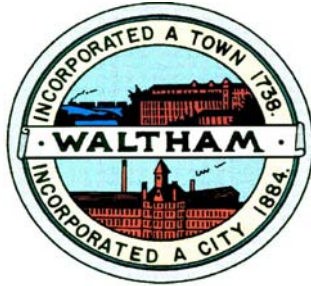


# *The City of Waltham*



*Invites  
Interested Parties  
To propose the best offer and or bid  
For the service or product herewith described:*

***Smith Street Water Main Installation***

*The bid opening will be held: **Thursday May 3, 2012 at 2:00 pm***

*Phone: 781-314-3244, Fax: 781-314-3245*

# **Table of Contents:**

- **Invitation to Bid**
- **Intent of the Project**
- **Agreement**
- **Instructions**
- **General Conditions**
- **Specifications**
- **Compliance**
- **Bid Price**

APPENDIX A-B  
DRAWINGS

# **Invitation to Bid**

# The City of Waltham

## Purchasing Department

### REQUEST FOR BID (RFB)

Under the rules of M.G.L. Chapter 30, 39m, the Chief Procurement Officer of the City of Waltham Purchasing Department hereby requests sealed bids for:

#### Smith Street Water Main Installation

Price Proposals will be received at the office of the Purchasing Agent, City Hall, 610 Main Street, Waltham MA 02452, until,

**Thursday May 3, 2012 at 2:00 pm**

At which time and place the bids will be publicly opened and read.

Specifications and information available on line by visiting the Waltham Purchasing Department web site at [www.city.waltham.ma.us/open-bids](http://www.city.waltham.ma.us/open-bids)

**BIDS MUST BE SIGNED AND ENCLOSED IN A SEALED ENVELOPE AND MARKED:**

**BID FOR: Smith Street Water Main Installation**

A 5% Bid Bond or Certified Check must accompany each bid submitted and made payable to, and become the property of the City of Waltham, if the successful bidder refuses or neglects to comply with the terms of the Contract.

If the Bidder is a corporation, state your correct corporate name and State of incorporation. If Bidder is a partnership, state names and addresses of partners. If Bidder is a trust or other legal entity, state correct names and addresses of trustees or names and address of those legally authorized to bid and enter into contracts.

**EXCEPTION OR ALTERNATES TO SPECIFICATIONS, TERMS OF SALE, AND DISCOUNTS AVAILABLE, MUST BE INCLUDED IN THE BID PRIOR TO OPENING DATE.**

# **Intent of Project**

Smith Street Water Main Installation

**AGREEMENT**

**CITY OF WALTHAM**

**ARTICLE 1.** This agreement, made this \_\_\_\_\_ day of \_\_\_\_\_, 2012 by and between the CITY OF WALTHAM, party of the first part, hereinafter called the CITY, by its MAYOR, and

---

\_\_\_\_\_ hereinafter called the CONTRACTOR.

**ARTICLE 2.** Witnesseth, that the parties to this agreement, each in consideration of the agreement on the part of the others herein contained, do hereby agree, the CITY OF WALTHAM for itself, and said contractor for his heirs, executors, administrators and assigns as follows:

To furnish all equipment, machinery, tools and labor, to furnish and deliver all materials required to be furnished (except as otherwise specified) and deliver in and about the project and to do and perform all work in strict conformity with the provisions of this Contract and of the Notice to Bidders, bid, Project Manual, and Drawings hereto annexed. The said Notice to Bidders, bid, Project Manual, and Drawings are hereby made a part of this contract as fully and to the same effect as if the same had been set forth at length and incorporated in the contracts.

**ARTICLE 3.** In consideration of the foregoing premises the CITY agrees to pay and the CONTRACTOR agrees to receive as full compensation for everything furnished and done by the CONTRACTOR under this contract, including all work required by not included in the items herein mentioned, and also for all loss or damage arising out of the nature of the work aforesaid, or from the action of the elements, or from any unforeseen obstruction or difficulty encountered in the prosecution of the work, and for all expenses incurred by or in consequence of the suspension or discontinuance of the work specified, and for well and faithfully completing the work, and the whole thereof, as herein provided, such prices as are set forth in the accompanying bid.

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

CITY OF WALTHAM, MASSACHUSETTS

**FOR THE CITY**

\_\_\_\_\_  
Jeannette A. McCarthy, MAYOR,  
City of Waltham  
Date: \_\_\_\_\_

\_\_\_\_\_  
John B. Cervone, City Solicitor  
Date: \_\_\_\_\_

APPROVED AS TO FORM ONLY

\_\_\_\_\_  
Stephen Casazza, City Engineer  
Date: \_\_\_\_\_

\_\_\_\_\_  
Joseph Pedulla, Purchasing Agent  
Date: \_\_\_\_\_

\_\_\_\_\_  
Paul Centofanti, Auditor  
Date: \_\_\_\_\_

I CERTIFY THAT SUFFICIENT FUNDS  
ARE AVAILABLE FOR THIS CONTRACT

**FOR THE COMPANY**

\_\_\_\_\_  
CONTRACTOR (Signature),  
Date: \_\_\_\_\_

\_\_\_\_\_  
Company

\_\_\_\_\_  
Address

# Instructions



## INSTRUCTIONS FOR BIDDERS

1. **READ ALL DOCUMENTS.**

Bidders should familiarize themselves with all the documents contained herein; it is mandatory that all Bids be in compliance with all the provisions contained in said documents.

2. **FORMS AND ATTACHMENTS.**

Bids are to be completed on the forms provided **ONLY** and enclosed in a sealed envelope marked on the outside "BID (title)" and the name and address of bidder. Attachments submitted in addition to the Waltham Purchasing Department produced forms may not be considered.

3. **PRINTED OR TYPED RESPONSE.**

All information must be typewritten or printed in ink, including the price the bidder offers in the space as provided on the bid form.

4. **CORRECTIONS.**

Bids that are submitted containing cross outs, white outs or erasures, will be rejected.

All corrections or modifications to the original bid are to be submitted in a separate envelope, properly marked on the outside, "CORRECTION/ MODIFICATION TO BID (title)" and submitted prior to the bid opening.

**ALL DOCUMENTS SUBMITTED WITH YOUR RESPONSE WILL BE INCORPORATED INTO THE CONTRACT.**

5. **PRICE IS ALL INCLUSIVE.**

Bid prices shall encompass everything necessary for furnishing all items, materials, supplies or services as specified, and in accordance with the specifications, including proper packing, cost of delivery, and in the case of services, completion of same, as per specifications.

6. **PRICE DISCREPANCY.**

In the event of a discrepancy between the Unit Price and the Extension, the Unit Price shall prevail.

**7. EXPLANATIONS, EXCEPTIONS**

Explanations, exceptions or other information pertinent to the specifications may be made in writing and included in the same envelope with the bid.

**8. BID DEPOSITS.**

Bid deposits are to be made payable to the City of Waltham. In the event that the successful bidder fails to execute a Contract within (10) days of the receipt of said contract, such security shall be retained by the city as liquidated damages. Unsuccessful bidders' deposits will be returned immediately following the award to said successful bidder.

**9. WITHDRAW.**

A Bid may be withdrawn by written request prior to the schedule for the Bid Opening. No withdrawals are permitted after the bid opening date and time. Withdrawals after the bid opening date will cause the forfeit of the bid Deposit.

**10. AWARD.**

Bids will be awarded not later than (90) ninety days after the scheduled bid opening date, unless otherwise stated, in the specifications. Unless otherwise specified, bids will be evaluated on the basis of, completeness of your RFP response, responsiveness, responsibility, best price and experience.

**11. AWARD CRITERIA.**

Qualified and responsive proposals will be evaluated based on Price, Technical, and Compliance requirements:

**12. DISCOUNTS.**

Discounts for prompt payments will be considered when making awards.

**13. TAX EXEMPT.**

Purchases by the City of Waltham is exempt from any Federal, State or Massachusetts Municipal Sales and/or Excise Taxes.

**14. SAMPLES.**

The City of Waltham may require the submission of samples either before or after the awarding of a contract. Samples are to be submitted, at no charge to the City, so as to ascertain the product's suitability. If specifically stated in the Bid that samples are required, said samples must be submitted with the Bid prior to the Official Bid Opening. Failure to submit said samples would be cause for rejection of Bid. All samples must be

called for and picked up within (30) thirty days of award or said samples will be presumed abandoned and will be disposed of.

15. **ACTIVE VENDOR LIST.**

Vendors who wish to remain on the Active Bid List must either submit a Bid, No Bid, or a letter requesting same, no later than the Official Bid Opening. This is applicable to those vendors who have received the Invitation to Bid.

16. **FUNDS APPROPRIATION.**

**THE CONTRACT OBLIGATION ON BEHALF OF THE CITY IS SUBJECT TO PRIOR APPROPRIATION OF MONIES FROM THE GOVERNMENTAL BODY AND AUTHORIZATION BY THE MAYOR.**

17. **THE AWARDING AUTHORITY RESERVES THE RIGHT TO REJECT ANY OR ALL BIDS, OR ANY PART OF ANY BID, WHICH IN THE OPINION OF THE AWARDING AUTHORITY, IS IN THE BEST INTERESTS OF THE CITY OF WALTHAM.**

18. **THE TAX ATTESTATION CLAUSE, CERTIFICATION OF NON-COLLUSION AND THE CERTIFICATE OF VOTE AUTHORIZATION,** are required by statute and are an integral part of the Invitation for Bid and must be completed and signed by the person submitting the Bid, or by the person/persons who are officially authorized to do so. Failure to do so may disqualify the bid.

19. **STANDARD OF QUALITY.**

Where, in the specifications, one certain kind, type, catalog number, brand or manufacturer of material is named, it shall be regarded as the required standard of quality. Where two or more are named, these are presumed to be equal and the Bidder may select one or the other. If the Bidder proposes to offer a substitute as an equal, he shall so indicate on the Bid Form, the kind, type, catalog number, brand, or manufacturer of material that is offered as an equal, and describe where it differs from the specifications. Substituted items must be capable of performing all the functions and/or operational features described or indicated in the specifications. Failure to indicate the description of any substitute item on the Bid will be interpreted to mean that the Bidder will furnish the item or service as specified.

**20. MODIFICATION.**

No agreement, understanding, alteration or variation of the agreement, terms or provisions herein contained shall bind the parties, hereto unless made and executed in writing by the parties hereto.

**21. ASSIGNMENT.**

The final payment for work done under this Contract shall be made only after the Contractor has signed a statement under the penalty of perjury, certifying that he has completed the work described in the final estimate. Neither party hereto shall assign this Contract or sublet it in part or as a whole without the prior written consent of the other party hereto. The Contractor shall not assign any sum or sums due or becoming due to him hereunder without the prior written consent of the City.

**22. DELIVERIES:**

a) The Contractor shall pay all freight and delivery charges. The Waltham Purchasing Department does not pay for shipping and packaging expenses. Items must be delivered as stipulated in the specifications. All deliveries must be made to the inside of city buildings. Sidewalk deliveries will not be accepted. City personnel are not required to assist in the deliveries and contractors are cautioned to notify their shippers that adequate assistance must be provided at the point of delivery, when necessary.

b) All items of furniture must be delivered inside the building, set up, in place and ready for use. Deliveries are to be made between the hours of 8:30 a.m. and 3:00 p.m., Monday through Friday, except on holidays.

c) All damaged items, or items which do not comply with specifications will not be accepted and title therefore will not vest to the Waltham Purchasing Department until such items are accepted and signed for, in good order, by the receiving department.

d) The contractor must replace, without further cost to the Waltham Purchasing Department, such damaged or non-complying items before payment will be made.

**23. LABELING.**

All packages cartons or other containers must be clearly marked with (a) building and room destination; (b) description of contents of item number from specifications; (c) quantity; (d) City of Waltham Purchase Order Number and (e) Vendor's name and order number.

**24. GUARANTEES.**

Unless otherwise stipulated in the specifications, furniture, equipment and similar durable items shall be guaranteed by the contractor for a period of not less than one year from the date of delivery and acceptance by the receiving department. In addition, the manufacturer's guarantee shall be furnished. Any items provided under this contract which are or become defective during the guarantee period shall be replaced the contractor free of charge with the specific understanding that all replacements shall carry the same guarantee as the original equipment. The contractor shall make such replacement immediately upon receiving notice from the Purchasing Agent.

**25. SINGLE VENDOR.**

The Waltham Purchasing Department desires to award a single contract based on the Grand Total Price. However, where applicable, the City reserves the right to make multiple awards on a unit price basis if, in the opinion of the Waltham Purchasing Department, it is in the best interest of the Waltham Purchasing Department.

**26. CHANGE ORDERS.**

Change orders are not effective until, if, as and when signed by the Mayor and no work is to commence until the change orders are fully executed.

**28. BID OPENING INCLEMENT WEATHER**

If, at the time of the originally scheduled bid opening, City Hall is closed to inclement weather or another unforeseeable event, the bid opening will be extended until 2:00 PM on the next normal business day. Bids will be accepted until that date and time.

# **GENERAL CONDITIONS**

## **GENERAL CONDITIONS**

**1. INFORMATION**

All information shall come from the Office of the City Purchasing Agent. The Contractor shall inquire at this office for any information needed. Wherever the words "or equal as approved" are used, it is to be understood that the opinion of the City Purchasing Agent shall govern.

**2. SUITS**

The Contractor shall assume defense of and shall indemnify and hold the City and its agents harmless from all suits and claims against the City and its sub-contractors arising from the use of any invention, patent right labor or employment, or from any act of omission or neglect of the City, its agents, employees or any subcontractor in performing the work, under this contract.

**3. LAWS AND REGULATIONS**

The Contractor shall conform to all the applicable rules, regulations, laws and ordinances of the City of Waltham, the Commonwealth of Massachusetts, the United States of America and all agencies having jurisdiction over this contract.

**4. PROTECTION OF PROPERTY**

The Contractor shall take all proper precautions to protect the City's property from damage and unnecessary inconvenience. Any City property damaged by the Contractor in carrying out the provisions of this contract shall be restored to its original condition, by and at the expense of the Contractor.

**5. PROTECTION OF PERSONS**

The Contractor shall take all proper precautions to protect persons from injury, unnecessary inconvenience, and shall be responsible for his failure to do so. The Contractor agrees to hold the City harmless from any and all liabilities of every nature and description, which may be suffered through bodily injury, including death, to any person, by reason of negligence of the Contractor, his agents or employees, or any subcontractor.

**6. CONTRACT DURATION.**

This contract is to be completed within 120 calendar days from the date of the Notice-to-Proceed.

**7. INSURANCE**

**A. WORKMAN'S COMPENSATION:** The Contractor shall provide by insurance for the payment of compensation and furnishing of other benefits under Chapter 152 of the General Laws of the Commonwealth of Massachusetts to all persons to be employed under this contract, the premiums for which shall be paid by the Contractor.

**B. COMPREHENSIVE GENERAL LIABILITY**

Bodily Injury:	\$1,000,000 Each Occurrence
	\$2,000,000 Aggregate
Property Damage:	\$1,000,000 Each Occurrence
	\$2,000,000 Aggregate

**C. AUTOMOBILE (VEHICLE) LIABILITY**

Bodily Injury	\$2,000,000 Each Occurrence
Property Damage	\$1,000,000 Aggregate

**D. UMBRELLA POLICY**

General liability	\$2,000,000
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Your bid response must include a Certificate of Insurance with the above limits as a minimum. In addition, the Certificate of Insurance must have the following text contained in the bottom left box of the Certificate: "The City of Waltham is a named Additional Insured for all Insurance". The Certificate of Insurance must be mailed directly to:

Office of the Purchasing Agent  
Purchasing Department  
City of Waltham  
610 Main Street  
Waltham, MA 02452

**8. LABOR AND MATERIALS BOND**

The Contractor agrees to execute and deliver to the City, a Labor and Materials or Payment Bond equal to 100% of the contract value. This contract shall not be in force until said bond has been delivered and accepted by the City. Bond to be issued by a company licensed by the Commonwealth of Massachusetts.



**A LETTER FROM A SURETY COMPANY CERTIFYING THAT THE CONTRACTOR IS QUALIFIED AND CAPABLE OF OBTAINING THE ABOVE BONDS MUST BE INCLUDED WITH HIS/HERS BID.**

**9. PERSONNEL:**

The Contractor shall employ a competent supervisor and all properly licensed personnel necessary to perform the services required in this contract. The City Purchasing Agent shall have the right to require the Contractor to remove and/or replace any of the personnel for nonperformance or for unprofessional behavior. The City Purchasing Agent may require the Contractor to submit a weekly performance record of the areas and of the work performed, on forms approved by the City Purchasing Agent. The Contractor or his supervisor shall be available to inspect such work as required by the City Purchasing Agent.

**10. PREVAILING WAGES**

The Contractor is required to pay the prevailing wages as determined under the provisions of Chapter 149, Sections 26 and 27D of the Massachusetts General Laws, including the submission of weekly payrolls to the awarding authority. The prevailing wage schedule is kept in the office of the Purchasing Department and will be made available upon request. Due to its large size it is not attached here.

**11. MATERIALS**

The City or its Agent reserves the right to approve or reject any supplies, material or equipment used by the Contractor. The Contractor agrees to replace any supplies, material or equipment used by the Contractor. The Contractor agrees to replace any rejected supplies, materials or equipment, to the satisfaction of the City or its Agents.

**12. TERMINATION OF CONTRACT**

This contract may be terminated by the City upon deliverance to the Contractor of a five-day written notice of said termination.

**13. CONTRACT OBLIGATIONS**

Contract obligations on behalf of the City are subject to an annual appropriation to cover the contract obligation.

**14. BIDDER EXPERIENCE EVALUATION**

Each bidder shall submit with his bid, all the information relative to their experience and qualifications in performing the work required under this contract and shall have been in business for a minimum of five (5) years, in order for their bid to be considered.

**15. NOT-TO-EXCEED AMOUNT**

The bid amount proposed in your company's response is a "not-to- Exceed" amount unless the City makes changes, in writing, to the scope of work to be performed. The Change Order must be signed and approved by the City's Purchasing Agent, City Auditor, Law Department and the Mayor prior to the commencement of the change order work. No work is to begin until the proper approvals have been obtained. A change order will be priced at the unit price. Failure to comply with this procedure will result in the cancellation of the contract and the non-payment of services provided

**16. FINANCIAL STATEMENTS.**

The City may require, within five (5) days after the bid opening, a complete and detailed Financial Statement prepared by a Certified Public Account, to determine a bidder's financial stability.

**17 BREACH OF CONTRACT/ NON PERFORMANCE**

If the Contractor shall provide services in a manner, which is not to the satisfaction of the City, the City may request that the Contractor refurnish services at no additional cost to the City until approved by the City. If the Contractor shall fail to provide services, which are satisfactory to the City, the City in the alternative may make any reasonable purchase or Contract to purchase services in substitution for those due from the Contractor. The City may deduct the cost of any substitute Contract for nonperformance of services together with incidental and consequential damages from the Contract price and shall withhold such damages from sums due or to become due to the Contractor. If the damages sustained by the City exceed sums due or to become due, the Contractor shall pay the difference to the City upon demand. The Contractor shall not be liable for any damages sustained by the City due to the Contractor's failure to furnish services under the terms of this Contract if such failure is in fact caused by the occurrence of a contingency the nonoccurrence of which was a basic assumption under which this

Contract was made, including a state of war, embargoes, expropriation of labor strike or any unanticipated federal, state or municipal governmental regulation of order, provided that the Contractor has notified the City in writing of such cause within seven (7) days after its occurrence.

**18 RIGHT TO AUDIT**

The City of Waltham has the right to review and audit documents related to this contract. This right extends to any subcontractor, supplier or other entity used by the prime contractor to fulfill the obligations under this contract.

**19. CITY ORDINANCE. APPROVAL OF CONTRACTS BY MAYOR, SEC. 3-12 OF THE CITY ORDINANCES.**

All contract made by any department, board or commission where the amount involved is two thousand dollars (\$2,000) or more shall be in writing, and no such contract shall be deemed to have been made or executed until the approval of the Mayor is affixed thereto. Any construction contract shall, and all other contracts may, where the contract exceed five thousand dollars (\$5,000) be required to be accompanied by a bond with sureties satisfactory to the Mayor.

**NOTE**

**Failure to submit any of the required documents, in this or in other sections, with your bid response package may cause the disqualification of your proposal**

# **Specifications**

**ITEM 120.100**

**UNCLASSIFIED EXCAVATION**

**CUBIC YARD**

**GENERAL:** *This work shall consist of the necessary excavation and removal of various materials as shown on the contract drawings or as required by the ENGINEER. All work shall be done by the CONTRACTOR. All excavated material shall be disposed of in a proper manner. All material shall be cleaned up by the CONTRACTOR as the work progresses. No material or waste shall be left on the street overnight and no driveways or sidewalks shall be left in a rough or unsafe condition unless lighted and guarded by the CONTRACTOR at his expense. Where abutting lawns are cut, the CONTRACTOR must properly adjust and reseed the lawn to the new grade. Where abutting surfaces of blacktop or other material are disturbed beyond the limit of adjustment, the CONTRACTOR shall replace same at his own expense.*

*Excavation shall include the removal and disposal of bituminous, earth, curbing, signposts, and/or any incidental items as indicated on the contract drawings or as required by the ENGINEER. Items and/or materials that are classified for payment under some other unit item within this contract shall not be considered as part of ITEM 120.100.*

*The edges of existing concrete surfaces that are to receive new replacement materials shall be saw-cut along even lines and shall be cut back to obtain clean, sound vertical edges of the abutting material.*

*The edges of bituminous concrete shall be saw-cut or cut with pneumatic tools along even lines and shall be cut back to obtain clean, sound vertical edges of the abutting material. All edges shall be coated with an approved bituminous material for proper bonding of new pavement construction with the existing pavements. All preparation of edges of existing pavements shall be provided as specified herein and shall be subject to approval by the ENGINEER.*

*The City of Waltham, at its own discretion, may retain the right to the excavated gravel and the ENGINEER may select a site for said gravel to be placed. On-site gravel, if requested by the ENGINEER, shall be saved for re-use on the job. The gravel shall be excavated separately from the bituminous, stored (if required) and/or relocated on the site or at a site within the city selected by the ENGINEER, at no additional cost to the City of Waltham. All work shall be done by the CONTRACTOR.*

*If requested by the ENGINEER, any suitable excess material (as determined by the ENGINEER) excavated from the site shall be re-used to fill areas below subgrade. This shall be done at no extra cost to the City.*

*All saw-cutting of materials shall be done at no extra cost and shall be considered as incidental to the item unless there is a separate and/or specific pay item listed for saw-cutting in the Contract.*

*CONTRACTOR shall avoid damage to trees that have parts of their root system in the roadway, sidewalk or planting areas that are selected for excavation. Said excavation shall be accomplished as carefully as possible or as required by the ENGINEER.*

**NOTE:** *Material excavated during reclamation or cold planning operations is not included in this item.*

**MEASUREMENT:** Measurement for unclassified excavation shall be the number of cubic yards of material removed and legally disposed of. This quantity shall be based on the ENGINEER'S field measurements and/or office calculations.

Failure to allow ample time for the ENGINEER to make the required measurements will forfeit the CONTRACTOR'S right of claim to any excavation other than that allowed by the ENGINEER.

**PAYMENT:** Payment for unclassified excavation shall be made for the number of cubic yards of material removed and disposed of as determined above at the contract unit Bid price for ITEM 120.100 as set forth in the Bid. Unless it is classified for payment under some other unit item within this contract, saw-cutting of pavements shall be considered as incidental to the work and shall be included within the unit price for unclassified excavation.

**Payment Items**

120.100

Unclassified Excavation

Cubic Yards

**ITEM 121.000**

**CLASS A ROCK EXCAVATION AND REFILL**

**CUBIC YARDS**

**GENERAL:** This work shall consist of the excavation, removal, and disposal of all rock not being removed under some other item within this contract, and the replacement of said rock with suitable or good gravel fill as approved by the Engineer.

When encountered within the limits of the work, ledge excavation shall consist of rock that cannot be removed without splitting or blasting, or boulders greater than one cubic yard in size, including boulders within the limits of Class B rock. Stonewalls above the ground shall not be classified or included as ledge.

**MEASUREMENT:** The method of measurement shall be in conformity with the Standard Specifications of the Commonwealth of Massachusetts unless otherwise specified by the Engineer. All boulders shall be measured at the point of removal by the Engineer. Measurement shall consist of the number of cubic yards of material removed to a depth of one foot below proposed sub-grade and the gravel fill required for replacement to sub-grade.

All boulders one cubic yard or more in volume that are removed without splitting or blasting, regardless of location, shall be measured for payment as Class A Rock and Refill. This shall include boulders that are removed from within the limits of Item 144.000 Class B Rock excavation.

Failure to allow ample time for the engineer to make the required measurements will forfeit the contractor's right-to-claim to any excavation other than that allowed by the engineer.

**PAYMENT:** Payment for Class A Rock Excavation and Refill shall be made for the number of cubic yards of ledge or rock removed, including gravel backfill required for replacement. There will be no separate payment for gravel backfill. This shall be considered as part of ITEM 121.000. Payment shall be made as determined above at the Contract unit price for ITEM 121.000 as set forth in the Bid. Said price and payment shall be full compensation for all work and materials within this item.

