

**Town of Milford**



**PROJECT MANUAL**

**for**

**GODFREY BROOK CAPACITY IMPROVEMENTS  
WEST STREET TO WATER STREET**

**Site**

**Godfrey Brook  
West Street to Water Street  
Milford, Massachusetts**

**Owner**

**Town of Milford  
52 Main Street  
Milford, Massachusetts 01757  
Phone: 503-634-2303**

**Engineer / Consultant**

**GZA GeoEnvironmental, Inc.  
1350 Main Street, Suite 1400  
Springfield, Massachusetts 01103  
Phone: 413-726-2100  
Fax: 413-732-1249**

**MARCH 2025**



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Town of Milford  
Massachusetts

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**ADVERTISEMENT FOR BIDS**  
**Town of Milford**  
**Milford, Massachusetts**  
**Godfrey Brook Capacity Improvement Project**  
**West Street to Water Street**

**General Notice**

**Town of Milford Board of Selectmen** (Owner) is requesting Bids for the construction of the following Project:

**Godfrey Brook Capacity Improvements Project**  
**West Street to Water Street**  
**FEMA Pre-Disaster Mitigation Grant Number PDMC-PJ-01-MA-2019-004**

Bids for the construction of the Project will be received at the **Office of the Town Administrator** located at **Milford Town Hall; 52 Main Street; Milford, Massachusetts 01757-2679**, until **April 24, 2025 at 10:00 a.m.** local time. At that time the Bids received will be **publicly** opened and read in **Room 3** at the **Town Hall**.

The Project is being federally funded by the Federal Emergency Management Agency (FEMA) through a grant issued by the Massachusetts Emergency Management Agency (MEMA).

The Project includes the following Work:

**Furnishing all necessary labor, materials and equipment required to complete the Godfrey Brook Capacity Improvement Project, West Street to Water Street, including the construction of precast culverts, cast in place and precast channels, drainage improvements, and associated site improvements and restoration.**

Bids are requested for the following Contract: **Godfrey Brook Capacity Improvements Project – West Street to Water Street**

Owner anticipates that the Project's total bid price will be approximately **\$2,100,000.00**. The Project has an expected duration of **120** days.

**Obtaining the Bidding Documents**

Bidding documents may be obtained electronically from GZA GeoEnvironmental, Inc. Prospective bidders must complete a onetime registration process with GZA in order to receive log-in credentials. Registrants will be added to the "planholders" or prospective bidders list and may then log in to the web site to download bidding documents for the project. To register and receive log-in credentials, contact Veronica Price at [Veronica.Price@gza.com](mailto:Veronica.Price@gza.com) 413-726-2100, or Rosalie Starvish at [Rosalie.Starvish@gza.com](mailto:Rosalie.Starvish@gza.com) or 413-726-2119.

Bidding Documents may be downloaded from the designated website. Prospective Bidders are urged to register with the designated website as a plan holder, even if Bidding Documents are obtained from a plan room or source other than the designated website in either electronic or paper format. The designated website will be updated periodically with addenda, lists of registered plan holders, reports, and other information relevant to submitting a Bid for the Project. All official notifications, addenda, and other Bidding Documents will be offered only through the designated website. Neither Owner nor Engineer will be responsible for Bidding Documents, including addenda, if any, obtained from sources other than the designated website.

Prospective Bidders may contact the Town of Milford Engineer, Elizabeth Mainini, at 508-634-2317, to request to examine the Bidding Documents at Milford Town Hall, Planning and Engineering Department.

**Pre-bid Conference**

A pre-bid conference for the Project will be held on **March 25, 2025 at 10:00 a.m. at 9 Water Street, Milford, Massachusetts 01757-2679**. Attendance at the pre-bid conference is encouraged but not required.

**Instructions to Bidders.**

For all further requirements regarding bid submittal, qualifications, procedures, and contract award, refer to the Instructions to Bidders that are included in the Bidding Documents.

**This Advertisement is issued by:**

Owner: **Town of Milford**

By: **The Town of Milford Board of Selectmen**

Date: **March 17, 2025**

# INSTRUCTIONS TO BIDDERS FOR CONSTRUCTION CONTRACT

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## ARTICLE 1—DEFINED TERMS

- 1.01 Terms used in these Instructions to Bidders have the meanings indicated in the General Conditions and Supplementary Conditions. Additional terms used in these Instructions to Bidders have the meanings indicated below:
- A. *Issuing Office*—The office from which the Bidding Documents are to be issued, and which registers plan holders. *Contractor* – The Firm to be retained by the Town to complete the Work.
  - B. *Town or Owner* – as used herein shall refer to the Town of Milford.
  - C. *Resident Engineer, Construction Engineer, Town’s Consultant, Consultant, and/or Engineer*—as used herein to GZA GeoEnvironmental, Inc.
  - D. *Site* – as used herein refers to that portion of Godfrey Brook and adjacent lands in the vicinity of the existing brook channel and as identified on the contract drawings as the Limit of Work, in Milford, Massachusetts.
  - E. *Godfrey Brook Capacity Improvement Project* – as used herein refers to an consists of the title of the Contract work described herein these Contract Documents.
  - F. Other terms used in these Invitation to Bidders will have the meanings indicated in the General Conditions and Supplemental Conditions.

## ARTICLE 2—BIDDING DOCUMENTS

- 2.01 Bidder shall obtain a complete set of Bidding Requirements and proposed Contract Documents (together, the Bidding Documents). See the Agreement for a list of the Contract Documents. It is Bidder’s responsibility to determine that it is using a complete set of documents in the preparation of a Bid. Bidder assumes sole responsibility for errors or misinterpretations resulting from the use of incomplete documents, by Bidder itself or by its prospective Subcontractors and Suppliers.
- 2.02 Bidding Documents are made available for the sole purpose of obtaining Bids for completion of the Project and permission to download or distribution of the Bidding Documents does not confer a license or grant permission or authorization for any other use. Authorization to download documents, or other distribution, includes the right for plan holders to print documents solely for their use, and the use of their prospective Subcontractors and Suppliers, provided the plan holder pays all costs associated with printing or reproduction. Printed documents may not be re-sold under any circumstances.
- 2.03 Owner has established a Bidding Documents Website as indicated in the Advertisement or invitation to bid. Owner recommends that Bidder register as a plan holder with the Issuing Office at such website, and obtain a complete set of the Bidding Documents from such website. Bidders may rely that sets of Bidding Documents obtained from the Bidding Documents Website are complete, unless an omission is blatant. Registered plan holders will receive Addenda issued by Owner.
- 2.04 Plan rooms (including construction information subscription services, and electronic and virtual plan rooms) may distribute the Bidding Documents, or make them available for examination. Those prospective bidders that obtain an electronic (digital) copy of the Bidding Documents from a plan room are encouraged to register as plan holders from the Bidding Documents Website or



Issuing Office. Owner is not responsible for omissions in Bidding Documents or other documents obtained from plan rooms, or for a Bidder's failure to obtain Addenda from a plan room.

## 2.05 *Electronic Documents*

- A. When the Bidding Requirements indicate that electronic (digital) copies of the Bidding Documents are available, such documents will be made available to the Bidders as Electronic Documents in the manner specified.
  - 1. Bidding Documents will be provided in Adobe PDF (Portable Document Format) (.pdf) that is readable by Adobe Acrobat Reader Version **22.013.20314** or later. It is the intent of the Engineer and Owner that such Electronic Documents are to be exactly representative of the paper copies of the documents. However, because the Owner and Engineer cannot totally control the transmission and receipt of Electronic Documents nor the Contractor's means of reproduction of such documents, the Owner and Engineer cannot and do not guarantee that Electronic Documents and reproductions prepared from those versions are identical in every manner to the paper copies.
- B. Unless otherwise stated in the Bidding Documents, the Bidder may use and rely upon complete sets of Electronic Documents of the Bidding Documents, described in Paragraph 2.05.A above. However, Bidder assumes all risks associated with differences arising from transmission/receipt of Electronic Documents versions of Bidding Documents and reproductions prepared from those versions and, further, assumes all risks, costs, and responsibility associated with use of the Electronic Documents versions to derive information that is not explicitly contained in printed paper versions of the documents, and for Bidder's reliance upon such derived information.
- C. After the Contract is awarded, the Owner will provide or direct the Engineer to provide for the use of the Contractor documents that were developed by Engineer as part of the Project design process, as Electronic Documents in native file formats.
  - 1. Electronic Documents that are available in native file format include:
    - a. **Project Plans in Autodesk CAD file.**
  - 2. Release of such documents will be solely for the convenience of the Contractor. No such document is a Contract Document.
  - 3. Unless the Contract Documents explicitly identify that such information will be available to the Successful Bidder (Contractor), nothing herein will create an obligation on the part of the Owner or Engineer to provide or create such information, and the Contractor is not entitled to rely on the availability of such information in the preparation of its Bid or pricing of the Work. In all cases, the Contractor shall take appropriate measures to verify that any electronic/digital information provided in Electronic Documents is appropriate and adequate for the Contractor's specific purposes.
  - 4. In no case will the Contractor be entitled to additional compensation or time for completion due to any differences between the actual Contract Documents and any related document in native file format.

### **ARTICLE 3—QUALIFICATIONS OF BIDDERS**

- 3.01 Bidder is to submit the following information with its Bid to demonstrate Bidder’s qualifications to perform the Work:
- A. Written evidence establishing its qualifications such as financial data, previous experience, and present commitments.
  - B. A written statement that Bidder is authorized to do business in the state where the Project is located, or a written certification that Bidder will obtain such authority prior to the Effective Date of the Contract.
  - C. Bidder’s state or other contractor license number, if applicable.
  - D. Subcontractor and Supplier qualification information.
  - E. Other required information regarding qualifications.
- 3.02 A Bidder’s failure to submit required qualification information within the times indicated may disqualify Bidder from receiving an award of the Contract.
- 3.03 No requirement in this Article 3 to submit information will prejudice the right of Owner to seek additional pertinent information regarding Bidder’s qualifications.

### **ARTICLE 4—PRE-BID CONFERENCE**

- 4.01 A non-mandatory pre-bid conference will be held at the time and location indicated in the Advertisement or invitation to bid. Representatives of Owner and Engineer will be present to discuss the Project. Bidders are encouraged to attend and participate in the conference; however, attendance at this conference is not required to submit a Bid.
- 4.02 Information presented at the pre-Bid conference does not alter the Contract Documents. Owner will issue Addenda to make any changes to the Contract Documents that result from discussions at the pre-Bid conference. Information presented, and statements made at the pre-bid conference will not be binding or legally effective unless incorporated in an Addendum.

### **ARTICLE 5—SITE AND OTHER AREAS; EXISTING SITE CONDITIONS; EXAMINATION OF SITE; OWNER’S SAFETY PROGRAM; OTHER WORK AT THE SITE**

- 5.01 *Site and Other Areas*
- A. The Site is identified in the Bidding Documents. By definition, the Site includes rights-of-way, easements, and other lands furnished by Owner for the use of the Contractor. The Owner has an agreement with the owner of 20 West Street, 3 Roberts Court, 18 Roberts Court, 22 West Street, 24 West Street, 7-9-11 Draper Park, 17 ½ Church Street, 21 Church Street, 22 Church Street, 23-25 Church Street, 9 Water Street and 11 Water Street for right of entry over the property. Any additional lands required for temporary construction facilities, construction equipment, or storage of materials and equipment, and any access needed for such additional lands, are to be obtained and paid for by Contractor.
- 5.02 *Existing Site Conditions*
- A. *Subsurface and Physical Conditions; Hazardous Environmental Conditions*

1. The Supplementary Conditions identify the following regarding existing conditions at or adjacent to the Site:
    - a. Those reports of explorations and tests of subsurface conditions at or adjacent to the Site that contain Technical Data.
    - b. Those drawings known to Owner of existing physical conditions at or adjacent to the Site, including those drawings depicting existing surface or subsurface structures at or adjacent to the Site (except Underground Facilities), that contain Technical Data.
    - c. Technical Data contained in such reports and drawings.
  2. Owner will make digital copies of reports and drawings referenced above available to any Bidder on request. These reports and drawings are not part of the Contract Documents, but the Technical Data contained therein upon whose accuracy Bidder is entitled to rely, as provided in the General Conditions, has been identified and established in the Supplementary Conditions. Bidder is responsible for any interpretation or conclusion Bidder draws from any Technical Data or any other data, interpretations, opinions, or information contained in such reports or shown or indicated in such drawings.
  3. If the Supplementary Conditions do not identify Technical Data, the default definition of Technical Data set forth in Article 1 of the General Conditions will apply.
- B. *Underground Facilities:* Underground Facilities are shown or indicated on the Drawings, pursuant to Paragraph 5.05 of the General Conditions, and not in the drawings referred to in Paragraph 5.02.A of these Instructions to Bidders. Information and data regarding the presence or location of Underground Facilities are not intended to be categorized, identified, or defined as Technical Data.

#### 5.03 *Other Site-related Documents*

- A. In addition to the documents regarding existing Site conditions referred to in Paragraph 5.02.A, the following other documents relating to conditions at or adjacent to the Site are known to Owner and made available to Bidders for reference:
    1. **Contract Plans for the Godfrey Brook Flood Mitigation Project; Prepared for The Town of Milford, Massachusetts Office of Planning and Engineering; Prepared by Baystate Environmental Consultants, Inc.; Dated April, 1999; Issued August 1999.**
    2. **Contract Plans for the Godfrey Brook Improvement Project – Church Street Culvert Replacement; Town of Milford, Massachusetts; Prepared for Milford Highway Department and the Office of Planning and Engineering; Prepared by GZA GeoEnvironmental, Inc. Engineers and Scientists; Dated December, 2011; Issued March 28<sup>th</sup>, 2012.**
- Owner will make copies of these other Site-related documents available to any Bidder on request.
- B. Owner has not verified the contents of these other Site-related documents, and Bidder may not rely on the accuracy of any data or information in such documents. Bidder is responsible for any interpretation or conclusion Bidder draws from the other Site-related documents.
  - C. The other Site-related documents are not part of the Contract Documents.

- D. Bidders are encouraged to review the other Site-related documents, but Bidders will not be held accountable for any data or information in such documents. The requirement to review and take responsibility for documentary Site information is limited to information in (1) the Contract Documents and (2) the Technical Data.
- E. No other Site-related documents are available.

5.04 *Site Visit and Testing by Bidders*

- A. Bidder is required to visit the Site and conduct a thorough visual examination of the Site and adjacent areas. During the visit the Bidder must not disturb any ongoing operations at the Site.
- B. A Site visit is scheduled following the pre-bid conference. Maps to the Site will be available at the pre-Bid conference.
- C. Bidders visiting the Site are required to arrange their own transportation to the Site.
- D. All access to the Site other than during a regularly scheduled Site visit must be coordinated through the following Owner contact for visiting the Site: **Scott Crisafulli, Highway Surveyor, 508-473-1274**. Bidder must conduct the required Site visit during normal working hours.
- E. Bidder is not required to conduct any subsurface testing, or exhaustive investigations of Site conditions.
- F. On request, and to the extent Owner has control over the Site, and schedule permitting, the Owner will provide Bidder general access to the Site to conduct such additional examinations, investigations, explorations, tests, and studies as Bidder deems necessary for preparing and submitting a successful Bid. Owner will not have any obligation to grant such access if doing so is not practical because of existing operations, security or safety concerns, or restraints on Owner's authority regarding the Site. Bidder is responsible for establishing access needed to reach specific selected test sites.
- G. Bidder must comply with all applicable Laws and Regulations regarding excavation and location of utilities, obtain all permits, and comply with all terms and conditions established by Owner or by property owners or other entities controlling the Site with respect to schedule, access, existing operations, security, liability insurance, and applicable safety programs.
- H. Bidder must fill all holes and clean up and restore the Site to its former condition upon completion of such explorations, investigations, tests, and studies.

5.05 *Owner's Safety Program*

- A. Site visits and work at the Site may be governed by an Owner safety program. If an Owner safety program exists, it will be noted in the Supplementary Conditions.

5.06 *Other Work at the Site*

- A. Reference is made to Article 8 of the Supplementary Conditions for the identification of the general nature of other work of which Owner is aware (if any) that is to be performed at the Site by Owner or others (such as utilities and other prime contractors) and relates to the Work contemplated by these Bidding Documents. If Owner is party to a written contract for such other work, then on request, Owner will provide to each Bidder access to examine such contracts (other than portions thereof related to price and other confidential matters), if any.

## ARTICLE 6—BIDDER’S REPRESENTATIONS AND CERTIFICATIONS

### 6.01 *Express Representations and Certifications in Bid Form, Agreement*

- A. The Bid Form that each Bidder will submit contains express representations regarding the Bidder’s examination of Project documentation, Site visit, and preparation of the Bid, and certifications regarding lack of collusion or fraud in connection with the Bid. Bidder should review these representations and certifications, and assure that Bidder can make the representations and certifications in good faith, before executing and submitting its Bid.
- B. If Bidder is awarded the Contract, Bidder (as Contractor) will make similar express representations and certifications when it executes the Agreement.

## ARTICLE 7—INTERPRETATIONS AND ADDENDA

- 7.01 Owner on its own initiative may issue Addenda to clarify, correct, supplement, or change the Bidding Documents.
- 7.02 Bidder shall submit all questions about the meaning or intent of the Bidding Documents to Engineer in writing. Contact information and submittal procedures for such questions are as follows:
  - A. **GZA GeoEnvironmental – Rosalie Starvish, M.S., P.E., [rosalie.starvish@gza.com](mailto:rosalie.starvish@gza.com)**
- 7.03 Interpretations or clarifications considered necessary by Engineer in response to such questions will be issued by Addenda delivered to all registered plan holders. Questions received less than seven days prior to the date for opening of Bids may not be answered.
- 7.04 Only responses set forth in an Addendum will be binding. Oral and other interpretations or clarifications will be without legal effect. Responses to questions are not part of the Contract Documents unless set forth in an Addendum that expressly modifies or supplements the Contract Documents.

## ARTICLE 8—BID SECURITY

- 8.01 A Bid must be accompanied by Bid security made payable to the Owner in an amount of **five (5)** percent of Bidder’s maximum Bid price (determined by adding the base bid and all alternates) and in the form of a Bid bond issued by a surety meeting the requirements of Paragraph 6.01 of the General Conditions. Such Bid bond will be issued in the form included in the Bidding Documents. Bids that are not accompanied by Bid security will be rejected.
- 8.02 The Bid security of the apparent Successful Bidder will be retained until the Owner awards the contract to such Bidder, and such Bidder has executed the Contract, furnished the required Contract security, and met the other conditions of the Notice of Award, whereupon the Bid security will be released. If the Successful Bidder fails to execute and deliver the Contract and furnish the required Contract security within 15 days after the Notice of Award, Owner may consider Bidder to be in default, annul the Notice of Award, and the Bid security of that Bidder will be forfeited, in whole in the case of a penal sum bid bond, and to the extent of Owner’s damages in the case of a damages-form bond. Such forfeiture will be Owner’s exclusive remedy if Bidder defaults.
- 8.03 The Bid security of other Bidders that Owner believes to have a reasonable chance of receiving the award (i.e., the three lowest bidders) may be retained by Owner until the earlier of 7 days

after the Effective Date of the Contract or 61 days after the Bid opening, whereupon Bid security furnished by such Bidders will be released.

- 8.04 Bid security of other Bidders that Owner believes do not have a reasonable chance of receiving the award will be released within 7 days after the Bid opening.

#### **ARTICLE 9—CONTRACT TIMES**

- 9.01 The number of days within which, or the dates by which, the Work is to be (a) substantially completed and (b) ready for final payment, and (c) Milestones (if any) are to be achieved, are set forth in the Agreement.
- 9.02 Bidder must set forth in the Bid the time by which Bidder must achieve Substantial Completion, subject to the restrictions established in Paragraph 13.07 of these Instructions. The Owner will take Bidder's time commitment regarding Substantial Completion into consideration during the evaluation of Bids, and it will be necessary for the apparent Successful Bidder to satisfy Owner that it will be able to achieve Substantial Completion within the time such Bidder has designated in the Bid. The Successful Bidder's time commitments will be entered into the Agreement or incorporated in the Agreement by reference to the specific terms of the Bid.
- 9.03 Provisions for liquidated damages, if any, for failure to timely attain a Milestone, Substantial Completion, or completion of the Work in readiness for final payment, are set forth in the Agreement.

#### **ARTICLE 10—SUBSTITUTE AND "OR EQUAL" ITEMS**

- 10.01 The Contract for the Work, as awarded, will be on the basis of materials and equipment specified or described in the Bidding Documents without consideration during the bidding and Contract award process of possible substitute or "or-equal" items. In cases in which the Contract allows the Contractor to request that Engineer authorize the use of a substitute or "or-equal" item of material or equipment, application for such acceptance may not be made to and will not be considered by Engineer until after the Effective Date of the Contract.
- 10.02 All prices that Bidder sets forth in its Bid will be based on the presumption that the Contractor will furnish the materials and equipment specified or described in the Bidding Documents, as supplemented by Addenda. Any assumptions regarding the possibility of post-Bid approvals of "or-equal" or substitution requests are made at Bidder's sole risk.

#### **ARTICLE 11—SUBCONTRACTORS, SUPPLIERS, AND OTHERS**

- 11.01 A Bidder must be prepared to retain specific Subcontractors and Suppliers for the performance of the Work if required to do so by the Bidding Documents or in the Specifications. If a prospective Bidder objects to retaining any such Subcontractor or Supplier and the concern is not relieved by an Addendum, then the prospective Bidder should refrain from submitting a Bid.
- 11.02 The apparent Successful Bidder, and any other Bidder so requested, must submit to Owner a list of the Subcontractors or Suppliers proposed for the following portions of the Work within five days after Bid opening:
- A. Crane Subcontractor
  - B. Precast Concrete Supplier

C. Concrete Subcontractor

- 11.03 If requested by Owner, such list must be accompanied by an experience statement with pertinent information regarding similar projects and other evidence of qualification for each such Subcontractor or Supplier. If Owner or Engineer, after due investigation, has reasonable objection to any proposed Subcontractor or Supplier, Owner may, before the Notice of Award is given, request apparent Successful Bidder to submit an acceptable substitute, in which case apparent Successful Bidder will submit a substitute, Bidder's Bid price will be increased (or decreased) by the difference in cost occasioned by such substitution, and Owner may consider such price adjustment in evaluating Bids and making the Contract award.
- 11.04 If apparent Successful Bidder declines to make any such substitution, Owner may award the Contract to the next lowest Bidder that proposes to use acceptable Subcontractors and Suppliers. Declining to make requested substitutions will constitute grounds for forfeiture of the Bid security of any Bidder. Any Subcontractor or Supplier, so listed and against which Owner or Engineer makes no written objection prior to the giving of the Notice of Award will be deemed acceptable to Owner and Engineer subject to subsequent revocation of such acceptance as provided in Paragraph 7.07 of the General Conditions.

**ARTICLE 12—PREPARATION OF BID**

- 12.01 The Bid Form is included with the Bidding Documents.
- A. All blanks on the Bid Form must be completed in ink or typewritten, in words and figures, and in figures only where no space is provided for words, and the Bid Form signed in ink by the Bidder. Erasures or alterations must be initialed in ink by the person signing the Bid Form. A Bid price must be indicated for each section, Bid item, alternate, adjustment unit price item, and unit price item listed therein.
- 12.02 If Bidder has obtained the Bidding Documents as Electronic Documents, then Bidder shall prepare its Bid on a paper copy of the Bid Form printed from the Electronic Documents version of the Bidding Documents. The printed copy of the Bid Form must be clearly legible, printed on 8½ inch by 11-inch paper and as closely identical in appearance to the Electronic Document version of the Bid Form as may be practical. The Owner reserves the right to accept Bid Forms which nominally vary in appearance from the original paper version of the Bid Form, providing that all required information and submittals are included with the Bid.
- 12.03 A Bid by a corporation must be executed in the corporate name by a corporate officer (whose title must appear under the signature), accompanied by evidence of authority to sign. The corporate address and state of incorporation must be shown.
- 12.04 A Bid by a partnership must be executed in the partnership name and signed by a partner (whose title must appear under the signature), accompanied by evidence of authority to sign. The official address of the partnership must be shown.
- 12.05 A Bid by a limited liability company must be executed in the name of the firm by a member or other authorized person and accompanied by evidence of authority to sign. The state of formation of the firm and the official address of the firm must be shown.
- 12.06 A Bid by an individual must show the Bidder's name and official address.

- 12.07 A Bid by a joint venture must be executed by an authorized representative of each joint venturer in the manner indicated on the Bid Form. The joint venture must have been formally established prior to submittal of a Bid, and the official address of the joint venture must be shown.
- 12.08 All names must be printed in ink below the signatures.
- 12.09 The Bid must contain an acknowledgment of receipt of all Addenda, the numbers of which must be filled in on the Bid Form.
- 12.10 Postal and e-mail addresses and telephone number for communications regarding the Bid must be shown.
- 12.11 The Bid must contain evidence of Bidder's authority to do business in the state where the Project is located, or Bidder must certify in writing that it will obtain such authority within the time for acceptance of Bids and attach such certification to the Bid.
- 12.12 If Bidder is required to be licensed to submit a Bid or perform the Work in the state where the Project is located, the Bid must contain evidence of Bidder's licensure, or Bidder must certify in writing that it will obtain such licensure within the time for acceptance of Bids and attach such certification to the Bid. Bidder's state contractor license number, if any, must also be shown on the Bid Form.

#### **ARTICLE 13—BASIS OF BID**

##### **13.01 *Lump Sum***

- A. Bidders must submit a Bid on a lump sum basis as set forth in the Bid Form.

##### **13.02 *Unit Price***

- A. Bidders must submit a Bid on a unit price basis for each item of Work listed in the unit price section of the Bid Form.
- B. The "Bid Price" (sometimes referred to as the extended price) for each unit price Bid item will be the product of the "Estimated Quantity", which Owner or its representative has set forth in the Bid Form, for the item and the corresponding "Bid Unit Price" offered by the Bidder. The total of all unit price Bid items will be the sum of these "Bid Prices"; such total will be used by Owner for Bid comparison purposes. The final quantities and Contract Price will be determined in accordance with Paragraph 13.03 of the General Conditions.
- C. Discrepancies between the multiplication of units of Work and unit prices will be resolved in favor of the unit prices. Discrepancies between the indicated sum of any column of figures and the correct sum thereof will be resolved in favor of the correct sum.

##### **13.03 *Allowances***

- A. For cash allowances the Bid price must include such amounts as the Bidder deems proper for Contractor's overhead, costs, profit, and other expenses on account of cash allowances, if any, named in the Contract Documents, in accordance with Paragraph 13.02.B of the General Conditions.

#### **ARTICLE 14—SUBMITTAL OF BID**

- 14.01 The Bidding Documents shall include one separate unbound copy of the Bid Form, and, if required, the Bid Bond Form. The unbound copy of the Bid Form is to be completed and submitted with the



Bid security and the other documents required to be submitted under the terms of Article 2 of the Bid Form in a sealed envelope with the following plainly marked on the outside:

Godfrey Brook Capacity Improvement Project – West Street to Water Street  
Milford, MA

- 14.02 A Bid must be received no later than the date and time prescribed and at the place indicated in the Advertisement or invitation to bid and must be enclosed and sealed in a plainly marked package with the Project title, and, if applicable, the designated portion of the Project for which the Bid is submitted, the name and address of Bidder, and must be accompanied by the Bid security and other required documents. If a Bid is sent by mail or other delivery system, the sealed envelope containing the Bid must be enclosed in a separate package plainly marked on the outside with the notation "BID ENCLOSED." A mailed Bid must be addressed as follows:

FROM: (Bidder's Name and Business Name)

TO: Town Administrator; Milford Town Hall  
52 Main Street; Milford, Massachusetts 01757-2679

RE: Godfrey Brook Capacity Improvement Project – West Street to Water Street

- 14.03 Bids received after the date and time prescribed for the opening of bids, or not submitted at the correct location or in the designated manner, will not be accepted and will be returned to the Bidder unopened. The clock in the Town Administrator's Office shall be used to determine the deadline for acceptance of bids. The time of receipt of receive will determine the acceptability of mailed bids, regardless of postmark.
- 14.04 Owner will not be responsible for premature opening of bid envelopes not properly addressed and marked.

#### **ARTICLE 15—MODIFICATION AND WITHDRAWAL OF BID**

- 15.01 An unopened Bid may be withdrawn by an appropriate document duly executed in the same manner that a Bid must be executed and delivered to the place where Bids are to be submitted prior to the date and time for the opening of Bids. Upon receipt of such notice, the unopened Bid will be returned to the Bidder.
- 15.02 If a Bidder wishes to modify its Bid prior to Bid opening, Bidder must withdraw its initial Bid in the manner specified in Paragraph 15.01 and submit a new Bid prior to the date and time for the opening of Bids.
- 15.03 No bid may be withdrawn for a period of **ninety (90) days**, after opening of General Bids. No telephone or telegraphic bid, change in bid or withdrawal of bid will be received or recognized.

#### **ARTICLE 16—OPENING OF BIDS**

- 16.01 Bids will be opened at the time and place indicated in the advertisement or invitation to bid and, unless obviously non-responsive, read aloud publicly. An abstract of the amounts of the base Bids and major alternates, if any, will be made available to Bidders after the opening of Bids.

## **ARTICLE 17—BIDS TO REMAIN SUBJECT TO ACCEPTANCE**

17.01 All Bids will remain subject to acceptance for the period of time stated in the Bid Form, but Owner may, in its sole discretion, release any Bid and return the Bid security prior to the end of this period.

## **ARTICLE 18—EVALUATION OF BIDS AND AWARD OF CONTRACT**

18.01 Owner reserves the right to reject any or all Bids, including without limitation, nonconforming, nonresponsive, unbalanced, or conditional Bids. Owner also reserves the right to waive all minor Bid informalities not involving price, time, or changes in the Work.

18.02 Owner will reject the Bid of any Bidder that the Owner finds, after reasonable inquiry and evaluation, to not be responsible.

18.03 If Bidder purports to add terms or conditions to its Bid, takes exception to any provision of the Bidding Documents, or attempts to alter the contents of the Contract Documents for purposes of the Bid, whether in the Bid itself or in a separate communication to Owner or Engineer, then the Owner will reject the Bid as nonresponsive.

18.04 If the Owner awards the contract for the Work, such award will be to the responsible Bidder submitting the lowest responsive Bid.

18.05 *Evaluation of Bids*

A. In evaluating Bids, the Owner will consider whether the Bids comply with the prescribed requirements, and such unit prices, and other data, as may be requested in the Bid Form or prior to the Notice of Award.

B. For the determination of the apparent low Bidder when unit price bids are submitted, Bids will be compared on the basis of the total of the products of the estimated quantity of each item and unit price Bid for that item, together with any lump sum items and allowances.

18.06 In evaluating whether a Bidder is responsible, the Owner will consider the qualifications of the Bidder and may consider the qualifications and experience of Subcontractors and Suppliers proposed for those portions of the Work for which the identity of Subcontractors and Suppliers must be submitted as provided in the Bidding Documents.

18.07 Owner may conduct such investigations as the Owner deems necessary to establish the responsibility, qualifications, and financial ability of Bidders and any proposed Subcontractors or Suppliers.

## **ARTICLE 19—BONDS AND INSURANCE**

19.01 Article 6 of the General Conditions, as may be modified by the Supplementary Conditions, sets forth Owner's requirements as to performance and payment bonds, other required bonds (if any), and insurance. When the Successful Bidder delivers the executed Agreement to Owner, it must

be accompanied by required bonds and insurance documentation. Performance bond and a payment bond, shall be furnished, each in an amount at least equal to the Contract Price.

- 19.02 Article 8, Bid Security, of these Instructions, addresses any requirements for providing bid bonds as part of the bidding process. Bid security in an amount of **five (5)** percent of Bidder's maximum Bid price (determined by adding the base bid and all alternates).

#### **ARTICLE 20—SIGNING OF AGREEMENT**

- 20.01 When Owner issues a Notice of Award to the Successful Bidder, it will be accompanied by the unexecuted counterparts of the Agreement along with the other Contract Documents as identified in the Agreement. Within five (5) working days thereafter, Successful Bidder must execute and deliver the required number of counterparts of the Agreement and any bonds and insurance documentation required to be delivered by the Contract Documents to Owner. Within 10 days thereafter, Owner will deliver one fully executed counterpart of the Agreement to Successful Bidder, together with printed and electronic copies of the Contract Documents as stated in Paragraph 2.02 of the General Conditions.

#### **ARTICLE 21—SALES AND USE TAXES**

- 21.01 A Section 6(f) of Chapter 64H of the Massachusetts General Laws exempts from Massachusetts sales tax building materials and supplies to be used in the Project, and bidders shall not include in their bids any amount therefor. The words "building materials and supplies" shall include all materials and supplies consumed, employed or expended in the construction, reconstruction, alteration, remodeling or repair of any building, structure, public highway, bridge, or other such public work, as well as such materials and supplies physically incorporated therein. Said words shall also include rental charges for construction vehicles, equipment and machinery rented specifically for use on the Project site, or while being used exclusively for the transportation of materials for the Project. The number of the certificate granted by the Commissioner of Revenue for use in obtaining the exemption will be furnished to the Contractor upon request. The Contractor will not be paid for any sales taxes paid by the Contractor for which such exemption is or would have been applicable. The Contractor shall pay all sales, consumer, use and other similar taxes assessed upon the Work or portions thereof provided by the Contractor, or otherwise attributable to the Project, which are legally enacted at the time bids are received, whether or not yet effective, to which such exemption is not applicable.



# BID FORM FOR CONSTRUCTION CONTRACT

The terms used in this Bid with initial capital letters have the meanings stated in the Instructions to Bidders, the General Conditions, and the Supplementary Conditions.

## ARTICLE 1—OWNER AND BIDDER

- 1.01 This Bid is submitted to: **Town of Milford Board of Selectmen; Milford Town Hall; 52 Main Street; Milford, Massachusetts 01757-2679**
- 1.02 The undersigned Bidder proposes and agrees, if this Bid is accepted, to enter into an Agreement with Owner in the form included in the Bidding Documents to perform all Work as specified or indicated in the Bidding Documents for the prices and within the times indicated in this Bid and in accordance with the other terms and conditions of the Bidding Documents.

## ARTICLE 2—ATTACHMENTS TO THIS BID

- 2.01 The following documents are submitted with and made a condition of this Bid:
- A. Required Bid security;
  - B. List of Proposed Subcontractors;
  - C. List of Proposed Suppliers;
  - D. Evidence of authority to do business in the state of the Project; or a written covenant to obtain such authority within the time for acceptance of Bids;
  - E. Contractor’s license number as evidence of Bidder’s State Contractor’s License or a covenant by Bidder to obtain said license within the time for acceptance of Bids;
  - F. Required Bidder Qualification Statement with supporting data; and

## ARTICLE 3—BASIS OF BID—LUMP SUM BID AND UNIT PRICES

- 3.01 *Lump Sum Bids*
- A. Bidder will complete the Work in accordance with the Contract Documents for the following lump sum (stipulated) price(s), together with any Unit Prices indicated in Paragraph 3.02:
    - 1. Lump Sum Price (Single Lump Sum)

01500-1 Temporary Facility & Control	\$
01500-2 Temporary Project Signage	\$
01560-1 Temporary Sediment & Erosion Control	\$
01565-1 Temporary Water Control	\$
02020-1 Mobilization	\$
02100-1 Site Preparation & Demolition	\$
02800-2 Trash Rack Improvements	\$
02970-1 Site Restoration	\$
<b>Total for all Lump Sum</b>	<b>\$</b>

3.02 Unit Price Bids

A. Bidder will perform the following Work at the indicated unit prices:

Item No.	Description	Unit	Estimated Quantity	Bid Unit Price	Bid Amount
02200-1	Earth Excavation	CY	610		\$
02200-2	Rock Excavation	CY	10		\$
02200-3	Ordinary Borrow	CY	100		\$
02200-4	Gravel Borrow	CY	760		\$
02200-5	Processed Gravel Borrow	CY	90		\$
02200-6	Crushed Stone	TON	280		\$
02200-7	Topsoil Borrow	CY	20		\$
02200-8	Riprap	TON	5		\$
02200-9	Streambed Borrow	TON	110		\$
02200-10	Geotextile Fabric	SY	650		\$
02230-1	Handling, Loading, Transporting and Disposal of Type A – MCP Regulated Soil – Re-Use at Unlined Landfill	TON	1		\$
02230-2	Handling, Loading, Transportation and Disposal of Type B – MCP Regulated Soil – Re-Use at Lined Landfill	TON	1		\$
02230-3	Handling, Loading, Transportation and Disposal of Type C – MCP Regulated Soil – In-State Recycling	TON	1		\$
02230-4	Handling, Loading, Transportation and Disposal of Type D – MCP Regulated Soil – Out of State Recycling/Disposal	TON	1		\$
02230-5	Handling, Loading, Transportation and Disposal of Special Waste-Bulk	TON	1		\$
02230-6	Handling, Loading, Transportation and Disposal of Special Waste-Pipe	LF	10		\$
02500-1	Bituminous Concrete Paving	TON	150		\$
02500-2	Concrete Sidewalks	SY	10		\$
02720-1	12-Inch Reinforced Concrete Drainpipe	LF	60		\$
02720-2	4-Inch Polyvinyl Chloride Drainage Pipe	LF	40		\$
02720-3	Precast Deep Sump Catch Basin	EA	4		\$
02720-4	Precast Area Drain	EA	4		\$
02720-5	12-Inch Flanged Inline Check Valve	EA	4		\$
02720-6	9'W x 5'H Precast Box Culvert	LF	40		\$

02720-7	Precast U-Shaped Channel (6' Wide)	LF	451		\$
02720-8	Precast U-Shaped Channel (Width Varies)	LF	81		\$
02720-9	Membrane Waterproofing	SF	12,850		\$
02800-1	Vehicle Access Bar Gate	EA	1		\$
02910-1	Chain Link Fence	LF	520		\$
02910-2	Guardrail, Steel W-Beam	LF	270		\$
02970-2	Seeding	SY	1,300		\$
03300-1	Cast-in-Place Concrete	CY	110		\$
Total of All Unit Price Bid Items					\$

B. Bidder acknowledges that:

1. each Bid Unit Price includes an amount considered by Bidder to be adequate to cover Contractor's overhead and profit for each separately identified item, and
2. estimated quantities are not guaranteed, and are solely for the purpose of comparison of Bids, and final payment for all Unit Price Work will be based on actual quantities, determined as provided in the Contract Documents.

3.03 *Total Bid Price (Lump Sum and Unit Prices)*

Total Bid Price (Total of all Lump Sum and Unit Price Bids)	\$
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**ARTICLE 4—TIME OF COMPLETION**

- 4.01 Bidder agrees that the Work will be substantially complete and will be completed and ready for final payment in accordance with Paragraph 15.06 of the General Conditions on or before the dates or within the number of calendar days indicated in the Agreement.
- 4.02 Bidder accepts the provisions of the Agreement as to liquidated damages.

**ARTICLE 5—BIDDER'S ACKNOWLEDGEMENTS: ACCEPTANCE PERIOD, INSTRUCTIONS, AND RECEIPT OF ADDENDA**

5.01 *Bid Acceptance Period*

- A. This Bid will remain subject to acceptance for 60 days after the Bid opening, or for such longer period of time that Bidder may agree to in writing upon request of Owner.

5.02 *Instructions to Bidders*

- A. Bidder accepts all of the terms and conditions of the Instructions to Bidders, including without limitation those dealing with the disposition of Bid security.

5.03 *Receipt of Addenda*

A. Bidder hereby acknowledges receipt of the following Addenda

Addendum Number	Addendum Date

**ARTICLE 6—BIDDER’S REPRESENTATIONS AND CERTIFICATIONS**

6.01 *Bidder’s Representations*

A. In submitting this Bid, Bidder represents the following:

1. Bidder has examined and carefully studied the Bidding Documents, including Addenda.
2. Bidder has visited the Site, conducted a thorough visual examination of the Site and adjacent areas, and become familiar with the general, local, and Site conditions that may affect cost, progress, and performance of the Work.
3. Bidder is familiar with all Laws and Regulations that may affect cost, progress, and performance of the Work.
4. Bidder has carefully studied the reports of explorations and tests of subsurface conditions at or adjacent to the Site and the drawings of physical conditions relating to existing surface or subsurface structures at the Site that have been identified in the Supplementary Conditions, with respect to the Technical Data in such reports and drawings.
5. Bidder has carefully studied the reports and drawings relating to Hazardous Environmental Conditions, if any, at or adjacent to the Site that have been identified in the Supplementary Conditions, with respect to Technical Data in such reports and drawings.
6. Bidder has considered the information known to Bidder itself; information commonly known to contractors doing business in the locality of the Site; information and observations obtained from visits to the Site; the Bidding Documents; and the Technical Data identified in the Supplementary Conditions or by definition, with respect to the effect of such information, observations, and Technical Data on (a) the cost, progress, and performance of the Work; (b) the means, methods, techniques, sequences, and procedures of construction to be employed by Bidder, if selected as Contractor; and (c) Bidder’s (Contractor’s) safety precautions and programs.
7. Based on the information and observations referred to in the preceding paragraph, Bidder agrees that no further examinations, investigations, explorations, tests, studies, or data are necessary for the performance of the Work at the Contract Price, within the Contract Times, and in accordance with the other terms and conditions of the Contract.
8. Bidder is aware of the general nature of work to be performed by Owner and others at the Site that relates to the Work as indicated in the Bidding Documents.
9. Bidder has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder has discovered in the Bidding Documents, and of discrepancies

between Site conditions and the Contract Documents, and the written resolution thereof by Engineer is acceptable to Contractor.

10. The Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.
11. The submission of this Bid constitutes an incontrovertible representation by Bidder that without exception the Bid and all prices in the Bid are premised upon performing and furnishing the Work required by the Bidding Documents.

#### 6.02 *Bidder's Certifications*

A. The Bidder certifies the following:

1. This Bid is genuine and not made in the interest of or on behalf of any undisclosed individual or entity and is not submitted in conformity with any collusive agreement or rules of any group, association, organization, or corporation.
2. Bidder has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid.
3. Bidder has not solicited or induced any individual or entity to refrain from bidding.
4. Bidder has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for the Contract. For the purposes of this Paragraph 8.02.A:
  - a. Corrupt practice means the offering, giving, receiving, or soliciting of anything of value likely to influence the action of a public official in the bidding process.
  - b. Fraudulent practice means an intentional misrepresentation of facts made (a) to influence the bidding process to the detriment of Owner, (b) to establish bid prices at artificial non-competitive levels, or (c) to deprive Owner of the benefits of free and open competition.
  - c. Collusive practice means a scheme or arrangement between two or more Bidders, with or without the knowledge of Owner, a purpose of which is to establish bid prices at artificial, non-competitive levels.
  - d. Coercive practice means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the bidding process or affect the execution of the Contract.



BIDDER hereby submits this Bid as set forth above:

Bidder:

\_\_\_\_\_  
*(typed or printed name of organization)*

By: \_\_\_\_\_  
*(individual's signature)*

Name: \_\_\_\_\_  
*(typed or printed)*

Title: \_\_\_\_\_  
*(typed or printed)*

Date: \_\_\_\_\_  
*(typed or printed)*

*If Bidder is a corporation, a partnership, or a joint venture, attach evidence of authority to sign.*

Attest: \_\_\_\_\_  
*(individual's signature)*

Name: \_\_\_\_\_  
*(typed or printed)*

Title: \_\_\_\_\_  
*(typed or printed)*

Date: \_\_\_\_\_  
*(typed or printed)*

Address for giving notices:

\_\_\_\_\_  
\_\_\_\_\_

Bidder's Contact:

Name: \_\_\_\_\_  
*(typed or printed)*

Title: \_\_\_\_\_  
*(typed or printed)*

Phone: \_\_\_\_\_

Email: \_\_\_\_\_

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

Bidder's Contractor License No.: (if applicable) \_\_\_\_\_

## BID BOND (PENAL SUM FORM)

<b>Bidder</b> Name: Address <i>(principal place of business)</i> :	<b>Surety</b> Name: Address <i>(principal place of business)</i> :
<b>Owner</b> Name: <b>Town of Milford</b> Address <i>(principal place of business)</i> : <b>52 Main Street; Milford, Massachusetts 01757-2679</b>	<b>Bid</b> Project <i>(name and location)</i> : <b>Godfrey Brook Capacity Improvement Project – West Street to Water Street</b>  Bid Due Date: <b>April 24, 2025</b>
<b>Bond</b> Penal Sum: Date of Bond:	
Surety and Bidder, intending to be legally bound hereby, subject to the terms set forth in this Bid Bond, do each cause this Bid Bond to be duly executed by an authorized officer, agent, or representative.	
Bidder	Surety
_____ <i>(Full formal name of Bidder)</i>	_____ <i>(Full formal name of Surety) (corporate seal)</i>
By: _____ <i>(Signature)</i>	By: _____ <i>(Signature) (Attach Power of Attorney)</i>
Name: _____ <i>(Printed or typed)</i>	Name: _____ <i>(Printed or typed)</i>
Title: _____	Title: _____
Attest: _____ <i>(Signature)</i>	Attest: _____ <i>(Signature)</i>
Name: _____ <i>(Printed or typed)</i>	Name: _____ <i>(Printed or typed)</i>
Title: _____	Title: _____
<i>Notes: (1) Note: Addresses are to be used for giving any required notice. (2) Provide execution by any additional parties, such as joint venturers, if necessary.</i>	

1. Bidder and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to pay to Owner upon default of Bidder the penal sum set forth on the face of this Bond. Payment of the penal sum is the extent of Bidder's and Surety's liability. Recovery of such penal sum under the terms of this Bond will be Owner's sole and exclusive remedy upon default of Bidder.
2. Default of Bidder occurs upon the failure of Bidder to deliver within the time required by the Bidding Documents (or any extension thereof agreed to in writing by Owner) the executed Agreement required by the Bidding Documents and any performance and payment bonds required by the Bidding Documents.
3. This obligation will be null and void if:
  - 3.1. Owner accepts Bidder's Bid and Bidder delivers within the time required by the Bidding Documents (or any extension thereof agreed to in writing by Owner) the executed Agreement required by the Bidding Documents and any performance and payment bonds required by the Bidding Documents, or
  - 3.2. All Bids are rejected by Owner, or
  - 3.3. Owner fails to issue a Notice of Award to Bidder within the time specified in the Bidding Documents (or any extension thereof agreed to in writing by Bidder and, if applicable, consented to by Surety when required by Paragraph 5 hereof).
4. Payment under this Bond will be due and payable upon default of Bidder and within 30 calendar days after receipt by Bidder and Surety of written notice of default from Owner, which notice will be given with reasonable promptness, identifying this Bond and the Project and including a statement of the amount due.
5. Surety waives notice of any and all defenses based on or arising out of any time extension to issue Notice of Award agreed to in writing by Owner and Bidder, provided that the total time for issuing Notice of Award including extensions does not in the aggregate exceed 120 days from the Bid due date without Surety's written consent.
6. No suit or action will be commenced under this Bond prior to 30 calendar days after the notice of default required in Paragraph 4 above is received by Bidder and Surety, and in no case later than one year after the Bid due date.
7. Any suit or action under this Bond will be commenced only in a court of competent jurisdiction located in the state in which the Project is located.
8. Notices required hereunder must be in writing and sent to Bidder and Surety at their respective addresses shown on the face of this Bond. Such notices may be sent by personal delivery, commercial courier, or by United States Postal Service registered or certified mail, return receipt requested, postage pre-paid, and will be deemed to be effective upon receipt by the party concerned.
9. Surety shall cause to be attached to this Bond a current and effective Power of Attorney evidencing the authority of the officer, agent, or representative who executed this Bond on behalf of Surety to execute, seal, and deliver such Bond and bind the Surety thereby.
10. This Bond is intended to conform to all applicable statutory requirements. Any applicable requirement of any applicable statute that has been omitted from this Bond will be deemed to be included herein as if set forth at length. If any provision of this Bond conflicts with any applicable statute, then the provision of said statute governs and the remainder of this Bond that is not in conflict therewith continues in full force and effect.
11. The term "Bid" as used herein includes a Bid, offer, or proposal as applicable.

## BID BOND (DAMAGES FORM)

<b>Bidder</b> Name: Address <i>(principal place of business)</i> :	<b>Surety</b> Name: Address <i>(principal place of business)</i> :
<b>Owner</b> Name: <b>Town of Milford</b> Address <i>(principal place of business)</i> : <b>52 Main Street; Milford, Massachusetts 01757-2679</b>	<b>Bid</b> Project <i>(name and location)</i> : <b>Godfrey Brook Capacity Improvements – West Street to Water Street</b>  Bid Due Date: <b>April 24, 2025</b>
<b>Bond</b> Bond Amount: Date of Bond:	
Surety and Bidder, intending to be legally bound hereby, subject to the terms set forth in this Bid Bond, do each cause this Bid Bond to be duly executed by an authorized officer, agent, or representative.	
Bidder	Surety
<i>(Full formal name of Bidder)</i>	<i>(Full formal name of Surety) (corporate seal)</i>
By: _____ <i>(Signature)</i>	By: _____ <i>(Signature) (Attach Power of Attorney)</i>
Name: _____ <i>(Printed or typed)</i>	Name: _____ <i>(Printed or typed)</i>
Title: _____	Title: _____
Attest: _____ <i>(Signature)</i>	Attest: _____ <i>(Signature)</i>
Name: _____ <i>(Printed or typed)</i>	Name: _____ <i>(Printed or typed)</i>
Title: _____	Title: _____
Notes: (1) Note: Addresses are to be used for giving any required notice. (2) Provide execution by any additional parties, such as joint venturers, if necessary.	

1. Bidder and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to pay to Owner upon default of Bidder any difference between the total amount of Bidder's Bid and the total amount of the Bid of the next lowest, responsible Bidder that submitted a responsive Bid, as determined by Owner, for the work required by the Contract Documents, provided that:
  - 1.1. If there is no such next Bidder, and Owner does not abandon the Project, then Bidder and Surety shall pay to Owner the bond amount set forth on the face of this Bond, and
  - 1.2. In no event will Bidder's and Surety's obligation hereunder exceed the bond amount set forth on the face of this Bond.
  - 1.3. Recovery under the terms of this Bond will be Owner's sole and exclusive remedy upon default of Bidder.
2. Default of Bidder occurs upon the failure of Bidder to deliver within the time required by the Bidding Documents (or any extension thereof agreed to in writing by Owner) the executed Agreement required by the Bidding Documents and any performance and payment bonds required by the Bidding Documents.
3. This obligation will be null and void if:
  - 3.1. Owner accepts Bidder's Bid and Bidder delivers within the time required by the Bidding Documents (or any extension thereof agreed to in writing by Owner) the executed Agreement required by the Bidding Documents and any performance and payment bonds required by the Bidding Documents, or
  - 3.2. All Bids are rejected by Owner, or
  - 3.3. Owner fails to issue a Notice of Award to Bidder within the time specified in the Bidding Documents (or any extension thereof agreed to in writing by Bidder and, if applicable, consented to by Surety when required by Paragraph 5 hereof).
4. Payment under this Bond will be due and payable upon default of Bidder and within 30 calendar days after receipt by Bidder and Surety of written notice of default from Owner, which notice will be given with reasonable promptness, identifying this Bond and the Project and including a statement of the amount due.
5. Surety waives notice of any and all defenses based on or arising out of any time extension to issue Notice of Award agreed to in writing by Owner and Bidder, provided that the total time for issuing Notice of Award including extensions will not in the aggregate exceed 120 days from Bid due date without Surety's written consent.
6. No suit or action will be commenced under this Bond prior to 30 calendar days after the notice of default required in Paragraph 4 above is received by Bidder and Surety, and in no case later than one year after the Bid due date.
7. Any suit or action under this Bond must be commenced only in a court of competent jurisdiction located in the state in which the Project is located.
8. Notices required hereunder must be in writing and sent to Bidder and Surety at their respective addresses shown on the face of this Bond. Such notices may be sent by personal delivery, commercial courier, or by United States Postal Service registered or certified mail, return receipt requested, postage pre-paid, and will be deemed to be effective upon receipt by the party concerned.
9. Surety shall cause to be attached to this Bond a current and effective Power of Attorney evidencing the authority of the officer, agent, or representative who executed this Bond on behalf of Surety to execute, seal, and deliver such Bond and bind the Surety thereby.
10. This Bond is intended to conform to all applicable statutory requirements. Any applicable requirement of any applicable statute that has been omitted from this Bond will be deemed to be included herein as if set forth at length. If any provision of this Bond conflicts with any applicable statute, then the provision of said statute governs and the remainder of this Bond that is not in conflict therewith continues in full force and effect.
11. The term "Bid" as used herein includes a Bid, offer, or proposal as applicable.

## ARTICLE 1—GENERAL INFORMATION

### 1.01 General Requirements

- A. Bidders must complete and submit this Bidder Qualification Form as part of the bidding package. The information entered on the form must demonstrate the Contractor's recent experience with work of a similar nature and scope to the work of this Contract. Additionally, the information entered on the form must demonstrate the Contractor's and/or their subcontractor's recent experience with work of a similar nature and scope to the "specialty" work items of this Contract which are hereby defined as the following:
1. Control of Water
  2. Concrete Repair
- Bidders must show adequate minimum qualifications, as defined below, with respect to the general and specialty work to be considered as "qualified".
- B. The Bidder (Contractor) and/or the subcontractor(s)/supplier(s) providing and/or performing the work tasks outlined above must be identified in the bid. A statement of qualifications must be submitted for each of the above entities with the bid.
- C. Bidders and subcontractors outlined above shall provide at least two (2) references for which they have completed similar projects, all of which may be subject to verification by the Town's Consultant in order to help evaluate the ability of the Bidder to perform the work. All bidders shall be required to demonstrate to the satisfaction of the Owner that they have adequate financial resources, experienced personnel, and expertise to perform the work of this Contract and shall furnish such information and/or proof of these qualifications upon request.
- D. No contract will be awarded to any bidder who, as determined by the Town, is not qualified to perform satisfactory service due to an unsatisfactory record of inadequate experience or who lacks the necessary capital, organization and equipment to conduct and complete the work in strict accordance with the Contract Documents.
- E. Minimum Desired General Contractor and/or Specialty Subcontractor Qualifications.
1. The firm proposing to serve as General Contractor should have a minimum of five (5) years of recent and continuous demonstrable experience as a General Contractor in construction work similar to that proposed under the Scope of Work of this Contract.
  2. The Contractor shall submit a list of all proposed sub-contractors to be involved in the conduct of any of the specialty work items listed herein above. A summary description of the Contractor's (if undertaking the work himself) or each proposed sub-contractor's qualifications for the respective specialty work items shall also be included under this item. Note the Contractor awarded the work shall submit additional and full task specific submittal packages as required in the individual specification sections prior to initiating any work at the site.
  3. The Bidder's overall project site manager should have a minimum of five (5) years experience in a supervisory capacity with similar projects.

4. The site superintendent for each of the specialty Subcontractors tasked to perform specialty work items as defined above should also have a minimum of five (5) years of experience in a supervisory capacity with similar projects concerning their respective specialty.
  5. The firm proposing to serve as General Contractor must list and describe below a minimum of two (2) projects completed by them (or their Subcontractors in the case of specialty work items) within the last ten (10) years which involve elements similar to that proposed under the Scope of Work of this Contract. Project experience should demonstrate experience with the following types of construction activities:
    - a. Ability to execute associated water control work associated with the work of the Contract.
- F. Additional Desired General Contractor and/or Specialty Subcontractor Qualifications. Qualifications will be judged by the Town on the basis of the bidder's ability to meet or exceed factors that include, but are not limited to, the following:
1. Past experience with successfully completing similar projects.
  2. Demonstration of the successful completion of multiple similar projects within the project budget will be considered advantageous.
  3. Demonstration of an understanding of the requirement for water control as part of the Work of the Project and presentation of a viable and well-reasoned plan for water control.
- G. The City may make such investigations as it deems necessary to determine the ability of any bidder to perform the work, and the bidder shall furnish to the Owner all such information and data for this purpose as it may request. The Owner reserves the right to reject any bid if the evidence submitted by, or investigation of, such bidder fails to satisfy the Town that such bidder is properly qualified to carry out the obligations of the contract and to complete the work contemplated therein. Conditional bids will not be accepted.

1.02 Provide contact information for the Business:

Legal Name of Business:			
Corporate Office			
Name:		Phone number:	
Title:		Email address:	
Business address of corporate office:			
Local Office			
Name:		Phone number:	
Title:		Email address:	
Business address of local office:			

**ARTICLE 2—SURETY INFORMATION**

2.01 Provide information regarding the surety company that will issue required bonds on behalf of the Business, including but not limited to performance and payment bonds.

Surety Name:			
Surety is a corporation organized and existing under the laws of the state of:			
Is surety authorized to provide surety bonds in the Project location?	<input type="checkbox"/> Yes <input type="checkbox"/> No		
Is surety listed in “Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies” published in Department Circular 570 (as amended) by the Bureau of the Fiscal Service, U.S. Department of the Treasury? <input type="checkbox"/> Yes <input type="checkbox"/> No			
Mailing Address (principal place of business):			
Physical Address (principal place of business):			
Phone (main):		Phone (claims):	

**ARTICLE 3—INSURANCE**

3.01 Provide information regarding Business’s insurance company(s), including but not limited to its Commercial General Liability carrier. Provide information for each provider.

