS - ZONE 2</i>	12/01/2021	\$36.41	\$9.10	\$16.64	\$0.00	\$62.15
	06/01/2022	\$37.31	\$9.10	\$16.64	\$0.00	\$63.05
	12/01/2022	\$38.16	\$9.10	\$16.64	\$0.00	\$63.90
	06/01/2023	\$39.06	\$9.10	\$16.64	\$0.00	\$64.80
	12/01/2023	\$39.96	\$9.10	\$16.64	\$0.00	\$65.70
For apprentice rates see "Apprentice- LABORER"						
POWDERMAN & BLASTER (HEAVY & HIGHWAY) <i>LABORERS - ZONE 2 (HEAVY & HIGHWAY)</i>	12/01/2021	\$36.41	\$9.10	\$16.64	\$0.00	\$62.15
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"						
POWER SHOVEL/DERRICK/TRENCHING MACHINE <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2021	\$51.38	\$14.00	\$16.05	\$0.00	\$81.43
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
PUMP OPERATOR (CONCRETE) <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2021	\$51.38	\$14.00	\$16.05	\$0.00	\$81.43
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
PUMP OPERATOR (DEWATERING, OTHER) <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2021	\$33.69	\$14.00	\$16.05	\$0.00	\$63.74
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
READY-MIX CONCRETE DRIVER <i>TEAMSTERS 42 - J.G. MacLeallan (Wakefield)</i>	05/01/2021	\$27.00	\$7.99	\$7.00	\$0.00	\$41.99
READY-MIX CONCRETE DRIVER <i>TEAMSTERS 170 - J.G. MacLellan (Lowell)</i>	01/01/2022	\$25.50	\$10.37	\$6.35	\$0.00	\$42.22
	05/01/2022	\$25.85	\$10.37	\$6.35	\$0.00	\$42.57
	01/01/2023	\$25.85	\$10.77	\$6.35	\$0.00	\$42.97
RECLAIMERS <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2021	\$50.83	\$14.00	\$16.05	\$0.00	\$80.88
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
RIDE-ON MOTORIZED BUGGY OPERATOR <i>LABORERS - ZONE 2</i>	12/01/2021	\$35.66	\$9.10	\$16.64	\$0.00	\$61.40
	06/01/2022	\$36.56	\$9.10	\$16.64	\$0.00	\$62.30
	12/01/2022	\$37.41	\$9.10	\$16.64	\$0.00	\$63.15
	06/01/2023	\$38.31	\$9.10	\$16.64	\$0.00	\$64.05
	12/01/2023	\$39.21	\$9.10	\$16.64	\$0.00	\$64.95
For apprentice rates see "Apprentice- LABORER"						
ROLLER/SPREADER/MULCHING MACHINE <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2021	\$50.83	\$14.00	\$16.05	\$0.00	\$80.88
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
ROOFER (Inc.Roofer Waterproofing &Roofer Damproofg) <i>ROOFERS LOCAL 33</i>	02/01/2022	\$47.03	\$12.28	\$19.45	\$0.00	\$78.76

Apprentice - ROOFER - Local 33

Effective Date - 02/01/2022

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$23.52	\$12.28	\$5.21	\$0.00	\$41.01
2	60	\$28.22	\$12.28	\$19.45	\$0.00	\$59.95
3	65	\$30.57	\$12.28	\$19.45	\$0.00	\$62.30
4	75	\$35.27	\$12.28	\$19.45	\$0.00	\$67.00
5	85	\$39.98	\$12.28	\$19.45	\$0.00	\$71.71

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

Apprentice to Journeyworker Ratio:**

ROOFER SLATE / TILE / PRECAST CONCRETE <i>ROOFERS LOCAL 33</i>	02/01/2022	\$47.28	\$12.28	\$19.45	\$0.00	\$79.01
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For apprentice rates see "Apprentice- ROOFER"

SHEETMETAL WORKER <i>SHEETMETAL WORKERS LOCAL 17 - A</i>	02/01/2022	\$53.70	\$13.80	\$25.60	\$2.79	\$95.89
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Apprentice - SHEET METAL WORKER - Local 17-A

Effective Date - 02/01/2022

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	42	\$22.55	\$13.80	\$6.01	\$0.00	\$42.36
2	42	\$22.55	\$13.80	\$6.01	\$0.00	\$42.36
3	47	\$25.24	\$13.80	\$11.26	\$1.51	\$51.81
4	47	\$25.24	\$13.80	\$11.26	\$1.51	\$51.81
5	52	\$27.92	\$13.80	\$12.23	\$1.62	\$55.57
6	52	\$27.92	\$13.80	\$12.48	\$1.63	\$55.83
7	60	\$32.22	\$13.80	\$13.87	\$1.80	\$61.69
8	65	\$34.91	\$13.80	\$14.84	\$1.91	\$65.46
9	75	\$40.28	\$13.80	\$16.77	\$2.13	\$72.98
10	85	\$45.65	\$13.80	\$18.20	\$2.33	\$79.98

Notes:
 Steps are 6 mos.

Apprentice to Journeyworker Ratio:1:4

SPECIALIZED EARTH MOVING EQUIP < 35 TONS <i>TEAMSTERS JOINT COUNCIL NO. 10 ZONE B</i>	12/01/2021	\$36.24	\$13.41	\$16.01	\$0.00	\$65.66
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SPECIALIZED EARTH MOVING EQUIP > 35 TONS <i>TEAMSTERS JOINT COUNCIL NO. 10 ZONE B</i>	12/01/2021	\$36.53	\$13.41	\$16.01	\$0.00	\$65.95
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SPRINKLER FITTER <i>SPRINKLER FITTERS LOCAL 550 - (Section B) Zone 2</i>	03/01/2021	\$56.21	\$10.00	\$21.25	\$0.00	\$87.46
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Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - SPRINKLER FITTER - Local 550 (Section B) Zone 2