**Payment Item**

121.000

Class A Rock Excavation and Refill

Cubic Yards

**ITEM 127.000**

**CONCRETE SIDEWALK EXCAVATION**

**SQUARE YARDS**

**GENERAL:** This work shall consist of all necessary excavation and disposal of existing concrete surfaces as shown on the Contract Drawings or as specified by the Engineer. Material shall be cleaned up as the work progresses. No material or waste shall be left on the street overnight and no driveway or sidewalk shall be left in an unsafe condition unless lighted and guarded by the Contractor at his expense. Where abutting surfaces of concrete or material are disturbed beyond the limits of adjustment or beyond the limits of contract, the Contractor shall replace the same at his own expense. If reinforced concrete walks and/or drives are encountered during removal, they shall be included as part of this item. The edges of existing concrete surfaces that are to receive new replacement materials shall be saw-cut along even lines and shall be cut back to obtain clean, sound vertical edges of the abutting material.

Saw-cutting of concrete shall be done at no extra cost and shall be considered as incidental to the work within this item unless there is a separate and/or specific pay item listed for saw-cutting elsewhere in this contract.

**MEASUREMENT:** Measurement shall be the number of square yards removed and disposed, regardless of the depth of concrete excavated, in a manner satisfactory to the Engineer. This quantity shall be measured in the field by the Engineer.

Failure to allow ample time for the Engineer to make the required measurements will forfeit the Contractor's right-of-claim to any concrete excavation other than that allowed by the Engineer.

**PAYMENT:** Payment shall be made for the number of square yards of concrete removed, regardless of depth, based on the Engineer's field measurements. Payment shall be at the Contract unit price for ITEM 127.00 as set forth in the Bid. No separate payment shall be made for removal of reinforced concrete surfaces. No separate payment shall be made for saw-cutting concrete unless otherwise specified elsewhere within this contract. Saw-cutting shall be considered as incidental to the work within this Item.

**Payment Item**

127.000

Concrete Sidewalk Excavation

Square Yards



**ITEM 129.010**

**COLD PLANNING**

**SQUARE YARDS**

**GENERAL:** This work shall consist of the cold planning of bituminous concrete roadway surfaces to various depths up to 6 inches to produce a uniform surface for the application of a bituminous overlay as required by the ENGINEER. The CONTRACTOR shall cold plane the bituminous concrete surface to the depths, widths, grades and cross sections as indicated and/or as required by the ENGINEER. Material removed shall be disposed of legally and off the site.

**METHOD:** Catch basins shall be protected during the cold planning process by inserting silt fabric between each frame and grate. The fabric shall be removed immediately after all cuttings have been removed. Any cuttings that fall into the catch basin shall be removed by the CONTRACTOR.

The bituminous concrete surface shall be planed and profiled by a power operated planning machine or a grinder capable of removing, in one pass, a layer of bituminous concrete nine feet. The equipment shall be self-propelled with sufficient power traction and stability to maintain accurate depth of cut and slope and shall be equipped with all necessary safety devices such as flashing lights and back-up signals so as to operate in traffic with complete safety. The equipment will be capable of accurately and automatically establishing profile grades along each edge of the machine by referencing from the existing pavement or from an independent grade control and shall have an automatic system for controlling cross slope at a given rate.

All planning machinery shall be equipped with dust control devices to prevent any dust produced in the cutting operation from escaping into the air. Dust control equipment must comply with EPA air quality standards.

The CONTRACTOR shall also have the necessary auxiliary grinding or milling machinery to perform the required cutting and trim cutting around castings. Pneumatic rubber-tire mounted equipment shall be used only for trimming and edging operations.

The cold plane cuttings from the operation shall be discharged directly from the planer into the CONTRACTOR'S trucks and legally disposed of off the site by the CONTRACTOR in a manner acceptable to the ENGINEER. Unless otherwise specified by the ENGINEER, the materials shall become the property of the CONTRACTOR. Loose materials left on the roadway surface as a result of the cold planning operations shall be removed and disposed of by the CONTRACTOR in the same manner as the planed material.

All excess material shall be removed from the site as part of this item. **There is no additional measurement or payment for excavation.**

**MEASUREMENT:** Measurement for cold planning shall be for the number of square yards of material removed and disposed of, regardless of depth, as accepted and measured by the ENGINEER.

**PAYMENT:** Payment for cold planning shall be made for the number of square yards of materials cold planed and removed and properly disposed of, regardless of depth, as determined above at the contract unit price for ITEM 129.010 as set forth in the Bid. Said price and payment shall be full compensation for furnishing all equipment, labor, materials, tools, and all else incidental and necessary for the satisfactory completion of this work.

**Payment Item**

129.010

Cold Planing

Square Yards

**ITEM 141.100**

**TEST PITS FOR EXPLORATION**

**CUBIC YARD**

**GENERAL:** This work shall consist of the excavation and refill of test pits to determine the location and/or elevations of existing utilities or any other buried items for which the exact location and/or elevation has to be known. Test pits shall be made at locations designated by the Engineer or as requested by the Contractor and approved by the Engineer.

**METHOD:** Test pits shall be excavated and backfilled ahead of the work as directed. Special care, including hand excavation, shall be taken so as not to damage any underground utilities or structures.

Test pits shall be backfilled immediately after their purpose has been accomplished. Backfill shall be with suitable excavated material thoroughly compacted wherever and whenever practical.

The surface of the test pit shall be maintained in a satisfactory condition for traveling over until the excavation of the trench reaches the test pit. This maintenance may require the use of steel plates for cover, as determined by the Engineer. No payment will be made for furnishing or placing such steel plates.

**MEASUREMENT:** Test pits will be measured by the cubic yard to the limits indicated by the Engineer. All measurements shall be taken in the field by the Engineer.

**PAYMENT:** Payment for test pits shall be made for the number of cubic yards as determined above at the contract unit price for ITEM 141.100, as set forth in the Bid. Said price and payment shall be full compensation for all excavation and backfill, for all labor, tools, equipment, steel plates if required, and all else incidental thereto.

**Payment Items**

141.100

Test Pits for Exploration

Cubic Yard

**ITEM 144.000****CLASS B ROCK EXCAVATION AND REFILL****CUBIC YARDS**

**GENERAL:** *The work covered under this item includes the furnishing of all labor, equipment, appliances and materials needed to perform all operations in connection with the excavation and disposal of trench ledge and refill within the limits of payment lines for trench excavation for pipelines and excavation for manholes and similar structures as indicated on the contract drawings or as designated by the Engineer, and all incidental work complete and as necessary for the construction of pipelines, manhole structures and similar appurtenant work in accordance with these specifications. The work shall also include providing and compacting suitable material, as defined and approved by the Engineer, for refilling depressions and cavities resulting from trench rock excavation, the legal disposal of the excavated rock materials, the protection of existing pipelines, structures, work areas and all related work incidental to this item.*

**METHOD:** *Class B rock excavation shall include the excavation, removal and legal disposal of all hard ledge or rock, the removal of which in the opinion of the Engineer can be accomplished only by drilling and/or splitting by hand or mechanically, or by blasting. Boulders less than one cubic yard in volume and all soft or disintegrated rock which can be removed without drilling, splitting or blasting and existing pipes, conduits or structures to be removed shall be classified for removal under separate items within this contract and shall not be considered as part of this item. Boulders greater than one cubic yard in volume that can be removed without splitting, drilling or blasting shall be classified as Class A Rock and Refill and shall be removed, measured and paid for under ITEM 121.000 CLASS A ROCK EXCAVATION, regardless of its location within the trench. The Engineer shall determine the classification for payment if the material is located in a questionable area.*

*Where boulders are exposed on the sides of or in the bottom of the trench or excavations for structures, they shall be wholly or partially removed, as directed. Boulders shall be removed to limits no less than ten inches below the pipe and to trench width payment lines indicated on the contract drawings, and shall be removed to limits not less than twelve inches outside the walls of the structure and not less than twelve inches below the underside of the structure foundation slabs. Depressions or cavities resulting from the removal of rock, ledge or boulders shall be refilled with approved clean gravel and compacted as approved by the Engineer.*

**Rock or ledge occurring within the payment lines indicated for trench excavation for pipelines or structures shall be excavated to the payment lines plus one foot as indicated for trench excavation for pipelines and structures, unless otherwise directed in writing by the Engineer.**

*Whenever rock is encountered, it shall be stripped of the overlying material in sections as determined by the Engineer and shall be measured by the Engineer.*

**BLASTING:** *In general, no blasting will be permitted at locations near existing structures, nor near water, sewer, drain, gas, cable or other service or utility mains.*

*Where blasting is permitted, the Contractor shall take the necessary precautions to protect existing structures and all portions of the work already constructed or being constructed, shall use small charges, and shall give ample notice so as not to endanger or injure persons or property.*

**The Contractor, in addition to observing all of the requirements set forth and all municipal ordinances and state laws relative to the transportation, storage, handling and use of explosives, shall also conform to any further regulations that the Engineer may deem necessary in this respect. The Contractor shall be held liable for all injury to persons and damage to property caused by blasting or explosions.**

*Rock boulders or masonry encountered within the areas where blasting is not permitted shall remove said materials by drilling and/or splitting mechanically or by hand, or by any other method not requiring the use of explosives as approved by the Engineer. No separate payment will be made for such methods, and all associated costs shall be included in the contract unit bid price for ITEM 144.000 CLASS B ROCK.*

*All blasting shall be completed within a distance of fifty feet before any portion of a structure is placed or any pipe is installed.*

*EXCESS ROCK EXCAVATION: If rock is excavated beyond the limits of payment lines for excavation, as specified or authorized in writing by the Engineer, the excess excavation, whether resulting from overbreakage or other causes, will not be included in the measurement for payment, and shall be backfilled by and at the expense of the Contractor.*

**Excess excavation in the rock below the bottom of the crushed stone or fill under structures or below the gravel bedding under pipelines shall be filled with crushed stone or gravel and compacted, as applicable, at no additional cost to the City.**

*SHATTERED ROCK: If the rock below the bottom of the crushed stone for structures or below the bedding for pipelines is shattered due to drilling or blasting operations, the Contractor shall remove the shattered rock as directed and the excavation cavity refilled with crushed stone or gravel bedding material as approved, as applicable, and as directed by the Engineer, all at no additional cost to the City.*

*DISPOSAL OF EXCAVATED ROCK: All rock and/or boulders resulting from excavation operations shall be removed and disposed of off the site by the Contractor unless otherwise directed by the Engineer.*

**BACKFILLING ROCK EXCAVATIONS: Where rock has been excavated and the cavity is to be backfilled, the backfilling above the top of the top of the crushed stone or gravel bedding shall be done using approved backfill materials as specified and approved by the Engineer and at no additional cost to the City.**

***MEASUREMENT:** Pay limit for Class B Rock excavation shall be measured to a width of two feet greater than the outside diameter of the pipe, providing the rock extends to that width. The maximum depth of rock to be paid for shall be measured from the surface of the ledge to a depth of one foot below the pipe. If Class A Rock Excavation and Refill applies, then the upper limit of Class B Rock shall be to the lower limit of Class A Rock (one foot below proposed sub-grade). No part of any rock remaining in the trench shall come within six inches of any portion of the pipe. Class B Rock excavated in the construction of catch basins or manholes shall be measured on a basis of one foot outside of the outer walls and six inches below the bottom of the structure.*

***PAYMENT:** Payment for Class B Rock excavation shall be made for the number of cubic yards of ledge removed and replaced with gravel backfill. There will be no separate payment for gravel backfill. This shall be considered as incidental to the work being done and included as part of ITEM 144.000. Payment shall be as determined above at the contract unit price for ITEM 144.000 as set forth in the Bid. Said price and payment shall be full compensation for all work, labor, materials and equipment required to complete the work within this item. All work shall be subject to approval by the Engineer.*

**Payment Items**

144.000

Class B Rock Excavation & Refill

Cubic Yards

**ITEMS 151.220 GRAVEL BORROW      CUBIC YARD**

**GENERAL:** This work shall consist of furnishing and placing ordinary gravel borrow in accordance with these Specifications, and/or as required by the ENGINEER.

**MATERIALS:** Gravel borrow shall consist of hard durable stone and coarse sand free from loam and clay, well graded and containing no stone having any dimension greater than two (2) inches (type C), as per Section M1.03.0 of the Commonwealth of Massachusetts Standard Specifications, including any and all addenda. The gravel borrow shall conform to the following sieve requirements:

<u>SIEVE</u>	<u>% PASSING</u>
1/2"	50 - 85
#4	40 - 75
#50	08 - 28
#200	0 - 08

The gravel shall be tested for sieve analysis at the plant prior to delivery on the job site. The written results shall be given to the inspector for the city for approval prior to delivery. Failure to do so may result in the refusal of the material by the City. All costs incurred shall be paid for by the CONTRACTOR at no cost to the City.

The gravel borrow shall be placed in six inch (maximum) layers and then compacted to not less than 95% of maximum optimum density as determined by AASHO Test Designation: T99-57, Method C.

Crusher run may be substituted in place of gravel borrow if desired by the CONTRACTOR and so approved by the ENGINEER. Crusher run shall be paid for at the same unit price as gravel borrow. The conversion factor used in determining the quantity of crusher run substituted shall be one and one-half tons of crusher run is equivalent to one cubic yard of crusher run.

**MEASUREMENT:** Measurement for gravel borrow shall be the number of cubic yards furnished, placed, and accepted in accordance with these specifications and/or as required by the ENGINEER. The number of cubic yards in place and accepted shall be measured or calculated by the ENGINEER. Fifteen percent shall be added to the figure for compaction. Only gravel borrow placed within the established pay limit necessary to complete the work as required by the ENGINEER shall be considered for payment. If, in the opinion of the ENGINEER, the CONTRACTOR has excavated areas to an excessive width and/or depth, either through error or for his own convenience, the gravel borrow used to refill trenches beyond said reasonable width or depth shall be paid for by the CONTRACTOR with no cost to the City.

**Failure to allow the ENGINEER ample time to make the required measurements will forfeit the CONTRACTOR'S right of claim to any gravel borrow other than that which is allowed by the ENGINEER.**

**PAYMENT:** Payment for gravel borrow shall be made for the number of cubic yards furnished, placed, and accepted as determined above at the contract unit prices for ITEMS 151.000 & 151.220 as set forth in the Bid. Said price and payment shall be full compensation for furnishing and placing all materials, all equipment, tools, labor, backfilling operations and all else incidental thereto. Fine grading and compaction shall be paid for under the applicable item of finish material (bituminous concrete or cement concrete).

On-site gravel, if requested by the ENGINEER, shall be saved for re-use on the job. The gravel shall be excavated, stored (if required), and/or relocated on the site, all at no additional cost to the City. All work shall be done by the CONTRACTOR.

**Payment Items**

151.220	Gravel Borrow (Trench Repair, Sidewalks & Drives)	Cubic Yards
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**ITEM 199.000****EROSION CONTROL****LUMP SUM**

**GENERAL:** *The purpose of this Item is to prevent flow of sediment from construction site and contain construction materials (including excavation and backfill) within protected working area to prevent damage to any stream or wetlands.*

*Material for the erosion control shall be straw bales with siltation fence. Bales of Straw shall be a minimum of 1-foot by 1.5-feet by 3-feet, fastened with wire and staked in place. Wood stakes shall be 2-inch by 2-inch by 3-feet stakes. Siltation fence shall be a manufactured product including siltation control geotextile and support posts. Geotextile shall be a polypropylene, ultraviolet resistant material. Support posts shall be pointed at one end, 4-feet long, and shall be softwood measuring 2 inches by 4 inches or oak measuring 1 ½-inches square.*

*Alternatively, compost filter tubes (see Item 767.12 – Compost Filter Tubes) may be used in place of straw bales with siltation fence.*

*Catch basin infiltration protection shall be Gutter Buddies, SiltSacks, SiltSocks, or SpillSmart Drain Filters.*

*Biodegradable erosion control matting shall consist of a jute mesh product or straw blankets that are capable of stabilizing bare earth at slopes up to 5 percent. The matting shall be of a density such that seeded lawn will grow under the matting.*

**METHOD:** *Installation of straw bales shall be so that each bale is butted tightly against the adjoining bale thereby precluding short-circuiting of erosion check. Hold bales in place with stakes. Installation of Siltation Fence: the filter fabric shall extend 6-inches below undisturbed ground to prevent undermining, or per manufacturer's written instruction, whichever is greater. Straw bales and siltation fence shall be installed to protect water bodies, beaches, and portions of the Buffer Zones outside the limits of disturbance from sediment runoff from construction sites as shown on the plans.*

*All erosion and sediment control devices shall be maintained in proper functioning order until final grading and stabilization is completed. Any silt fence or straw bale that becomes damaged during construction operations shall be repaired or replaced immediately at no additional cost to the Owner. Silt fences and straw bales shall have sediment removed before depth of sediment is half the height of the fence or bale.*

*Siltation protection for catch basins shall be in accordance with the manufacturer's written instruction for the specific product used. Catch basins shall be protected until the adjacent construction area has been stabilized or work is complete. Remove built up debris and sediment where devices are used for catch basin protection, so that ponding or flooding does not occur.*

*Sediments deposits shall be disposed of off-site, in accordance with all Federal, State and local regulations.*

*Erosion control measures shall be removed after disturbed areas are stabilized. Stabilized shall mean that the following is accomplished: trenches are backfilled and compacted on the finish surface materials installed including pavement.*

**MEASUREMENT:** *Payment for Erosion Control will be made on a lump sum basis. No additional payment shall be made for ITEM 767.120 – COMPOST FILTER TUBES.*

**PAYMENT:** Payment under ITEM 199.000 shall be the bid price and shall be compensation for all labor, equipment, and materials necessary to complete the work specified above, including, but not limited to, stakes and tube fabric, removal and disposal of fabric and stakes, raking, and seeding of compost.

The first payment of one third of the lump sum price for Erosion Control will be made on the first estimate presented after the Erosion Control has been installed. The second payment of one third of the lump sum price for Erosion Control will be made following the completion of 50 percent of the total Contract Price. The third payment of one third of the lump sum price for Erosion Control will be made following the completion of all the work on the project.

**Payment Items**

199.000

Erosion Control

Lump Sum



ITEM 302.060

6-INCH DUCTILE IRON WATER PIPE

LINEAR FOOT

ITEM 302.080

8-INCH DUCTILE IRON WATER PIPE

LINEAR FOOT

ITEM 302.100

10-INCH DUCTILE IRON WATER PIPE

LINEAR FOOT

ITEM 302.120

12-INCH DUCTILE IRON WATER PIPE

LINEAR FOOT

**GENERAL:** This work shall consist of furnishing and installing Ductile Iron Water Pipe and appurtenances in accordance with these specifications and/or as required by the ENGINEER.

All conduit, pipe, or structures uncovered during excavation, whether or not shown on the plans, shall be protected and, if damaged by the CONTRACTOR, shall be repaired by him or the utility company at the expense of the CONTRACTOR.

The CONTRACTOR shall not abandon any pipes or structures without prior approval of the ENGINEER.

Abutters shall be notified by the CONTRACTOR at least forty-eight hours in advance of any water shut-down or anticipated dirty water.

**MATERIALS:** Ductile Iron Pipe shall conform to the requirements of ANSI/AWWA C150/A21.50-96 and manufactured in accordance with ANSI/AWWA C151/A21.51-96. Ductile Iron Pipe shall have push-on joints conforming to ANSI/AWWA C111/A21.11-95 and be cement-mortar lined in accordance with ANSI/AWWA C104/A21.4-95. Any pipe within 20 feet of a restrained joint, where forces are acting in the direction of the restraint, shall have mechanical joints.

Concrete thrust blocks shall be 3000 psi, 1 ½" stone, 470 Cement Concrete Masonry.

Sand borrow shall conform to M1.04.0.

**METHODS:** Care shall be taken in loading, transporting, and unloading to prevent injury to the pipe or coatings. 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 the pipe coatings shall be repaired as required by the ENGINEER.

All pipe and fittings shall be thoroughly cleaned before installation. When installation is not in progress, including lunch time, the open ends of the pipe shall be closed by a watertight plug or other approved means. When placed, pipe shall conform to the lines and grades. The deflection at joints shall not exceed that recommended by manufacturer. Fittings, in addition to those shown on the plans, shall be provided, if required, in crossing utilities which may be encountered upon opening the trench.

Sleeve couplings and accessories shall be pressure rated at least equal to that of the pipe. Couplings shall be solid sleeves or Himax or approved equivalent. Sleeves shall be used only where approved by the ENGINEER.

Push-on joints shall be made up by first inserting the gasket into the groove of the bell, then applying a thin film of non-toxic lubricant uniformly over the inner surface. The chamfered end of the plain pipe shall be inserted into the gasket and forced past it until it seats against the bottom of the socket. Ductile iron pipe and fittings shall be installed in accordance with requirements of AWWA Standard Specification C600 except as otherwise provided herein. All pipes shall have twelve inches of sand cover over the top of the pipe as shown in the Contract Drawings. A firm, even bearing through the length of the pipe shall be constructed by tamping selected material at the sides of the pipe up to the spring line. When cutting pipe is required, the cutting shall

be done by machine, leaving a smooth cut at right angles to the axis of the pipe. The 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.

If defective pipe is discovered after it has been laid, it shall be removed and replaced with a sound pipe in a satisfactory manner by the CONTRACTOR at expense to the City.

Concrete thrust blocks, rods and megalugs shall be installed at all fittings and other locations as directed by the ENGINEER. Thrust blocks shall be poured against undisturbed original ground and shall be so placed that pipe joints will be accessible for any possible future repairs. Thrust blocks shall not be placed on peat, organic silt, organic soils, soft clay, rubbish or other unsuitable fill material. Minimum bearing area shall be as shown on the Drawings or as specified by the ENGINEER.

**MECHANICAL JOINTS:** Mechanical joints at valves, fittings and where designated shall be in accordance with the appendix to ANSI/AWWA C111/A21.11 and the instructions of the manufacturer. To assemble the joints in the field, the CONTRACTOR shall thoroughly clean the joint surfaces and rubber gasket with soapy water before tightening the bolts. Bolts shall be Cor-Ten or approved equal, tight to torque as specified by the manufacturer. Under no condition shall extension wrench or pipe over handle or ordinary ratchet wrench be used to secure greater leverage.

**TESTING:** All pipe lines shall be tested for compliance with the specifications. If leaks are discovered, they shall be repaired by the CONTRACTOR at his expense and approved by the ENGINEER. Pressure and leakage tests will be required. The pressure test pressure shall be fifty percent above the normal operating pressure as measured at the lowest point in the pipeline, or one-hundred fifty psi, whichever is larger, for two (2) hours. Leakage test shall be performed at one-hundred percent maximum operating pressure for two (2) hours. Hydrant branch gate valves shall remain open during this test. The CONTRACTOR shall subcontract to an independent Certified testing & disinfecting firm, acceptable to the City of Waltham, for all pipeline testing. Copies of the test results shall be provided to the City of Waltham directly by the testing & disinfecting firm. No additional payment shall be made for retaining an independent testing & disinfecting firm. The testing & disinfecting firm shall supply all labor, equipment, material, gauges, pumps, etc., required to conduct the test. Testing shall be performed in accordance with ANSI/AWWA C600 unless otherwise required by the ENGINEER.

**CHLORINATING OF PIPELINES:** Before being placed in service, all water pipelines shall be chlorinated in accordance with AWWA C601, "Standard Procedure for Disinfecting Water Mains." The procedure shall be approved by the ENGINEER in advance.

The location of the chlorinating and sampling points will be determined by the ENGINEER in the field. Taps for chlorinating and sampling shall be installed by the CONTRACTOR. The CONTRACTOR shall uncover and backfill the taps as required at the CONTRACTOR'S expense with no additional cost to the City.

The CONTRACTOR shall subcontract to an independent testing & disinfecting firm, acceptable to the City of Waltham, for all pipeline disinfecting. Copies of the disinfection results shall be provided to the City of Waltham directly by the testing & disinfecting firm. No additional payment shall be made for retaining an independent testing & disinfecting firm.

The general procedure for chlorinating shall be first to flush all dirty or discolored water from the lines, and then introduce chlorine in approved dosages through a tap at one end, while water is being withdrawn at the other end of the line. The chlorine solution shall remain in the pipeline for about twenty-four hours.

Following the chlorinating period, all treated water shall be flushed from the lines at their extremities, and replaced with water from the distribution system. Bacteriological sampling and analysis of the replacement water shall then be made in full accordance with AWWA Specification C601. The CONTRACTOR will be required at his own expense, to rechlorinate if necessary and the line shall not be placed in service until the requirements of the State Public Health Department are met.

Special disinfecting procedures shall be used in connections to existing mains, and where the method outlined above is not practical, with the prior approval of the ENGINEER.

**MEASUREMENT:** Cement lined ductile iron pipe will be measured in place on a linear foot basis. Measurement will be along the main center line of the pipe **with deduction for valves and fittings**. Measurement for payment does not mean acceptance of the pipe line. Sewer connections broken by the CONTRACTOR shall be repaired at no additional cost to the CITY.