Name of insurance provider, and type of policy (CLE, auto, etc.):			
Insurance Provider		Type of Policy (Coverage Provided)	
Are providers licensed or authorized to issue policies in the Project location?			<input type="checkbox"/> Yes <input type="checkbox"/> No
Does provider have an A.M. Best Rating of A-VII or better?			<input type="checkbox"/> Yes <input type="checkbox"/> No
Mailing Address (principal place of business):			
Physical Address (principal place of business):			
Phone (main):		Phone (claims):	



**ARTICLE 4—CONSTRUCTION EXPERIENCE**

4.01 Provide information that will identify the overall size and capacity of the Business.

Average number of current full-time employees:	
Estimate of revenue for the current year:	
Estimate of revenue for the previous year:	

4.02 Provide information regarding the Business’s previous contracting experience.

Years of experience with projects like the proposed project:		
As a general contractor:		As a joint venturer:
Has Business, or a predecessor in interest, or an affiliate identified in Paragraph 1.03:		
Been disqualified as a bidder by any local, state, or federal agency within the last 5 years? <input type="checkbox"/> Yes <input type="checkbox"/> No		
Been barred from contracting by any local, state, or federal agency within the last 5 years? <input type="checkbox"/> Yes <input type="checkbox"/> No		
Been released from a bid in the past 5 years? <input type="checkbox"/> Yes <input type="checkbox"/> No		
Defaulted on a project or failed to complete any contract awarded to it? <input type="checkbox"/> Yes <input type="checkbox"/> No		
Refused to construct or refused to provide materials defined in the contract documents or in a change order? <input type="checkbox"/> Yes <input type="checkbox"/> No		
Been a party to any currently pending litigation or arbitration? <input type="checkbox"/> Yes <input type="checkbox"/> No		
Provide full details in a separate attachment if the response to any of these questions is Yes.		

4.03 List all projects currently under contract in Schedule A and provide indicated information.

4.04 List a minimum of three and a maximum of six projects completed in the last 5 years in Schedule B and provide indicated information to demonstrate the Business’s experience with projects similar in type and cost of construction.

4.05 In Schedule C, provide information on key individuals whom Business intends to assign to the Project. Provide resumes for those individuals included in Schedule C. Key individuals include the Project Manager, Project Superintendent, Quality Manager, and Safety Manager. Resumes may be provided for Business’s key leaders as well.

**ARTICLE 5—REQUIRED ATTACHMENTS**

5.01 Provide the following information with the Statement of Qualifications:

- A. Attachments providing additional information as required by Paragraph 4.02.
- B. Schedule A (Current Projects) as required by Paragraph 4.03.
- C. Schedule B (Previous Experience with Similar Projects) as required by Paragraph 4.04.
- D. Schedule C (Key Individuals) and resumes for the key individuals listed, as required by Paragraph 4.05.

E. Additional items as pertinent.

This Statement of Qualifications is offered by:

Business: \_\_\_\_\_  
*(typed or printed name of organization)*

By: \_\_\_\_\_  
*(individual's signature)*

Name: \_\_\_\_\_  
*(typed or printed)*

Title: \_\_\_\_\_  
*(typed or printed)*

Date: \_\_\_\_\_  
*(date signed)*

*(If Business is a corporation, a partnership, or a joint venture, attach evidence of authority to sign.)*

Attest: \_\_\_\_\_  
*(individual's signature)*

Name: \_\_\_\_\_  
*(typed or printed)*

Title: \_\_\_\_\_  
*(typed or printed)*

Address for giving notices:  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Designated Representative:

Name: \_\_\_\_\_  
*(typed or printed)*

Title: \_\_\_\_\_  
*(typed or printed)*

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

Phone: \_\_\_\_\_

Email: \_\_\_\_\_

**Schedule A—Current Projects**

Name of Organization					
Project Owner			Project Name		
General Description of Project					
Project Cost			Date Project		
Key Project Personnel	Project Manager	Project Superintendent	Safety Manager	Quality Control Manager	
Name					
Reference Contact Information (listing names indicates approval to contacting the names individuals as a reference)					
	Name	Title/Position	Organization	Telephone	Email
Owner					
Designer					
Construction Manager					

Project Owner			Project Name		
General Description of Project					
Project Cost			Date Project		
Key Project Personnel	Project Manager	Project Superintendent	Safety Manager	Quality Control Manager	
Name					
Reference Contact Information (listing names indicates approval to contacting the names individuals as a reference)					
	Name	Title/Position	Organization	Telephone	Email
Owner					
Designer					
Construction Manager					

Project Owner			Project Name		
General Description of Project					
Project Cost			Date Project		
Key Project Personnel	Project Manager	Project Superintendent	Safety Manager	Quality Control Manager	
Name					
Reference Contact Information (listing names indicates approval to contacting the names individuals as a reference)					
	Name	Title/Position	Organization	Telephone	Email
Owner					
Designer					
Construction Manager					

**Schedule B—Previous Experience with Similar Projects**

Name of Organization					
Project Owner			Project Name		
General Description of Project					
Project Cost			Date Project		
Key Project Personnel	Project Manager	Project Superintendent	Safety Manager	Quality Control Manager	
Name					
Reference Contact Information (listing names indicates approval to contacting the names individuals as a reference)					
	Name	Title/Position	Organization	Telephone	Email
Owner					
Designer					
Construction Manager					

Project Owner			Project Name		
General Description of Project					
Project Cost			Date Project		
Key Project Personnel	Project Manager	Project Superintendent	Safety Manager	Quality Control Manager	
Name					
Reference Contact Information (listing names indicates approval to contacting the names individuals as a reference)					
	Name	Title/Position	Organization	Telephone	Email
Owner					
Designer					
Construction Manager					

Project Owner			Project Name		
General Description of Project					
Project Cost			Date Project		
Key Project Personnel	Project Manager	Project Superintendent	Safety Manager	Quality Control Manager	
Name					
Reference Contact Information (listing names indicates approval to contacting the names individuals as a reference)					
	Name	Title/Position	Organization	Telephone	Email
Owner					
Designer					
Construction Manager					

**Schedule B—Previous Experience with Similar Projects**

Name of Organization					
Project Owner			Project Name		
General Description of Project					
Project Cost			Date Project		
Key Project Personnel	Project Manager	Project Superintendent	Safety Manager	Quality Control Manager	
Name					
Reference Contact Information (listing names indicates approval to contacting the names individuals as a reference)					
	Name	Title/Position	Organization	Telephone	Email
Owner					
Designer					
Construction Manager					

Project Owner			Project Name		
General Description of Project					
Project Cost			Date Project		
Key Project Personnel	Project Manager	Project Superintendent	Safety Manager	Quality Control Manager	
Name					
Reference Contact Information (listing names indicates approval to contacting the names individuals as a reference)					
	Name	Title/Position	Organization	Telephone	Email
Owner					
Designer					
Construction Manager					

Project Owner			Project Name		
General Description of Project					
Project Cost			Date Project		
Key Project Personnel	Project Manager	Project Superintendent	Safety Manager	Quality Control Manager	
Name					
Reference Contact Information (listing names indicates approval to contacting the names individuals as a reference)					
	Name	Title/Position	Organization	Telephone	Email
Owner					
Designer					
Construction Manager					

**Schedule C—Key Individuals**

<b>Project Manager</b>			
Name of individual			
Years of experience as project manager			
Years of experience with this organization			
Number of similar projects as project manager			
Number of similar projects in other positions			
Current Project Assignments			
Name of assignment		Percent of time used for this project	Estimated project completion date
Reference Contact Information (listing names indicates approval to contact named individuals as a reference)			
Name		Name	
Title/Position		Title/Position	
Organization		Organization	
Telephone		Telephone	
Email		Email	
Project		Project	
Candidate's role on project		Candidate's role on project	
<b>Project Superintendent</b>			
Name of individual			
Years of experience as project superintendent			
Years of experience with this organization			
Number of similar projects as project superintendent			
Number of similar projects in other positions			
Current Project Assignments			
Name of assignment		Percent of time used for this project	Estimated project completion date
Reference Contact Information (listing names indicates approval to contact named individuals as a reference)			
Name		Name	
Title/Position		Title/Position	
Organization		Organization	
Telephone		Telephone	
Email		Email	
Project		Project	
Candidate's role on project		Candidate's role on project	

<b>Safety Manager</b>			
Name of individual			
Years of experience as project manager			
Years of experience with this organization			
Number of similar projects as project manager			
Number of similar projects in other positions			
Current Project Assignments			
Name of assignment		Percent of time used for this project	Estimated project completion date
Reference Contact Information (listing names indicates approval to contact named individuals as a reference)			
Name		Name	
Title/Position		Title/Position	
Organization		Organization	
Telephone		Telephone	
Email		Email	
Project		Project	
Candidate's role on project		Candidate's role on project	
<b>Quality Control Manager</b>			
Name of individual			
Years of experience as project superintendent			
Years of experience with this organization			
Number of similar projects as project superintendent			
Number of similar projects in other positions			
Current Project Assignments			
Name of assignment		Percent of time used for this project	Estimated project completion date
Reference Contact Information (listing names indicates approval to contact named individuals as a reference)			
Name		Name	
Title/Position		Title/Position	
Organization		Organization	
Telephone		Telephone	
Email		Email	
Project		Project	
Candidate's role on project		Candidate's role on project	



## NOTICE OF AWARD

Date of Issuance:

Owner: Town of Milford

Owner's Project No.:

Engineer: GZA GeoEnvironmental, Inc.

Engineer's Project No.: 15.0167038.00

Project: Godfrey Brook Capacity Improvements – West Street to Water Street

Contract Name:

Bidder:

Bidder's Address:

You are notified that Owner has accepted your Bid dated **April 24, 2025** for the above Contract, and that you are the Successful Bidder and are awarded a Contract for:

**Furnishing all necessary labor, materials and equipment required to complete the Godfrey Brook Capacity Improvement Project, West Street to Water Street, including the construction of precast culverts, cast in place precast channels, drainage improvements, and associated site improvements and restoration.**

The Contract Price of the awarded Contract is \$ \_\_\_\_\_. Contract Price is subject to adjustment based on the provisions of the Contract, including but not limited to those governing changes, Unit Price Work, and Work performed on a cost-plus-fee basis, as applicable.

\_\_\_\_\_ unexecuted counterparts of the Agreement accompany this Notice of Award, and one copy of the Contract Documents accompanies this Notice of Award, or has been transmitted or made available to Bidder electronically.

Drawings will be delivered separately from the other Contract Documents.

You must comply with the following conditions precedent within 15 days of the date of receipt of this Notice of Award:

1. Deliver to Owner \_\_\_\_\_ counterparts of the Agreement, signed by Bidder (as Contractor).
2. Deliver with the signed Agreement(s) the Contract security (such as required performance and payment bonds) and insurance documentation, as specified in the Instructions to Bidders and in the General Conditions, Articles 2 and 6.
3. Other conditions precedent (if any):

Failure to comply with these conditions within the time specified will entitle Owner to consider you in default, annul this Notice of Award, and declare your Bid security forfeited.

Within 10 days after you comply with the above conditions, Owner will return to you one fully signed counterpart of the Agreement, together with any additional copies of the Contract Documents as indicated in Paragraph 2.02 of the General Conditions.

Owner: **Town of Milford**

By (*signature*): \_\_\_\_\_

Name (*printed*): \_\_\_\_\_

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

Copy: Engineer

# AGREEMENT BETWEEN OWNER AND CONTRACTOR FOR CONSTRUCTION CONTRACT (STIPULATED PRICE)

This Agreement is by and between **Town of Milford Board of Selectmen** (“Owner”) and \_\_\_\_\_ (“Contractor”).

Terms used in this Agreement have the meanings stated in the General Conditions and the Supplementary Conditions.

Owner and Contractor hereby agree as follows:

## ARTICLE 1—WORK

1.01 Contractor shall complete all Work as specified or indicated in the Contract Documents. The Work is generally described as follows: **Furnishing all necessary labor, materials and equipment to complete the Godfrey Brook Capacity Improvement Project, West Street to Water Street, including the construction of precast culvert, cast in place and precast channels, drainage improvements, and associated improvements and restoration.**

## ARTICLE 2—THE PROJECT

2.01 The Project, of which the Work under the Contract Documents is a part, is generally described as follows: **The Godfrey Brook Capacity Improvement Project entails the construction of a precast and cast in place channel replacement of the existing Godfrey Brook channel between West Street and Water Street, including the replacement of the existing stream crossing over Godfrey Brook, located on the property of 9 West Street, with a precast culvert. The project will also entail small drainage improvements to the surrounding area adjacent to the brook channel.**

## ARTICLE 3—ENGINEER

- 3.01 The Owner has retained **GZA GeoEnvironmental, Inc.** (“Engineer”) to act as Owner’s representative, assume all duties and responsibilities of Engineer, and have the rights and authority assigned to Engineer in the Contract.
- 3.02 The part of the Project that pertains to the Work has been designed by **GZA GeoEnvironmental, Inc.**

## ARTICLE 4—CONTRACT TIMES

### 4.01 *Time is of the Essence*

- A. All time limits for Milestones, if any, Substantial Completion, and completion and readiness for final payment as stated in the Contract Documents are of the essence of the Contract.

### 4.02 *Contract Times: Dates*

- A. The Work will be substantially complete on or before **November 28, 2025**, and completed and ready for final payment in accordance with Paragraph 15.06 of the General Conditions on or before **April 29, 2026**.

#### 4.05 *Liquidated Damages*

- A. Contractor and Owner recognize that time is of the essence as stated in Paragraph 4.01 above and that Owner will suffer financial and other losses if the Work is not completed and Milestones not achieved within the Contract Times, as duly modified. The parties also recognize the delays, expense, and difficulties involved in proving, in a legal or arbitration proceeding, the actual loss suffered by Owner if the Work is not completed on time. Accordingly, instead of requiring any such proof, Owner and Contractor agree that as liquidated damages for delay (but not as a penalty):
1. *Substantial Completion*: Contractor shall pay Owner **\$1,000** for each day that expires after the time (as duly adjusted pursuant to the Contract) specified above for Substantial Completion, until the Work is substantially complete.
  2. *Completion of Remaining Work*: After Substantial Completion, if Contractor shall neglect, refuse, or fail to complete the remaining Work within the Contract Times (as duly adjusted pursuant to the Contract) for completion and readiness for final payment, Contractor shall pay Owner **\$1,000** for each day that expires after such time until the Work is completed and ready for final payment.
  3. Liquidated damages for failing to timely attain Substantial Completion, and final completion are not additive, and will not be imposed concurrently.
- B. If Owner recovers liquidated damages for a delay in completion by Contractor, then such liquidated damages are Owner's sole and exclusive remedy for such delay, and Owner is precluded from recovering any other damages, whether actual, direct, excess, or consequential, for such delay, except for special damages (if any) specified in this Agreement.

#### 4.06 *Special Damages*

- A. Contractor shall reimburse Owner (1) for any fines or penalties imposed on Owner as a direct result of the Contractor's failure to attain Substantial Completion according to the Contract Times, and (2) for the actual costs reasonably incurred by Owner for engineering, construction observation, inspection, and administrative services needed after the time specified in Paragraph 4.02 for Substantial Completion (as duly adjusted pursuant to the Contract), until the Work is substantially complete.
- B. After Contractor achieves Substantial Completion, if Contractor shall neglect, refuse, or fail to complete the remaining Work within the Contract Times, Contractor shall reimburse Owner for the actual costs reasonably incurred by Owner for engineering, construction observation, inspection, and administrative services needed after the time specified in Paragraph 4.02 for Work to be completed and ready for final payment (as duly adjusted pursuant to the Contract), until the Work is completed and ready for final payment.
- C. The special damages imposed in this paragraph are supplemental to any liquidated damages for delayed completion established in this Agreement.

## ARTICLE 5—CONTRACT PRICE

- 5.01 Owner shall pay Contractor for completion of the Work in accordance with the Contract Documents an amount in current funds equal to the sum of the amounts determined pursuant to Section C430 – Bid Form.

## ARTICLE 6—PAYMENT PROCEDURES

### 6.01 *Submittal and Processing of Payments*

- A. Contractor shall submit Applications for Payment in accordance with Article 15 of the General Conditions. Applications for Payment will be processed by Engineer as provided in the General Conditions.

### 6.02 *Progress Payments; Retainage*

- A. Owner shall make progress payments on the basis of Contractor's Applications for Payment on or about the 5<sup>th</sup> day of each month during performance of the Work as provided in Paragraph 6.02.A.1 below, provided that such Applications for Payment have been submitted in a timely manner and otherwise meet the requirements of the Contract. All such payments will be measured by the Schedule of Values established as provided in the General Conditions (and in the case of Unit Price Work based on the number of units completed) or, in the event there is no Schedule of Values, as provided elsewhere in the Contract.

1. Prior to Substantial Completion, progress payments will be made in an amount equal to the percentage indicated below but, in each case, less the aggregate of payments previously made and less such amounts as Owner may withhold, including but not limited to liquidated damages, in accordance with the Contract.

- a. **90** percent of the value of the Work completed (with the balance being retainage).

- 1) If 50 percent or more of the Work has been completed, as determined by Engineer, and if the character and progress of the Work have been satisfactory to Owner and Engineer, then as long as the character and progress of the Work remain satisfactory to Owner and Engineer, there will be no additional retainage; and

- b. **95** percent of cost of materials and equipment not incorporated in the Work (with the balance being retainage).

- B. Upon Substantial Completion, Owner shall pay an amount sufficient to increase total payments to Contractor to **100** percent of the Work completed, less such amounts set off by Owner pursuant to Paragraph 15.01.E of the General Conditions, and less **200** percent of Engineer's estimate of the value of Work to be completed or corrected as shown on the punch list of items to be completed or corrected prior to final payment.

### 6.03 *Final Payment*

- A. Upon final completion and acceptance of the Work, Owner shall pay the remainder of the Contract Price in accordance with Paragraph 15.06 of the General Conditions.

6.04 *Consent of Surety*

- A. Owner will not make final payment, or return or release retainage at Substantial Completion or any other time, unless Contractor submits written consent of the surety to such payment, return, or release.

6.05 *Interest*

- A. All amounts not paid when due will bear interest at the rate of **0.5** percent per annum.

**ARTICLE 7—CONTRACT DOCUMENTS**

7.01 *Contents*

- A. The Contract Documents consist of all of the following:
  - 1. This Agreement.
  - 2. Bonds:
    - a. Performance bond (together with power of attorney).
    - b. Payment bond (together with power of attorney).
  - 3. General Conditions.
  - 4. Supplementary Conditions.
  - 5. Specifications as listed in the table of contents of the project manual (copy of list attached).
  - 6. Drawings (not attached but incorporated by reference) consisting of **13** sheets with each sheet bearing the following general title: **Godfrey Brook Capacity Improvements Project, Milford, Massachusetts, prepared by GZA GeoEnvironmental, Inc. and dated September 2023.**
  - 8. Addenda (if/as are issued inclusive).
  - 9. Exhibits to this Agreement (enumerated as follows):
    - a. **Contractor's Bid**
    - b. **Documentation submitted by Contractor prior to Notice of Award**
    - c. **Forms:**
      - 1) **Advertisement for Bids**
      - 2) **Instruction to Bidders**
      - 3) **Bid Form**
    - d. **Department of Homeland Security (DHS) Standard Terms and Conditions – 2020 (See Supplementary Conditions – Exhibit B)**
  - 10. The following which may be delivered or issued on or after the Effective Date of the Contract and are not attached hereto:
    - a. Notice to Proceed.
    - b. Work Change Directives.

- c. Change Orders.
  - d. Field Orders.
  - e. Warranty Bond, if any.
- B. The Contract Documents listed in Paragraph 7.01.A are incorporated into this Agreement (except as expressly noted otherwise above).
  - C. There are no Contract Documents other than those listed above in this Article 7.
  - D. The Contract Documents may only be amended, modified, or supplemented as provided in the Contract.

## **ARTICLE 8—REPRESENTATIONS, CERTIFICATIONS, AND STIPULATIONS**

### **8.01 Contractor's Representations**

- A. In order to induce Owner to enter into this Contract, Contractor makes the following representations:
  - 1. Contractor has examined and carefully studied the Contract Documents, including Addenda.
  - 2. Contractor has visited the Site, conducted a thorough visual examination of the Site and adjacent areas, and become familiar with the general, local, and Site conditions that may affect cost, progress, and performance of the Work.
  - 3. Contractor is familiar with all Laws and Regulations that may affect cost, progress, and performance of the Work.
  - 4. Contractor has carefully studied the reports of explorations and tests of subsurface conditions at or adjacent to the Site and the drawings of physical conditions relating to existing surface or subsurface structures at the Site that have been identified in the Supplementary Conditions, with respect to the Technical Data in such reports and drawings.
  - 5. Contractor has carefully studied the reports and drawings relating to Hazardous Environmental Conditions, if any, at or adjacent to the Site that have been identified in the Supplementary Conditions, with respect to Technical Data in such reports and drawings.
  - 6. Contractor has considered the information known to Contractor itself; information commonly known to contractors doing business in the locality of the Site; information and observations obtained from visits to the Site; the Contract Documents; and the Technical Data identified in the Supplementary Conditions or by definition, with respect to the effect of such information, observations, and Technical Data on (a) the cost, progress, and performance of the Work; (b) the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor; and (c) Contractor's safety precautions and programs.
  - 7. Based on the information and observations referred to in the preceding paragraph, Contractor agrees that no further examinations, investigations, explorations, tests, studies, or data are necessary for the performance of the Work at the Contract Price,

within the Contract Times, and in accordance with the other terms and conditions of the Contract.

8. Contractor is aware of the general nature of work to be performed by Owner and others at the Site that relates to the Work as indicated in the Contract Documents.
9. Contractor has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Contractor has discovered in the Contract Documents, and of discrepancies between Site conditions and the Contract Documents, and the written resolution thereof by Engineer is acceptable to Contractor.
10. The Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.
11. Contractor's entry into this Contract constitutes an incontrovertible representation by Contractor that without exception all prices in the Agreement are premised upon performing and furnishing the Work required by the Contract Documents.

#### 8.02 *Contractor's Certifications*

- A. Contractor certifies that it has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for or in executing the Contract. For the purposes of this Paragraph 8.02:
  1. "corrupt practice" means the offering, giving, receiving, or soliciting of anything of value likely to influence the action of a public official in the bidding process or in the Contract execution;
  2. "fraudulent practice" means an intentional misrepresentation of facts made (a) to influence the bidding process or the execution of the Contract to the detriment of Owner, (b) to establish Bid or Contract prices at artificial non-competitive levels, or (c) to deprive Owner of the benefits of free and open competition;
  3. "collusive practice" means a scheme or arrangement between two or more Bidders, with or without the knowledge of Owner, a purpose of which is to establish Bid prices at artificial, non-competitive levels; and
  4. "coercive practice" means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the bidding process or affect the execution of the Contract.

#### 8.03 *Standard General Conditions*

- A. Owner stipulates that if the General Conditions that are made a part of this Contract are EJCDC® C-700, Standard General Conditions for the Construction Contract (2018), published by the Engineers Joint Contract Documents Committee, and if Owner is the party that has furnished said General Conditions, then Owner has plainly shown all modifications to the standard wording of such published document to the Contractor, through a process such as highlighting or "track changes" (redline/strikeout), or in the Supplementary Conditions.



IN WITNESS WHEREOF, Owner and Contractor have signed this Agreement.

This Agreement will be effective on \_\_\_\_\_ (which is the Effective Date of the Contract).

Owner:

Contractor:

\_\_\_\_\_  
*(typed or printed name of organization)*

\_\_\_\_\_  
*(typed or printed name of organization)*

By: \_\_\_\_\_  
*(individual's signature)*

By: \_\_\_\_\_  
*(individual's signature)*

Date: \_\_\_\_\_  
*(date signed)*

Date: \_\_\_\_\_  
*(date signed)*

Name: \_\_\_\_\_  
*(typed or printed)*

Name: \_\_\_\_\_  
*(typed or printed)*

Title: \_\_\_\_\_  
*(typed or printed)*

Title: \_\_\_\_\_  
*(typed or printed)*

*(If [Type of Entity] is a corporation, a partnership, or a joint venture, attach evidence of authority to sign.)*

Attest: \_\_\_\_\_  
*(individual's signature)*

Attest: \_\_\_\_\_  
*(individual's signature)*

Title: \_\_\_\_\_  
*(typed or printed)*

Title: \_\_\_\_\_  
*(typed or printed)*

Address for giving notices:

Address for giving notices:

\_\_\_\_\_  
\_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

Designated Representative:

Designated Representative:

Name: \_\_\_\_\_  
*(typed or printed)*

Name: \_\_\_\_\_  
*(typed or printed)*

Title: \_\_\_\_\_  
*(typed or printed)*

Title: \_\_\_\_\_  
*(typed or printed)*

Address:

Address:

\_\_\_\_\_  
\_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

Phone: \_\_\_\_\_

Phone: \_\_\_\_\_

Email: \_\_\_\_\_

Email: \_\_\_\_\_

*(If [Type of Entity] is a corporation, attach evidence of authority to sign. If [Type of Entity] is a public body, attach evidence of authority to sign and resolution or other documents authorizing execution of this Agreement.)*

License No.: \_\_\_\_\_  
*(where applicable)*

State: \_\_\_\_\_

## NOTICE TO PROCEED

Owner: Town of Milford Owner's Project No.: \_\_\_\_\_  
Engineer: GZA GeoEnvironmental, Inc. Engineer's Project No.: 15.0167038.00  
Contractor: \_\_\_\_\_ Contractor's Project No.: \_\_\_\_\_  
Project: Godfrey Brook Capacity Improvements – West Street to Water Street  
Contract Name: \_\_\_\_\_  
Effective Date of Contract: \_\_\_\_\_

Owner hereby notifies Contractor that the Contract Times under the above Contract will commence to run on \_\_\_\_\_ pursuant to Paragraph 4.01 of the General Conditions.

On that date, Contractor shall start performing its obligations under the Contract Documents. No Work will be done at the Site prior to such date.

In accordance with the Agreement:

The date by which Substantial Completion must be achieved is **November 28, 2025**, and the date by which readiness for final payment must be achieved is **April 29, 2026**.

Before starting any Work at the Site, Contractor must comply with the following:

Owner: **Town of Milford**  
By (signature): \_\_\_\_\_  
Name (printed): \_\_\_\_\_  
Title: \_\_\_\_\_  
Date Issued: \_\_\_\_\_  
Copy: Engineer

## PERFORMANCE BOND

<p><b>Contractor</b></p> <p>Name: _____</p> <p>Address <i>(principal place of business)</i>: _____</p>	<p><b>Surety</b></p> <p>Name: _____</p> <p>Address <i>(principal place of business)</i>: _____</p>
<p><b>Owner</b></p> <p>Name: <b>Town of Milford</b></p> <p>Mailing address <i>(principal place of business)</i>:  <b>52 Main Street,  Milford, MA 01757-2679</b></p>	<p><b>Contract</b></p> <p>Description <i>(name and location)</i>:  <b>Godfrey Brook Capacity Improvements – West  Street to Water Street</b></p> <p>Contract Price: _____</p> <p>Effective Date of Contract: _____</p>
<p><b>Bond</b></p> <p>Bond Amount: _____</p> <p>Date of Bond: _____  <i>(Date of Bond cannot be earlier than Effective Date of Contract)</i></p> <p>Modifications to this Bond form:  <input type="checkbox"/> None <input type="checkbox"/> See Paragraph 16</p>	
<p>Surety and Contractor, intending to be legally bound hereby, subject to the terms set forth in this Performance Bond, do each cause this Performance Bond to be duly executed by an authorized officer, agent, or representative.</p>	
Contractor as Principal	Surety
_____ <i>(Full formal name of Contractor)</i>	_____ <i>(Full formal name of Surety) (corporate seal)</i>
By: _____ <i>(Signature)</i>	By: _____ <i>(Signature)(Attach Power of Attorney)</i>
Name: _____ <i>(Printed or typed)</i>	Name: _____ <i>(Printed or typed)</i>
Title: _____	Title: _____
Attest: _____ <i>(Signature)</i>	Attest: _____ <i>(Signature)</i>
Name: _____ <i>(Printed or typed)</i>	Name: _____ <i>(Printed or typed)</i>
Title: _____	Title: _____
<p><i>Notes: (1) Provide supplemental execution by any additional parties, such as joint venturers. (2) Any singular reference to Contractor, Surety, Owner, or other party is considered plural where applicable.</i></p>	

1. The Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to the Owner for the performance of the Construction Contract, which is incorporated herein by reference.
2. If the Contractor performs the Construction Contract, the Surety and the Contractor shall have no obligation under this Bond, except when applicable to participate in a conference as provided in Paragraph 3.
3. If there is no Owner Default under the Construction Contract, the Surety's obligation under this Bond will arise after:
  - 3.1. The Owner first provides notice to the Contractor and the Surety that the Owner is considering declaring a Contractor Default. Such notice may indicate whether the Owner is requesting a conference among the Owner, Contractor, and Surety to discuss the Contractor's performance. If the Owner does not request a conference, the Surety may, within five (5) business days after receipt of the Owner's notice, request such a conference. If the Surety timely requests a conference, the Owner shall attend. Unless the Owner agrees otherwise, any conference requested under this Paragraph 3.1 will be held within ten (10) business days of the Surety's receipt of the Owner's notice. If the Owner, the Contractor, and the Surety agree, the Contractor shall be allowed a reasonable time to perform the Construction Contract, but such an agreement does not waive the Owner's right, if any, subsequently to declare a Contractor Default;
  - 3.2. The Owner declares a Contractor Default, terminates the Construction Contract and notifies the Surety; and
  - 3.3. The Owner has agreed to pay the Balance of the Contract Price in accordance with the terms of the Construction Contract to the Surety or to a contractor selected to perform the Construction Contract.
4. Failure on the part of the Owner to comply with the notice requirement in Paragraph 3.1 does not constitute a failure to comply with a condition precedent to the Surety's obligations, or release the Surety from its obligations, except to the extent the Surety demonstrates actual prejudice.
5. When the Owner has satisfied the conditions of Paragraph 3, the Surety shall promptly and at the Surety's expense take one of the following actions:
  - 5.1. Arrange for the Contractor, with the consent of the Owner, to perform and complete the Construction Contract;
  - 5.2. Undertake to perform and complete the Construction Contract itself, through its agents or independent contractors;
  - 5.3. Obtain bids or negotiated proposals from qualified contractors acceptable to the Owner for a contract for performance and completion of the Construction Contract, arrange for a contract to be prepared for execution by the Owner and a contractor selected with the Owners concurrence, to be secured with performance and payment bonds executed by a qualified surety equivalent to the bonds issued on the Construction Contract, and pay to the Owner the amount of damages as described in Paragraph 7 in excess of the Balance of the Contract Price incurred by the Owner as a result of the Contractor Default; or
  - 5.4. Waive its right to perform and complete, arrange for completion, or obtain a new contractor, and with reasonable promptness under the circumstances:

- 5.4.1 After investigation, determine the amount for which it may be liable to the Owner and, as soon as practicable after the amount is determined, make payment to the Owner; or
  - 5.4.2 Deny liability in whole or in part and notify the Owner, citing the reasons for denial.
6. If the Surety does not proceed as provided in Paragraph 5 with reasonable promptness, the Surety shall be deemed to be in default on this Bond seven days after receipt of an additional written notice from the Owner to the Surety demanding that the Surety perform its obligations under this Bond, and the Owner shall be entitled to enforce any remedy available to the Owner. If the Surety proceeds as provided in Paragraph 5.4, and the Owner refuses the payment, or the Surety has denied liability, in whole or in part, without further notice, the Owner shall be entitled to enforce any remedy available to the Owner.
7. If the Surety elects to act under Paragraph 5.1, 5.2, or 5.3, then the responsibilities of the Surety to the Owner will not be greater than those of the Contractor under the Construction Contract, and the responsibilities of the Owner to the Surety will not be greater than those of the Owner under the Construction Contract. Subject to the commitment by the Owner to pay the Balance of the Contract Price, the Surety is obligated, without duplication for:
  - 7.1. the responsibilities of the Contractor for correction of defective work and completion of the Construction Contract;
  - 7.2. additional legal, design professional, and delay costs resulting from the Contractor's Default, and resulting from the actions or failure to act of the Surety under Paragraph 5; and
  - 7.3. liquidated damages, or if no liquidated damages are specified in the Construction Contract, actual damages caused by delayed performance or non-performance of the Contractor.
8. If the Surety elects to act under Paragraph 5.1, 5.3, or 5.4, the Surety's liability is limited to the amount of this Bond.
9. The Surety shall not be liable to the Owner or others for obligations of the Contractor that are unrelated to the Construction Contract, and the Balance of the Contract Price will not be reduced or set off on account of any such unrelated obligations. No right of action will accrue on this Bond to any person or entity other than the Owner or its heirs, executors, administrators, successors, and assigns.
10. The Surety hereby waives notice of any change, including changes of time, to the Construction Contract or to related subcontracts, purchase orders, and other obligations.
11. Any proceeding, legal or equitable, under this Bond must be instituted in any court of competent jurisdiction in the location in which the work or part of the work is located and must be instituted within two years after a declaration of Contractor Default or within two years after the Contractor ceased working or within two years after the Surety refuses or fails to perform its obligations under this Bond, whichever occurs first. If the provisions of this paragraph are void or prohibited by law, the minimum periods of limitations available to sureties as a defense in the jurisdiction of the suit will be applicable.
12. Notice to the Surety, the Owner, or the Contractor must be mailed or delivered to the address shown on the page on which their signature appears.
13. When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the construction was to be performed, any provision in this Bond conflicting with said statutory or legal requirement will be deemed deleted therefrom and provisions conforming to such

statutory or other legal requirement will be deemed incorporated herein. When so furnished, the intent is that this Bond will be construed as a statutory bond and not as a common law bond.

14. Definitions

14.1. *Balance of the Contract Price*—The total amount payable by the Owner to the Contractor under the Construction Contract after all proper adjustments have been made including allowance for the Contractor for any amounts received or to be received by the Owner in settlement of insurance or other claims for damages to which the Contractor is entitled, reduced by all valid and proper payments made to or on behalf of the Contractor under the Construction Contract.

14.2. *Construction Contract*—The agreement between the Owner and Contractor identified on the cover page, including all Contract Documents and changes made to the agreement and the Contract Documents.

14.3. *Contractor Default*—Failure of the Contractor, which has not been remedied or waived, to perform or otherwise to comply with a material term of the Construction Contract.

14.4. *Owner Default*—Failure of the Owner, which has not been remedied or waived, to pay the Contractor as required under the Construction Contract or to perform and complete or comply with the other material terms of the Construction Contract.

14.5. *Contract Documents*—All the documents that comprise the agreement between the Owner and Contractor.

15. If this Bond is issued for an agreement between a contractor and subcontractor, the term Contractor in this Bond will be deemed to be Subcontractor and the term Owner will be deemed to be Contractor.

16. Modifications to this Bond are as follows: **None**

## PAYMENT BOND

<p><b>Contractor</b></p> <p>Name: _____</p> <p>Address (<i>principal place of business</i>): _____</p>	<p><b>Surety</b></p> <p>Name: _____</p> <p>Address (<i>principal place of business</i>): _____</p>
<p><b>Owner</b></p> <p>Name: <b>Town of Milford</b></p> <p>Mailing address (<i>principal place of business</i>):  <b>52 Main Street,  Milford, MA 01757-2679</b></p>	<p><b>Contract</b></p> <p>Description (<i>name and location</i>):  <b>Godfrey Brook Capacity Improvements – West Street to Water Street</b></p> <p>Contract Price: _____</p> <p>Effective Date of Contract: _____</p>
<p><b>Bond</b></p> <p>Bond Amount: _____</p> <p>Date of Bond: _____  <i>(Date of Bond cannot be earlier than Effective Date of Contract)</i></p> <p>Modifications to this Bond form:  <input type="checkbox"/> None <input type="checkbox"/> See Paragraph 18</p>	
<p>Surety and Contractor, intending to be legally bound hereby, subject to the terms set forth in this Payment Bond, do each cause this Payment Bond to be duly executed by an authorized officer, agent, or representative.</p>	
Contractor as Principal	Surety
_____ <i>(Full formal name of Contractor)</i>	_____ <i>(Full formal name of Surety) (corporate seal)</i>
By: _____ <i>(Signature)</i>	By: _____ <i>(Signature)(Attach Power of Attorney)</i>
Name: _____ <i>(Printed or typed)</i>	Name: _____ <i>(Printed or typed)</i>
Title: _____	Title: _____
Attest: _____ <i>(Signature)</i>	Attest: _____ <i>(Signature)</i>
Name: _____ <i>(Printed or typed)</i>	Name: _____ <i>(Printed or typed)</i>
Title: _____	Title: _____
<p><i>Notes: (1) Provide supplemental execution by any additional parties, such as joint venturers. (2) Any singular reference to Contractor, Surety, Owner, or other party is considered plural where applicable.</i></p>	

1. The Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to the Owner to pay for labor, materials, and equipment furnished for use in the performance of the Construction Contract, which is incorporated herein by reference, subject to the following terms.
2. If the Contractor promptly makes payment of all sums due to Claimants, and defends, indemnifies, and holds harmless the Owner from claims, demands, liens, or suits by any person or entity seeking payment for labor, materials, or equipment furnished for use in the performance of the Construction Contract, then the Surety and the Contractor shall have no obligation under this Bond.
3. If there is no Owner Default under the Construction Contract, the Surety's obligation to the Owner under this Bond will arise after the Owner has promptly notified the Contractor and the Surety (at the address described in Paragraph 13) of claims, demands, liens, or suits against the Owner or the Owner's property by any person or entity seeking payment for labor, materials, or equipment furnished for use in the performance of the Construction Contract, and tendered defense of such claims, demands, liens, or suits to the Contractor and the Surety.
4. When the Owner has satisfied the conditions in Paragraph 3, the Surety shall promptly and at the Surety's expense defend, indemnify, and hold harmless the Owner against a duly tendered claim, demand, lien, or suit.
5. The Surety's obligations to a Claimant under this Bond will arise after the following:
  - 5.1. Claimants who do not have a direct contract with the Contractor
    - 5.1.1. have furnished a written notice of non-payment to the Contractor, stating with substantial accuracy the amount claimed and the name of the party to whom the materials were, or equipment was, furnished or supplied or for whom the labor was done or performed, within ninety (90) days after having last performed labor or last furnished materials or equipment included in the Claim; and
    - 5.1.2. have sent a Claim to the Surety (at the address described in Paragraph 13).
  - 5.2. Claimants who are employed by or have a direct contract with the Contractor have sent a Claim to the Surety (at the address described in Paragraph 13).
6. If a notice of non-payment required by Paragraph 5.1.1 is given by the Owner to the Contractor, that is sufficient to satisfy a Claimant's obligation to furnish a written notice of non-payment under Paragraph 5.1.1.
7. When a Claimant has satisfied the conditions of Paragraph 5.1 or 5.2, whichever is applicable, the Surety shall promptly and at the Surety's expense take the following actions:
  - 7.1. Send an answer to the Claimant, with a copy to the Owner, within sixty (60) days after receipt of the Claim, stating the amounts that are undisputed and the basis for challenging any amounts that are disputed; and
  - 7.2. Pay or arrange for payment of any undisputed amounts.
  - 7.3. The Surety's failure to discharge its obligations under Paragraph 7.1 or 7.2 will not be deemed to constitute a waiver of defenses the Surety or Contractor may have or acquire as to a Claim, except as to undisputed amounts for which the Surety and Claimant have reached agreement. If, however, the Surety fails to discharge its obligations under Paragraph 7.1 or 7.2, the Surety shall indemnify the Claimant for the reasonable attorney's fees the Claimant incurs thereafter to recover any sums found to be due and owing to the Claimant.



8. The Surety's total obligation will not exceed the amount of this Bond, plus the amount of reasonable attorney's fees provided under Paragraph 7.3, and the amount of this Bond will be credited for any payments made in good faith by the Surety.
9. Amounts owed by the Owner to the Contractor under the Construction Contract will be used for the performance of the Construction Contract and to satisfy claims, if any, under any construction performance bond. By the Contractor furnishing and the Owner accepting this Bond, they agree that all funds earned by the Contractor in the performance of the Construction Contract are dedicated to satisfying obligations of the Contractor and Surety under this Bond, subject to the Owner's priority to use the funds for the completion of the work.
10. The Surety shall not be liable to the Owner, Claimants, or others for obligations of the Contractor that are unrelated to the Construction Contract. The Owner shall not be liable for the payment of any costs or expenses of any Claimant under this Bond, and shall have under this Bond no obligation to make payments to or give notice on behalf of Claimants, or otherwise have any obligations to Claimants under this Bond.
11. The Surety hereby waives notice of any change, including changes of time, to the Construction Contract or to related subcontracts, purchase orders, and other obligations.
12. No suit or action will be commenced by a Claimant under this Bond other than in a court of competent jurisdiction in the state in which the project that is the subject of the Construction Contract is located or after the expiration of one year from the date (1) on which the Claimant sent a Claim to the Surety pursuant to Paragraph 5.1.2 or 5.2, or (2) on which the last labor or service was performed by anyone or the last materials or equipment were furnished by anyone under the Construction Contract, whichever of (1) or (2) first occurs. If the provisions of this paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit will be applicable.
13. Notice and Claims to the Surety, the Owner, or the Contractor must be mailed or delivered to the address shown on the page on which their signature appears. Actual receipt of notice or Claims, however accomplished, will be sufficient compliance as of the date received.
14. When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the construction was to be performed, any provision in this Bond conflicting with said statutory or legal requirement will be deemed deleted here from and provisions conforming to such statutory or other legal requirement will be deemed incorporated herein. When so furnished, the intent is that this Bond will be construed as a statutory bond and not as a common law bond.
15. Upon requests by any person or entity appearing to be a potential beneficiary of this Bond, the Contractor and Owner shall promptly furnish a copy of this Bond or shall permit a copy to be made.
16. Definitions
  - 16.1. *Claim*—A written statement by the Claimant including at a minimum:
    - 16.1.1. The name of the Claimant;
    - 16.1.2. The name of the person for whom the labor was done, or materials or equipment furnished;
    - 16.1.3. A copy of the agreement or purchase order pursuant to which labor, materials, or equipment was furnished for use in the performance of the Construction Contract;
    - 16.1.4. A brief description of the labor, materials, or equipment furnished;

- 16.1.5. The date on which the Claimant last performed labor or last furnished materials or equipment for use in the performance of the Construction Contract;
  - 16.1.6. The total amount earned by the Claimant for labor, materials, or equipment furnished as of the date of the Claim;
  - 16.1.7. The total amount of previous payments received by the Claimant; and
  - 16.1.8. The total amount due and unpaid to the Claimant for labor, materials, or equipment furnished as of the date of the Claim.
- 16.2. *Claimant*—An individual or entity having a direct contract with the Contractor or with a subcontractor of the Contractor to furnish labor, materials, or equipment for use in the performance of the Construction Contract. The term Claimant also includes any individual or entity that has rightfully asserted a claim under an applicable mechanic’s lien or similar statute against the real property upon which the Project is located. The intent of this Bond is to include without limitation in the terms of “labor, materials, or equipment” that part of the water, gas, power, light, heat, oil, gasoline, telephone service, or rental equipment used in the Construction Contract, architectural and engineering services required for performance of the work of the Contractor and the Contractor’s subcontractors, and all other items for which a mechanic’s lien may be asserted in the jurisdiction where the labor, materials, or equipment were furnished.
  - 16.3. *Construction Contract*—The agreement between the Owner and Contractor identified on the cover page, including all Contract Documents and all changes made to the agreement and the Contract Documents.
  - 16.4. *Owner Default*—Failure of the Owner, which has not been remedied or waived, to pay the Contractor as required under the Construction Contract or to perform and complete or comply with the other material terms of the Construction Contract.
  - 16.5. *Contract Documents*—All the documents that comprise the agreement between the Owner and Contractor.
17. If this Bond is issued for an agreement between a contractor and subcontractor, the term Contractor in this Bond will be deemed to be Subcontractor and the term Owner will be deemed to be Contractor.
  18. Modifications to this Bond are as follows: **[Describe modification or enter “None”]**



**Contractor's Application for Payment No.**

	Application Period:	Application Date:
To (Owner):	From (Contractor):	Via (Engineer): GZA GeoEnvironmental, Inc.
Project: Godfrey Brook Capacity Improvements - West Street to Water Street	Contract:	
Owner's Contract No.:	Contractor's Project No.:	Engineer's Project No.: 15.0167038.00

**Application For Payment  
Change Order Summary**

Approved Change Orders	1. ORIGINAL CONTRACT PRICE..... \$ _____		
Number	Additions	Deductions	2. Net change by Change Orders..... \$ _____
			3. Current Contract Price (Line 1 ± 2)..... \$ _____
			4. TOTAL COMPLETED AND STORED TO DATE (Column F total on Progress Estimates)..... \$ _____
			5. RETAINAGE:
			a.    X       _____ Work Completed..... \$ _____
			b.    X       _____ Stored Material..... \$ _____
			c. Total Retainage (Line 5.a + Line 5.b)..... \$ _____
			6. AMOUNT ELIGIBLE TO DATE (Line 4 - Line 5.c)..... \$ _____
			7. LESS PREVIOUS PAYMENTS (Line 6 from prior Application)..... \$ _____
			8. AMOUNT DUE THIS APPLICATION..... \$ _____
			9. BALANCE TO FINISH, PLUS RETAINAGE (Column G total on Progress Estimates + Line 5.c above)..... \$ _____
TOTALS			
NET CHANGE BY CHANGE ORDERS			

**Contractor's Certification**

The undersigned Contractor certifies, to the best of its knowledge, the following:

(1) All previous progress payments received from Owner on account of Work done under the Contract have been applied on account to discharge Contractor's legitimate obligations incurred in connection with the Work covered by prior Applications for Payment;

(2) Title to all Work, materials and equipment incorporated in said Work, or otherwise listed in or covered by this Application for Payment, will pass to Owner at time of payment free and clear of all Liens, security interests, and encumbrances (except such as are covered by a bond acceptable to Owner indemnifying Owner against any such Liens, security interest, or encumbrances); and

(3) All the Work covered by this Application for Payment is in accordance with the Contract Documents and is not defective.

---

**Contractor Signature**

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

Payment of: \$ \_\_\_\_\_  
(Line 8 or other - attach explanation of the other amount)

is recommended by: \_\_\_\_\_ (Engineer) \_\_\_\_\_ (Date)

Payment of: \$ \_\_\_\_\_  
(Line 8 or other - attach explanation of the other amount)

is approved by: \_\_\_\_\_ (Owner) \_\_\_\_\_ (Date)

Approved by: \_\_\_\_\_ (Date)  
Funding or Financing Entity (if applicable)

**Progress Estimate - Lump Sum Work**

**Contractor's Application**

For (Contract): Godfrey Brook Capacity Improvements - West Street to Water Street								
Application Period:				Application Date:				
			Work Completed		E	F		G
A	B	C	D	Materials Presently Stored (not in C or D)	Total Completed and Stored to Date (C + D + E)		%	Balance to Finish (B - F)
Specification Section No.	Description	Scheduled Value (\$)	From Previous Application (C+D)	This Period			(F / B)	
<b>Totals</b>								

**Progress Estimate - Unit Price Work**

**Contractor's Application**

For (Contract): Godfrey Brook Capacity Improvements - West Street to Water Street						Application Number:					
Application Period:						Application Date:					
A					B	C	D	E	F		
Item		Contract Information				Estimated Quantity Installed	Value of Work Installed to Date	Materials Presently Stored (not in C)	Total Completed and Stored to Date (D + E)	% (F / B)	Balance to Finish (B - F)
Bid Item No.	Description	Item Quantity	Units	Unit Price	Total Value of Item (\$)						
<b>Totals</b>											

**Stored Material Summary**

**Contractor's Application**

For (Contract): Godfrey Brook Capacity Improvements - West Street to Water Street							Application Number:				
Application Period:							Application Date:				
Bid Item No.	A Supplier Invoice No.	B Submittal No. (with Specification Section No.)	Storage Location	C Description of Materials or Equipment Stored	D Stored Previously		E Amount Stored this Month (\$)	Subtotal Amount Completed and Stored to Date (D + E)	F Incorporated in Work		G Materials Remaining in Storage (\$) (D + E - F)
					Date Placed into Storage (Month/Year)	Amount (\$)			Date (Month/Year)	Amount (\$)	
				<b>Totals</b>							

# STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

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# STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

## ARTICLE 1—DEFINITIONS AND TERMINOLOGY

### 1.01 *Defined Terms*

- A. Wherever used in the Bidding Requirements or Contract Documents, a term printed with initial capital letters, including the term's singular and plural forms, will have the meaning indicated in the definitions below. In addition to terms specifically defined, terms with initial capital letters in the Contract Documents include references to identified articles and paragraphs, and the titles of other documents or forms.
1. *Addenda*—Written or graphic instruments issued prior to the opening of Bids which clarify, correct, or change the Bidding Requirements or the proposed Contract Documents.
  2. *Agreement*—The written instrument, executed by Owner and Contractor, that sets forth the Contract Price and Contract Times, identifies the parties and the Engineer, and designates the specific items that are Contract Documents.
  3. *Application for Payment*—The document prepared by Contractor, in a form acceptable to Engineer, to request progress or final payments, and which is to be accompanied by such supporting documentation as is required by the Contract Documents.
  4. *Bid*—The offer of a Bidder submitted on the prescribed form setting forth the prices for the Work to be performed.
  5. *Bidder*—An individual or entity that submits a Bid to Owner.
  6. *Bidding Documents*—The Bidding Requirements, the proposed Contract Documents, and all Addenda.
  7. *Bidding Requirements*—The Advertisement or invitation to bid, Instructions to Bidders, Bid Bond or other Bid security, if any, the Bid Form, and the Bid with any attachments.
  8. *Change Order*—A document which is signed by Contractor and Owner and authorizes an addition, deletion, or revision in the Work or an adjustment in the Contract Price or the Contract Times, or other revision to the Contract, issued on or after the Effective Date of the Contract.
  9. *Change Proposal*—A written request by Contractor, duly submitted in compliance with the procedural requirements set forth herein, seeking an adjustment in Contract Price or Contract Times; contesting an initial decision by Engineer concerning the requirements of the Contract Documents or the acceptability of Work under the Contract Documents; challenging a set-off against payments due; or seeking other relief with respect to the terms of the Contract.
  10. *Claim*
    - a. A demand or assertion by Owner directly to Contractor, duly submitted in compliance with the procedural requirements set forth herein, seeking an adjustment of Contract Price or Contract Times; contesting an initial decision by Engineer concerning the

- requirements of the Contract Documents or the acceptability of Work under the Contract Documents; contesting Engineer's decision regarding a Change Proposal; seeking resolution of a contractual issue that Engineer has declined to address; or seeking other relief with respect to the terms of the Contract.
- b. A demand or assertion by Contractor directly to Owner, duly submitted in compliance with the procedural requirements set forth herein, contesting Engineer's decision regarding a Change Proposal, or seeking resolution of a contractual issue that Engineer has declined to address.
  - c. A demand or assertion by Owner or Contractor, duly submitted in compliance with the procedural requirements set forth herein, made pursuant to Paragraph 12.01.A.4, concerning disputes arising after Engineer has issued a recommendation of final payment.
  - d. A demand for money or services by a third party is not a Claim.
11. *Constituent of Concern*—Asbestos, petroleum, radioactive materials, polychlorinated biphenyls (PCBs), lead-based paint (as defined by the HUD/EPA standard), hazardous waste, and any substance, product, waste, or other material of any nature whatsoever that is or becomes listed, regulated, or addressed pursuant to Laws and Regulations regulating, relating to, or imposing liability or standards of conduct concerning, any hazardous, toxic, or dangerous waste, substance, or material.
  12. *Contract*—The entire and integrated written contract between Owner and Contractor concerning the Work.
  13. *Contract Documents*—Those items so designated in the Agreement, and which together comprise the Contract.
  14. *Contract Price*—The money that Owner has agreed to pay Contractor for completion of the Work in accordance with the Contract Documents.
  15. *Contract Times*—The number of days or the dates by which Contractor shall: (a) achieve Milestones, if any; (b) achieve Substantial Completion; and (c) complete the Work.
  16. *Contractor*—The individual or entity with which Owner has contracted for performance of the Work.
  17. *Cost of the Work*—See Paragraph 13.01 for definition.
  18. *Drawings*—The part of the Contract that graphically shows the scope, extent, and character of the Work to be performed by Contractor.
  19. *Effective Date of the Contract*—The date, indicated in the Agreement, on which the Contract becomes effective.
  20. *Electronic Document*—Any Project-related correspondence, attachments to correspondence, data, documents, drawings, information, or graphics, including but not limited to Shop Drawings and other Submittals, that are in an electronic or digital format.
  21. *Electronic Means*—Electronic mail (email), upload/download from a secure Project website, or other communications methods that allow: (a) the transmission or communication of Electronic Documents; (b) the documentation of transmissions, including sending and receipt; (c) printing of the transmitted Electronic Document by the

recipient; (d) the storage and archiving of the Electronic Document by sender and recipient; and (e) the use by recipient of the Electronic Document for purposes permitted by this Contract. Electronic Means does not include the use of text messaging, or of Facebook, Twitter, Instagram, or similar social media services for transmission of Electronic Documents.

22. *Engineer*—The individual or entity named as such in the Agreement.
23. *Field Order*—A written order issued by Engineer which requires minor changes in the Work but does not change the Contract Price or the Contract Times.
24. *Hazardous Environmental Condition*—The presence at the Site of Constituents of Concern in such quantities or circumstances that may present a danger to persons or property exposed thereto.
  - a. The presence at the Site of materials that are necessary for the execution of the Work, or that are to be incorporated into the Work, and that are controlled and contained pursuant to industry practices, Laws and Regulations, and the requirements of the Contract, is not a Hazardous Environmental Condition.
  - b. The presence of Constituents of Concern that are to be removed or remediated as part of the Work is not a Hazardous Environmental Condition.
  - c. The presence of Constituents of Concern as part of the routine, anticipated, and obvious working conditions at the Site, is not a Hazardous Environmental Condition.
25. *Laws and Regulations; Laws or Regulations*—Any and all applicable laws, statutes, rules, regulations, ordinances, codes, and binding decrees, resolutions, and orders of any and all governmental bodies, agencies, authorities, and courts having jurisdiction.
26. *Liens*—Charges, security interests, or encumbrances upon Contract-related funds, real property, or personal property.
27. *Milestone*—A principal event in the performance of the Work that the Contract requires Contractor to achieve by an intermediate completion date, or by a time prior to Substantial Completion of all the Work.
28. *Notice of Award*—The written notice by Owner to a Bidder of Owner's acceptance of the Bid.
29. *Notice to Proceed*—A written notice by Owner to Contractor fixing the date on which the Contract Times will commence to run and on which Contractor shall start to perform the Work.
30. *Owner*—The individual or entity with which Contractor has contracted regarding the Work, and which has agreed to pay Contractor for the performance of the Work, pursuant to the terms of the Contract.
31. *Progress Schedule*—A schedule, prepared and maintained by Contractor, describing the sequence and duration of the activities comprising Contractor's plan to accomplish the Work within the Contract Times.
32. *Project*—The total undertaking to be accomplished for Owner by engineers, contractors, and others, including planning, study, design, construction, testing, commissioning, and start-up, and of which the Work to be performed under the Contract Documents is a part.

33. *Resident Project Representative*—The authorized representative of Engineer assigned to assist Engineer at the Site. As used herein, the term Resident Project Representative (RPR) includes any assistants or field staff of Resident Project Representative.
34. *Samples*—Physical examples of materials, equipment, or workmanship that are representative of some portion of the Work and that establish the standards by which such portion of the Work will be judged.
35. *Schedule of Submittals*—A schedule, prepared and maintained by Contractor, of required submittals and the time requirements for Engineer’s review of the submittals.
36. *Schedule of Values*—A schedule, prepared and maintained by Contractor, allocating portions of the Contract Price to various portions of the Work and used as the basis for reviewing Contractor’s Applications for Payment.
37. *Shop Drawings*—All drawings, diagrams, illustrations, schedules, and other data or information that are specifically prepared or assembled by or for Contractor and submitted by Contractor to illustrate some portion of the Work. Shop Drawings, whether approved or not, are not Drawings and are not Contract Documents.
38. *Site*—Lands or areas indicated in the Contract Documents as being furnished by Owner upon which the Work is to be performed, including rights-of-way and easements, and such other lands or areas furnished by Owner which are designated for the use of Contractor.
39. *Specifications*—The part of the Contract that consists of written requirements for materials, equipment, systems, standards, and workmanship as applied to the Work, and certain administrative requirements and procedural matters applicable to the Work.
40. *Subcontractor*—An individual or entity having a direct contract with Contractor or with any other Subcontractor for the performance of a part of the Work.
41. *Submittal*—A written or graphic document, prepared by or for Contractor, which the Contract Documents require Contractor to submit to Engineer, or that is indicated as a Submittal in the Schedule of Submittals accepted by Engineer. Submittals may include Shop Drawings and Samples; schedules; product data; Owner-delegated designs; sustainable design information; information on special procedures; testing plans; results of tests and evaluations, source quality-control testing and inspections, and field or Site quality-control testing and inspections; warranties and certifications; Suppliers’ instructions and reports; records of delivery of spare parts and tools; operations and maintenance data; Project photographic documentation; record documents; and other such documents required by the Contract Documents. Submittals, whether or not approved or accepted by Engineer, are not Contract Documents. Change Proposals, Change Orders, Claims, notices, Applications for Payment, and requests for interpretation or clarification are not Submittals.
42. *Substantial Completion*—The time at which the Work (or a specified part thereof) has progressed to the point where, in the opinion of Engineer, the Work (or a specified part thereof) is sufficiently complete, in accordance with the Contract Documents, so that the Work (or a specified part thereof) can be utilized for the purposes for which it is intended. The terms “substantially complete” and “substantially completed” as applied to all or part of the Work refer to Substantial Completion of such Work.