Effective Date - 03/01/2021

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	35	\$19.67	\$10.00	\$11.99	\$0.00	\$41.66
2	40	\$22.48	\$10.00	\$12.70	\$0.00	\$45.18
3	45	\$25.29	\$10.00	\$13.41	\$0.00	\$48.70
4	50	\$28.11	\$10.00	\$14.13	\$0.00	\$52.24
5	55	\$30.92	\$10.00	\$14.84	\$0.00	\$55.76
6	60	\$33.73	\$10.00	\$15.55	\$0.00	\$59.28
7	65	\$36.54	\$10.00	\$16.26	\$0.00	\$62.80
8	70	\$39.35	\$10.00	\$16.98	\$0.00	\$66.33
9	75	\$42.16	\$10.00	\$17.69	\$0.00	\$69.85
10	80	\$44.97	\$10.00	\$18.40	\$0.00	\$73.37

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

Apprentice to Journeyworker Ratio:1:3

STEAM BOILER OPERATOR <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2021	\$50.83	\$14.00	\$16.05	\$0.00	\$80.88
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
TAMPERS, SELF-PROPELLED OR TRACTOR DRAWN <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2021	\$50.83	\$14.00	\$16.05	\$0.00	\$80.88
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
TELECOMMUNICATION TECHNICIAN <i>ELECTRICIANS LOCAL 103</i>	09/01/2021	\$43.40	\$13.00	\$18.37	\$0.00	\$74.77
	03/01/2022	\$44.71	\$13.00	\$18.74	\$0.00	\$76.45
	09/01/2022	\$46.42	\$13.00	\$18.87	\$0.00	\$78.29
	03/01/2023	\$48.34	\$13.00	\$19.01	\$0.00	\$80.35

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - TELECOMMUNICATION TECHNICIAN - Local 103

Effective Date - 09/01/2021

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	45	\$19.53	\$13.00	\$0.59	\$0.00	\$33.12
2	45	\$19.53	\$13.00	\$0.59	\$0.00	\$33.12
3	50	\$21.70	\$13.00	\$14.79	\$0.00	\$49.49
4	50	\$21.70	\$13.00	\$14.79	\$0.00	\$49.49
5	55	\$23.87	\$13.00	\$15.12	\$0.00	\$51.99
6	60	\$26.04	\$13.00	\$15.47	\$0.00	\$54.51
7	65	\$28.21	\$13.00	\$15.84	\$0.00	\$57.05
8	70	\$30.38	\$13.00	\$16.20	\$0.00	\$59.58
9	75	\$32.55	\$13.00	\$16.57	\$0.00	\$62.12
10	80	\$34.72	\$13.00	\$16.92	\$0.00	\$64.64

Effective Date - 03/01/2022

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	45	\$20.12	\$13.00	\$0.60	\$0.00	\$33.72
2	45	\$20.12	\$13.00	\$0.60	\$0.00	\$33.72
3	50	\$22.36	\$13.00	\$15.06	\$0.00	\$50.42
4	50	\$22.36	\$13.00	\$15.06	\$0.00	\$50.42
5	55	\$24.59	\$13.00	\$15.39	\$0.00	\$52.98
6	60	\$26.83	\$13.00	\$15.74	\$0.00	\$55.57
7	65	\$29.06	\$13.00	\$16.11	\$0.00	\$58.17
8	70	\$31.30	\$13.00	\$16.48	\$0.00	\$60.78
9	75	\$33.53	\$13.00	\$16.85	\$0.00	\$63.38
10	80	\$35.77	\$13.00	\$17.20	\$0.00	\$65.97

Notes:

Apprentice to Journeyworker Ratio:1:1

TERRAZZO FINISHERS BRICKLAYERS LOCAL 3 - MARBLE & TILE	02/01/2022	\$56.09	\$11.39	\$22.34	\$0.00	\$89.82
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Apprentice - TERRAZZO FINISHER - Local 3 Marble & Tile

Effective Date - 02/01/2022

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$28.05	\$11.39	\$22.34	\$0.00	\$61.78
2	60	\$33.65	\$11.39	\$22.34	\$0.00	\$67.38
3	70	\$39.26	\$11.39	\$22.34	\$0.00	\$72.99
4	80	\$44.87	\$11.39	\$22.34	\$0.00	\$78.60
5	90	\$50.48	\$11.39	\$22.34	\$0.00	\$84.21

Notes:

Apprentice to Journeyworker Ratio:1:3

TEST BORING DRILLER <i>LABORERS - FOUNDATION AND MARINE</i>	12/01/2021	\$42.58	\$9.10	\$17.72	\$0.00	\$69.40
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For apprentice rates see "Apprentice- LABORER"

TEST BORING DRILLER HELPER <i>LABORERS - FOUNDATION AND MARINE</i>	12/01/2021	\$41.30	\$9.10	\$17.72	\$0.00	\$68.12
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For apprentice rates see "Apprentice- LABORER"

TEST BORING LABORER <i>LABORERS - FOUNDATION AND MARINE</i>	12/01/2021	\$41.18	\$9.10	\$17.72	\$0.00	\$68.00
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For apprentice rates see "Apprentice- LABORER"

TRACTORS/PORTABLE STEAM GENERATORS <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2021	\$50.83	\$14.00	\$16.05	\$0.00	\$80.88
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For apprentice rates see "Apprentice- OPERATING ENGINEERS"

TRAILERS FOR EARTH MOVING EQUIPMENT <i>TEAMSTERS JOINT COUNCIL NO. 10 ZONE B</i>	12/01/2021	\$36.82	\$13.41	\$16.01	\$0.00	\$66.24
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TUNNEL WORK - COMPRESSED AIR <i>LABORERS (COMPRESSED AIR)</i>	12/01/2021	\$53.41	\$9.10	\$18.17	\$0.00	\$80.68
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For apprentice rates see "Apprentice- LABORER"

TUNNEL WORK - COMPRESSED AIR (HAZ. WASTE) <i>LABORERS (COMPRESSED AIR)</i>	12/01/2021	\$55.41	\$9.10	\$18.17	\$0.00	\$82.68
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For apprentice rates see "Apprentice- LABORER"