**PAYMENT:** Payment shall be made for the number of linear feet of ductile iron pipe furnished, installed and accepted as determined above at the Contract unit price for ITEM 302 as set forth in the Bid. Said price and payment shall be full compensation for furnishing all pipe, all excavation (except Class A and B Rock), all backfill and compaction, pumping if needed, all tools, labor, materials, equipment, sand, testing and all else incidental thereto. No separate payment shall be made for concrete thrust blocks, nuts, bolts, rods, megalugs, disinfection, flanges or gaskets. These items shall be considered incidental to the work.

**Payment Items**

302.060	6-Inch Ductile Iron Water Pipe	Linear Foot
302.080	8-Inch Ductile Iron Water Pipe	Linear Foot
302.100	10-Inch Ductile Iron Water Pipe	Linear Foot
302.120	12-Inch Ductile Iron Water Pipe	Linear Foot

**ITEM 309.000**

**DUCTILE IRON FITTINGS**

**POUNDS**

**GENERAL:** This work shall consist of furnishing and installing cement lined ductile iron fittings where required on ductile iron pipe or as designated by the ENGINEER.

**MATERIALS:** Ductile iron fittings shall be ASTM A-536 ductile iron, cement lined with mechanical joints. Fittings shall meet or exceed the requirements of ANSI/AWWA C153/A21.53-94. Fittings shall be class 350 and shall conform with the weights, excluding accessories, and dimensions shown in the latest edition of the Handbook of Ductile Iron Pipe and come complete with all joint accessories required for installation. All fittings shall be cement lined and tar coated in accordance with AWWA C-104. All accessories (glands, gaskets, megalugs, T-bolts and nuts) shall be in accordance with AWWA C-111. Mechanical joint bolts shall be Cor-Ten or equal.

**After assembly, all exterior surfaces including the bolts and nuts shall be thoroughly coated with two coats of heavy-duty protective coating. The interior of the coupling shall be epoxy-coated in accordance with Section C7 contained herein.**

Sleeve couplings and accessories shall be pressure rated at least equal to that of the pipe. Couplings shall be solid sleeves or Hymax or approved equal. Sleeves shall be used only where approved by the ENGINEER.

**METHOD:** Care shall be taken in loading, transporting, and unloading to prevent injury to the fittings or coatings. Fittings shall not be dropped. All fittings shall be examined before installation and no piece shall be installed which is found to be defective. Any damage to the coatings shall be repaired as required by the ENGINEER.

If any defective fitting is discovered after it has been laid, it shall be removed and replaced with a sound fitting in a satisfactory manner by the CONTRACTOR, at his own expense. All fittings shall be thoroughly cleaned before installing, shall be kept clean until they are used in the work, and when installed, shall conform to the lines and grades required. Ductile iron fittings shall be installed in accordance with the requirements of AWWA Standard Specifications C600 accept as otherwise provided herein.

**Concrete thrust blocks shall be installed at fittings where necessary and other locations as required by the ENGINEER. Minimum bearing areas shall be as shown on the Drawings. Concrete shall be placed against undisturbed material and shall not cover joints, bolts, or nuts, or interfere with the removal of any joint. Wooden side forms shall be provided for thrust blocks.**

**MEASUREMENT:** Ductile iron fittings shall be measured by the pound, including the cement lining, based on certified shipping weight slips supplied by the CONTRACTOR, or as designated by the ENGINEER. Flanges, rods, bolts, nuts, or concrete for thrust blocks shall not be measured for payment, but shall be considered as incidental to the item.

**PAYMENT:** Payment shall be made for the number of pounds of fittings furnished, installed, and accepted as determined above at the Contract unit price for ITEM 309.000 as set forth in the Bid. No separate payment shall be made for flanges, rods, nuts, bolts, megalugs, or concrete for thrust blocks. These items shall be considered as incidental to the work and a subsidiary obligation of the CONTRACTOR. Said price and payment for ITEM 309.000 shall be full compensation for furnishing and installing all fittings and all related work and for furnishing all labor, tools, equipment and all else incidental thereto.

**Payment Item**

309.000

Ductile Iron Fittings

Pounds

**ITEM 345.400****4-INCH TEMPORARY WATER BYPASS****LINEAR FOOT**

**GENERAL:** The CONTRACTOR shall furnish all labor, materials, equipment and incidentals required to install and remove by-pass and temporary service pipe and temporary fire apparatus of the sizes required to provide adequate service to all water customers whose service will be interrupted and to fulfill fire service requirements during water construction activities. Existing fire hydrants connected to pipe being replaced shall be connected to the temporary pipe at locations required by the ENGINEER.

**METHODS:** The CONTRACTOR shall provide temporary water service to abutters by means of temporary hose connections. These temporary service connections shall be made to sill cocks outside the buildings or to temporary connections at the meter inside the buildings, as may be required by the ENGINEER.

The contractor shall flush, chlorinate and test the temporary bypass in accordance with the provisions of AWWA-C601 "AWWA Standard for Disinfecting Water Mains." All such work shall be performed at the CONTRACTOR'S own expense at an approved laboratory. Test results shall be submitted to the ENGINEER on a laboratory report form stating a result of negative coliform (Standard Methods 9222B 18th edition) bacteria before allowing the transfer of water supply to the bypass system.

As the bypass piping system passes driveway entrances, crusher run and/or a mixture of crusher run and cold patch shall be placed over the pipe and ramped to provide a smooth access from the street into the driveway. The use of rubber mats designed to be placed over the bypass pipe will be permitted in lieu of this mixture. Bypass pipe across streets or driveways shall be placed in trenches of a depth sufficient to bury the pipe to its full diameter as the pipe crosses streets. The trench will then be filled with the cold patch mixture to provide a surface level and flush with the existing pavement. When requested by the ENGINEER, hot type I-1 bituminous concrete pavement shall be placed in the bypass trench. When the bypass pipe is removed, the trench will be temporarily filled as per above until such time that the permanent bituminous concrete pavement is placed. The placement of the cold patch or the hot type I-1 bituminous concrete pavement is to be considered incidental to installation of the bypass pipe.

The work of relocating existing service and of furnishing and installing temporary service pipe, temporary customer services and other branches, maintaining the same, providing suitable safety precautions and removal of the temporary service pipe system shall be the sole responsibility and expense of the CONTRACTOR.

**MEASUREMENT:** Measurement for Temporary Bypass Pipe shall be made for the actual number of linear feet of service furnished, installed and approved as measured by the ENGINEER. All work and/or materials are subject to final approval by the ENGINEER. The use and placement of safety cones or reflectorized sawhorses shall be considered as incidental to the item and shall not be measured for payment. Temporary hose connection to buildings shall be considered incidental to this item.

**Hose connections to buildings shall be considered incidental to this item and shall not be measured for payment.**

**PAYMENT:** Payment for Temporary Bypass Pipe shall be made for the number of linear feet of by-pass furnished and installed as determined above at the contract unit price for ITEMS 345.400 & 345.600 as set forth in the proposal. Said price and payment shall be full compensation for furnishing all necessary materials (including crusher run and cold patch), tools, labor, chlorination and testing, equipment and all else incidental to the installation of temporary bypasses.

**Payment Item**

345.400

4-Inch Temporary Water Bypass

Linear Foot

**GENERAL:** *This work shall consist of furnishing all labor, materials, and equipment required to make water service connections from existing mains and/or new water mains to existing service connections at street line or five feet behind street line to lots where no service connection exists. All work shall be as required by the ENGINEER. The CONTRACTOR shall furnish all necessary labor, materials, and equipment to excavate the trench from the main to the point where the new service is connected to the old service pipe or to a stub-off point behind street line, whichever applies. Also, the CONTRACTOR shall cover the new service connection with six inches of sand cover and then backfill the trench as specified by the ENGINEER.*

*On new water mains, new corporation cocks shall be furnished and installed by the CONTRACTOR. Copper tubing shall be used to make connections to new service gates furnished and installed by the CONTRACTOR as directed. New service gates shall be installed directly onto the existing service connections when feasible. If not, in the opinion of the ENGINEER, new copper tubing shall be connected to existing service lines by means of an acceptable clamp or coupling.*

**All existing services shall be maintained as long as possible until the new service has been installed. Proper notification shall be made to the affected homeowner when their service is to be interrupted. All work is subject to final acceptance by the ENGINEER.**

**MATERIALS:** *Corporation cocks shall conform to AWWA Standard C800 and shall be equal in type used by the City of Waltham Water Department. Curb stops shall be equal in type to those used by the City of Waltham. Copper tubing shall be Type "K", soft temper, conforming to ASTM B88. The name or trademark of the Manufacturer and Type shall be stamped at intervals along the pipe.*

*Gate boxes and sleeves shall meet the requirements listed under ITEM 350.08. Adapters and/or sleeves for connection to existing service lines shall be as recommended by the ENGINEER.*

*Sand borrow shall conform to M1.04.0.*

**METHODS:** *Care shall be exercised in the placing and laying of copper tubing to be sure that the pipe does not have kinks or sharp bends and to assure against its being in contact with sharp stones or ledge that would cause damage to the pipe. Copper tubing shall be laid in a bed of sand as shown on the details of the Contract Drawings. At least six inches of sand shall be placed over the top of the pipe to act as a witness for future excavation. The remaining portion of the trench shall be backfilled with select materials as designated by the ENGINEER.*

*The tapping machine for corporation cocks shall be rigidly fastened to the main as near the horizontal diameter as possible. The length of travel of the tap should be so established that when the stop is inserted and tightened with a fourteen inch wrench, not more than one to three threads will be exposed on the outside.*

**MEASUREMENT:** *Service connections shall be measured as the actual number of linear feet of tubing installed in the completed project as measured from the centerline of the water main to the point where it is connected to the existing water service line or to where it is stubbed off. One corporation cock and one gate valve (curb stop) shall be provided for each service, and any adapters or couplings that may be required.*

**PAYMENT:** *Payment for water service connections shall be made for the number of linear feet of service connection furnished, installed, and accepted as determined above at the Contract unit price for ITEM 347.100 as set forth in the Bid. Said price and payment shall be full compensation for furnishing and installing service connections, including tapping, excavation, removal of bituminous concrete sidewalk and driveway, laying of pipe, furnishing and installation of gates, cocks, adapters, sand backfill and bedding, connections to new curb stops, curb boxes, all tools, labor, materials, equipment and all else incidental thereto. No separate payment shall be made for furnishing and installing curb stops or corporations, sand, adapters, or sleeves. These items shall be considered incidental to the work and shall be included as part of ITEM 347.*

**Payment Items**

347.100

1-Inch Copper Water Service

Linear Foot



<u>ITEM 350.060</u>	<u>6-INCH GATE VALVE AND GATE BOX</u>	<u>EACH</u>
<u>ITEM 350.100</u>	<u>10-INCH GATE VALVE AND GATE BOX</u>	<u>EACH</u>
<u>ITEM 350.120</u>	<u>12-INCH GATE VALVE AND GATE BOX</u>	<u>EACH</u>

**GENERAL:** This work shall consist of furnishing and installing various sizes of gate valves and gate boxes as shown on the Contract Drawings or as designated by the ENGINEER.

**MATERIALS:** Gate valves shall meet the requirements of ANSI/AWWA C-515. Valve pressure ratings shall be 200 psig for valves twelve inches or smaller. The stuffing box or O-ring packing plate shall be made of cast iron. Thrust surfaces and stem openings, if bushed, or stem-seal cartridges shall be made of grade A, B, C, D or E bronze or a synthetic polymer with physical properties suitable for the application. The operating nut shall be standard AWWA two inch square. Valves shall have mechanical joints conforming to ANSI/AWWA C111/A21.11. **All valves shall open right (clockwise).**

Gate boxes shall be two sections, cast iron, heavy pattern, adjustable type, with cast iron cover. The upper section shall have a bottom flange of sufficient bearing area to prevent settling. The bottom section shall enclose the valve stuffing box and operating nut. Boxes shall be lengths adapted to five feet pipe cover or more and have a minimum of six inch overlap in the most extended position. Covers shall have the work "WATER" cast in the top.

**MEASUREMENT AND PAYMENT:** Measurement shall be made for the number of completed units furnished, installed and accepted. Payment shall be made for the number of gate valves and gate boxes furnished, installed and accepted as determined above at the Contract unit price for ITEMS 350.060 through 350.120 as set forth in the Bid. Said price and payment shall be full compensation for furnishing and installing all gate valves and gate boxes and all related work including excavation, pumping if needed, backfill, cement collars, megalugs, rods, nuts, bolts and for all tools, labor, materials, and equipment and else incidental thereto. Payment shall also include the removal of existing valves and boxes.

**Payment Items**

350.060	6-Inch Gate Valve and Gate Box	Each
350.100	10-Inch Gate Valve and Gate Box	Each
350.120	12-Inch Gate Valve and Gate Box	Each

**ITEM 376.010****HYDRANT, 6-INCH GATE VALVE, AND CONNECTION****EACH**

**GENERAL:** This work shall consist of furnishing and installing hydrants, gate valves, gate boxes, six inch ductile iron pipe and all appurtenances as shown on the contract drawings or as designated by the ENGINEER. All work related to this item, with the exception of tees and fittings on the water main itself, shall be included as part of this item. Tees and fittings shall be measured and paid for under ITEM 309.000.

**MATERIALS:** Hydrants shall be American Flow Controls B62B, conforming to AWWA Specification C-502-94.

Gate valves shall meet the requirements of ANSI/AWWA C515. Valve pressure ratings shall be 200 psig for valves twelve inches or smaller. The stuffing box or O-ring packing plate shall be made of cast iron. Thrust surfaces and stem openings, if bushed, or stem-seal cartridges shall be made of grade A, B, C, D or E bronze or a synthetic polymer with physical properties suitable for the application. The operating nut shall be standard AWWA two inch square. Valves shall have mechanical joints conforming to ANSI/AWWA C111/A21.11. **All valves shall open right (clockwise).**

Gate boxes shall be two section, cast iron, heavy pattern, adjustable type with cast iron cover. The upper section shall have a bottom flange of sufficient bearing area to prevent settling. The bottom section shall enclose the valve operating nut. Boxes shall be of lengths adapted to five feet of pipe cover or more and have a minimum of six inch overlap in the most extended position. Covers shall have the word "WATER" cast in the top.

Ductile iron pipe shall be Class 52 and shall conform to the requirements of ANSI/AWWA C150 (A21.50-96) American Standard for the Thickness Design of Ductile Iron Pipe. Ductile iron pipe shall have mechanical joint end construction.

When new hydrants replace old hydrants as directed by the Engineer, the old hydrant shall be removed and disposed of properly at no additional cost to the City.

**COLORS:** Hydrants shall be painted with two coats of traffic yellow and black to match other hydrants in the city. Black shall be Rustoleum oil base professional strength interior/exterior enamel XO-18 Satin black or approved equal. Yellow shall be F-173 fastdry acrylic enamel #13538 yellow as manufactured by Coastline Industrial Coatings, Stafford, Texas, or approved equal.

**METHOD:** Hydrants shall be set at the locations shown on the plan or where designated by the ENGINEER and bedded on a firm foundation. A drainage pit four (4) feet in diameter shall be filled with 1" to 1-1/2" crushed stone. During backfilling operations, additional stone shall be brought up around and six (6) inches over the drain ports. Each hydrant shall be set in true vertical alignment and properly braced. Hydrants shall be set so that there is a minimum of 2" clearance between the bottom of the breakaway flange bolts and the ground and a minimum of 24" clearance between the center of the 4-1/2" steamer cap and the ground. Standard barrel riser sections, if required, shall be furnished and installed as part of this item. Concrete thrust blocks shall be placed between the back of the hydrant inlet and undisturbed soil at the end of the trench. Minimum bearing area of concrete shall be as shown on the details. Felt roofing paper or an approved equal shall be placed around the hydrant elbow before placing concrete. Care shall be taken to ensure that concrete does not plug the drain ports.

If required by the ENGINEER, the hydrant shall be tied to the pipe and valve with suitable rods, megalugs or clamps that are galvanized, painted, or otherwise rustproof treated. Wedge action follower glands may be

permitted, with the approval of the ENGINEER. Poured concrete used for thrust blocks shall be 3,000 psi. Hydrants shall be cleaned and painted as required after installation. All pipe shall have one foot of sand cover over the top of the pipe.

**MEASUREMENT:** Measurement for hydrant, valve, box and connection with up to twenty (20) feet of 6" water pipe shall be as a completed unit in place and accepted as determined from actual count by the ENGINEER. Measurement shall include all necessary materials required with the exception of tees and/or fittings on the water main. These shall be included under another item within this contract. All work is subject to final approval by the ENGINEER.

**PAYMENT:** Payment for hydrant, valve, box and connection shall be made for the number of completed and accepted units as determined above at the contract unit price for ITEM 376.010 as set forth in the Bid. Said price and payment shall be full compensation for furnishing and setting all hydrants, all materials and appurtenances, all tools, labor, equipment, excavation, removal of any existing hydrant from the same location, backfill and all else incidental to complete the work within this item. **Payment for the first twenty (20) feet of 6" water pipe is included in this item.** Additional length if required shall be paid under ITEM 302.060. Tees and fittings shall be furnished and installed as part of ITEM 309.000.

**Payment Items**

376.010	Hydrant, 6-Inch Gate Valve and Connection	Each
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**ITEM 440.000**

**CALCIUM CHLORIDE FOR DUST CONTROL**

**POUNDS**

**GENERAL:** This work shall consist of furnishing and applying approved dust control material to the surface of the subgrade or elsewhere as required by the ENGINEER.

**MATERIALS:** Calcium Chloride shall conform to the requirements of AASHO M144, Type I or Type II.

**APPLICATION:** Calcium Chloride shall be uniformly applied at the rate of three-quarters pounds per square yard or as required by the ENGINEER.

**MEASUREMENT:** Calcium Chloride will be measured by the pound and the quantity to be paid for shall be the actual weight of the material furnished and applied in place.

**PAYMENT:** Payment shall be made for the amount of Calcium Chloride furnished and placed as determined above at the Contract price for ITEM 440.000 as set forth in the Bid.

**Payment Item**

440.000

Calcium Chloride

Pounds

<b><u>ITEM 460.100</u></b>	<b><u>CLASS I BITUMINOUS CONCRETE</u> <u>TYPE I-1 (3" TEMPORARY TRENCH)</u></b>	<b><u>TONS</u></b>
<b><u>ITEM 460.200</u></b>	<b><u>CLASS I BITUMINOUS CONCRETE</u> <u>TYPE I-1 (4.5" PERMANENT TRENCH)</u></b>	<b><u>TONS</u></b>
<b><u>ITEM 460.300</u></b>	<b><u>CLASS I BITUMINOUS CONCRETE</u> <u>TYPE I-1 (1.5" OVERLAY)</u></b>	<b><u>TONS</u></b>
<b><u>ITEM 460.400</u></b>	<b><u>CLASS I BITUMINOUS CONCRETE</u> <u>TYPE I-1 (SIDEWALKS, DRIVES, APRONS &amp; ADJUSTMENT AREAS)</u></b>	<b><u>TONS</u></b>

**GENERAL:** This work shall consist of fine grading and compaction of gravel base material and/or crusher run base material prior to placing mix, and furnishing, spreading and compacting bituminous concrete base courses and wearing surfaces in accordance with the details shown on the Contract Drawings, as specified in these Specifications, or as required by the ENGINEER.

**MATERIALS:** Class I bituminous concrete pavement, Type I-1, shall conform to the requirements of Section 460 of the current Edition of the "Standard Specifications for Highways and Bridges," Commonwealth of Massachusetts, Department of Public Works, including any addenda or amendments thereto. The City of Waltham has the option of requesting a modified state top when deemed necessary.

Bituminous concrete shall be spread at a temperature of not less than 225 degrees Fahrenheit and all initial rolling or tamping shall be performed when the temperature of the mixture is such that the sum of the air temperature plus the temperature of the mixture is between 300 and 375 degrees Fahrenheit. All mixtures shall be placed only when the atmospheric temperature is above 40 degrees Fahrenheit.

Bituminous concrete for wearing surfaces and base courses shall be spread in individual layers and compacted to the required lines, grades and cross section.

Rolling shall commence at the lower edges and shall progress toward the highest portion. Under no circumstances shall the center be rolled first. Each completed surface shall be thoroughly compacted, smooth and free from ruts, humps, depressions, or irregularities.

Where new bituminous meets existing bituminous surfaces, an emulsifying agent shall be applied to seal the joint. A sand overcoat shall then be applied over the emulsifying agent.

**Permanent trench pavement must remain in place for a minimum of ninety (90) calendar days before milling and full width overlay.**

**MEASUREMENT:** All bituminous used for roadway and sidewalk bases and surfaces will be paid for on the basis of weight and shall be measured by tickets delivered with each load. The tickets shall be signed by a certified weigher and shall be countersigned by the ENGINEER. The tickets shall clearly show the total, tare, and net weights. Loads represented by tickets not showing the weights as specified above will not be accepted for payment. Only bituminous concrete placed at the required depth and within the limits specified by the ENGINEER will be accepted for payment.

**PAYMENT:** Payment for bituminous concrete shall be made for the number of tons as determined above at the Contract unit price for ITEMS 460.100 through 460.400 as set forth in the Bid. Said price and payment shall be full compensation for all fine grading and compaction, for furnishing, spreading and compacting bituminous concrete, emulsifying and sanding of all joints, and for furnishing all tools, labor, materials, equipment, and all else incidental thereto.

**Payment Items**

460.100	Class I Bituminous Concrete Type I-1 (3" Temporary Trench)	Tons
460.200	Class I Bituminous Concrete Type I-1 (4.5" Permanent Trench)	Tons
460.300	Class I Bituminous Concrete Type I-1 (1.5" Overlay)	Tons
460.400	Class I Bituminous Concrete Type I-1 (Sidewalks, Drives, Aprons & Adjustment. Areas)	Tons

**ITEM 464.000**

**BITUMEN FOR TACK COAT**

**GALLONS**

**GENERAL:** This work shall consist of furnishing and placing of a bituminous tack coat prior to the placement of Class I bituminous concrete for resurfacing. All work and materials shall be furnished and placed by the CONTRACTOR.

**MATERIALS AND METHODS:** Bituminous tack material shall conform to the requirements of Section M3.03.0 of the current Edition of the "Standard Specifications for Highways and Bridges," Commonwealth of Massachusetts.

The application shall be done by means of an approved mechanical pressure distributor tanker truck only with a heating device capable of heating the material evenly up to a temperature of 425° Fahrenheit. It shall also be equipped with a distribution spray bar of a type that will distribute the bituminous tack material uniformly under a pressure of not less than 30 lbs. per square inch, without streaks and/or spots, so as to provide an equal and uniform coverage on the existing surface. The tanker truck shall be equipped with a gauge to accurately measure the gallons applied. The tanker truck shall also be so designed as to enable the operator to control the rate of flow and to provide a positive cut-off to prevent dripping of the nozzles when shut off. The bitumen shall be applied at a rate as described above.

The application rate for the bitumen shall be 15 square yards per gallon.

**MEASUREMENT:** Measurement for bitumen for tack coat shall be for the number of gallons actually furnished, placed and accepted as determined by the OWNER and/or his representative. The OWNER and/or his representative may elect to use the measured amount from printout slips of actual gallons used as received from the tanker truck.

**PAYMENT:** Payment for bitumen for tack coat shall be made for the number of gallons furnished, placed and accepted as determined above at the Contract unit price for ITEMS 464.000 as set forth in the Bid. Said price and payment shall be full compensation for furnishing and placing all materials and for furnishing all tools, equipment, labor, and all else incidental thereto to complete the work within this item.