43. *Successful Bidder*—The Bidder to which the Owner makes an award of contract.
44. *Supplementary Conditions*—The part of the Contract that amends or supplements these General Conditions.
45. *Supplier*—A manufacturer, fabricator, supplier, distributor, or vendor having a direct contract with Contractor or with any Subcontractor to furnish materials or equipment to be incorporated in the Work by Contractor or a Subcontractor.
46. *Technical Data*
- a. Those items expressly identified as Technical Data in the Supplementary Conditions, with respect to either (1) existing subsurface conditions at or adjacent to the Site, or existing physical conditions at or adjacent to the Site including existing surface or subsurface structures (except Underground Facilities) or (2) Hazardous Environmental Conditions at the Site.
  - b. If no such express identifications of Technical Data have been made with respect to conditions at the Site, then Technical Data is defined, with respect to conditions at the Site under Paragraphs 5.03, 5.04, and 5.06, as the data contained in boring logs, recorded measurements of subsurface water levels, assessments of the condition of subsurface facilities, laboratory test results, and other factual, objective information regarding conditions at the Site that are set forth in any geotechnical, environmental, or other Site or facilities conditions report prepared for the Project and made available to Contractor.
  - c. Information and data regarding the presence or location of Underground Facilities are not intended to be categorized, identified, or defined as Technical Data, and instead Underground Facilities are shown or indicated on the Drawings.
47. *Underground Facilities*—All active or not-in-service underground lines, pipelines, conduits, ducts, encasements, cables, wires, manholes, vaults, tanks, tunnels, or other such facilities or systems at the Site, including but not limited to those facilities or systems that produce, transmit, distribute, or convey telephone or other communications, cable television, fiber optic transmissions, power, electricity, light, heat, gases, oil, crude oil products, liquid petroleum products, water, steam, waste, wastewater, storm water, other liquids or chemicals, or traffic or other control systems. An abandoned facility or system is not an Underground Facility.
48. *Unit Price Work*—Work to be paid for on the basis of unit prices.
49. *Work*—The entire construction or the various separately identifiable parts thereof required to be provided under the Contract Documents. Work includes and is the result of performing or providing all labor, services, and documentation necessary to produce such construction; furnishing, installing, and incorporating all materials and equipment into such construction; and may include related services such as testing, start-up, and commissioning, all as required by the Contract Documents.
50. *Work Change Directive*—A written directive to Contractor issued on or after the Effective Date of the Contract, signed by Owner and recommended by Engineer, ordering an addition, deletion, or revision in the Work.



## 1.02 Terminology

- A. The words and terms discussed in Paragraphs 1.02.B, C, D, and E are not defined terms that require initial capital letters, but, when used in the Bidding Requirements or Contract Documents, have the indicated meaning.
- B. *Intent of Certain Terms or Adjectives:* The Contract Documents include the terms “as allowed,” “as approved,” “as ordered,” “as directed” or terms of like effect or import to authorize an exercise of professional judgment by Engineer. In addition, the adjectives “reasonable,” “suitable,” “acceptable,” “proper,” “satisfactory,” or adjectives of like effect or import are used to describe an action or determination of Engineer as to the Work. It is intended that such exercise of professional judgment, action, or determination will be solely to evaluate, in general, the Work for compliance with the information in the Contract Documents and with the design concept of the Project as a functioning whole as shown or indicated in the Contract Documents (unless there is a specific statement indicating otherwise). The use of any such term or adjective is not intended to and shall not be effective to assign to Engineer any duty or authority to supervise or direct the performance of the Work, or any duty or authority to undertake responsibility contrary to the provisions of Article 10 or any other provision of the Contract Documents.
- C. *Day:* The word “day” means a calendar day of 24 hours measured from midnight to the next midnight.
- D. *Defective:* The word “defective,” when modifying the word “Work,” refers to Work that is unsatisfactory, faulty, or deficient in that it:
1. does not conform to the Contract Documents;
  2. does not meet the requirements of any applicable inspection, reference standard, test, or approval referred to in the Contract Documents; or
  3. has been damaged prior to Engineer’s recommendation of final payment (unless responsibility for the protection thereof has been assumed by Owner at Substantial Completion in accordance with Paragraph 15.03 or Paragraph 15.04).
- E. *Furnish, Install, Perform, Provide*
1. The word “furnish,” when used in connection with services, materials, or equipment, means to supply and deliver said services, materials, or equipment to the Site (or some other specified location) ready for use or installation and in usable or operable condition.
  2. The word “install,” when used in connection with services, materials, or equipment, means to put into use or place in final position said services, materials, or equipment complete and ready for intended use.
  3. The words “perform” or “provide,” when used in connection with services, materials, or equipment, means to furnish and install said services, materials, or equipment complete and ready for intended use.
  4. If the Contract Documents establish an obligation of Contractor with respect to specific services, materials, or equipment, but do not expressly use any of the four words “furnish,” “install,” “perform,” or “provide,” then Contractor shall furnish and install said services, materials, or equipment complete and ready for intended use.

- F. *Contract Price or Contract Times*: References to a change in “Contract Price or Contract Times” or “Contract Times or Contract Price” or similar, indicate that such change applies to (1) Contract Price, (2) Contract Times, or (3) both Contract Price and Contract Times, as warranted, even if the term “or both” is not expressed.
- G. Unless stated otherwise in the Contract Documents, words or phrases that have a well-known technical or construction industry or trade meaning are used in the Contract Documents in accordance with such recognized meaning.

## **ARTICLE 2—PRELIMINARY MATTERS**

### **2.01 *Delivery of Performance and Payment Bonds; Evidence of Insurance***

- A. *Performance and Payment Bonds*: When Contractor delivers the signed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner the performance bond and payment bond (if the Contract requires Contractor to furnish such bonds).
- B. *Evidence of Contractor’s Insurance*: When Contractor delivers the signed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner, with copies to each additional insured (as identified in the Contract), the certificates, endorsements, and other evidence of insurance required to be provided by Contractor in accordance with Article 6, except to the extent the Supplementary Conditions expressly establish other dates for delivery of specific insurance policies.
- C. *Evidence of Owner’s Insurance*: After receipt of the signed counterparts of the Agreement and all required bonds and insurance documentation, Owner shall promptly deliver to Contractor, with copies to each additional insured (as identified in the Contract), the certificates and other evidence of insurance required to be provided by Owner under Article 6.

### **2.02 *Copies of Documents***

- A. Owner shall furnish to Contractor four printed copies of the Contract (including one fully signed counterpart of the Agreement), and one copy in electronic portable document format (PDF). Additional printed copies will be furnished upon request at the cost of reproduction.
- B. Owner shall maintain and safeguard at least one original printed record version of the Contract, including Drawings and Specifications signed and sealed by Engineer and other design professionals. Owner shall make such original printed record version of the Contract available to Contractor for review. Owner may delegate the responsibilities under this provision to Engineer.

### **2.03 *Before Starting Construction***

- A. *Preliminary Schedules*: Within 10 days after the Effective Date of the Contract (or as otherwise required by the Contract Documents), Contractor shall submit to Engineer for timely review:
  - 1. a preliminary Progress Schedule indicating the times (numbers of days or dates) for starting and completing the various stages of the Work, including any Milestones specified in the Contract;
  - 2. a preliminary Schedule of Submittals; and
  - 3. a preliminary Schedule of Values for all of the Work which includes quantities and prices of items which when added together equal the Contract Price and subdivides the Work

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

2.04 *Preconstruction Conference; Designation of Authorized Representatives*

- A. Before any Work at the Site is started, a conference attended by Owner, Contractor, Engineer, and others as appropriate will be held to establish a working understanding among the parties as to the Work, and to discuss the schedules referred to in Paragraph 2.03.A, procedures for handling Shop Drawings, Samples, and other Submittals, processing Applications for Payment, electronic or digital transmittals, and maintaining required records.
- B. At this conference Owner and Contractor each shall designate, in writing, a specific individual to act as its authorized representative with respect to the services and responsibilities under the Contract. Such individuals shall have the authority to transmit and receive information, render decisions relative to the Contract, and otherwise act on behalf of each respective party.

2.05 *Acceptance of Schedules*

- A. At least 10 days before submission of the first Application for Payment a conference, attended by Contractor, Engineer, and others as appropriate, will be held to review the schedules submitted in accordance with Paragraph 2.03.A. No progress payment will be made to Contractor until acceptable schedules are submitted to Engineer.
  - 1. The Progress Schedule will be acceptable to Engineer if it provides an orderly progression of the Work to completion within the Contract Times. Such acceptance will not impose on Engineer responsibility for the Progress Schedule, for sequencing, scheduling, or progress of the Work, nor interfere with or relieve Contractor from Contractor's full responsibility therefor.
  - 2. Contractor's Schedule of Submittals will be acceptable to Engineer if it provides a workable arrangement for reviewing and processing the required submittals.
  - 3. Contractor's Schedule of Values will be acceptable to Engineer as to form and substance if it provides a reasonable allocation of the Contract Price to the component parts of the Work.
  - 4. If a schedule is not acceptable, Contractor will have an additional 10 days to revise and resubmit the schedule.

2.06 *Electronic Transmittals*

- A. Except as otherwise stated elsewhere in the Contract, the Owner, Engineer, and Contractor may send, and shall accept, Electronic Documents transmitted by Electronic Means.
- B. If the Contract does not establish protocols for Electronic Means, then Owner, Engineer, and Contractor shall jointly develop such protocols.
- C. Subject to any governing protocols for Electronic Means, when transmitting Electronic Documents by Electronic Means, the transmitting party makes no representations as to long-term compatibility, usability, or readability of the Electronic Documents resulting from the recipient's use of software application packages, operating systems, or computer hardware differing from those used in the drafting or transmittal of the Electronic Documents.

## ARTICLE 3—CONTRACT DOCUMENTS: INTENT, REQUIREMENTS, REUSE

### 3.01 *Intent*

- A. The Contract Documents are complementary; what is required by one Contract Document is as binding as if required by all.
- B. It is the intent of the Contract Documents to describe a functionally complete Project (or part thereof) to be constructed in accordance with the Contract Documents.
- C. Unless otherwise stated in the Contract Documents, if there is a discrepancy between the electronic versions of the Contract Documents (including any printed copies derived from such electronic versions) and the printed record version, the printed record version will govern.
- D. The Contract supersedes prior negotiations, representations, and agreements, whether written or oral.
- E. Engineer will issue clarifications and interpretations of the Contract Documents as provided herein.
- F. Any provision or part of the Contract Documents held to be void or unenforceable under any Law or Regulation will be deemed stricken, and all remaining provisions will continue to be valid and binding upon Owner and Contractor, which agree that the Contract Documents will be reformed to replace such stricken provision or part thereof with a valid and enforceable provision that comes as close as possible to expressing the intention of the stricken provision.
- G. Nothing in the Contract Documents creates:
  - 1. any contractual relationship between Owner or Engineer and any Subcontractor, Supplier, or other individual or entity performing or furnishing any of the Work, for the benefit of such Subcontractor, Supplier, or other individual or entity; or
  - 2. any obligation on the part of Owner or Engineer to pay or to see to the payment of any money due any such Subcontractor, Supplier, or other individual or entity, except as may otherwise be required by Laws and Regulations.

### 3.02 *Reference Standards*

- A. *Standards Specifications, Codes, Laws and Regulations*
  - 1. Reference in the Contract Documents to standard specifications, manuals, reference standards, or codes of any technical society, organization, or association, or to Laws or Regulations, whether such reference be specific or by implication, means the standard specification, manual, reference standard, code, or Laws or Regulations in effect at the time of opening of Bids (or on the Effective Date of the Contract if there were no Bids), except as may be otherwise specifically stated in the Contract Documents.
  - 2. No provision of any such standard specification, manual, reference standard, or code, and no instruction of a Supplier, will be effective to change the duties or responsibilities of Owner, Contractor, or Engineer from those set forth in the part of the Contract Documents prepared by or for Engineer. No such provision or instruction shall be effective to assign to Owner or Engineer any duty or authority to supervise or direct the performance of the Work, or any duty or authority to undertake responsibility

inconsistent with the provisions of the part of the Contract Documents prepared by or for Engineer.

### 3.03 *Reporting and Resolving Discrepancies*

#### A. *Reporting Discrepancies*

1. *Contractor's Verification of Figures and Field Measurements:* Before undertaking each part of the Work, Contractor shall carefully study the Contract Documents, and check and verify pertinent figures and dimensions therein, particularly with respect to applicable field measurements. Contractor shall promptly report in writing to Engineer any conflict, error, ambiguity, or discrepancy that Contractor discovers, or has actual knowledge of, and shall not proceed with any Work affected thereby until the conflict, error, ambiguity, or discrepancy is resolved by a clarification or interpretation by Engineer, or by an amendment or supplement to the Contract issued pursuant to Paragraph 11.01.
2. *Contractor's Review of Contract Documents:* If, before or during the performance of the Work, Contractor discovers any conflict, error, ambiguity, or discrepancy within the Contract Documents, or between the Contract Documents and (a) any applicable Law or Regulation, (b) actual field conditions, (c) any standard specification, manual, reference standard, or code, or (d) any instruction of any Supplier, then Contractor shall promptly report it to Engineer in writing. Contractor shall not proceed with the Work affected thereby (except in an emergency as required by Paragraph 7.15) until the conflict, error, ambiguity, or discrepancy is resolved, by a clarification or interpretation by Engineer, or by an amendment or supplement to the Contract issued pursuant to Paragraph 11.01.
3. Contractor shall not be liable to Owner or Engineer for failure to report any conflict, error, ambiguity, or discrepancy in the Contract Documents unless Contractor had actual knowledge thereof.

#### B. *Resolving Discrepancies*

1. Except as may be otherwise specifically stated in the Contract Documents, the provisions of the part of the Contract Documents prepared by or for Engineer take precedence in resolving any conflict, error, ambiguity, or discrepancy between such provisions of the Contract Documents and:
  - a. the provisions of any standard specification, manual, reference standard, or code, or the instruction of any Supplier (whether or not specifically incorporated by reference as a Contract Document); or
  - b. the provisions of any Laws or Regulations applicable to the performance of the Work (unless such an interpretation of the provisions of the Contract Documents would result in violation of such Law or Regulation).

### 3.04 *Requirements of the Contract Documents*

- A. During the performance of the Work and until final payment, Contractor and Owner shall submit to the Engineer in writing all matters in question concerning the requirements of the Contract Documents (sometimes referred to as requests for information or interpretation—RFIs), or relating to the acceptability of the Work under the Contract Documents, as soon as possible after such matters arise. Engineer will be the initial interpreter of the requirements of the Contract Documents, and judge of the acceptability of the Work.

- B. Engineer will, with reasonable promptness, render a written clarification, interpretation, or decision on the issue submitted, or initiate an amendment or supplement to the Contract Documents. Engineer's written clarification, interpretation, or decision will be final and binding on Contractor, unless it appeals by submitting a Change Proposal, and on Owner, unless it appeals by filing a Claim.
- C. If a submitted matter in question concerns terms and conditions of the Contract Documents that do not involve (1) the performance or acceptability of the Work under the Contract Documents, (2) the design (as set forth in the Drawings, Specifications, or otherwise), or (3) other engineering or technical matters, then Engineer will promptly notify Owner and Contractor in writing that Engineer is unable to provide a decision or interpretation. If Owner and Contractor are unable to agree on resolution of such a matter in question, either party may pursue resolution as provided in Article 12.

### 3.05 *Reuse of Documents*

- A. Contractor and its Subcontractors and Suppliers shall not:
  - 1. have or acquire any title to or ownership rights in any of the Drawings, Specifications, or other documents (or copies of any thereof) prepared by or bearing the seal of Engineer or its consultants, including electronic media versions, or reuse any such Drawings, Specifications, other documents, or copies thereof on extensions of the Project or any other project without written consent of Owner and Engineer and specific written verification or adaptation by Engineer; or
  - 2. have or acquire any title or ownership rights in any other Contract Documents, reuse any such Contract Documents for any purpose without Owner's express written consent, or violate any copyrights pertaining to such Contract Documents.
- B. The prohibitions of this Paragraph 3.05 will survive final payment, or termination of the Contract. Nothing herein precludes Contractor from retaining copies of the Contract Documents for record purposes.

## **ARTICLE 4—COMMENCEMENT AND PROGRESS OF THE WORK**

### 4.01 *Commencement of Contract Times; Notice to Proceed*

- A. The Contract Times will commence to run on the 30th day after the Effective Date of the Contract or, if a Notice to Proceed is given, on the day indicated in the Notice to Proceed. A Notice to Proceed may be given at any time within 30 days after the Effective Date of the Contract. In no event will the Contract Times commence to run later than the 60th day after the day of Bid opening or the 30th day after the Effective Date of the Contract, whichever date is earlier.

### 4.02 *Starting the Work*

- A. Contractor shall start to perform the Work on the date when the Contract Times commence to run. No Work may be done at the Site prior to such date.

### 4.03 *Reference Points*

- A. Owner shall provide engineering surveys to establish reference points for construction which in Engineer's judgment are necessary to enable Contractor to proceed with the Work. Contractor shall be responsible for laying out the Work, shall protect and preserve the

established reference points and property monuments, and shall make no changes or relocations without the prior written approval of Owner. Contractor shall report to Engineer whenever any reference point or property monument is lost or destroyed or requires relocation because of necessary changes in grades or locations, and shall be responsible for the accurate replacement or relocation of such reference points or property monuments by professionally qualified personnel.

#### 4.04 *Progress Schedule*

- A. Contractor shall adhere to the Progress Schedule established in accordance with Paragraph 2.05 as it may be adjusted from time to time as provided below.
  - 1. Contractor shall submit to Engineer for acceptance (to the extent indicated in Paragraph 2.05) proposed adjustments in the Progress Schedule that will not result in changing the Contract Times.
  - 2. Proposed adjustments in the Progress Schedule that will change the Contract Times must be submitted in accordance with the requirements of Article 11.
- B. Contractor shall carry on the Work and adhere to the Progress Schedule during all disputes or disagreements with Owner. No Work will be delayed or postponed pending resolution of any disputes or disagreements, or during any appeal process, except as permitted by Paragraph 16.04, or as Owner and Contractor may otherwise agree in writing.

#### 4.05 *Delays in Contractor's Progress*

- A. If Owner, Engineer, or anyone for whom Owner is responsible, delays, disrupts, or interferes with the performance or progress of the Work, then Contractor shall be entitled to an equitable adjustment in Contract Price or Contract Times.
- B. Contractor shall not be entitled to an adjustment in Contract Price or Contract Times for delay, disruption, or interference caused by or within the control of Contractor. Delay, disruption, and interference attributable to and within the control of a Subcontractor or Supplier shall be deemed to be within the control of Contractor.
- C. If Contractor's performance or progress is delayed, disrupted, or interfered with by unanticipated causes not the fault of and beyond the control of Owner, Contractor, and those for which they are responsible, then Contractor shall be entitled to an equitable adjustment in Contract Times. Such an adjustment will be Contractor's sole and exclusive remedy for the delays, disruption, and interference described in this paragraph. Causes of delay, disruption, or interference that may give rise to an adjustment in Contract Times under this paragraph include but are not limited to the following:
  - 1. Severe and unavoidable natural catastrophes such as fires, floods, epidemics, and earthquakes;
  - 2. Abnormal weather conditions;
  - 3. Acts or failures to act of third-party utility owners or other third-party entities (other than those third-party utility owners or other third-party entities performing other work at or adjacent to the Site as arranged by or under contract with Owner, as contemplated in Article 8); and
  - 4. Acts of war or terrorism.

- D. Contractor's entitlement to an adjustment of Contract Times or Contract Price is limited as follows:
1. Contractor's entitlement to an adjustment of the Contract Times is conditioned on the delay, disruption, or interference adversely affecting an activity on the critical path to completion of the Work, as of the time of the delay, disruption, or interference.
  2. Contractor shall not be entitled to an adjustment in Contract Price for any delay, disruption, or interference if such delay is concurrent with a delay, disruption, or interference caused by or within the control of Contractor. Such a concurrent delay by Contractor shall not preclude an adjustment of Contract Times to which Contractor is otherwise entitled.
  3. Adjustments of Contract Times or Contract Price are subject to the provisions of Article 11.
- E. Each Contractor request or Change Proposal seeking an increase in Contract Times or Contract Price must be supplemented by supporting data that sets forth in detail the following:
1. The circumstances that form the basis for the requested adjustment;
  2. The date upon which each cause of delay, disruption, or interference began to affect the progress of the Work;
  3. The date upon which each cause of delay, disruption, or interference ceased to affect the progress of the Work;
  4. The number of days' increase in Contract Times claimed as a consequence of each such cause of delay, disruption, or interference; and
  5. The impact on Contract Price, in accordance with the provisions of Paragraph 11.07.
- Contractor shall also furnish such additional supporting documentation as Owner or Engineer may require including, where appropriate, a revised progress schedule indicating all the activities affected by the delay, disruption, or interference, and an explanation of the effect of the delay, disruption, or interference on the critical path to completion of the Work.
- F. Delays, disruption, and interference to the performance or progress of the Work resulting from the existence of a differing subsurface or physical condition, an Underground Facility that was not shown or indicated by the Contract Documents, or not shown or indicated with reasonable accuracy, and those resulting from Hazardous Environmental Conditions, are governed by Article 5, together with the provisions of Paragraphs 4.05.D and 4.05.E.
- G. Paragraph 8.03 addresses delays, disruption, and interference to the performance or progress of the Work resulting from the performance of certain other work at or adjacent to the Site.

## **ARTICLE 5—SITE; SUBSURFACE AND PHYSICAL CONDITIONS; HAZARDOUS ENVIRONMENTAL CONDITIONS**

### **5.01 *Availability of Lands***

- A. Owner shall furnish the Site. Owner shall notify Contractor in writing of any encumbrances or restrictions not of general application but specifically related to use of the Site with which Contractor must comply in performing the Work.



- B. Upon reasonable written request, Owner shall furnish Contractor with a current statement of record legal title and legal description of the lands upon which permanent improvements are to be made and Owner's interest therein as necessary for giving notice of or filing a mechanic's or construction lien against such lands in accordance with applicable Laws and Regulations.
- C. Contractor shall provide for all additional lands and access thereto that may be required for temporary construction facilities or storage of materials and equipment.

5.02 *Use of Site and Other Areas*

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

1. Contractor shall confine construction equipment, temporary construction facilities, the storage of materials and equipment, and the operations of workers to the Site, adjacent areas that Contractor has arranged to use through construction easements or otherwise, and other adjacent areas permitted by Laws and Regulations, and shall not unreasonably encumber the Site and such other adjacent areas with construction equipment or other materials or equipment. Contractor shall assume full responsibility for (a) damage to the Site; (b) damage to any such other adjacent areas used for Contractor's operations; (c) damage to any other adjacent land or areas, or to improvements, structures, utilities, or similar facilities located at such adjacent lands or areas; and (d) for injuries and losses sustained by the owners or occupants of any such land or areas; provided that such damage or injuries result from the performance of the Work or from other actions or conduct of the Contractor or those for which Contractor is responsible.
  2. If a damage or injury claim is made by the owner or occupant of any such land or area because of the performance of the Work, or because of other actions or conduct of the Contractor or those for which Contractor is responsible, Contractor shall (a) take immediate corrective or remedial action as required by Paragraph 7.13, or otherwise; (b) promptly attempt to settle the claim as to all parties through negotiations with such owner or occupant, or otherwise resolve the claim by arbitration or other dispute resolution proceeding, or in a court of competent jurisdiction; and (c) to the fullest extent permitted by Laws and Regulations, indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them, from and against any such claim, and against all costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any claim or action, legal or equitable, brought by any such owner or occupant against Owner, Engineer, or any other party indemnified hereunder to the extent caused directly or indirectly, in whole or in part by, or based upon, Contractor's performance of the Work, or because of other actions or conduct of the Contractor or those for which Contractor is responsible.
- B. *Removal of Debris During Performance of the Work:* During the progress of the Work the Contractor shall keep the Site and other adjacent areas free from accumulations of waste materials, rubbish, and other debris. Removal and disposal of such waste materials, rubbish, and other debris will conform to applicable Laws and Regulations.
  - C. *Cleaning:* Prior to Substantial Completion of the Work Contractor shall clean the Site and the Work and make it ready for utilization by Owner. At the completion of the Work Contractor shall remove from the Site and adjacent areas all tools, appliances, construction equipment

and machinery, and surplus materials and shall restore to original condition all property not designated for alteration by the Contract Documents.

- D. *Loading of Structures:* Contractor shall not load nor permit any part of any structure to be loaded in any manner that will endanger the structure, nor shall Contractor subject any part of the Work or adjacent structures or land to stresses or pressures that will endanger them.

### 5.03 *Subsurface and Physical Conditions*

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

1. Those reports of explorations and tests of subsurface conditions at or adjacent to the Site that contain Technical Data;
2. Those drawings of existing physical conditions at or adjacent to the Site, including those drawings depicting existing surface or subsurface structures at or adjacent to the Site (except Underground Facilities), that contain Technical Data; and
3. Technical Data contained in such reports and drawings.

- B. *Underground Facilities:* Underground Facilities are shown or indicated on the Drawings, pursuant to Paragraph 5.05, and not in the drawings referred to in Paragraph 5.03.A. Information and data regarding the presence or location of Underground Facilities are not intended to be categorized, identified, or defined as Technical Data.

- C. *Reliance by Contractor on Technical Data:* Contractor may rely upon the accuracy of the Technical Data expressly identified in the Supplementary Conditions with respect to such reports and drawings, but such reports and drawings are not Contract Documents. If no such express identification has been made, then Contractor may rely upon the accuracy of the Technical Data as defined in Paragraph 1.01.A.46.b.

- D. *Limitations of Other Data and Documents:* Except for such reliance on Technical Data, Contractor may not rely upon or make any claim against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, with respect to:

1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor, and safety precautions and programs incident thereto;
2. other data, interpretations, opinions, and information contained in such reports or shown or indicated in such drawings;
3. the contents of other Site-related documents made available to Contractor, such as record drawings from other projects at or adjacent to the Site, or Owner's archival documents concerning the Site; or
4. any Contractor interpretation of or conclusion drawn from any Technical Data or any such other data, interpretations, opinions, or information.

#### 5.04 *Differing Subsurface or Physical Conditions*

- A. *Notice by Contractor:* If Contractor believes that any subsurface or physical condition that is uncovered or revealed at the Site:
1. is of such a nature as to establish that any Technical Data on which Contractor is entitled to rely as provided in Paragraph 5.03 is materially inaccurate;
  2. is of such a nature as to require a change in the Drawings or Specifications;
  3. differs materially from that shown or indicated in the Contract Documents; or
  4. is of an unusual nature, and differs materially from conditions ordinarily encountered and generally recognized as inherent in work of the character provided for in the Contract Documents;

then Contractor shall, promptly after becoming aware thereof and before further disturbing the subsurface or physical conditions or performing any Work in connection therewith (except in an emergency as required by Paragraph 7.15), notify Owner and Engineer in writing about such condition. Contractor shall not further disturb such condition or perform any Work in connection therewith (except with respect to an emergency) until receipt of a written statement permitting Contractor to do so.

- B. *Engineer's Review:* After receipt of written notice as required by the preceding paragraph, Engineer will promptly review the subsurface or physical condition in question; determine whether it is necessary for Owner to obtain additional exploration or tests with respect to the condition; conclude whether the condition falls within any one or more of the differing site condition categories in Paragraph 5.04.A; obtain any pertinent cost or schedule information from Contractor; prepare recommendations to Owner regarding the Contractor's resumption of Work in connection with the subsurface or physical condition in question and the need for any change in the Drawings or Specifications; and advise Owner in writing of Engineer's findings, conclusions, and recommendations.
- C. *Owner's Statement to Contractor Regarding Site Condition:* After receipt of Engineer's written findings, conclusions, and recommendations, Owner shall issue a written statement to Contractor (with a copy to Engineer) regarding the subsurface or physical condition in question, addressing the resumption of Work in connection with such condition, indicating whether any change in the Drawings or Specifications will be made, and adopting or rejecting Engineer's written findings, conclusions, and recommendations, in whole or in part.
- D. *Early Resumption of Work:* If at any time Engineer determines that Work in connection with the subsurface or physical condition in question may resume prior to completion of Engineer's review or Owner's issuance of its statement to Contractor, because the condition in question has been adequately documented, and analyzed on a preliminary basis, then the Engineer may at its discretion instruct Contractor to resume such Work.
- E. *Possible Price and Times Adjustments*
1. Contractor shall be entitled to an equitable adjustment in Contract Price or Contract Times, to the extent that the existence of a differing subsurface or physical condition, or any related delay, disruption, or interference, causes an increase or decrease in

Contractor's cost of, or time required for, performance of the Work; subject, however, to the following:

- a. Such condition must fall within any one or more of the categories described in Paragraph 5.04.A;
  - b. With respect to Work that is paid for on a unit price basis, any adjustment in Contract Price will be subject to the provisions of Paragraph 13.03; and,
  - c. Contractor's entitlement to an adjustment of the Contract Times is subject to the provisions of Paragraphs 4.05.D and 4.05.E.
2. Contractor shall not be entitled to any adjustment in the Contract Price or Contract Times with respect to a subsurface or physical condition if:
- a. Contractor knew of the existence of such condition at the time Contractor made a commitment to Owner with respect to Contract Price and Contract Times by the submission of a Bid or becoming bound under a negotiated contract, or otherwise;
  - b. The existence of such condition reasonably could have been discovered or revealed as a result of any examination, investigation, exploration, test, or study of the Site and contiguous areas expressly required by the Bidding Requirements or Contract Documents to be conducted by or for Contractor prior to Contractor's making such commitment; or
  - c. Contractor failed to give the written notice required by Paragraph 5.04.A.
3. If Owner and Contractor agree regarding Contractor's entitlement to and the amount or extent of any adjustment in the Contract Price or Contract Times, then any such adjustment will be set forth in a Change Order.
4. Contractor may submit a Change Proposal regarding its entitlement to or the amount or extent of any adjustment in the Contract Price or Contract Times, no later than 30 days after Owner's issuance of the Owner's written statement to Contractor regarding the subsurface or physical condition in question.
- F. *Underground Facilities; Hazardous Environmental Conditions*: Paragraph 5.05 governs rights and responsibilities regarding the presence or location of Underground Facilities. Paragraph 5.06 governs rights and responsibilities regarding Hazardous Environmental Conditions. The provisions of Paragraphs 5.03 and 5.04 are not applicable to the presence or location of Underground Facilities, or to Hazardous Environmental Conditions.

#### 5.05 *Underground Facilities*

- A. *Contractor's Responsibilities*: Unless it is otherwise expressly provided in the Supplementary Conditions, the cost of all of the following are included in the Contract Price, and Contractor shall have full responsibility for:
1. reviewing and checking all information and data regarding existing Underground Facilities at the Site;
  2. complying with applicable state and local utility damage prevention Laws and Regulations;

3. verifying the actual location of those Underground Facilities shown or indicated in the Contract Documents as being within the area affected by the Work, by exposing such Underground Facilities during the course of construction;
  4. coordination of the Work with the owners (including Owner) of such Underground Facilities, during construction; and
  5. the safety and protection of all existing Underground Facilities at the Site, and repairing any damage thereto resulting from the Work.
- B. *Notice by Contractor:* If Contractor believes that an Underground Facility that is uncovered or revealed at the Site was not shown or indicated on the Drawings, or was not shown or indicated on the Drawings with reasonable accuracy, then Contractor shall, promptly after becoming aware thereof and before further disturbing conditions affected thereby or performing any Work in connection therewith (except in an emergency as required by Paragraph 7.15), notify Owner and Engineer in writing regarding such Underground Facility.
- C. *Engineer's Review:* Engineer will:
1. promptly review the Underground Facility and conclude whether such Underground Facility was not shown or indicated on the Drawings, or was not shown or indicated with reasonable accuracy;
  2. identify and communicate with the owner of the Underground Facility; prepare recommendations to Owner (and if necessary issue any preliminary instructions to Contractor) regarding the Contractor's resumption of Work in connection with the Underground Facility in question;
  3. obtain any pertinent cost or schedule information from Contractor; determine the extent, if any, to which a change is required in the Drawings or Specifications to reflect and document the consequences of the existence or location of the Underground Facility; and
  4. advise Owner in writing of Engineer's findings, conclusions, and recommendations.

During such time, Contractor shall be responsible for the safety and protection of such Underground Facility.

- D. *Owner's Statement to Contractor Regarding Underground Facility:* After receipt of Engineer's written findings, conclusions, and recommendations, Owner shall issue a written statement to Contractor (with a copy to Engineer) regarding the Underground Facility in question addressing the resumption of Work in connection with such Underground Facility, indicating whether any change in the Drawings or Specifications will be made, and adopting or rejecting Engineer's written findings, conclusions, and recommendations in whole or in part.
- E. *Early Resumption of Work:* If at any time Engineer determines that Work in connection with the Underground Facility may resume prior to completion of Engineer's review or Owner's issuance of its statement to Contractor, because the Underground Facility in question and conditions affected by its presence have been adequately documented, and analyzed on a preliminary basis, then the Engineer may at its discretion instruct Contractor to resume such Work.
- F. *Possible Price and Times Adjustments*
1. Contractor shall be entitled to an equitable adjustment in the Contract Price or Contract Times, to the extent that any existing Underground Facility at the Site that was not shown

or indicated on the Drawings, or was not shown or indicated with reasonable accuracy, or any related delay, disruption, or interference, causes an increase or decrease in Contractor's cost of, or time required for, performance of the Work; subject, however, to the following:

- a. With respect to Work that is paid for on a unit price basis, any adjustment in Contract Price will be subject to the provisions of Paragraph 13.03;
  - b. Contractor's entitlement to an adjustment of the Contract Times is subject to the provisions of Paragraphs 4.05.D and 4.05.E; and
  - c. Contractor gave the notice required in Paragraph 5.05.B.
2. If Owner and Contractor agree regarding Contractor's entitlement to and the amount or extent of any adjustment in the Contract Price or Contract Times, then any such adjustment will be set forth in a Change Order.
  3. Contractor may submit a Change Proposal regarding its entitlement to or the amount or extent of any adjustment in the Contract Price or Contract Times, no later than 30 days after Owner's issuance of the Owner's written statement to Contractor regarding the Underground Facility in question.
  4. The information and data shown or indicated on the Drawings with respect to existing Underground Facilities at the Site is based on information and data (a) furnished by the owners of such Underground Facilities, or by others, (b) obtained from available records, or (c) gathered in an investigation conducted in accordance with the current edition of ASCE 38, Standard Guideline for the Collection and Depiction of Existing Subsurface Utility Data, by the American Society of Civil Engineers. If such information or data is incorrect or incomplete, Contractor's remedies are limited to those set forth in this Paragraph 5.05.F.

#### 5.06 *Hazardous Environmental Conditions at Site*

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

1. those reports known to Owner relating to Hazardous Environmental Conditions that have been identified at or adjacent to the Site;
2. drawings known to Owner relating to Hazardous Environmental Conditions that have been identified at or adjacent to the Site; and
3. Technical Data contained in such reports and drawings.

B. *Reliance by Contractor on Technical Data Authorized*: Contractor may rely upon the accuracy of the Technical Data expressly identified in the Supplementary Conditions with respect to such reports and drawings, but such reports and drawings are not Contract Documents. If no such express identification has been made, then Contractor may rely on the accuracy of the Technical Data as defined in Paragraph 1.01.A.46.b. Except for such reliance on Technical Data, Contractor may not rely upon or make any claim against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, with respect to:

1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences and procedures

- of construction to be employed by Contractor, and safety precautions and programs incident thereto;
2. other data, interpretations, opinions, and information contained in such reports or shown or indicated in such drawings; or
  3. any Contractor interpretation of or conclusion drawn from any Technical Data or any such other data, interpretations, opinions or information.
- C. Contractor shall not be responsible for removing or remediating any Hazardous Environmental Condition encountered, uncovered, or revealed at the Site unless such removal or remediation is expressly identified in the Contract Documents to be within the scope of the Work.
- D. Contractor shall be responsible for controlling, containing, and duly removing all Constituents of Concern brought to the Site by Contractor, Subcontractors, Suppliers, or anyone else for whom Contractor is responsible, and for any associated costs; and for the costs of removing and remediating any Hazardous Environmental Condition created by the presence of any such Constituents of Concern.
- E. If Contractor encounters, uncovers, or reveals a Hazardous Environmental Condition whose removal or remediation is not expressly identified in the Contract Documents as being within the scope of the Work, or if Contractor or anyone for whom Contractor is responsible creates a Hazardous Environmental Condition, then Contractor shall immediately: (1) secure or otherwise isolate such condition; (2) stop all Work in connection with such condition and in any area affected thereby (except in an emergency as required by Paragraph 7.15); and (3) notify Owner and Engineer (and promptly thereafter confirm such notice in writing). Owner shall promptly consult with Engineer concerning the necessity for Owner to retain a qualified expert to evaluate such condition or take corrective action, if any. Promptly after consulting with Engineer, Owner shall take such actions as are necessary to permit Owner to timely obtain required permits and provide Contractor the written notice required by Paragraph 5.06.F. If Contractor or anyone for whom Contractor is responsible created the Hazardous Environmental Condition in question, then Owner may remove and remediate the Hazardous Environmental Condition, and impose a set-off against payments to account for the associated costs.
- F. Contractor shall not resume Work in connection with such Hazardous Environmental Condition or in any affected area until after Owner has obtained any required permits related thereto, and delivered written notice to Contractor either (1) specifying that such condition and any affected area is or has been rendered safe for the resumption of Work, or (2) specifying any special conditions under which such Work may be resumed safely.
- G. If Owner and Contractor cannot agree as to entitlement to or on the amount or extent, if any, of any adjustment in Contract Price or Contract Times, as a result of such Work stoppage, such special conditions under which Work is agreed to be resumed by Contractor, or any costs or expenses incurred in response to the Hazardous Environmental Condition, then within 30 days of Owner's written notice regarding the resumption of Work, Contractor may submit a Change Proposal, or Owner may impose a set-off. Entitlement to any such adjustment is subject to the provisions of Paragraphs 4.05.D, 4.05.E, 11.07, and 11.08.
- H. If, after receipt of such written notice, Contractor does not agree to resume such Work based on a reasonable belief it is unsafe, or does not agree to resume such Work under such special

conditions, then Owner may order the portion of the Work that is in the area affected by such condition to be deleted from the Work, following the contractual change procedures in Article 11. Owner may have such deleted portion of the Work performed by Owner's own forces or others in accordance with Article 8.

- I. To the fullest extent permitted by Laws and Regulations, Owner shall indemnify and hold harmless Contractor, Subcontractors, and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals, and all court, arbitration, or other dispute resolution costs) arising out of or relating to a Hazardous Environmental Condition, provided that such Hazardous Environmental Condition (1) was not shown or indicated in the Drawings, Specifications, or other Contract Documents, identified as Technical Data entitled to limited reliance pursuant to Paragraph 5.06.B, or identified in the Contract Documents to be included within the scope of the Work, and (2) was not created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 5.06.I obligates Owner to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.
- J. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to the failure to control, contain, or remove a Constituent of Concern brought to the Site by Contractor or by anyone for whom Contractor is responsible, or to a Hazardous Environmental Condition created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 5.06.J obligates Contractor to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.
- K. The provisions of Paragraphs 5.03, 5.04, and 5.05 do not apply to the presence of Constituents of Concern or to a Hazardous Environmental Condition uncovered or revealed at the Site.

## **ARTICLE 6—BONDS AND INSURANCE**

### **6.01 *Performance, Payment, and Other Bonds***

- A. Contractor shall furnish a performance bond and a payment bond, each in an amount at least equal to the Contract Price, as security for the faithful performance and payment of Contractor's obligations under the Contract. These bonds must remain in effect until one year after the date when final payment becomes due or until completion of the correction period specified in Paragraph 15.08, whichever is later, except as provided otherwise by Laws or Regulations, the terms of a prescribed bond form, the Supplementary Conditions, or other provisions of the Contract.
- B. Contractor shall also furnish such other bonds (if any) as are required by the Supplementary Conditions or other provisions of the Contract.
- C. All bonds must be in the form included in the Bidding Documents or otherwise specified by Owner prior to execution of the Contract, except as provided otherwise by Laws or



- Regulations, and must be issued and signed by a surety named in “Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies” as published in Department Circular 570 (as amended and supplemented) by the Bureau of the Fiscal Service, U.S. Department of the Treasury. A bond signed by an agent or attorney-in-fact must be accompanied by a certified copy of that individual’s authority to bind the surety. The evidence of authority must show that it is effective on the date the agent or attorney-in-fact signed the accompanying bond.
- D. Contractor shall obtain the required bonds from surety companies that are duly licensed or authorized, in the state or jurisdiction in which the Project is located, to issue bonds in the required amounts.
  - E. If the surety on a bond furnished by Contractor is declared bankrupt or becomes insolvent, or the surety ceases to meet the requirements above, then Contractor shall promptly notify Owner and Engineer in writing and shall, within 20 days after the event giving rise to such notification, provide another bond and surety, both of which must comply with the bond and surety requirements above.
  - F. If Contractor has failed to obtain a required bond, Owner may exclude the Contractor from the Site and exercise Owner’s termination rights under Article 16.
  - G. Upon request to Owner from any Subcontractor, Supplier, or other person or entity claiming to have furnished labor, services, materials, or equipment used in the performance of the Work, Owner shall provide a copy of the payment bond to such person or entity.
  - H. Upon request to Contractor from any Subcontractor, Supplier, or other person or entity claiming to have furnished labor, services, materials, or equipment used in the performance of the Work, Contractor shall provide a copy of the payment bond to such person or entity.

#### 6.02 *Insurance—General Provisions*

- A. Owner and Contractor shall obtain and maintain insurance as required in this article and in the Supplementary Conditions.
- B. All insurance required by the Contract to be purchased and maintained by Owner or Contractor shall be obtained from insurance companies that are duly licensed or authorized in the state or jurisdiction in which the Project is located to issue insurance policies for the required limits and coverages. Unless a different standard is indicated in the Supplementary Conditions, all companies that provide insurance policies required under this Contract shall have an A.M. Best rating of A-VII or better.
- C. Alternative forms of insurance coverage, including but not limited to self-insurance and “Occupational Accident and Excess Employer’s Indemnity Policies,” are not sufficient to meet the insurance requirements of this Contract, unless expressly allowed in the Supplementary Conditions.
- D. Contractor shall deliver to Owner, with copies to each additional insured identified in the Contract, certificates of insurance and endorsements establishing that Contractor has obtained and is maintaining the policies and coverages required by the Contract. Upon request by Owner or any other insured, Contractor shall also furnish other evidence of such required insurance, including but not limited to copies of policies, documentation of applicable self-insured retentions (if allowed) and deductibles, full disclosure of all relevant exclusions, and evidence of insurance required to be purchased and maintained by

- Subcontractors or Suppliers. In any documentation furnished under this provision, Contractor, Subcontractors, and Suppliers may block out (redact) (1) any confidential premium or pricing information and (2) any wording specific to a project or jurisdiction other than those applicable to this Contract.
- E. Owner shall deliver to Contractor, with copies to each additional insured identified in the Contract, certificates of insurance and endorsements establishing that Owner has obtained and is maintaining the policies and coverages required of Owner by the Contract (if any). Upon request by Contractor or any other insured, Owner shall also provide other evidence of such required insurance (if any), including but not limited to copies of policies, documentation of applicable self-insured retentions (if allowed) and deductibles, and full disclosure of all relevant exclusions. In any documentation furnished under this provision, Owner may block out (redact) (1) any confidential premium or pricing information and (2) any wording specific to a project or jurisdiction other than those relevant to this Contract.
  - F. Failure of Owner or Contractor to demand such certificates or other evidence of the other party's full compliance with these insurance requirements, or failure of Owner or Contractor to identify a deficiency in compliance from the evidence provided, will not be construed as a waiver of the other party's obligation to obtain and maintain such insurance.
  - G. In addition to the liability insurance required to be provided by Contractor, the Owner, at Owner's option, may purchase and maintain Owner's own liability insurance. Owner's liability policies, if any, operate separately and independently from policies required to be provided by Contractor, and Contractor cannot rely upon Owner's liability policies for any of Contractor's obligations to the Owner, Engineer, or third parties.
  - H. Contractor shall require:
    - 1. Subcontractors to purchase and maintain worker's compensation, commercial general liability, and other insurance that is appropriate for their participation in the Project, and to name as additional insureds Owner and Engineer (and any other individuals or entities identified in the Supplementary Conditions as additional insureds on Contractor's liability policies) on each Subcontractor's commercial general liability insurance policy; and
    - 2. Suppliers to purchase and maintain insurance that is appropriate for their participation in the Project.
  - I. If either party does not purchase or maintain the insurance required of such party by the Contract, such party shall notify the other party in writing of such failure to purchase prior to the start of the Work, or of such failure to maintain prior to any change in the required coverage.
  - J. If Contractor has failed to obtain and maintain required insurance, Contractor's entitlement to enter or remain at the Site will end immediately, and Owner may impose an appropriate set-off against payment for any associated costs (including but not limited to the cost of purchasing necessary insurance coverage), and exercise Owner's termination rights under Article 16.
  - K. Without prejudice to any other right or remedy, if a party has failed to obtain required insurance, the other party may elect (but is in no way obligated) to obtain equivalent insurance to protect such other party's interests at the expense of the party who was required to provide such coverage, and the Contract Price will be adjusted accordingly.

- L. Owner does not represent that insurance coverage and limits established in this Contract necessarily will be adequate to protect Contractor or Contractor's interests. Contractor is responsible for determining whether such coverage and limits are adequate to protect its interests, and for obtaining and maintaining any additional insurance that Contractor deems necessary.
- M. The insurance and insurance limits required herein will not be deemed as a limitation on Contractor's liability, or that of its Subcontractors or Suppliers, under the indemnities granted to Owner and other individuals and entities in the Contract or otherwise.
- N. All the policies of insurance required to be purchased and maintained under this Contract will contain a provision or endorsement that the coverage afforded will not be canceled, or renewal refused, until at least 10 days prior written notice has been given to the purchasing policyholder. Within three days of receipt of any such written notice, the purchasing policyholder shall provide a copy of the notice to each other insured and Engineer.

6.03 *Contractor's Insurance*

- A. *Required Insurance:* Contractor shall purchase and maintain Worker's Compensation, Commercial General Liability, and other insurance pursuant to the specific requirements of the Supplementary Conditions.
- B. *General Provisions:* The policies of insurance required by this Paragraph 6.03 as supplemented must:
  - 1. include at least the specific coverages required;
  - 2. be written for not less than the limits provided, or those required by Laws or Regulations, whichever is greater;
  - 3. remain in effect at least until the Work is complete (as set forth in Paragraph 15.06.D), and longer if expressly required elsewhere in this Contract, and at all times thereafter when Contractor may be correcting, removing, or replacing defective Work as a warranty or correction obligation, or otherwise, or returning to the Site to conduct other tasks arising from the Contract;
  - 4. apply with respect to the performance of the Work, whether such performance is by Contractor, any Subcontractor or Supplier, or by anyone directly or indirectly employed by any of them to perform any of the Work, or by anyone for whose acts any of them may be liable; and
  - 5. include all necessary endorsements to support the stated requirements.
- C. *Additional Insureds:* The Contractor's commercial general liability, automobile liability, employer's liability, umbrella or excess, pollution liability, and unmanned aerial vehicle liability policies, if required by this Contract, must:
  - 1. include and list as additional insureds Owner and Engineer, and any individuals or entities identified as additional insureds in the Supplementary Conditions;
  - 2. include coverage for the respective officers, directors, members, partners, employees, and consultants of all such additional insureds;
  - 3. afford primary coverage to these additional insureds for all claims covered thereby (including as applicable those arising from both ongoing and completed operations);

4. not seek contribution from insurance maintained by the additional insured; and
5. as to commercial general liability insurance, apply to additional insureds with respect to liability caused in whole or in part by Contractor's acts or omissions, or the acts and omissions of those working on Contractor's behalf, in the performance of Contractor's operations.

#### 6.04 *Builder's Risk and Other Property Insurance*

- A. *Builder's Risk*: Unless otherwise provided in the Supplementary Conditions, Contractor shall purchase and maintain builder's risk insurance upon the Work on a completed value basis, in the amount of the Work's full insurable replacement cost (subject to such deductible amounts as may be provided in the Supplementary Conditions or required by Laws and Regulations). The specific requirements applicable to the builder's risk insurance are set forth in the Supplementary Conditions.
- B. *Property Insurance for Facilities of Owner Where Work Will Occur*: Owner is responsible for obtaining and maintaining property insurance covering each existing structure, building, or facility in which any part of the Work will occur, or to which any part of the Work will attach or be adjoined. Such property insurance will be written on a special perils (all-risk) form, on a replacement cost basis, providing coverage consistent with that required for the builder's risk insurance, and will be maintained until the Work is complete, as set forth in Paragraph 15.06.D.
- C. *Property Insurance for Substantially Complete Facilities*: Promptly after Substantial Completion, and before actual occupancy or use of the substantially completed Work, Owner will obtain property insurance for such substantially completed Work, and maintain such property insurance at least until the Work is complete, as set forth in Paragraph 15.06.D. Such property insurance will be written on a special perils (all-risk) form, on a replacement cost basis, and provide coverage consistent with that required for the builder's risk insurance. The builder's risk insurance may terminate upon written confirmation of Owner's procurement of such property insurance.
- D. *Partial Occupancy or Use by Owner*: If Owner will occupy or use a portion or portions of the Work prior to Substantial Completion of all the Work, as provided in Paragraph 15.04, then Owner (directly, if it is the purchaser of the builder's risk policy, or through Contractor) will provide advance notice of such occupancy or use to the builder's risk insurer, and obtain an endorsement consenting to the continuation of coverage prior to commencing such partial occupancy or use.
- E. *Insurance of Other Property; Additional Insurance*: If the express insurance provisions of the Contract do not require or address the insurance of a property item or interest, then the entity or individual owning such property item will be responsible for insuring it. If Contractor elects to obtain other special insurance to be included in or supplement the builder's risk or property insurance policies provided under this Paragraph 6.04, it may do so at Contractor's expense.

#### 6.05 *Property Losses; Subrogation*

- A. The builder's risk insurance policy purchased and maintained in accordance with Paragraph 6.04 (or an installation floater policy if authorized by the Supplementary Conditions), will contain provisions to the effect that in the event of payment of any loss or damage the insurer will have no rights of recovery against any insureds thereunder, or against

Engineer or its consultants, or their officers, directors, members, partners, employees, agents, consultants, or subcontractors.

1. Owner and Contractor waive all rights against each other and the respective officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, for all losses and damages caused by, arising out of, or resulting from any of the perils, risks, or causes of loss covered by such policies and any other property insurance applicable to the Work; and, in addition, waive all such rights against Engineer, its consultants, all individuals or entities identified in the Supplementary Conditions as builder's risk or installation floater insureds, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, under such policies for losses and damages so caused.
  2. None of the above waivers extends to the rights that any party making such waiver may have to the proceeds of insurance held by Owner or Contractor as trustee or fiduciary, or otherwise payable under any policy so issued.
- B. Any property insurance policy maintained by Owner covering any loss, damage, or consequential loss to Owner's existing structures, buildings, or facilities in which any part of the Work will occur, or to which any part of the Work will attach or adjoin; to adjacent structures, buildings, or facilities of Owner; or to part or all of the completed or substantially completed Work, during partial occupancy or use pursuant to Paragraph 15.04, after Substantial Completion pursuant to Paragraph 15.03, or after final payment pursuant to Paragraph 15.06, will contain provisions to the effect that in the event of payment of any loss or damage the insurer will have no rights of recovery against any insureds thereunder, or against Contractor, Subcontractors, or Engineer, or the officers, directors, members, partners, employees, agents, consultants, or subcontractors of each and any of them, and that the insured is allowed to waive the insurer's rights of subrogation in a written contract executed prior to the loss, damage, or consequential loss.
1. Owner waives all rights against Contractor, Subcontractors, and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them, for all losses and damages caused by, arising out of, or resulting from fire or any of the perils, risks, or causes of loss covered by such policies.
- C. The waivers in this Paragraph 6.05 include the waiver of rights due to business interruption, loss of use, or other consequential loss extending beyond direct physical loss or damage to Owner's property or the Work caused by, arising out of, or resulting from fire or other insured peril, risk, or cause of loss.
- D. Contractor shall be responsible for assuring that each Subcontract contains provisions whereby the Subcontractor waives all rights against Owner, Contractor, all individuals or entities identified in the Supplementary Conditions as insureds, the Engineer and its consultants, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, for all losses and damages caused by, arising out of, relating to, or resulting from fire or other peril, risk, or cause of loss covered by builder's risk insurance, installation floater, and any other property insurance applicable to the Work.

6.06 *Receipt and Application of Property Insurance Proceeds*

- A. Any insured loss under the builder's risk and other policies of property insurance required by Paragraph 6.04 will be adjusted and settled with the named insured that purchased the policy. Such named insured shall act as fiduciary for the other insureds, and give notice to such other insureds that adjustment and settlement of a claim is in progress. Any other insured may state its position regarding a claim for insured loss in writing within 15 days after notice of such claim.
- B. Proceeds for such insured losses may be made payable by the insurer either jointly to multiple insureds, or to the named insured that purchased the policy in its own right and as fiduciary for other insureds, subject to the requirements of any applicable mortgage clause. A named insured receiving insurance proceeds under the builder's risk and other policies of insurance required by Paragraph 6.04 shall maintain such proceeds in a segregated account, and distribute such proceeds in accordance with such agreement as the parties in interest may reach, or as otherwise required under the dispute resolution provisions of this Contract or applicable Laws and Regulations.
- C. If no other special agreement is reached, Contractor shall repair or replace the damaged Work, using allocated insurance proceeds.

**ARTICLE 7—CONTRACTOR'S RESPONSIBILITIES**

7.01 *Contractor's Means and Methods of Construction*

- A. Contractor shall be solely responsible for the means, methods, techniques, sequences, and procedures of construction.
- B. If the Contract Documents note, or Contractor determines, that professional engineering or other design services are needed to carry out Contractor's responsibilities for construction means, methods, techniques, sequences, and procedures, or for Site safety, then Contractor shall cause such services to be provided by a properly licensed design professional, at Contractor's expense. Such services are not Owner-delegated professional design services under this Contract, and neither Owner nor Engineer has any responsibility with respect to (1) Contractor's determination of the need for such services, (2) the qualifications or licensing of the design professionals retained or employed by Contractor, (3) the performance of such services, or (4) any errors, omissions, or defects in such services.

7.02 *Supervision and Superintendence*

- A. Contractor shall supervise, inspect, and direct the Work competently and efficiently, devoting such attention thereto and applying such skills and expertise as may be necessary to perform the Work in accordance with the Contract Documents.
- B. At all times during the progress of the Work, Contractor shall assign a competent resident superintendent who will not be replaced without written notice to Owner and Engineer except under extraordinary circumstances.

7.03 *Labor; Working Hours*

- A. Contractor shall provide competent, suitably qualified personnel to survey and lay out the Work and perform construction as required by the Contract Documents. Contractor shall maintain good discipline and order at the Site.

- B. Contractor shall be fully responsible to Owner and Engineer for all acts and omissions of Contractor's employees; of Suppliers and Subcontractors, and their employees; and of any other individuals or entities performing or furnishing any of the Work, just as Contractor is responsible for Contractor's own acts and omissions.
- C. Except as otherwise required for the safety or protection of persons or the Work or property at the Site or adjacent thereto, and except as otherwise stated in the Contract Documents, all Work at the Site will be performed during regular working hours, Monday through Friday. Contractor will not perform Work on a Saturday, Sunday, or any legal holiday. Contractor may perform Work outside regular working hours or on Saturdays, Sundays, or legal holidays only with Owner's written consent, which will not be unreasonably withheld.

#### 7.04 *Services, Materials, and Equipment*

- A. Unless otherwise specified in the Contract Documents, Contractor shall provide and assume full responsibility for all services, materials, equipment, labor, transportation, construction equipment and machinery, tools, appliances, fuel, power, light, heat, telephone, water, sanitary facilities, temporary facilities, and all other facilities and incidentals necessary for the performance, testing, start up, and completion of the Work, whether or not such items are specifically called for in the Contract Documents.
- B. All materials and equipment incorporated into the Work must be new and of good quality, except as otherwise provided in the Contract Documents. All special warranties and guarantees required by the Specifications will expressly run to the benefit of Owner. If required by Engineer, Contractor shall furnish satisfactory evidence (including reports of required tests) as to the source, kind, and quality of materials and equipment.
- C. All materials and equipment must be stored, applied, installed, connected, erected, protected, used, cleaned, and conditioned in accordance with instructions of the applicable Supplier, except as otherwise may be provided in the Contract Documents.