TUNNEL WORK - FREE AIR <i>LABORERS (FREE AIR TUNNEL)</i>	12/01/2021	\$45.48	\$9.10	\$18.17	\$0.00	\$72.75
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For apprentice rates see "Apprentice- LABORER"

TUNNEL WORK - FREE AIR (HAZ. WASTE) <i>LABORERS (FREE AIR TUNNEL)</i>	12/01/2021	\$47.48	\$9.10	\$18.17	\$0.00	\$74.75
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For apprentice rates see "Apprentice- LABORER"

VAC-HAUL <i>TEAMSTERS JOINT COUNCIL NO. 10 ZONE B</i>	12/01/2021	\$36.24	\$13.41	\$16.01	\$0.00	\$65.66
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WAGON DRILL OPERATOR <i>LABORERS - ZONE 2</i>	12/01/2021	\$35.66	\$9.10	\$16.64	\$0.00	\$61.40
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	06/01/2022	\$36.56	\$9.10	\$16.64	\$0.00	\$62.30
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	12/01/2022	\$37.41	\$9.10	\$16.64	\$0.00	\$63.15
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	06/01/2023	\$38.31	\$9.10	\$16.64	\$0.00	\$64.05
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	12/01/2023	\$39.21	\$9.10	\$16.64	\$0.00	\$64.95
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For apprentice rates see "Apprentice- LABORER"

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
WAGON DRILL OPERATOR (HEAVY & HIGHWAY) <i>LABORERS - ZONE 2 (HEAVY & HIGHWAY)</i>	12/01/2021	\$35.66	\$9.10	\$16.64	\$0.00	\$61.40
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"						
WASTE WATER PUMP OPERATOR <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2021	\$51.38	\$14.00	\$16.05	\$0.00	\$81.43
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
WATER METER INSTALLER <i>PLUMBERS & GASFITTERS LOCAL 12 (Local 138)</i>	09/01/2021	\$61.79	\$13.57	\$17.26	\$0.00	\$92.62
	02/27/2022	\$63.39	\$13.57	\$17.26	\$0.00	\$94.22
	09/04/2022	\$65.09	\$13.57	\$17.26	\$0.00	\$95.92
	02/26/2023	\$66.79	\$13.57	\$17.26	\$0.00	\$97.62
	09/03/2023	\$68.54	\$13.57	\$17.26	\$0.00	\$99.37
	03/03/2024	\$70.34	\$13.57	\$17.26	\$0.00	\$101.17
	09/01/2024	\$72.14	\$13.57	\$17.26	\$0.00	\$102.97
	03/02/2025	\$73.94	\$13.57	\$17.26	\$0.00	\$104.77
For apprentice rates see "Apprentice- PLUMBER/PIPEFITTER" or "PLUMBER/GASFITTER"						

Additional Apprentice Information:

Minimum wage rates for apprentices employed on public works projects are listed above as a percentage of the pre-determined hourly wage rate established by the Commissioner under the provisions of the M.G.L. c. 149, ss. 26-27D. Apprentice ratios are established by the Division of Apprenticeship Training pursuant to M.G.L. c. 23, ss. 11E-11L.

All apprentices must be registered with the Division of Apprenticeship Training in accordance with M.G.L. c. 23, ss. 11E-11L.

All steps are six months (1000 hours.)

Ratios are expressed in allowable number of apprentices to journeymen or fraction thereof, unless otherwise specified.

** Multiple ratios are listed in the comment field.

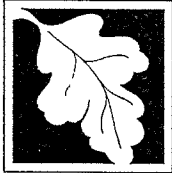
*** APP to JM; 1:1, 2:2, 2:3, 3:4, 4:4, 4:5, 4:6, 5:7, 6:7, 6:8, 6:9, 7:10, 8:10, 8:11, 8:12, 9:13, 10:13, 10:14, etc.

**** APP to JM; 1:1, 1:2, 2:3, 2:4, 3:5, 4:6, 4:7, 5:8, 6:9, 6:10, 7:11, 8:12, 8:13, 9:14, 10:15, 10:16, etc.

ATTACHMENT B

NEWBURYPORT CONSERVATION COMMISSION
ORDER OF CONDITIONS

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Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

WPA Form 5 – Order of Conditions

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:
051-1058

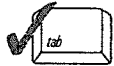
MassDEP File #

eDEP Transaction #
Newburyport

City/Town

A. General Information

Important:
When filling out forms on the computer, use only the tab key to move your cursor - do not use the return key.



1. From: Newburyport Conservation Commission
Conservation Commission

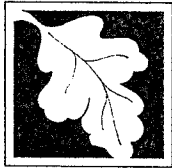
2. This issuance is for (check one):
a. Order of Conditions b. Amended Order of Conditions

3. To: Applicant:
a. First Name Jon-Eric b. Last Name White
c. Organization City of Newburyport
d. Mailing Address 16C Perry Way
e. City/Town Newburyport f. State MA g. Zip Code 01950

4. Property Owner (if different from applicant):
a. First Name _____ b. Last Name _____
c. Organization City of Newburyport
d. Mailing Address _____
e. City/Town _____ f. State _____ g. Zip Code _____

5. Project Location:
a. Street Address Philips Drive Neighborhood Roadway b. City/Town Newburyport
c. Assessors Map/Plat Number n/a d. Parcel/Lot Number _____

Latitude and Longitude, if known: _____
d. Latitude _____ e. Longitude _____



Massachusetts Department of Environmental Protection
 Bureau of Resource Protection - Wetlands
WPA Form 5 – Order of Conditions
 Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:
 051-1058
 MassDEP File #
 eDEP Transaction #
 Newburyport
 City/Town

A. General Information (cont.)

6. Property recorded at the Registry of Deeds for (attach additional information if more than one parcel):

Southern Essex District Registry of Deeds

a. County _____ b. Certificate Number (if registered land) _____
 c. Book _____ d. Page _____