**Payment Item**

464.000

Bitumen for Tack Coat

Gallons

**ITEM 482.300**

**SAWING ASPHALT PAVEMENT**

**FOOT**

**GENERAL:** *This work shall consist of saw cutting existing asphalt surfaces at limits of work on roadways, sidewalks, and driveways as shown on the Contract Drawings.*

**METHOD:** *All edges of excavations made in existing asphalt pavements, including driveways, shall be squared by saw cutting with power-driven tools to provide a neat, clean edge for joining new pavement as shown on the Plans. Ragged, uneven edges shall not be accepted. Areas that have been broken or undermined shall be edged neatly with minimum disturbance to remaining pavement.*

*Sawcut surfaces in asphalt pavements shall be sprayed or painted with a uniform thin coat of RS-1 asphalt emulsion immediately before placement of hot-mix asphalt material against these surfaces.*

**MEASUREMENT:** *Item 482.300, Sawing Asphalt Pavement, shall be measured per foot of asphalt pavement actually cut.*

**BASIS OF PAYMENT:** *Item 482.300, Sawing Asphalt Pavement, shall be paid at the contract unit price bid per foot, which payment shall be considered as full compensation for all labor, tools, equipment, materials, and incidental work required to complete the work as required.*

*Saw cutting required as part of the installation of waterworks, storm drains, curb, and hot-mix asphalt patches will be included as part of those Items and will not be included in the price per meter for this Item.*

**Payment Items**

482.300

Sawing Asphalt Pavement

Foot



**ITEM 580.000**

**CURB REMOVED AND RESET**

**LINEAR FOOT**

**GENERAL:** *This work shall consist of removing existing curb and/or curb corners and resetting them to grade in the same location in accordance with these specifications, as shown on the Contract Drawings, and/or as required by the ENGINEER. The CONTRACTOR assumes full responsibility for any damages incurred in the removal and resetting processes or any damages incurred while executing said work.*

**METHODS:** *Unless otherwise required by the ENGINEER, curb shall be set to the lines and grades shown on the plans and fitted together as closely as possible. Crusher run shall be added and hand tamped to fill any voids between the undisturbed earth and the bottom of the curb so the curb is supported along two points of its entire length. The center and both ends of each curb length shall be left open for cement concrete. On the day of the curb installation, 6" x 6" beds of cement concrete shall be poured front and back, and the concrete shall flow under the curb. Care shall be taken not to affect the line and/or grade of the curb. Joints between curbstones shall be filled with mortar and exposed surfaces shall be neatly pointed.*

**MEASUREMENT:** *Payment for granite curb removed and reset shall be the number of linear feet of curb actually removed and reset as measured and accepted by the ENGINEER. The quantity of curved granite curb and granite curb corners removed and reset shall be measured along the outer radius.*

**PAYMENT:** *Payment for curb and/or curb corners removed and reset shall be made for the number of linear feet of curb and/or curb corners actually removed and reset as determined above at the Contract unit prices for ITEM 580.000 as set forth in the Bid. Said price and payment shall be full compensation for furnishing all labor, tools, equipment, excavation, gravel borrow, backfill, and all else incidental thereto.*

**Payment Item**

580.000

Curb Removed and Reset

Linear Foot

**ITEMS 701.050**  
**AND 701.150**

**CEMENT CONCRETE SIDEWALKS, DRIVES**  
**AND APRONS (FIBROUS REINFORCED)**

**SQUARE YARDS**

**GENERAL:** This work shall consist of fine grading and compaction of gravel and/or crusher run and the furnishing and placing of cement concrete for sidewalks, driveways and aprons in accordance with these Specifications and/or as required by the ENGINEER. Depths of concrete shall be 4 inches (reinforced) in sidewalks and 6 inches (reinforced) in driveways, aprons and roundings and as required by the ENGINEER.

**MATERIALS:** 7% ( $\pm 1\frac{1}{2}\%$ ) air-entrained cement concrete (4,000 psi, 3/4" stone), borrow, and pre-formed joint fillers shall conform to the requirements of SECTION 701 of the "Standard Specifications for Highways and Bridges," Commonwealth of Massachusetts, Department of Public Works, 1988 Edition, including any addenda or amendments thereto, unless otherwise specified by the ENGINEER.

All concrete shall contain a fibrous concrete reinforcement of 100% virgin polypropylene fibrillated fibers of multi-design gradation as manufactured by Fibermesh, Synthetic Industries, 4019 Industry Drive, Chattanooga, Tennessee 37416 or an approved equal.

Wheelchair ramps shall include a prefabricated truncated dome modular system manufactured from high strength polymer concrete. Each accessible ramp shall have one panel 24 inches deep by 60 inches wide. The color of the panels shall be gray. The physical properties of the concrete panels shall meet the following requirements.

PROPERTY	VALUE
Water Absorption – ASTM D570	$\leq 0.35\%$
Slip Resistance – ASTM C1028	$\geq 0.80$
Abrasive Wear – ASTM D2486	BYK Gardner Tester $\leq 0.03/1,000$ cycles
Accelerated Weathering – ASTM G26	$\geq 2,000$ hours no fading
Chemical Stain Resistance – ASTM D543	no discoloration
Gardener Impact – ASTM D5420	$\geq 450$ in. lbf/in.
Compressive Strength – ASTM D695	$\geq 18,000$ psi

Tactile warning panels shall be installed in accordance with the manufacturer's recommendations and tamped into the fresh concrete and made flush with the surrounding surfaces. Concrete masonry blocks may be needed to insure continuous contact with the panel's underside with the concrete. Panels shall be protected from damage and concrete and asphalt spatter. Surfaces shall be cleaned as recommended by the manufacturer.

The concrete of the surrounding ramp shall be finished true and smooth to the required dimensions and slope before the tactile warning panel is installed. The panel shall be placed true and square to the curb line.

**METHODS:** Methods shall conform to the aforesaid, unless otherwise required by the ENGINEER. All transverse joints shall be formed with a 1/2" wide by 1" deep jointing tool such as the Marshall Town No. 836

jointing tool or the equivalent. All transverse joints shall be measured and divided equally and separately between the expansion joint distances. Continuous concrete blocks shall be no longer than 30 feet.

Concrete shall have a broom finish. A colored curing agent or retardant approved by the ENGINEER shall be applied to the finished concrete if requested by the ENGINEER. Otherwise, the curing method shall be as prescribed in Section 476.71A of the Mass. Standard Specifications.

The CONTRACTOR shall be responsible for the guarding of the wet concrete until it has sufficiently set up in place. The CONTRACTOR shall assume responsibility for replacing any concrete that is damaged due to cracking or vandalism. Replacement of concrete including saw cutting, removal and disposal of rejected concrete shall be done at the CONTRACTOR'S expense with no additional cost to the City. The CONTRACTOR maintains responsibility for the concrete for one year after the completion of the entire contract as noted in the Specifications of these documents (Section 6 Paragraph)

**MEASUREMENT:** Measurement for concrete sidewalks, drives and aprons shall be the number of square yards furnished, placed and accepted based on the ENGINEER'S field measurements or office calculations. Only cement concrete placed at the required depths and within the limits specified by the ENGINEER shall be accepted for payment.

**PAYMENT:** Payment for cement concrete sidewalks drives and aprons shall be made for the number of square yards furnished, placed and accepted as determined above at the Contract unit prices for ITEMS 701.050 & 701.150 as set forth in the Bid. Said price and payment shall be full compensation for all fine-grading and compacting, for all necessary form work and materials including tactile warning strips and forming of tree wells for future plantings, for furnishing and placing of cement concrete and additives, including fibrous reinforcement and heating charges, for furnishing and applying all curing and/or retarding agents, and for furnishing all tools, equipment, labor, materials, and all else incidental thereto.

**Payment Items**

701.050	Cement Concrete Sidewalks (4" Fibrous Reinforced)	Square Yards
701.150	Cement Concrete Drives, Aprons and Ramps (6" Fibrous Reinforced)	Square Yards

**ITEM 748.200**

**MOBILIZATION**

**LUMP SUM**

**GENERAL:** This item shall consist of preparatory work and operations including, but not limited to, those necessary for the movement of personnel, equipment, supplies and incidentals to the project site, for the establishment of all contractor's field offices, building, and other facilities necessary for work on the project and all other work and operations which must be performed or for costs which must be incurred prior to beginning work. The unit bid price for Mobilization (Item 748.200) shall not exceed 3% of the contract bid total, exclusive of this item. Failure to observe this requirement may result in rejection of the bid.

**METHOD:** The work required to provide the above facilities and services for mobilization shall be done in a safe and workmanlike manner and shall conform with any pertinent local or state law, regulation or code. Good housekeeping consistent with safety shall be maintained.

**MEASUREMENT:** Payment for mobilization will be made on a lump sum basis.

**PAYMENT:** The first payment of one third of the lump sum price for Mobilization or 1 percent of the total bid price, whichever is less, will be made on the first estimate. The second payment of one third of the lump sum price for Mobilization or 1 percent of the total bid price, whichever is less, will be made following the completion of 5 percent of the total Contract Price. The third payment of one third of the lump sum price for Mobilization or 1 percent of the total bid price, whichever is less, will be made following the completion of all the work on the project.

**Payment Items**

748.200

Mobilization

Lump Sum

**ITEM 751.000**

**LOAM BORROW**

**CUBIC YARD**

**GENERAL:** This work shall consist of furnishing and placing loam borrow at the required depths and on approved areas in accordance with these Specifications, as indicated on the Contract Drawings, and/or as designated by the Engineer. Only screened loam will be accepted for use.

All grass areas worked on or disturbed during construction and/or grassed areas designated on the Contract Drawings shall be graded to the necessary depths and covered with loam. Loam may be obtained from stripping operations and may be used subject to approval from the Engineer. Any additional loam shall be furnished by the Contractor. The loam shall be fertile natural topsoil loam free from brush, weeds, stumps roots, stones over ½ inch in size, and any other objectionable matter. Re-spreading of existing on-site loam shall be part of ITEM 765.000 and will not be included with as part of this item.

**METHOD:** In sidewalk loam areas, loam shall be placed and uniformly spread on the sub-grade. When raked out and rolled, the depth of the loam shall be six inches. The finished surface shall be even with the top of the curb and the face of the sidewalk.

If loam is required in adjustment areas, it shall be placed at the depths indicated by the Engineer, but not to exceed 3 inches maximum depth.

**MEASUREMENT:** Measurement for loam borrow shall be for the number of cubic yards furnished and placed. Measurement shall be made after compaction. This amount shall be measured in the field by the Engineer or, at his option, determined from plan or office calculations. This shall not include the re-spreading of any existing on-site loam. 20% of the measured amount will be added to the final amount to allow for compaction.

**PAYMENT:** Payment for loam borrow shall be made for the number of cubic yards furnished and placed as determined above at the Contract unit price for ITEM 751.000 as set forth in the Bid. Said price and payment shall be full compensation for furnishing and placing loam borrow to the required depths and limits and for furnishing all tools, labor, equipment, materials, and all else incidental thereto. All work shall be done to the satisfaction of the Engineer. There will be no separate payment for re-spreading of existing on-site loam. That shall be considered as part of ITEM 765.000 (SEEDING).

**Payment Items**

751.000

Loam Borrow

Cubic Yards

**ITEM 765.000**

**SEEDING**

**SQUARE YARDS**

**GENERAL:** This work shall consist of the raking, fertilizing, liming, compacting and preparation of loam areas for the furnishing and application of seed. All work shall be done in accordance with these Specifications and/or as directed by the Engineer. This item shall also include the re-spreading of existing on-site loam obtained from stripping operations.

**MATERIALS:** Lawn seed shall be fresh, clean new crop seed. The seed shall be delivered to the work site with each container bearing the manufacturer's guaranteed analysis. Lawn seed shall be composed substantially as follows and shall be germinative and pure to at least the percentages indicated:

	<u>Proportion</u>	<u>Germanative</u>	<u>Purity</u>
Chewing Fescue or			
Creeping Red Fescue	25%	85%	97%
Alta Fescue	30%	85%	97%
Domestic Rye Grass	20%	90%	98%
Red Top	15%	90%	92%
White Clover or Alsike	10%	90%	98%

**METHOD:** The surface to receive seed shall be raked smooth, without pockets, and pleasing to the eye. The area shall be fertilized, limed, seeded, rolled and watered as required to promote satisfactory grass growth. Any areas or parts of areas that fail to show a satisfactory stand of grass within a reasonable amount of time for any reason shall be fertilized and re-seeded until all areas are covered with an adequate acceptable growth of grass. When the grass has grown, the Contractor shall, at the direction of the Engineer, make a minimum of at least one lawn cutting. Seeding shall be done only within certain times of the year as determined by the Engineer. If seeding is done in the fall season, the acceptance of the work shall not be until the end of the next following growing period. Seed shall be placed at a rate of 2 pounds per 1,000 square feet of area to be covered.

**MEASUREMENT:** Measurement shall be determined for the number of square yards of area treated and seeded as determined by the Engineer. This amount shall be measured in the field by the Engineer, or, at his option, determined from plan or office calculations.

**PAYMENT:** Payment for seed shall be made as determined above at the Contract unit price for ITEM 765.000 as set forth in the Bid. Said price and payment shall be full compensation for furnishing and placing all seed, for furnishing and spreading all fertilizer and lime, for raking and compaction of all areas affected, for all cutting, for all tools, labor, equipment, materials and all else incidental thereto. All work is subject to approval by the Engineer. There will be no payment for re-spreading of existing on-site loam. This shall be considered as incidental to the work within this item.

**Payment Items**

765.000

Seeding

Square Yard

**ITEM 767.120****COMPOST FILTER TUBES****(SEE ITEM 199.000)**

**GENERAL:** *The purpose of this Item is to provide a linear, compost-filled tube for filtering suspended sediments from storm water flow. This Item shall conform to the requirements of Section 751 and 767 of the Standard Specifications and the following:*

*Material for the filter tubes shall be compost meeting M1.06.0, except that no manure or bio-solids shall be used. In addition, no kiln-dried wood or construction debris shall be allowed. Compost shall pass through a 3-inch sieve.*

*Tubes for compost filters shall be a minimum of 12 inches maximum of 18 inches in diameter, and shall be jute mesh or approved biodegradable material. Additional tubes shall be used at the requirements of the Engineer.*

*Stakes for anchors, if required, shall be nominal 2-inch by 2-inch by 3 foot long stakes.*

**METHOD:** *Tubes of compost may be filled on site or shipped. Tubes shall be placed, filled and staked in place as required to ensure stability against water flows. All tubes shall be tamped to ensure good contact with soil.*

*The Contractor shall ensure that the filter tubes function as intended at all times. Tubes shall be inspected after each rainfall and at least daily during prolonged rainfall. The Contractor shall immediately correct deficiencies, including, but not limited, to washout, overtopping, clogging due to sediment, and erosion. The Contractor shall review the location of tubes in areas where construction activity causes drainage runoff to ensure that the tubes are properly located for effectiveness. Where deficiencies exist, such as overtopping or wash-out, additional staking or compost material shall be installed as required by the Engineer. Contractor shall remove sediment deposits as necessary to maintain the filters in working condition.*

*Filter tubes shall be removed by the Contractor when site conditions are sufficiently stable to prevent surface erosion, and after receiving permission to do so from the Engineer. All tube fabric shall be cut and removed and disposed of off-site by the Contractor. As required by the Engineer, the Contractor may rake out and seed mulch material so that it is no greater than 2 inches in depth on soil substrate.*

**MEASUREMENT:** *Payment for ITEM 767.120 shall be made under ITEM 199.000 – EROSION CONTROL.*

**PAYMENT:** *Payment under ITEM 199.000 shall be the bid price and shall be compensation for all labor, equipment, and materials necessary to complete the work specified above, including, but not limited to, stakes and tube fabric, removal and disposal of fabric and stakes, raking, and seeding of compost.*

*The first payment of one third of the lump sum price for Erosion Control will be made on the first estimate presented after the Erosion Control has been installed. The second payment of one third of the lump sum price for Erosion Control will be made following the completion of 50 percent of the total Contract Price. The third payment of one third of the lump sum price for Erosion Control will be made following the completion of all the work on the project.*

**Payment Items**

*(See ITEM 199.000 – EROSION CONTROL)*

**GENERAL:** *This work shall consist of furnishing, installing, maintaining, repositioning, removing and storing temporary signs for the protection of the traveling public and working personnel during construction and maintenance operations. The design, application and installation of such signs shall comply with the Massachusetts Manual on Uniform Traffic Control Devices, latest edition. All materials provided by the Contractor under this item shall remain the property of the Contractor upon completion of this project.*

**MATERIALS AND METHODS:** *Materials required under this section need not be new but must be in excellent condition. Any materials that in the judgment of the Engineer are unsatisfactory in appearance or performance shall be removed and immediately replaced by acceptable units at no additional cost to the City. Signs that are missing shall be immediately replaced by the Contractor at no additional cost to the City. Signs that are not consistent with the use of the roadway shall be removed or covered. All work shall be done by the Contractor and to the satisfaction of the Engineer.*

**Materials shall conform to Sections 828 and 840 of the Commonwealth of Massachusetts Standard Specifications except the plywood material shall conform to the following: Plywood sign panels shall be fabricated from five-ply 5/8" thick Medium Density Overlaid Exterior Type, A-B both sides surface in natural color and the whole conforming with the requirements and tests for the above as set forth in U. S. product Standard PS1-74 for Construction and Industrial Plywood. Plywood shall bear the grade trade mark of an approved testing agency. The entire sign face shall reflective sheeting conforming to M9.30.0, type III of the Commonwealth of Massachusetts Standard Specifications.**

**Background sheeting shall be fluorescent orange. The maximum spectral radiance factor, in accordance with Section 5.1 of ASTM E991 for the fluorescence shall be 110% minimum for new signs and 60% minimum for weathered signs. Actual size and legend shall be determined by the Engineer.**

**Temporary signs such as detour signs shall be properly supported by appropriate tripods. They shall not be leaned against drums.**

**Portable variable message boards will be paid under ITEM 870.000.**

**MEASUREMENT:** *Measurement for safety signing shall be based on the square foot surface area of the signs. All measurements for safety signing shall be made in the field by the Engineer. **Sign supports for safety signing are considered incidental to installation of the signs and there shall be no additional payment.***



**PAYMENT:** Payment for Safety Signing for Construction Operations shall be made based on the square foot area as determined above at the Contract unit price for ITEM 850.221 as set forth in the Bid. Said price and payment shall be full compensation for furnishing, maintaining, repositioning, removing and storing signs, including all labor, equipment, tools, cement concrete, if required, and all else incidental to the satisfactory completion of the work within this item. All work is subject to approval by the Engineer.

**No payment shall be made under ITEM 850.221 for any portable variable message boards.**

**Payment Items**

850.221	Safety Signing for Construction Operations	Square Foot
---------	--	-------------

**ITEM 859.200**

**REFLECTORIZED DRUM WITH LIGHT (TYPE C)**

**DRUM DAY**

**GENERAL:** ReflectORIZED Drums shall conform to Subsection M9.30.9 of the Massachusetts Highway Department Standard Specifications for Highways and Bridges; no steel barrels shall be used. Newly developed products providing equivalent target value and stability that are acceptable to the Engineer may be used under this item.

Warning lights shall conform to the MUTCD for Type C.

All drums shall be maintained in a satisfactory manner including the removal of dirt or road film that causes a reduction in sign reflective efficiency.

**METHOD:** All warning devices shall be subject to removal, replacement and/or repositioning as often as necessary. Drums shall not be left in operating position when the day's operations have ceased. If it becomes necessary for the Owner to remove any construction warning devices or their appurtenances from the project due to negligence by the Contractor, all costs for this work will be charged to the Contractor.

**MEASUREMENT:** Item 859.200, ReflectORIZED Drum with Light (Type C), shall be measured per drum for each day the drum is used on the project. Drums shall be measured daily by the Owner or the Owner's representative.

**PAYMENT:** ReflectORIZED Drum, with or without lights, will be paid for at the contract bid price per Drum Day. Payment will be made at the unit bid price for any portion of a day during which these devices were actually used on the project.

**Payment Items**

859.200

ReflectORIZED Drum with Light (Type C)

Drum Day

**ITEM 868.040**

**4" REFLECTORIZED THERMOPLASTIC LINE**

**LINEAR FOOT**

**GENERAL:** *The work to be done under these items shall conform to the relevant provisions of Section 860 of the 1988 MDPW Standard Specifications for Highways and Bridges, and the following:*

**METHODS:** *The layout of all necessary field controls by the CONTRACTOR of the several types of traffic line systems shall be approved by the OWNER.*

**MEASUREMENT:** *Measurement for thermoplastic lines shall be for the actual linear foot of material furnished and installed by the CONTRACTOR and accepted by the OWNER. All measurement shall be done in the field by the OWNER.*

**PAYMENT:** *Payment for thermoplastic markings shall be for the actual linear foot measurement as determined above at the contract unit prices for ITEM 868.040 as set forth in the Bid. Said price and payment shall be full compensation for furnishing and placing of all materials, all tools, labor, equipment and all else incidental to the completion of the work within these items. All work is subject to final approval and acceptance by the OWNER.*

**Payment Items**

864.040

4" ReflectORIZED Thermoplastic Line

Linear Foot

**ITEM 870.000**

**PORTABLE MESSAGE BOARD**

**DAY**

**GENERAL:** Portable message boards shall conform to the relevant provisions of Section 6F.52 of the Federal Highway Administration Manual on Uniform Traffic Devices. Message boards shall be solar powered, capable for displaying three alternating message of three lines, eight characters per line.

**MEASUREMENT AND PAYMENT:** Measurement for each Portable Message Board shall be per day per board whenever boards are required and accepted by the OWNER. Payment for Portable message Boards shall be as determined above at the contract unit prices for ITEM 870.000 as set forth in the Bid. Said price and payment shall be full compensation for furnishing equipment and programming, locating and relocating message boards as required by the OWNER. All work is subject to final approval and acceptance by the OWNER.

**Payment Items**

870.000

Portable Message Board

DAY

**ITEM 999.001**

**TRAFFIC POLICE**

**PER DOLLAR**

**GENERAL:** *The Contractor shall provide such uniformed police officers outside their regular tour of duty as the Engineer shall deem necessary to avoid, so far as reasonably possible, damage to the safety of persons and substantial interference with the free circulation of traffic. When so required by the Engineer, the Contractor shall make all arrangements in obtaining police assistance. The Contractor shall pay the amount due for such assistance to the City of Waltham. The Contractor shall then be reimbursed by the City of Waltham.*

*All bills for police details must be paid in full by the Contractor before reimbursement is made by the City of Waltham. Only qualifying bills stamped "PAID" by the City of Waltham Treasurer's Office or the city or town providing police services will be accepted by the Engineer for reimbursement to the Contractor.*

**METHOD OF PAYMENT:** *The Contractor shall pay for any police officer employed by him at the rate established by the police department providing services for special duty police officers (MGL 149 §34B). An estimated figure has been set in the Bid for ITEM 999.001 for bid purposes only.*

*Payment shall be made by the Contractor within 30 days of billing. Failure to pay an outstanding bill within 30 days may result in a penalty charge to the contractor for late payment. There will be no reimbursement for any penalties or late charges that may be assessed against the Contractor for late payment. Furthermore, the Engineer will accept no further requests for payment if police detail bills are more than 30 days in arrears.*

*It is suggested that payments be made in person at the Treasurer's Office and that a photocopy of the bill be presented to the Treasurer's Office at the same time so that it may be stamped "PAID" and then presented to the Engineer by the Contractor as proof of payment.*

*The Contractor will not be reimbursed for any detail that he fails to cancel when it is not required (inclement weather, change of plans, etc.) Reimbursement shall be made on all qualifying bills stamped "PAID" by the appropriate Treasurer's Office, less any amount for unnecessary details not canceled by the Contractor, and presented to the Engineer. Reimbursement may be entered in the next following request for payment.*

**PAYMENT:** *Payment for special duty police will be made at a dollar for dollar reimbursement as determined above for ITEM 999.001 as set forth in the Bid. Said price and payment shall be full compensation for furnishing all special duty police.*

**Payment Item**

999.001

Traffic Police

Dollar for Dollar Reimbursement

# Compliance

(Required Documents.)

# Compliance

The compliance documents in this section must be completed, signed and returned **with your bid package.**

## Purchasing Department

City of Waltham  
610 Main Street  
Waltham, MA 02452

Failure to submit the completed documents will cause the disqualification of the proposal.

### Section Index

Check when Complete

- Non-collusion form and Tax Compliance form..... \_\_\_\_\_
- Corporation Identification Form..... \_\_\_\_\_
- Certificate of Vote Authorization..... \_\_\_\_\_
- Certificate of Insurance (showing all limits of WC &GL)..... \_\_\_\_\_
- Three (3) References..... \_\_\_\_\_
- 5% Bid Bond or Certified Check..... \_\_\_\_\_
- Debarment Certificate ..... \_\_\_\_\_
- Prevailing Wage Certificate..... \_\_\_\_\_
- Right-to-know Law..... \_\_\_\_\_
- OSHA 10 Certificate for all Assigned Employees (MGL ch30, §39M and Ch 149) \_\_\_\_\_

**Before the commencement of the Job, the contractor must provide to the above office:**

- Material and Performance Bond for 100% of the contract value and naming the City of Waltham  
***(letter must be included with your response)***

Your Company's Name: \_\_\_\_\_

Service or Product Bid \_\_\_\_\_

**NOTE:** Failure to submit any of the required documents, in this or in other sections, with your bid response package may cause the disqualification of your proposal.

**NON-COLLUSION FORM AND TAX COMPLIANCE FORM**

**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. The undersigned certifies that no representations made by any City officials, employees, entity, or group of individuals other than the Purchasing Agent of the City of Waltham was relied upon in the making of this bid

\_\_\_\_\_, \_\_\_\_\_  
(Signature of person signing bid or proposal)      Date

\_\_\_\_\_  
(Name of business)

---

**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      Date

\_\_\_\_\_  
Name of business

**NOTE**

Failure to submit any of the required documents, in this or in other sections, with your bid response package may cause the disqualification of your proposal.



**CERTIFICATE OF VOTE OF AUTHORIZATION**

Date:

I \_\_\_\_\_, Clerk of \_\_\_\_\_ hereby certify that at a meeting of the Board of Directors of said Corporation duly held on the \_\_\_\_\_ day of \_\_\_\_\_ at which time a quorum was present and voting throughout, the following vote was duly passed and is now in full force and effect:

VOTED: That \_\_\_\_\_ (*name*) is hereby authorized, directed and empowered for the name and on behalf of this Corporation to sign, seal with the corporate seat, execute, acknowledge and deliver all contracts and other obligations of this Corporation; the execution of any such contract to be valid and binding upon this Corporation for all purposes, and that this vote shall remain in full force and effect unless and until the same has been altered, amended or revoked by a subsequent vote of such directors and a certificate of such later vote attested by the Clerk of this Corporation.