#### 7.05 *"Or Equals"*

- A. *Contractor's Request; Governing Criteria:* Whenever an item of equipment or material is specified or described in the Contract Documents by using the names of one or more proprietary items or specific Suppliers, the Contract Price has been based upon Contractor furnishing such item as specified. The specification or description of such an item is intended to establish the type, function, appearance, and quality required. Unless the specification or description contains or is followed by words reading that no like, equivalent, or "or equal" item is permitted, Contractor may request that Engineer authorize the use of other items of equipment or material, or items from other proposed Suppliers, under the circumstances described below.
  - 1. If Engineer in its sole discretion determines that an item of equipment or material proposed by Contractor is functionally equal to that named and sufficiently similar so that no change in related Work will be required, Engineer will deem it an "or equal" item. For the purposes of this paragraph, a proposed item of equipment or material will be considered functionally equal to an item so named if:
    - a. in the exercise of reasonable judgment Engineer determines that the proposed item:
      - 1) is at least equal in materials of construction, quality, durability, appearance, strength, and design characteristics;

- 2) will reliably perform at least equally well the function and achieve the results imposed by the design concept of the completed Project as a functioning whole;
  - 3) has a proven record of performance and availability of responsive service; and
  - 4) is not objectionable to Owner.
- b. Contractor certifies that, if the proposed item is approved and incorporated into the Work:
- 1) there will be no increase in cost to the Owner or increase in Contract Times; and
  - 2) the item will conform substantially to the detailed requirements of the item named in the Contract Documents.
- B. *Contractor's Expense*: Contractor shall provide all data in support of any proposed "or equal" item at Contractor's expense.
- C. *Engineer's Evaluation and Determination*: Engineer will be allowed a reasonable time to evaluate each "or-equal" request. Engineer may require Contractor to furnish additional data about the proposed "or-equal" item. Engineer will be the sole judge of acceptability. No "or-equal" item will be ordered, furnished, installed, or utilized until Engineer's review is complete and Engineer determines that the proposed item is an "or-equal," which will be evidenced by an approved Shop Drawing or other written communication. Engineer will advise Contractor in writing of any negative determination.
- D. *Effect of Engineer's Determination*: Neither approval nor denial of an "or-equal" request will result in any change in Contract Price. The Engineer's denial of an "or-equal" request will be final and binding, and may not be reversed through an appeal under any provision of the Contract.
- E. *Treatment as a Substitution Request*: If Engineer determines that an item of equipment or material proposed by Contractor does not qualify as an "or-equal" item, Contractor may request that Engineer consider the item a proposed substitute pursuant to Paragraph 7.06.

#### 7.06 Substitutes

- A. *Contractor's Request; Governing Criteria*: Unless the specification or description of an item of equipment or material required to be furnished under the Contract Documents contains or is followed by words reading that no substitution is permitted, Contractor may request that Engineer authorize the use of other items of equipment or material under the circumstances described below. To the extent possible such requests must be made before commencement of related construction at the Site.
1. Contractor shall submit sufficient information as provided below to allow Engineer to determine if the item of material or equipment proposed is functionally equivalent to that named and an acceptable substitute therefor. Engineer will not accept requests for review of proposed substitute items of equipment or material from anyone other than Contractor.
  2. The requirements for review by Engineer will be as set forth in Paragraph 7.06.B, as supplemented by the Specifications, and as Engineer may decide is appropriate under the circumstances.



3. Contractor shall make written application to Engineer for review of a proposed substitute item of equipment or material that Contractor seeks to furnish or use. The application:
  - a. will certify that the proposed substitute item will:
    - 1) perform adequately the functions and achieve the results called for by the general design;
    - 2) be similar in substance to the item specified; and
    - 3) be suited to the same use as the item specified.
  - b. will state:
    - 1) the extent, if any, to which the use of the proposed substitute item will necessitate a change in Contract Times;
    - 2) whether use of the proposed substitute item in the Work will require a change in any of the Contract Documents (or in the provisions of any other direct contract with Owner for other work on the Project) to adapt the design to the proposed substitute item; and
    - 3) whether incorporation or use of the proposed substitute item in connection with the Work is subject to payment of any license fee or royalty.
  - c. will identify:
    - 1) all variations of the proposed substitute item from the item specified; and
    - 2) available engineering, sales, maintenance, repair, and replacement services.
  - d. will contain an itemized estimate of all costs or credits that will result directly or indirectly from use of such substitute item, including but not limited to changes in Contract Price, shared savings, costs of redesign, and claims of other contractors affected by any resulting change.
- B. *Engineer's Evaluation and Determination*: Engineer will be allowed a reasonable time to evaluate each substitute request, and to obtain comments and direction from Owner. Engineer may require Contractor to furnish additional data about the proposed substitute item. Engineer will be the sole judge of acceptability. No substitute will be ordered, furnished, installed, or utilized until Engineer's review is complete and Engineer determines that the proposed item is an acceptable substitute. Engineer's determination will be evidenced by a Field Order or a proposed Change Order accounting for the substitution itself and all related impacts, including changes in Contract Price or Contract Times. Engineer will advise Contractor in writing of any negative determination.
- C. *Special Guarantee*: Owner may require Contractor to furnish at Contractor's expense a special performance guarantee or other surety with respect to any substitute.
- D. *Reimbursement of Engineer's Cost*: Engineer will record Engineer's costs in evaluating a substitute proposed or submitted by Contractor. Whether or not Engineer approves a substitute so proposed or submitted by Contractor, Contractor shall reimburse Owner for the reasonable charges of Engineer for evaluating each such proposed substitute. Contractor shall also reimburse Owner for the reasonable charges of Engineer for making changes in the Contract Documents (or in the provisions of any other direct contract with Owner) resulting from the acceptance of each proposed substitute.

- E. *Contractor's Expense*: Contractor shall provide all data in support of any proposed substitute at Contractor's expense.
- F. *Effect of Engineer's Determination*: If Engineer approves the substitution request, Contractor shall execute the proposed Change Order and proceed with the substitution. The Engineer's denial of a substitution request will be final and binding, and may not be reversed through an appeal under any provision of the Contract. Contractor may challenge the scope of reimbursement costs imposed under Paragraph 7.06.D, by timely submittal of a Change Proposal.

7.07 *Concerning Subcontractors and Suppliers*

- A. Contractor may retain Subcontractors and Suppliers for the performance of parts of the Work. Such Subcontractors and Suppliers must be acceptable to Owner. The Contractor's retention of a Subcontractor or Supplier for the performance of parts of the Work will not relieve Contractor's obligation to Owner to perform and complete the Work in accordance with the Contract Documents.
- B. Contractor shall retain specific Subcontractors and Suppliers for the performance of designated parts of the Work if required by the Contract to do so.
- C. Subsequent to the submittal of Contractor's Bid or final negotiation of the terms of the Contract, Owner may not require Contractor to retain any Subcontractor or Supplier to furnish or perform any of the Work against which Contractor has reasonable objection.
- D. Prior to entry into any binding subcontract or purchase order, Contractor shall submit to Owner the identity of the proposed Subcontractor or Supplier (unless Owner has already deemed such proposed Subcontractor or Supplier acceptable during the bidding process or otherwise). Such proposed Subcontractor or Supplier shall be deemed acceptable to Owner unless Owner raises a substantive, reasonable objection within 5 days.
- E. Owner may require the replacement of any Subcontractor or Supplier. Owner also may require Contractor to retain specific replacements; provided, however, that Owner may not require a replacement to which Contractor has a reasonable objection. If Contractor has submitted the identity of certain Subcontractors or Suppliers for acceptance by Owner, and Owner has accepted it (either in writing or by failing to make written objection thereto), then Owner may subsequently revoke the acceptance of any such Subcontractor or Supplier so identified solely on the basis of substantive, reasonable objection after due investigation. Contractor shall submit an acceptable replacement for the rejected Subcontractor or Supplier.
- F. If Owner requires the replacement of any Subcontractor or Supplier retained by Contractor to perform any part of the Work, then Contractor shall be entitled to an adjustment in Contract Price or Contract Times, with respect to the replacement; and Contractor shall initiate a Change Proposal for such adjustment within 30 days of Owner's requirement of replacement.
- G. No acceptance by Owner of any such Subcontractor or Supplier, whether initially or as a replacement, will constitute a waiver of the right of Owner to the completion of the Work in accordance with the Contract Documents.

- H. On a monthly basis, Contractor shall submit to Engineer a complete list of all Subcontractors and Suppliers having a direct contract with Contractor, and of all other Subcontractors and Suppliers known to Contractor at the time of submittal.
- I. Contractor shall be solely responsible for scheduling and coordinating the work of Subcontractors and Suppliers.
- J. The divisions and sections of the Specifications and the identifications of any Drawings do not control Contractor in dividing the Work among Subcontractors or Suppliers, or in delineating the Work to be performed by any specific trade.
- K. All Work performed for Contractor by a Subcontractor or Supplier must be pursuant to an appropriate contractual agreement that specifically binds the Subcontractor or Supplier to the applicable terms and conditions of the Contract for the benefit of Owner and Engineer.
- L. Owner may furnish to any Subcontractor or Supplier, to the extent practicable, information about amounts paid to Contractor for Work performed for Contractor by the Subcontractor or Supplier.
- M. Contractor shall restrict all Subcontractors and Suppliers from communicating with Engineer or Owner, except through Contractor or in case of an emergency, or as otherwise expressly allowed in this Contract.

7.08 *Patent Fees and Royalties*

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

#### 7.09 *Permits*

- A. Unless otherwise provided in the Contract Documents, Contractor shall obtain and pay for all construction permits, licenses, and certificates of occupancy. Owner shall assist Contractor, when necessary, in obtaining such permits and licenses. Contractor shall pay all governmental charges and inspection fees necessary for the prosecution of the Work which are applicable at the time of the submission of Contractor's Bid (or when Contractor became bound under a negotiated contract). Owner shall pay all charges of utility owners for connections for providing permanent service to the Work.

#### 7.10 *Taxes*

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

#### 7.11 *Laws and Regulations*

- A. Contractor shall give all notices required by and shall comply with all Laws and Regulations applicable to the performance of the Work. Neither Owner nor Engineer shall be responsible for monitoring Contractor's compliance with any Laws or Regulations.
- B. If Contractor performs any Work or takes any other action knowing or having reason to know that it is contrary to Laws or Regulations, Contractor shall bear all resulting costs and losses, and shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such Work or other action. It is not Contractor's responsibility to make certain that the Work described in the Contract Documents is in accordance with Laws and Regulations, but this does not relieve Contractor of its obligations under Paragraph 3.03.
- C. Owner or Contractor may give written notice to the other party of any changes after the submission of Contractor's Bid (or after the date when Contractor became bound under a negotiated contract) in Laws or Regulations having an effect on the cost or time of performance of the Work, including but not limited to changes in Laws or Regulations having an effect on procuring permits and on sales, use, value-added, consumption, and other similar taxes. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in Contract Price or Contract Times resulting from such changes, then within 30 days of such written notice Contractor may submit a Change Proposal, or Owner may initiate a Claim.

#### 7.12 *Record Documents*

- A. Contractor shall maintain in a safe place at the Site one printed record copy of all Drawings, Specifications, Addenda, Change Orders, Work Change Directives, Field Orders, written interpretations and clarifications, and approved Shop Drawings. Contractor shall keep such record documents in good order and annotate them to show changes made during construction. These record documents, together with all approved Samples, will be available to Engineer for reference. Upon completion of the Work, Contractor shall deliver these record documents to Engineer.

### 7.13 *Safety and Protection*

- A. Contractor shall be solely responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the Work. Such responsibility does not relieve Subcontractors of their responsibility for the safety of persons or property in the performance of their work, nor for compliance with applicable safety Laws and Regulations.
- B. Contractor shall designate a qualified and experienced safety representative whose duties and responsibilities are the prevention of Work-related accidents and the maintenance and supervision of safety precautions and programs.
- C. Contractor shall take all necessary precautions for the safety of, and shall provide the necessary protection to prevent damage, injury, or loss to:
  - 1. all persons on the Site or who may be affected by the Work;
  - 2. all the Work and materials and equipment to be incorporated therein, whether in storage on or off the Site; and
  - 3. other property at the Site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures, other work in progress, utilities, and Underground Facilities not designated for removal, relocation, or replacement in the course of construction.
- D. All damage, injury, or loss to any property referred to in Paragraph 7.13.C.2 or 7.13.C.3 caused, directly or indirectly, in whole or in part, by Contractor, any Subcontractor, Supplier, or any other individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, shall be remedied by Contractor at its expense (except damage or loss attributable to the fault of Drawings or Specifications or to the acts or omissions of Owner or Engineer or anyone employed by any of them, or anyone for whose acts any of them may be liable, and not attributable, directly or indirectly, in whole or in part, to the fault or negligence of Contractor or any Subcontractor, Supplier, or other individual or entity directly or indirectly employed by any of them).
- E. Contractor shall comply with all applicable Laws and Regulations relating to the safety of persons or property, or to the protection of persons or property from damage, injury, or loss; and shall erect and maintain all necessary safeguards for such safety and protection.
- F. Contractor shall notify Owner; the owners of adjacent property; the owners of Underground Facilities and other utilities (if the identity of such owners is known to Contractor); and other contractors and utility owners performing work at or adjacent to the Site, in writing, when Contractor knows that prosecution of the Work may affect them, and shall cooperate with them in the protection, removal, relocation, and replacement of their property or work in progress.
- G. Contractor shall comply with the applicable requirements of Owner's safety programs, if any. Any Owner's safety programs that are applicable to the Work are identified or included in the Supplementary Conditions or Specifications.
- H. Contractor shall inform Owner and Engineer of the specific requirements of Contractor's safety program with which Owner's and Engineer's employees and representatives must comply while at the Site.

- I. Contractor's duties and responsibilities for safety and protection will continue until all the Work is completed, Engineer has issued a written notice to Owner and Contractor in accordance with Paragraph 15.06.C that the Work is acceptable, and Contractor has left the Site (except as otherwise expressly provided in connection with Substantial Completion).
- J. Contractor's duties and responsibilities for safety and protection will resume whenever Contractor or any Subcontractor or Supplier returns to the Site to fulfill warranty or correction obligations, or to conduct other tasks arising from the Contract Documents.

7.14 *Hazard Communication Programs*

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

7.15 *Emergencies*

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

7.16 *Submittals*

A. *Shop Drawing and Sample Requirements*

- 1. Before submitting a Shop Drawing or Sample, Contractor shall:
  - a. review and coordinate the Shop Drawing or Sample with other Shop Drawings and Samples and with the requirements of the Work and the Contract Documents;
  - b. determine and verify:
    - 1) all field measurements, quantities, dimensions, specified performance and design criteria, installation requirements, materials, catalog numbers, and similar information with respect to the Submittal;
    - 2) the suitability of all materials and equipment offered with respect to the indicated application, fabrication, shipping, handling, storage, assembly, and installation pertaining to the performance of the Work; and
    - 3) all information relative to Contractor's responsibilities for means, methods, techniques, sequences, and procedures of construction, and safety precautions and programs incident thereto;
  - c. confirm that the Submittal is complete with respect to all related data included in the Submittal.
- 2. Each Shop Drawing or Sample must bear a stamp or specific written certification that Contractor has satisfied Contractor's obligations under the Contract Documents with respect to Contractor's review of that Submittal, and that Contractor approves the Submittal.

3. With each Shop Drawing or Sample, Contractor shall give Engineer specific written notice of any variations that the Submittal may have from the requirements of the Contract Documents. This notice must be set forth in a written communication separate from the Submittal; and, in addition, in the case of a Shop Drawing by a specific notation made on the Shop Drawing itself.
- B. *Submittal Procedures for Shop Drawings and Samples:* Contractor shall label and submit Shop Drawings and Samples to Engineer for review and approval in accordance with the accepted Schedule of Submittals.
1. *Shop Drawings*
    - a. Contractor shall submit the number of copies required in the Specifications.
    - b. Data shown on the Shop Drawings must be complete with respect to quantities, dimensions, specified performance and design criteria, materials, and similar data to show Engineer the services, materials, and equipment Contractor proposes to provide, and to enable Engineer to review the information for the limited purposes required by Paragraph 7.16.C.
  2. *Samples*
    - a. Contractor shall submit the number of Samples required in the Specifications.
    - b. Contractor shall clearly identify each Sample as to material, Supplier, pertinent data such as catalog numbers, the use for which intended and other data as Engineer may require to enable Engineer to review the Submittal for the limited purposes required by Paragraph 7.16.C.
  3. Where a Shop Drawing or Sample is required by the Contract Documents or the Schedule of Submittals, any related Work performed prior to Engineer's review and approval of the pertinent submittal will be at the sole expense and responsibility of Contractor.
- C. *Engineer's Review of Shop Drawings and Samples*
1. Engineer will provide timely review of Shop Drawings and Samples in accordance with the accepted Schedule of Submittals. Engineer's review and approval will be only to determine if the items covered by the Submittals will, after installation or incorporation in the Work, comply with the requirements of the Contract Documents, and be compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents.
  2. Engineer's review and approval will not extend to means, methods, techniques, sequences, or procedures of construction, or to safety precautions or programs incident thereto.
  3. Engineer's review and approval of a separate item as such will not indicate approval of the assembly in which the item functions.
  4. Engineer's review and approval of a Shop Drawing or Sample will not relieve Contractor from responsibility for any variation from the requirements of the Contract Documents unless Contractor has complied with the requirements of Paragraph 7.16.A.3 and Engineer has given written approval of each such variation by specific written notation thereof incorporated in or accompanying the Shop Drawing or Sample. Engineer will

document any such approved variation from the requirements of the Contract Documents in a Field Order or other appropriate Contract modification.

5. Engineer's review and approval of a Shop Drawing or Sample will not relieve Contractor from responsibility for complying with the requirements of Paragraphs 7.16.A and B.
6. Engineer's review and approval of a Shop Drawing or Sample, or of a variation from the requirements of the Contract Documents, will not, under any circumstances, change the Contract Times or Contract Price, unless such changes are included in a Change Order.
7. Neither Engineer's receipt, review, acceptance, or approval of a Shop Drawing or Sample will result in such item becoming a Contract Document.
8. Contractor shall perform the Work in compliance with the requirements and commitments set forth in approved Shop Drawings and Samples, subject to the provisions of Paragraph 7.16.C.4.

*D. Resubmittal Procedures for Shop Drawings and Samples*

1. Contractor shall make corrections required by Engineer and shall return the required number of corrected copies of Shop Drawings and submit, as required, new Samples for review and approval. Contractor shall direct specific attention in writing to revisions other than the corrections called for by Engineer on previous Submittals.
2. Contractor shall furnish required Shop Drawing and Sample submittals with sufficient information and accuracy to obtain required approval of an item with no more than two resubmittals. Engineer will record Engineer's time for reviewing a third or subsequent resubmittal of a Shop Drawing or Sample, and Contractor shall be responsible for Engineer's charges to Owner for such time. Owner may impose a set-off against payments due Contractor to secure reimbursement for such charges.
3. If Contractor requests a change of a previously approved Shop Drawing or Sample, Contractor shall be responsible for Engineer's charges to Owner for its review time, and Owner may impose a set-off against payments due Contractor to secure reimbursement for such charges, unless the need for such change is beyond the control of Contractor.

*E. Submittals Other than Shop Drawings, Samples, and Owner-Delegated Designs*

1. The following provisions apply to all Submittals other than Shop Drawings, Samples, and Owner-delegated designs:
  - a. Contractor shall submit all such Submittals to the Engineer in accordance with the Schedule of Submittals and pursuant to the applicable terms of the Contract Documents.
  - b. Engineer will provide timely review of all such Submittals in accordance with the Schedule of Submittals and return such Submittals with a notation of either Accepted or Not Accepted. Any such Submittal that is not returned within the time established in the Schedule of Submittals will be deemed accepted.
  - c. Engineer's review will be only to determine if the Submittal is acceptable under the requirements of the Contract Documents as to general form and content of the Submittal.



- d. If any such Submittal is not accepted, Contractor shall confer with Engineer regarding the reason for the non-acceptance, and resubmit an acceptable document.
  2. Procedures for the submittal and acceptance of the Progress Schedule, the Schedule of Submittals, and the Schedule of Values are set forth in Paragraphs 2.03, 2.04, and 2.05.
- F. Owner-delegated Designs: Submittals pursuant to Owner-delegated designs are governed by the provisions of Paragraph 7.19.

**7.17 Contractor's General Warranty and Guarantee**

- A. Contractor warrants and guarantees to Owner that all Work will be in accordance with the Contract Documents and will not be defective. Engineer is entitled to rely on Contractor's warranty and guarantee.
- B. Owner's rights under this warranty and guarantee are in addition to, and are not limited by, Owner's rights under the correction period provisions of Paragraph 15.08. The time in which Owner may enforce its warranty and guarantee rights under this Paragraph 7.17 is limited only by applicable Laws and Regulations restricting actions to enforce such rights; provided, however, that after the end of the correction period under Paragraph 15.08:
  1. Owner shall give Contractor written notice of any defective Work within 60 days of the discovery that such Work is defective; and
  2. Such notice will be deemed the start of an event giving rise to a Claim under Paragraph 12.01.B, such that any related Claim must be brought within 30 days of the notice.
- C. Contractor's warranty and guarantee hereunder excludes defects or damage caused by:
  1. abuse, or improper modification, maintenance, or operation, by persons other than Contractor, Subcontractors, Suppliers, or any other individual or entity for whom Contractor is responsible; or
  2. normal wear and tear under normal usage.
- D. Contractor's obligation to perform and complete the Work in accordance with the Contract Documents is absolute. None of the following will constitute an acceptance of Work that is not in accordance with the Contract Documents, a release of Contractor's obligation to perform the Work in accordance with the Contract Documents, or a release of Owner's warranty and guarantee rights under this Paragraph 7.17:
  1. Observations by Engineer;
  2. Recommendation by Engineer or payment by Owner of any progress or final payment;
  3. The issuance of a certificate of Substantial Completion by Engineer or any payment related thereto by Owner;
  4. Use or occupancy of the Work or any part thereof by Owner;
  5. Any review and approval of a Shop Drawing or Sample submittal;
  6. The issuance of a notice of acceptability by Engineer;
  7. The end of the correction period established in Paragraph 15.08;
  8. Any inspection, test, or approval by others; or

9. Any correction of defective Work by Owner.
- E. If the Contract requires the Contractor to accept the assignment of a contract entered into by Owner, then the specific warranties, guarantees, and correction obligations contained in the assigned contract will govern with respect to Contractor's performance obligations to Owner for the Work described in the assigned contract.

7.18 *Indemnification*

- A. To the fullest extent permitted by Laws and Regulations, and in addition to any other obligations of Contractor under the Contract or otherwise, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them, from losses, damages, costs, and judgments (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals, and all court or arbitration or other dispute resolution costs) arising from third-party claims or actions relating to or resulting from the performance or furnishing of the Work, provided that any such claim, action, loss, cost, judgment or damage is attributable to bodily injury, sickness, disease, or death, or to damage to or destruction of tangible property (other than the Work itself), including the loss of use resulting therefrom, but only to the extent caused by any negligent act or omission of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable.
- B. In any and all claims against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, by any employee (or the survivor or personal representative of such employee) of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, the indemnification obligation under Paragraph 7.18.A will not be limited in any way by any limitation on the amount or type of damages, compensation, or benefits payable by or for Contractor or any such Subcontractor, Supplier, or other individual or entity under workers' compensation acts, disability benefit acts, or other employee benefit acts.

7.19 *Delegation of Professional Design Services*

- A. Owner may require Contractor to provide professional design services for a portion of the Work by express delegation in the Contract Documents. Such delegation will specify the performance and design criteria that such services must satisfy, and the Submittals that Contractor must furnish to Engineer with respect to the Owner-delegated design.
- B. Contractor shall cause such Owner-delegated professional design services to be provided pursuant to the professional standard of care by a properly licensed design professional, whose signature and seal must appear on all drawings, calculations, specifications, certifications, and Submittals prepared by such design professional. Such design professional must issue all certifications of design required by Laws and Regulations.
- C. If a Shop Drawing or other Submittal related to the Owner-delegated design is prepared by Contractor, a Subcontractor, or others for submittal to Engineer, then such Shop Drawing or other Submittal must bear the written approval of Contractor's design professional when submitted by Contractor to Engineer.

- D. Owner and Engineer shall be entitled to rely upon the adequacy, accuracy, and completeness of the services, certifications, and approvals performed or provided by the design professionals retained or employed by Contractor under an Owner-delegated design, subject to the professional standard of care and the performance and design criteria stated in the Contract Documents.
- E. Pursuant to this Paragraph 7.19, Engineer's review, approval, and other determinations regarding design drawings, calculations, specifications, certifications, and other Submittals furnished by Contractor pursuant to an Owner-delegated design will be only for the following limited purposes:
  - 1. Checking for conformance with the requirements of this Paragraph 7.19;
  - 2. Confirming that Contractor (through its design professionals) has used the performance and design criteria specified in the Contract Documents; and
  - 3. Establishing that the design furnished by Contractor is consistent with the design concept expressed in the Contract Documents.
- F. Contractor shall not be responsible for the adequacy of performance or design criteria specified by Owner or Engineer.
- G. Contractor is not required to provide professional services in violation of applicable Laws and Regulations.

## **ARTICLE 8—OTHER WORK AT THE SITE**

### **8.01 *Other Work***

- A. In addition to and apart from the Work under the Contract Documents, the Owner may perform other work at or adjacent to the Site. Such other work may be performed by Owner's employees, or through contracts between the Owner and third parties. Owner may also arrange to have third-party utility owners perform work on their utilities and facilities at or adjacent to the Site.
- B. If Owner performs other work at or adjacent to the Site with Owner's employees, or through contracts for such other work, then Owner shall give Contractor written notice thereof prior to starting any such other work. If Owner has advance information regarding the start of any third-party utility work that Owner has arranged to take place at or adjacent to the Site, Owner shall provide such information to Contractor.
- C. Contractor shall afford proper and safe access to the Site to each contractor that performs such other work, each utility owner performing other work, and Owner, if Owner is performing other work with Owner's employees, and provide a reasonable opportunity for the introduction and storage of materials and equipment and the execution of such other work.
- D. Contractor shall do all cutting, fitting, and patching of the Work that may be required to properly connect or otherwise make its several parts come together and properly integrate with such other work. Contractor shall not endanger any work of others by cutting, excavating, or otherwise altering such work; provided, however, that Contractor may cut or alter others' work with the written consent of Engineer and the others whose work will be affected.

- E. If the proper execution or results of any part of Contractor's Work depends upon work performed by others, Contractor shall inspect such other work and promptly report to Engineer in writing any delays, defects, or deficiencies in such other work that render it unavailable or unsuitable for the proper execution and results of Contractor's Work. Contractor's failure to so report will constitute an acceptance of such other work as fit and proper for integration with Contractor's Work except for latent defects and deficiencies in such other work.
- F. The provisions of this article are not applicable to work that is performed by third-party utilities or other third-party entities without a contract with Owner, or that is performed without having been arranged by Owner. If such work occurs, then any related delay, disruption, or interference incurred by Contractor is governed by the provisions of Paragraph 4.05.C.3.

#### 8.02 *Coordination*

- A. If Owner intends to contract with others for the performance of other work at or adjacent to the Site, to perform other work at or adjacent to the Site with Owner's employees, or to arrange to have utility owners perform work at or adjacent to the Site, the following will be set forth in the Supplementary Conditions or provided to Contractor prior to the start of any such other work:
  - 1. The identity of the individual or entity that will have authority and responsibility for coordination of the activities among the various contractors;
  - 2. An itemization of the specific matters to be covered by such authority and responsibility; and
  - 3. The extent of such authority and responsibilities.
- B. Unless otherwise provided in the Supplementary Conditions, Owner shall have sole authority and responsibility for such coordination.

#### 8.03 *Legal Relationships*

- A. If, in the course of performing other work for Owner at or adjacent to the Site, the Owner's employees, any other contractor working for Owner, or any utility owner that Owner has arranged to perform work, causes damage to the Work or to the property of Contractor or its Subcontractors, or delays, disrupts, interferes with, or increases the scope or cost of the performance of the Work, through actions or inaction, then Contractor shall be entitled to an equitable adjustment in the Contract Price or the Contract Times. Contractor must submit any Change Proposal seeking an equitable adjustment in the Contract Price or the Contract Times under this paragraph within 30 days of the damaging, delaying, disrupting, or interfering event. The entitlement to, and extent of, any such equitable adjustment will take into account information (if any) regarding such other work that was provided to Contractor in the Contract Documents prior to the submittal of the Bid or the final negotiation of the terms of the Contract, and any remedies available to Contractor under Laws or Regulations concerning utility action or inaction. When applicable, any such equitable adjustment in Contract Price will be conditioned on Contractor assigning to Owner all Contractor's rights against such other contractor or utility owner with respect to the damage, delay, disruption, or interference that is the subject of the adjustment. Contractor's entitlement to an adjustment of the Contract Times or Contract Price is subject to the provisions of Paragraphs 4.05.D and 4.05.E.

- B. Contractor shall take reasonable and customary measures to avoid damaging, delaying, disrupting, or interfering with the work of Owner, any other contractor, or any utility owner performing other work at or adjacent to the Site.
  - 1. If Contractor fails to take such measures and as a result damages, delays, disrupts, or interferes with the work of any such other contractor or utility owner, then Owner may impose a set-off against payments due Contractor, and assign to such other contractor or utility owner the Owner's contractual rights against Contractor with respect to the breach of the obligations set forth in this Paragraph 8.03.B.
  - 2. When Owner is performing other work at or adjacent to the Site with Owner's employees, Contractor shall be liable to Owner for damage to such other work, and for the reasonable direct delay, disruption, and interference costs incurred by Owner as a result of Contractor's failure to take reasonable and customary measures with respect to Owner's other work. In response to such damage, delay, disruption, or interference, Owner may impose a set-off against payments due Contractor.
- C. If Contractor damages, delays, disrupts, or interferes with the work of any other contractor, or any utility owner performing other work at or adjacent to the Site, through Contractor's failure to take reasonable and customary measures to avoid such impacts, or if any claim arising out of Contractor's actions, inactions, or negligence in performance of the Work at or adjacent to the Site is made by any such other contractor or utility owner against Contractor, Owner, or Engineer, then Contractor shall (1) promptly attempt to settle the claim as to all parties through negotiations with such other contractor or utility owner, or otherwise resolve the claim by arbitration or other dispute resolution proceeding or at law, and (2) indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against any such claims, and against all costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such damage, delay, disruption, or interference.

## **ARTICLE 9—OWNER'S RESPONSIBILITIES**

### **9.01 *Communications to Contractor***

- A. Except as otherwise provided in these General Conditions, Owner shall issue all communications to Contractor through Engineer.

### **9.02 *Replacement of Engineer***

- A. Owner may at its discretion appoint an engineer to replace Engineer, provided Contractor makes no reasonable objection to the replacement engineer. The replacement engineer's status under the Contract Documents will be that of the former Engineer.

### **9.03 *Furnish Data***

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

### **9.04 *Pay When Due***

- A. Owner shall make payments to Contractor when they are due as provided in the Agreement.

- 9.05 *Lands and Easements; Reports, Tests, and Drawings*
- A. Owner's duties with respect to providing lands and easements are set forth in Paragraph 5.01.
  - B. Owner's duties with respect to providing engineering surveys to establish reference points are set forth in Paragraph 4.03.
  - C. Article 5 refers to Owner's identifying and making available to Contractor copies of reports of explorations and tests of conditions at the Site, and drawings of physical conditions relating to existing surface or subsurface structures at the Site.
- 9.06 *Insurance*
- A. Owner's responsibilities, if any, with respect to purchasing and maintaining liability and property insurance are set forth in Article 6.
- 9.07 *Change Orders*
- A. Owner's responsibilities with respect to Change Orders are set forth in Article 11.
- 9.08 *Inspections, Tests, and Approvals*
- A. Owner's responsibility with respect to certain inspections, tests, and approvals is set forth in Paragraph 14.02.B.
- 9.09 *Limitations on Owner's Responsibilities*
- A. The Owner shall not supervise, direct, or have control or authority over, nor be responsible for, Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work. Owner will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.
- 9.10 *Undisclosed Hazardous Environmental Condition*
- A. Owner's responsibility in respect to an undisclosed Hazardous Environmental Condition is set forth in Paragraph 5.06.
- 9.11 *Evidence of Financial Arrangements*
- A. Upon request of Contractor, Owner shall furnish Contractor reasonable evidence that financial arrangements have been made to satisfy Owner's obligations under the Contract (including obligations under proposed changes in the Work).
- 9.12 *Safety Programs*
- A. While at the Site, Owner's employees and representatives shall comply with the specific applicable requirements of Contractor's safety programs of which Owner has been informed.
  - B. Owner shall furnish copies of any applicable Owner safety programs to Contractor.

## ARTICLE 10—ENGINEER'S STATUS DURING CONSTRUCTION

### 10.01 *Owner's Representative*

- A. Engineer will be Owner's representative during the construction period. The duties and responsibilities and the limitations of authority of Engineer as Owner's representative during construction are set forth in the Contract.

### 10.02 *Visits to Site*

- A. Engineer will make visits to the Site at intervals appropriate to the various stages of construction as Engineer deems necessary in order to observe, as an experienced and qualified design professional, the progress that has been made and the quality of the various aspects of Contractor's executed Work. Based on information obtained during such visits and observations, Engineer, for the benefit of Owner, will determine, in general, if the Work is proceeding in accordance with the Contract Documents. Engineer will not be required to make exhaustive or continuous inspections on the Site to check the quality or quantity of the Work. Engineer's efforts will be directed toward providing for Owner a greater degree of confidence that the completed Work will conform generally to the Contract Documents. On the basis of such visits and observations, Engineer will keep Owner informed of the progress of the Work and will endeavor to guard Owner against defective Work.
- B. Engineer's visits and observations are subject to all the limitations on Engineer's authority and responsibility set forth in Paragraph 10.07. Particularly, but without limitation, during or as a result of Engineer's visits or observations of Contractor's Work, Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work.

### 10.03 *Resident Project Representative*

- A. If Owner and Engineer have agreed that Engineer will furnish a Resident Project Representative to represent Engineer at the Site and assist Engineer in observing the progress and quality of the Work, then the authority and responsibilities of any such Resident Project Representative will be as provided in the Supplementary Conditions, and limitations on the responsibilities thereof will be as provided in the Supplementary Conditions and in Paragraph 10.07.
- B. If Owner designates an individual or entity who is not Engineer's consultant, agent, or employee to represent Owner at the Site, then the responsibilities and authority of such individual or entity will be as provided in the Supplementary Conditions.

### 10.04 *Engineer's Authority*

- A. Engineer has the authority to reject Work in accordance with Article 14.
- B. Engineer's authority as to Submittals is set forth in Paragraph 7.16.
- C. Engineer's authority as to design drawings, calculations, specifications, certifications and other Submittals from Contractor in response to Owner's delegation (if any) to Contractor of professional design services, is set forth in Paragraph 7.19.
- D. Engineer's authority as to changes in the Work is set forth in Article 11.

E. Engineer's authority as to Applications for Payment is set forth in Article 15.

10.05 *Determinations for Unit Price Work*

A. Engineer will determine the actual quantities and classifications of Unit Price Work performed by Contractor as set forth in Paragraph 13.03.

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

A. Engineer will render decisions regarding the requirements of the Contract Documents, and judge the acceptability of the Work, pursuant to the specific procedures set forth herein for initial interpretations, Change Proposals, and acceptance of the Work. In rendering such decisions and judgments, Engineer will not show partiality to Owner or Contractor, and will not be liable to Owner, Contractor, or others in connection with any proceedings, interpretations, decisions, or judgments conducted or rendered in good faith.

10.07 *Limitations on Engineer's Authority and Responsibilities*

A. Neither Engineer's authority or responsibility under this Article 10 or under any other provision of the Contract, nor any decision made by Engineer in good faith either to exercise or not exercise such authority or responsibility or the undertaking, exercise, or performance of any authority or responsibility by Engineer, will create, impose, or give rise to any duty in contract, tort, or otherwise owed by Engineer to Contractor, any Subcontractor, any Supplier, any other individual or entity, or to any surety for or employee or agent of any of them.

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

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

D. Engineer's review of the final Application for Payment and accompanying documentation, and all maintenance and operating instructions, schedules, guarantees, bonds, certificates of inspection, tests and approvals, and other documentation required to be delivered by Contractor under Paragraph 15.06.A, will only be to determine generally that their content complies with the requirements of, and in the case of certificates of inspections, tests, and approvals, that the results certified indicate compliance with the Contract Documents.

E. The limitations upon authority and responsibility set forth in this Paragraph 10.07 also apply to the Resident Project Representative, if any.

10.08 *Compliance with Safety Program*

A. While at the Site, Engineer's employees and representatives will comply with the specific applicable requirements of Owner's and Contractor's safety programs of which Engineer has been informed.



## ARTICLE 11—CHANGES TO THE CONTRACT

### 11.01 *Amending and Supplementing the Contract*

- A. The Contract may be amended or supplemented by a Change Order, a Work Change Directive, or a Field Order.
- B. If an amendment or supplement to the Contract includes a change in the Contract Price or the Contract Times, such amendment or supplement must be set forth in a Change Order.
- C. All changes to the Contract that involve (1) the performance or acceptability of the Work, (2) the design (as set forth in the Drawings, Specifications, or otherwise), or (3) other engineering or technical matters, must be supported by Engineer's recommendation. Owner and Contractor may amend other terms and conditions of the Contract without the recommendation of the Engineer.

### 11.02 *Change Orders*

- A. Owner and Contractor shall execute appropriate Change Orders covering:
  - 1. Changes in Contract Price or Contract Times which are agreed to by the parties, including any undisputed sum or amount of time for Work actually performed in accordance with a Work Change Directive;
  - 2. Changes in Contract Price resulting from an Owner set-off, unless Contractor has duly contested such set-off;
  - 3. Changes in the Work which are: (a) ordered by Owner pursuant to Paragraph 11.05, (b) required because of Owner's acceptance of defective Work under Paragraph 14.04 or Owner's correction of defective Work under Paragraph 14.07, or (c) agreed to by the parties, subject to the need for Engineer's recommendation if the change in the Work involves the design (as set forth in the Drawings, Specifications, or otherwise) or other engineering or technical matters; and
  - 4. Changes that embody the substance of any final and binding results under: Paragraph 11.03.B, resolving the impact of a Work Change Directive; Paragraph 11.09, concerning Change Proposals; Article 12, Claims; Paragraph 13.02.D, final adjustments resulting from allowances; Paragraph 13.03.D, final adjustments relating to determination of quantities for Unit Price Work; and similar provisions.
- B. If Owner or Contractor refuses to execute a Change Order that is required to be executed under the terms of Paragraph 11.02.A, it will be deemed to be of full force and effect, as if fully executed.

### 11.03 *Work Change Directives*

- A. A Work Change Directive will not change the Contract Price or the Contract Times but is evidence that the parties expect that the modification ordered or documented by a Work Change Directive will be incorporated in a subsequently issued Change Order, following negotiations by the parties as to the Work Change Directive's effect, if any, on the Contract Price and Contract Times; or, if negotiations are unsuccessful, by a determination under the terms of the Contract Documents governing adjustments, expressly including Paragraph 11.07 regarding change of Contract Price.

- B. If Owner has issued a Work Change Directive and:
  - 1. Contractor believes that an adjustment in Contract Times or Contract Price is necessary, then Contractor shall submit any Change Proposal seeking such an adjustment no later than 30 days after the completion of the Work set out in the Work Change Directive.
  - 2. Owner believes that an adjustment in Contract Times or Contract Price is necessary, then Owner shall submit any Claim seeking such an adjustment no later than 60 days after issuance of the Work Change Directive.

#### 11.04 *Field Orders*

- A. Engineer may authorize minor changes in the Work if the changes do not involve an adjustment in the Contract Price or the Contract Times and are compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. Such changes will be accomplished by a Field Order and will be binding on Owner and also on Contractor, which shall perform the Work involved promptly.
- B. If Contractor believes that a Field Order justifies an adjustment in the Contract Price or Contract Times, then before proceeding with the Work at issue, Contractor shall submit a Change Proposal as provided herein.

#### 11.05 *Owner-Authorized Changes in the Work*

- A. Without invalidating the Contract and without notice to any surety, Owner may, at any time or from time to time, order additions, deletions, or revisions in the Work. Changes involving the design (as set forth in the Drawings, Specifications, or otherwise) or other engineering or technical matters will be supported by Engineer's recommendation.
- B. Such changes in the Work may be accomplished by a Change Order, if Owner and Contractor have agreed as to the effect, if any, of the changes on Contract Times or Contract Price; or by a Work Change Directive. Upon receipt of any such document, Contractor shall promptly proceed with the Work involved; or, in the case of a deletion in the Work, promptly cease construction activities with respect to such deleted Work. Added or revised Work must be performed under the applicable conditions of the Contract Documents.
- C. Nothing in this Paragraph 11.05 obligates Contractor to undertake work that Contractor reasonably concludes cannot be performed in a manner consistent with Contractor's safety obligations under the Contract Documents or Laws and Regulations.

#### 11.06 *Unauthorized Changes in the Work*

- A. Contractor shall not be entitled to an increase in the Contract Price or an extension of the Contract Times with respect to any work performed that is not required by the Contract Documents, as amended, modified, or supplemented, except in the case of an emergency as provided in Paragraph 7.15 or in the case of uncovering Work as provided in Paragraph 14.05.C.2.

#### 11.07 *Change of Contract Price*

- A. The Contract Price may only be changed by a Change Order. Any Change Proposal for an adjustment in the Contract Price must comply with the provisions of Paragraph 11.09. Any Claim for an adjustment of Contract Price must comply with the provisions of Article 12.
- B. An adjustment in the Contract Price will be determined as follows:

1. Where the Work involved is covered by unit prices contained in the Contract Documents, then by application of such unit prices to the quantities of the items involved (subject to the provisions of Paragraph 13.03);
  2. Where the Work involved is not covered by unit prices contained in the Contract Documents, then by a mutually agreed lump sum (which may include an allowance for overhead and profit not necessarily in accordance with Paragraph 11.07.C.2); or
  3. Where the Work involved is not covered by unit prices contained in the Contract Documents and the parties do not reach mutual agreement to a lump sum, then on the basis of the Cost of the Work (determined as provided in Paragraph 13.01) plus a Contractor's fee for overhead and profit (determined as provided in Paragraph 11.07.C).
- C. *Contractor's Fee:* When applicable, the Contractor's fee for overhead and profit will be determined as follows:
1. A mutually acceptable fixed fee; or
  2. If a fixed fee is not agreed upon, then a fee based on the following percentages of the various portions of the Cost of the Work:
    - a. For costs incurred under Paragraphs 13.01.B.1 and 13.01.B.2, the Contractor's fee will be 15 percent;
    - b. For costs incurred under Paragraph 13.01.B.3, the Contractor's fee will be 5 percent;
    - c. Where one or more tiers of subcontracts are on the basis of Cost of the Work plus a fee and no fixed fee is agreed upon, the intent of Paragraphs 11.07.C.2.a and 11.07.C.2.b is that the Contractor's fee will be based on: (1) a fee of 15 percent of the costs incurred under Paragraphs 13.01.B.1 and 13.01.B.2 by the Subcontractor that actually performs the Work, at whatever tier, and (2) with respect to Contractor itself and to any Subcontractors of a tier higher than that of the Subcontractor that actually performs the Work, a fee of 5 percent of the amount (fee plus underlying costs incurred) attributable to the next lower tier Subcontractor; provided, however, that for any such subcontracted Work the maximum total fee to be paid by Owner will be no greater than 27 percent of the costs incurred by the Subcontractor that actually performs the Work;
    - d. No fee will be payable on the basis of costs itemized under Paragraphs 13.01.B.4, 13.01.B.5, and 13.01.C;
    - e. The amount of credit to be allowed by Contractor to Owner for any change which results in a net decrease in Cost of the Work will be the amount of the actual net decrease in Cost of the Work and a deduction of an additional amount equal to 5 percent of such actual net decrease in Cost of the Work; and
    - f. When both additions and credits are involved in any one change or Change Proposal, the adjustment in Contractor's fee will be computed by determining the sum of the costs in each of the cost categories in Paragraph 13.01.B (specifically, payroll costs, Paragraph 13.01.B.1; incorporated materials and equipment costs, Paragraph 13.01.B.2; Subcontract costs, Paragraph 13.01.B.3; special consultants costs, Paragraph 13.01.B.4; and other costs, Paragraph 13.01.B.5) and applying to each such cost category sum the appropriate fee from Paragraphs 11.07.C.2.a through 11.07.C.2.e, inclusive.

#### 11.08 *Change of Contract Times*

- A. The Contract Times may only be changed by a Change Order. Any Change Proposal for an adjustment in the Contract Times must comply with the provisions of Paragraph 11.09. Any Claim for an adjustment in the Contract Times must comply with the provisions of Article 12.
- B. Delay, disruption, and interference in the Work, and any related changes in Contract Times, are addressed in and governed by Paragraph 4.05.

#### 11.09 *Change Proposals*

- A. *Purpose and Content:* Contractor shall submit a Change Proposal to Engineer to request an adjustment in the Contract Times or Contract Price; contest an initial decision by Engineer concerning the requirements of the Contract Documents or relating to the acceptability of the Work under the Contract Documents; challenge a set-off against payment due; or seek other relief under the Contract. The Change Proposal will specify any proposed change in Contract Times or Contract Price, or other proposed relief, and explain the reason for the proposed change, with citations to any governing or applicable provisions of the Contract Documents. Each Change Proposal will address only one issue, or a set of closely related issues.

#### B. *Change Proposal Procedures*

1. *Submittal:* Contractor shall submit each Change Proposal to Engineer within 30 days after the start of the event giving rise thereto, or after such initial decision.
2. *Supporting Data:* The Contractor shall submit supporting data, including the proposed change in Contract Price or Contract Time (if any), to the Engineer and Owner within 15 days after the submittal of the Change Proposal.
  - a. Change Proposals based on or related to delay, interruption, or interference must comply with the provisions of Paragraphs 4.05.D and 4.05.E.
  - b. Change proposals related to a change of Contract Price must include full and detailed accounts of materials incorporated into the Work and labor and equipment used for the subject Work.

The supporting data must be accompanied by a written statement that the supporting data are accurate and complete, and that any requested time or price adjustment is the entire adjustment to which Contractor believes it is entitled as a result of said event.

3. *Engineer's Initial Review:* Engineer will advise Owner regarding the Change Proposal, and consider any comments or response from Owner regarding the Change Proposal. If in its discretion Engineer concludes that additional supporting data is needed before conducting a full review and making a decision regarding the Change Proposal, then Engineer may request that Contractor submit such additional supporting data by a date specified by Engineer, prior to Engineer beginning its full review of the Change Proposal.
4. *Engineer's Full Review and Action on the Change Proposal:* Upon receipt of Contractor's supporting data (including any additional data requested by Engineer), Engineer will conduct a full review of each Change Proposal and, within 30 days after such receipt of the Contractor's supporting data, either approve the Change Proposal in whole, deny it in whole, or approve it in part and deny it in part. Such actions must be in writing, with a copy provided to Owner and Contractor. If Engineer does not take action on the Change

Proposal within 30 days, then either Owner or Contractor may at any time thereafter submit a letter to the other party indicating that as a result of Engineer's inaction the Change Proposal is deemed denied, thereby commencing the time for appeal of the denial under Article 12.

5. *Binding Decision*: Engineer's decision is final and binding upon Owner and Contractor, unless Owner or Contractor appeals the decision by filing a Claim under Article 12.
- C. *Resolution of Certain Change Proposals*: If the Change Proposal does not involve the design (as set forth in the Drawings, Specifications, or otherwise), the acceptability of the Work, or other engineering or technical matters, then Engineer will notify the parties in writing that the Engineer is unable to resolve the Change Proposal. For purposes of further resolution of such a Change Proposal, such notice will be deemed a denial, and Contractor may choose to seek resolution under the terms of Article 12.
- D. *Post-Completion*: Contractor shall not submit any Change Proposals after Engineer issues a written recommendation of final payment pursuant to Paragraph 15.06.B.

#### 11.10 *Notification to Surety*

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

### **ARTICLE 12—CLAIMS**

#### 12.01 *Claims*

- A. *Claims Process*: The following disputes between Owner and Contractor are subject to the Claims process set forth in this article:
  1. Appeals by Owner or Contractor of Engineer's decisions regarding Change Proposals;
  2. Owner demands for adjustments in the Contract Price or Contract Times, or other relief under the Contract Documents;
  3. Disputes that Engineer has been unable to address because they do not involve the design (as set forth in the Drawings, Specifications, or otherwise), the acceptability of the Work, or other engineering or technical matters; and
  4. Subject to the waiver provisions of Paragraph 15.07, any dispute arising after Engineer has issued a written recommendation of final payment pursuant to Paragraph 15.06.B.
- B. *Submittal of Claim*: The party submitting a Claim shall deliver it directly to the other party to the Contract promptly (but in no event later than 30 days) after the start of the event giving rise thereto; in the case of appeals regarding Change Proposals within 30 days of the decision under appeal. The party submitting the Claim shall also furnish a copy to the Engineer, for its information only. The responsibility to substantiate a Claim rests with the party making the Claim. In the case of a Claim by Contractor seeking an increase in the Contract Times or Contract Price, Contractor shall certify that the Claim is made in good faith, that the supporting data are accurate and complete, and that to the best of Contractor's knowledge

and belief the amount of time or money requested accurately reflects the full amount to which Contractor is entitled.

- C. *Review and Resolution*: The party receiving a Claim shall review it thoroughly, giving full consideration to its merits. The two parties shall seek to resolve the Claim through the exchange of information and direct negotiations. The parties may extend the time for resolving the Claim by mutual agreement. All actions taken on a Claim will be stated in writing and submitted to the other party, with a copy to Engineer.
- D. *Mediation*
  - 1. At any time after initiation of a Claim, Owner and Contractor may mutually agree to mediation of the underlying dispute. The agreement to mediate will stay the Claim submittal and response process.
  - 2. If Owner and Contractor agree to mediation, then after 60 days from such agreement, either Owner or Contractor may unilaterally terminate the mediation process, and the Claim submittal and decision process will resume as of the date of the termination. If the mediation proceeds but is unsuccessful in resolving the dispute, the Claim submittal and decision process will resume as of the date of the conclusion of the mediation, as determined by the mediator.
  - 3. Owner and Contractor shall each pay one-half of the mediator's fees and costs.
- E. *Partial Approval*: If the party receiving a Claim approves the Claim in part and denies it in part, such action will be final and binding unless within 30 days of such action the other party invokes the procedure set forth in Article 17 for final resolution of disputes.
- F. *Denial of Claim*: If efforts to resolve a Claim are not successful, the party receiving the Claim may deny it by giving written notice of denial to the other party. If the receiving party does not take action on the Claim within 90 days, then either Owner or Contractor may at any time thereafter submit a letter to the other party indicating that as a result of the inaction, the Claim is deemed denied, thereby commencing the time for appeal of the denial. A denial of the Claim will be final and binding unless within 30 days of the denial the other party invokes the procedure set forth in Article 17 for the final resolution of disputes.
- G. *Final and Binding Results*: If the parties reach a mutual agreement regarding a Claim, whether through approval of the Claim, direct negotiations, mediation, or otherwise; or if a Claim is approved in part and denied in part, or denied in full, and such actions become final and binding; then the results of the agreement or action on the Claim will be incorporated in a Change Order or other written document to the extent they affect the Contract, including the Work, the Contract Times, or the Contract Price.

## **ARTICLE 13—COST OF THE WORK; ALLOWANCES; UNIT PRICE WORK**

### **13.01 *Cost of the Work***

- A. *Purposes for Determination of Cost of the Work*: The term Cost of the Work means the sum of all costs necessary for the proper performance of the Work at issue, as further defined below. The provisions of this Paragraph 13.01 are used for two distinct purposes:
  - 1. To determine Cost of the Work when Cost of the Work is a component of the Contract Price, under cost-plus-fee, time-and-materials, or other cost-based terms; or

2. When needed to determine the value of a Change Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price. When the value of any such adjustment is determined on the basis of Cost of the Work, Contractor is entitled only to those additional or incremental costs required because of the change in the Work or because of the event giving rise to the adjustment.
- B. *Costs Included:* Except as otherwise may be agreed to in writing by Owner, costs included in the Cost of the Work will be in amounts no higher than those commonly incurred in the locality of the Project, will not include any of the costs itemized in Paragraph 13.01.C, and will include only the following items:
1. Payroll costs for employees in the direct employ of Contractor in the performance of the Work under schedules of job classifications agreed upon by Owner and Contractor in advance of the subject Work. Such employees include, without limitation, superintendents, foremen, safety managers, safety representatives, and other personnel employed full time on the Work. Payroll costs for employees not employed full time on the Work will be apportioned on the basis of their time spent on the Work. Payroll costs include, but are not limited to, salaries and wages plus the cost of fringe benefits, which include social security contributions, unemployment, excise, and payroll taxes, workers' compensation, health and retirement benefits, sick leave, and vacation and holiday pay applicable thereto. The expenses of performing Work outside of regular working hours, on Saturday, Sunday, or legal holidays, will be included in the above to the extent authorized by Owner.
  2. Cost of all materials and equipment furnished and incorporated in the Work, including costs of transportation and storage thereof, and Suppliers' field services required in connection therewith. All cash discounts accrue to Contractor unless Owner deposits funds with Contractor with which to make payments, in which case the cash discounts will accrue to Owner. All trade discounts, rebates, and refunds and returns from sale of surplus materials and equipment will accrue to Owner, and Contractor shall make provisions so that they may be obtained.
  3. Payments made by Contractor to Subcontractors for Work performed by Subcontractors. If required by Owner, Contractor shall obtain competitive bids from subcontractors acceptable to Owner and Contractor and shall deliver such bids to Owner, which will then determine, with the advice of Engineer, which bids, if any, will be acceptable. If any subcontract provides that the Subcontractor is to be paid on the basis of Cost of the Work plus a fee, the Subcontractor's Cost of the Work and fee will be determined in the same manner as Contractor's Cost of the Work and fee as provided in this Paragraph 13.01.
  4. Costs of special consultants (including but not limited to engineers, architects, testing laboratories, surveyors, attorneys, and accountants) employed or retained for services specifically related to the Work.
  5. Other costs consisting of the following:
    - a. The proportion of necessary transportation, travel, and subsistence expenses of Contractor's employees incurred in discharge of duties connected with the Work.
    - b. Cost, including transportation and maintenance, of all materials, supplies, equipment, machinery, appliances, office, and temporary facilities at the Site, which are

consumed in the performance of the Work, and cost, less market value, of such items used but not consumed which remain the property of Contractor.

- 1) In establishing included costs for materials such as scaffolding, plating, or sheeting, consideration will be given to the actual or the estimated life of the material for use on other projects; or rental rates may be established on the basis of purchase or salvage value of such items, whichever is less. Contractor will not be eligible for compensation for such items in an amount that exceeds the purchase cost of such item.

c. *Construction Equipment Rental*

- 1) Rentals of all construction equipment and machinery, and the parts thereof, in accordance with rental agreements approved by Owner as to price (including any surcharge or special rates applicable to overtime use of the construction equipment or machinery), and the costs of transportation, loading, unloading, assembly, dismantling, and removal thereof. All such costs will be in accordance with the terms of said rental agreements. The rental of any such equipment, machinery, or parts must cease when the use thereof is no longer necessary for the Work.
  - 2) Costs for equipment and machinery owned by Contractor or a Contractor-related entity will be paid at a rate shown for such equipment in the equipment rental rate book specified in the Supplementary Conditions. An hourly rate will be computed by dividing the monthly rates by 176. These computed rates will include all operating costs.
  - 3) With respect to Work that is the result of a Change Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price ("changed Work"), included costs will be based on the time the equipment or machinery is in use on the changed Work and the costs of transportation, loading, unloading, assembly, dismantling, and removal when directly attributable to the changed Work. The cost of any such equipment or machinery, or parts thereof, must cease to accrue when the use thereof is no longer necessary for the changed Work.
- d. Sales, consumer, use, and other similar taxes related to the Work, and for which Contractor is liable, as imposed by Laws and Regulations.
- e. Deposits lost for causes other than negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, and royalty payments and fees for permits and licenses.
- f. Losses and damages (and related expenses) caused by damage to the Work, not compensated by insurance or otherwise, sustained by Contractor in connection with the performance of the Work (except losses and damages within the deductible amounts of builder's risk or other property insurance established in accordance with Paragraph 6.04), provided such losses and damages have resulted from causes other than the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable. Such losses include settlements made with the written consent and approval of Owner. No such losses, damages, and expenses will be included in the Cost of the Work for the purpose of determining Contractor's fee.



- g. The cost of utilities, fuel, and sanitary facilities at the Site.
- h. Minor expenses such as communication service at the Site, express and courier services, and similar petty cash items in connection with the Work.
- i. The costs of premiums for all bonds and insurance that Contractor is required by the Contract Documents to purchase and maintain.