7. Dates: 12/30/2021 2/1/2022 2/2/2022
 a. Date Notice of Intent Filed b. Date Public Hearing Closed c. Date of Issuance

8. Final Approved Plans and Other Documents (attach additional plan or document references as needed):

Project Site Plans, Roadway, Drainage and Water Main Improvements, Phillips Drive Neighborh

a. Plan Title _____
 BSC Group _____ David Biancavilla _____
 b. Prepared By _____ c. Signed and Stamped by _____
 12/1/2021 _____
 d. Final Revision Date _____ e. Scale _____

f. Additional Plan or Document Title _____ g. Date _____

B. Findings

1. Findings pursuant to the Massachusetts Wetlands Protection Act:

Following the review of the above-referenced Notice of Intent and based on the information provided in this application and presented at the public hearing, this Commission finds that the areas in which work is proposed is significant to the following interests of the Wetlands Protection Act (the Act). Check all that apply:

- a. Public Water Supply
- b. Land Containing Shellfish
- c. Prevention of Pollution
- d. Private Water Supply
- e. Fisheries
- f. Protection of Wildlife
- g. Groundwater Supply
- h. Storm Damage Prevention
- i. Flood Control

2. This Commission hereby finds the project, as proposed, is: (check one of the following boxes)

Approved subject to:

- a. the following conditions which are necessary in accordance with the performance standards set forth in the wetlands regulations. This Commission orders that all work shall be performed in accordance with the Notice of Intent referenced above, the following General Conditions, and any other special conditions attached to this Order. To the extent that the following conditions modify or differ from the plans, specifications, or other proposals submitted with the Notice of Intent, these conditions shall control.



Massachusetts Department of Environmental Protection
 Bureau of Resource Protection - Wetlands
WPA Form 5 – Order of Conditions
 Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:
 051-1058
 MassDEP File # _____
 eDEP Transaction # _____
 Newburyport
 City/Town _____

B. Findings (cont.)

Denied because:

- b. the proposed work cannot be conditioned to meet the performance standards set forth in the wetland regulations. Therefore, work on this project may not go forward unless and until a new Notice of Intent is submitted which provides measures which are adequate to protect the interests of the Act, and a final Order of Conditions is issued. **A description of the performance standards which the proposed work cannot meet is attached to this Order.**
- c. the information submitted by the applicant is not sufficient to describe the site, the work, or the effect of the work on the interests identified in the Wetlands Protection Act. Therefore, work on this project may not go forward unless and until a revised Notice of Intent is submitted which provides sufficient information and includes measures which are adequate to protect the Act's interests, and a final Order of Conditions is issued. **A description of the specific information which is lacking and why it is necessary is attached to this Order as per 310 CMR 10.05(6)(c).**
3. Buffer Zone Impacts: Shortest distance between limit of project disturbance and the wetland resource area specified in 310 CMR 10.02(1)(a) 0.00
a. linear feet

Inland Resource Area Impacts: Check all that apply below. (For Approvals Only)

Resource Area	Proposed Alteration	Permitted Alteration	Proposed Replacement	Permitted Replacement
4. <input type="checkbox"/> Bank	_____ a. linear feet	_____ b. linear feet	_____ c. linear feet	_____ d. linear feet
5. <input type="checkbox"/> Bordering Vegetated Wetland	_____ a. square feet	_____ b. square feet	_____ c. square feet	_____ d. square feet
6. <input type="checkbox"/> Land Under Waterbodies and Waterways	_____ a. square feet _____ e. c/v dredged	_____ b. square feet _____ f. c/v dredged	_____ c. square feet	_____ d. square feet
7. <input type="checkbox"/> Bordering Land Subject to Flooding	_____ a. square feet	_____ b. square feet	_____ c. square feet	_____ d. square feet
Cubic Feet Flood Storage	_____ e. cubic feet	_____ f. cubic feet	_____ g. cubic feet	_____ h. cubic feet
8. <input type="checkbox"/> Isolated Land Subject to Flooding	_____ a. square feet	_____ b. square feet		
Cubic Feet Flood Storage	_____ c. cubic feet	_____ d. cubic feet	_____ e. cubic feet	_____ f. cubic feet
9. <input type="checkbox"/> Riverfront Area	_____ a. total sq. feet	_____ b. total sq. feet		
Sq ft within 100 ft	_____ c. square feet	_____ d. square feet	_____ e. square feet	_____ f. square feet
Sq ft between 100-200 ft	_____ g. square feet	_____ h. square feet	_____ i. square feet	_____ j. square feet



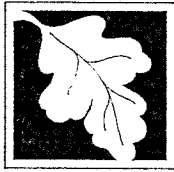
Massachusetts Department of Environmental Protection
 Bureau of Resource Protection - Wetlands
WPA Form 5 – Order of Conditions
 Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:
 051-1058
 MassDEP File #
 eDEP Transaction #
 Newburyport
 City/Town

B. Findings (cont.)

Coastal Resource Area Impacts: Check all that apply below. (For Approvals Only)

	Proposed Alteration	Permitted Alteration	Proposed Replacement	Permitted Replacement
10. <input type="checkbox"/> Designated Port Areas	Indicate size under Land Under the Ocean, below			
11. <input type="checkbox"/> Land Under the Ocean	_____	_____		
	a. square feet	b. square feet		
	_____	_____		
	c. c/y dredged	d. c/y dredged		
12. <input type="checkbox"/> Barrier Beaches	Indicate size under Coastal Beaches and/or Coastal Dunes below			
13. <input type="checkbox"/> Coastal Beaches	_____	_____	_____ cu yd	_____ cu yd
	a. square feet	b. square feet	c. nourishment	d. nourishment
14. <input type="checkbox"/> Coastal Dunes	_____	_____	_____ cu yd	_____ cu yd
	a. square feet	b. square feet	c. nourishment	d. nourishment
15. <input type="checkbox"/> Coastal Banks	_____	_____		
	a. linear feet	b. linear feet		
16. <input type="checkbox"/> Rocky Intertidal Shores	_____	_____		
	a. square feet	b. square feet		
17. <input type="checkbox"/> Salt Marshes	_____	_____	_____	_____
	a. square feet	b. square feet	c. square feet	d. square feet
18. <input type="checkbox"/> Land Under Salt Ponds	_____	_____		
	a. square feet	b. square feet		
	_____	_____		
	c. c/y dredged	d. c/y dredged		
19. <input type="checkbox"/> Land Containing Shellfish	_____	_____	_____	_____
	a. square feet	b. square feet	c. square feet	d. square feet
20. <input type="checkbox"/> Fish Runs	Indicate size under Coastal Banks, Inland Bank, Land Under the Ocean, and/or inland Land Under Waterbodies and Waterways, above			
	_____	_____		
	a. c/y dredged	b. c/y dredged		
21. <input type="checkbox"/> Land Subject to Coastal Storm Flowage	_____	_____		
	a. square feet	b. square feet		