I further certify that \_\_\_\_\_ is duly elected/appointed \_\_\_\_\_ of said corporation

SIGNED:

(Corporate Seal)

\_\_\_\_\_  
Clerk of the Corporation:

Print Name: \_\_\_\_\_

COMMONWEALTH OF MASSACHUSETTS

County of \_\_\_\_\_

Date:

Then personally appeared the above named and acknowledged the foregoing instrument to be their free act and deed before me, \_\_\_\_\_

Notary Public;

My Commission expires: \_\_\_\_\_

## CORPORATION IDENTIFICATION

The bidder for the information of the Awarding Authority furnishes the following information.

**If a Corporation:**

Incorporated in what state \_\_\_\_\_

President \_\_\_\_\_

Treasurer \_\_\_\_\_

Secretary \_\_\_\_\_

Federal ID Number \_\_\_\_\_

**If a foreign (out of State) Corporation** – Are you registered to do business in Massachusetts?

Yes \_\_\_\_\_, No \_\_\_\_\_

If you are selected for this work you are required under M.G.L.ch. 30S, 39L to obtain from the Secretary of State, Foreign Corp. Section, State House, Boston, a certificate stating that you Corporation is registered, and furnish said certificate to the Awarding Authority prior to the award.

**If a Partnership: (Name all partners)**

Name of partner \_\_\_\_\_

Residence \_\_\_\_\_

Name of partner \_\_\_\_\_

Residence \_\_\_\_\_

**If an Individual:**

Name \_\_\_\_\_

Residence \_\_\_\_\_

**If an Individual** doing business under a firm's name:

Name of Firm \_\_\_\_\_

Name of Individual \_\_\_\_\_

Business Address \_\_\_\_\_

Residence \_\_\_\_\_

Date \_\_\_\_\_

Name of Bidder \_\_\_\_\_

By \_\_\_\_\_

Signature

\_\_\_\_\_

Title

Business Address

(POST OFFICE BOX NUMBER NOT ACCEPTABLE)

City

State

Telephone Number

Today's Date

**PROVIDE THREE (3) SERVICE APPROPRIATE REFERENCES**

1. Company Name:

Address:

Contact Name:

Phone #

Type of service/product provided to this Company:

Dollar value of service provided to this Company:

2. Company Name:

Address:

Contact Name:

Phone #

Type of service/product provided to this Company:

Dollar value of service provided to this Company:

3. Company Name:

Address:

Contact Name:

Phone #

Type of service/product provided to this Company:

Dollar value of service provided to this Company:

**NOTE**

**Failure to submit any of the required documents, in this or in other sections, with your bid response package will be cause for the disqualification of your company.**

**WEEKLY PAYROLL RECORDS REPORT &  
STATEMENT OF COMPLIANCE**

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

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

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

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**STATEMENT OF COMPLIANCE**

\_\_\_\_\_, 200\_\_

I \_\_\_\_\_, \_\_\_\_\_  
(Name of signatory party) (Title)

I do hereby state that I pay or supervise the payment of the persons employed by

\_\_\_\_\_ on the \_\_\_\_\_  
(Contractor, subcontractor or public body) (Building or project)

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

Signature \_\_\_\_\_, Title \_\_\_\_\_

Print \_\_\_\_\_



**RIGHT TO KNOW LAW**

Any vendor who receives an order or orders resulting from this invitation agrees to submit a Material Safety Data Sheet (MSDS) for each toxic or hazardous substance or mixture containing such substance, pursuant to M.G.L. c. 111F, §§8,9 and 10 and the regulations contained in 441 CMR 21.06 when deliveries are made. The vendor agrees to deliver all containers properly labeled pursuant to M.G.L. c. 111F §7 and regulations contained in 441 CMR 21.05. Failure to furnish MSDS and/or labels on each container may result in civil or criminal penalties, including bid debarment and action to prevent the vendor from selling said substances, or mixtures containing said substances within the Commonwealth. All vendors furnishing substances or mixtures subject to Chapter 111F or M.G.L. are cautioned to obtain and read the laws, rules and regulations referenced above. Copies may be obtained from the State House Bookstore, Secretary of State, State House, Room 117, Boston, MA (617) 727-2834.

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Authorized Signature Indicating Compliance with the Right-to-know laws:

---

Signature

Date

---

Print Name

**NOTE**

Failure to submit any of the required documents, in this or in other sections, with your bid response package may cause the disqualification of your proposal.

## DEBARMENT CERTIFICATION

In connection with this bid and all procurement transactions, by signature thereon, the respondent certifies that neither the company nor its principals are suspended, debarred, proposed for debarment, declared ineligible, or voluntarily excluded from the award of contracts, procurement or non procurement programs from the Commonwealth of Massachusetts, the US Federal Government and /or the City of Waltham. "Principals" means officers, directors, owners, partners and persons having primary interest, management or supervisory responsibilities with the business entity. Vendors shall provide immediate written notification to the Purchasing Agent of the City of Waltham at any time during the period of the contract of prior to the contract award if the vendor learns of any changed condition with regards to the debarment of the company or its officers. This certification is a material representation of fact upon which reliance will be placed when making the business award. If at any time it is determined that the vendor knowingly misrepresented this certification, in addition to other legal remedies available to the city of Waltham, the contract will be cancelled and the award revoked.

---

Company Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_, State \_\_\_\_\_, Zip Code \_\_\_\_\_

Phone Number (\_\_\_\_) \_\_\_\_\_

E-Mail Address \_\_\_\_\_

Signed by Authorized Company Representative:

\_\_\_\_\_

Print name \_\_\_\_\_

Date \_\_\_\_\_

**10 HOURS OSHA TRAINING CONFIRMATION**

**Chapter 306 of the Acts of 2004**

**CONSTRUCTION PROJECTS**

**AN ACT RELATIVE TO THE HEALTH AND SAFETY ON PUBLIC**

The undersigned hereby certifies that all employees to be employed at a worksite for construction, reconstruction, alteration, remodeling, repair, installation, demolition, maintenance or repair of any public work or any public building estimated to cost more than \$10,000.00 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 payroll report for each employee and will comply with all laws and regulations applicable to awards of subcontracts subject to section 44F.

Company Name: \_\_\_\_\_

Address: \_\_\_\_\_

Signature: \_\_\_\_\_

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

Print Name \_\_\_\_\_

\_\_\_\_\_  
Date

***See Chapter 306 of the Acts of 2004***

**NOTE**

**Failure to submit any of the required documents, in this or in other sections, with your bid response package will be cause for the disqualification of your company.**



# **BID PRICE FORM**

**(Follows)**

ITEM NO.	QUANTITY	ITEM WITH UNIT BID PRICE WRITTEN IN WORDS	UNIT PRICE	AMOUNT
----------	----------	---	------------	--------

120.100	50 CY	UNCLASSIFIED EXCAVATION  _____ PER CUBIC YARD		
121.000	10 CY	CLASS A ROCK EXCAVATION AND REFILL  _____ PER CUBIC YARD		
129.010	4,800 SY	COLD PLANING  _____ PER SQUARE YARD		
141.100	30 CY	TEST PITS FOR EXPLORATION  _____ PER CUBIC YARD		
144.000	100 CY	CLASS B ROCK EXCAVATION AND REFILL  _____ PER CUBIC YARD		
151.220	300 CY	GRAVEL BORROW  _____ PER CUBIC YARD		
199.000	1 LS	EROSION CONTROL  _____ LUMP SUM		
302.060	20 LF	6-INCH DUCTILE IRON WATER PIPE  _____ PER LINEAR FOOT		
CARRIED FORWARD:				

Amounts are to be shown in both words and figures. In case of discrepancies, the unit bid price written in words shall govern.

ITEM NO.	QUANTITY	ITEM WITH UNIT BID PRICE WRITTEN IN WORDS	UNIT PRICE	AMOUNT
302.080	20 LF	8-INCH DUCTILE IRON WATER PIPE  _____ PER LINEAR FOOT		
302.100	40 LF	10-INCH DUCTILE IRON WATER PIPE  _____ PER LINEAR FOOT		
302.120	1,220 LF	12-INCH DUCTILE IRON WATER PIPE  _____ PER LINEAR FOOT		
309.000	1,200 LB	DUCTILE IRON FITTINGS  _____ PER POUND		
345.400	2,500 LF	4-INCH TEMPORARY WATER BYPASS  _____ PER LINEAR FOOT		
347.100	200 LF	1-INCH COPPER WATER SERVICE  _____ PER LINEAR FOOT		
350.060	1 EA	6-INCH GATE VALVE AND GATE BOX  _____ EACH		
350.100	1 EA	10-INCH GATE VALVE AND GATE BOX  _____ EACH		
CARRIED FORWARD:				

Amounts are to be shown in both words and figures. In case of discrepancies, the unit bid price written in words shall govern.

ITEM NO.	QUANTITY	ITEM WITH UNIT BID PRICE WRITTEN IN WORDS	UNIT PRICE	AMOUNT
350.120	3 EA	12-INCH GATE VALVE AND GATE BOX  _____ EACH		
376.010	3 EA	HYDRANT, 6-INCH GATE VALVE, AND CONNECTION  _____ EACH		
440.000	1,000 LB	CALCIUM CHLORIDE FOR DUST CONTROL  _____ PER POUND		
460.100	115 TONS	CLASS I BITUMINOUS CONCRETE - TYPE I-1 (3" TEMPORARY TRENCH)  _____ PER TON		
460.200	210 TONS	CLASS I BITUMINOUS CONCRETE - TYPE I-1 (4.5" PERMANENT TRENCH)  _____ PER TON		
460.300	400 TONS	CLASS I BITUMINOUS CONCRETE - TYPE I-1 (1.5" OVERLAY)  _____ PER TON		
460.400	50 TONS	CLASS I BITUMINOUS CONCRETE - TYPE I-1 (SIDEWALKS, DRIVES, APRONS & ADJUSTMENT AREAS)  _____ PER TON		
464.000	850 GAL	BITUMEN TACK COAT  _____ PER GALLON		
CARRIED FORWARD:				

Amounts are to be shown in both words and figures. In case of discrepancies, the unit bid price written in words shall govern.

ITEM NO.	QUANTITY	ITEM WITH UNIT BID PRICE WRITTEN IN WORDS	UNIT PRICE	AMOUNT
482.300	3,000 FT	SAWING ASPHALT PAVEMENT  _____ PER FOOT		
580.000	100 LF	CURB REMOVED AND RESET  _____ PER LINEAR FOOT		
748.000	1 LS	MOBILIZATION  _____ LUMP SUM		
751.000	15 CY	LOAM BORROW  _____ PER CUBIC YARD		
765.000	50 SY	SEEDING  _____ PER SQUARE YARD		
850.221	200 SF	SAFETY SIGNING FOR CONSTRUCTION  _____ PER SQUARE FOOT		
859.200	1,500 DD	REFLECTORIZED DRUM WITH LIGHT (TYPE C)  _____ PER DRUM DAY		
868.040	1,200 LF	4" REFLECTORIZED THERMOPLASTIC LINE  _____ PER LINEAR FOOT		
CARRIED FORWARD:				

Amounts are to be shown in both words and figures. In case of discrepancies, the unit bid price written in words shall govern.

ITEM NO.	QUANTITY	ITEM WITH UNIT BID PRICE WRITTEN IN WORDS	UNIT PRICE	AMOUNT
870.000	120 DAYS	PORTABLE MESSAGE BOARD  _____ DAYS		
999.001	1 Allowance	TRAFFIC POLICE  <u>Forty Thousand and 00/100.</u> DOLLAR FOR DOLLAR REIMBURSEMENT	Allowance	\$ 40,000.00

CARRIED FORWARD:	
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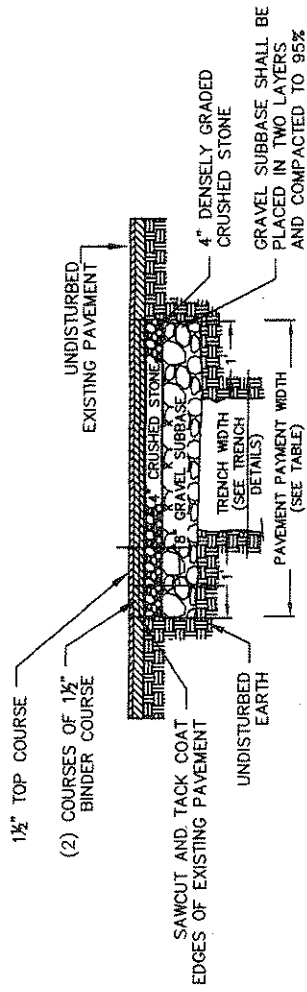
TOTAL BID PRICE WRITTEN IN WORDS:	TOTAL BID PRICE WRITTEN IN FIGURES:

*Amounts are to be shown in both words and figures. In case of discrepancies, the unit bid price written in words shall govern.*

**IMPORTANT:**

The Contractor agrees that he will start work no later than ten (10) calendar days after date of the Notice to Proceed. Excluding winter shutdown, all work shall be completed within one hundred twenty (120) calendar days from the date of the Notice to Proceed.

APPENDIX A – CONSTRUCTION DETAILS



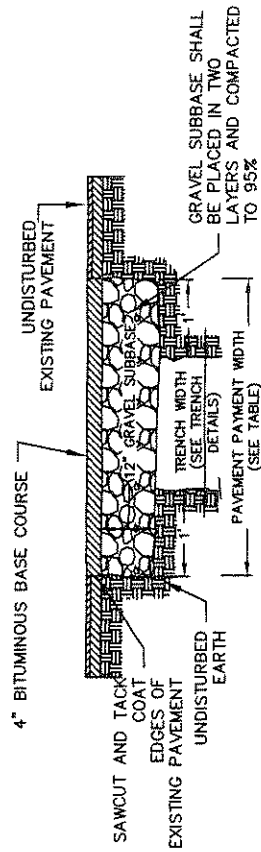
TRENCH PAY LIMIT TABLE FOR PERMANENT PAVEMENT

PIPE SIZE (I.D.)	DEPTH TO PIPE INVERT		PAY WIDTH
	OVER 8' - 12'	OVER 12' - 16'	
0" - 24"	8'-6"	14'-6"	17'-6"
OVER 24"	O.D. + 6'-0"	O.D. + 12'-0"	O.D. + 15'-0"

I.D. = INSIDE DIMENSION  
O.D. = OUTSIDE DIMENSION

FOR EACH ADDITIONAL 4'-0" OF PIPE INVERT DEPTH OVER 20', ADD 3'-0" TO WIDTH LIMITS

PERMANENT TRENCH PAVEMENT  
DETAIL



TRENCH PAY LIMIT TABLE FOR TEMPORARY PAVEMENT

PIPE SIZE (I.D.)	DEPTH TO PIPE INVERT		PAY WIDTH
	OVER 8' - 12'	OVER 12' - 16'	
0" - 24"	6'-6"	12'-6"	15'-6"
OVER 24"	O.D. + 4'-0"	O.D. + 10'-0"	O.D. + 13'-0"

I.D. = INSIDE DIMENSION  
O.D. = OUTSIDE DIMENSION

FOR EACH ADDITIONAL 4'-0" OF PIPE INVERT DEPTH OVER 20', ADD 3'-0" TO WIDTH LIMITS

TEMPORARY PAVEMENT DEPTH SHALL BE 3-IN.

TEMPORARY TRENCH PAVEMENT  
DETAIL

- TEMPORARY AND PERMANENT TRENCH PAVEMENT NOTES:
1. PERMANENT TRENCH PAVEMENT PAYMENT WIDTH SHALL BE THE TRENCH PAY LIMIT PLUS 2 FEET
  2. TEMPORARY TRENCH PAVEMENT PAYMENT WIDTH SHALL BE EQUAL TO THE TRENCH PAYMENT LIMIT
  3. REMOVE AND DISPOSE ALL TEMPORARY PAVEMENT AS REQUIRED. RESTORE AND COMPACT SUBBASE AS REQUIRED PRIOR TO PERMANENT TRENCH PAVEMENT.
  4. DEPTH OF PERMANENT TRENCH PAVEMENT SHALL BE THE SAME THICKNESS AS THE EXISTING PAVEMENT.

FIGURE NAME:

141.000.B - TRENCH PAVEMENT DETAILS

SCALE:

NOT TO SCALE

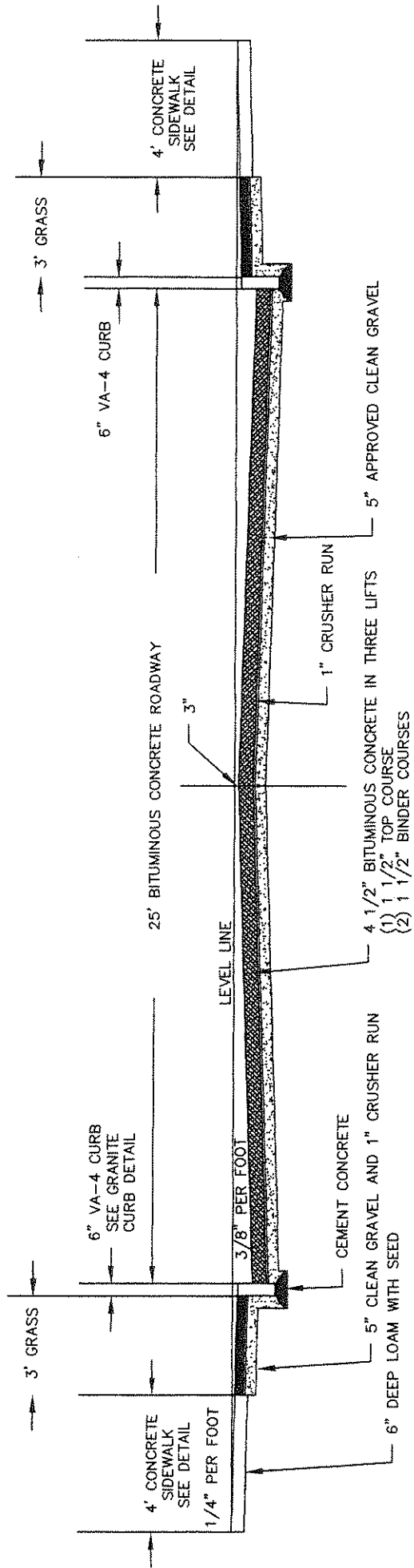


CITY OF WALTHAM, MA. - ENGINEERING DEPARTMENT  
STANDARD DETAILS

REV. DATE:

4/13/2011





# TYPICAL CROSS SECTION FOR 40 FOOT LAYOUT

N.T.S.



FIGURE NAME:

460.000.A - TYPICAL 40-FOOT ROAD CROSS SECTION

SCALE:

NOT TO SCALE

CITY OF WALTHAM, MA. - ENGINEERING DEPARTMENT  
STANDARD DETAILS

REV. DATE:

4/13/2011

APPENDIX B – BORING LOGS

# TEST BORING LOG

SHEET 3

Soil Exploration Corp.  
Geotechnical Drilling  
Groundwater Monitor Well  
148 Pioneer Drive  
Leominster, MA 01453  
978 840-0391

**Fay, Spofford & Thorndike**  
**Site: Water Main Replacement**  
**Smith Street**  
**Waltham, MA**

BORING B-1

PROJECT NO. 11-0932

DATE: September 30, 2011

Ground Elevation:  
Date Started: September 29, 2011  
Date Finished: September 29, 2011  
Driller: DL

**GROUNDWATER OBSERVATIONS**

DATE	DEPTH	CASING	STABILIZATION

Soil Engineer/Geologist:

Depth Ft.	Casing bl/ft	Sample			Blows/6"	Strata	Visual Identification of Soil and / or Rock Sample
		No.	Pen/Rec	Depth			
1		1		10"-5'0"		6" 10"	Asphalt. Road base
5		2		5'0"-8'0"		5'0"	Dry, fine to coarse sand, trace inorganic silt, fine gravel, cobbles and boulders.
10						8'0"	Wet, very fine to fine sand, some organic silt.
15							End of boring at 8'0". Water encountered at 5'0" upon completion.
20							
25							
30							
35							
39							

Notes: Solid Stem Auger

Cohesionless: 0 - 4 V. Loose, 4 - 10 Loose, 10 - 30 M Dense, 30 - 50 Dense, 50+ V Dense.	Trace 0 to 10%	CASING	SAMPLE	CORE TYPE
Cohesive: 0 - 2 V Soft, 2 - 4 Soft, 4 - 8 M Stiff	Little 10 to 20%	ID SIZE (IN)	SS	
8 - 15 Stiff, 15 - 30 V. Stiff, 30 + Hard.	Some 20 to 35%	HAMMER WGT (LB)	140 lb.	
	And 35% to 50%	HAMMER FALL (IN)	30"	

# TEST BORING LOG

SHEET 4

Soil Exploration Corp.  
Geotechnical Drilling  
Groundwater Monitor Well  
148 Pioneer Drive  
Leominster, MA 01453  
978 840-0391

**Fay, Spofford & Thorndike**  
**Site: Water Main Replacement**  
**Smith Street**  
**Waltham, MA**

BORING B-2

PROJECT NO. 11-0932

DATE: September 30, 2011

Ground Elevation:

Date Started: September 29, 2011

Date Finished: September 29, 2011

Driller: DL

Soil Engineer/Geologist:

GROUNDWATER OBSERVATIONS

DATE	DEPTH	CASING	STABILIZATION

Depth Ft.	Casing bl/ft	Sample			Blows/6"	Strata	Visual Identification of Soil and / or Rock Sample
		No.	Pen/Rec	Depth			
1		1		10"-3'0"		6" 10" 3'0"	Asphalt. <hr/> Road base <hr/> Dry, fine to coarse sand, trace inorganic silt, fine gravel. <hr/>
5							End of boring at 3'0". No water encountered upon completion.
10							
15							
20							
25							
30							
35							
39							

Notes: Solid Stem Auger

Cohesionless: 0 - 4 V. Loose, 4 - 10 Loose, 10 - 30 M Dense, 30 - 50 Dense, 50+ V Dense.	Trace 0 to 10%	Little 10 to 20%	Some 20 to 35%	And 35% to 50%	CASING	SAMPLE	CORE TYPE
Cohesive: 0 - 2 V Soft, 2 - 4 Soft, 4 - 8 M Stiff					ID SIZE (IN)	SS	
8 - 15 Stiff, 15 - 30 V. Stiff, 30 + Hard.					HAMMER WGT (LB)	140 lb.	
					HAMMER FALL (IN)	30"	

# TEST BORING LOG

SHEET 5

Soil Exploration Corp.  
Geotechnical Drilling  
Groundwater Monitor Well  
148 Pioneer Drive  
Leominster, MA 01453  
978 840-0391

Fay, Spofford & Thorndike  
Site: Water Main Replacement  
Smith Street  
Waltham, MA

BORING B-3

PROJECT NO. 11-0932

DATE: September 30, 2011

Ground Elevation:  
Date Started: September 29, 2011  
Date Finished: September 29, 2011  
Driller: DL

**GROUNDWATER OBSERVATIONS**

DATE	DEPTH	CASING	STABILIZATION

Soil Engineer/Geologist:

Depth Ft.	Casing bl/ft	Sample			Blows/6"	Strata	Visual Identification of Soil and / or Rock Sample
		No.	Pen/Rec	Depth			
1						5" 10"	Asphalt. Road base
5						4'0"	Dry, fine to coarse sand, trace inorganic silt, fine to coarse gravel, cobbles and boulders.
10						8'0"	Moist to wet, fine to medium sand, some inorganic silt.
15							End of boring at 8'0". Water encountered at 5'0" upon completion.
20							
25							
30							
35							
39							

Notes: Solid Stem Auger

Cohesionless: 0 - 4 V. Loose, 4 - 10 Loose, 10 - 30 M Dense, 30 - 50 Dense, 50+ V Dense.	Trace 0 to 10%	ID SIZE (IN)	CASING	SAMPLE	CORE TYPE
Cohesive: 0 - 2 V Soft, 2 - 4 Soft, 4 - 8 M Stiff	Little 10 to 20%	HAMMER WGT (LB)		SS	
8 - 15 Stiff, 15 - 30 V. Stiff, 30 + Hard.	Some 20 to 35%	HAMMER FALL (IN)		140 lb.	
	And 35% to 50%			30"	

# TEST BORING LOG

SHEET 8

Soil Exploration Corp.  
Geotechnical Drilling  
Groundwater Monitor Well  
148 Pioneer Drive  
Leominster, MA 01453  
978 840-0391

**Fay, Spofford & Thorndike**  
**Site: Water Main Replacement**  
**Smith Street**  
**Waltham, MA**

BORING B-4

PROJECT NO. 11-0932

DATE: September 30, 2011

Ground Elevation:  
Date Started: September 29, 2011  
Date Finished: September 29, 2011  
Driller: DL

**GROUNDWATER OBSERVATIONS**

DATE	DEPTH	CASING	STABILIZATION

Soil Engineer/Geologist:

Depth Ft.	Casing bl/ft	Sample			Blows/6"	Strata	Visual Identification of Soil and / or Rock Sample
		No.	Pen/Rec	Depth			
1		1		10"-8'0"		4" 10"	Asphalt. <hr/> Road base
5							Dry, fine to coarse sand, trace inorganic silt, fine to coarse gravel, cobbles and boulders.
10						8'0"	End of boring at 8'0". No water encountered upon completion.
15							
20							
25							
30							
35							
39							

Notes: Solid Stem Auger

Cohesionless: 0 - 4 V. Loose, 4 - 10 Loose,  
10 - 30 M Dense, 30 - 50 Dense, 50+ V Dense.  
Cohesive: 0 - 2 V Soft, 2 - 4 Soft, 4 - 8 M Stiff  
8 - 15 Stiff, 15 - 30 V. Stiff, 30 + Hard.