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

- 1. Payroll costs and other compensation of Contractor's officers, executives, principals, general managers, engineers, architects, estimators, attorneys, auditors, accountants, purchasing and contracting agents, expeditors, timekeepers, clerks, and other personnel employed by Contractor, whether at the Site or in Contractor's principal or branch office for general administration of the Work and not specifically included in the agreed upon schedule of job classifications referred to in Paragraph 13.01.B.1 or specifically covered by Paragraph 13.01.B.4. The payroll costs and other compensation excluded here are to be considered administrative costs covered by the Contractor's fee.
- 2. The cost of purchasing, renting, or furnishing small tools and hand tools.
- 3. Expenses of Contractor's principal and branch offices other than Contractor's office at the Site.
- 4. Any part of Contractor's capital expenses, including interest on Contractor's capital employed for the Work and charges against Contractor for delinquent payments.
- 5. Costs due to the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, including but not limited to, the correction of defective Work, disposal of materials or equipment wrongly supplied, and making good any damage to property.
- 6. Expenses incurred in preparing and advancing Claims.
- 7. Other overhead or general expense costs of any kind and the costs of any item not specifically and expressly included in Paragraph 13.01.B.

D. *Contractor's Fee*

- 1. When the Work as a whole is performed on the basis of cost-plus-a-fee, then:
  - a. Contractor's fee for the Work set forth in the Contract Documents as of the Effective Date of the Contract will be determined as set forth in the Agreement.
  - b. for any Work covered by a Change Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price on the basis of Cost of the Work, Contractor's fee will be determined as follows:
    - 1) When the fee for the Work as a whole is a percentage of the Cost of the Work, the fee will automatically adjust as the Cost of the Work changes.
    - 2) When the fee for the Work as a whole is a fixed fee, the fee for any additions or deletions will be determined in accordance with Paragraph 11.07.C.2.
- 2. When the Work as a whole is performed on the basis of a stipulated sum, or any other basis other than cost-plus-a-fee, then Contractor's fee for any Work covered by a Change

Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price on the basis of Cost of the Work will be determined in accordance with Paragraph 11.07.C.2.

- E. *Documentation and Audit*: Whenever the Cost of the Work for any purpose is to be determined pursuant to this Article 13, Contractor and pertinent Subcontractors will establish and maintain records of the costs in accordance with generally accepted accounting practices. Subject to prior written notice, Owner will be afforded reasonable access, during normal business hours, to all Contractor's accounts, records, books, correspondence, instructions, drawings, receipts, vouchers, memoranda, and similar data relating to the Cost of the Work and Contractor's fee. Contractor shall preserve all such documents for a period of three years after the final payment by Owner. Pertinent Subcontractors will afford such access to Owner, and preserve such documents, to the same extent required of Contractor.

### 13.02 Allowances

- A. It is understood that Contractor has included in the Contract Price all allowances so named in the Contract Documents and shall cause the Work so covered to be performed for such sums and by such persons or entities as may be acceptable to Owner and Engineer.
- B. *Cash Allowances*: Contractor agrees that:
1. the cash allowances include the cost to Contractor (less any applicable trade discounts) of materials and equipment required by the allowances to be delivered at the Site, and all applicable taxes; and
  2. Contractor's costs for unloading and handling on the Site, labor, installation, overhead, profit, and other expenses contemplated for the cash allowances have been included in the Contract Price and not in the allowances, and no demand for additional payment for any of the foregoing will be valid.
- C. *Owner's Contingency Allowance*: Contractor agrees that an Owner's contingency allowance, if any, is for the sole use of Owner to cover unanticipated costs.
- D. Prior to final payment, an appropriate Change Order will be issued as recommended by Engineer to reflect actual amounts due Contractor for Work covered by allowances, and the Contract Price will be correspondingly adjusted.

### 13.03 Unit Price Work

- A. Where the Contract Documents provide that all or part of the Work is to be Unit Price Work, initially the Contract Price will be deemed to include for all Unit Price Work an amount equal to the sum of the unit price for each separately identified item of Unit Price Work times the estimated quantity of each item as indicated in the Agreement.
- B. The estimated quantities of items of Unit Price Work are not guaranteed and are solely for the purpose of comparison of Bids and determining an initial Contract Price. Payments to Contractor for Unit Price Work will be based on actual quantities.
- C. Each unit price will be deemed to include an amount considered by Contractor to be adequate to cover Contractor's overhead and profit for each separately identified item.
- D. Engineer will determine the actual quantities and classifications of Unit Price Work performed by Contractor. Engineer will review with Contractor the Engineer's preliminary determinations on such matters before rendering a written decision thereon (by recommendation of an Application for Payment or otherwise). Engineer's written decision

thereon will be final and binding (except as modified by Engineer to reflect changed factual conditions or more accurate data) upon Owner and Contractor, and the final adjustment of Contract Price will be set forth in a Change Order, subject to the provisions of the following paragraph.

E. *Adjustments in Unit Price*

1. Contractor or Owner shall be entitled to an adjustment in the unit price with respect to an item of Unit Price Work if:
  - a. the quantity of the item of Unit Price Work performed by Contractor differs materially and significantly from the estimated quantity of such item indicated in the Agreement; and
  - b. Contractor's unit costs to perform the item of Unit Price Work have changed materially and significantly as a result of the quantity change.
2. The adjustment in unit price will account for and be coordinated with any related changes in quantities of other items of Work, and in Contractor's costs to perform such other Work, such that the resulting overall change in Contract Price is equitable to Owner and Contractor.
3. Adjusted unit prices will apply to all units of that item.

**ARTICLE 14—TESTS AND INSPECTIONS; CORRECTION, REMOVAL, OR ACCEPTANCE OF DEFECTIVE WORK**

14.01 *Access to Work*

- A. Owner, Engineer, their consultants and other representatives and personnel of Owner, independent testing laboratories, and authorities having jurisdiction have access to the Site and the Work at reasonable times for their observation, inspection, and testing. Contractor shall provide them proper and safe conditions for such access and advise them of Contractor's safety procedures and programs so that they may comply with such procedures and programs as applicable.

14.02 *Tests, Inspections, and Approvals*

- A. Contractor shall give Engineer timely notice of readiness of the Work (or specific parts thereof) for all required inspections and tests, and shall cooperate with inspection and testing personnel to facilitate required inspections and tests.
- B. Owner shall retain and pay for the services of an independent inspector, testing laboratory, or other qualified individual or entity to perform all inspections and tests expressly required by the Contract Documents to be furnished and paid for by Owner, except that costs incurred in connection with tests or inspections of covered Work will be governed by the provisions of Paragraph 14.05.
- C. If Laws or Regulations of any public body having jurisdiction require any Work (or part thereof) specifically to be inspected, tested, or approved by an employee or other representative of such public body, Contractor shall assume full responsibility for arranging and obtaining such inspections, tests, or approvals, pay all costs in connection therewith, and furnish Engineer the required certificates of inspection or approval.

- D. Contractor shall be responsible for arranging, obtaining, and paying for all inspections and tests required:
1. by the Contract Documents, unless the Contract Documents expressly allocate responsibility for a specific inspection or test to Owner;
  2. to attain Owner's and Engineer's acceptance of materials or equipment to be incorporated in the Work;
  3. by manufacturers of equipment furnished under the Contract Documents;
  4. for testing, adjusting, and balancing of mechanical, electrical, and other equipment to be incorporated into the Work; and
  5. for acceptance of materials, mix designs, or equipment submitted for approval prior to Contractor's purchase thereof for incorporation in the Work.

Such inspections and tests will be performed by independent inspectors, testing laboratories, or other qualified individuals or entities acceptable to Owner and Engineer.

- E. If the Contract Documents require the Work (or part thereof) to be approved by Owner, Engineer, or another designated individual or entity, then Contractor shall assume full responsibility for arranging and obtaining such approvals.
- F. If any Work (or the work of others) that is to be inspected, tested, or approved is covered by Contractor without written concurrence of Engineer, Contractor shall, if requested by Engineer, uncover such Work for observation. Such uncovering will be at Contractor's expense unless Contractor had given Engineer timely notice of Contractor's intention to cover the same and Engineer had not acted with reasonable promptness in response to such notice.

#### 14.03 *Defective Work*

- A. *Contractor's Obligation:* It is Contractor's obligation to assure that the Work is not defective.
- B. *Engineer's Authority:* Engineer has the authority to determine whether Work is defective, and to reject defective Work.
- C. *Notice of Defects:* Prompt written notice of all defective Work of which Owner or Engineer has actual knowledge will be given to Contractor.
- D. *Correction, or Removal and Replacement:* Promptly after receipt of written notice of defective Work, Contractor shall correct all such defective Work, whether or not fabricated, installed, or completed, or, if Engineer has rejected the defective Work, remove it from the Project and replace it with Work that is not defective.
- E. *Preservation of Warranties:* When correcting defective Work, Contractor shall take no action that would void or otherwise impair Owner's special warranty and guarantee, if any, on said Work.
- F. *Costs and Damages:* In addition to its correction, removal, and replacement obligations with respect to defective Work, Contractor shall pay all claims, costs, losses, and damages arising out of or relating to defective Work, including but not limited to the cost of the inspection, testing, correction, removal, replacement, or reconstruction of such defective Work, fines levied against Owner by governmental authorities because the Work is defective, and the costs of repair or replacement of work of others resulting from defective Work. Prior to final payment, if Owner and Contractor are unable to agree as to the measure of such claims, costs,

losses, and damages resulting from defective Work, then Owner may impose a reasonable set-off against payments due under Article 15.

#### 14.04 *Acceptance of Defective Work*

- A. If, instead of requiring correction or removal and replacement of defective Work, Owner prefers to accept it, Owner may do so (subject, if such acceptance occurs prior to final payment, to Engineer's confirmation that such acceptance is in general accord with the design intent and applicable engineering principles, and will not endanger public safety). Contractor shall pay all claims, costs, losses, and damages attributable to Owner's evaluation of and determination to accept such defective Work (such costs to be approved by Engineer as to reasonableness), and for the diminished value of the Work to the extent not otherwise paid by Contractor. If any such acceptance occurs prior to final payment, the necessary revisions in the Contract Documents with respect to the Work will be incorporated in a Change Order. If the parties are unable to agree as to the decrease in the Contract Price, reflecting the diminished value of Work so accepted, then Owner may impose a reasonable set-off against payments due under Article 15. If the acceptance of defective Work occurs after final payment, Contractor shall pay an appropriate amount to Owner.

#### 14.05 *Uncovering Work*

- A. Engineer has the authority to require additional inspection or testing of the Work, whether or not the Work is fabricated, installed, or completed.
- B. If any Work is covered contrary to the written request of Engineer, then Contractor shall, if requested by Engineer, uncover such Work for Engineer's observation, and then replace the covering, all at Contractor's expense.
- C. If Engineer considers it necessary or advisable that covered Work be observed by Engineer or inspected or tested by others, then Contractor, at Engineer's request, shall uncover, expose, or otherwise make available for observation, inspection, or testing as Engineer may require, that portion of the Work in question, and provide all necessary labor, material, and equipment.
  - 1. If it is found that the uncovered Work is defective, Contractor shall be responsible for all claims, costs, losses, and damages arising out of or relating to such uncovering, exposure, observation, inspection, and testing, and of satisfactory replacement or reconstruction (including but not limited to all costs of repair or replacement of work of others); and pending Contractor's full discharge of this responsibility the Owner shall be entitled to impose a reasonable set-off against payments due under Article 15.
  - 2. If the uncovered Work is not found to be defective, Contractor shall be allowed an increase in the Contract Price or an extension of the Contract Times, directly attributable to such uncovering, exposure, observation, inspection, testing, replacement, and reconstruction. If the parties are unable to agree as to the amount or extent thereof, then Contractor may submit a Change Proposal within 30 days of the determination that the Work is not defective.

#### 14.06 *Owner May Stop the Work*

- A. If the Work is defective, or Contractor fails to supply sufficient skilled workers or suitable materials or equipment, or fails to perform the Work in such a way that the completed Work will conform to the Contract Documents, then Owner may order Contractor to stop the Work,

or any portion thereof, until the cause for such order has been eliminated; however, this right of Owner to stop the Work will not give rise to any duty on the part of Owner to exercise this right for the benefit of Contractor, any Subcontractor, any Supplier, any other individual or entity, or any surety for, or employee or agent of any of them.

**14.07 Owner May Correct Defective Work**

- A. If Contractor fails within a reasonable time after written notice from Engineer to correct defective Work, or to remove and replace defective Work as required by Engineer, then Owner may, after 7 days' written notice to Contractor, correct or remedy any such deficiency.
- B. In exercising the rights and remedies under this Paragraph 14.07, Owner shall proceed expeditiously. In connection with such corrective or remedial action, Owner may exclude Contractor from all or part of the Site, take possession of all or part of the Work and suspend Contractor's services related thereto, and incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere. Contractor shall allow Owner, Owner's representatives, agents and employees, Owner's other contractors, and Engineer and Engineer's consultants access to the Site to enable Owner to exercise the rights and remedies under this paragraph.
- C. All claims, costs, losses, and damages incurred or sustained by Owner in exercising the rights and remedies under this Paragraph 14.07 will be charged against Contractor as set-offs against payments due under Article 15. Such claims, costs, losses and damages will include but not be limited to all costs of repair, or replacement of work of others destroyed or damaged by correction, removal, or replacement of Contractor's defective Work.
- D. Contractor shall not be allowed an extension of the Contract Times because of any delay in the performance of the Work attributable to the exercise by Owner of Owner's rights and remedies under this Paragraph 14.07.

**ARTICLE 15—PAYMENTS TO CONTRACTOR; SET-OFFS; COMPLETION; CORRECTION PERIOD**

**15.01 Progress Payments**

- A. *Basis for Progress Payments:* The Schedule of Values established as provided in Article 2 will serve as the basis for progress payments and will be incorporated into a form of Application for Payment acceptable to Engineer. Progress payments for Unit Price Work will be based on the number of units completed during the pay period, as determined under the provisions of Paragraph 13.03. Progress payments for cost-based Work will be based on Cost of the Work completed by Contractor during the pay period.
- B. *Applications for Payments*
  - 1. At least 20 days before the date established in the Agreement for each progress payment (but not more often than once a month), Contractor shall submit to Engineer for review an Application for Payment filled out and signed by Contractor covering the Work completed as of the date of the Application and accompanied by such supporting documentation as is required by the Contract Documents.
  - 2. If payment is requested on the basis of materials and equipment not incorporated in the Work but delivered and suitably stored at the Site or at another location agreed to in writing, the Application for Payment must also be accompanied by: (a) a bill of sale, invoice, copies of subcontract or purchase order payments, or other documentation

establishing full payment by Contractor for the materials and equipment; (b) at Owner's request, documentation warranting that Owner has received the materials and equipment free and clear of all Liens; and (c) evidence that the materials and equipment are covered by appropriate property insurance, a warehouse bond, or other arrangements to protect Owner's interest therein, all of which must be satisfactory to Owner.

3. Beginning with the second Application for Payment, each Application must include an affidavit of Contractor stating that all previous progress payments received by Contractor have been applied to discharge Contractor's legitimate obligations associated with prior Applications for Payment.
4. The amount of retainage with respect to progress payments will be as stipulated in the Agreement.

C. *Review of Applications*

1. Engineer will, within 10 days after receipt of each Application for Payment, including each resubmittal, either indicate in writing a recommendation of payment and present the Application to Owner, or return the Application to Contractor indicating in writing Engineer's reasons for refusing to recommend payment. In the latter case, Contractor may make the necessary corrections and resubmit the Application.
2. Engineer's recommendation of any payment requested in an Application for Payment will constitute a representation by Engineer to Owner, based on Engineer's observations of the executed Work as an experienced and qualified design professional, and on Engineer's review of the Application for Payment and the accompanying data and schedules, that to the best of Engineer's knowledge, information and belief:
  - a. the Work has progressed to the point indicated;
  - b. the quality of the Work is generally in accordance with the Contract Documents (subject to an evaluation of the Work as a functioning whole prior to or upon Substantial Completion, the results of any subsequent tests called for in the Contract Documents, a final determination of quantities and classifications for Unit Price Work under Paragraph 13.03, and any other qualifications stated in the recommendation); and
  - c. the conditions precedent to Contractor's being entitled to such payment appear to have been fulfilled in so far as it is Engineer's responsibility to observe the Work.
3. By recommending any such payment Engineer will not thereby be deemed to have represented that:
  - a. inspections made to check the quality or the quantity of the Work as it has been performed have been exhaustive, extended to every aspect of the Work in progress, or involved detailed inspections of the Work beyond the responsibilities specifically assigned to Engineer in the Contract; or
  - b. there may not be other matters or issues between the parties that might entitle Contractor to be paid additionally by Owner or entitle Owner to withhold payment to Contractor.

4. Neither Engineer's review of Contractor's Work for the purposes of recommending payments nor Engineer's recommendation of any payment, including final payment, will impose responsibility on Engineer:
    - a. to supervise, direct, or control the Work;
    - b. for the means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto;
    - c. for Contractor's failure to comply with Laws and Regulations applicable to Contractor's performance of the Work;
    - d. to make any examination to ascertain how or for what purposes Contractor has used the money paid by Owner; or
    - e. to determine that title to any of the Work, materials, or equipment has passed to Owner free and clear of any Liens.
  5. Engineer may refuse to recommend the whole or any part of any payment if, in Engineer's opinion, it would be incorrect to make the representations to Owner stated in Paragraph 15.01.C.2.
  6. Engineer will recommend reductions in payment (set-offs) necessary in Engineer's opinion to protect Owner from loss because:
    - a. the Work is defective, requiring correction or replacement;
    - b. the Contract Price has been reduced by Change Orders;
    - c. Owner has been required to correct defective Work in accordance with Paragraph 14.07, or has accepted defective Work pursuant to Paragraph 14.04;
    - d. Owner has been required to remove or remediate a Hazardous Environmental Condition for which Contractor is responsible; or
    - e. Engineer has actual knowledge of the occurrence of any of the events that would constitute a default by Contractor and therefore justify termination for cause under the Contract Documents.
- D. *Payment Becomes Due*
1. Ten days after presentation of the Application for Payment to Owner with Engineer's recommendation, the amount recommended (subject to any Owner set-offs) will become due, and when due will be paid by Owner to Contractor.
- E. *Reductions in Payment by Owner*
1. In addition to any reductions in payment (set-offs) recommended by Engineer, Owner is entitled to impose a set-off against payment based on any of the following:
    - a. Claims have been made against Owner based on Contractor's conduct in the performance or furnishing of the Work, or Owner has incurred costs, losses, or damages resulting from Contractor's conduct in the performance or furnishing of the Work, including but not limited to claims, costs, losses, or damages from workplace injuries, adjacent property damage, non-compliance with Laws and Regulations, and patent infringement;



- b. Contractor has failed to take reasonable and customary measures to avoid damage, delay, disruption, and interference with other work at or adjacent to the Site;
  - c. Contractor has failed to provide and maintain required bonds or insurance;
  - d. Owner has been required to remove or remediate a Hazardous Environmental Condition for which Contractor is responsible;
  - e. Owner has incurred extra charges or engineering costs related to submittal reviews, evaluations of proposed substitutes, tests and inspections, or return visits to manufacturing or assembly facilities;
  - f. The Work is defective, requiring correction or replacement;
  - g. Owner has been required to correct defective Work in accordance with Paragraph 14.07, or has accepted defective Work pursuant to Paragraph 14.04;
  - h. The Contract Price has been reduced by Change Orders;
  - i. An event has occurred that would constitute a default by Contractor and therefore justify a termination for cause;
  - j. Liquidated or other damages have accrued as a result of Contractor's failure to achieve Milestones, Substantial Completion, or final completion of the Work;
  - k. Liens have been filed in connection with the Work, except where Contractor has delivered a specific bond satisfactory to Owner to secure the satisfaction and discharge of such Liens; or
  - l. Other items entitle Owner to a set-off against the amount recommended.
2. If Owner imposes any set-off against payment, whether based on its own knowledge or on the written recommendations of Engineer, Owner will give Contractor immediate written notice (with a copy to Engineer) stating the reasons for such action and the specific amount of the reduction, and promptly pay Contractor any amount remaining after deduction of the amount so withheld. Owner shall promptly pay Contractor the amount so withheld, or any adjustment thereto agreed to by Owner and Contractor, if Contractor remedies the reasons for such action. The reduction imposed will be binding on Contractor unless it duly submits a Change Proposal contesting the reduction.
  3. Upon a subsequent determination that Owner's refusal of payment was not justified, the amount wrongfully withheld will be treated as an amount due as determined by Paragraph 15.01.D.1 and subject to interest as provided in the Agreement.

#### 15.02 *Contractor's Warranty of Title*

- A. Contractor warrants and guarantees that title to all Work, materials, and equipment furnished under the Contract will pass to Owner free and clear of (1) all Liens and other title defects, and (2) all patent, licensing, copyright, or royalty obligations, no later than 7 days after the time of payment by Owner.

#### 15.03 *Substantial Completion*

- A. When Contractor considers the entire Work ready for its intended use Contractor shall notify Owner and Engineer in writing that the entire Work is substantially complete and request that Engineer issue a certificate of Substantial Completion. Contractor shall at the same time

submit to Owner and Engineer an initial draft of punch list items to be completed or corrected before final payment.

- B. Promptly after Contractor's notification, Owner, Contractor, and Engineer shall make an inspection of the Work to determine the status of completion. If Engineer does not consider the Work substantially complete, Engineer will notify Contractor in writing giving the reasons therefor.
- C. If Engineer considers the Work substantially complete, Engineer will deliver to Owner a preliminary certificate of Substantial Completion which will fix the date of Substantial Completion. Engineer shall attach to the certificate a punch list of items to be completed or corrected before final payment. Owner shall have 7 days after receipt of the preliminary certificate during which to make written objection to Engineer as to any provisions of the certificate or attached punch list. If, after considering the objections to the provisions of the preliminary certificate, Engineer concludes that the Work is not substantially complete, Engineer will, within 14 days after submission of the preliminary certificate to Owner, notify Contractor in writing that the Work is not substantially complete, stating the reasons therefor. If Owner does not object to the provisions of the certificate, or if despite consideration of Owner's objections Engineer concludes that the Work is substantially complete, then Engineer will, within said 14 days, execute and deliver to Owner and Contractor a final certificate of Substantial Completion (with a revised punch list of items to be completed or corrected) reflecting such changes from the preliminary certificate as Engineer believes justified after consideration of any objections from Owner.
- D. At the time of receipt of the preliminary certificate of Substantial Completion, Owner and Contractor will confer regarding Owner's use or occupancy of the Work following Substantial Completion, review the builder's risk insurance policy with respect to the end of the builder's risk coverage, and confirm the transition to coverage of the Work under a permanent property insurance policy held by Owner. Unless Owner and Contractor agree otherwise in writing, Owner shall bear responsibility for security, operation, protection of the Work, property insurance, maintenance, heat, and utilities upon Owner's use or occupancy of the Work.
- E. After Substantial Completion the Contractor shall promptly begin work on the punch list of items to be completed or corrected prior to final payment. In appropriate cases Contractor may submit monthly Applications for Payment for completed punch list items, following the progress payment procedures set forth above.
- F. Owner shall have the right to exclude Contractor from the Site after the date of Substantial Completion subject to allowing Contractor reasonable access to remove its property and complete or correct items on the punch list.

#### 15.04 *Partial Use or Occupancy*

- A. Prior to Substantial Completion of all the Work, Owner may use or occupy any substantially completed part of the Work which has specifically been identified in the Contract Documents, or which Owner, Engineer, and Contractor agree constitutes a separately functioning and usable part of the Work that can be used by Owner for its intended purpose without

significant interference with Contractor's performance of the remainder of the Work, subject to the following conditions:

1. At any time, Owner may request in writing that Contractor permit Owner to use or occupy any such part of the Work that Owner believes to be substantially complete. If and when Contractor agrees that such part of the Work is substantially complete, Contractor, Owner, and Engineer will follow the procedures of Paragraph 15.03.A through 15.03.E for that part of the Work.
2. At any time, Contractor may notify Owner and Engineer in writing that Contractor considers any such part of the Work substantially complete and request Engineer to issue a certificate of Substantial Completion for that part of the Work.
3. Within a reasonable time after either such request, Owner, Contractor, and Engineer shall make an inspection of that part of the Work to determine its status of completion. If Engineer does not consider that part of the Work to be substantially complete, Engineer will notify Owner and Contractor in writing giving the reasons therefor. If Engineer considers that part of the Work to be substantially complete, the provisions of Paragraph 15.03 will apply with respect to certification of Substantial Completion of that part of the Work and the division of responsibility in respect thereof and access thereto.
4. No use or occupancy or separate operation of part of the Work may occur prior to compliance with the requirements of Paragraph 6.04 regarding builder's risk or other property insurance.

#### 15.05 *Final Inspection*

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

#### 15.06 *Final Payment*

##### A. *Application for Payment*

1. After Contractor has, in the opinion of Engineer, satisfactorily completed all corrections identified during the final inspection and has delivered, in accordance with the Contract Documents, all maintenance and operating instructions, schedules, guarantees, bonds, certificates or other evidence of insurance, certificates of inspection, annotated record documents (as provided in Paragraph 7.12), and other documents, Contractor may make application for final payment.
2. The final Application for Payment must be accompanied (except as previously delivered) by:
  - a. all documentation called for in the Contract Documents;
  - b. consent of the surety, if any, to final payment;
  - c. satisfactory evidence that all title issues have been resolved such that title to all Work, materials, and equipment has passed to Owner free and clear of any Liens or other title defects, or will so pass upon final payment.

- d. a list of all duly pending Change Proposals and Claims; and
  - e. complete and legally effective releases or waivers (satisfactory to Owner) of all Lien rights arising out of the Work, and of Liens filed in connection with the Work.
3. In lieu of the releases or waivers of Liens specified in Paragraph 15.06.A.2 and as approved by Owner, Contractor may furnish receipts or releases in full and an affidavit of Contractor that: (a) the releases and receipts include all labor, services, material, and equipment for which a Lien could be filed; and (b) all payrolls, material and equipment bills, and other indebtedness connected with the Work for which Owner might in any way be responsible, or which might in any way result in liens or other burdens on Owner's property, have been paid or otherwise satisfied. If any Subcontractor or Supplier fails to furnish such a release or receipt in full, Contractor may furnish a bond or other collateral satisfactory to Owner to indemnify Owner against any Lien, or Owner at its option may issue joint checks payable to Contractor and specified Subcontractors and Suppliers.
- B. *Engineer's Review of Final Application and Recommendation of Payment:* If, on the basis of Engineer's observation of the Work during construction and final inspection, and Engineer's review of the final Application for Payment and accompanying documentation as required by the Contract Documents, Engineer is satisfied that the Work has been completed and Contractor's other obligations under the Contract have been fulfilled, Engineer will, within 10 days after receipt of the final Application for Payment, indicate in writing Engineer's recommendation of final payment and present the final Application for Payment to Owner for payment. Such recommendation will account for any set-offs against payment that are necessary in Engineer's opinion to protect Owner from loss for the reasons stated above with respect to progress payments. Otherwise, Engineer will return the Application for Payment to Contractor, indicating in writing the reasons for refusing to recommend final payment, in which case Contractor shall make the necessary corrections and resubmit the Application for Payment.
- C. *Notice of Acceptability:* In support of its recommendation of payment of the final Application for Payment, Engineer will also give written notice to Owner and Contractor that the Work is acceptable, subject to stated limitations in the notice and to the provisions of Paragraph 15.07.
- D. *Completion of Work:* The Work is complete (subject to surviving obligations) when it is ready for final payment as established by the Engineer's written recommendation of final payment and issuance of notice of the acceptability of the Work.
- E. *Final Payment Becomes Due:* Upon receipt from Engineer of the final Application for Payment and accompanying documentation, Owner shall set off against the amount recommended by Engineer for final payment any further sum to which Owner is entitled, including but not limited to set-offs for liquidated damages and set-offs allowed under the provisions of this Contract with respect to progress payments. Owner shall pay the resulting balance due to Contractor within 30 days of Owner's receipt of the final Application for Payment from Engineer.

#### 15.07 *Waiver of Claims*

- A. By making final payment, Owner waives its claim or right to liquidated damages or other damages for late completion by Contractor, except as set forth in an outstanding Claim,

appeal under the provisions of Article 17, set-off, or express reservation of rights by Owner. Owner reserves all other claims or rights after final payment.

- B. The acceptance of final payment by Contractor will constitute a waiver by Contractor of all claims and rights against Owner other than those pending matters that have been duly submitted as a Claim, or appealed under the provisions of Article 17.

#### 15.08 *Correction Period*

- A. If within one year after the date of Substantial Completion (or such longer period of time as may be prescribed by the Supplementary Conditions or the terms of any applicable special guarantee required by the Contract Documents), Owner gives Contractor written notice that any Work has been found to be defective, or that Contractor's repair of any damages to the Site or adjacent areas has been found to be defective, then after receipt of such notice of defect Contractor shall promptly, without cost to Owner and in accordance with Owner's written instructions:
  - 1. correct the defective repairs to the Site or such adjacent areas;
  - 2. correct such defective Work;
  - 3. remove the defective Work from the Project and replace it with Work that is not defective, if the defective Work has been rejected by Owner, and
  - 4. satisfactorily correct or repair or remove and replace any damage to other Work, to the work of others, or to other land or areas resulting from the corrective measures.
- B. Owner shall give any such notice of defect within 60 days of the discovery that such Work or repairs is defective. If such notice is given within such 60 days but after the end of the correction period, the notice will be deemed a notice of defective Work under Paragraph 7.17.B.
- C. If, after receipt of a notice of defect within 60 days and within the correction period, Contractor does not promptly comply with the terms of Owner's written instructions, or in an emergency where delay would cause serious risk of loss or damage, Owner may have the defective Work corrected or repaired or may have the rejected Work removed and replaced. Contractor shall pay all costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such correction or repair or such removal and replacement (including but not limited to all costs of repair or replacement of work of others). Contractor's failure to pay such costs, losses, and damages within 10 days of invoice from Owner will be deemed the start of an event giving rise to a Claim under Paragraph 12.01.B, such that any related Claim must be brought within 30 days of the failure to pay.
- D. In special circumstances where a particular item of equipment is placed in continuous service before Substantial Completion of all the Work, the correction period for that item may start to run from an earlier date if so provided in the Specifications.
- E. Where defective Work (and damage to other Work resulting therefrom) has been corrected or removed and replaced under this paragraph, the correction period hereunder with respect to such Work will be extended for an additional period of one year after such correction or removal and replacement has been satisfactorily completed.

- F. Contractor's obligations under this paragraph are in addition to all other obligations and warranties. The provisions of this paragraph are not to be construed as a substitute for, or a waiver of, the provisions of any applicable statute of limitation or repose.

## **ARTICLE 16—SUSPENSION OF WORK AND TERMINATION**

### **16.01 *Owner May Suspend Work***

- A. At any time and without cause, Owner may suspend the Work or any portion thereof for a period of not more than 90 consecutive days by written notice to Contractor and Engineer. Such notice will fix the date on which Work will be resumed. Contractor shall resume the Work on the date so fixed. Contractor shall be entitled to an adjustment in the Contract Price or an extension of the Contract Times directly attributable to any such suspension. Any Change Proposal seeking such adjustments must be submitted no later than 30 days after the date fixed for resumption of Work.

### **16.02 *Owner May Terminate for Cause***

- A. The occurrence of any one or more of the following events will constitute a default by Contractor and justify termination for cause:
  - 1. Contractor's persistent failure to perform the Work in accordance with the Contract Documents (including, but not limited to, failure to supply sufficient skilled workers or suitable materials or equipment, or failure to adhere to the Progress Schedule);
  - 2. Failure of Contractor to perform or otherwise to comply with a material term of the Contract Documents;
  - 3. Contractor's disregard of Laws or Regulations of any public body having jurisdiction; or
  - 4. Contractor's repeated disregard of the authority of Owner or Engineer.
- B. If one or more of the events identified in Paragraph 16.02.A occurs, then after giving Contractor (and any surety) 10 days' written notice that Owner is considering a declaration that Contractor is in default and termination of the Contract, Owner may proceed to:
  - 1. declare Contractor to be in default, and give Contractor (and any surety) written notice that the Contract is terminated; and
  - 2. enforce the rights available to Owner under any applicable performance bond.
- C. Subject to the terms and operation of any applicable performance bond, if Owner has terminated the Contract for cause, Owner may exclude Contractor from the Site, take possession of the Work, incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere, and complete the Work as Owner may deem expedient.
- D. Owner may not proceed with termination of the Contract under Paragraph 16.02.B if Contractor within 7 days of receipt of notice of intent to terminate begins to correct its failure to perform and proceeds diligently to cure such failure.
- E. If Owner proceeds as provided in Paragraph 16.02.B, Contractor shall not be entitled to receive any further payment until the Work is completed. If the unpaid balance of the Contract Price exceeds the cost to complete the Work, including all related claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects,

attorneys, and other professionals) sustained by Owner, such excess will be paid to Contractor. If the cost to complete the Work including such related claims, costs, losses, and damages exceeds such unpaid balance, Contractor shall pay the difference to Owner. Such claims, costs, losses, and damages incurred by Owner will be reviewed by Engineer as to their reasonableness and, when so approved by Engineer, incorporated in a Change Order. When exercising any rights or remedies under this paragraph, Owner shall not be required to obtain the lowest price for the Work performed.

- F. Where Contractor's services have been so terminated by Owner, the termination will not affect any rights or remedies of Owner against Contractor then existing or which may thereafter accrue, or any rights or remedies of Owner against Contractor or any surety under any payment bond or performance bond. Any retention or payment of money due Contractor by Owner will not release Contractor from liability.
- G. If and to the extent that Contractor has provided a performance bond under the provisions of Paragraph 6.01.A, the provisions of that bond will govern over any inconsistent provisions of Paragraphs 16.02.B and 16.02.D.

#### 16.03 *Owner May Terminate for Convenience*

- A. Upon 7 days' written notice to Contractor and Engineer, Owner may, without cause and without prejudice to any other right or remedy of Owner, terminate the Contract. In such case, Contractor shall be paid for (without duplication of any items):
  - 1. completed and acceptable Work executed in accordance with the Contract Documents prior to the effective date of termination, including fair and reasonable sums for overhead and profit on such Work;
  - 2. expenses sustained prior to the effective date of termination in performing services and furnishing labor, materials, or equipment as required by the Contract Documents in connection with uncompleted Work, plus fair and reasonable sums for overhead and profit on such expenses; and
  - 3. other reasonable expenses directly attributable to termination, including costs incurred to prepare a termination for convenience cost proposal.
- B. Contractor shall not be paid for any loss of anticipated profits or revenue, post-termination overhead costs, or other economic loss arising out of or resulting from such termination.

#### 16.04 *Contractor May Stop Work or Terminate*

- A. If, through no act or fault of Contractor, (1) the Work is suspended for more than 90 consecutive days by Owner or under an order of court or other public authority, or (2) Engineer fails to act on any Application for Payment within 30 days after it is submitted, or (3) Owner fails for 30 days to pay Contractor any sum finally determined to be due, then Contractor may, upon 7 days' written notice to Owner and Engineer, and provided Owner or Engineer do not remedy such suspension or failure within that time, terminate the contract and recover from Owner payment on the same terms as provided in Paragraph 16.03.
- B. In lieu of terminating the Contract and without prejudice to any other right or remedy, if Engineer has failed to act on an Application for Payment within 30 days after it is submitted, or Owner has failed for 30 days to pay Contractor any sum finally determined to be due, Contractor may, 7 days after written notice to Owner and Engineer, stop the Work until payment is made of all such amounts due Contractor, including interest thereon. The

provisions of this paragraph are not intended to preclude Contractor from submitting a Change Proposal for an adjustment in Contract Price or Contract Times or otherwise for expenses or damage directly attributable to Contractor's stopping the Work as permitted by this paragraph.

## **ARTICLE 17—FINAL RESOLUTION OF DISPUTES**

### **17.01 *Methods and Procedures***

- A. *Disputes Subject to Final Resolution:* The following disputed matters are subject to final resolution under the provisions of this article:
1. A timely appeal of an approval in part and denial in part of a Claim, or of a denial in full, pursuant to Article 12; and
  2. Disputes between Owner and Contractor concerning the Work, or obligations under the Contract Documents, that arise after final payment has been made.
- B. *Final Resolution of Disputes:* For any dispute subject to resolution under this article, Owner or Contractor may:
1. elect in writing to invoke the dispute resolution process provided for in the Supplementary Conditions;
  2. agree with the other party to submit the dispute to another dispute resolution process; or
  3. if no dispute resolution process is provided for in the Supplementary Conditions or mutually agreed to, give written notice to the other party of the intent to submit the dispute to a court of competent jurisdiction.

## **ARTICLE 18—MISCELLANEOUS**

### **18.01 *Giving Notice***

- A. Whenever any provision of the Contract requires the giving of written notice to Owner, Engineer, or Contractor, it will be deemed to have been validly given only if delivered:
1. in person, by a commercial courier service or otherwise, to the recipient's place of business;
  2. by registered or certified mail, postage prepaid, to the recipient's place of business; or
  3. by e-mail to the recipient, with the words "Formal Notice" or similar in the e-mail's subject line.

### **18.02 *Computation of Times***

- A. When any period of time is referred to in the Contract by days, it will be computed to exclude the first and include the last day of such period. If the last day of any such period falls on a Saturday or Sunday or on a day made a legal holiday by the law of the applicable jurisdiction, such day will be omitted from the computation.



18.03 *Cumulative Remedies*

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

18.04 *Limitation of Damages*

- A. With respect to any and all Change Proposals, Claims, disputes subject to final resolution, and other matters at issue, neither Owner nor Engineer, nor any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, shall be liable to Contractor for any claims, costs, losses, or damages sustained by Contractor on or in connection with any other project or anticipated project.

18.05 *No Waiver*

- A. A party's non-enforcement of any provision will not constitute a waiver of that provision, nor will it affect the enforceability of that provision or of the remainder of this Contract.

18.06 *Survival of Obligations*

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

18.07 *Controlling Law*

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

18.08 *Assignment of Contract*

- A. Unless expressly agreed to elsewhere in the Contract, no assignment by a party to this Contract of any rights under or interests in the Contract will be binding on the other party without the written consent of the party sought to be bound; and, specifically but without limitation, money that may become due and money that is due may not be assigned without such consent (except to the extent that the effect of this restriction may be limited by law), and unless specifically stated to the contrary in any written consent to an assignment, no assignment will release or discharge the assignor from any duty or responsibility under the Contract.

18.09 *Successors and Assigns*

- A. Owner and Contractor each binds itself, its successors, assigns, and legal representatives to the other party hereto, its successors, assigns, and legal representatives in respect to all covenants, agreements, and obligations contained in the Contract Documents.

18.10 *Headings*

- A. Article and paragraph headings are inserted for convenience only and do not constitute parts of these General Conditions.

# SUPPLEMENTARY CONDITIONS OF THE CONSTRUCTION CONTRACT

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# SUPPLEMENTARY CONDITIONS OF THE CONSTRUCTION CONTRACT

These Supplementary Conditions amend or supplement EJCDC® C-700, Standard General Conditions of the Construction Contract (2018). The General Conditions remain in full force and effect except as amended.

The terms used in these Supplementary Conditions have the meanings stated in the General Conditions. Additional terms used in these Supplementary Conditions have the meanings stated below, which are applicable to both the singular and plural thereof.

The address system used in these Supplementary Conditions is the same as the address system used in the General Conditions, with the prefix "SC" added—for example, "Paragraph SC-4.05."

## ARTICLE 1—DEFINITIONS AND TERMINOLOGY

No Supplementary Conditions in this Article.

## ARTICLE 2—PRELIMINARY MATTERS

### 2.01 *Delivery of Bonds and Evidence of Insurance*

SC-2.01 Delete Paragraphs 2.01.B. and C. in their entirety and insert the following in their place:

- B. *Evidence of Contractor's Insurance:* When Contractor delivers the signed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner copies of the policies (including all endorsements, and identification of applicable self-insured retentions and deductibles) of insurance required to be provided by Contractor in this Contract. Contractor may block out (redact) any confidential premium or pricing information contained in any policy or endorsement furnished under this provision.
- C. *Evidence of Owner's Insurance:* After receipt from Contractor of the signed counterparts of the Agreement and all required bonds and insurance documentation, Owner shall promptly deliver to Contractor copies of the policies of insurance to be provided by Owner in this Contract (if any). Owner may block out (redact) any confidential premium or pricing information contained in any policy or endorsement furnished under this provision.

### 2.02 *Copies of Documents*

SC-2.02 Amend the first sentence of Paragraph 2.02.A. to read as follows:

Owner shall furnish to Contractor **2** printed copies of the Contract Documents (including one fully signed counterpart of the Agreement), and **1** in electronic portable document format (PDF). Additional printed copies will be furnished upon request at the cost of reproduction.

### 2.06 *Electronic Transmittals*

SC-2.06 Delete Paragraphs 2.06.B and 2.06.C in their entirety and insert the following in their place:

- B. *Electronic Documents Protocol:* The parties shall conform to the following provisions in Paragraphs 2.06.B and 2.06.C, together referred to as the Electronic Documents Protocol ("EDP" or "Protocol") for exchange of electronic transmittals.

1. *Basic Requirements*

- a. To the fullest extent practical, the parties agree to and will transmit and accept Electronic Documents in an electronic or digital format using the procedures described in this Protocol. Use of the Electronic Documents and any information contained therein is subject to the requirements of this Protocol and other provisions of the Contract.
- b. The contents of the information in any Electronic Document will be the responsibility of the transmitting party.
- c. Electronic Documents as exchanged by this Protocol may be used in the same manner as the printed versions of the same documents that are exchanged using non-electronic format and methods, subject to the same governing requirements, limitations, and restrictions, set forth in the Contract Documents.
- d. Except as otherwise explicitly stated herein, the terms of this Protocol will be incorporated into any other agreement or subcontract between a party and any third party for any portion of the Work on the Project, or any Project-related services, where that third party is, either directly or indirectly, required to exchange Electronic Documents with a party or with Engineer. Nothing herein will modify the requirements of the Contract regarding communications between and among the parties and their subcontractors and consultants.
- e. When transmitting Electronic Documents, the transmitting party makes no representations as to long term compatibility, usability, or readability of the items resulting from the receiving party's use of software application packages, operating systems, or computer hardware differing from those established in this Protocol.
- f. Nothing herein negates any obligation 1) in the Contract to create, provide, or maintain an original printed record version of Drawings and Specifications, signed and sealed according to applicable Laws and Regulations; 2) to comply with any applicable Law or Regulation governing the signing and sealing of design documents or the signing and electronic transmission of any other documents; or 3) to comply with the notice requirements of Paragraph 18.01 of the General Conditions.

2. *System Infrastructure for Electronic Document Exchange*

- a. Each party will provide hardware, operating system(s) software, internet, e-mail, and large file transfer functions ("System Infrastructure") at its own cost and sufficient for complying with the EDP requirements. With the exception of minimum standards set forth in this EDP, and any explicit system requirements specified by attachment to this EDP, it is the obligation of each party to determine, for itself, its own System Infrastructure.
  - 1) The maximum size of an email attachment for exchange of Electronic Documents under this EDP is **50 MB**. Attachments larger than that may be exchanged using large file transfer functions or physical media.
  - 2) Each Party assumes full and complete responsibility for any and all of its own costs, delays, deficiencies, and errors associated with converting, translating,

updating, verifying, licensing, or otherwise enabling its System Infrastructure, including operating systems and software, for use with respect to this EDP.

- b. Each party is responsible for its own system operations, security, back-up, archiving, audits, printing resources, and other Information Technology (“IT”) for maintaining operations of its System Infrastructure during the Project, including coordination with the party’s individual(s) or entity responsible for managing its System Infrastructure and capable of addressing routine communications and other IT issues affecting the exchange of Electronic Documents.
- c. Each party will operate and maintain industry-standard, industry-accepted, ISO-standard, commercial-grade security software and systems that are intended to protect the other party from: software viruses and other malicious software like worms, trojans, adware; data breaches; loss of confidentiality; and other threats in the transmission to or storage of information from the other parties, including transmission of Electronic Documents by physical media such as CD/DVD/flash drive/hard drive. To the extent that a party maintains and operates such security software and systems, it shall not be liable to the other party for any breach of system security.
- d. In the case of disputes, conflicts, or modifications to the EDP required to address issues affecting System Infrastructure, the parties shall cooperatively resolve the issues; but, failing resolution, the Owner is authorized to make and require reasonable and necessary changes to the EDP to effectuate its original intent. If the changes cause additional cost or time to Contractor, not reasonably anticipated under the original EDP, Contractor may seek an adjustment in price or time under the appropriate process in the Contract.
- e. Each party is responsible for its own back-up and archive of documents sent and received during the term of the contract under this EDP, unless this EDP establishes a Project document archive, either as part of a mandatory Project website or other communications protocol, upon which the parties may rely for document archiving during the specified term of operation of such Project document archive. Further, each party remains solely responsible for its own post-Project back-up and archive of Project documents after the term of the Contract, or after termination of the Project document archive, if one is established, for as long as required by the Contract and as each party deems necessary for its own purposes.
- f. If a receiving party receives an obviously corrupted, damaged, or unreadable Electronic Document, the receiving party will advise the sending party of the incomplete transmission.
- g. The parties will bring any non-conforming Electronic Documents into compliance with the EDP. The parties will attempt to complete a successful transmission of the Electronic Document or use an alternative delivery method to complete the communication.

C. *Software Requirements for Electronic Document Exchange; Limitations*

- 1. Each party will acquire the software and software licenses necessary to create and transmit Electronic Documents and to read and to use any Electronic Documents

received from the other party (and if relevant from third parties), using the software formats required in this section of the EDP.

- a. Prior to using any updated version of the software required in this section for sending Electronic Documents to the other party, the originating party will first notify and receive concurrence from the other party for use of the updated version or adjust its transmission to comply with this EDP.
2. The parties agree not to intentionally edit, reverse engineer, decrypt, remove security or encryption features, or convert to another format for modification purposes any Electronic Document or information contained therein that was transmitted in a software data format, including Portable Document Format (PDF), intended by sender not to be modified, unless the receiving party obtains the permission of the sending party or is citing or quoting excerpts of the Electronic Document for Project purposes.
3. Software and data formats for exchange of Electronic Documents will conform to the requirements set forth in Exhibit A to this EDP, including software versions, if listed.

SC-2.06 Supplement Paragraph 2.06 of the General Conditions by adding the following paragraph:

*D. Requests by Contractor for Electronic Documents in Other Formats*

1. Release of any Electronic Document versions of the Project documents in formats other than those identified in the Electronic Documents Protocol (if any) or elsewhere in the Contract will be at the sole discretion of the Owner.
2. To extent determined by Owner, in its sole discretion, to be prudent and necessary, release of Electronic Documents versions of Project documents and other Project information requested by Contractor ("Request") in formats other than those identified in the Electronic Documents Protocol (if any) or elsewhere in the Contract will be subject to the provisions of the Owner's response to the Request, and to the following conditions to which Contractor agrees:
  - a. The content included in the Electronic Documents created by Engineer and covered by the Request was prepared by Engineer as an internal working document for Engineer's purposes solely, and is being provided to Contractor on an "AS IS" basis without any warranties of any kind, including, but not limited to any implied warranties of fitness for any purpose. As such, Contractor is advised and acknowledges that the content may not be suitable for Contractor's application, or may require substantial modification and independent verification by Contractor. The content may include limited resolution of models, not-to-scale schematic representations and symbols, use of notes to convey design concepts in lieu of accurate graphics, approximations, graphical simplifications, undocumented intermediate revisions, and other devices that may affect subsequent reuse.
  - b. Electronic Documents containing text, graphics, metadata, or other types of data that are provided by Engineer to Contractor under the request are only for convenience of Contractor. Any conclusion or information obtained or derived from such data will be at the Contractor's sole risk and the Contractor waives any claims against Engineer or Owner arising from use of data in Electronic Documents covered by the Request.

- c. Contractor shall indemnify and hold harmless Owner and Engineer and their subconsultants from all claims, damages, losses, and expenses, including attorneys' fees and defense costs arising out of or resulting from Contractor's use, adaptation, or distribution of any Electronic Documents provided under the Request.
  - d. Contractor agrees not to sell, copy, transfer, forward, give away or otherwise distribute this information (in source or modified file format) to any third party without the direct written authorization of Engineer, unless such distribution is specifically identified in the Request and is limited to Contractor's subcontractors. Contractor warrants that subsequent use by Contractor's subcontractors complies with all terms of the Contract Documents and Owner's response to Request.
3. In the event that Owner elects to provide or directs the Engineer to provide to Contractor any Contractor-requested Electronic Document versions of Project information that is not explicitly identified in the Contract Documents as being available to Contractor, the Owner shall be reimbursed by Contractor on an hourly basis (at \$190 per hour) for any engineering costs necessary to create or otherwise prepare the data in a manner deemed appropriate by Engineer.

**ARTICLE 3—CONTRACT DOCUMENTS: INTENT, REQUIREMENTS, REUSE**

No Supplementary Conditions in this Article.

**ARTICLE 4—COMMENCEMENT AND PROGRESS OF THE WORK**

No Supplementary Conditions in this Article.

**ARTICLE 5—SITE, SUBSURFACE AND PHYSICAL CONDITIONS, HAZARDOUS ENVIRONMENTAL CONDITIONS**

5.03 *Subsurface and Physical Conditions*

SC-5.03 Add the following new paragraphs immediately after Paragraph 5.03.D:

- E. The following table lists the reports of explorations and tests of subsurface conditions at or adjacent to the Site that contain Technical Data, and specifically identifies the Technical Data in the report upon which Contractor may rely:

<b>Report Title</b>	<b>Date of Report</b>	<b>Technical Data</b>
Geotechnical Data Report, Godfrey Brook Restoration Project, Phase 1, Milford Massachusetts	Sep. 2011	<b>Geotechnical Data</b>

- F. The following table lists the drawings of existing physical conditions at or adjacent to the Site, including those drawings depicting existing surface or subsurface structures at or adjacent to

the Site (except Underground Facilities), that contain Technical Data, and specifically identifies the Technical Data upon which Contractor may rely

Drawings Title	Date of Drawings	Technical Data
Existing Conditions Plan of Land, Godfrey Brook – West Street Southerly to Water Street, Milford Mass.	August 19, 2022	Existing Condition Information
Contract Plans For The Godfrey Brook Flood Mitigation Project, Prepared For The Town of Milford, Massachusetts Office of Planning and Engineering	April, 1999, Issued August 12, 1999	

- G. Contractor may examine copies of reports and drawings identified in SC-5.03.E and SC-5.03.F that were not included with the Bidding Documents at **Milford Town Hall, Planning and Engineering Department** during regular business hours, or may request copies from Engineer.

5.06 *Hazardous Environmental Conditions*

SC-5.06 Add the following new paragraphs immediately after Paragraph 5.06.A.3:

4. The following table lists the reports known to Owner relating to Hazardous Environmental Conditions at or adjacent to the Site, and the Technical Data (if any) upon which Contractor may rely:

Report Title	Date of Report	Technical Data
2024 Due Diligence Review and Sediment Sampling Plan, Godfrey Brook Improvements, Milford, Massachusetts	March 5, 2024	Background and ERIS data

5. The following table lists the drawings known to Owner relating to Hazardous Environmental Conditions at or adjacent to the Site, and Technical Data (if any) contained in such Drawings upon which Contractor may rely:

Drawings Title	Date of Drawings	Technical Data
No Drawings		

**ARTICLE 6—BONDS AND INSURANCE**

6.01 *Performance, Payment, and Other Bonds*

SC-6.01 Add the following paragraphs immediately after Paragraph 6.01.A:

- Required Performance Bond Form:* The performance bond that Contractor furnishes will be in the form of EJCDC® C-610, Performance Bond (2010, 2013, or 2018 edition).
- Required Payment Bond Form:* The payment bond that Contractor furnishes will be in the form of EJCDC® C-615, Payment Bond (2010, 2013, or 2018 edition).



SC-6.02 Replace in the last sentence of Paragraph 6.02.B:

1. "A-VII" with "B+"

SC-6.02 **Add the following new paragraph immediately after Paragraph 6.02.N:**

**6.02 O Insurance certificate(s) shall also contain the following:**

1. **Clarification regarding whether the General Liability policy covers all of the Contractor's operation or only the Work under this Contract, with project specific limits.**
2. **Confirmation that the General Liability policy includes XCU coverage.**
3. **Confirmation that automobile insurance covers all Scheduled, Hired and Non-Owned vehicles.**
4. **Names of all additional insureds as specified herein.**

6.03 *Contractor's Insurance*

SC-6.03 Supplement Paragraph 6.03 with the following provisions after Paragraph 6.03.C:

- D. *Other Additional Insureds:* As a supplement to the provisions of Paragraph 6.03.C of the General Conditions, the commercial general liability, automobile liability, umbrella or excess, pollution liability, and unmanned aerial vehicle liability policies must include as additional insureds (in addition to Owner and Engineer) the following:

20 West St., 22 West St., 3 Roberts Ct., 18 Congress St., 7-1/2 Church St. 21 Church St, 23-25 Church St., 7-9 Draper Pk., 22 Church St., 9 Water St.

- E. *Workers' Compensation and Employer's Liability:* Contractor shall purchase and maintain workers' compensation and employer's liability insurance, including, as applicable, United States Longshoreman and Harbor Workers' Compensation Act, Jones Act, stop-gap employer's liability coverage for monopolistic states, and foreign voluntary workers' compensation (from available sources, notwithstanding the jurisdictional requirement of Paragraph 6.02.B of the General Conditions).

<b>Workers' Compensation and Related Policies</b>	<b>Policy limits of not less than:</b>
<b>Workers' Compensation</b>	
State	Statutory
Applicable Federal (e.g., Longshoreman's)	Statutory
Foreign voluntary workers' compensation (employer's responsibility coverage), if applicable	Statutory
<b>Employer's Liability</b>	
Each accident	\$ 1,000,000
Each employee	\$ 1,000,000
Policy limit	\$ 2,000,000

- F. *Commercial General Liability—Claims Covered:* Contractor shall purchase and maintain commercial general liability insurance, covering all operations by or on behalf of Contractor, on an occurrence basis, against claims for:

1. damages because of bodily injury, sickness or disease, or death of any person other than Contractor's employees,
  2. damages insured by reasonably available personal injury liability coverage, and
  3. damages because of injury to or destruction of tangible property wherever located, including loss of use resulting therefrom.
- G. *Commercial General Liability—Form and Content:* Contractor's commercial liability policy must be written on a 1996 (or later) Insurance Services Organization, Inc. (ISO) commercial general liability form (occurrence form) and include the following coverages and endorsements:
1. Products and completed operations coverage.
    - a. Such insurance must be maintained for three years after final payment.
    - b. Contractor shall furnish Owner and each other additional insured (as identified in the Supplementary Conditions or elsewhere in the Contract) evidence of continuation of such insurance at final payment and three years thereafter.
  2. Blanket contractual liability coverage, including but not limited to coverage of Contractor's contractual indemnity obligations in Paragraph 7.18.
  3. Severability of interests and no insured-versus-insured or cross-liability exclusions.
  4. Underground, explosion, and collapse coverage.
  5. Personal injury coverage.
  6. Additional insured endorsements that include both ongoing operations and products and completed operations coverage through ISO Endorsements CG 20 10 10 01 and CG 20 37 10 01 (together). If Contractor demonstrates to Owner that the specified ISO endorsements are not commercially available, then Contractor may satisfy this requirement by providing equivalent endorsements.
  7. For design professional additional insureds, ISO Endorsement CG 20 32 07 04 "Additional Insured—Engineers, Architects or Surveyors Not Engaged by the Named Insured" or its equivalent.
- H. *Commercial General Liability—Excluded Content:* The commercial general liability insurance policy, including its coverages, endorsements, and incorporated provisions, must not include any of the following:
1. Any modification of the standard definition of "insured contract" (except to delete the railroad protective liability exclusion if Contractor is required to indemnify a railroad or others with respect to Work within 50 feet of railroad property).
  2. Any exclusion for water intrusion or water damage.
  3. Any provisions resulting in the erosion of insurance limits by defense costs other than those already incorporated in ISO form CG 00 01.
  4. Any exclusion of coverage relating to earth subsidence or movement.
  5. Any exclusion for the insured's vicarious liability, strict liability, or statutory liability (other than worker's compensation).

6. Any limitation or exclusion based on the nature of Contractor’s work.
7. Any professional liability exclusion broader in effect than the most recent edition of ISO form CG 22 79.

I. *Commercial General Liability—Minimum Policy Limits*

<b>Commercial General Liability</b>	<b>Policy limits of not less than:</b>
General Aggregate	\$3,000,000
Bodily Injury and Property Damage—Each Occurrence	\$ 1,000,000

- J. *Automobile Liability:* Contractor shall purchase and maintain automobile liability insurance for damages because of bodily injury or death of any person or property damage arising out of the ownership, maintenance, or use of any motor vehicle. The automobile liability policy must be written on an occurrence basis.