WPA Form 5 – Order of Conditions

B. Findings (cont.)

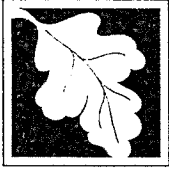
*#22. If the project is for the purpose of restoring or enhancing a wetland resource area in addition to the square footage that has been entered in Section B.5.c (BVW) or B.17.c (Salt Marsh) above, please enter the additional amount here.

22. <input type="checkbox"/> Restoration/Enhancement: *	0.00	0.00
	_____	_____
a. square feet of BVW		b. square feet of salt marsh
23. <input type="checkbox"/> Stream Crossing(s):	0	0
	_____	_____
a. number of new stream crossings		b. number of replacement stream crossings

C. General Conditions Under Massachusetts Wetlands Protection Act

The following conditions are only applicable to Approved projects.

1. Failure to comply with all conditions stated herein, and with all related statutes and other regulatory measures, shall be deemed cause to revoke or modify this Order.
2. The Order does not grant any property rights or any exclusive privileges; it does not authorize any injury to private property or invasion of private rights.
3. This Order does not relieve the permittee or any other person of the necessity of complying with all other applicable federal, state, or local statutes, ordinances, bylaws, or regulations.
4. The work authorized hereunder shall be completed within three years from the date of this Order unless either of the following apply:
 - a. the work is a maintenance dredging project as provided for in the Act; or
 - b. the time for completion has been extended to a specified date more than three years, but less than five years, from the date of issuance. If this Order is intended to be valid for more than three years, the extension date and the special circumstances warranting the extended time period are set forth as a special condition in this Order.
5. This Order may be extended by the issuing authority for one or more periods of up to three years each upon application to the issuing authority at least 30 days prior to the expiration date of the Order.
6. If this Order constitutes an Amended Order of Conditions, this Amended Order of Conditions does not extend the issuance date of the original Final Order of Conditions and the Order will expire on **2/2/2025** unless extended in writing by the Department.
7. Any fill used in connection with this project shall be clean fill. Any fill shall contain no trash, refuse, rubbish, or debris, including but not limited to lumber, bricks, plaster, wire, lath, paper, cardboard, pipe, tires, ashes, refrigerators, motor vehicles, or parts of any of the foregoing.
8. This Order is not final until all administrative appeal periods from this Order have elapsed, or if such an appeal has been taken, until all proceedings before the Department have been completed.



Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

WPA Form 5 – Order of Conditions

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:

051-1058

MassDEP File #

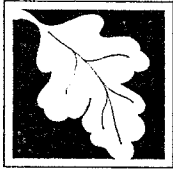
eDEP Transaction #

Newburyport

City/Town

C. General Conditions Under Massachusetts Wetlands Protection Act (cont.)

9. No work shall be undertaken until the Order has become final and then has been recorded in the Registry of Deeds or the Land Court for the district in which the land is located, within the chain of title of the affected property. In the case of recorded land, the Final Order shall also be noted in the Registry's Grantor Index under the name of the owner of the land upon which the proposed work is to be done. In the case of the registered land, the Final Order shall also be noted on the Land Court Certificate of Title of the owner of the land upon which the proposed work is done. The recording information shall be submitted to the Conservation Commission on the form at the end of this Order, which form must be stamped by the Registry of Deeds, prior to the commencement of work.
10. A sign shall be displayed at the site not less than two square feet or more than three square feet in size bearing the words,
"Massachusetts Department of Environmental Protection" [or, "MassDEP"]
"File Number 051-1058 "
11. Where the Department of Environmental Protection is requested to issue a Superseding Order, the Conservation Commission shall be a party to all agency proceedings and hearings before MassDEP.
12. Upon completion of the work described herein, the applicant shall submit a Request for Certificate of Compliance (WPA Form 8A) to the Conservation Commission.
13. The work shall conform to the plans and special conditions referenced in this order.
14. Any change to the plans identified in Condition #12 above shall require the applicant to inquire of the Conservation Commission in writing whether the change is significant enough to require the filing of a new Notice of Intent.
15. The Agent or members of the Conservation Commission and the Department of Environmental Protection shall have the right to enter and inspect the area subject to this Order at reasonable hours to evaluate compliance with the conditions stated in this Order, and may require the submittal of any data deemed necessary by the Conservation Commission or Department for that evaluation.
16. This Order of Conditions shall apply to any successor in interest or successor in control of the property subject to this Order and to any contractor or other person performing work conditioned by this Order.
17. Prior to the start of work, and if the project involves work adjacent to a Bordering Vegetated Wetland, the boundary of the wetland in the vicinity of the proposed work area shall be marked by wooden stakes or flagging. Once in place, the wetland boundary markers shall be maintained until a Certificate of Compliance has been issued by the Conservation Commission.



C. General Conditions Under Massachusetts Wetlands Protection Act (cont.)

18. All sedimentation barriers shall be maintained in good repair until all disturbed areas have been fully stabilized with vegetation or other means. At no time shall sediments be deposited in a wetland or water body. During construction, the applicant or his/her designee shall inspect the erosion controls on a daily basis and shall remove accumulated sediments as needed. The applicant shall immediately control any erosion problems that occur at the site and shall also immediately notify the Conservation Commission, which reserves the right to require additional erosion and/or damage prevention controls it may deem necessary. Sedimentation barriers shall serve as the limit of work unless another limit of work line has been approved by this Order.