Trace 0 to 10%  
Little 10 to 20%  
Some 20 to 35%  
And 35% to 50%

ID SIZE (IN)  
HAMMER WGT (LB)  
HAMMER FALL (IN)

CASING	SAMPLE	CORE TYPE
		SS
	140 lb.	
	30"	

# TEST BORING LOG

SHEET 7

Soil Exploration Corp.  
Geotechnical Drilling  
Groundwater Monitor Well  
148 Pioneer Drive  
Leominster, MA 01453  
978 840-0391

Fay, Spofford & Thorndike  
Site: Water Main Replacement  
Smith Street  
Waltham, MA

BORING B-5

PROJECT NO. 11-0932

DATE: September 30, 2011

Ground Elevation:

Date Started: September 29, 2011

Date Finished: September 29, 2011

Driller: DL

Soil Engineer/Geologist:

### GROUNDWATER OBSERVATIONS

DATE	DEPTH	CASING	STABILIZATION

Depth Ft.	Casing bl/ft	Sample			Strata	Visual Identification of Soil and / or Rock Sample
		No.	Pen/Rec	Depth		
1			1	9"-6'0"	9"	Asphalt.
5					6'0"	Dry, fine to coarse sand, trace inorganic silt, trace fine gravel, cobbles and boulders.
10						Refusal at 6'0". No water encountered upon completion.
15						
20						
25						
30						
35						
39						

Notes: Solid Stem Auger

Cohesionless: 0 - 4 V. Loose, 4 - 10 Loose,  
10 - 30 M Dense, 30 - 50 Dense, 50+ V Dense.  
Cohesive: 0 - 2 V Soft, 2 - 4 Soft, 4 - 8 M Stiff  
8 - 15 Stiff, 15 - 30 V. Stiff, 30 + Hard.

Trace 0 to 10%  
Little 10 to 20%  
Some 20 to 35%  
And 35% to 50%

ID SIZE (IN)  
HAMMER WGT (LB)  
HAMMER FALL (IN)

CASING	SAMPLE	CORE TYPE
	SS	
	140 lb.	
	30"	

APPENDIX C – REQUEST FOR DETERMINATION  
OF APPLICABILITY FORM -  
CONSERVATION COMMISSION







Massachusetts Department of Environmental Protection  
 Bureau of Resource Protection - Wetlands  
**WPA Form 2 – Determination of Applicability**  
 Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

**B. Determination (cont.)**

The following Determination(s) is/are applicable to the proposed site and/or project relative to the Wetlands Protection Act and regulations:

Positive Determination

Note: No work within the jurisdiction of the Wetlands Protection Act may proceed until a final Order of Conditions (issued following submittal of a Notice of Intent or Abbreviated Notice of Intent) or Order of Resource Area Delineation (issued following submittal of Simplified Review ANRAD) has been received from the issuing authority (i.e., Conservation Commission or the Department of Environmental Protection).

- 1. The area described on the referenced plan(s) is an area subject to protection under the Act. Removing, filling, dredging, or altering of the area requires the filing of a Notice of Intent.
  
- 2a. The boundary delineations of the following resource areas described on the referenced plan(s) are confirmed as accurate. Therefore, the resource area boundaries confirmed in this Determination are binding as to all decisions rendered pursuant to the Wetlands Protection Act and its regulations regarding such boundaries for as long as this Determination is valid.

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- 2b. The boundaries of resource areas listed below are not confirmed by this Determination, regardless of whether such boundaries are contained on the plans attached to this Determination or to the Request for Determination.

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- 3. The work described on referenced plan(s) and document(s) is within an area subject to protection under the Act and will remove, fill, dredge, or alter that area. Therefore, said work requires the filing of a Notice of Intent.
  
- 4. The work described on referenced plan(s) and document(s) is within the Buffer Zone and will alter an Area subject to protection under the Act. Therefore, said work requires the filing of a Notice of Intent or ANRAD Simplified Review (if work is limited to the Buffer Zone).
  
- 5. The area and/or work described on referenced plan(s) and document(s) is subject to review and approval by:

\_\_\_\_\_  
 Name of Municipality

Pursuant to the following municipal wetland ordinance or bylaw:

\_\_\_\_\_  
 Name

\_\_\_\_\_  
 Ordinance or Bylaw Citation



## WPA Form 2 – Determination of Applicability

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

### B. Determination (cont.)

6. The following area and/or work, if any, is subject to a municipal ordinance or bylaw but not subject to the Massachusetts Wetlands Protection Act:

7. If a Notice of Intent is filed for the work in the Riverfront Area described on referenced plan(s) and document(s), which includes all or part of the work described in the Request, the applicant must consider the following alternatives. (Refer to the wetland regulations at 10.58(4)c. for more information about the scope of alternatives requirements):

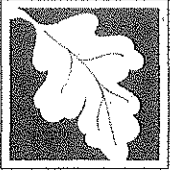
- Alternatives limited to the lot on which the project is located.
- Alternatives limited to the lot on which the project is located, the subdivided lots, and any adjacent lots formerly or presently owned by the same owner.
- Alternatives limited to the original parcel on which the project is located, the subdivided parcels, any adjacent parcels, and any other land which can reasonably be obtained within the municipality.
- Alternatives extend to any sites which can reasonably be obtained within the appropriate region of the state.

#### Negative Determination

Note: No further action under the Wetlands Protection Act is required by the applicant. However, if the Department is requested to issue a Superseding Determination of Applicability, work may not proceed on this project unless the Department fails to act on such request within 35 days of the date the request is post-marked for certified mail or hand delivered to the Department. Work may then proceed at the owner's risk only upon notice to the Department and to the Conservation Commission. Requirements for requests for Superseding Determinations are listed at the end of this document.

1. The area described in the Request is not an area subject to protection under the Act or the Buffer Zone.
2. The work described in the Request is within an area subject to protection under the Act, but will not remove, fill, dredge, or alter that area. Therefore, said work does not require the filing of a Notice of Intent.
3. The work described in the Request is within the Buffer Zone, as defined in the regulations, but will not alter an Area subject to protection under the Act. Therefore, said work does not require the filing of a Notice of Intent, subject to the following conditions (if any).  
Notify Commission upon start and finish of work, use straw wattles for erosion control

4. The work described in the Request is not within an Area subject to protection under the Act (including the Buffer Zone). Therefore, said work does not require the filing of a Notice of Intent, unless and until said work alters an Area subject to protection under the Act.



Massachusetts Department of Environmental Protection  
 Bureau of Resource Protection - Wetlands  
**WPA Form 2 – Determination of Applicability**  
 Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

**B. Determination (cont.)**

5. The area described in the Request is subject to protection under the Act. Since the work described therein meets the requirements for the following exemption, as specified in the Act and the regulations, no Notice of Intent is required:

Exempt Activity (site applicable statutory/regulatory provisions)

6. The area and/or work described in the Request is not subject to review and approval by:

Name of Municipality

Pursuant to a municipal wetlands ordinance or bylaw.

Name

Ordinance or Bylaw Citation

**C. Authorization**

This Determination is issued to the applicant and delivered as follows:

- by hand delivery on  by certified mail, return receipt requested on

Date

Date

This Determination is valid for **three years** from the date of issuance (except Determinations for Vegetation Management Plans which are valid for the duration of the Plan). This Determination does not relieve the applicant from complying with all other applicable federal, state, or local statutes, ordinances, bylaws, or regulations.

This Determination must be signed by a majority of the Conservation Commission. A copy must be sent to the appropriate DEP Regional Office (see <http://www.mass.gov/dep/about/region.findyour.htm>) and the property owner (if different from the applicant).

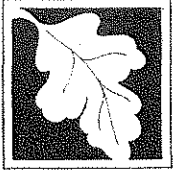
Signatures:

*James W. Keenan*  
*[Signature]*  
*[Signature]*  
*[Signature]*

*[Signature]*  
 MBTou

December 1, 2011

Date



Massachusetts Department of Environmental Protection  
Bureau of Resource Protection - Wetlands

## **WPA Form 2 – Determination of Applicability**

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

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### **D. Appeals**

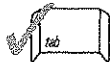
The applicant, owner, any person aggrieved by this Determination, any owner of land abutting the land upon which the proposed work is to be done, or any ten residents of the city or town in which such land is located, are hereby notified of their right to request the appropriate Department of Environmental Protection Regional Office (see <http://www.mass.gov/dep/about/region.findyour.htm>) to issue a Superseding Determination of Applicability. The request must be made by certified mail or hand delivery to the Department, with the appropriate filing fee and Fee Transmittal Form (see Request for Departmental Action Fee Transmittal Form) as provided in 310 CMR 10.03(7) within ten business days from the date of issuance of this Determination. 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. The request shall state clearly and concisely the objections to the Determination which is being appealed. To the extent that the Determination is based on a municipal ordinance or bylaw and not on the Massachusetts Wetlands Protection Act or regulations, the Department of Environmental Protection has no appellate jurisdiction.



Massachusetts Department of Environmental Protection  
 Bureau of Resource Protection - Wetlands  
**Request for Departmental Action Fee Transmittal Form**  
 Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

**A. Request 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. Person or party making request (if appropriate, name the citizen group's representative):

Name \_\_\_\_\_

Mailing Address \_\_\_\_\_

City/Town \_\_\_\_\_ State \_\_\_\_\_ Zip Code \_\_\_\_\_

Phone Number \_\_\_\_\_ Fax Number (if applicable) \_\_\_\_\_

Project Location \_\_\_\_\_

Mailing Address \_\_\_\_\_

2. Applicant (as shown on Notice of Intent (Form 3), Abbreviated Notice of Resource Area Delineation (Form 4A); or Request for Determination of Applicability (Form 1)):

Name \_\_\_\_\_

Mailing Address \_\_\_\_\_

City/Town \_\_\_\_\_ State \_\_\_\_\_ Zip Code \_\_\_\_\_

Phone Number \_\_\_\_\_ Fax Number (if applicable) \_\_\_\_\_

3. DEP File Number:
- \_\_\_\_\_

**B. Instructions**

1. When the Departmental action request is for (check one):
- Superseding Order of Conditions (\$100 for individual single family homes with associated structures; \$200 for all other projects)
  - Superseding Determination of Applicability (\$100)
  - Superseding Order of Resource Area Delineation (\$100)

Send this form and check or money order for the appropriate amount, payable to the *Commonwealth of Massachusetts* to:

Department of Environmental Protection  
 Box 4062  
 Boston, MA 02211



Massachusetts Department of Environmental Protection

Bureau of Resource Protection - Wetlands

**Request for Departmental Action Fee Transmittal Form**

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

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**B. Instructions (cont.)**

2. On a separate sheet attached to this form, state clearly and concisely the objections to the Determination or Order which is being appealed. To the extent that the Determination or Order is based on a municipal bylaw, and not on the Massachusetts Wetlands Protection Act or regulations, the Department has no appellate jurisdiction.
3. Send a **copy** of this form and a **copy** of the check or money order with the Request for a Superseding Determination or Order by certified mail or hand delivery to the appropriate DEP Regional Office (see <http://www.mass.gov/dep/about/region/findyour.htm>).
4. 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.

INDEX TO DRAWINGS

SHEET NO.	TITLE
1.	TITLE SHEET-LOCATION PLAN, INDEX TO DRAWINGS, LEGEND, ABBREVIATIONS AND GENERAL NOTES
2.	WATER MAIN PLAN (DRAWING NO. C-1)
3.	SURFACE RESTORATION PLAN (DRAWING NO. C-2)
4.	CONSTRUCTION DETAILS (DRAWING NO. C-3)

# SMITH STREET WATER MAIN REPLACEMENT - CONTRACT 1

NOTES

GENERAL

- SMITH STREET IS A RESTRICTED ROADWAY AND WORK HOURS SHALL BE BETWEEN 9:00AM AND 3:00PM, MONDAY THROUGH FRIDAY. ALL BIDS SHALL BE BASED ON THIS SIX (6) HOUR WORKDAY.
- ONLY CITY PERSONNEL SHALL OPERATE EXISTING VALVES. VALVE SHUTDOWNS SHALL BE SCHEDULED AT LEAST TWENTY FOUR (24) HOURS IN ADVANCE, AND NO SHUTDOWNS SHALL TAKE PLACE OUTSIDE THE HOURS OF 9:30AM AND 1:30PM.
- THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING POLICE DETAILS. NO ADDITIONAL PAYMENTS WILL BE MADE FOR DELAYS RELATED TO A LACK OF POLICE COVERAGE.
- THE BASE PLAN WAS COMPLETED BY FST, BASED ON GIS INFORMATION PROVIDED BY THE CITY OF WALTHAM AND UTILITY PLANS PROVIDED BY NSTAR, VERIZON, NATIONAL GRID AND ABOVENET FIBER OPTIC.
- PROPERTY LINES SHOWN ARE APPROXIMATE & NOT THE RESULT OF A PROPERTY LINE SURVEY.
- EXISTING UNDERGROUND UTILITIES AND STRUCTURES ARE NOT ALL SHOWN AND LOCATIONS OF THOSE SHOWN ARE APPROXIMATE ONLY. THE CONTRACTOR SHALL FIELD VERIFY EXISTING UTILITY LOCATIONS.
- THE CONTRACTOR MUST COORDINATE ACTIVITY WITH RESPECTIVE UTILITY COMPANIES, EMERGENCY SERVICES AND PUBLIC WORKS DEPARTMENT.
- THE CONTRACTOR SHALL PROPERLY PROTECT PROPERTY IRONS AND MONUMENTS. IF DISTURBED, THE PROPERTY MONUMENT SHALL BE RESET AT THE CONTRACTOR'S EXPENSE BY A LICENSED SURVEYOR.
- ALL WORK WITHIN THE RIGHT OF WAY OF CITY STREETS SHALL BE PERFORMED IN ACCORDANCE WITH THE REQUIREMENTS OF THE CITY. THE CONTRACTOR SHALL SUBMIT A PROPOSED TRAFFIC CONTROL PLAN TO THE ENGINEER AT LEAST SEVEN (7) DAYS BEFORE CONSTRUCTION. THE PROPOSED TRAFFIC CONTROL PLAN SHALL BE SUBJECT TO APPROVAL BY THE ENGINEER, WHO MAY ATTACH SPECIAL CONDITIONS TO, OR REQUIRE MODIFICATIONS OF, WORK SHALL NOT BEGIN UNTIL THE PLAN IS APPROVED BY THE ENGINEER.
- THE CONTRACTOR SHALL COORDINATE DISRUPTION OF PRIVATE UTILITY SERVICES WITH LANDOWNERS AT LEAST FORTY EIGHT (48) HOURS PRIOR TO DISRUPTION. ALL UTILITY COORDINATION IS THE RESPONSIBILITY OF THE CONTRACTOR.
- THE SITE SHALL BE LEFT WITH APPROPRIATE SAFETY MEASURES IN PLACE DURING NON-WORKING HOURS. NO TRENCH SHALL BE LEFT OPEN DURING NON-WORKING HOURS. SITE SAFETY IS THE RESPONSIBILITY OF THE CONTRACTOR, DURING BOTH WORKING AND NON-WORKING HOURS.
- THE CONTRACTOR SHALL OBTAIN A CITY STREET OPENING PERMIT BEFORE BEGINNING CONSTRUCTION. THE FEE FOR THE STREET OPENING PERMIT WILL BE WAIVED BY THE CITY.
- DIG-SAFE SHALL BE NOTIFIED PRIOR TO CONSTRUCTION. CALL TEL. NO. 1-888-344-7233 AT LEAST 72 HOURS IN ADVANCE.
- CONSTRUCTION DETAILS ARE INCLUDED ON DRAWING NO. C-3 AND IN THE CONTRACT SPECIFICATIONS.

ENVIRONMENTAL

- THE CONTRACTOR SHALL PROVIDE DUST CONTROL FOR EXCAVATION AND CONSTRUCTION OPERATIONS.
- ALL GROUND SURFACES SHALL BE PROTECTED TO PREVENT EROSION AND SEDIMENT RUNNING OFF THE SITE OF WORK. ONLY STRAW BALES OR STRAW/MULCH WADDLES SHALL BE USED, NO HAYBALES WILL BE PERMITTED.
- SEE SHEET C-3 FOR EROSION CONTROL DETAILS.

WATER

- THE NEW WATER MAIN SHALL BE LAID WITH 5'-0" MINIMUM COVER UNLESS OTHERWISE SPECIFIED OR APPROVED BY THE ENGINEER.
- WHEREVER NEW WATER MAINS OR APPURTENANCES ARE TO JOIN OR BE CONNECTED TO EXISTING PIPE, THE CONTRACTOR SHALL CUT AND REMOVE THE EXISTING PIPE AS NECESSARY TO INSTALL THE NEW WORK. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL VERIFY ALL EXISTING SIZES AND MATERIAL TYPES.
- WHENEVER POSSIBLE THE CONTRACTOR SHALL BEND THE WATER MAIN AROUND CURVES USING JOINT DEFLECTION.
- NEW WATER MAINS SHALL BE LAID UNDER EXISTING UTILITIES, DRAINS AND CULVERTS UNLESS OTHERWISE NOTED.
- ALL FITTINGS AND VALVES SHALL BE RESTRAINED USING MECHANICAL RESTRAINING TYPE GLANDS UNLESS OTHERWISE APPROVED BY THE ENGINEER.
- A MINIMUM OF ONE FULL PIPE LENGTH OF NEW WATER MAIN (18 FEET) IS TO BE INSTALLED BETWEEN A NEW VALVE AND A COUPLING CONNECTING THE NEW AND EXISTING WATER MAINS.
- WATER SERVICES SHALL BE REPLACED UP TO THE PROPERTY LINE, INCLUDING CORPORATION STOP AND CURB STOP.
- EXISTING PIPE, HYDRANTS, VALVES, BOXES, AND FITTINGS REMOVED FROM THE WORK SHALL BECOME THE PROPERTY OF THE CONTRACTOR, UNLESS THE CITY DETERMINES THEY ARE SUITABLE FOR REUSE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVING AND DISPOSING OF ALL SALVAGED MATERIALS.
- TEMPORARY BYPASS PIPING AS SHOWN ON DRAWINGS IS INTENDED TO PROVIDE THE CONTRACTOR WITH GENERAL INFORMATION WITH REGARDS TO TEMPORARY BYPASS PIPING LAYOUT. FINAL LAYOUT OF TEMPORARY BYPASS PIPING WILL BE DETERMINED BY FIELD CONDITIONS AND AS DIRECTED BY THE ENGINEER. THE CONTRACTOR SHALL USE THE MINIMUM AMOUNT OF TEMPORARY BYPASS PIPING TO SUPPLY THE AREAS SHUT DOWN THAT WILL PROVIDE TEMPORARY SERVICE ACCEPTABLE TO THE OWNER. THE TEMPORARY BYPASS PIPING SHALL BE OF THE HIGHEST QUALITY STEEL, PVC, OR HDPE AND SHALL BE FULLY ADEQUATE TO WITHSTAND THE PRESSURES AND ALL CONDITIONS OF USE. TEMPORARY PIPING SHALL BE RESTRAINED AS NECESSARY TO PREVENT MOVEMENT AT ALL TIMES. REFLECTIVE BYPASS PIPING MAY BE USED.
- TEMPORARY BYPASS HYDRANTS SHALL BE INSTALLED AT ANY EXISTING FIRE HYDRANT THAT IS TO BE TAKEN OUT OF SERVICE. PAYMENT FOR TEMPORARY BYPASS HYDRANTS IS INCLUDED UNDER ITEM NO. 345.400.

SURFACE RESTORATION

- ALL AREAS DISTURBED BY THE CONTRACTOR'S OPERATIONS SHALL BE RESTORED TO ORIGINAL CONDITION (GRAVEL, PAVEMENT, GRASS, ETC). RESTORATION OF THESE AREAS DAMAGED BY CONSTRUCTION ACTIVITIES OUTSIDE OF THE LIMITS OF WORK INDICATED ON THE PLANS SHALL BE PERFORMED AT NO ADDITIONAL COST TO THE CITY.
- THE CONTRACTOR SHALL BLEND NEW EARTHWORK SMOOTHLY INTO EXISTING GRADE.
- FOR PAVEMENT REMOVAL AND REPLACEMENT, SEE SPECIFICATION SECTION 460.



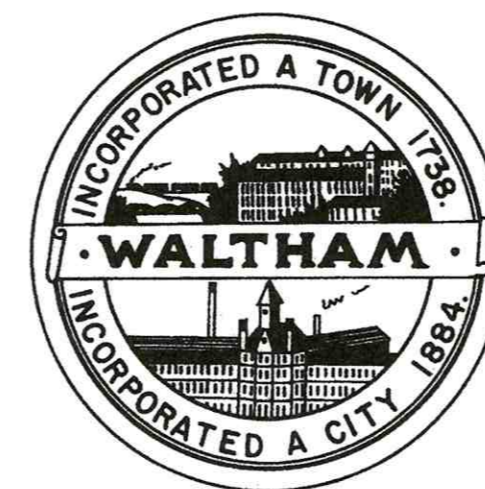
LOCATION PLAN

SCALE: 1" = 2,000'

JEANNETTE A. MCCARTHY  
MAYOR

CITY COUNCIL:

- PAUL J. BRASCO, PRESIDENT  
SARAFINA COLLURA  
DIANE P. LEBLANC  
KENNETH B. DOUCETTE  
KATHLEEN B. MCMENIMEN  
THOMAS M. STANLEY  
DANIEL P. ROMARD  
EDMUND TARALLO  
GEORGE A. DARCY III  
THOMAS J. CURTIN  
GARY J. MARCHESE  
ROBERT J. WADDICK  
JOSEPH M. GIODANO JR.  
STEPHEN F. ROURKE  
ROBERT G. LOGAN



CITY OF WALTHAM  
ENGINEERING DEPARTMENT

119 SCHOOL STREET, WALTHAM, MA 02451

APRIL 2012

LEGEND

EXISTING

- ⊙ SANITARY MANHOLE
- ⊕ DRAIN MANHOLE
- CB
- FLOW DIRECTION
- W.G.
- U.P.
- ⊕ GUY
- ⊕ HYDRANT
- SS — SANITARY SEWER LINE
- T — TELEPHONE CONDUIT
- E — ELECTRICAL CONDUIT
- G — GAS LINE
- W — WATER LINE
- D — DRAIN LINE
- EXISTING PIPE

- WATER MAIN
- HYDRANT & GATE VALVE
- GATE VALVE
- TAPPING SLEEVE & GATE VALVE
- REDUCER
- TEE
- CROSS
- PLUG
- COUPLING
- CLOSE GV, REMOVE GATE BOX AND COVER
- ABANDON EXIST. WATER MAIN
- TEMPORARY BYPASS PIPE & HYDRANT
- STRAW BALES WITH SILT FENCE
- B-1 BORING
- WETLAND FLAGS & DELINEATION
- 100 FOOT WETLANDS BUFFER ZONE

NEW

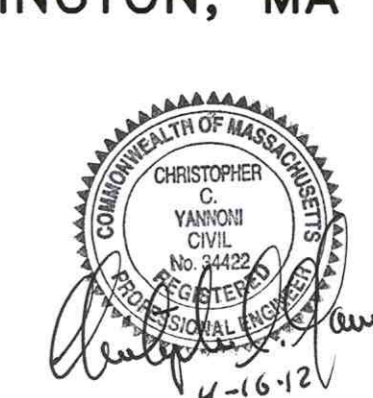
- WATER MAIN
- HYDRANT & GATE VALVE
- GATE VALVE
- TAPPING SLEEVE & GATE VALVE
- REDUCER
- TEE
- CROSS
- PLUG
- COUPLING
- CLOSE GV, REMOVE GATE BOX AND COVER
- ABANDON EXIST. WATER MAIN
- TEMPORARY BYPASS PIPE & HYDRANT
- STRAW BALES WITH SILT FENCE
- B-1 BORING
- WETLAND FLAGS & DELINEATION
- 100 FOOT WETLANDS BUFFER ZONE