<b>Automobile Liability</b>	<b>Policy limits of not less than:</b>
<b>Bodily Injury</b>	
Each Person	\$ 500,000
Each Accident	\$ 1,000,000
<b>Property Damage</b>	
Each Property	\$ 100,000
Each Accident	\$ 500,000

- K. *Umbrella or Excess Liability:* Contractor shall purchase and maintain umbrella or excess liability insurance written over the underlying employer’s liability, commercial general liability, and automobile liability insurance described in the Paragraphs above. The coverage afforded must be at least as broad as that of each and every one of the underlying policies.

<b>Excess or Umbrella Liability</b>	<b>Policy limits of not less than:</b>
Each Occurrence	\$1,000,000
General Aggregate	\$3,000,000

- L. *Using Umbrella or Excess Liability Insurance to Meet CGL and Other Policy Limit Requirements:* Contractor may meet the policy limits specified for employer’s liability, commercial general liability, and automobile liability through the primary policies alone, or through combinations of the primary insurance policy’s policy limits and partial attribution of the policy limits of an umbrella or excess liability policy that is at least as broad in coverage as that of the underlying policy, as specified herein. If such umbrella or excess liability policy was required under this Contract, at a specified minimum policy limit, such umbrella or excess policy must retain a minimum limit of **\$1,000,000** after accounting for partial attribution of its limits to underlying policies, as allowed above.
- M. *Contractor’s Pollution Liability Insurance:* Contractor shall purchase and maintain a policy covering third-party injury and property damage, including cleanup costs, as a result of

pollution conditions arising from Contractor’s operations and completed operations. This insurance must be maintained for no less than three years after final completion.

- N. *Contractor’s Professional Liability Insurance:* If Contractor will provide or furnish professional services under this *Contract*, through a delegation of professional design services or otherwise, then Contractor shall be responsible for purchasing and maintaining applicable professional liability insurance. This insurance must cover negligent acts, errors, or omissions in the performance of professional design or related services by the insured or others for whom the insured is legally liable. The insurance must be maintained throughout the duration of the Contract and for a minimum of two years after Substantial Completion. The retroactive date on the policy must pre-date the commencement of furnishing services on the Project.

Contractor’s Professional Liability	Policy limits of not less than:
Each Claim	\$1,000,000
Annual Aggregate	\$2,000,000

- O. The successful bidder(s) shall provide the DPW a certificate of liability insurance naming the Town of Milford as an additional insured prior to the commencement of work.

6.04 *Builder’s Risk and Other Property Insurance*

**Delete paragraph 6.04 of the General Conditions in its entirety.**

6.05 *Property Losses; Subrogation*

Delete paragraph 6.05 of the General Conditions in its entirety.

**ARTICLE 7—CONTRACTOR’S RESPONSIBILITIES**

7.03 *Labor; Working Hours*

SC-7.03 Add the following new subparagraphs immediately after Paragraph 7.03.C:

1. Regular working hours will be **7:30 AM to 4:30 PM**.
2. Owner's legal holidays are **New Year’s Day (Jan. 1<sup>st</sup>), Martin Luther King Jr. Day (Jan. 20<sup>th</sup>), Presidents Day (Feb. 17<sup>th</sup>), Patriots’ Day (Apr. 21<sup>st</sup>), Memorial Day (May 26<sup>th</sup>), Juneteenth (Jun. 19<sup>th</sup>), Independence Day (Jul. 4<sup>th</sup>), Labor Day (Sep. 1<sup>st</sup>), Columbus Day (Oct. 13<sup>th</sup>), Veterans Day (Nov. 11<sup>th</sup>), Thanksgiving (Nov. 27<sup>th</sup>), and Christmas Dec. 25<sup>th</sup>**.

SC-7.03 Amend the first and second sentences of Paragraph 7.03.C to state “...all Work at the Site must be performed during regular working hours, **Monday** through **Friday**. Contractor will not perform Work on a **Saturday, Sunday**, or any legal holiday.”

SC-7.03 Add the following new paragraph immediately after Paragraph 7.03.C:

- D. **Contractor** shall be responsible for the cost of any overtime pay or other expense incurred by the Owner for Engineer’s services (including those of the Resident Project Representative, if any), Owner's representative, and construction observation services, occasioned by the performance of Work on Saturday, Sunday, any legal holiday, or as overtime on any regular

work day. If Contractor is responsible but does not pay, or if the parties are unable to agree as to the amount owed, then Owner may impose a reasonable set-off against payments due under Article 15.

SC-7.03 Add the following new subparagraph immediately after Paragraph SC-7.03.D:

1. For purposes of administering the foregoing requirement, additional overtime costs are defined as **hours worked over regular time (40 hours) at a rate of 1.5x hourly rate.**

#### 7.04 *Services, Materials, and Equipment*

SC-7.04 Add the following at the end after Paragraph 7.04.C:

- D. As appropriate to the extent consistent with law, the Contractor shall to the greatest extent practicable, provide a preference for the purchase, acquisition, or use of goods, products, or materials produced in the United States (including but not limited to iron, aluminum, steel, cement, and other manufactured products). "Produced in the United States" means, for iron and steel products, that all manufacturing processes, from the initial melting stage through the application of coatings, occurred in the United States. "Manufactured products" means items and construction materials composed in whole or in part of non-ferrous metals such as aluminum; plastics and polymer-based products such as polyvinyl chloride pipe; aggregates such as concrete; glass, including optical fiber; and lumber.

#### 7.10 *Taxes*

SC-7.10 Add a new paragraph immediately after Paragraph 7.10.A:

- A. Owner is exempt from payment of sales and compensating use taxes of the State of **Massachusetts** and of cities and counties thereof on all materials to be incorporated into the Work.
  1. Owner will furnish the required certificates of tax exemption to Contractor for use in the purchase of supplies and materials to be incorporated into the Work.
  2. Owner's exemption does not apply to construction tools, machinery, equipment, or other property purchased by or leased by Contractor, or to supplies or materials not incorporated into the Work.

#### 7.11 *Laws and Regulations*

SC-7.11 Add a new paragraph immediately after Paragraph 7.11.C:

- D. Contractor shall comply with all applicable provisions of Chapter 30, Section 39R of the Massachusetts General Laws regarding Contractor's records.

#### 7.18 *Indemnification*

SC-7.18 Add the following paragraphs immediately after Paragraph 7.18.B:

- C. The indemnification obligations of Contract under Paragraph 7.18.A shall not extend to the liability of Engineer and Engineer's officers, directors, members, partners, employees, agents, consultants, and subcontractors arising out of:
  1. The preparation or approval of, or the failure to prepare or approve maps, Drawings, opinions, reports, surveys, Change Orders, designs, or Specifications; or
  2. Giving directions or instructions, or failing to give them, if that is the primary cause of the injury or damage.

- D. If, through acts of neglect on the part of the Contractor, any other Contractor or any Subcontractor shall suffer loss or damage on the Work, Contractor shall settle with such other Contractor or Subcontractor by agreement or arbitration if such other Contractor or Subcontractor will so settle. If such other Contractor or Subcontractor shall assert any claim against Owner on account of any such damage alleged to have been sustained, Owner shall notify Contractor, who shall indemnify, defend, and save harmless Owner against any such claim.

#### **ARTICLE 8—OTHER WORK AT THE SITE**

No Supplementary Conditions in this Article.

#### **ARTICLE 9—OWNER’S RESPONSIBILITIES**

No Supplementary Conditions in this Article.

#### **ARTICLE 10—ENGINEER’S STATUS DURING CONSTRUCTION**

SC-10.03 Add the following new paragraphs immediately after Paragraph 10.03.B:

- C. The Resident Project Representative (RPR) will be Engineer's representative at the Site. RPR's dealings in matters pertaining to the Work in general will be with Engineer and Contractor. RPR's dealings with Subcontractors will only be through or with the full knowledge or approval of Contractor. The RPR will:
1. *Conferences and Meetings:* Attend meetings with Contractor, such as preconstruction conferences, progress meetings, job conferences, and other Project-related meetings (but not including Contractor’s safety meetings), and as appropriate prepare and circulate copies of minutes thereof.
  2. *Safety Compliance:* Comply with Site safety programs, as they apply to RPR, and if required to do so by such safety programs, receive safety training specifically related to RPR’s own personal safety while at the Site.
  3. *Liaison*
    - a. Serve as Engineer’s liaison with Contractor. Working principally through Contractor’s authorized representative or designee, assist in providing information regarding the provisions and intent of the Contract Documents.
    - b. Assist Engineer in serving as Owner’s liaison with Contractor when Contractor’s operations affect Owner’s on-Site operations.
    - c. Assist in obtaining from Owner additional details or information, when required for Contractor’s proper execution of the Work.
  4. *Review of Work; Defective Work*
    - a. Conduct on-Site observations of the Work to assist Engineer in determining, to the extent set forth in Paragraph 10.02, if the Work is in general proceeding in accordance with the Contract Documents.

- b. Observe whether any Work in place appears to be defective.
  - c. Observe whether any Work in place should be uncovered for observation, or requires special testing, inspection or approval.
5. *Inspections and Tests*
- a. Observe Contractor-arranged inspections required by Laws and Regulations, including but not limited to those performed by public or other agencies having jurisdiction over the Work.
  - b. Accompany visiting inspectors representing public or other agencies having jurisdiction over the Work.
6. *Payment Requests: Review Applications for Payment with Contractor.*
7. *Completion*
- a. Participate in Engineer's visits regarding Substantial Completion.
  - b. Assist in the preparation of a punch list of items to be completed or corrected.
  - c. Participate in Engineer's visit to the Site in the company of Owner and Contractor regarding completion of the Work, and prepare a final punch list of items to be completed or corrected by Contractor.
  - d. Observe whether items on the final punch list have been completed or corrected.
- D. The RPR will not:
- 1. Authorize any deviation from the Contract Documents or substitution of materials or equipment (including "or-equal" items).
  - 2. Exceed limitations of Engineer's authority as set forth in the Contract Documents.
  - 3. Undertake any of the responsibilities of Contractor, Subcontractors, or Suppliers.
  - 4. Advise on, issue directions relative to, or assume control over any aspect of the means, methods, techniques, sequences or procedures of construction.
  - 5. Advise on, issue directions regarding, or assume control over security or safety practices, precautions, and programs in connection with the activities or operations of Owner or Contractor.
  - 6. Participate in specialized field or laboratory tests or inspections conducted off-site by others except as specifically authorized by Engineer.
  - 7. Authorize Owner to occupy the Project in whole or in part.

#### **ARTICLE 11—CHANGES TO THE CONTRACT**

No suggested Supplementary Conditions in this Article.

#### **ARTICLE 12—CLAIMS**

No suggested Supplementary Conditions in this Article.

## **ARTICLE 13—COST OF WORK; ALLOWANCES, UNIT PRICE WORK**

### *13.01 Cost of the Work*

SC-13.01 Delete Paragraph 13.01.B.5.c in its entirety and replace with the following:

1. The fair rental and operating cost of all machinery and equipment used on the extra work for the period of such use. The fair rental and operating cost for all machinery and equipment shall be based upon the most recent edition of "Rental Rate Bluebook for Construction Equipment" (the "Bluebook"), published by Equipment Water (equipmentwatch.com), or a similar publication approved by Engineer and adjusted for regional and age adjustments as specified in the "Bluebook." Rental periods corresponding to the overall period of use shall be used, except if a piece of equipment used on extra work is already on the job, or has previously been rented for a long period of time (months), then the long term rental rate (monthly) shall be used in determining costs. The hourly rental rate for long-term rental equipment will be determined by the monthly rental rate divided by 176.
2. For the situations where equipment is on the job and available for use but cannot be used due to a delay or suspension of a portion or all of the Contract activities, a rental standby rate may be paid if the Contractor can conclusively demonstrate to the satisfaction of the Engineer that: (1) the equipment cannot be used elsewhere on the Project or demobilized and remobilized at a cost lower than the cost of standby time, (2) that the equipment cannot be put in use due to factors beyond the Contractor's control, and (3) the equipment on standby would have been used as part of the Work that is suspended or put on hold. The standby rate will be calculated as no more than 50% of the rental rate as listed in the "Bluebook" and adjusted for regional and age adjustments. Lesser standby rates may apply if the Owner or Engineer can demonstrate that the Contractor's standby cost is less than this rate. The standby rate will not include operating costs. A standby rate will not be paid for equipment which is being employed for portions of the Work which are still underway. A standby rate will also not be paid for equipment which is readily demobilized including construction equipment categorized as "shop tools" or "miscellaneous" in the "Bluebook." Standby rates for durations of less than four hours will not be considered.

SC-13.01.C.1 Insert in the first sentence after the word "architect" the word "superintendents."

## **ARTICLE 14—TESTS AND INSPECTIONS; CORRECTION, REMOVAL, OR ACCEPTANCE OF DEFECTIVE WORK**

### *14.02 Tests, Inspections, and Approvals*

SC-14.02.A. Insert after the word "notice" the words "(minimum of 24 hours)" In Paragraph 14.02.A.

### *14.06 Owner May Stop the Work*

SC-14.06.A Add the following new paragraph immediately after Paragraph 14.06.A

- B. If Owner stops work under Paragraph 13.05, Contractor shall not be entitled to an extension of Contract Time nor to an increase in Contract Price.



## **ARTICLE 15—PAYMENTS TO CONTRACTOR, SET OFFS; COMPLETIONS; CORRECTION PERIOD**

### **15.01 Progress Payments**

SC-15.01.B.1 Delete the first sentence of Paragraph 15.01.B.1 and replace with the following:

- 1 Engineering will, once in each month, make an estimate in writing of the total value of the work completed as of the date of the Application. Engineer shall review the Application with Contractor and Contractor shall sign the Application.

SC-15.01.B.2 Insert the following sentence at the end of Paragraph 15.01.B.2

- 2 The Certificate of Insurance for stored material must list the Town of Milford and GZA GeoEnvironmental, Inc. as additional insured.

SC-15.01.C.1 Delete the Paragraph 15.01.C.1 in its entirety and insert the following in its place:

- 1 Progress Payments will be made in accordance with Massachusetts General Law Chapter 30, Section 39G, which is referenced in Part II of these Supplementary Conditions.

SC-15.01.D.1 Delete the Paragraph 15.01.D.1 in its entirety and insert the following in its place:

- 1 Progress Payments will be made in accordance with Massachusetts General Law Chapter, 30, Section 39G, which is referenced in Part II of these Supplementary Conditions.

SC-15.01 Add the following new Paragraph 15.01.F:

- F. For contracts in which the Contract Price is based on the Cost of Work, if Owner determines that progress payments made to date substantially exceed the actual progress of the Work (as measured by reference to the Schedule of Values), or present a potential conflict with the Guaranteed Maximum Price, then Owner may require that Contractor prepare and submit a plan for the remaining anticipated Applications for Payment that will bring payments and progress into closer alignment and take into account the Guaranteed Maximum Price (if any), through reductions in billings, increases in retainage, or other equitable measures. Owner will review the plan, discuss any necessary modifications, and implement the plan as modified for all remaining Applications for Payment.

### **15.03 Substantial Completion**

SC-15.03 Add the following new subparagraph to Paragraph 15.03.B:

1. If some or all of the Work has been determined not to be at a point of Substantial Completion and will require re-inspection or re-testing by Engineer, the cost of such re-inspection or re-testing, including the cost of time, travel and living expenses, will be paid by Contractor to Owner. If Contractor does not pay, or the parties are unable to agree as to the amount owed, then Owner may impose a reasonable set-off against payments due under this Article 15.

SC-15.03 Add the following new paragraph immediately after Paragraph 15.03.F.

- G. Substantial Completion shall be as defined in Chapter 30, Section 39G of Massachusetts General Law.

### **15.08 Correction Period**

SC-15.08 Add the following new Paragraph 15.08.G:

- G. The correction period specified as one year after the date of Substantial Completion in Paragraph 15.08.A of the General Conditions is hereby revised to be the number of years set

forth in SC-6.01.B.1; or if no such revision has been made in SC-6.01.B, then the correction period is hereby specified to be 2 years after Substantial Completion.

## **ARTICLE 16—SUSPENSION OF WORK AND TERMINATION**

### *16.01 Owner May Suspend Work*

SC-16.01.A Delete Paragraph 16.01.A in its entirety and replace with the following:

- A. Owner may order, at any time and without cause, suspension of the Work in accordance with Massachusetts General Law Chapter 30, Section 390, which is included in Part II of the Supplementary Conditions.

### *16.02 Owner May Terminate for Cause*

SC-16.02.A.4 Add the following new paragraph immediately after Paragraph 16.02.A.4

5. If Contractor abandons the work, or sublets this Contract or any part thereof, without the previous written consent of Owner, or if the Contract or any claim thereunder shall be assigned by Contractor otherwise than as herein specified;

## **ARTICLE 17—FINAL RESOLUTIONS OF DISPUTES**

### *17.01 Methods and Procedures*

SC-17.01.A Delete the Paragraph 17.01.A in its entirety and insert the following in its place:

- A. Subject to the provisions of paragraphs 9.08 and 10.05, Owner and Contractor may exercise such rights or remedies as either may otherwise have under the Contract Documents or by Laws or Regulations in respect of any dispute.

### *17.02 Arbitration*

SC-17.02 Add the following new paragraph immediately after Paragraph 17.01.

### *17.02 Arbitration*

- A. All matters subject to final resolution under this Article will be settled by arbitration administered by the American Arbitration Association in accordance with its Construction Industry Arbitration Rules (subject to the conditions and limitations of this Paragraph SC-17.02). Any controversy or claim in the amount of \$100,000 or less will be settled in accordance with the American Arbitration Association's supplemental rules for Fixed Time and Cost Construction Arbitration. This agreement to arbitrate will be specifically enforceable under the prevailing law of any court having jurisdiction.
- B. The demand for arbitration will be filed in writing with the other party to the Contract and with the selected arbitration administrator, and a copy will be sent to Engineer for information. The demand for arbitration will be made within the specific time required in Article 17, or if no specified time is applicable within a reasonable time after the matter in question has arisen, and in no event will any such demand be made after the date when institution of legal or equitable proceedings based on such matter in question would be barred by the applicable statute of limitations.

- C. The arbitrator(s) must be licensed engineers, contractors, attorneys, or construction managers. Hearings will take place pursuant to the standard procedures of the Construction Arbitration Rules that contemplate in-person hearings. The arbitrators will have no authority to award punitive or other damages not measured by the prevailing party's actual damages, except as may be required by statute or the Contract. Any award in an arbitration initiated under this clause will be limited to monetary damages and include no injunction or direction to any party other than the direction to pay a monetary amount.
- D. The Arbitrators will have the authority to allocate the costs of the arbitration process among the parties, but will only have the authority to allocate attorneys' fees if a specific Law or Regulation or this Contract permits them to do so.
- E. The award of the arbitrators must be accompanied by a reasoned written opinion and a concise breakdown of the award. The written opinion will cite the Contract provisions deemed applicable and relied on in making the award.
- F. The parties agree that failure or refusal of a party to pay its required share of the deposits for arbitrator compensation or administrative charges will constitute a waiver by that party to present evidence or cross-examine witness. In such event, the other party shall be required to present evidence and legal argument as the arbitrator(s) may require for the making of an award. Such waiver will not allow for a default judgment against the non-paying party in the absence of evidence presented as provided for above.
- G. No arbitration arising out of or relating to the Contract will include by consolidation, joinder, or in any other manner any other individual or entity (including Engineer, and Engineer's consultants and the officers, directors, partners, agents, employees or consultants of any of them) who is not a party to this Contract unless:
  - 1. the inclusion of such other individual or entity will allow complete relief to be afforded among those who are already parties to the arbitration;
  - 2. such other individual or entity is substantially involved in a question of law or fact which is common to those who are already parties to the arbitration, and which will arise in such proceedings;
  - 3. such other individual or entity is subject to arbitration under a contract with either Owner or Contractor, or consents to being joined in the arbitration; and
  - 4. the consolidation or joinder is in compliance with the arbitration administrator's procedural rules.
- H. The award will be final. Judgment may be entered upon it in any court having jurisdiction thereof, and it will not be subject to modification or appeal, subject to provisions of the Laws and Regulations relating to vacating or modifying an arbitral award.
- I. Except as may be required by Laws or Regulations, neither party nor an arbitrator may disclose the existence, content, or results of any arbitration hereunder without the prior written consent of both parties, with the exception of any disclosure required by Laws and Regulations or the Contract. To the extent any disclosure is allowed pursuant to the exception, the disclosure must be strictly and narrowly limited to maintain confidentiality to the extent possible.

17.03 *Attorneys' Fees*

SC-17.03 Add the following new paragraph immediately after Paragraph 17.02.

17.03 *Attorneys' Fees*

- A. For any matter subject to final resolution under this Article, the prevailing party shall be entitled to an award of its attorneys' fees incurred in the final resolution proceedings, in an equitable amount to be determined in the discretion of the court, arbitrator, arbitration panel, or other arbiter of the matter subject to final resolution, taking into account the parties' initial demand or defense positions in comparison with the final result.

**ARTICLE 18—MISCELLANEOUS**

18.08 *Assignment of Contract*

SC-18.08 Add the following new paragraph immediately after Paragraph 18.08.A:

- B. The contract dated **[date]** between Owner as "buyer" and **[identify seller]** as "seller" for procurement of goods and special services ("procurement contract") **[is hereby] [will be]** assigned to Contractor by Owner, and Contractor **[accepts] [will accept]** such assignment. A form documenting the assignment is attached as an exhibit to this Contract.
1. This assignment will occur on the **[Effective Date of the Contract]**, and will relieve the Owner as "buyer" from all further obligations and liabilities under the procurement contract.
  2. Upon assignment, the "seller" will be a Subcontractor or Supplier of the Contractor, and Contractor will be responsible for seller's performance, acts, and omissions, as set forth in Paragraph 7.07 of the General Conditions just as Contractor is responsible for all other Subcontractors and Suppliers.
  3. Notwithstanding this assignment, all performance guarantees and warranties required by the procurement contract will continue to run for the benefit of the Owner and, in addition, for the benefit of the Contractor.
  4. Except as noted in the procurement contract, all rights, duties and obligations of Engineer to "buyer" and "seller" under the procurement contract will cease **[upon the assignment to Contractor]**.

PART II – STATE GOVERNMENT PROVISIONS

State Government Provisions included herein, have been selected from those to which specific references have been made elsewhere in the Contract Documents. Each and every other provisions of law or clause required by law to be inserted in this Contract shall be deemed to be also inserted herein in accordance with Paragraph 3.010 of the Supplementary Conditions.

2.0 *COMMONWEALTH OF MASSACHUSETTS PROVISIONS*

- 2.1 Owner and Contractor agree that the following Commonwealth of Massachusetts Provisions apply to the work to be performed under this Contract and that these provisions supersede any conflicting provisions of this Contract.

- 2.2 Applicable provisions of Massachusetts General Laws and Regulations and/or the United States Code and Code of Federal Regulations govern this Contract and any provisions in violation of the foregoing shall be deemed null, void and of no effect. Where conflict between Code and Federal Requirements and State Laws and Regulations exist, the more stringent requirements shall apply.
- 2.3 Massachusetts General Laws:
  - 2.3.1 Chapter 30, Section 39F
  - 2.3.2 Chapter 30, Section 39G
  - 2.3.3 Chapter 30, Section 39I
  - 2.3.4 Chapter 30, Section 39J
  - 2.3.5 Chapter 30, Section 39L
  - 2.3.6 Chapter 30, Section 39M
  - 2.3.7 Chapter 30, Section 39N
  - 2.3.8 Chapter 30, Section 39O
  - 2.3.9 Chapter 30, Section 39P
  - 2.3.10 Chapter 30, Section 39Q
- 2.4 520 CMR 14.00 Excavation Trench Safety
- 2.5 State Wage Rates
- 2.6 Massachusetts Construction Grants Policy Memoranda
- 2.7 Department of Homeland Security (DHS) Standard Terms and Conditions – 2020 (See Exhibit B)

**EXHIBIT A—SOFTWARE REQUIREMENTS FOR ELECTRONIC DOCUMENT EXCHANGE**

Item	Electronic Documents	Transmittal Means	Data Format	Note (1)
a.1	General communications, transmittal covers, meeting notices and responses to general information requests for which there is no specific prescribed form.	Email	Email	
a.2	Meeting agendas, meeting minutes, RFI's and responses to RFI's, and Contract forms.	Email w/ Attachment	PDF	(2)
a.3	Contactors Submittals (Shop Drawings, "or equal" requests, substitution requests, documentation accompanying Sample submittals and other submittals) to Owner and Engineer, and Owner's and Engineer's responses to Contractor's Submittals, Shop Drawings, correspondence, and Applications for Payment.	Email w/ Attachment	PDF	
a.4	Correspondence; milestone and final version Submittals of reports, layouts, Drawings, maps, calculations and spreadsheets, Specifications, Drawings and other Submittals from Contractor to Owner or Engineer and for responses from Engineer and Owner to Contractor regarding Submittals.	Email w/ Attachment or LFE	PDF	
a.5	Layouts and drawings to be submitted to Owner for future use and modification.	Email w/ Attachment or LFE	DWG	
a.6	Correspondence, reports and Specifications to be submitted to Owner for future word processing use and modification.	Email w/ Attachment or LFE	DOC	
a.7	Spreadsheets and data to be submitted to Owner for future data processing use and modification.	Email w/ Attachment or LFE	EXC	
a.8	Database files and data to be submitted to Owner for future data processing use and modification.	Email w/ Attachment or LFE	DB	
Notes				
(1)	All exchanges and uses of transmitted data are subject to the appropriate provisions of Contract Documents.			
(2)	Transmittal of written notices is governed by Paragraph 18.01 of the General Conditions.			
Key				
Email	Standard Email formats (.htm, .rtf, or .txt). Do not use stationery formatting or other features that impair legibility of content on screen or in printed copies			
LFE	Agreed upon Large File Exchange method (FTP, CD, DVD, hard drive)			
PDF	Portable Document Format readable by Adobe® Acrobat Reader Version <b>24.512</b> or later			
DWG	Autodesk® AutoCAD .dwg format Version <b>2022</b>			
DOC	Microsoft® Word .docx format Version <b>2108</b>			
EXC	Microsoft® Excel .xls or .xml format Version <b>2108</b>			
DB	Microsoft® Access .mdb format Version <b>2021</b>			



# Change Order No. \_\_\_\_\_

Date of Issuance: \_\_\_\_\_

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

Project: Godfrey Brook Capacity Improvements Project	Owner: Town of Milford	Owner's Contract No.:
Contract:	Date of Contract:	
Contractor:	Engineer's Project No.: 15.0167038.00	

**The Contract Documents are modified as follows upon execution of this Change Order:**

Description:

**Attachments (list documents supporting change):**

**CHANGE IN CONTRACT PRICE:**

**CHANGE IN CONTRACT TIMES:**

Original Contract Price:

\$ \_\_\_\_\_

[Increase] [Decrease] from previously approved Change Orders No. \_\_\_\_\_ to No. \_\_\_\_\_:

\$ \_\_\_\_\_

Contract Price prior to this Change Order:

\$ \_\_\_\_\_

[Increase] [Decrease] of this Change Order:

\$ \_\_\_\_\_

Contract Price incorporating this Change Order:

\$ \_\_\_\_\_

Original Contract Times:  Working days  Calendar days

Substantial completion (days or date): \_\_\_\_\_

Ready for final payment (days or date): \_\_\_\_\_

[Increase] [Decrease] from previously approved Change Orders No. \_\_\_\_\_ to No. \_\_\_\_\_:

Substantial completion (days): \_\_\_\_\_

Ready for final payment (days): \_\_\_\_\_

Contract Times prior to this Change Order:

Substantial completion (days or date): \_\_\_\_\_

Ready for final payment (days or date): \_\_\_\_\_

[Increase] [Decrease] of this Change Order:

Substantial completion (days or date): \_\_\_\_\_

Ready for final payment (days or date): \_\_\_\_\_

Contract Times with all approved Change Orders:

Substantial completion (days or date): \_\_\_\_\_

Ready for final payment (days or date): \_\_\_\_\_

RECOMMENDED:

By: \_\_\_\_\_  
Engineer (Authorized Signature)

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

ACCEPTED:

By: \_\_\_\_\_  
Owner (Authorized Signature)

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

ACCEPTED:

By: \_\_\_\_\_  
Contractor (Authorized)

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

Approved by Funding Agency (if applicable):

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



## SECTION 01010

### SUMMARY OF WORK

#### PART I - GENERAL

##### 1.01 RELATED DOCUMENTS

- A. All materials and construction methods and details for this project shall conform to the latest edition of the "Standard Specifications for Highways and Bridges", Massachusetts Department of Transportation, as amended, referred to hereinafter as the "Standard Specifications".

B. SECTIONS

PAGES

##### DIVISION I - GENERAL REQUIREMENTS

1. Section 01010—Summary of Work	01010-1 thru 3
2. Section 01039—Coordination and Meetings	01039-1 thru 6
3. Section 01060—Regulatory Requirements	01060-1 thru 5 (+ attachments)
4. Section 01300—Submittals	01300-1 thru 10
5. Section 01400—Quality Control	01400-1 thru 4
6. Section 01500—Construction Facilities and Temporary Controls	01500-1 thru 10
7. Section 01560—Temporary Erosion and Sediment Controls	01560-1 thru 10
8. Section 01565—Temporary Water Control	01565-1 thru 11
9. Section 01566 -Hydraulic and Hydrologic Information	01566-1 thru 3 (+ attachments)
10. Section 01600—Material and Equipment	01600-1 thru 3
11. Section 01700—Contract Close-out	01700-1 thru 3

##### DIVISION II – SITE WORK

1. Section 02010—Subsurface Exploration Results	02010-1 thru 1 (+ logs)
2. Section 02020—Mobilization	02020-1 thru 5

3. Section 02100—Site Preparation and Demolition	02100-1 thru 6
4. Section 02200—General Earthwork	02200-1 thru 18
5. Section 02230—Management and Disposition of Contaminated Material	02230 1 thru 12
6. Section 02500—Paving and Surfacing	02500-1 thru 6
7. Section 02720—Storm Drainage and Concrete Units	02720-1 thru 15
8. Section 02800—Site Improvements	02800-1 thru 4
9. Section 02910—Fences and Walls	02910-1 thru 7
10. Section 02970—Restoration of Disturbed Areas	02970-1 thru 15

### DIVISION III – CONCRETE

1. Section 03300—Cast-in-Place Concrete	03300-1 thru 20
2. Section 03305—Concrete Testing	03305-1 thru 5
3. Section 03346—Concrete Finishing Curing and Repairs	03346-1 thru 10
4. Section 03604—Non-Shrink Grout	03604-1 thru 4

In case of discrepancy between the Standard Specifications, and these specifications, these specifications will govern.

Drawings and general provisions of contract, including General and Supplementary Conditions and other Division- I Specification Sections, apply to this Section.

#### 1.02 CONTRACTOR USE OF SITE

- A. Refer to other sections of Project Manual for requirements with respect to time for performing work, project limits, access, etc.

#### 1.03 WORK SEQUENCE

- A. Construct Work in stages to accommodate Town's requirements during the construction period, coordinate construction schedule and operations with Town.

#### 1.04 PROJECT DESCRIPTION

- A. Work covered by this Contract consists of the Construction of precast culverts, cast in place and precast channels, drainage improvements, paving, and associated site improvements and restoration.

1.05 LIST OF CONTRACT DRAWINGS

- A. The work to be performed is further described and located on the following contract drawings which are included herewith, and form a part of the Contract Documents:

Contract Drawings for the  
Godfrey Brook Capacity Improvements Project – West Street to Water Street  
Town of Milford, Massachusetts  
Milford Highway Department & Office of Planning and Engineering  
January 2025  
Sheets 1 – 12.

**\*\*\*\*\*END OF SECTION\*\*\*\*\***

## SECTION 01039

### COORDINATION AND MEETINGS

#### PART I - GENERAL

##### 1.01 SCOPE

- A. Coordination.
- B. Field engineering.
- C. Alternative materials procedures.
- D. Cutting and patching.
- E. Preconstruction conference.
- F. Project meetings.
- G. Existing utilities services.
- H. "Dig-safe".
- I. Massachusetts Right to Know Law.

##### 1.02 COORDINATION

- A. Coordinate scheduling, submittals, and work of the various sections of specifications to assure efficient and orderly sequence of installation of interdependent construction elements.
- B. Verify that utility requirement characteristics of operating equipment are compatible with existing utilities. Coordinate work of various sections having interdependent responsibilities for installing, connecting to, and placing in service, such equipment.
- C. Coordinate space requirements and installation of mechanical work which are indicated diagrammatically on Drawings. Follow routing shown as closely as practicable. Utilize spaces efficiently to maximize accessibility for other installations for maintenance, and for repairs.
- D. Coordinate completion and clean up of work of separate sections in preparation for Substantial Completion.
- E. After Town occupancy of premises, coordinate access to site for correction of defective Work and Work not in accordance with Contract Documents, to minimize disruption of Owner's activities.

### 1.03 FIELD ENGINEERING

- A. Contractor to establish base line and locate and protect survey control and reference points.
- B. Control datum for survey is that established by Town provided survey shown on Drawings.
- C. Provide field engineering services. Establish elevations, lines, and levels, utilizing recognized engineering survey practices. Provide and supply name and registration number of registered engineer or surveyor who will do layout and grade work.

### 1.04 ALTERNATIVE MATERIALS PROCEDURES

- A. Materials: As specified in product Sections; match existing products and work for patching and extending work.
- B. Remove, cut and patch work in a manner to minimize damage and to provide a means of restoring products and finishes to specified condition.
- C. Refinish visible existing surfaces to remain to specified conditions for each material, with a neat transition to adjacent finishes.
- D. Where new work abuts or aligns with existing, perform a smooth and even transition. Patch work to match existing adjacent work in texture and appearance.
- E. When finished surfaces are cut so that a smooth transition with new work is not possible, terminate existing surface along a straight line at a natural line of division and make recommendation to Engineer.
- F. Where a change of plane of 1/4 inch (6mm) or more occurs, submit recommendation for providing a smooth transition for Engineer review.
- G. Patch or replace portions of existing surfaces which are damaged, lifted, discolored, or showing other imperfections.
- H. Finish surfaces as specified in individual project Sections.

### 1.05 CUTTING AND PATCHING

- A. Employ skilled and experienced installer to perform cutting and patching.
- B. Submit written request in advance of cutting or altering elements which affects:
  - 1. Structural integrity of element.
  - 2. Integrity of weather-exposed or moisture-resistant elements.
  - 3. Efficiency, maintenance, or safety of element.
  - 4. Visual qualities of sight-exposed elements.
  - 5. Work of Owner or separate Contractor.

- C. Execute cutting, fitting, and patching including excavation and fill to complete work and to:
  - 1. Fit the several parts together, to integrate with other work.
  - 2. Uncover work to install or correct ill-timed work.
  - 3. Remove and replace defective and non-conforming work.
  - 4. Remove samples of installed work for testing,
  - 5. Provide opening in elements of work for penetrations of water supply, drainage and electrical work.
- D. Execute work by methods which will avoid damage to other work, and provide proper surfaces to receive patching and finishing.
- E. Cut rigid materials using masonry saw or core drill.
- F. Restore work with new products in accordance with requirements of Contract Documents.
- G. Fit work tight to pipes, sleeves, ducts, conduit, and other penetrations through surfaces.
  - 1. Refinish surfaces to match adjacent finishes. For continuous surfaces, refinish to nearest intersection; for an assembly, refinish entire unit.
  - 2. Identify any hazardous substance or condition exposed during the work to the Engineer for decision or remedy.

#### 1.06 PRECONSTRUCTION CONFERENCE

- A. As soon as practical after signing of the Contract, a pre-construction conference to review the construction sequence and administration shall be scheduled by the Milford Office of Planning and Engineering, 52 Main Street, Milford Town Hall, Milford, MA 01757.
- B. The following parties are required to be represented by responsible spokespersons at this conference:
  - 1. Town's Representative.
  - 2. Engineer.
  - 3. Milford Police Department.
  - 4. General Contractor.
  - 5. All Subcontractors or their authorized representatives.
  - 6. Representatives of utility companies.
- C. Agenda:
  - 1. Use of premises by Town and Contractor.
  - 2. Town's requirements.

3. Construction facilities and controls provided by Town.
4. Security and housekeeping procedures.
5. Schedules.
6. Procedures for testing.
7. Procedures for maintaining record documents.
8. Requirements for start-up of equipment.
9. Requirements and coordination requirements with utility companies.

#### 1.07 PROJECT MEETINGS

- A. Project meetings shall be held on a weekly basis, or on an as-need basis, subject to the discretion of the owner.
- B. Attendance Required: Job superintendent, major Subcontractors and suppliers, Town, Engineer, as appropriate to agenda topics for each meeting.
- C. As a prerequisite for monthly payments, ordering schedules, shop drawings schedules, construction schedules, and coordination meeting schedules shall be prepared and maintained by the General Contractor and shall be revised and updated on a bimonthly basis, and a copy submitted to the Engineer.
- D. In order to expedite construction progress on this Project, the General Contractor shall order all materials immediately after the approval of shop drawings and shall obtain a fixed date of delivery to the Project site for all materials ordered which shall not impede or otherwise interfere with construction progress.
- E. Scheduling shall be discussed with all concerned parties, and methods shall be presented by the General contractor which shall reflect construction completion not being deferred and at no additional expense to the Town.
- F. Project meetings will be chaired by the Milford Town Engineer.
- G. Minutes of project meetings will be prepared by the Town Engineer or by his designated representative and distributed to all present, within five days following each meeting.
- H. Agenda:
  1. Review minutes of previous meeting.
  2. Review of Work progress.
  3. Field observations, problems and decisions.
  4. Identification of problems which impede planned progress.
  5. Review of submittals schedule and status of submittals.
  6. Review of off-site fabrication and delivery schedules.
  7. Maintenance of progress schedule.

8. Correcting measures to regain projected schedules.
9. Planned progress during succeeding work period.
10. Coordination of projected progress.
11. Maintenance of quality and work standards.
12. Effect of proposed changes on progress schedules and coordination.
13. Other business relating to Work.

#### 1.08 EXISTING UTILITIES SERVICES

- A. Interruptions to critical existing utility services will not be allowed.
- B. The Contractor shall locate and record on Drawings all existing utilities along the course of the Work by such means as the Town may approve, and shall preserve such marked locations until the work has progressed to the point where the encountered utility is fully exposed and protected as required. It shall be the Contractor's responsibility to notify the proper authorities and/or utility company before interfering therewith.
- C. Existing utilities that are shown on the Drawings or the location of which is made known to the Contractor prior to excavations, through accuracy and information as to grades and elevations may be lacking, shall be protected from damage during the excavation and backfilling operations, and if damaged, shall be repaired by the Contractor at his own expense. Materials below existing utilities which are removed or disturbed during excavation operations shall be carefully replaced during backfilling and thoroughly compacted to prevent future settlement and damage to the utility. Utilities damaged due to the subsequent settlement of the backfill shall be repaired by, or at the expense of the Contractor.
- D. All exposed conduits, wires, and/or cables shall be provided with sufficient protection and support to prevent failure, fraying or damage due to backfilling or other construction operations. Supporting bridgework of two-inch timber planking shall be placed under the cable and shall span the entire excavation or void and shall be removed when backfilling.
- E. Any damage to existing utilities to remain shall be repaired in accordance with recognized technical specifications as may be prescribed by the respective utility company or Town using experienced, competent labor, and materials meeting specifications and current codes.
- F. The Contractor shall not obstruct access to existing active utility system, which continues to serve facilities other than the Project construction site. The Contractor shall exercise measures to prevent placement of temporary facilities, stored materials, and mobile equipment in such a way as to impede continuous access by authorized utility company for any expense incurred as a result of need to remove any such impediments to access.



1.09 "DIG-SAFE"

- A. Within the Commonwealth, "Dig-Safe" is the name of the Utility Underground Plant Damage Prevention Authority. They are located 331 Montvale Ave., Woburn, MA 01801. The phone number is 1-888-344-7233.
- B. Contractors must notify "Dig-Safe" of contemplated excavation, demolition, or explosive work in public or private ways, and any Utility Company Right-of-Way or Easement.
- C. This notification must be made at least 72 hours prior to the work, but not more than 60 days before the contemplated work. Such notice shall set forth the name of the street or the route number of said way and an accurate description of the location and nature of the proposed work.
- D. The Town requires that the notification be sent to "Dig-Safe" by Certified Mail with copies to the Milford Office of Planning and Engineering (MOPE). MOPE requires a copy of the signed receipt of delivery.
- E. "Dig-Safe" is required to respond to the notice within 72 hours from the time said notice is received by designating at the locus the location of pipes, mains, wires, or conduits.
- F. Contractors shall not commence work until "Dig-Safe" has responded as noted above. The work shall then be performed in such a manner, and with reasonable precautions taken to avoid damage to utilities under the surface in said areas of work.
- G. Prior to the "Dig-Safe" notification, Contractors to provide their Superintendent with current "Dig-Safe" regulations, and a copy of Massachusetts General Laws, Chapter 80, Section 40.

1.10 MASSACHUSETTS RIGHT TO KNOW LAW

- A. The General Contractor is responsible for complying with the Provisions of Chapter 111F of the Massachusetts General Laws; added by Chapter 470 of the Acts of 1973 (Right to Know Law).

**\*\*\*\*\*END OF SECTION\*\*\*\*\***

## SECTION 01060

### REGULATORY REQUIREMENTS

#### PART 1 - GENERAL

##### 1.01 PERMITS AND LICENSES

- A. No portion of the Work on the Project shall start until all necessary and required permits have been secured. Permits, licenses, and approvals which have already been secured by the Town in relation to the Work are attached to this Specification. The Contractor shall be responsible adhering to the conditions stipulated in all permits. Additional permits may be forthcoming. The permits and their required conditions, including all amendments, shall be considered part of the Contract Documents. The Contractor shall be responsible for adhering to the conditions stipulated in all permits. No Work shall begin until all required permits have been secured to cover the Work.
- B. Permits, licenses, and approvals which have already been or which will be secured by the Town in relation to the work at Godfrey Brook include the following:
1. Massachusetts Environmental Policy Act (MEPA) – Certificate of the Secretary of Energy and Environmental Affairs on the Environmental Notification Form (September 11, 2009)
  2. Federal Emergency Management Agency (FEMA) – Record of Environmental Consideration (REC) – PDMC-PJ-MA-2019-004 (April 19, 2001)
  3. Order of Conditions from Milford Conservation Commission (MassDEP File No. 223-1233; October 27, 2023);
  4. Section 401 Water Quality Certification from MassDEP (401 WQC Application 24-WW26-0030-APP, issued August 27, 2024);
  5. Project Notification Form with No Adverse Effect decision from Massachusetts Historical Commission (September 18, 2014); and
  6. Section 404 Pre-Construction Authorization by the United States Army Corps of Engineers (File #NAE-2024-1170, issued February 14, 2025).

- C. The Contractor shall be responsible for obtaining all other necessary permits and shall be responsible for adhering to the conditions stipulated in all permits. A temporary permit (local) may be required for field trailers (if any) or temporary electric and potable water connections (if any) and, if so, shall be obtained by Contractor. The Contractor shall be responsible for conducting the Work in accordance with all provisions of said permits.
- D. The Contractor shall procure any other required permits, licenses and inspections, (except for those to be obtained by the Town as stated herein), pay all charges, fees and taxes and shall give all notices necessary and incidental to the due and lawful prosecution of the work under this Contract. The cost thereof shall be included in the bid prices for the various items specified herein for the work of this Contract. Copies of all required permits and licenses shall be filed with the Town prior to the beginning of the work. Fees for Building Department permits will be waived by the Town.

## 1.02 ADHERENCE TO PERMIT AND LICENSE CONDITIONS AND REQUIREMENTS

- A. The Contractor shall strictly adhere to all conditions and requirements set forth in the permits and licenses issued in relation to the Work of this Contract. The Contractor shall undertake all incidental work necessary to meet the conditions and requirements of the permits and licenses and shall perform the Work of the Contract in accordance with said conditions and requirements. The cost thereof shall be included in the prices bid for the various items specified herein for the work of this Contract. The Contractor shall be solely responsible for monitoring and complying with the conditions and requirements of all permits and licenses. The Contractor shall solely be responsible for any and all penalties, sanctions, and fines that result from non-compliance with the conditions and requirements of all permits and licenses. Neither the Town nor its Consultant will be held responsible for any penalties which result from Contractor violations of the conditions and requirements of permits and licenses.

1. Tree Clearing: The Contractor shall perform tree clearance in accordance with the USACE 404 Authorization (File Number NAE-2024-1170) under the General Permits for the Commonwealth of Massachusetts. Tree clearing shall be performed prior to June 1<sup>st</sup> and may not be performed between June 1<sup>st</sup> and July 31<sup>st</sup>.

- B. It is expected that conditions and requirements contained in permits that may not yet be issued will substantially conform to the requirements of the Drawings and Specifications and conditions contained in other

permits. Therefore, no additional payment will be made for compliance with the conditions and requirements any unissued permits.

### 1.03 AIR, SOIL, AND WATER POLLUTION AND NOISE CONTROL

- A. The Contractor is hereby notified that abutting properties may be sensitive noise receptors and are located adjacent to the project site. The Contractor shall be responsible for utilizing construction practices which meet the requirements of all municipal noise ordinances with respect to the level of ambient noise generated by construction activities as heard at nearby receptors. In the event that no appropriate municipal code exists, the standards used by the City of Boston shall govern. In any event, the Contractor shall take all reasonable precautions to reduce the disturbance of abutters by noise generated by construction activity.
- B. The Contractor shall comply with the applicable local, state, and federal regulations pertaining to Open Burning, and Dust, Odor, Construction and Demolition; and his/her attention is called to applicable Enforcement Provisions in regard to these and other pertinent and applicable regulations. The Contractor shall comply with the provisions of the Clean Air Act of 1970, 42USC, Sections 1857- 1857f.
- C. Sediment and Erosion Control notes are included within the Contract Drawings. The information contained in the drawings and specifications may be used as the basis for the preparation of any sediment and erosion control plan, but shall be considered the MINIMUM acceptable measures. The final content and responsibility for implementation are the Contractor's alone.

The Contractor is informed that the Work of the Project is adjacent to and within sensitive environmental resource areas. Thus, the Contractor shall take every precaution to prevent the chemical contamination of soil, groundwater, and surface waters caused by spilling or leaking of oil, hazardous material, or other chemicals and materials used in the construction operation. The Contractor shall be especially careful not to discharge or spill any oil, grout, concrete, or other contaminants in or onto the waters adjacent to the work.

Clean-up of such spills, leaks or other contamination shall be undertaken immediately by the Contractor. The clean-up work shall be done to the satisfaction of the Engineer and the Town. All spills, leaks, or other contamination shall be immediately reported to both the Engineer and Town. In the event that such a spill or leak is not cleaned up by the Contractor, the Town reserves the right to have the spill or leak cleaned up by its own forces or by others and the expense of such removal and disposal

will be charged to the Contractor.

#### 1.05 SPILL PREVENTION CONTROL AND COUNTERMEASURES PLAN

A. The Contractor shall provide the Town, twenty (20) working days prior to the commencement of work, a written spill prevention control and countermeasures plan / emergency action plan. This plan shall include, at a minimum, (1) a plan for containing anticipated construction materials to prevent possible spills; (2) telephone numbers of key management personnel including local and state public safety agencies; (3) an inventory of spill mitigation equipment such as sorbent booms, etc. which are to be kept on site; and (4) standard procedures for containing possible spills.

#### 1.06 HEALTH AND SAFETY

A. Health and Safety on the project site shall be the sole responsibility of the Contractor. The Contractor shall be responsible for monitoring the health and safety practices of his own personnel and those of all sub-contractors present on the site. The Contractor shall be responsible for knowledge of and compliance with all relevant OSHA regulations, as well as all other Federal, state, and local laws, ordinances, codes, and regulations pertaining to health and safety.

B. A general and a site-specific Health and Safety Plan shall be in place prior to the Start of the Work. The Contractor shall place the utmost importance on the proper planning, execution and adherence to the safety plan and all required general safety procedures. Review of this plan by the Town and/or its Consultant in no way implies acceptance of responsibility for job site safety by the Town and/or its Consultant. The Contractor shall be solely responsible for job site safety.

C. The site-specific Health and Safety Plan shall specifically address fall protection, water safety, and traffic safety, as well as all other areas deemed necessary by the Contractor.

D. Neither the professional activities of the Town, its Engineer, or its Design Consultant, nor the presence of the Town, its Engineer, or its Design Consultant's employees and/or subcontractors will be construed by any party to imply that the Town, its Resident Engineer, or its Design Consultant has any responsibility for any Contractor's methods of work performance, procedures, superintendence, sequencing of operations, or safety in, on or about the project site. With respect to site safety, the Town will be responsible solely for the on-site activities of its own employees and

subcontractors, and this responsibility will not be construed to relieve the Contractor from his obligations to maintain a safe project site.

#### 1.07 SUBMITTALS

A. The Contractor shall submit the following documents a minimum of twenty (20) days prior to the start of work:

1. Spill Prevention Control and Countermeasures Plan
2. Health and Safety Plan - Submit for record purposes only
3. All applicable permit/approval applications required to perform the Work at the site.

#### **PART 2 - PRODUCTS**

Not used

#### **PART 3 - EXECUTION**

Not used

**\* \* \* END OF SECTION \* \* \***



*The Commonwealth of Massachusetts*  
*Executive Office of Energy and Environmental Affairs*  
*100 Cambridge Street, Suite 900*  
*Boston, MA 02114*

Deval L. Patrick  
GOVERNOR

Timothy P. Murray  
LIEUTENANT GOVERNOR

Ian A. Bowles  
SECRETARY

Tel: (617) 626-1000  
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<http://www.mass.gov/envir>

September 11, 2009

CERTIFICATE OF THE SECRETARY OF ENERGY AND ENVIRONMENTAL AFFAIRS  
ON THE  
ENVIRONMENTAL NOTIFICATION FORM

PROJECT NAME : Godfrey Brook System Renovation  
PROJECT MUNICIPALITY : Milford  
PROJECT WATERSHED : Charles River  
EEA NUMBER : 14465  
PROJECT PROPONENT : Town of Milford  
DATE NOTICED IN MONITOR : August 12, 2009

Pursuant to the Massachusetts Environmental Policy Act (M.G. L. c. 30, ss. 61-62I) and Section 11.06 of the MEPA regulations (301 CMR 11.00), I hereby determine that this project **does not require** the preparation of an Environmental Impact Report (EIR).

As described in the Environmental Notification Form (ENF), the project involves the replacement of the deteriorating masonry channel walls and bottoms of Godfrey Brook, O'Brien Brook and Hospital Brook. Godfrey Brook is an intermittent stream that is a tributary to the Charles River. O'Brien and Hospital brooks are intermittent streams that are tributaries to Godfrey Brook. Except for the upper reaches of the watershed, the Godfrey Brook system is constructed of stone masonry channels that have exceeded their expected lifespan. Godfrey Brook and its tributaries are part of the Town of Milford's stormwater management system.

Jurisdiction

The project is undergoing MEPA review pursuant to Section 11.03(3)(b)(1)(f) of the MEPA regulations because it requires a State agency action and will result in alteration of ½ or more acres of any other wetlands. The project will require a Section 401 Water Quality

Certificate (401 WQC) from the Massachusetts Department of Environmental Protection (MassDEP) and a Section 404 Permit from the U.S. Army Corps of Engineers (U.S. ACOE). The project will also require an Order of Conditions from the Milford Conservation Commission, and if appealed, a Superceding Order of Conditions from MassDEP.

The project will be undertaken by an agency of the Commonwealth. Therefore, MEPA jurisdiction for this project is broad and extends to all aspects of the project that are likely, directly or indirectly, to cause Damage to the Environment as defined in the MEPA regulations.

### Review of the ENF

#### Site Location

Godfrey, O'Brien and Hospital Brooks are intermittent in flow due to the dense residential development that has occurred in their vicinity over the last 75 years and the significant portions of the drainage areas that have been rendered impervious. All three brooks are located entirely within the Town of Milford, almost exclusively on privately-owned property. Except in their extreme upper reaches, where the brooks remain in somewhat of a natural state, the channels of Godfrey, O'Brien, and Hospital Brooks typically are lined with stone masonry walls constructed in the 1930s by the Works Projects Administration. At that time, the channels were configured to accommodate the then existing brook flows and were not designed to provide additional capacity for future development in the watershed.

The condition of the stone walls is highly variable, ranging from fair to extremely poor and failing. The walls were observed in many areas to be leaning or threatening to collapse. In at least one area, the walls were observed to have completely fallen into the brook. Some portions of the stone walls have been replaced with walls of mass concrete as emergency repairs where extreme failures have occurred due to heavy storms. Godfrey and O'Brien Brooks run through culverts under street crossings in many locations, or are bridged with simple slab spans and stone abutments. Residential and commercial development encroaches upon the channels, with buildings very near the channel walls in many locations. The majority of the channels have a stone masonry bottom in addition to the walls, over which a gravel and debris substrate has developed, providing minimal wildlife habitat value. The channels provide a travel corridor and intermittent water source function, with the substrate providing limited habitat for aquatic invertebrates. Parts of the channels have no natural substrate and provide little to no habitat function, while the upstream natural areas provide greater habitat function.

#### Alternatives Analysis

The ENF indicates that the Town considered a number of potential alternatives resulting in the selection of the Preferred Alternative. The ENF included a feasibility study that was prepared to evaluate alternatives for restoration of the stream channels. The alternatives included:

1. *Emergency Repair of Channels Upon Failure* – No major repair or reconstruction of the channels is conducted and the stone masonry walls are repaired piecemeal upon failure of wall segments, as has been done in the past;
2. *Underground Culvert* – Open stream channels are converted to underground culverts;



3. *Restore Natural Stream Channel* – The stone masonry walls are removed and the channel is restored to a more natural condition, with reconstructed natural banks; and
4. *Stabilize Existing Channel in Place* – The existing channel is reconstructed in place with more stable materials and modern practices.

After a comparison of alternatives, the Town of Milford chose Alternative #4 as the Preferred Alternative. This alternative entails stabilizing the existing channel in place and provides for the replacement or reconstruction of the brook channels in their existing locations by increasing stability and longevity of the structures.

The ENF concludes that the Preferred Alternative provides a structural solution that does not impair wildlife habitat functions within the brooks. A precast concrete channel section is proposed with a natural substrate stream bottom that provides for wildlife habitat values equivalent to or better than existing conditions. The design would ensure that the channels would have the structural integrity to withstand existing flows with a long design life. Conveyance capacity could be increased in areas where site conditions allow improvements to the cross-sectional area of the stream. The ENF indicates that this alternative may be implemented in segments, determined either by priority for repair or by working in one direction along the channel. Typical methods would be required to construct this alternative, diverting flows around the active work areas. Replacement of the existing channel with a structurally stable cross-section will benefit water quality by eliminating erosion and sedimentation associated with collapse of the channel walls. The system could be designed to incorporate characteristics that would provide habitat enhancement, such as a natural bottom substrate and permeability to allow for groundwater exchange.

### Wetland Impacts

The Preferred Alternative will require an Order of Conditions from the Milford Conservation Commission and a 401 Water Quality Certification from MassDEP. MassDEP has indicated in its comments that the Wetlands Protection Act regulations at 310 CMR 10:54 (1) states that where stream banks are composed of concrete, asphalt, or other artificial material, said banks are only significant to flood control and storm damage prevention. Therefore, Alternative 3 should be the Preferred Alternative because this alternative is the only alternative in which the stone masonry walls would be removed and the channel restored to a more natural condition with reconstructed natural banks. However, MassDEP acknowledges that this may not be practicable in many of the stream locations due to the constraints of the watershed area and velocity erosion. MassDEP has indicated that the Proponent should examine the possibility of combining Alternatives 3 and 4. I advise the Town of Milford to consult with MassDEP regarding the final designs of the Preferred Alternative.

### Floodplain

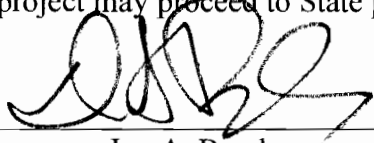
The project involves activities with the 100-year floodplain and floodway. I refer the proponent to the comment letter from the Department of Conservation and Recreation's (DCR) Flood Hazard Management Program (FHMP) for guidance on applicable federal, state and local regulations and other requirements pertaining to development within the 100-year floodplain. As

noted by FHMP, if the project involves any federal action, it must comply with the federal Executive Order 11988, Floodplain Management.

Conclusion

Based on the information in the ENF and after consultation with relevant public agencies, I find that no further MEPA review is required. The project may proceed to State permitting.