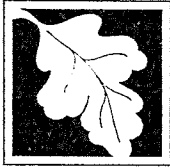
NOTICE OF STORMWATER CONTROL AND MAINTENANCE REQUIREMENTS

19. **The work associated with this Order (the “Project”) is (1) is not (2) subject to the Massachusetts Stormwater Standards. If the work is subject to the Stormwater Standards, then the project is subject to the following conditions:**

a) All work, including site preparation, land disturbance, construction and redevelopment, shall be implemented in accordance with the construction period pollution prevention and erosion and sedimentation control plan and, if applicable, the Stormwater Pollution Prevention Plan required by the National Pollution Discharge Elimination System Construction General Permit as required by Stormwater Condition 8. Construction period erosion, sedimentation and pollution control measures and best management practices (BMPs) shall remain in place until the site is fully stabilized.

b) No stormwater runoff may be discharged to the post-construction stormwater BMPs unless and until a Registered Professional Engineer provides a Certification that:

- i.* all construction period BMPs have been removed or will be removed by a date certain specified in the Certification. For any construction period BMPs intended to be converted to post construction operation for stormwater attenuation, recharge, and/or treatment, the conversion is allowed by the MassDEP Stormwater Handbook BMP specifications and that the BMP has been properly cleaned or prepared for post construction operation, including removal of all construction period sediment trapped in inlet and outlet control structures;
- ii.* as-built final construction BMP plans are included, signed and stamped by a Registered Professional Engineer, certifying the site is fully stabilized;
- iii.* any illicit discharges to the stormwater management system have been removed, as per the requirements of Stormwater Standard 10;
- iv.* all post-construction stormwater BMPs are installed in accordance with the plans (including all planting plans) approved by the issuing authority, and have been inspected to ensure that they are not damaged and that they are in proper working condition;
- v.* any vegetation associated with post-construction BMPs is suitably established to withstand erosion.



C. General Conditions Under Massachusetts Wetlands Protection Act (cont.)

- c) The landowner is responsible for BMP maintenance until the issuing authority is notified that another party has legally assumed responsibility for BMP maintenance. Prior to requesting a Certificate of Compliance, or Partial Certificate of Compliance, the responsible party (defined in General Condition 18(e)) shall execute and submit to the issuing authority an Operation and Maintenance Compliance Statement ("O&M Statement") for the Stormwater BMPs identifying the party responsible for implementing the stormwater BMP Operation and Maintenance Plan ("O&M Plan") and certifying the following: *i.*) the O&M Plan is complete and will be implemented upon receipt of the Certificate of Compliance, and *ii.*) the future responsible parties shall be notified in writing of their ongoing legal responsibility to operate and maintain the stormwater management BMPs and implement the Stormwater Pollution Prevention Plan.
- d) Post-construction pollution prevention and source control shall be implemented in accordance with the long-term pollution prevention plan section of the approved Stormwater Report and, if applicable, the Stormwater Pollution Prevention Plan required by the National Pollution Discharge Elimination System Multi-Sector General Permit.
- e) Unless and until another party accepts responsibility, the landowner, or owner of any drainage easement, assumes responsibility for maintaining each BMP. To overcome this presumption, the landowner of the property must submit to the issuing authority a legally binding agreement of record, acceptable to the issuing authority, evidencing that another entity has accepted responsibility for maintaining the BMP, and that the proposed responsible party shall be treated as a permittee for purposes of implementing the requirements of Conditions 18(f) through 18(k) with respect to that BMP. Any failure of the proposed responsible party to implement the requirements of Conditions 18(f) through 18(k) with respect to that BMP shall be a violation of the Order of Conditions or Certificate of Compliance. In the case of stormwater BMPs that are serving more than one lot, the legally binding agreement shall also identify the lots that will be serviced by the stormwater BMPs. A plan and easement deed that grants the responsible party access to perform the required operation and maintenance must be submitted along with the legally binding agreement.
- f) The responsible party shall operate and maintain all stormwater BMPs in accordance with the design plans, the O&M Plan, and the requirements of the Massachusetts Stormwater Handbook.



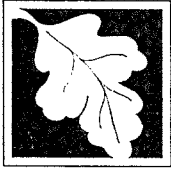
WPA Form 5 – Order of Conditions

C. General Conditions Under Massachusetts Wetlands Protection Act (cont.)

- g) The responsible party shall:
1. Maintain an operation and maintenance log for the last three (3) consecutive calendar years of inspections, repairs, maintenance and/or replacement of the stormwater management system or any part thereof, and disposal (for disposal the log shall indicate the type of material and the disposal location);
 2. Make the maintenance log available to MassDEP and the Conservation Commission ("Commission") upon request; and
 3. Allow members and agents of the MassDEP and the Commission to enter and inspect the site to evaluate and ensure that the responsible party is in compliance with the requirements for each BMP established in the O&M Plan approved by the issuing authority.
- h) All sediment or other contaminants removed from stormwater BMPs shall be disposed of in accordance with all applicable federal, state, and local laws and regulations.
- i) Illicit discharges to the stormwater management system as defined in 310 CMR 10.04 are prohibited.
- j) The stormwater management system approved in the Order of Conditions shall not be changed without the prior written approval of the issuing authority.
- k) Areas designated as qualifying pervious areas for the purpose of the Low Impact Site Design Credit (as defined in the MassDEP Stormwater Handbook, Volume 3, Chapter 1, Low Impact Development Site Design Credits) shall not be altered without the prior written approval of the issuing authority.
- l) Access for maintenance, repair, and/or replacement of BMPs shall not be withheld. Any fencing constructed around stormwater BMPs shall include access gates and shall be at least six inches above grade to allow for wildlife passage.