ABBREVIATIONS

ABAN	ABANDON	GC	GRANITE CURB
APPROX	APPROXIMATELY	GW	GRANITE WALL
B	BEND	HORZ	HORIZONTAL
BCC	BIT CONC CURB	LPB	LIGHT POLE BASE
BIT	BITUMINOUS	LST	LOOSE STONE WALL
CB	CATCH BASIN	MJ	MECHANICAL JOINT
CI	CAST IRON	PL	PLASTIC PIPE
CIP	CAST IRON PIPE	PVC	POLYVINYL CHLORIDE
CC	CONCRETE CURB	RCP	REINFORCED CONCRETE PIPE
CONC	CONCRETE	RED	REDUCER
CLF	CHAIN LINK FENCE	R&D	REMOVE & DISPOSE
CMP	CORRUGATED METAL PIPE	R&R	REMOVE & REPLACE
COMM	COMMERCIAL	R&S	REMOVE & STACK
C.T.E.	CONNECT TO EXISTING	RW	RETAINING WALL
CI	CURB INLET	TS&GV	TAPPING SLEEVE & GATE VALVE
CLDI	CEMENT LINED DUCTILE IRON	T	TEE
EL	ELECTRIC DUCT	TYP.	TYPICAL
EXIST	EXISTING	UP	UTILITY POLE
FSM	FORCE SEWER MAIN	VCP	VITRIFIED CLAY PIPE
GV	GATE VALVE	VERT	VERTICAL

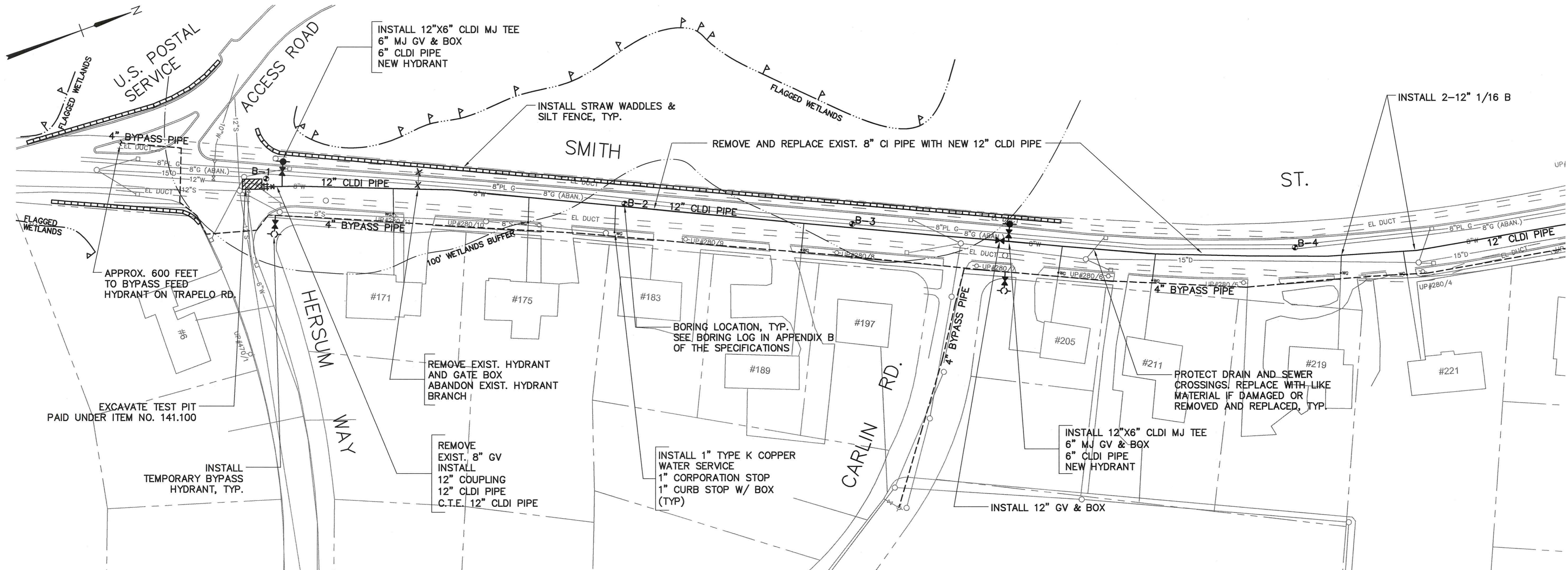
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**FST**  
Since 1914

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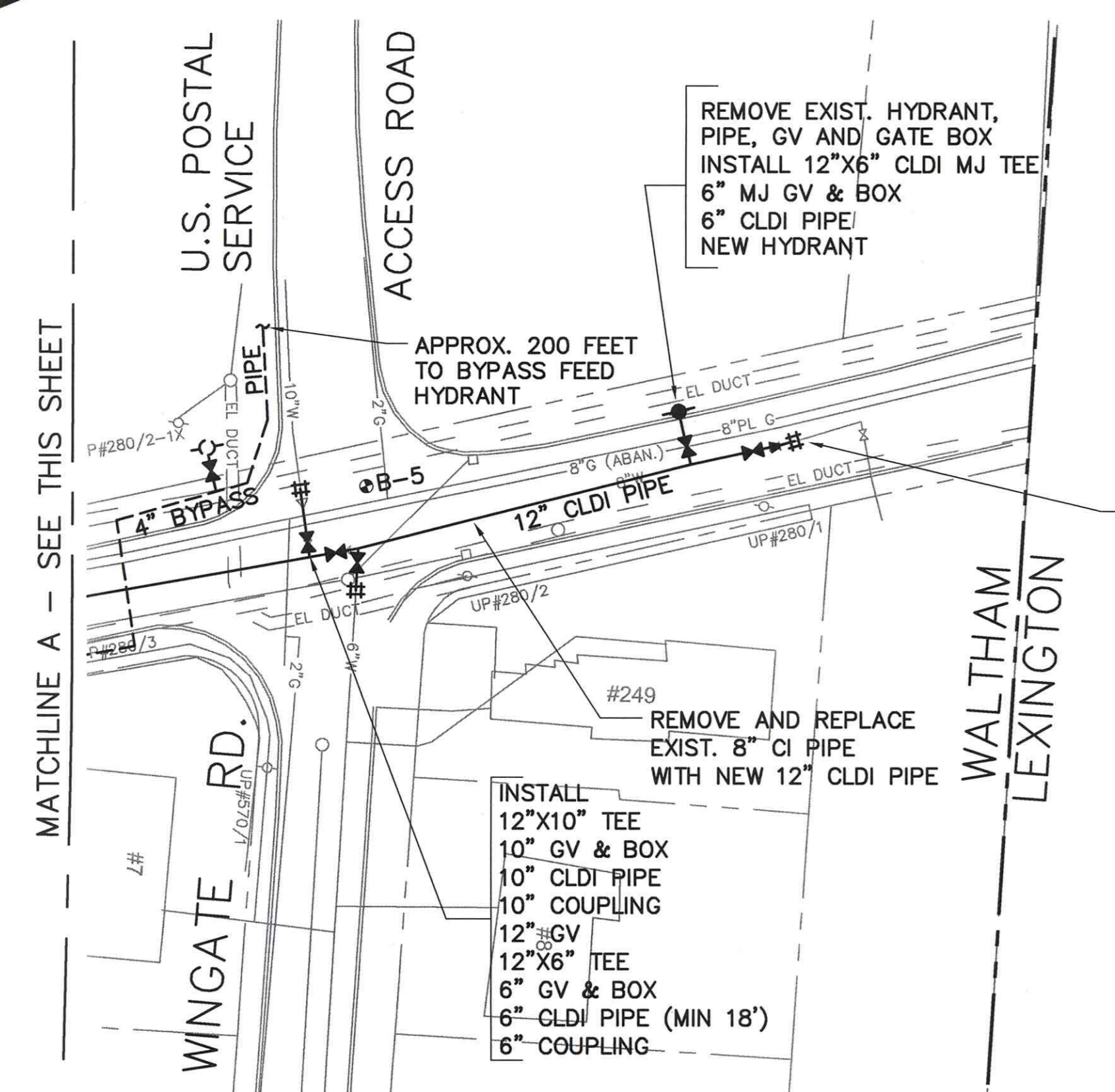
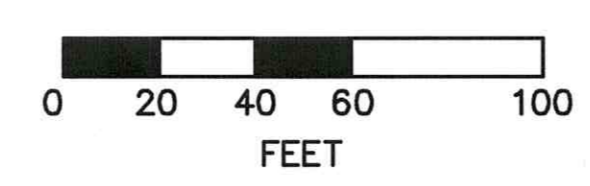


*Christopher E. VanDusen*  
APPROVED





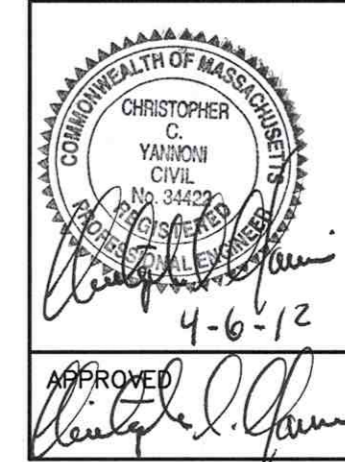
PLAN  
SCALE: 1"=40'



PLAN  
SCALE: 1"=40'

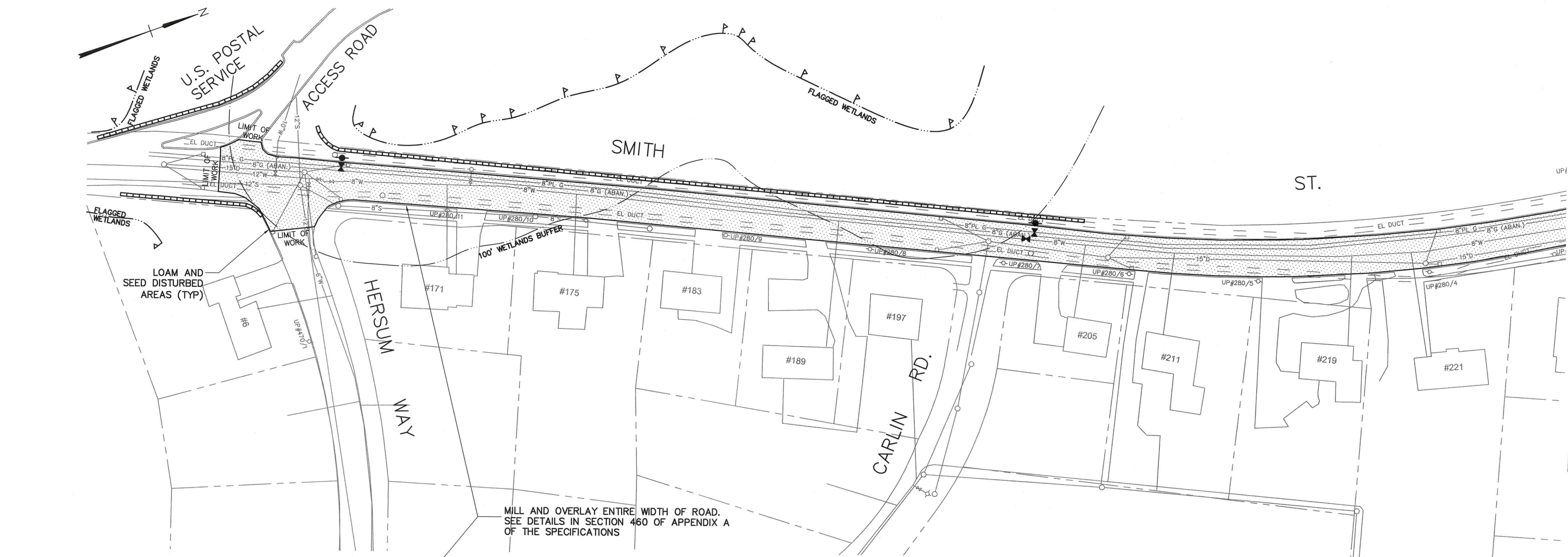
REV.	DATE	DESCRIPTION	BY	CHK.	APP'D.

DEPARTMENT OF ENGINEERING  
CITY OF WALTHAM, MASSACHUSETTS  
  
SMITH STREET  
WATER MAIN REPLACEMENT- CONTRACT 1



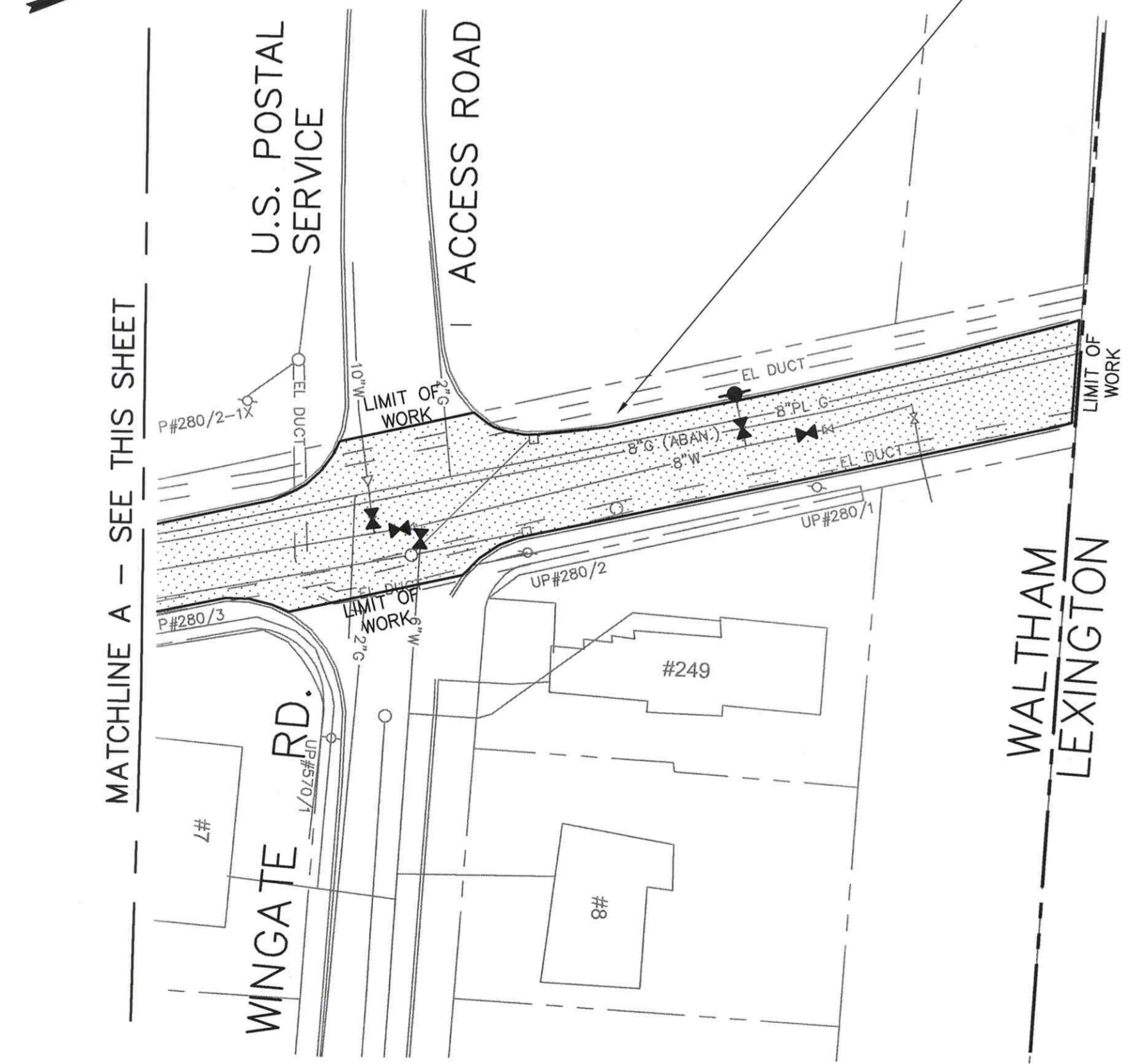
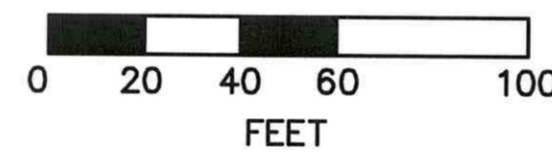
**FST** FAY, SPOFFORD & THORNDIKE  
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DES.	NRB	CHK.	GAB	SCALE:	AS SHOWN
DR.	NRB	PROJ. ENGR.	NRB	DATE:	04/2012
FST PROJECT NO. WW-167			DRAWING NO. C-1		



MILL AND OVERLAY ENTIRE WIDTH OF ROAD.  
SEE DETAILS IN SECTION 460 OF APPENDIX A  
OF THE SPECIFICATIONS

PLAN  
SCALE: 1"=40'



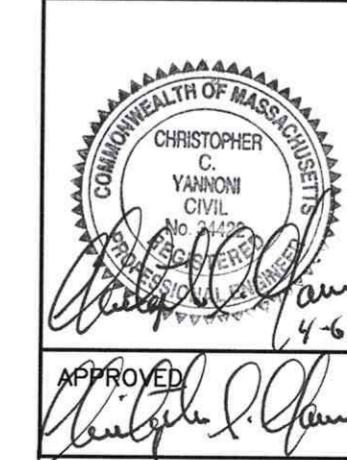
PLAN  
SCALE: 1"=40'

- NOTES:**
1. CONTRACTOR TO LOAM AND SEED ALL AREAS DISTURBED BY CONSTRUCTION ACTIVITIES.
  2. CONTRACTOR TO ADJUST ALL EXIST./PROP. STRUCTURES TO FINAL GRADE. PAYMENT FOR STRUCTURE ADJUSTMENT IS INCLUDED IN THE VARIOUS ITEMS IN THE SCHEDULE OF PRICES AND NO SEPARATE PAYMENT WILL BE MADE THEREFORE.
  3. CONTRACTOR SHALL REPLACE COMPLETE CONCRETE SIDEWALK PANELS AND GRANITE CURBING AT SERVICE AND HYDRANT CONNECTIONS.
  4. PERMANENT TRENCH PAVEMENT MUST REMAIN IN PLACE A MINIMUM OF NINETY (90) CALENDAR DAYS BEFORE BITUMINOUS CONCRETE PAVEMENT OVERLAY IS INSTALLED.

REV.	DATE	DESCRIPTION	BY.	CHK.	APP'D.

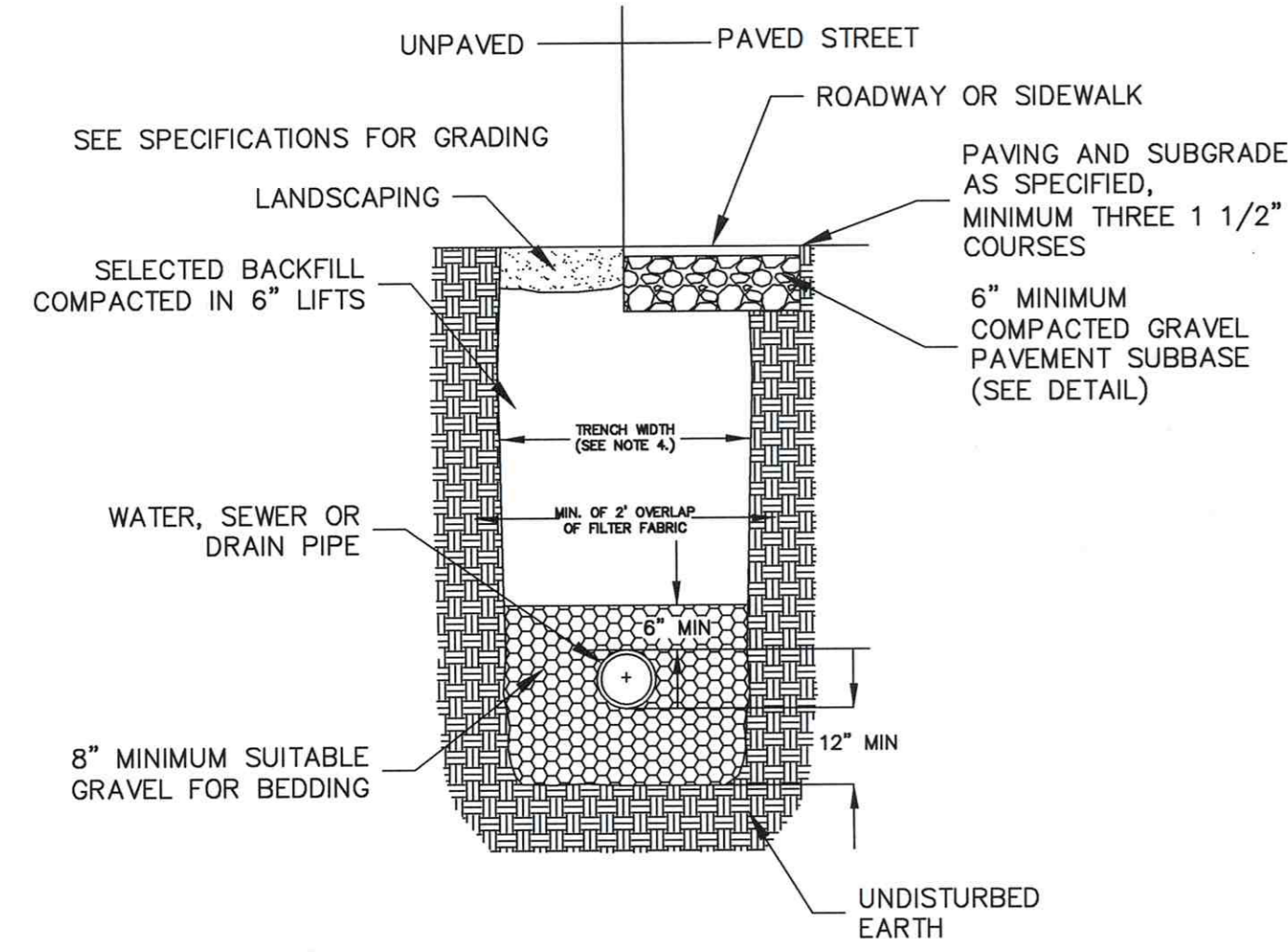
DEPARTMENT OF ENGINEERING  
CITY OF WALTHAM, MASSACHUSETTS

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WATER MAIN REPLACEMENT- CONTRACT 1



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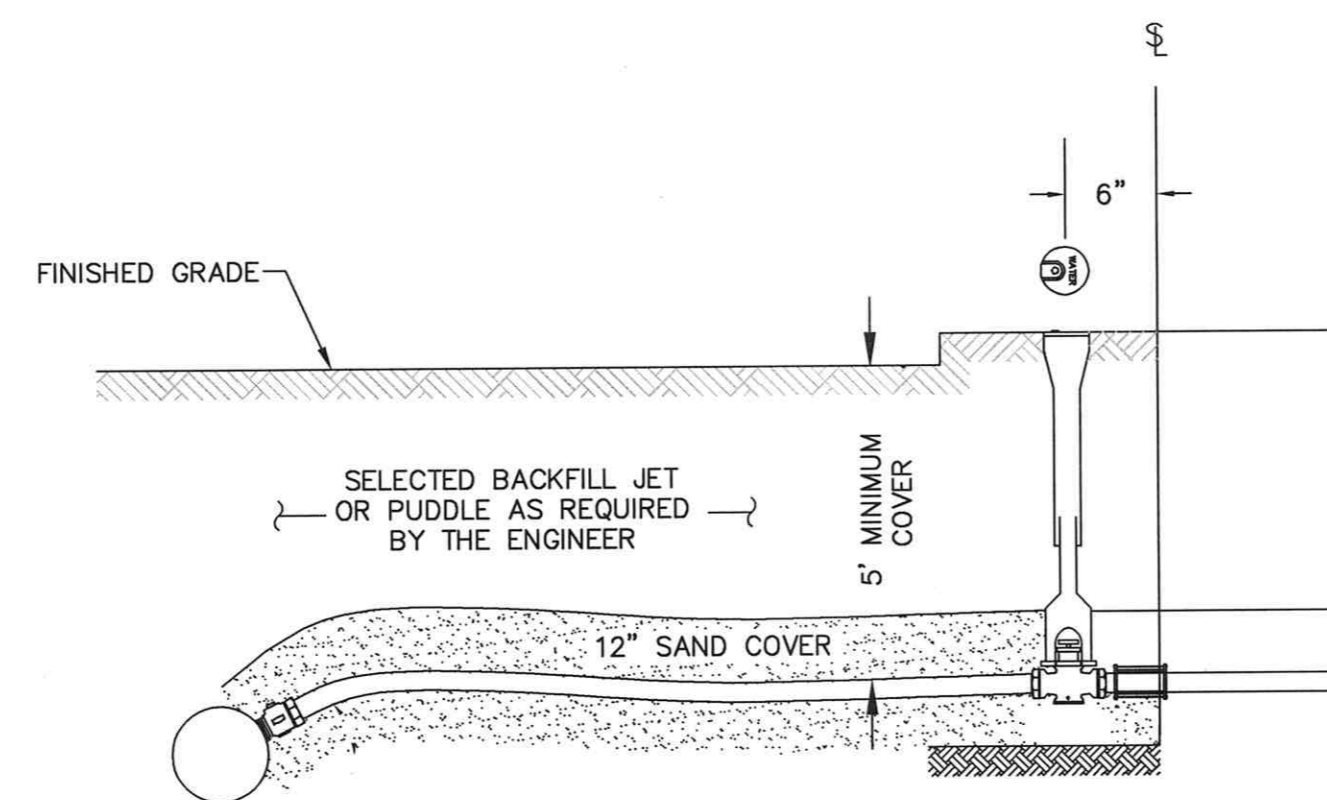
DES.	NRB	NRB	CHK.	GAB	CCY	SCALE:	AS SHOWN
DR.	NRB	NRB	PROJ. ENGR.	NRB	GAB	DATE:	04/2012
FST PROJECT NO.						DRAWING NO.	
WW-167						C-2	