September 11, 2009  
Date

  
\_\_\_\_\_  
Ian A. Bowles

Comments received:

- 08/25/09 Board of Underwater Archaeological Resources
- 08/25/09 Massachusetts Department of Environmental Protection – CERO
- 09/01/09 Charles River Watershed Association
- 09/02/09 Department of Conservation and Recreation’s Flood Hazard Management Program

IAB/ACC/acc

RECORD OF ENVIRONMENTAL CONSIDERATION (REC)

Project PDMC-PJ-01-MA-2019-004 (0)

Title: Godfrey Brook Capacity Improvements-West Street to Water Street, Milford, MA

NEPA DETERMINATION

<b>Non Compliant Flag:</b> No	<b>EA Draft Date:</b>	<b>EA Final Date:</b>
<b>EA Public Notice Date:</b>	<b>EA Fonsi</b>	<b>Level:</b> CATEX
<b>EIS Notice of Intent</b>	<b>EIS ROD Date:</b>	

**Comment** SOW: As depicted in attached plans, the Town of Milford will construct hydraulic improvements to a masonry-lined channel system carrying Godfrey Brook between West Street and Water Street. The river channel is lined with stone walls constructed in the 1930's by the Works Projects Administration, and some sections have been replaced or repaired. Residential and commercial development encroaches on the channels, with buildings very near the channel walls in many locations. The majority of the existing channel sections have a stone masonry bottom, over which gravel and debris substrate has developed. The improvements will replace 540 feet of existing Godfrey Brook stone-lined channel approximately 4 ft wide x 3 ft deep with u-shaped precast concrete channel 6 ft wide x 4 ft deep (340 linear feet between West Street and Church Street and 200 linear feet between Church St. and Water St.), replace a concrete slab deck driveway over the brook with a 6 ft wide x 6 ft deep concrete box culvert (at 9 Water St., 42.138636, -71.523969), and replace an inlet debris screen (at Water Street crossing). The replacement channel segments will include weep holes along the vertical precast concrete channel sections to facilitate groundwater and surface water interaction, and the channel base will include weep holes and 6-inch x 6-inch baffles to retain natural gravel substrate of cobbles and boulders atop a crushed stone base underlain by filter fabric. Existing channel masonry walls will be re-used to extend channel sides to existing grade, or new cast-in-place concrete walls will be used where needed. Approximately 580 LF of existing channel and overbank areas will be excavated to a depth of 6 ft between (42.140158, -71.524478) and (42.138314, -71.524083) to facilitate construction. All work will be completed in the dry, using flow diversion and active dewatering of work areas to be determined by permit requirements. Engineering services will include a topographic survey, design, plans, specifications, bid documents, permitting, construction-phase engineering, and acquisition of appraisals and easements. An estimated 8 trees will be removed to facilitate this work. Similar work has been completed on this system with prior HMGP grants. An H&H study was submitted with the grant application. The project was included in an Environmental Notification Form filed in accordance with the Massachusetts Environmental Policy Act (MEPA) as Energy and Environmental Affairs (EEA) number 14465 and the Secretary issued a Certificate stating an Environmental Impact Report was not required on 09/11/2009.

\*\*\*\*\* NEPA: This project has been determined to be Categorically Excluded from the need to prepare either an Environmental Impact Statement or Environmental Assessment in accordance with FEMA Instruction 108-1-1 and DHS Instruction 023-01-001-01. Particular attention should be given to the project conditions before and during project implementation. Failure to comply with these conditions may jeopardize federal assistance including funding.  
 - lhutchi2 - 04/16/2021 13:57:45 GMT

CATEX CATEGORIES

Catex Category Code	Description	Selected
*n9	(*n9) Federal Assistance for Flood Hazard Reduction Actions. Federal assistance for drainage, berm, water crossing, and detention, retention, or sediment pond projects which have the primary purpose of addressing flood hazards and: (a) Do not affect more than 25 acres, (b) Do not result in adverse flood risk effects to downstream communities, (c) Do not result in any increase of flood levels within the community during the occurrence of the base flood discharge if the action takes place within the regulatory floodway, and (d) Where the effect of the proposed project when combined with other existing or reasonably foreseeable development will not increase water surface elevation of the base flood more than one foot at any point within the community if the action takes place in a floodplain with no regulatory floodway. This CATEX covers minor flood control actions as identified in Sections 1366 and 1361 of the National Flood Insurance Act (NFIA). Actions that are not covered in Sections 1366 and 1361 of the NFIA, such as dikes, levees, seawalls, groins, and jetties, are	Yes

## RECORD OF ENVIRONMENTAL CONSIDERATION (REC)

Project PDMC-PJ-01-MA-2019-004 (0)

Title: Godfrey Brook Capacity Improvements-West Street to Water Street, Milford, MA

Catex Category Code	Description	Selected
a7	excluded from this CATEX. (a7) The commitment of resources, personnel, and funding to conduct audits, surveys, and data collection of a minimally intrusive nature. If any of these commitments result in proposals for further action, those proposals must be covered by an appropriate CATEX. Examples include, but are not limited to: (a) Activities designed to support the improvement or upgrade management of natural resources, such as surveys for threatened and endangered species, wildlife and wildlife habitat, historic properties, and archeological sites; wetland delineations; timber stand examination; minimal water, air, waste, material and soil sampling; audits, photography, and interpretation. (b) Minimally-intrusive geological, geophysical, and geo-technical activities, including mapping and engineering surveys. (c) Conducting Facility Audits, Environmental Site Assessments and Environmental Baseline Surveys, and (d) Vulnerability, risk, and structural integrity assessments of infrastructure.	Yes
c2	(c2) Lease extensions, renewals, or succeeding leases where there is no change in the facility's use and all environmental operating permits have been acquired and are current.	Yes

## EXTRAORDINARY

Extraordinary Circumstance Code	Description	Selected ?
	No Extraordinary Circumstances were selected	

## ENVIRONMENTAL LAW / EXECUTIVE ORDER

Environmental Law/ Executive Order	Status	Description	Comment
Clean Air Act (CAA)	Completed	Project will not result in permanent air emissions - Review concluded	
Coastal Barrier Resources Act (CBRA)	Completed	Project is not on or connected to CBRA Unit or otherwise protected area - Review concluded	
Clean Water Act (CWA)	Completed	Project would affect waters, including wetlands, of the U.S.	CWA: This project as described may require permitting or coordination from the U.S. Army Corps of Engineers (USACE) or the MassDEP. See condition. - lhutchi2 - 04/16/2021 14:11:48 GMT
	Completed	Project may require Section 404/401 or Section 9/10 (Rivers and Harbors Act) permit, including qualification under Nationwide Permits - Review concluded	
Coastal Zone Management Act (CZMA)	Completed	Project is not located in a coastal zone area and does not affect a coastal zone area - Review concluded	

## RECORD OF ENVIRONMENTAL CONSIDERATION (REC)

**Project** PDMC-PJ-01-MA-2019-004 (0)

**Title:** Godfrey Brook Capacity Improvements-West Street to Water Street, Milford, MA

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Environmental Law/ Executive Order	Status	Description	Comment
Executive Order 11988 - Floodplains	Completed	Located in floodplain or effects on floodplain/flood levels	EO11988: Per Flood Insurance Rate Map (FIRM) community and panel number 25027C0869E dated 07/04/2011; the project is located within the Special Flood Hazard Areas (SFHA) (100-year floodplain). Per 44 CFR Part 9, the 8-Step process is required. See Attached 8-Step Documentation. See Condition(s). - lhutchi2 - 04/16/2021 14:15:26 GMT
	Completed	Possible adverse effects associated with investment in floodplain, occupancy or modification of floodplain environment	
	Completed	8 Step Process Complete - documentation attached - Review concluded	
Executive Order 11990 - Wetlands	Completed	Located in wetlands or effects on wetlands	EO11990: Determination based on review of U.S. Fish and Wildlife National Wetlands Inventory, Wetlands Mapper at <a href="http://www.fws.gov/wetlands/Data/Mapper.html">http://www.fws.gov/wetlands/Data/Mapper.html</a> accessed on 10/29/2020. As required by 44 CFR Part 9, the 8-Step process is required, and has been completed as part of the Floodplain review. 8-Step Documentation is attached under EO11988 Floodplain Management Review. See Condition(s). - lhutchi2 - 04/16/2021 14:25:11 GMT
	Completed	Possible adverse effect associated with constructing in or near wetland	
	Completed	Review completed as part of floodplain review - Review concluded	
Executive Order 12898 - Environmental Justice for Low Income and Minority Populations	Completed	Low income or minority population in or near project area	
	Completed	No disproportionately high and adverse impact on low income or minority population - Review concluded	
Endangered Species Act (ESA)	Completed	Listed species and/or designated critical habitat present in areas affected directly or indirectly by the federal action	ESA: FEMA finds that the effects of the proposed tree removal are consistent with U.S. Fish and Wildlife Service's January 5, 2016, intra-Service Programmatic Biological Opinion on the final 4(d) rule for the NLEB for section 7(a)(2) compliance. FEMA used the 4(d) rule's optional streamlined consultation framework for our NLEB section 7 consultation and submitted the streamlined consultation

## RECORD OF ENVIRONMENTAL CONSIDERATION (REC)

**Project** PDMC-PJ-01-MA-2019-004 (0)

**Title:** Godfrey Brook Capacity Improvements-West Street to Water Street, Milford, MA

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Environmental Law/ Executive Order	Status	Description	Comment
			form to USFWS via IPaC on 10/29/2020. Per the consultation framework, assumed Service concurrence after 30 calendar days of no response occurred on 11/28/2020 and the automated IPaC-assisted determination letter concludes our responsibilities under ESA Section 7(a)(2). See Attached. - lhutchi2 - 04/16/2021 14:07:37 GMT
	Completed	May affect, but not likely to adversely affect species or designated critical habitat (FEMA determination/USFWS/NMFS concurrence attached) - Review concluded	
Farmland Protection Policy Act (FPPA)	Completed	Project does not affect designated prime or unique farmland - Review concluded	
Fish and Wildlife Coordination Act (FWCA)	Completed	Project does not affect, control, or modify a waterway/body of water - Review concluded	
Migratory Bird Treaty Act (MBTA)	Completed	Project located within a flyway zone	
	Completed	Project does not have potential to take migratory birds - Review concluded	
Magnuson-Stevens Fishery Conservation and Management Act (MSA)	Completed	Project not located in or near Essential Fish Habitat - Review concluded	
National Historic Preservation Act (NHPA)	Completed	Standard Section 106 review	NHPA Comment: Under the terms of the Programmatic Agreement, a FEMA HP Specialist made a determination of "no historic properties affected" and sent this determination, along with supporting Section 106 documentation, to the State Historic Preservation Officer (SHPO) on 11/12/2020. The SHPO concurred with FEMA's determination of effect on 11/19/2020. See attached consultation documentation and project conditions. No further consultation is required at this time. - lhutchi2 - 04/16/2021 14:32:35 GMT
	Completed	Building or structure 50 years or older or listed on the National Register in the project area and activity not exempt from review	
	Completed	Determination of No Historic Properties Affected (FEMA finding/SHPO/THPO concurrence attached) - Review	

## RECORD OF ENVIRONMENTAL CONSIDERATION (REC)

**Project** PDMC-PJ-01-MA-2019-004 (0)

**Title:** Godfrey Brook Capacity Improvements-West Street to Water Street, Milford, MA

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Environmental Law/ Executive Order	Status	Description	Comment
		concluded	
	Completed	Project affects only previously disturbed ground - Review concluded	
State Hazardous Materials and Solid Waste Laws	Completed	Review concluded	
Wild and Scenic Rivers Act (WSR)	Completed	Project is not along and does not affect Wild and Scenic River - Review concluded	

### CONDITIONS

**Special Conditions required on implementation of Projects:**

EO11988: Applicant must coordinate with the local permitting official responsible for floodplain development and must obtain any required approval prior to initiating work. All coordination pertaining to these activities and applicant compliance with any conditions shall be documented and copies forwarded to the state and FEMA for inclusion in the permanent project files.

Source of condition: Executive Order 11988 - Floodplains

Monitoring Required: No

EO11988: Applicant shall adhere to all requirements of the Letter of Map Revision (LOMR) process detailed 44 CFR Sections 65.4-65.7

Source of condition: Executive Order 11988 - Floodplains

Monitoring Required: No

EO11988: The Applicant shall initiate a Flood Insurance Rate Map (FIRM) change by submitting an application to FEMA within six months after project completion and provide a copy of the resulting "Letter of Map Revision" with the FEMA project closeout documentation. This special condition is included because the project will modify data on the existing FIRM; requirements are specified at 44 C.F.R. part 65. For information about the application process, please contact a map specialist by phone at 1-877-336-2627 or send an email to FEMAMapSpecialist@riskmapcds.com. Information about processing fees, including fee exemptions, are found at the website: <https://www.fema.gov/flood-map-related-fees>.

Source of condition: Executive Order 11988 - Floodplains

Monitoring Required: No

EO11990: The Applicant is responsible for following this and all other requirements set forth in the General Conditions Section of the US Army Corps of Engineers' Programmatic General Permit. Adequate sedimentation and erosion control management measures, practices, and devices; such as phased construction, vegetated filter strips, geotextile silt fences, or other devices, shall be installed and properly maintained to reduce erosion and retain sediment on-site during and after construction.

Source of condition: Executive Order 11990 - Wetlands

Monitoring Required: No

CWA: Before construction begins, the Applicant must obtain a required Clean Water Act section 404 permit from the U.S. Army Corps of Engineers and a required Clean Water Act section 401 Water Quality Certification from the Massachusetts Department of Environmental Protection. The Applicant must provide FEMA with a copy of the permits, or documentation from the agency(ies) that a permit is not required before, and no later than, submission of a project closeout package.

Source of condition: Clean Water Act (CWA)

Monitoring Required: No

## RECORD OF ENVIRONMENTAL CONSIDERATION (REC)

**Project** PDMC-PJ-01-MA-2019-004 (0)

**Title:** Godfrey Brook Capacity Improvements-West Street to Water Street, Milford, MA

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NHPA (borrow sources): All borrow or fill material must come from pre-existing stockpiles, material reclaimed from maintained roadside ditches (provided the designed width or depth of the ditch is not increased), or commercially procured material from a source existing prior to the event. For any FEMA-funded project requiring the use of a non-commercial source or a commercial source that was not permitted to operate prior to the event (e.g. a new pit, agricultural fields, road ROWs, etc.) in whole or in part, regardless of cost, the Applicant must notify FEMA and the Recipient prior to extracting material. FEMA must review the source for compliance with all applicable federal environmental planning and historic preservation laws and executive orders prior to a subrecipient or their contractor commencing borrow extraction. Consultation and regulatory permitting may be required. Non-compliance with this requirement may jeopardize receipt of federal funding. Documentation of borrow sources utilized is required at closeout.

Source of condition: National Historic Preservation Act (NHPA)

Monitoring Required: No

NHPA CONDITION #1 (artifacts): In the event of the discovery of archaeological deposits (e.g. Native American pottery, stone tools, shell, old house foundations, old bottles) the Subrecipient and their contractor shall immediately stop all work in the vicinity of the discovery and take reasonable measures to avoid or minimize harm to the finds. The Subrecipient and their contractor shall secure all archaeological discoveries and restrict access to discovery sites. The Subrecipient shall immediately report the archaeological discovery to the Recipient (MEMA) (Shelly O'Leary Toole, Acting State Hazard Mitigation Officer, 774-270-5585) and the FEMA Deputy Regional Environmental Officer (Mary Shanks, 617-901-2204); FEMA will determine the next steps.

Source of condition: National Historic Preservation Act (NHPA)

Monitoring Required: No

NHPA CONDITION #2 (human remains): In the event of the discovery of human remains, the Subrecipient and their contractor shall immediately stop all work in the vicinity of the discovery and take reasonable measures to avoid or minimize harm to the finds. The Subrecipient and their contractor shall secure all human remains discoveries and restrict access to discovery sites. The Subrecipient and their contractor shall follow the provisions of applicable state laws or any amendments or supplanting laws and regulations. Violation of state law will jeopardize FEMA funding for this project. The Subrecipient will inform the Office of the Chief Medical Examiner, the State Archaeologist, the Recipient (MEMA) (Shelly O'Leary Toole, Acting State Hazard Mitigation Officer, 774-270-5585), and the FEMA Deputy Regional Environmental Officer (Mary Shanks, 617-901-2204). FEMA will consult with the SHPO and Tribes, if remains are of tribal origin. Work in sensitive areas may not resume until consultation is completed and appropriate measures have been taken to ensure that the project is in compliance with the National Historic Preservation Act.

Source of condition: National Historic Preservation Act (NHPA)

Monitoring Required: No

The applicant shall ensure that all debris, materials and unusable equipment is disposed of in a manner and location that is compliant with local, state and federal regulations, e.g. at a permitted site/landfill.

Source of condition: State Hazardous Materials and Solid Waste Laws

Monitoring Required: No

**Standard Conditions:**

Any change to the approved scope of work will require re-evaluation for compliance with NEPA and other Laws and Executive Orders.

This review does not address all federal, state and local requirements. Acceptance of federal funding requires recipient to comply with all federal, state and local laws. Failure to obtain all appropriate federal, state and local environmental permits and clearances may jeopardize federal funding.

If ground disturbing activities occur during construction, applicant will monitor ground disturbance and if any potential archeological resources are discovered, will immediately cease construction in that area and notify the State and FEMA.





**Massachusetts Department of Environmental Protection**  
 Bureau of Resource Protection - Wetlands  
**WPA Form 5 - Order of Conditions**  
 Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:  
 MassDEP File #:223-1233  
 eDEP Transaction  
 #:1606430  
 City/Town:MILFORD

**A. General Information**

1. Conservation Commission MILFORD  
 2. Issuance a.  OOC b.  Amended OOC  
 3. Applicant Details  
 a. First Name b. Last Name  
 c. Organization TOWN OF MILFORD  
 d. Mailing Address 52 MAIN STREET  
 e. City/Town MILFORD f. State MA g. Zip Code 01757  
 4. Property Owner  
 a. First Name b. Last Name  
 c. Organization TOWN OF MILFORD  
 d. Mailing Address 52 MAIN STREET  
 e. City/Town MILFORD f. State MA g. Zip Code 017  
 5. Project Location  
 a. Street Address WEST STREET TO WATER STREET  
 b. City/Town MILFORD c. Zip Code 01757  
 d. Assessors 48 e. Parcel/Lot#0/344;0/372;0/330;0/345;0/318;0/367;0/368;0/355;0/331;0/3  
 Map/Plat#  
 f. Latitude 42.13890N g. Longitude 71.52385W

6. Property recorded at the Registry of Deed for:

a. County	b. Certificate	c. Book	d. Page
WORCESTER		67830;87;67334;31038;52358;43106;3755;5412;68765;26122	83;182;121;250;364;61;99;157;135;36

7. Dates

a. Date NOI Filed : 8/17/2023 b. Date Public Hearing Closed: 10/26/2023 c. Date Of Issuance: 10/27/2023

8. Final Approved Plans and Other Documents

a. Plan Title:	b. Plan Prepared by:	c. Plan Signed/Stamped by:	d. Revised Final Date:	e. Scale:
CONTRACT DRAWINGS FOR GODFREY BROOK CAPACITY IMPROVEMENT PROJECT WEST STREET TO WATER STREET	GZA GEOENVIRONMENTAL INC		9/2023	1"=20'

**B. Findings**

1. Findings pursuant to the Massachusetts Wetlands Protection Act  
 Following the review of the the above-referenced Notice of Intent and based on the information provided in this



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application and presented at the public hearing, this Commission finds that the areas in which work is proposed is significant to the following interests of the Wetlands Protection Act.

Check all that apply:

a. <input type="checkbox"/> Public Water Supply	b. <input type="checkbox"/> Land Containing Shellfish	c. <input type="checkbox"/> Prevention of Pollution
d. <input type="checkbox"/> Private Water Supply	e. <input type="checkbox"/> Fisheries	f. <input type="checkbox"/> Protection of Wildlife Habitat
g. <input type="checkbox"/> Ground Water Supply	h. <input checked="" type="checkbox"/> Storm Damage Prevention	i. <input checked="" type="checkbox"/> Flood Control

2. Commission hereby finds the project, as proposed, is:

**Approved** subject to:

- a.  The following conditions which are necessary in accordance with the performance standards set forth in the wetlands regulations. This Commission orders that all work shall be performed in accordance with the Notice of Intent referenced above, the following General Conditions, and any other special conditions attached to this Order. To the extent that the following conditions modify or differ from the plans, specifications, or other proposals submitted with the Notice of Intent, these conditions shall control.

**Denied** because:

- b.  The proposed work cannot be conditioned to meet the performance standards set forth in the wetland regulations. Therefore, work on this project may not go forward unless and until a new Notice of Intent is submitted which provides measures which are adequate to protect interests of the Act, and a final Order of Conditions is issued. **A description of the performance standards which the proposed work cannot meet is attached to this Order.**
- c.  The information submitted by the applicant is not sufficient to describe the site, the work or the effect of the work on the interests identified in the Wetlands Protection Act. Therefore, work on this project may not go forward unless and until a revised Notice of Intent is submitted which provides sufficient information and includes measures which are adequate to protect the interests of the Act, and a final Order of Conditions is issued. **A description of the specific information which is lacking and why it is necessary is attached to this Order as per 310 CMR 10.05(6)(c).**

- 3. Buffer Zone Impacts: Shortest distance between limit of project disturbance and the wetland resource area specified in 310CMR10.02(1)(a).                       
a. linear feet

**Inland Resource Area Impacts:(For Approvals Only):**

Resource Area	Proposed Alteration	Permitted Alteration	Proposed Replacement	Permitted Replacement
4. <input checked="" type="checkbox"/> Bank	<u>1171</u> a. linear feet	<u>1171</u> b. linear feet	<u>1164</u> c. linear feet	<u>1164</u> d. linear feet
5. <input type="checkbox"/> Bordering Vegetated Wetland	<u>                    </u> a. square feet	<u>                    </u> b. square feet	<u>                    </u> c. square feet	<u>                    </u> d. square feet
6. <input checked="" type="checkbox"/> Land under Waterbodies and Waterways	<u>2909</u> a. square feet	<u>2909</u> b. square feet	<u>3671</u> c. square feet	<u>3671</u> d. square feet
	<u>0</u> e. c/y dredged	<u>90</u> f. c/y dredged		
7. <input type="checkbox"/> Bordering Land Subject to Flooding	<u>                    </u>	<u>                    </u>	<u>                    </u>	<u>                    </u>



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	a. square feet	b. square feet	c. square feet	d. square feet
Cubic Feet Flood Storage	_____	_____	_____	_____
	e. cubic feet	f. cubic feet	g. cubic feet	h. cubic feet
8. <input type="checkbox"/> Isolated Land Subject to Flooding	_____	_____	_____	_____
	a. square feet	b. square feet		
Cubic Feet Flood Storage	_____	_____	_____	_____
	c. cubic feet	d. cubic feet	e. cubic feet	f. cubic feet
9. <input checked="" type="checkbox"/> Riverfront Area	1437	1437		
	a. total sq. feet	b. total sq. feet		
Sq ft within 100 ft	1437	1437		
	c. square feet	d. square feet	e. square feet	f. square feet
Sq ft between 100-200 ft	_____	_____	_____	_____
	g. square feet	h. square feet	i. square feet	j. square feet

**Coastal Resource Area Impacts:**

Resource Area	Proposed Alteration	Permitted Alteration	Proposed Replacement	Permitted Replacement
---------------	---------------------	----------------------	----------------------	-----------------------

10.  Designated Port Areas Indicate size under Land Under the Ocean, below

11.  Land Under the Ocean

a. square feet	b. square feet
_____	_____
c. c/y dredged	d. c/y dredged
_____	_____

12.  Barrier Beaches Indicate size under Coastal Beaches and/or Coastal Dunes below

13.  Coastal Beaches

a. square feet	b. square feet	c. c/y nourishment	d. c/y nourishment
_____	_____	_____	_____
a. square feet	b. square feet	c. c/y nourishment	d. c/y nourishment
_____	_____	_____	_____

14.  Coastal Dunes

a. linear feet	b. linear feet
_____	_____

15.  Coastal Banks

a. square feet	b. square feet
_____	_____

16.  Rocky Intertidal Shores

a. square feet	b. square feet	c. square feet	d. square feet
_____	_____	_____	_____

17.  Salt Marshes

a. square feet	b. square feet
_____	_____

18.  Land Under Salt Ponds

a. square feet	b. square feet
_____	_____
c. c/y dredged	d. c/y dredged
_____	_____

19.  Land Containing Shellfish

a. square feet	b. square feet	c. square feet	d. square feet
_____	_____	_____	_____



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20.  Fish Runs

Indicate size under Coastal Banks, inland Bank, Land Under the Ocean, and/or inland Land Under Waterbodies and Waterways, above

                                  
 c. c/y dredged d. c/y dredged

21.  Land Subject to Coastal Storm Flowage

                                  
 a. square feet b. square feet

22.

Restoration/Enhancement (For Approvals Only)

If the project is for the purpose of restoring or enhancing a wetland resource area in addition to the square footage that has been entered in Section B.5.c & d or B.17.c & d above, please entered the additional amount here.

                                  
 a. square feet of BVW

                                  
 b. square feet of Salt Marsh

23.

Streams Crossing(s)

If the project involves Stream Crossings, please enter the number of new stream crossings/number of replacement stream crossings.

                                  
 0  
 a. number of new stream crossings

                                  
 1  
 b. number of replacement stream crossings

**C. General Conditions Under Massachusetts Wetlands Protection Act**

**The following conditions are only applicable to Approved projects**

1. Failure to comply with all conditions stated herein, and with all related statutes and other regulatory measures, shall be deemed cause to revoke or modify this Order.
2. The Order does not grant any property rights or any exclusive privileges; it does not authorize any injury to private property or invasion of private rights.
3. This Order does not relieve the permittee or any other person of the necessity of complying with all other applicable federal, state, or local statutes, ordinances, bylaws, or regulations.
4. The work authorized hereunder shall be completed within three years from the date of this Order unless either of the following apply:
  - a. the work is a maintenance dredging project as provided for in the Act; or
  - b. the time for completion has been extended to a specified date more than three years, but less than five years, from the date of issuance. If this Order is intended to be valid for more than three years, the extension date and the special circumstances warranting the extended time period are set forth as a special condition in this Order.
5. This Order may be extended by the issuing authority for one or more periods of up to three years each upon application to the issuing authority at least 30 days prior to the expiration date of the Order.
6. If this Order constitutes an Amended Order of Conditions, this Amended Order of Conditions does not exceed the issuance date of the original Final Order of Conditions.
7. Any fill used in connection with this project shall be clean fill. Any fill shall contain no trash, refuse, rubbish, or debris, including but not limited to lumber, bricks, plaster, wire, lath, paper, cardboard, pipe, tires, ashes, refrigerators, motor vehicles, or parts of any of the foregoing.
8. This Order is not final until all administrative appeal periods from this Order have elapsed, or if such an appeal



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- has been taken, until all proceedings before the Department have been completed.
9. No work shall be undertaken until the Order has become final and then has been recorded in the Registry of Deeds or the Land Court for the district in which the land is located, within the chain of title of the affected property. In the case of recorded land, the Final Order shall also be noted in the Registry's Grantor Index under the name of the owner of the land upon which the proposed work is to be done. In the case of the registered land, the Final Order shall also be noted on the Land Court Certificate of Title of the owner of the land upon which the proposed work is done. The recording information shall be submitted to the Conservation Commission on the form at the end of this Order, which form must be stamped by the Registry of Deeds, prior to the commencement of work..
  10. A sign shall be displayed at the site not less than two square feet or more than three square feet in size bearing the words,  

" Massachusetts Department of Environmental Protection"  
[or 'MassDEP']  
File Number : "223-1233"
  11. Where the Department of Environmental Protection is requested to issue a Superseding Order, the Conservation Commission shall be a party to all agency proceedings and hearings before Mass DEP.
  12. Upon completion of the work described herein, the applicant shall submit a Request for Certificate of Compliance (WPA Form 8A) to the Conservation Commission.
  13. The work shall conform to the plans and special conditions referenced in this order.
  14. Any change to the plans identified in Condition #13 above shall require the applicant to inquire of the Conservation Commission in writing whether the change is significant enough to require the filing of a new Notice of Intent.
  15. The Agent or members of the Conservation Commission and the Department of Environmental Protection shall have the right to enter and inspect the area subject to this Order at reasonable hours to evaluate compliance with the conditions stated in this Order, and may require the submittal of any data deemed necessary by the Conservation Commission or Department for that evaluation.
  16. This Order of Conditions shall apply to any successor in interest or successor in control of the property subject to this Order and to any contractor or other person performing work conditioned by this Order.
  17. Prior to the start of work, and if the project involves work adjacent to a Bordering Vegetated Wetland, the boundary of the wetland in the vicinity of the proposed work area shall be marked by wooden stakes or flagging. Once in place, the wetland boundary markers shall be maintained until a Certificate of Compliance has been issued by the Conservation Commission.
  18. All sedimentation barriers shall be maintained in good repair until all disturbed areas have been fully stabilized with vegetation or other means. At no time shall sediments be deposited in a wetland or water body. During construction, the applicant or his/her designee shall inspect the erosion controls on a daily basis and shall remove accumulated sediments as needed. The applicant shall immediately control any erosion problems that occur at the site and shall also immediately notify the Conservation Commission, which reserves the right to require additional erosion and/or damage prevention controls it may deem necessary. Sedimentation barriers shall serve as the limit of work unless another limit of work line has been approved by this Order.

**NOTICE OF STORMWATER CONTROL AND MAINTENANCE REQUIREMENTS**

19. The work associated with this Order(the "Project") is (1)  is not (2)  subject to the Massachusetts Stormwater Standards. If the work is subject to Stormwater Standards, then the project is subject to the following conditions;
  - a) All work, including site preparation, land disturbance, construction and redevelopment, shall be implemented in accordance with the construction period pollution prevention and erosion and sedimentation control plan and, if applicable, the Stormwater Pollution Prevention Plan required by the National Pollutant Discharge Elimination System Construction General Permit as required by Stormwater Standard 8. Construction period



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erosion, sedimentation and pollution control measures and best management practices (BMPs) shall remain in place until the site is fully stabilized.

- b) No stormwater runoff may be discharged to the post-construction stormwater BMPs unless and until a Registered Professional Engineer provides a Certification that: *i.* all construction period BMPs have been removed or will be removed by a date certain specified in the Certification. For any construction period BMPs intended to be converted to post construction operation for stormwater attenuation, recharge, and/or treatment, the conversion is allowed by the MassDEP Stormwater Handbook BMP specifications and that the BMP has been properly cleaned or prepared for post construction operation, including removal of all construction period sediment trapped in inlet and outlet control structures; *ii.* as-built final construction BMP plans are included, signed and stamped by a Registered Professional Engineer, certifying the site is fully stabilized; *iii.* any illicit discharges to the stormwater management system have been removed, as per the requirements of Stormwater Standard 10; *iv.* all post-construction stormwater BMPs are installed in accordance with the plans (including all planting plans) approved by the issuing authority, and have been inspected to ensure that they are not damaged and that they are in proper working condition; *v.* any vegetation associated with post-construction BMPs is suitably established to withstand erosion.
- c) The landowner is responsible for BMP maintenance until the issuing authority is notified that another party has legally assumed responsibility for BMP maintenance. Prior to requesting a Certificate of Compliance, or Partial Certificate of Compliance, the responsible party (defined in General Condition 19(e)) shall execute and submit to the issuing authority an Operation and Maintenance Compliance Statement ("O&M Statement") for the Stormwater BMPs identifying the party responsible for implementing the stormwater BMP Operation and Maintenance Plan ("O&M Plan") and certifying the following: *i.* the O&M Plan is complete and will be implemented upon receipt of the Certificate of Compliance, and *ii.* the future responsible parties shall be notified in writing of their ongoing legal responsibility to operate and maintain the stormwater management BMPs and implement the Stormwater Pollution Prevention Plan.
- d) Post-construction pollution prevention and source control shall be implemented in accordance with the long-term pollution prevention plan section of the approved Stormwater Report and, if applicable, the Stormwater Pollution Prevention Plan required by the National Pollutant Discharge Elimination System Multi-Sector General Permit.
- e) Unless and until another party accepts responsibility, the landowner, or owner of any drainage easement, assumes responsibility for maintaining each BMP. To overcome this presumption, the landowner of the property must submit to the issuing authority a legally binding agreement of record, acceptable to the issuing authority, evidencing that another entity has accepted responsibility for maintaining the BMP, and that the proposed responsible party shall be treated as a permittee for purposes of implementing the requirements of Conditions 19(f) through 19(k) with respect to that BMP. Any failure of the proposed responsible party to implement the requirements of Conditions 19(f) through 19(k) with respect to that BMP shall be a violation of the Order of Conditions or Certificate of Compliance. In the case of stormwater BMPs that are serving more than one lot, the legally binding agreement shall also identify the lots that will be serviced by the stormwater BMPs. A plan and easement deed that grants the responsible party access to perform the required operation and maintenance must be submitted along with the legally binding agreement.
- f) The responsible party shall operate and maintain all stormwater BMPs in accordance with the design plans, the O&M Plan, and the requirements of the Massachusetts Stormwater Handbook.
- g) The responsible party shall:
  - 1. Maintain an operation and maintenance log for the last three (3) consecutive calendar years of inspections, repairs, maintenance and/or replacement of the stormwater management system or any part thereof, and disposal (for disposal the log shall indicate the type of material and the disposal location);
  - 2. Make the maintenance log available to MassDEP and the Conservation Commission ("Commission")



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upon request; and

3. Allow members and agents of the MassDEP and the Commission to enter and inspect the site to evaluate and ensure that the responsible party is in compliance with the requirements for each BMP established in the O&M Plan approved by the issuing authority.

- h) All sediment or other contaminants removed from stormwater BMPs shall be disposed of in accordance with all applicable federal, state, and local laws and regulations.
- i) Illicit discharges to the stormwater management system as defined in 310 CMR 10.04 are prohibited.
- j) The stormwater management system approved in the Order of Conditions shall not be changed without the prior written approval of the issuing authority.
- k) Areas designated as qualifying pervious areas for the purpose of the Low Impact Site Design Credit (as defined in the MassDEP Stormwater Handbook, Volume 3, Chapter 1, Low Impact Development Site Design Credits) shall not be altered without the prior written approval of the issuing authority.
- l) Access for maintenance, repair, and/or replacement of BMPs shall not be withheld. Any fencing constructed around stormwater BMPs shall include access gates and shall be at least six inches above grade to allow for wildlife passage.

**Special Conditions:**

**D. Findings Under Municipal Wetlands Bylaw or Ordinance**

1. Is a municipal wetlands bylaw or ordinance applicable?  Yes  No

**2. The Conservation Commission hereby (check one that applies):**

a.  DENIES the proposed work which cannot be conditioned to meet the standards set forth in a municipal ordinance or bylaw specifically:

1. Municipal Ordinance or Bylaw \_\_\_\_\_ 2. Citation \_\_\_\_\_

Therefore, work on this project may not go forward unless and until a revised Notice of Intent is submitted which provides measures which are adequate to meet these standards, and a final Order or Conditions is issued. Which are necessary to comply with a municipal ordinance or bylaw:

b.  APPROVES the proposed work, subject to the following additional conditions.

1. Municipal Ordinance or Bylaw MILFORD WETLANDS ADMINISTRATION BYLAW 2. Citation ARTICLE 33

3. The Commission orders that all work shall be performed in accordance with the following conditions and with the Notice of Intent referenced above. To the extent that the following conditions modify or differ from the plans, specifications, or other proposals submitted with the Notice of Intent, the conditions shall control.

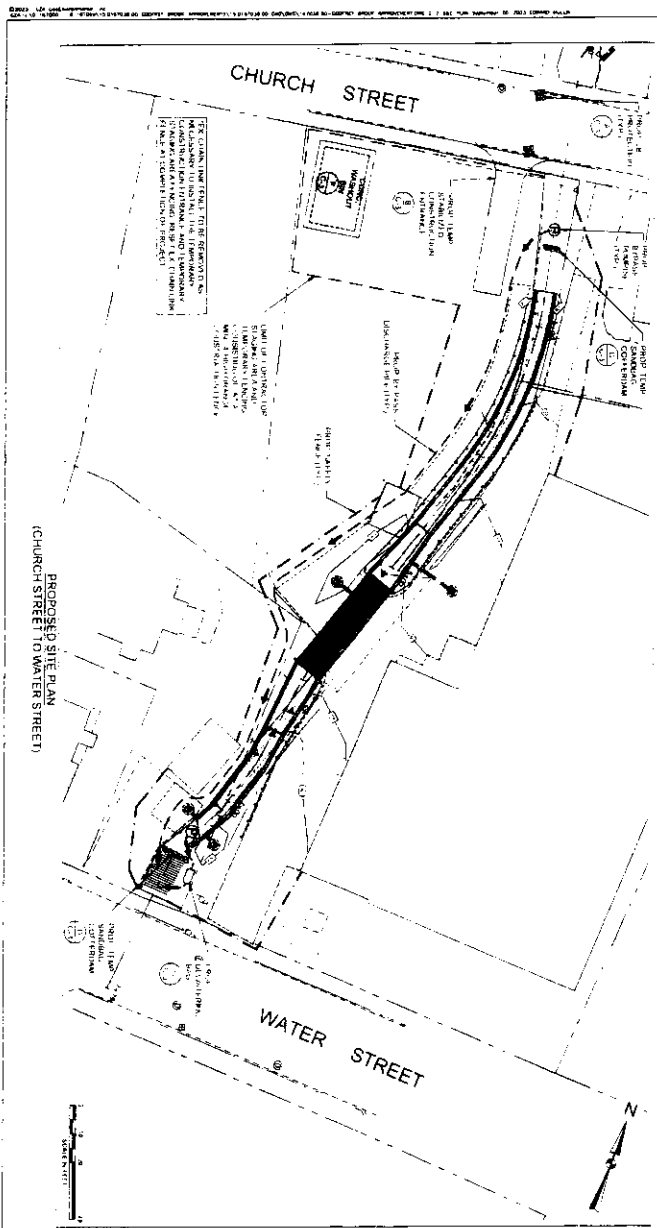
The special conditions relating to municipal ordinance or bylaw are as follows:

## **Milford Conservation Commission**

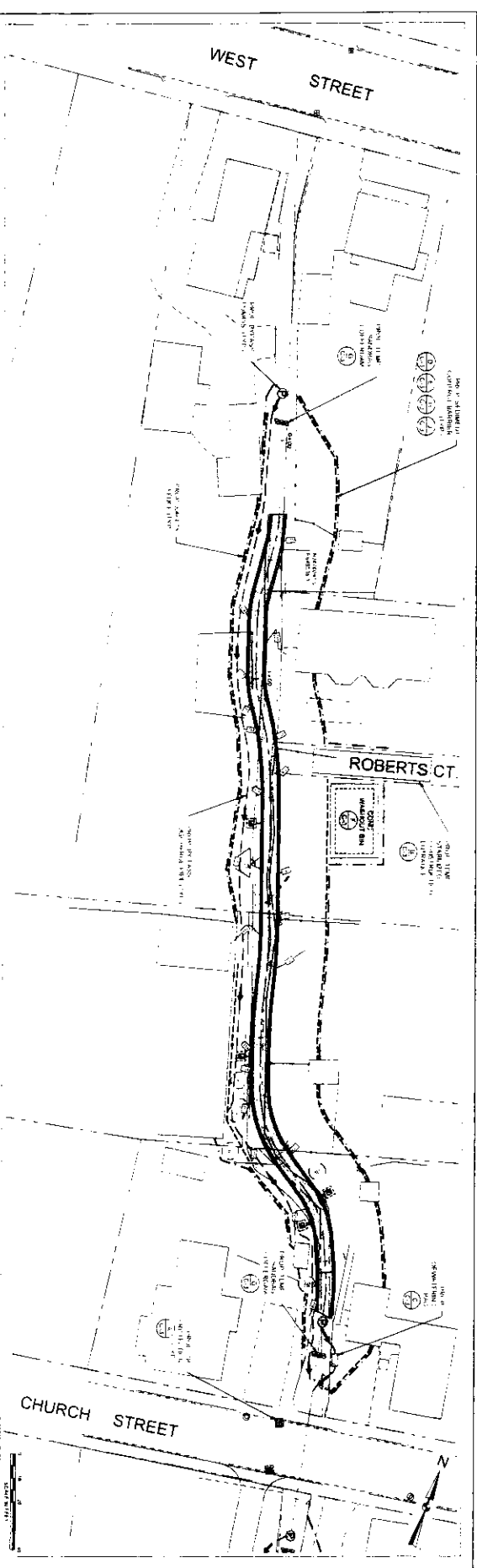
### **Special Conditions**

20. A reduced size copy of the approved plan shall be recorded with the Order of Conditions prior to the start of construction.
21. Prior to construction, the applicant shall provide the Conservation Commission or its Agent with written certification by a Professional Engineer (or equivalent professional) the erosion control barriers are installed according to the approved plans.
22. A copy of this Order of Conditions must be on site at the time of Construction.
23. All equipment and facilities shall be continually operated and maintained to comply with this Order and the Wetlands Protection Act.
24. All disturbed areas shall be re-vegetated by loaming and seeding unless otherwise noted on the approved plan. On slopes 4:1 and steeper, loamed and seeded areas shall be mulched with hay to prevent erosion prior to germination of the seed.
25. Any significant changes will require the Applicant to file for an Amendment to the Order of Conditions. Any increase beyond the permitted volume of dredged material shall be considered significant:
26. An As-built plan of the project shall be prepared and certified by a Registered Professional Engineer with expertise in hydrology and hydraulics specifying the completed work is in substantial compliance with the Order of Conditions or how the work differs from the approved plans but provides an equivalent or greater protection to the resource areas as the approved design.





PROPOSED SITE PLAN  
(CHURCH STREET TO WATER STREET)



PROPOSED SITE PLAN  
(WEST STREET TO CHURCH STREET)

**LEGEND**

1	PROPOSED WETLAND
2	PROPOSED ROADWAY
3	PROPOSED UTILITY
4	PROPOSED STORMWATER MANAGEMENT
5	PROPOSED EXISTING ROADWAY
6	PROPOSED EXISTING UTILITY
7	PROPOSED EXISTING STORMWATER MANAGEMENT
8	PROPOSED EXISTING WETLAND
9	PROPOSED EXISTING ROADWAY AND UTILITY
10	PROPOSED EXISTING STORMWATER MANAGEMENT AND WETLAND
11	PROPOSED EXISTING ROADWAY AND STORMWATER MANAGEMENT
12	PROPOSED EXISTING ROADWAY AND WETLAND
13	PROPOSED EXISTING ROADWAY AND UTILITY AND STORMWATER MANAGEMENT
14	PROPOSED EXISTING ROADWAY AND UTILITY AND WETLAND
15	PROPOSED EXISTING ROADWAY AND STORMWATER MANAGEMENT AND WETLAND
16	PROPOSED EXISTING ROADWAY AND UTILITY AND STORMWATER MANAGEMENT AND WETLAND

**PRELIMINARY DRAWING  
TO ACCOMPANY THE WETLANDS  
NOTICE OF INTENT FILING  
NOT FOR CONSTRUCTION  
SEPTEMBER 2023**

**CONTRACT INFORMATION**

PROJECT: [Project Name]

DATE: [Date]

**CLIENT**

[Client Name]

**DESIGNER**

[Designer Name]

**SCALE**

AS SHOWN

**DATE**

SEPTEMBER 2023

**REVISIONS**

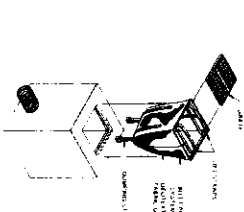
NO.	DESCRIPTION
1	ISSUED FOR PERMITTING

**STORMWATER CONTROL NOTES**

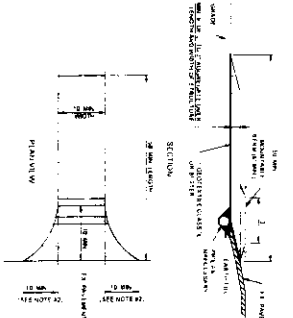
1. THE NOTES TO WHICH THIS DRAWING REFERS ARE HEREBY INCORPORATED BY REFERENCE INTO THIS DRAWING. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING AND REVIEWING ALL APPLICABLE NOTES AND SPECIFICATIONS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING AND REVIEWING ALL APPLICABLE NOTES AND SPECIFICATIONS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING AND REVIEWING ALL APPLICABLE NOTES AND SPECIFICATIONS.

**STORMWATER CONTROL NOTES**

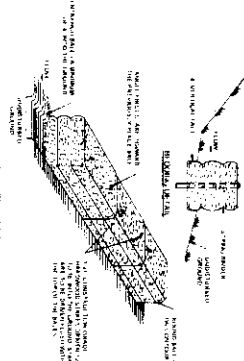
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING AND REVIEWING ALL APPLICABLE NOTES AND SPECIFICATIONS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING AND REVIEWING ALL APPLICABLE NOTES AND SPECIFICATIONS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING AND REVIEWING ALL APPLICABLE NOTES AND SPECIFICATIONS.



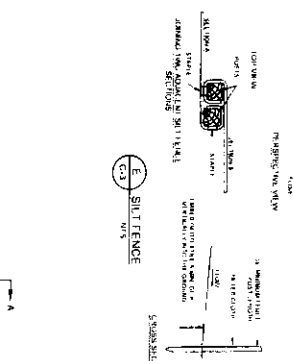
**A CATCH BASIN SEDIMENTATION PROTECTION**  
 NOTES:  
 1. PROVIDE SEDIMENTATION PROTECTION AS SHOWN.  
 2. PROVIDE SEDIMENTATION PROTECTION AS SHOWN.



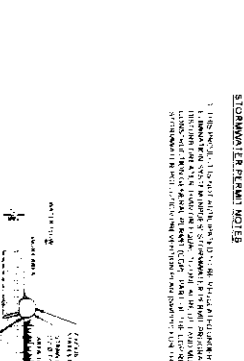
**B STABILIZED CONSTRUCTION ENTRANCE**  
 NOTES:  
 1. PROVIDE STABILIZED CONSTRUCTION ENTRANCE AS SHOWN.  
 2. PROVIDE STABILIZED CONSTRUCTION ENTRANCE AS SHOWN.



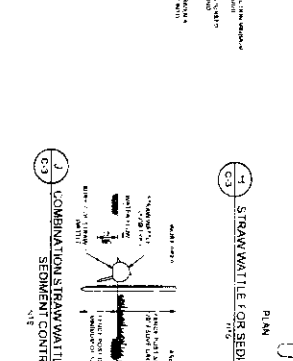
**C DANDY DEWATERING BAG FOR EQUIVALENCY**  
 NOTES:  
 1. PROVIDE DANDY DEWATERING BAG FOR EQUIVALENCY AS SHOWN.  
 2. PROVIDE DANDY DEWATERING BAG FOR EQUIVALENCY AS SHOWN.



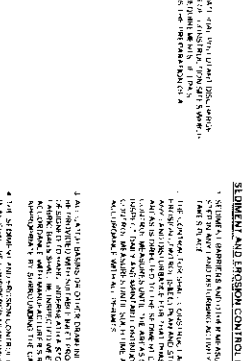
**D STRAW BALE SILT FENCE BARRIER**  
 NOTES:  
 1. PROVIDE STRAW BALE SILT FENCE BARRIER AS SHOWN.  
 2. PROVIDE STRAW BALE SILT FENCE BARRIER AS SHOWN.



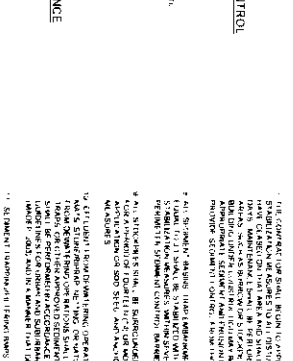
**E SILT FENCE**  
 NOTES:  
 1. PROVIDE SILT FENCE AS SHOWN.  
 2. PROVIDE SILT FENCE AS SHOWN.



**F CONCRETE WASHOUT BIN DETAIL**  
 NOTES:  
 1. PROVIDE CONCRETE WASHOUT BIN DETAIL AS SHOWN.  
 2. PROVIDE CONCRETE WASHOUT BIN DETAIL AS SHOWN.



**G TYPICAL CONTROL OF WATER BY PASS DETAIL**  
 NOTES:  
 1. PROVIDE TYPICAL CONTROL OF WATER BY PASS DETAIL AS SHOWN.  
 2. PROVIDE TYPICAL CONTROL OF WATER BY PASS DETAIL AS SHOWN.

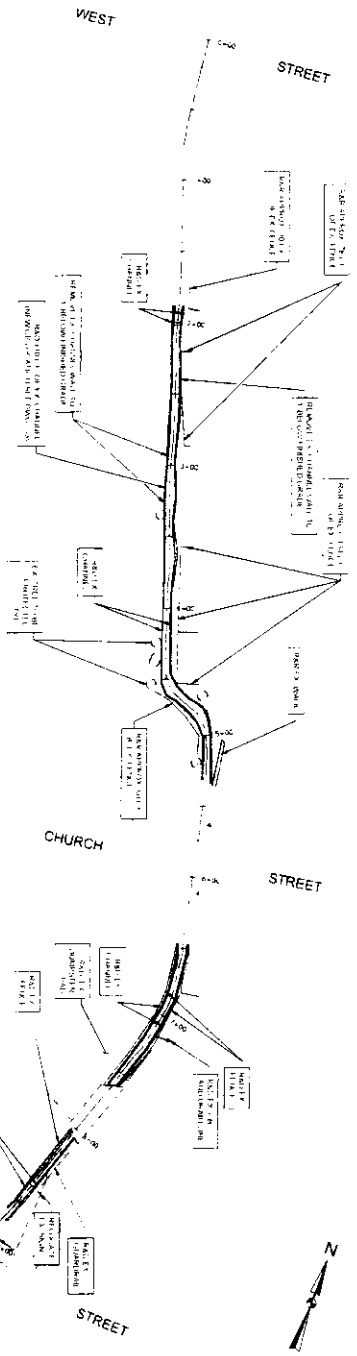


**H LOCATION OF STORMWATER SILT FENCE CONTROL**  
 NOTES:  
 1. PROVIDE LOCATION OF STORMWATER SILT FENCE CONTROL AS SHOWN.  
 2. PROVIDE LOCATION OF STORMWATER SILT FENCE CONTROL AS SHOWN.