Special Conditions (if you need more space for additional conditions, please attach a text document):

See Attached



WPA Form 5 – Order of Conditions

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:

051-1058

MassDEP File #

eDEP Transaction #

Newburyport

City/Town

D. Findings Under Municipal Wetlands Bylaw or Ordinance

1. Is a municipal wetlands bylaw or ordinance applicable? Yes No
2. The Newburyport Conservation Commission hereby finds (check one that applies):
Conservation Commission
 - a. that the proposed work cannot be conditioned to meet the standards set forth in a municipal ordinance or bylaw, specifically:

1. Municipal Ordinance or Bylaw	2. Citation
---------------------------------	-------------

Therefore, work on this project may not go forward unless and until a revised Notice of Intent is submitted which provides measures which are adequate to meet these standards, and a final Order of Conditions is issued.
 - b. that the following additional conditions are necessary to comply with a municipal ordinance or bylaw:

1. Municipal Ordinance or Bylaw	2. Citation
---------------------------------	-------------
3. The Commission orders that all work shall be performed in accordance with the following conditions and with the Notice of Intent referenced above. To the extent that the following conditions modify or differ from the plans, specifications, or other proposals submitted with the Notice of Intent, the conditions shall control.
The special conditions relating to municipal ordinance or bylaw are as follows (if you need more space for additional conditions, attach a text document):



CITY OF NEWBURYPORT
CONSERVATION COMMISSION
60 PLEASANT STREET
NEWBURYPORT, MA 01950
978-465-4400

Order of Conditions for Philips Drive Neighborhood

Electronic Signature Page

DEP File Number: 051-1058

Public Hearing Date: February 1, 2022

Applicant: City of Newburyport

Property Owner: same

Project Location: Philips Drive Neighborhood **Map:** various **Lot:**

Project Description: Roadway, Drainage and Water Main Improvements to alleviate chronic flooding and upgrade utilities.

E-Signatures:

The name(s) typed below represent the intent to sign the foregoing document:

Joe Teixeira, Chair

Stephen Moore, Vice Chair

Paul Healy, Member

David Vine, Member

Dan Warchol, Member

Date Signed: February 1, 2022



Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

WPA Form 5 – Order of Conditions

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:
051-1058
MassDEP File #

eDEP Transaction #
Newburyport
City/Town

E. Signatures

This Order is valid for three years, unless otherwise specified as a special condition pursuant to General Conditions #4, from the date of issuance.

2/2/2022

1. Date of Issuance

5

Please indicate the number of members who will sign this form.

This Order must be signed by a majority of the Conservation Commission.

2. Number of Signers

The Order must be mailed by certified mail (return receipt requested) or hand delivered to the applicant. A copy also must be mailed or hand delivered at the same time to the appropriate Department of Environmental Protection Regional Office, if not filing electronically, and the property owner, if different from applicant.

Signatures:

by hand delivery on

2/2/2022

Date

by certified mail, return receipt requested. on

Date

F. Appeals

The applicant, the owner, any person aggrieved by this Order, any owner of land abutting the land subject to this Order, or any ten residents of the city or town in which such land is located, are hereby notified of their right to request the appropriate MassDEP Regional Office to issue a Superseding Order of Conditions. The request must be made by certified mail or hand delivery to the Department, with the appropriate filing fee and a completed Request of Departmental Action Fee Transmittal Form, as provided in 310 CMR 10.03(7) within ten business days from the date of issuance of this Order. A copy of the request shall at the same time be sent by certified mail or hand delivery to the Conservation Commission and to the applicant, if he/she is not the appellant.

Any appellants seeking to appeal the Department's Superseding Order associated with this appeal will be required to demonstrate prior participation in the review of this project. Previous participation in the permit proceeding means the submission of written information to the Conservation Commission prior to the close of the public hearing, requesting a Superseding Order, or providing written information to the Department prior to issuance of a Superseding Order.

The request shall state clearly and concisely the objections to the Order which is being appealed and how the Order does not contribute to the protection of the interests identified in the Massachusetts Wetlands Protection Act (M.G.L. c. 131, § 40), and is inconsistent with the wetlands regulations (310 CMR 10.00). To the extent that the Order is based on a municipal ordinance or bylaw, and not on the Massachusetts Wetlands Protection Act or regulations, the Department has no appellate jurisdiction.



Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

WPA Form 5 – Order of Conditions

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:

051-1058

MassDEP File #

eDEP Transaction #

Newburyport

City/Town

G. Recording Information

This Order of Conditions must be recorded in the Registry of Deeds or the Land Court for the district in which the land is located, within the chain of title of the affected property. In the case of recorded land, the Final Order shall also be noted in the Registry's Grantor Index under the name of the owner of the land subject to the Order. In the case of registered land, this Order shall also be noted on the Land Court Certificate of Title of the owner of the land subject to the Order of Conditions. The recording information on this page shall be submitted to the Conservation Commission listed below.

Newburyport Conservation Commission

Conservation Commission

Detach on dotted line, have stamped by the Registry of Deeds and submit to the Conservation Commission.

To:

Newburyport Conservation Commission

Conservation Commission

Please be advised that the Order of Conditions for the Project at:

Philips Drive Neighborhood Roadway

Project Location

051-1058

MassDEP File Number

Has been recorded at the Registry of Deeds of:

Southern Essex District Registry of Deeds

County

Book

Page

for:

Property Owner

and has been noted in the chain of title of the affected property in:

Book

Page

In accordance with the Order of Conditions issued on:

2/2/2022

Date

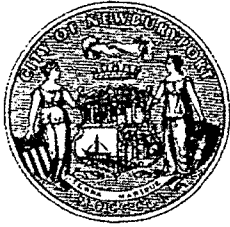
If recorded land, the instrument number identifying this transaction is:

Instrument Number

If registered land, the document number identifying this transaction is:

Document Number

Signature of Applicant



CITY OF NEWBURYPORT
CONSERVATION COMMISSION
60 PLEASANT STREET • P.O. BOX 550
NEWBURYPORT, MA 01950
(978) 465-4400
WWW.CITYOFNEWBURYPORT.COM

Standard and Special Conditions for Philips Drive Neighborhood

DEP File Number: 051-1058

Date: February 2, 2022

Applicant: City of Newburyport

Property Owner: same

Project Location: Philips Drive Neighborhood **Map:** various **Lot:**

Project Description: Roadway, Drainage and Water Main Improvements to alleviate chronic flooding and upgrade utilities.

These conditions are in addition to and part of the Order of Conditions (WPA Form 5) for the property located at **Philips Drive Neighborhood**, Newburyport, MA 01950.