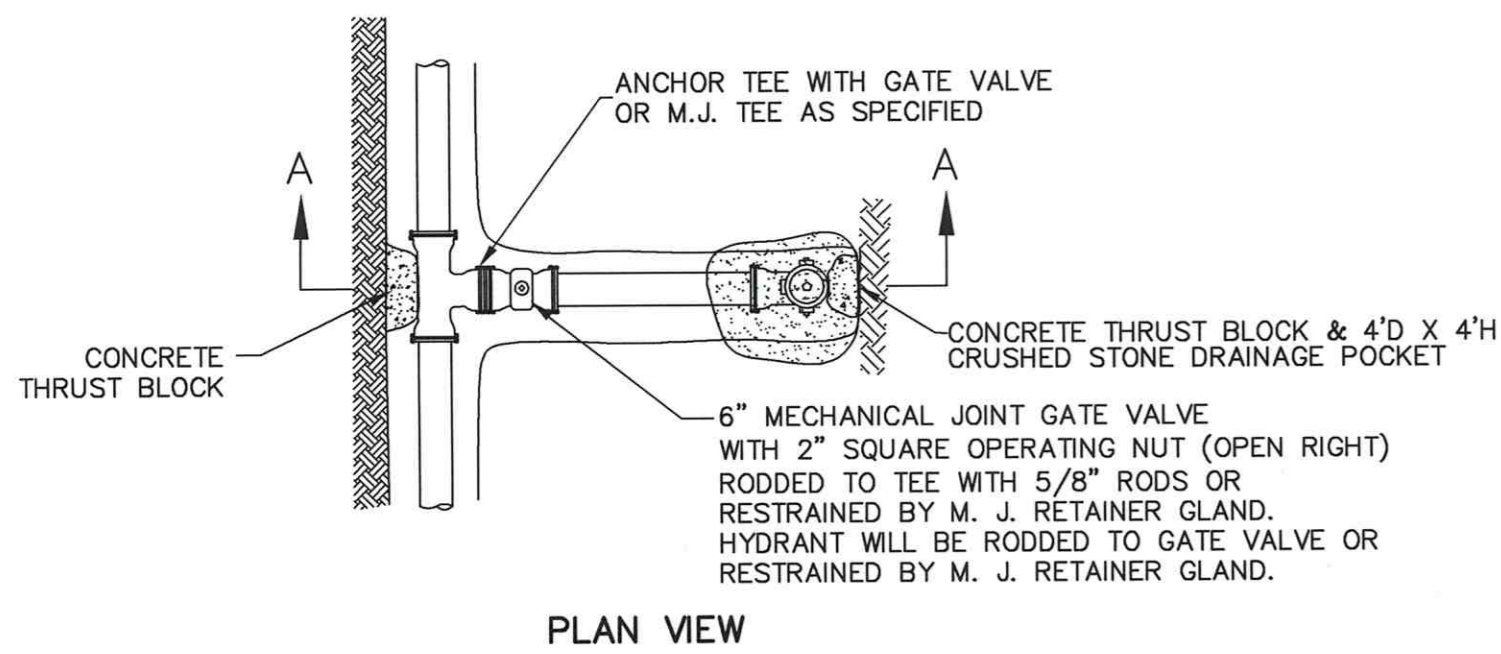
- NOTES:
1. ALL TRENCHES MUST BE JETTED OR PUDDLED AS REQUIRED BY THE ENGINEER.
  2. PRIOR TO FINISHING PAVING, CUT SQUARE EDGES AT EXISTING PAVEMENT, AT LEAST 6 INCHES BEYOND OUTERMOST DISTURBED PAVEMENT.
  3. NO LEDGE TO BE WITHIN 6\"/>

LEDGE: OUTSIDE DIAMETER OF PIPE PLUS 2 FEET  
 EARTH: GREATER OF LEDGE VALUE OR 3 FEET (OR AS DETERMINED BY THE ENGINEER)

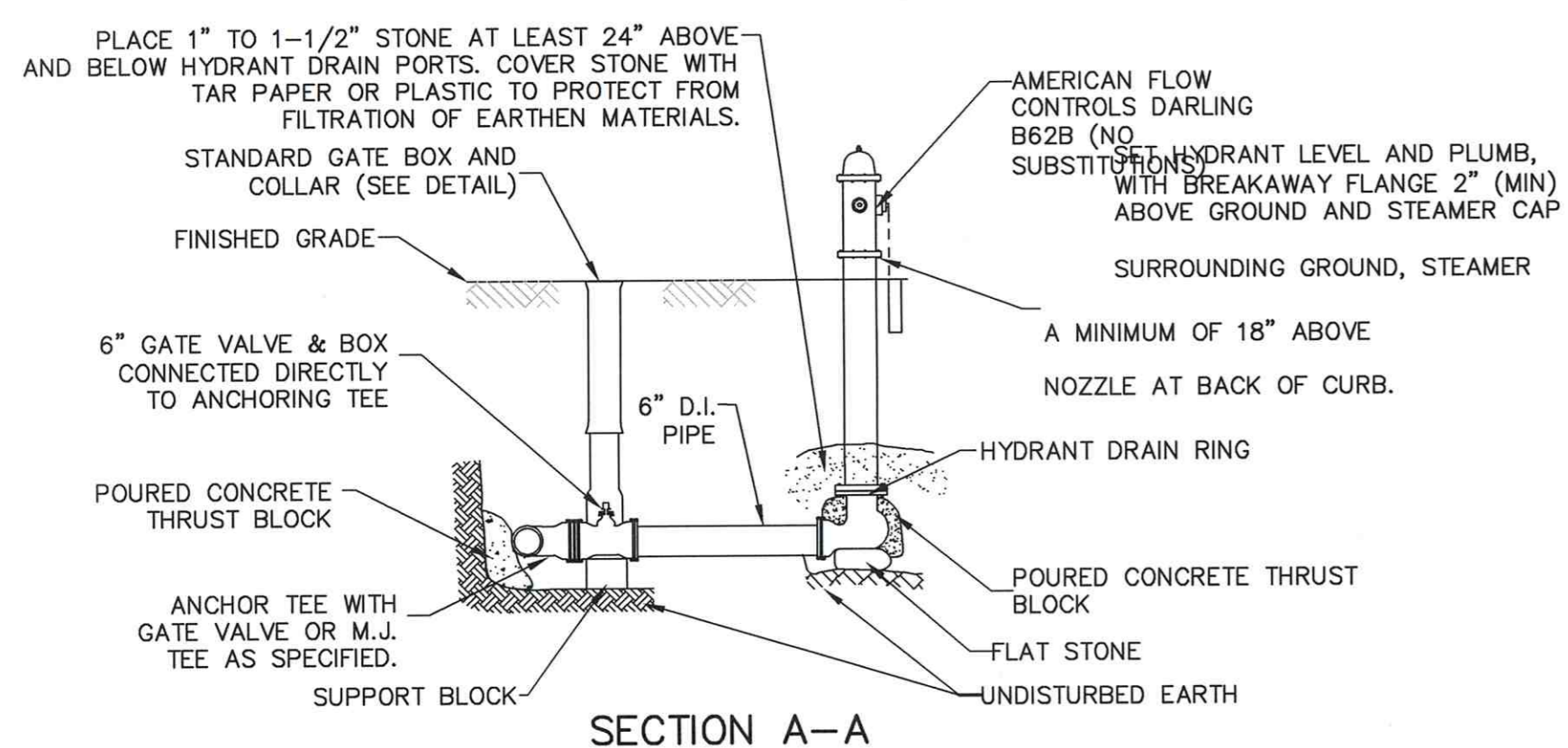
TRENCH DETAIL  
 NOT TO SCALE



WATER SERVICE DETAIL  
 NOT TO SCALE



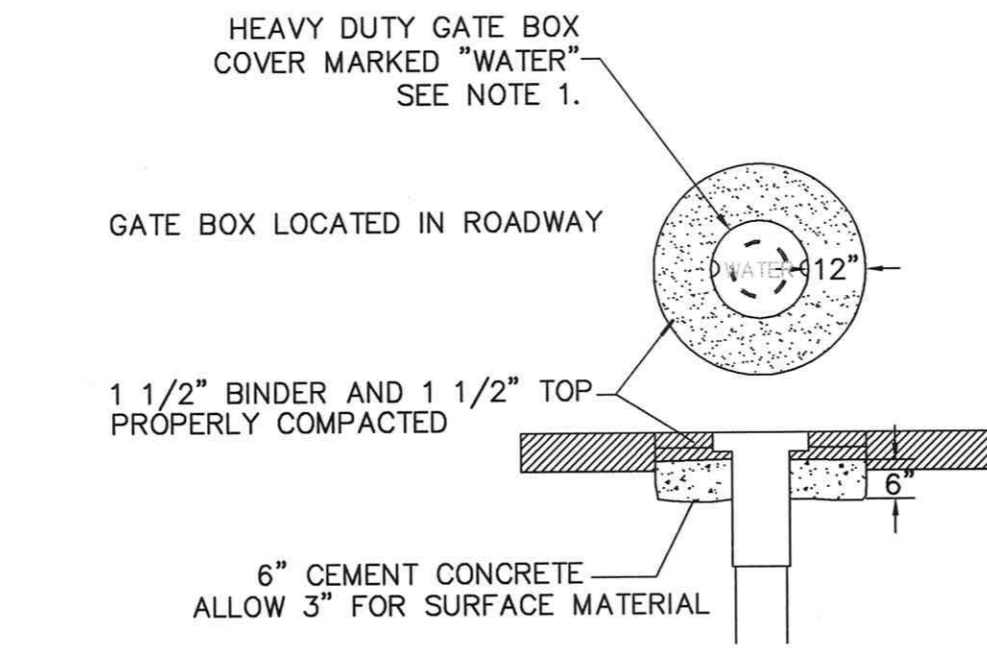
PLAN VIEW



SECTION A-A

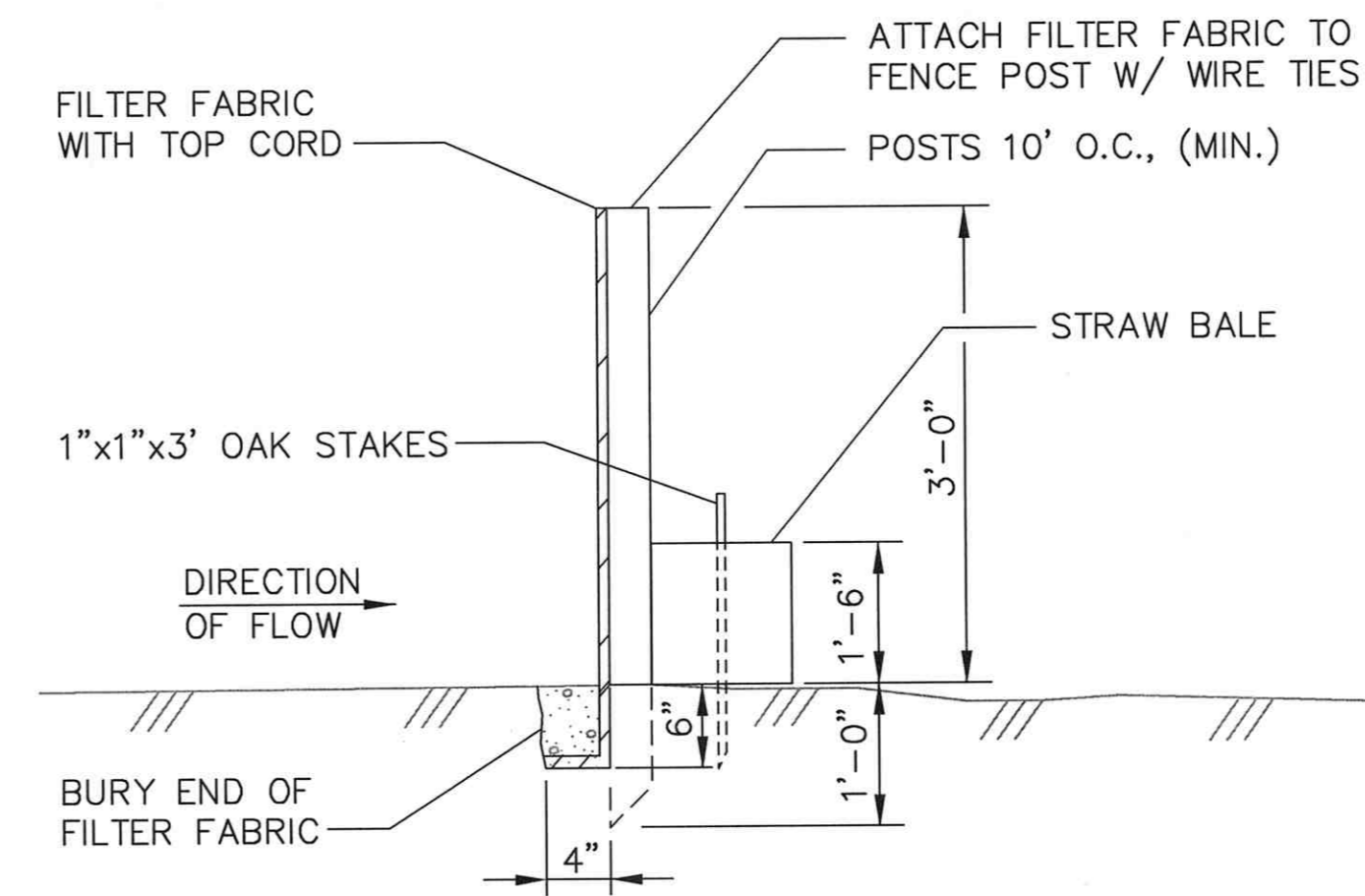
- NOTES:
1. PROVIDE HYDRANT AND VALVE JOINTS WITH APPROVED MECHANICAL JOINTS.
  2. SUPPORT BLOCKS TO BE PRESSURE TREATED WOOD OR CONCRETE MASONRY BLOCK.
  3. ALL VALVES OPEN LEFT.

HYDRANT DETAIL  
 NOT TO SCALE

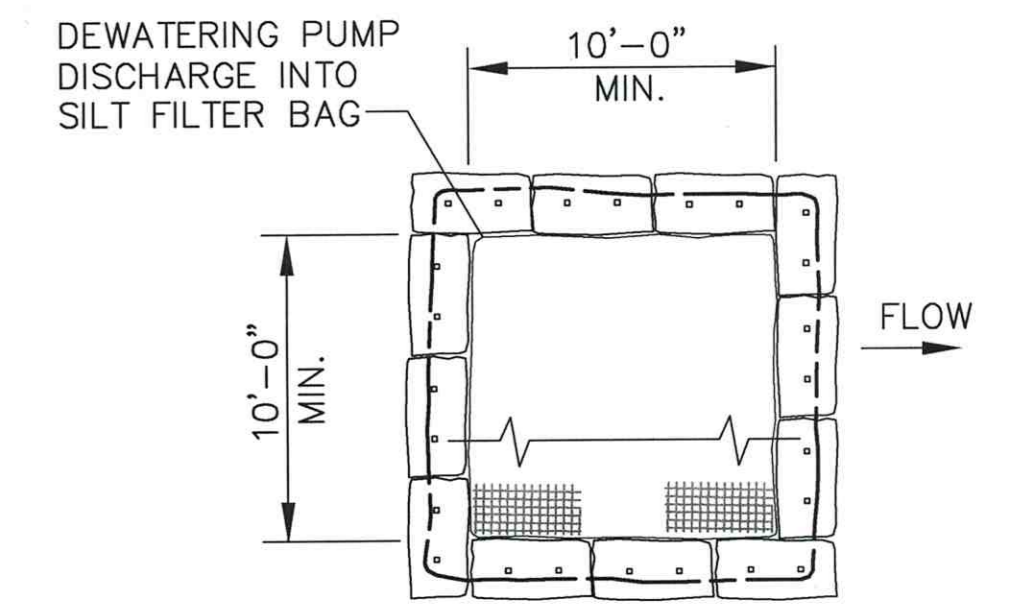


- NOTES:
1. VALVE BOX COVER SHALL BE EJ PRESCOTT PRODUCT NO.45325 OR APPROVED EQUAL.
  2. VALVE BOX SHALL BE TWO-PIECE, CAST IRON SLIDING TYPE, WITH TOP FLANGE VALVE BOX AND BELL SECTION BASE.

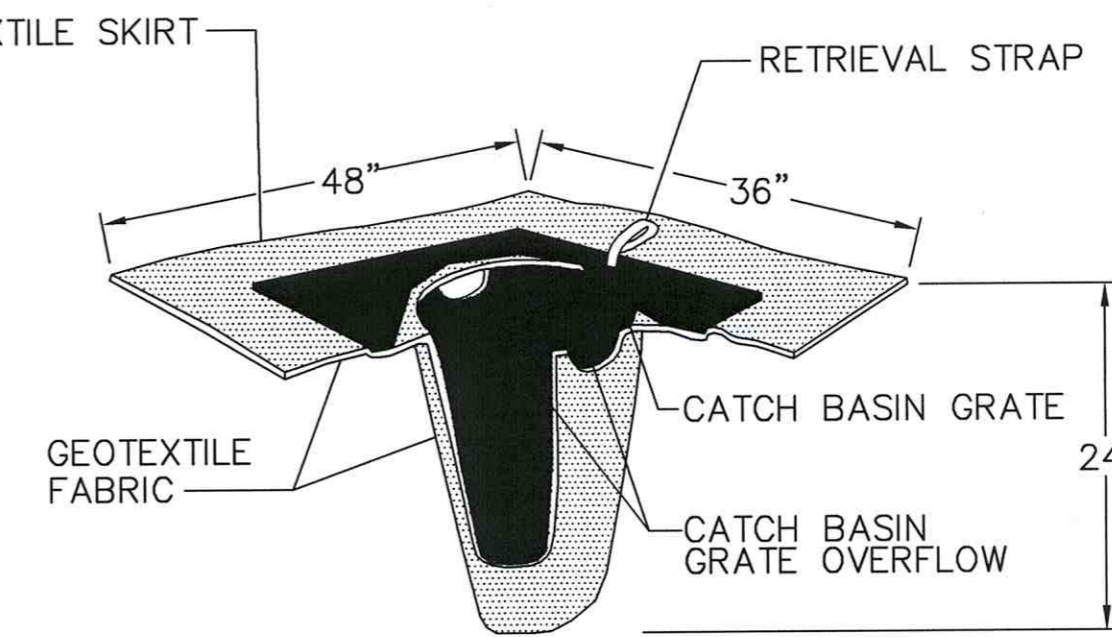
GATE BOX COLLAR DETAIL  
 NOT TO SCALE



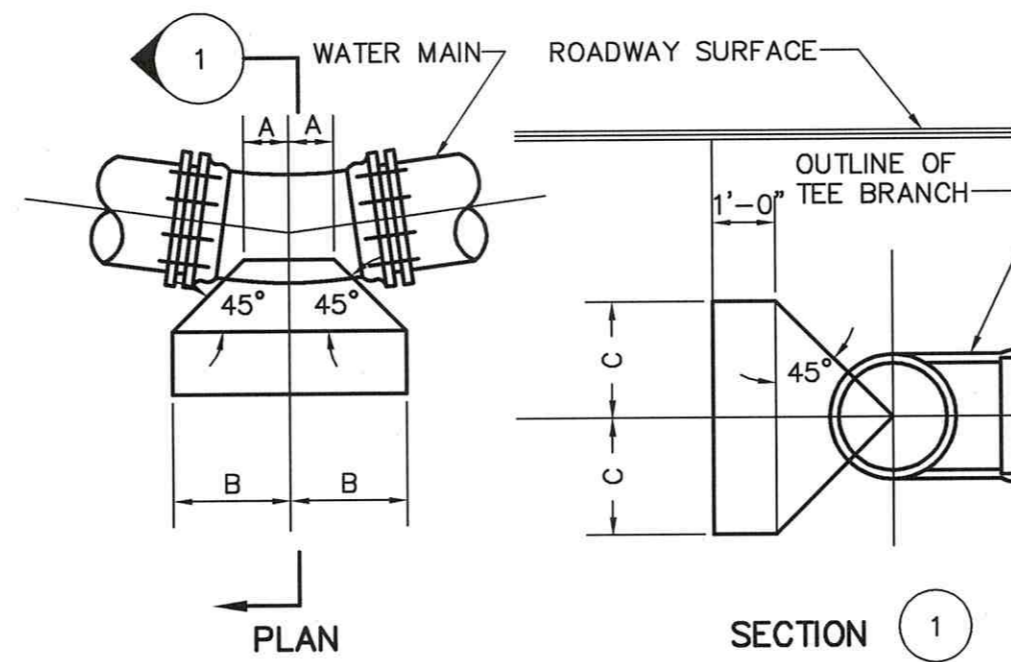
STRAW BALE AND SILT FENCE DETAIL  
 NOT TO SCALE



SEDIMENT CONTROL BASIN  
 NOT TO SCALE



CATCH BASIN INSERT FOR SEDIMENTATION CONTROL  
 NOT TO SCALE

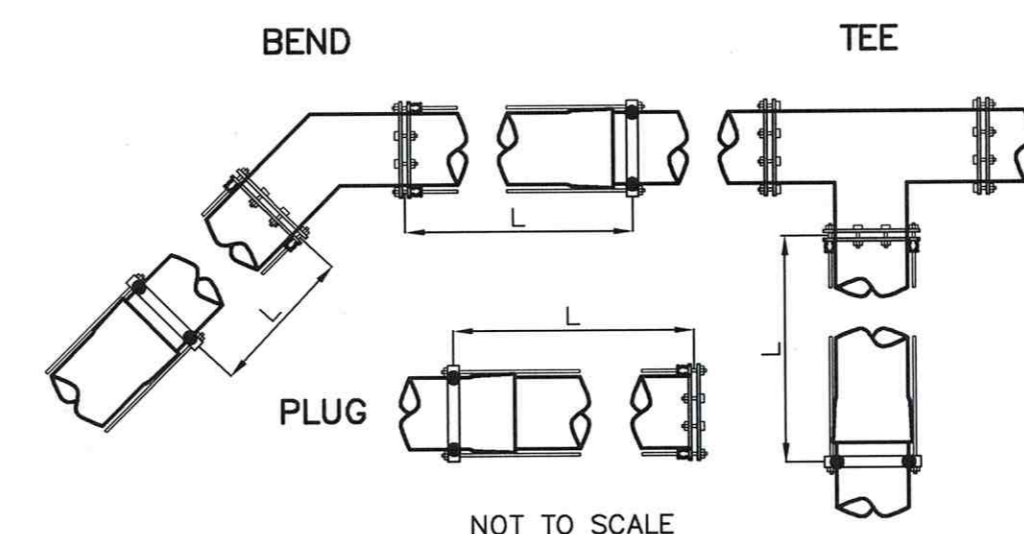


HORIZONTAL THRUST BLOCK SCHEDULE  
 TABLE OF DIMENSIONS IN INCHES

PIPE SIZE (IN)	BEND			TEE (BRANCH)		
	A	B	C	A	B	C
6", 8" BEND	6	10	10	6	15	15
1/32, 1/16	6	14	14	9	18	18
1/8	6	14	14	9	19	19
1/4	9	19	19	9	19	19
10", 12" BEND	6	14	14	9	23	23
1/32, 1/16	6	20	20	12	30	24
1/8	6	20	20	12	30	24
1/4	9	27	27	12	30	24
16" BEND	9	18	18	12	30	24
1/32, 1/16	9	24	24			
1/8	9	24	24			
1/4	12	30	24			

NOTE: REFER TO SPECIFICATIONS FOR MATERIAL REQUIREMENTS  
 SUBJECT TO FIELD MODIFICATION BY ENGINEER

THRUST BLOCK DETAIL  
 NOT TO SCALE



NOTE: FOR HORIZONTAL BENDS ONLY  
 L = MINIMUM LENGTH OF PIPE TO BE RESTRAINED (FEET)

TYPE OF FITTING	PIPE SIZE (IN)			
	6	8	10	12
1/32 B	4	5	6	7
1/16 B	7	9	11	13
1/8 B	12	16	18	23
1/4 B	29	38	38	55
TEE, PLUG	21	27	33	40

EXAMPLE: FOR 12-INCH, 1/8 B - A MINIMUM OF 46 FT. OF PIPE (23 ON EACH SIDE OF BEND) MUST BE RESTRAINED.

NOTE: REFER TO SPECIFICATIONS FOR MATERIAL REQUIREMENTS

JOINT RESTRAINT DETAIL  
 NOT TO SCALE

REV.	DATE	DESCRIPTION	BY	CHK.	APP'D.

DEPARTMENT OF ENGINEERING  
 CITY OF WALTHAM, MASSACHUSETTS

SMITH STREET  
 WATER MAIN REPLACEMENT- CONTRACT 1

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DES.	NRB	NRB	CHK.	GAB	CCY	SCALE:	AS SHOWN
DR.	NRB	NRB	PROJ. ENGR.	NRB	GAB	DATE:	04/2012

FST PROJECT NO  
 WW-167  
 DRAWING NO.  
 C-3