This project shall conform to the following documents and plans unless otherwise specified:

1. WPA Form 3 Notice of Intent, project narrative and supporting documentation, prepared by BSC Group for the City of Newburyport, dated December 2021.
2. Project Site Plans, Roadway, Drainage and Water Main Improvements in the Philips Drive Neighborhood, Newburyport, Massachusetts. Prepared by BSC Group, signed by David Biancavilla, dated December 2021.

A. General Conditions

19. The Conservation Commission shall be informed of all changes that may be made to the Plan(s) of Record by any other Board, Commission or Authority or as a result of changes by the Applicant. All changes shall require additional approvals from the Conservation Commission.
20. A member of the Newburyport Conservation Commission (the Commission) or its administrator may enter and inspect the property and the activity that are the subjects of this Order at all reasonable times, with or without probable cause or prior notice, and until a Certificate of Compliance is issued, for the limited purpose of evaluating compliance with this Order.
21. With respect to all conditions the Conservation Commission designates the Conservation Administrator as its agent with full powers to act on its behalf in administering and enforcing this Order.
22. The term "Applicant" as used in this Order of Conditions shall refer to the owner, any successor in interest or successor in control of the property referenced in the Notice of Intent, supporting documents and this Order of Conditions. The Commission shall be

notified in writing within 30 days of all transfers of title of any portion of property that take place prior to the issuance of the Certificate of Compliance.

23. This document shall be included by reference in all contracts, plans and specifications dealing with the activity that is the subject of this Order, and that are created or modified after the issuance date of this Order, along with a statement that this Order shall supersede any conflicting contractual arrangements, plans or specifications.
24. The applicant shall provide a copy of this Order to the person or persons supervising the activity that is the subject of this Order, and shall be responsible for ensuring that all persons performing the permitted activity are fully aware of the terms and conditions of this Order.
25. Any person performing work on the activity that is the subject of this Order is individually responsible for understanding and complying with the requirements of this Order, the Act, 310 CMR 10.00.
26. The Commission reserves the right to impose additional conditions on this project, including but not limited to, additional or modified erosion/siltation controls during construction, if it deems that site conditions warrant such measures to mitigate potential impacts.
27. If any changes are made in the above-described plan(s) which, in the Commission's opinion, may alter an area subject to protection under the Wetlands Protection Act, 310 CMR 10.00 or the Newburyport Wetlands Ordinance, the applicant shall inquire from this Commission or its agent, prior to implementing the change in the field, whether the change is significant enough to require the filing of a new Notice of Intent. Any errors in the plans or information submitted by the applicant shall be considered changes and the above procedures shall be followed. Approval of changes must be granted by the Conservation Commission before such work may continue.
28. This Order authorizes only the activity described on the approved plan(s) and approved documents referenced in this Order. Any other or additional activity in areas within the jurisdiction of the Commission shall require separate review and approval by the Commission or its agent.
29. The limits of work in the field shall be clearly marked and all workers shall be instructed not to work beyond the specified limits. Resource area flags shall be maintained and replaced as necessary until a final Certificate of Compliance is issued for the project.

B. Pre-Construction

30. Prior to the commencement of any activity on this site, the applicant or owner shall complete and submit the attached "Permit Compliance Contact Form," providing the name(s), address(es), phone number(s) and email address(es) of a contact person or persons responsible for compliance with this Order. Should the responsible parties change during the course of the project, the Commission shall be notified as soon as practical of such change.
31. The applicant shall display the Department of Environmental Protection (DEP) file number for this Order on a sign within the minimum dimensions of two feet by two feet at a location clearly visible from the street. This sign shall remain in place and visible until a Certificate of Compliance is issued for the activity.
32. The Commission shall be notified at least 48 hours in advance of the commencement of work at the site.

C. During Construction

33. A copy of this Order of Conditions and approved Plan(s) of Record shall be on the site upon commencement and during any site work for contractors to view and adhere to.
34. Any material placed in wetland resource areas or outside the Limit of Work by the applicant without express authorization under this Order shall be removed as soon as possible by the applicant upon the request of the Conservation Commission or its administrator.
35. All construction materials, earth stockpiles, landscaping materials, slurry pits, waste products, refuse, debris, stumps, slash, or excavate may only be stockpiled or collected in areas as shown and labeled on the approved plan(s), or if no such areas are shown must be placed or stored outside all resource areas and associated buffer zones under cover and surrounded by a double-staked row of hay bales or other approved erosion control device to prevent contact with rain water.
36. As soon as possible, all disturbed areas shall be brought to final grade and shall be permanently stabilized within 30 days of that time by measures acceptable to the Commission.
37. The project manager shall be responsible for regular inspections of the erosion controls on at least a weekly basis and after each rain storm. Necessary repairs and maintenance of the erosion control devices shall be made expeditiously.
38. Any and all demo/construction debris resulting from the approved construction shall be placed in an enclosed covered container or removed from the site daily.
39. Trash dumpsters shall be located as far away from the resource areas as possible and shall be emptied at least once a week during construction.
40. No material of any kind may be buried, placed or dispersed in areas within the jurisdiction of the Commission by activities that are the subject of this Order.
41. No fuel, oil, urethanes, or other pollutants shall be stored in any resource area or the buffer zone.

E. Post Construction

42. After the completion of construction and prior to the expiration date of this Order of Conditions, the applicant shall submit the following to the Conservation Commission:
 - a. A completed Request for a Certificate of Compliance – WPA form 8A.
 - b. A letter from a registered professional engineer certifying compliance of the property with this Order of Conditions and detailing any deviations that exist and their potential effect on the project. A statement that the work is in “substantial compliance” with no detailing of the deviations shall not be accepted.
 - c. Photos of the completed project and an “As-Built” plan showing post-construction conditions, stamped and signed by a professional engineer or land surveyor. This plan shall note any deviations from the original plans/profiles and shall include final lot elevations when grades have been changed.

F. Perpetual Conditions

43. The stormwater management systems installed as part of this project shall be maintained into perpetuity by the City of Newburyport.

ATTACHMENT C

CONSTRUCTION DRAWINGS

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