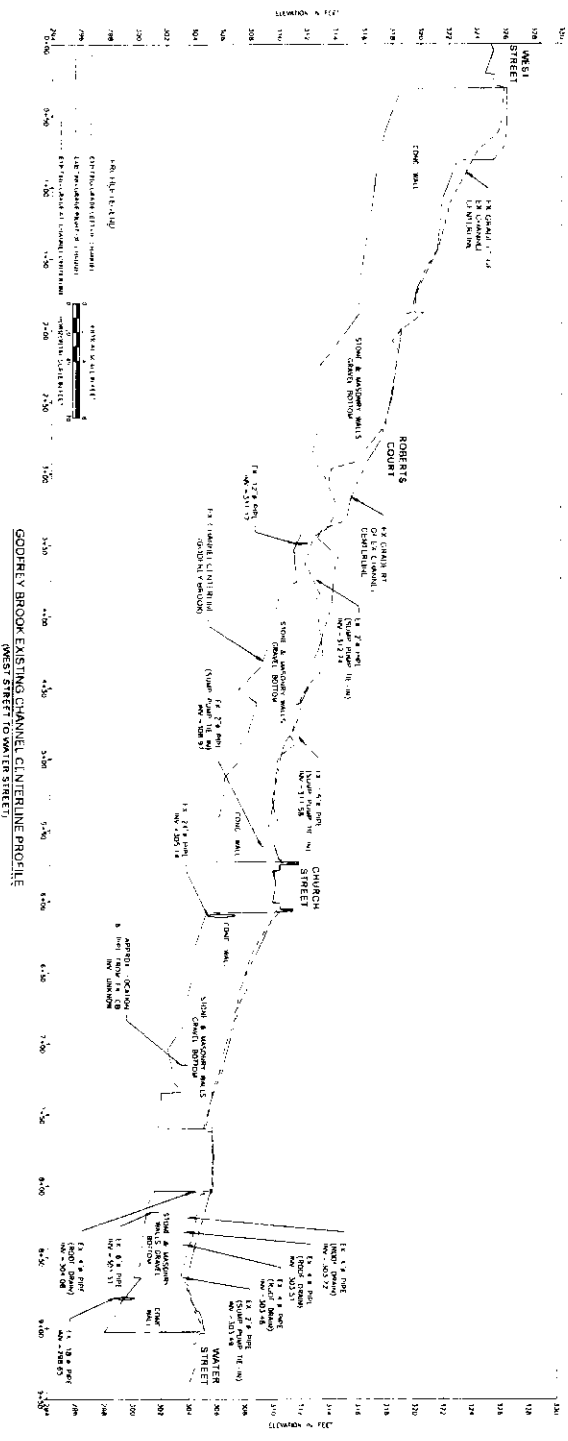
**PRELIMINARY DRAWING  
 TO ACCOMPANY THE WETLANDS  
 NOTICE OF INTENT FILING  
 NOT FOR CONSTRUCTION  
 SEPTEMBER 2023**

NO.	DATE	DESCRIPTION
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2	09/15/2023	ISSUED FOR PERMITTING
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PROJECT:	STORMWATER CONTROL AND WATER MANAGEMENT
CLIENT:	WETLANDS CONSULTANTS
DATE:	SEPTEMBER 2023
SCALE:	AS SHOWN
DESIGNER:	WETLANDS CONSULTANTS
CHECKER:	WETLANDS CONSULTANTS
DATE:	SEPTEMBER 2023
PROJECT NO.:	2023-001
DRAWING NO.:	C-3



GODFREY BROOK DEMOLITION PLAN  
 (WEST STREET TO WATER STREET)



GODFREY BROOK EXISTING CHANNEL CENTERLINE PROFILE  
 (WEST STREET TO WATER STREET)

- NOTES:**
- 1. EXISTING CHANNEL CENTERLINE PROFILE
  - 2. PROPOSED CHANNEL CENTERLINE PROFILE
  - 3. PROPOSED CHANNEL BOTTOM PROFILE
  - 4. EXISTING CHANNEL BOTTOM PROFILE
  - 5. EXISTING CHANNEL BANK PROFILES
  - 6. EXISTING CHANNEL VEGETATION
  - 7. EXISTING CHANNEL STRUCTURES
  - 8. EXISTING CHANNEL UTILITIES
  - 9. EXISTING CHANNEL EROSION
  - 10. EXISTING CHANNEL SEDIMENTATION
  - 11. EXISTING CHANNEL CHANNELIZATION
  - 12. EXISTING CHANNEL CHANNELIZATION
  - 13. EXISTING CHANNEL CHANNELIZATION
  - 14. EXISTING CHANNEL CHANNELIZATION
  - 15. EXISTING CHANNEL CHANNELIZATION
  - 16. EXISTING CHANNEL CHANNELIZATION
  - 17. EXISTING CHANNEL CHANNELIZATION
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  - 19. EXISTING CHANNEL CHANNELIZATION
  - 20. EXISTING CHANNEL CHANNELIZATION

**PRELIMINARY DRAWING  
 TO ACCOMPANY THE FILING  
 NOTICE OF INTENT FILING  
 NOT FOR CONSTRUCTION  
 SEPTEMBER 2023**

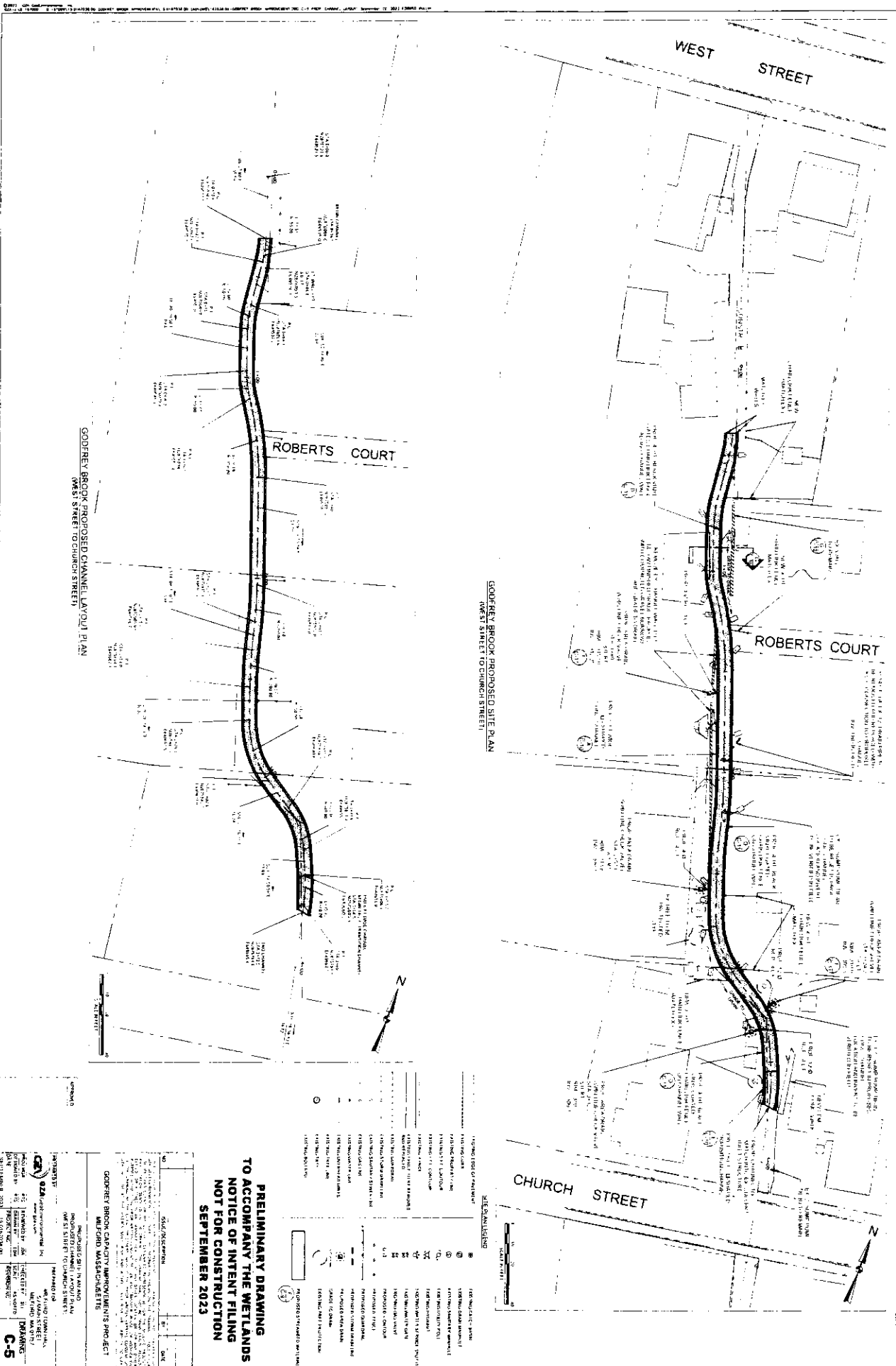
**DEVELOPMENT PLAN AND PROFILE**

EXISTING CHANNEL CENTERLINE PROFILE  
 (WEST STREET TO WATER STREET)

**PREPARED BY:** GZA  
**PROJECT NO.:** 17-010-000-001  
**DATE:** SEPTEMBER 2023

**APPROVED BY:** [Signature]  
**DATE:** [Date]

**SCALE:** 1" = 40' HORIZONTAL  
 1" = 4' VERTICAL



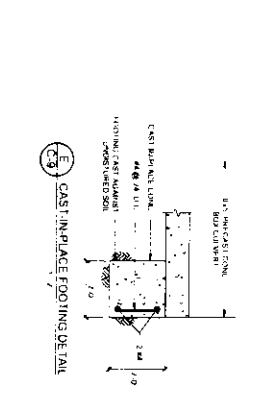
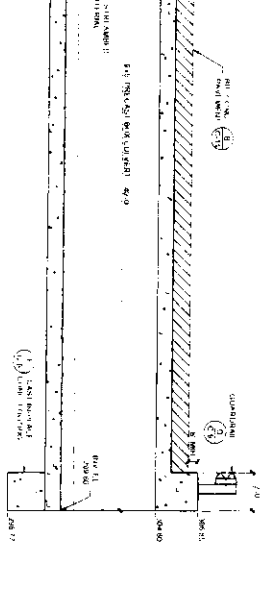
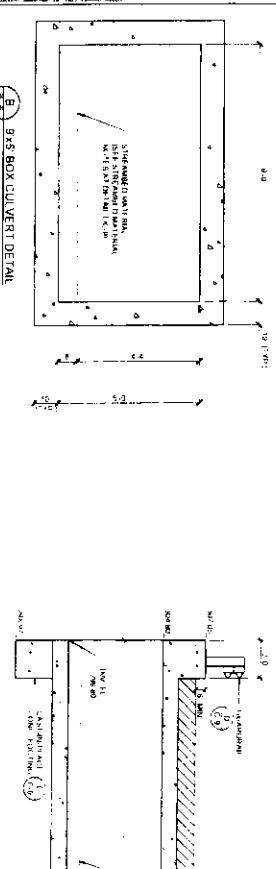
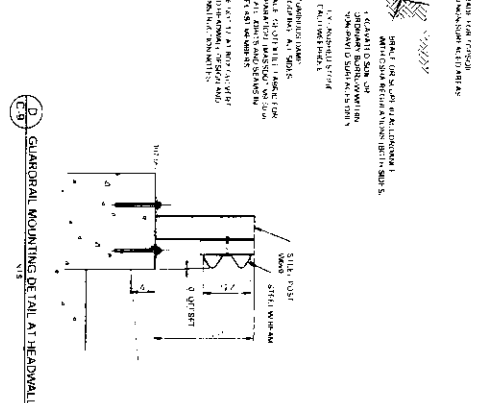
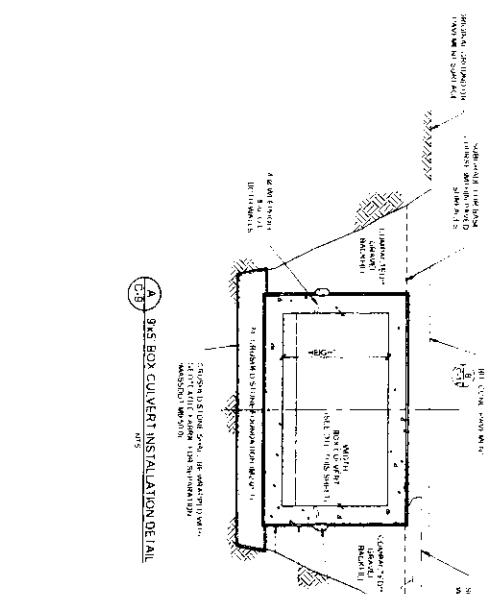
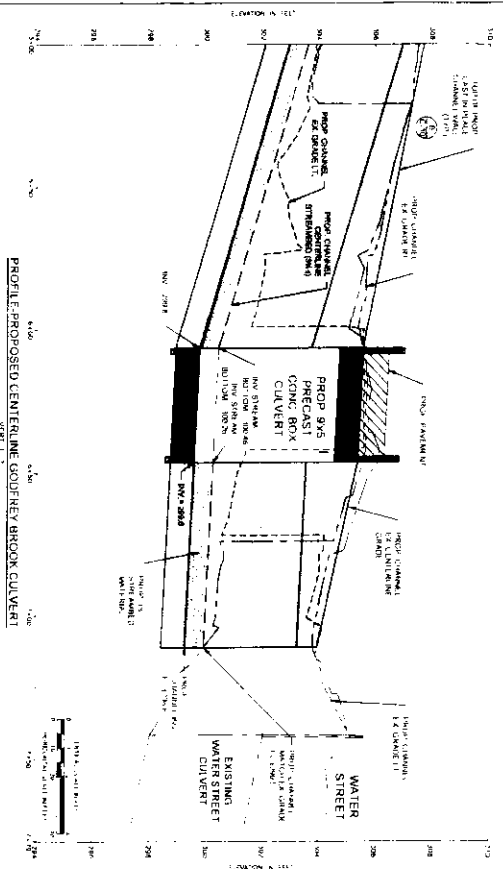
GODFREY BROOK PROPOSED SITE PLAN  
WEST STREET TO CHURCH STREET

GODFREY BROOK PROPOSED CHANNEL LAYOUT PLAN  
WEST STREET TO CHURCH STREET

**PRELIMINARY DRAWING  
TO ACCOMPANY THE WETLANDS  
NOTICE OF INTENT FILING  
NOT FOR CONSTRUCTION  
SEPTEMBER 2023**

PROJECT NAME	GODFREY BROOK CAPACITY IMPROVEMENTS PROJECT
PROJECT LOCATION	WEST STREET TO CHURCH STREET, WILFORD, MASSACHUSETTS
DATE	SEPTEMBER 2023
SCALE	AS SHOWN
DESIGNER	WILFORD CONSULTANTS, INC.
PROJECT MANAGER	WILFORD CONSULTANTS, INC.
DESIGNER	WILFORD CONSULTANTS, INC.
DATE	SEPTEMBER 2023
PROJECT NO.	2023-001
DRAWING NO.	C-5





**9x9 BOX CULVERT DETAIL**

1. ALL DIMENSIONS SHALL BE IN FEET AND INCHES UNLESS OTHERWISE NOTED.

2. THE PROPOSED CENTERLINE GUTTER BROOK CULVERT SHALL BE CONSTRUCTED AS SHOWN AND SHALL BE 9 FEET BY 9 FEET IN SIZE.

3. THE PROPOSED CENTERLINE GUTTER BROOK CULVERT SHALL BE CONSTRUCTED AS SHOWN AND SHALL BE 9 FEET BY 9 FEET IN SIZE.

4. THE PROPOSED CENTERLINE GUTTER BROOK CULVERT SHALL BE CONSTRUCTED AS SHOWN AND SHALL BE 9 FEET BY 9 FEET IN SIZE.

5. THE PROPOSED CENTERLINE GUTTER BROOK CULVERT SHALL BE CONSTRUCTED AS SHOWN AND SHALL BE 9 FEET BY 9 FEET IN SIZE.

6. THE PROPOSED CENTERLINE GUTTER BROOK CULVERT SHALL BE CONSTRUCTED AS SHOWN AND SHALL BE 9 FEET BY 9 FEET IN SIZE.

7. THE PROPOSED CENTERLINE GUTTER BROOK CULVERT SHALL BE CONSTRUCTED AS SHOWN AND SHALL BE 9 FEET BY 9 FEET IN SIZE.

8. THE PROPOSED CENTERLINE GUTTER BROOK CULVERT SHALL BE CONSTRUCTED AS SHOWN AND SHALL BE 9 FEET BY 9 FEET IN SIZE.

9. THE PROPOSED CENTERLINE GUTTER BROOK CULVERT SHALL BE CONSTRUCTED AS SHOWN AND SHALL BE 9 FEET BY 9 FEET IN SIZE.

10. THE PROPOSED CENTERLINE GUTTER BROOK CULVERT SHALL BE CONSTRUCTED AS SHOWN AND SHALL BE 9 FEET BY 9 FEET IN SIZE.

**9x9 BOX CULVERT INSTALLED SECTION**

1. ALL DIMENSIONS SHALL BE IN FEET AND INCHES UNLESS OTHERWISE NOTED.

2. THE PROPOSED CENTERLINE GUTTER BROOK CULVERT SHALL BE CONSTRUCTED AS SHOWN AND SHALL BE 9 FEET BY 9 FEET IN SIZE.

3. THE PROPOSED CENTERLINE GUTTER BROOK CULVERT SHALL BE CONSTRUCTED AS SHOWN AND SHALL BE 9 FEET BY 9 FEET IN SIZE.

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10. THE PROPOSED CENTERLINE GUTTER BROOK CULVERT SHALL BE CONSTRUCTED AS SHOWN AND SHALL BE 9 FEET BY 9 FEET IN SIZE.

**PROPOSED STREAMBED MATERIAL PLACEMENT**

1. ALL DIMENSIONS SHALL BE IN FEET AND INCHES UNLESS OTHERWISE NOTED.

2. THE PROPOSED CENTERLINE GUTTER BROOK CULVERT SHALL BE CONSTRUCTED AS SHOWN AND SHALL BE 9 FEET BY 9 FEET IN SIZE.

3. THE PROPOSED CENTERLINE GUTTER BROOK CULVERT SHALL BE CONSTRUCTED AS SHOWN AND SHALL BE 9 FEET BY 9 FEET IN SIZE.

4. THE PROPOSED CENTERLINE GUTTER BROOK CULVERT SHALL BE CONSTRUCTED AS SHOWN AND SHALL BE 9 FEET BY 9 FEET IN SIZE.

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6. THE PROPOSED CENTERLINE GUTTER BROOK CULVERT SHALL BE CONSTRUCTED AS SHOWN AND SHALL BE 9 FEET BY 9 FEET IN SIZE.

7. THE PROPOSED CENTERLINE GUTTER BROOK CULVERT SHALL BE CONSTRUCTED AS SHOWN AND SHALL BE 9 FEET BY 9 FEET IN SIZE.

8. THE PROPOSED CENTERLINE GUTTER BROOK CULVERT SHALL BE CONSTRUCTED AS SHOWN AND SHALL BE 9 FEET BY 9 FEET IN SIZE.

9. THE PROPOSED CENTERLINE GUTTER BROOK CULVERT SHALL BE CONSTRUCTED AS SHOWN AND SHALL BE 9 FEET BY 9 FEET IN SIZE.

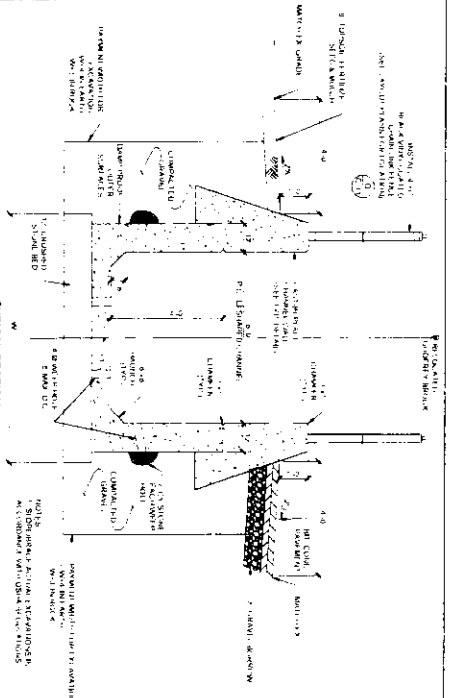
10. THE PROPOSED CENTERLINE GUTTER BROOK CULVERT SHALL BE CONSTRUCTED AS SHOWN AND SHALL BE 9 FEET BY 9 FEET IN SIZE.

**PRELIMINARY DRAWING TO ACCOMPANY THE WETLANDS NOTICE OF INTENT FILING NOT FOR CONSTRUCTION SEPTEMBER 2023**

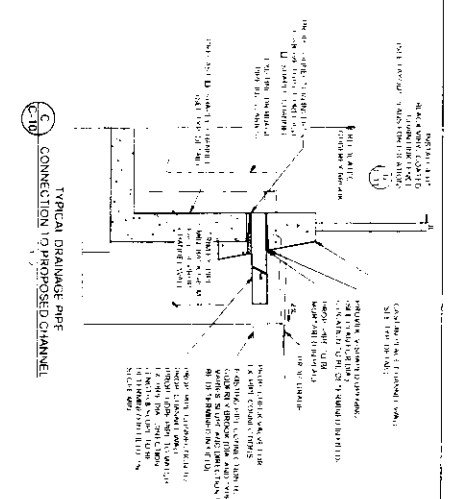
**GOBBY BROOK CULVERT IMPROVEMENTS PROJECT AND BOX CULVERTS**

**PROPOSED CULVERT PROFILE AND DETAILS**

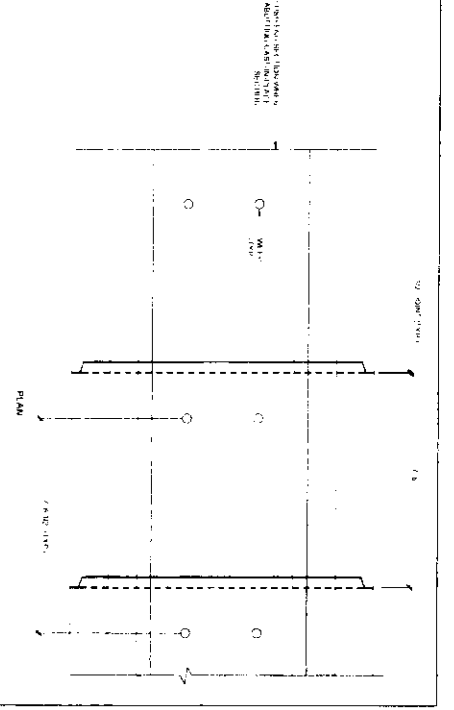
**C-9**



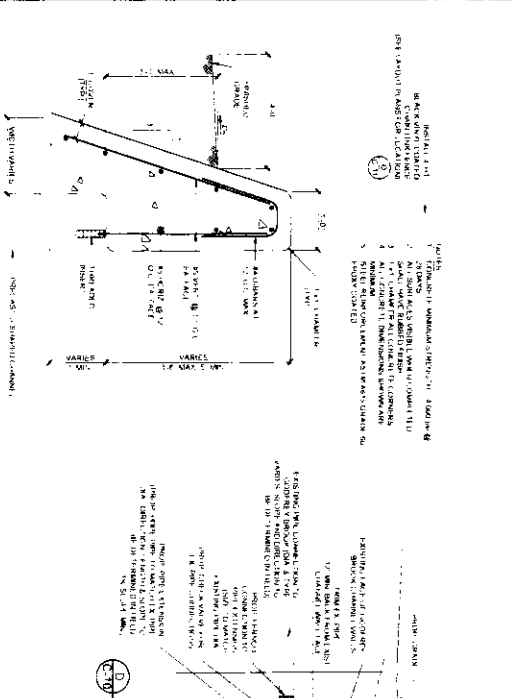
**C-10** TYPICAL SECTION U-SHAPED CHANNEL



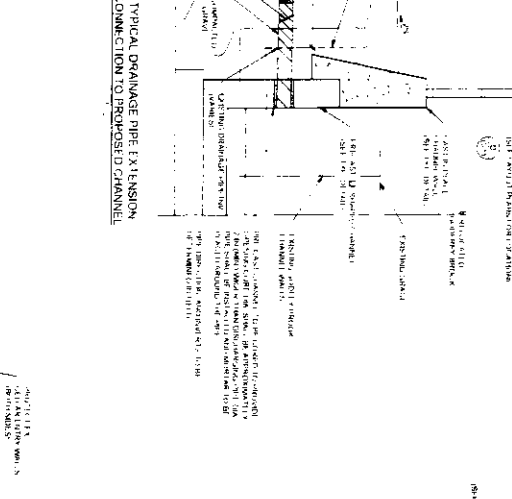
**C-10** TYPICAL DRAINAGE PIPE EXTENSION CONNECTION TO PROPOSED CHANNEL



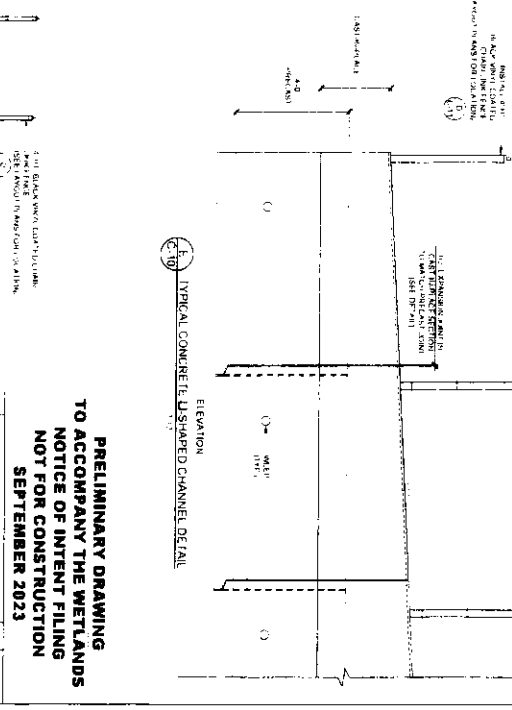
**C-10** TYPICAL CONCRETE U-SHAPED CHANNEL DETAIL



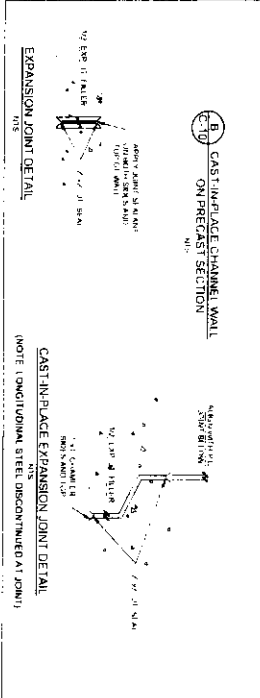
**C-10** CAST-IN-PLACE CHANNEL WALL ON PRECAST SECTION



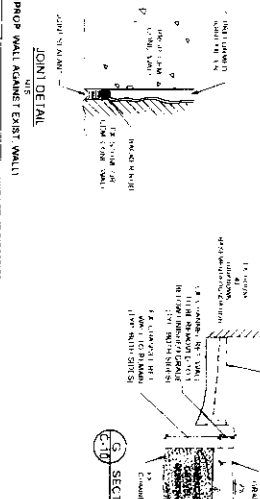
**C-10** TYPICAL DRAINAGE PIPE EXTENSION CONNECTION TO PROPOSED CHANNEL



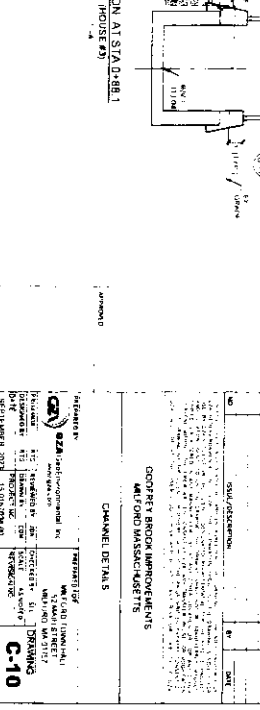
**C-10** SECTION AT STA 0+88.1



**C-10** EXPANSION JOINT DETAIL



**C-10** CAST-IN-PLACE EXPANSION JOINT DETAIL

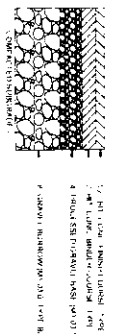


**C-10** JOINT DETAIL

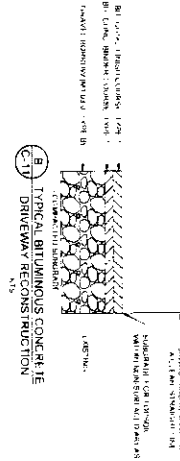
NO.	REVISION	DATE
1	ISSUED FOR PERMITS	09/20/2023
2	FOR CONSTRUCTION	09/20/2023

**PROJECT:** WETLANDS RESTORATION PROJECT  
**LOCATION:** WETLANDS RESTORATION PROJECT, WILMINGTON, MASSACHUSETTS  
**DRAWING:** CHANNEL DETAILS  
**DATE:** SEPTEMBER 2023  
**SCALE:** AS SHOWN

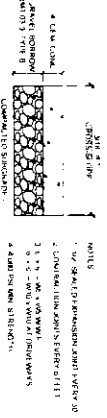
**PRELIMINARY DRAWING  
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 NOT FOR CONSTRUCTION  
 SEPTEMBER 2023**



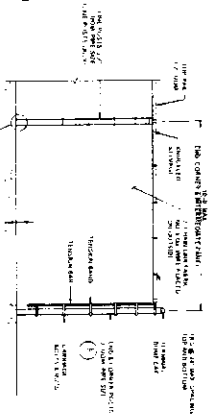
**A** TYPICAL SECTION BITUMINOUS CONCRETE PAVEMENT



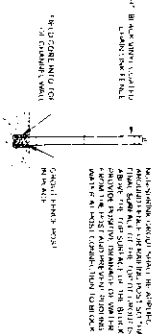
**B** TYPICAL SECTION BITUMINOUS CONCRETE DRIVEWAY RECONSTRUCTION



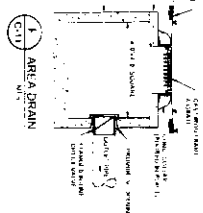
**C** TYPICAL SECTION CEMENT CONCRETE WALKWAYS



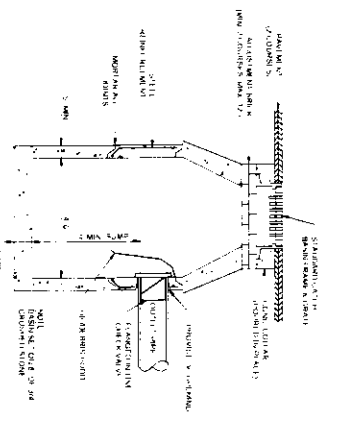
**D** BLACK VINYL COATED CHAIN LINK FENCE



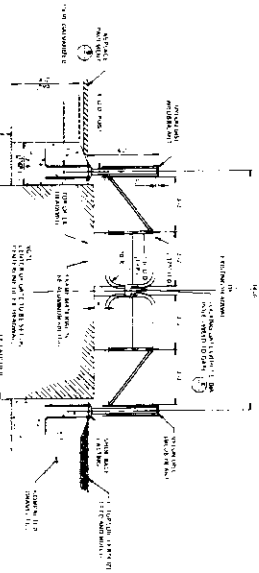
**E** TYPICAL FENCE ANCHORAGE DETAIL IN CHANNEL WALL



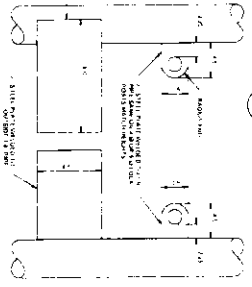
**F** AREA DRAIN



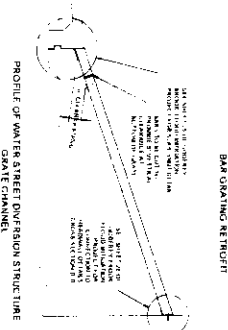
**G** STANDARD PRECAST 4 FT DIA CONCRETE CATCH BASIN



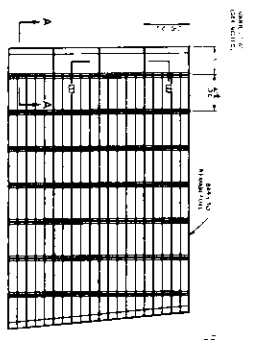
**I** STEEL BEAM GUARDRAIL DETAIL



**K** LOCK PLATE DETAIL



**L** PROFILE OF WATER STREET DIVERSION STRUCTURE



**M** TRASH RACK DETAIL

**Pre-Disaster Mitigation Grant Program**  
 A Federal, State, and Local Partnership through the Federal Emergency Management Agency (FEMA)

**GODFREY BROOK CAPACITY IMPROVEMENTS PROJECT**  
 Town of Melrose

**Commonwealth of Massachusetts**  
 Governor Maura T. Healey  
 Lieutenant Governor Anthony Fauci  
 Acting Director Dean Blumenthal  
 Massachusetts Emergency Management Agency  
 Town Administrator Richard A. Vitelli

**PROJECT SIGN NOTES**

**PROJECT SIGN NOTES**

1. ALL DIMENSIONS UNLESS OTHERWISE NOTED.
2. ALL MATERIALS SHALL BE AS SPECIFIED.
3. ALL MATERIALS SHALL BE APPROVED BY THE TOWN ENGINEER BEFORE INSTALLATION.
4. ALL MATERIALS SHALL BE APPROVED BY THE TOWN ENGINEER BEFORE INSTALLATION.
5. ALL MATERIALS SHALL BE APPROVED BY THE TOWN ENGINEER BEFORE INSTALLATION.
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**PRELIMINARY DRAWING  
 TO ACCOMPANY THE WETLANDS  
 NOTICE OF INTENT FILING  
 NOT FOR CONSTRUCTION  
 SEPTEMBER 2023**

**GODFREY BROOK CAPACITY IMPROVEMENTS PROJECT  
 MELROSE, MASSACHUSETTS**

PROJECT NO.	23-0000000000	DATE	SEPTEMBER 2023
PROJECT NAME	GODFREY BROOK CAPACITY IMPROVEMENTS PROJECT	SCALE	AS SHOWN
PROJECT LOCATION	MELROSE, MASSACHUSETTS	PROJECT NO.	23-0000000000
PROJECT OWNER	TOWN OF MELROSE	DATE	SEPTEMBER 2023
PROJECT ENGINEER	WETLANDS CONSULTANTS, INC.	SCALE	AS SHOWN
PROJECT NO.	23-0000000000	DATE	SEPTEMBER 2023
PROJECT NAME	GODFREY BROOK CAPACITY IMPROVEMENTS PROJECT	SCALE	AS SHOWN
PROJECT LOCATION	MELROSE, MASSACHUSETTS	PROJECT NO.	23-0000000000
PROJECT OWNER	TOWN OF MELROSE	DATE	SEPTEMBER 2023
PROJECT ENGINEER	WETLANDS CONSULTANTS, INC.	SCALE	AS SHOWN





**Massachusetts Department of Environmental Protection**  
 Bureau of Resource Protection - Wetlands  
**WPA Form 5 - Order of Conditions**  
 Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:  
 MassDEP File #:223-1233  
 eDEP Transaction #:1606430  
 City/Town:MILFORD

**E. Signatures**

This Order is valid for three years from the date of issuance, unless otherwise specified pursuant to General Condition #4. If this is an Amended Order of Conditions, the Amended Order expires on the same date as the original Order of Conditions.

10/27/2023  
 1. Date of Original Order

Please indicate the number of members who will sign this form. This Order must be signed by a majority of the Conservation Commission.

5  
 2. Number of Signers

The Order must be mailed by certified mail (return receipt requested) or hand delivered to the applicant. A copy also must be mailed or hand delivered at the same time to the appropriate Department of Environmental Protection Regional Office, if not filing electronically, and the property owner, if different from applicant.

Signatures

*Joseph P. Scudlark*  
*[Signature]*

*[Signature]*

by hand delivery on

by certified mail, return receipt requested, on

Date

Date

**F. Appeals**

The applicant, the owner, any person aggrieved by this Order, any owner of land abutting the land subject to this Order, or any ten residents of the city or town in which such land is located, are hereby notified of their right to request the appropriate MassDEP Regional Office to issue a Superseding Order of Conditions. The request must be made by certified mail or hand delivery to the Department, with the appropriate filing fee and a completed Request 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 Order. A copy of the request shall at the same time be sent by certified mail or hand delivery to the Conservation Commission and to the applicant, if he/she is not the appellant.

Any appellants seeking to appeal the Department's Superseding Order associated with this appeal will be required to demonstrate prior participation in the review of this project. Previous participation in the permit proceeding means the submission of written information to the Conservation Commission prior to the close of the public hearing, requesting a Superseding Order, or providing written information to the Department prior to issuance of a Superseding Order.

The request shall state clearly and concisely the objections to the Order which is being appealed and how the Order does not contribute to the protection of the interests identified in the Massachusetts Wetlands Protection Act (M.G.L. c. 131, § 40), and is inconsistent with the wetlands regulations (310 CMR 10.00). To the extent that the Order is based on a municipal ordinance or bylaw, and not on the Massachusetts Wetlands Protection Act or regulations, the Department has no appellate jurisdiction.

**G. Recording Information**

This Order of Conditions must be recorded in the Registry of Deeds or the Land Court for the district in which the land is located, within the chain of title of the affected property. In the case of recorded land, the Final Order shall also be noted in the Registry's Grantor Index under the name of the owner of the land subject to the Order. In the case of registered land, this Order shall also be noted on the Land Court Certificate of Title of the owner of the land subject to the Order of Conditions. The recording information on this page shall be submitted to the Conservation Commission listed below.

MILFORD



**Massachusetts Department of Environmental Protection**

Bureau of Resource Protection - Wetlands

**WPA Form 5 - Order of Conditions**

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

Provided by MassDEP:  
MassDEP File #:223-1233  
eDEP Transaction #:1606430  
City/Town:MILFORD

subject to the Order of Conditions. The recording information on this page shall be submitted to the Conservation Commission listed below.

MILFORD  
Conservation Commission

Detach on dotted line, have stamped by the Registry of Deeds and submit to the Conservation Commission.

To:  
MILFORD  
Conservation Commission

Please be advised that the Order of Conditions for the Project at:

WEST STREET TO WATER STREET  
Project Location

223-1233  
MassDEP File Number

Has been recorded at the Registry of Deeds of:

\_\_\_\_\_  
County Book Page

for:  
\_\_\_\_\_  
Property Owner

and has been noted in the chain of title of the affected property in:

\_\_\_\_\_  
Book Page

In accordance with the Order of Conditions issued on:

\_\_\_\_\_  
Date

If recorded land, the instrument number identifying this transaction is:

\_\_\_\_\_  
Instrument Number

If registered land, the document number identifying this transaction is:

\_\_\_\_\_  
Document Number

\_\_\_\_\_  
Signature of Applicant

Rev. 4/1/2010



Commonwealth of Massachusetts  
Executive Office of Energy & Environmental Affairs

# Department of Environmental Protection

100 Cambridge Street Suite 900 Boston, MA 02114 • 617-292-5500

Maura T. Healey  
Governor

Kimberley Driscoll  
Lieutenant Governor

Rebecca L. Tepper  
Secretary

Bonnie Heiple  
Commissioner

August 27, 2024

Mr. Paul Mazzuchelli  
Town of Milford Board of  
52 Main Street  
Milford, MA 01757

401 WQC Application 24-WW26-0030-APP  
DEP Wetlands File # 223-1233  
EOEEA File # 14465  
NHESP File # N/A  
USACE File # NAE-2024-01170  
401 Application Complete: 05/28/2024

Re: COMBINED 401 WATER QUALITY CERTIFICATION FOR DREDGING & FILL/EXCAVATION  
**BWR WW26 – Combined Application for Minor Dredging and Minor Fill Excavation**

At: Godfrey Brook, West Street to Water Street, Milford, MA  
Charles River Drainage Area

Dear Mr. Mazzuchelli:

The Department of Environmental Protection (MassDEP) has reviewed your application for a Combined 401 Water Quality Certification (WQC) for Dredging and Fill/ Excavation (Combined Permit) as referenced above and is basing its certification upon an evaluation of the information contained in the application which is relevant to water quality considerations. In accordance with the provisions of Section 401 of the Federal Clean Water Act (33 U.S.C. § 1251 *et seq.*), M.G.L. c. 21, §§ 26-53, and 314 CMR 9.00, MassDEP has determined there is reasonable assurance the project or activity will be conducted in a manner which will not violate applicable water quality standards (314 CMR 4.00) and other applicable requirements of state law.

The waters of the Charles River Drainage Area from Dilla Street, Milford, MA to the Milford POTW discharge are designated in the Massachusetts Surface Water Quality Standards as Class B, Aquatic Life (314 CMR 4.05(3)b). Such waters are intended “as a habitat for fish, other aquatic life and wildlife, including for their reproduction, migration, growth and other critical functions, and for primary and secondary contact recreation.” The Aquatic Life qualifier denotes “those waters where Class C dissolved oxygen and temperature criteria apply. This designation is made only where natural background conditions prevent the attainment of a “higher use” designation.”<sup>1</sup>

### Project Description

The Godfrey Brook dredge project proposes to improve the hydraulic capacity of Godfrey Brook channel between West Street and Water Street, and flood diversion inlet at Water Street as flood

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<sup>1</sup> 314 CMR 4.06(d)9.

mitigation by replacing 540 feet of a 4 ft wide x 3 ft deep existing stone lined stream channel with a u-shaped precast concrete channel 6 ft wide x 4 ft deep. A 6 ft x 6 ft concrete slab deck stream crossing (at 9 Water St., 42.138636, -71.523969) will be replaced with a 9 ft wide x 5 ft deep box culvert.

The Project proposes to alter 2,909 square feet of LUW to widen the existing channel from 4 feet to 6 feet and deepen the channel from 3 feet to 4 feet. This will be accomplished by dredging 280 cubic yards of sediment from Godfrey Brook. The project when completed will increase the area of LUW to approximately 3,671 square feet.

#### Sediment Chemistry

Results from the chemical analysis were compared to MassDEP's *Interim Policy for Sampling, Analysis, Handling and Tracking Requirements for Dredged Sediment Reuse and Disposal (COMM-94-007)*. All parameters tested were either not detected or below the Reportable Concentration RCS-1 criteria of the Massachusetts Contingency Plan.

#### Dredge Material Dewatering

Dredged sediment will be dewatered on-site in upland locations within the limits of work. Streamflow is proposed to be diverted around the dredge site through a by-pass discharge pipe. Cofferdams will be set up at the upstream and downstream limits of the work to allow dredging to occur in the dry. Residual water in the work area will be pumped to a dewatering bag to filter runoff prior to discharge to a downstream location. Equipment will be staged, and excavated material will be stockpiled in a parking area at 9 Water Street. Erosion control measures will be used to prevent stockpiled sediments from reentering the stream channel.

#### Dredging and Dredge Material Disposal

Dredging and the discharge of dredged or fill material for this project may be permitted under 314 CMR 9.07(1)(c) and CMR 314 9.06(5) respectively to manage stormwater for flood control purposes where there is no practicable alternative and provided that best management practices are implemented to prevent sedimentation or other pollution and that dredged material management is conducted in a manner that ensures protection of human health, public safety, public welfare, and the environment.

All dredging will be conducted in the dry, using flow diversion and active dewatering of work areas. As per the results of chemical analysis, the sediments are suitable for upland reuse or disposal. The Town does not intend to reuse the sediments in an upland setting but will be responsible to ensure that dredge spoils are disposed of at an appropriate location whose address will be provided to MassDEP prior to the start of work on the project.

#### NHESP

The project site is outside the boundary of Priority and/or Estimated Habitat. The MA Division of Fisheries and Wildlife's Natural Heritage and Endangered Species Program has no rare species concerns with the project.

#### Public Notice

The Permit Application public notice was published in the Daily News on 05/15/2024. No comments were received by MassDEP during the 21-day public comment period pursuant to 314 CMR 9.05(3)(e), which ended on 06/05/2024.

### Section 61 Findings

Pursuant to M.G.L. Chapter 30, Sections 61 to 62H inclusive [the Massachusetts Environmental Policy Act (MEPA)], the project, as referenced in the Combined Permit Application, DEP Transmittal # 24-WW26-0030-APP, was required to file an Environmental Notification Form (ENF). The Town of Milford filed an ENF for the construction of the project under EEA:14465 and noticed the ENF in the Environmental Monitor on August 12, 2009. In the Certificate issued on September 11, 2009, the Secretary of Energy and Environmental Affairs found that, based on the information in the ENF and after consultation with relevant public agencies, that no further MEPA review is required.

**Therefore, based on information currently in the record, MassDEP grants a Combined 401 WQC for this project subject to the following conditions to maintain or attain water quality, to minimize any damage to the environment that may result from the project, and to ensure compliance with appropriate provisions of state law. MassDEP certifies that there is reasonable assurance the project or activity, as conditioned herein, will be conducted in a manner which will not violate applicable water quality standards (314 CMR 4.00) and other appropriate requirements of state law.**

### **CONDITIONS**

1. Pursuant to 314 CMR 9.09(1), the term of this Combined 401 WQC remains in effect for the duration of the federal permit that requires it. This condition is necessary to ensure that the project is completed in a timely manner that is consistent with timing of related permits.
2. Pursuant to 314 CMR 9.01(3), the applicant and its contractor shall take all steps necessary to assure that the proposed activities will be conducted in a manner that will avoid violations of the anti-degradation provisions of the Massachusetts Surface Water Quality Standards, 314 CMR 4.00, that protect all waters, including wetlands. This condition is necessary to assure that any discharge from the project complies with the Massachusetts Surface Water Quality Standards, as provided in 314 CMR 4.00, to protect the public health and to restore and maintain the chemical, physical, and biological integrity of the water resources of the Commonwealth.
3. Pursuant to 314 CMR 9.09(2), prior to the start of work, or for any portion of the work thereafter, MassDEP shall be notified of any change(s) in the project Plan of Record that may affect the quality of waters. MassDEP will determine whether the change(s) will require a revision to this Combined 401 Water Quality Certification. This condition is necessary to ensure that the project is completed according to the approved Plan of Record for this permit and that any changes to the approved plans are reviewed and approved prior to implementation to ensure that water quality is protected.
4. Pursuant to 314 CMR 9.05(4), MassDEP shall be notified in writing, attention Kenneth Alepidis (kenneth.alepidis@mass.gov), one week prior to the start of in-water work so that MassDEP staff may inspect the work for compliance with the terms and conditions of this Certification. This condition is necessary to assure that MassDEP is notified in reasonable time to plan a site visit, if needed, to observe the work and conduct site inspection for compliance with Combined 401 WQC to ensure that water quality is protected.

5. Pursuant to 314 CMR 9.06(2)(a) all impacts to wetland Resource Areas shall be mitigated at a minimum 1:1 ratio with restoration of wetland Resource Areas in place and no permanent loss of Bordering Vegetated Wetlands, Land Under Waterbodies and Waterways, or Bank. This condition is required to ensure the chemical, physical, and biological integrity of waters of the Commonwealth.
6. Pursuant to 314 CMR 9.05(1), all work shall be performed in accordance with the following documents and plans. This condition is necessary to ensure that the project is completed according to the approved Plan of Record for this permit and to protect water quality:
  - Application for this Combined Permit, 24-WW26-0030-APP, dated May 9, 2024. as revised through May 28, 2024, with attachments.
  - Combined 401 WQC Plan of Record is attached to this Certification. It is Entitled – Godfrey Brook Capacity Improvements Project West Street to Water Street Town of Milford, Massachusetts Milford Highway Department and Office of Planning and Engineering, dated November 2023. The plan consists of 13 sheets, various scales. Plan sheets include.
    - Sh 1 Cover Sheet
    - Sh 2 – C-1 Existing Conditions
    - Sh 3– C-2 Proposed Sediment, erosion and Water Control
    - Sh 4 – C-3 Sediment, Erosion and Water Control Plan Notes and Details
    - Sh 5 – C-4 Demolition Plan and Existing Channel Centerline Profile West - Water
    - Sh 6 – C-5 Proposed Site Plan and Proposed Channel Layout Plan West - Church
    - Sh 7 – C-6 Proposed Site Plan and Proposed Channel Layout Plan Church - Water
    - Sh 8 – C-7 Profile – Proposed Channel Construction Baseline
    - Sh 9 – C-8 Profile – Top of Proposed Cast-in-Place Channel Wall Cap
    - Sh 10 - C-9 Proposed Culvert Profile and Details
    - Sh 11 - C10 Channel Details
    - Sh 12 - C-11 Site Details
    - Sh 13 - C-12 Wetland Resource Areas and Proposed Restoration Plan

MassDEP shall be notified of any modifications and/or deletions of work as specified in the plans. Depending on the nature and the scope of any change, approval by the Department may be required.

7. Pursuant to 314 CMR 9.09(1), no later than four weeks after issuance of this Combined 401 Water Quality Certification, the applicant shall submit a notification procedure outlining the reporting process to MassDEP for incidents relating to dredging activities that impact surrounding resource areas and habitats. Incidents that trigger reporting include, but are not limited to, observed dead or distressed fish or other aquatic organisms, observed oily sheen on the surface of the water, a sediment spill, or a turbidity plume beyond the deployed Best Management Practice (BMP). If at any time during implementation of the project such an incident occurs, the applicant shall immediately notify MassDEP and all site related activities impacting the water quality shall cease until the source of the problem is identified and adequate mitigating measures are deployed to the satisfaction of MassDEP. This condition ensures that MassDEP can respond quickly to dredge related incidents that may impact water quality and allows MassDEP to oversee the implementation of measures designed to protect water quality.

8. Maintenance dredging of the straightened stream channels created by this project ~~and as discussed in Item 7 of the Long Term Operation and Maintenance Plan Drainage System along Montague City Road in the USACE PCN is not authorized under this Combined 401 WQC.~~ This condition does not apply to maintenance of catch basins and roadway storm drains. Pursuant to 314 CMR 4.01(3), this condition is necessary to allow the perennial stream to stabilize and reestablish a new equilibrium required to restore and maintain the chemical, physical, and biological integrity of Commonwealth waters.
9. Pursuant to 314 CMR 9.04(5), a separate application may be submitted, and a single certification may be issued for future routine maintenance activities on an annual or multi-year basis.
10. Pursuant to 314 CMR 9.09(a), dredging in accordance with this Combined 401 Certification may begin following the 21-day appeal period once all other permits have been received. This condition assures that all appropriate permits have been obtained and that grievances and additional concerns regarding impacts to water quality, protection of public health, or restoration and maintenance of the chemical, physical, and biological integrity of the water resources are identified and addressed before work begins.
11. Pursuant to 314 CMR 4.04(1), 314 CMR 9.01(3), during the project period, there shall be no discharge or spillage of fuel, oil, or other pollutants into any part of unnamed river or its tributaries. The applicant shall take all reasonable precautions to prevent the release of pollutants by ignorance, accident, or vandalism.
12. Pursuant to 314 CMR 9.07(1) and 314 CMR 4.04(1), all equipment/machinery storage, servicing, or cleaning shall be performed above the High Water Mark and outside any wetland Resource Areas when not in use. This condition is necessary to protect water quality by ensuring that pollutants associated with the use and maintenance of equipment used for the project are not released to the water.
13. Pursuant to 314 CMR 9.09(2), prior to the start of work, the applicant or their contractor shall provide a dewatering plan for conducting work in the dry. The plan shall show how stream flows will be maintained downstream of the project site, how temporary dewatering by-pass pumping will be accomplished, and how instream silt will be contained to avoid sediment transport to downstream locations. This condition is necessary to ensure that the project is completed according to the approved Plan of Record for this permit and that downstream water quality and aquatic habitat are protected.
14. Best Management Practices (“BMPs”) shall be deployed to minimize turbidity during temporary cofferdam construction [if cofferdam is proposed]. At a minimum, silt curtain shall be used to control turbidity at the surrounding areas. Water quality nearby the construction areas such as turbidity (NTU) should be monitored during before, during, and after cofferdam construction to ensure that water quality standards are met. Turbidity monitoring data should be kept on site and available for MassDEP review upon request. This condition ensures that dredging is planned and conducted to minimize short-term, long term, and cumulative impacts on aquatic ecosystem and provide protection to human health.

15. Pursuant to 314 CMR 9.07(9), dredge material shall be dewatered prior to transportation from the site of dredging to the reuse location. The dredge material shall be managed, transported, and placed at the receiving location in compliance with the requirements of 314 CMR 9.07. All dredging and disposal activities shall be the responsibility of the applicant. This condition is necessary to ensure that the dredge sediments are suitable for reuse onsite or at other upland locations and that dredge material are properly managed to protect water quality.
16. MassDEP shall be notified in writing of the name and location of the upland licensed facility accepting the dredged material for disposal or reuse as daily cover material. If the licensed facility is located out of state, documentation shall be provided to MassDEP that the dredged material disposal/reuse has been approved and will be accepted by the receiving state in accordance with 314 CMR 9.07(13)(b). The dredged material shall not be transported to the facility without concurrence of MassDEP.
17. Pursuant to 314 CMR 9.07(5), a Material Shipping Record (MSR) shall be used to track the transport of dredged material to a licensed upland facility. A fully executed copy of the MSR shall be provided to MassDEP within 30 days of final shipment to the reuse location or facility. This condition is necessary to ensure that dredge materials are properly and safely handled during transportation on public roadways and provides the ability for MassDEP to verify that potentially contaminated sediments have arrived at the appropriate and approved end location. It also protects the water quality of surrounding wetlands and waters during transportation.
18. Pursuant to 314 CMR 9.07(5), Best Management Practices (BMP)s shall be implemented during transportation of the dredged material to the licensed receiving facility. At a minimum, when transported upon public roadways, all dredged material shall have no free liquid as determined by the Paint Filter Test or other suitably analogous methodology acceptable to the MassDEP and a tarpaulin or other means shall be used to cover the dredged material during transport. This condition ensures that water quality in waters and wetlands along the travel route are not degraded by spills or discharges during transport and avoids inadvertent contribution to degradation of other waters of the Commonwealth. These practices help to avoid fugitive dust and siltation into wetland resources and waters.
19. Pursuant to 314 CMR 9.07(9), shoreline placement of dredged material for re-use is permitted at a location proximal to the dredging activity that lies within the 100-year floodplain or buffer zone as defined in 310 CMR 10.00: *Wetlands Protection* whichever is greater. Reuse of dredged material shall comply with the regulatory standards of 310 CMR 10.00: *Wetlands Protection* and 310 CMR 9.00: *Waterways*.
20. Pursuant to 314 CMR 9.07(9)(b), dredged material placed in an upland area as fill or for reuse activities, shall have concentrations of oil and hazardous material in the dredged material that are less than the S-1 soil standards applicable at the receiving location as specified in 310 CMR 40.0975: *Identification of Applicable Soil Standards in Method 1*. The dredge material shall not otherwise be a hazardous waste and shall not adversely affect an existing public or private potable water supply. This condition is necessary to protect water quality and public health.



21. Pursuant to 314 CMR 9.07(1)(c), during dredging operations, measures should be taken to avoid the potential to spread aquatic invasive species to other waterbodies. The dredged material shall be loaded directly into the sediment dewatering area. Appropriate invasive species decontamination protocols such as burning should be reviewed and approved, as required by the receiving facility owner/manager. All vehicles, equipment and tools that have direct contact with invasive species should be cleaned before leaving the project areas. Under no circumstances shall sediment with invasive species seeds or rhizomes be reused or transported. This condition ensures that dredging for an ecological restoration project shall be conducted in a manner that will not reduce or alter the habitat functions of the affected water and wetlands of the Commonwealth.
22. Pursuant to 314 CMR 9.07(1), within 30 days of the completion of dredging, photographs of the affected areas depicting post-dredge conditions shall be taken and submitted to Kenneth Alepidis ([kenneth.alepidis@mass.gov](mailto:kenneth.alepidis@mass.gov)) at MassDEP. This condition is necessary to ensure that the dredging was completed as proposed on the approved Plan of Record.

Failure to comply with this Combined 401 WQC is grounds for enforcement, including civil and criminal penalties, under M.G.L. c. 21, § 42, 314 CMR 9.00, M.G.L. c. 21A, § 16, 310 CMR 5.00, or other possible actions/penalties as authorized by the General Laws of the Commonwealth.

This Combined 401 WQC does not relieve the applicant of the obligation to comply with other appropriate state or federal statutes or regulations. Any changes made to the project as described in the previously submitted Combined Permit Application or supplemental documents will require further notification to and, if an amendment is required, approval by MassDEP.

#### NOTICE OF APPEAL RIGHTS

Certain persons shall have a right to request an adjudicatory hearing concerning Combined 401 WQCs by MassDEP when an application is required:

- a. the applicant or property owner;
- b. any person aggrieved by the decision who has submitted written comments during the public comment period;
- c. any ten persons of the Commonwealth pursuant to M.G.L. c. 30A where a group member has submitted written comments during the public comment period; or
- d. any governmental body or private organization with a mandate to protect the environment, which has submitted written comments during the public comment period.

Any person aggrieved, any ten persons of the Commonwealth, or a governmental body or private organization with a mandate to protect the environment may appeal without having submitted written comments during the public comment period only when the claim is based on new substantive issues arising from material changes to the scope or impact of the activity and not apparent at the time of public notice. To request an adjudicatory hearing pursuant to M.G.L. c. 30A, § 10, a Notice of Claim must be made in writing, provided that the request is made by certified mail or hand delivery to MassDEP, with the appropriate filing fee specified within 310 CMR 4.10 along with a DEP Fee Transmittal Form within 21 days from the date of issuance of this Certificate.

Case Administrator  
Department of Environmental Protection  
100 Cambridge Street Suite 900  
Boston, MA 02114

A copy of the request shall at the same time be sent by certified mail or hand delivery to the issuing office of the Wetlands and Waterways Program at:

Department of Environmental Protection  
100 Cambridge Street Suite 900  
Boston, MA 02114

A Notice of Claim for Adjudicatory Hearing shall comply with MassDEP's Rules for Adjudicatory Proceedings, 310 CMR 1.01(6), and shall contain the following information pursuant to 314 CMR 9.10(3):

- a. the Combined Permit Transmittal Number;
- b. the complete name of the applicant and address of the project;
- c. the complete name, address, and fax and telephone numbers of the party filing the request, and, if represented by counsel or other representative, the name, fax and telephone numbers, and address of the attorney;
- d. if claiming to be a party aggrieved, the specific facts that demonstrate that the party satisfies the definition of "aggrieved person" found at 314 CMR 9.02;
- e. a clear and concise statement that an adjudicatory hearing is being requested;
- f. a clear and concise statement of (1) the facts which are grounds for the proceedings, (2) the objections to this Certificate, including specifically the manner in which it is alleged to be inconsistent with the MassDEP's Water Quality Regulations, 314 CMR 9.00, and (3) the relief sought through the adjudicatory hearing, including specifically the changes desired in the final written 401 WQC; and
- g. a statement that a copy of the request has been sent by certified mail or hand delivery to the applicant, the owner (if different from the applicant), the conservation commission of the city or town where the activity will occur, the Department of Conservation and Recreation (when the certificate concerns projects in Areas of Critical Environmental Concern), the public or private water supplier where the project is located (when the certificate concerns projects in Outstanding Resource Waters), and any other entity with responsibility for the resource where the project is located.

The hearing request along with a DEP Fee Transmittal Form and a valid check or money order payable to the Commonwealth of Massachusetts in the amount of one hundred dollars (\$100) must be mailed to:

Commonwealth of Massachusetts  
Department of Environmental Protection  
Commonwealth Master Lockbox  
PO Box 4062  
Boston, MA 02211

The request will be dismissed if the filing fee is not paid, unless the appellant is exempt or granted a waiver. The filing fee is not required if the appellant is a city or town (or municipal agency), county, or district of the Commonwealth of Massachusetts, or a municipal housing authority. MassDEP may waive the adjudicatory hearing filing fee pursuant to 310 CMR 4.06(2) for a person who shows that paying the fee will create an undue financial hardship. A person seeking a waiver must file an affidavit setting forth the facts believed to support the claim of undue financial hardship together with the hearing request as provided above.

Should you have any questions relative to this Combined 401 WQC, please contact Kenneth Alepidis ([kenneth.alepidis@mass.gov](mailto:kenneth.alepidis@mass.gov)).

Sincerely,



Lisa Rhodes  
Wetlands Program Chief

Ecc.

Paul Mazzuchelli, Town of Milford Board of Selectmen, 52 Main Street, Milford, MA 01757  
[pmazzuchelli@townofmilford.com](mailto:pmazzuchelli@townofmilford.com)

Scott Crisafulli, Town of Milford Highway Department, 52 Main Street, Milford, MA 01757  
[scrisafulli@townofmilford.com](mailto:scrisafulli@townofmilford.com)

Susanna Sousa, 1350 Main Street, Suite 1400 Springfield, MA 01103 [susanna.sousa@gza.com](mailto:susanna.sousa@gza.com)

Judith Schmitz, MassDEP Central Regional Office, 8 New Bond Street, Worcester, MA 01105  
[Judith.Schmitz@mass.gov](mailto:Judith.Schmitz@mass.gov)

Paul J. Sneeringer, CIV USA Army Corps of Engineers, Department of the Army, New England District, Corps of Engineers, 696 Virginia Road, Concord, MA 01742-2751  
[Paul.J.Sneeringer@usace.army.mil](mailto:Paul.J.Sneeringer@usace.army.mil)

Edward Reiner, EPA, 5 Post Office Square, Suite 100, Boston, MA 02109 [reiner.ed@epa.gov](mailto:reiner.ed@epa.gov)

Robert Boeri, and Todd Callaghan, and Patrice Bordonaro, MA CZM, 100 Cambridge St. #900, Boston, MA 02114 [Robert.Boeri@mass.gov](mailto:Robert.Boeri@mass.gov), [Todd.Callaghan@mass.gov](mailto:Todd.Callaghan@mass.gov)  
[Patrice.Bordonaro@mass.gov](mailto:Patrice.Bordonaro@mass.gov)

Misty-Anne Marold, MA Division of Fish and Wildlife, 1 Rabbit Hill Road, Westborough, MA  
[misty-anne.marold@mass.gov](mailto:misty-anne.marold@mass.gov)

Attachments:

Communication for Non-English Speaking Parties document  
Plan of Record



**Communication for Non-English-Speaking Parties**

*This document is important and should be translated immediately.*

If you need this document translated, please contact MassDEP's Director of EJ at the telephone number listed below.

**Español Spanish**

Este documento es importante y debe ser traducido de inmediato. Si necesita este documento traducido, comuníquese con la Directora de Diversidad de MassDEP al número de teléfono que aparece más abajo.

**Português Portuguese**

Este é um documento importante e deve ser traduzido imediatamente. Se precisar de uma tradução deste documento, entre em contato com o Diretor de Diversidade da MassDEP nos números de telefone listados abaixo.

**繁體中文 Chinese Traditional**

本文件非常重要，應立即翻譯。如果您需要翻譯這份文件，請用下面列出的電話號碼聯絡 MassDEP 多元化負責人。

**简体中文 Chinese Simplified**

本文件非常重要，應立即翻譯。如果您需要翻譯這份文件，請用下面列出的電話號碼與 MassDEP 的多元化主任聯繫。

**Ayisyen Kreyòl Haitian Creole**

Dokiman sa-a se yon bagay enpòtan epi yo ta dwe tradwi l imedyatman. Si ou bezwen dokiman sa a tradwi, tanpri kontakte Direktè Divèsite MassDEP la nan nimewo telefòn endike anba.

**Việt Vietnamese**

Tài liệu này rất quan trọng và cần được dịch ngay lập tức. Nếu quý vị cần dịch tài liệu này, xin liên lạc với Giám đốc Đa dạng của MassDEP theo các số điện thoại ghi dưới đây.

**ប្រទេសកម្ពុជា Khmer/Cambodian**

ឯកសារនេះគឺសំខាន់ហើយត្រូវបានបកប្រែភ្លាមៗ។ ប្រសិនបើអ្នកត្រូវការឱ្យគេបកប្រែឯកសារនេះ សូមទាក់ទងមកនាយកដ្ឋានពិពិធកម្មរបស់ MassDEP តាមលេខទូរស័ព្ទខាងក្រោម។

**kriolu Kabuverdianu Cape Verdean**

*Kel dokumentu li é inportáti y debe ser traduzidu imediatamenti. Se bu meste di kel dokumentu traduzidu, pur favor kontakta Diretor di Diversidádi di MassDEP na numeru abaxu indikadu.*



Contact **Deneen Simpson** 857-406-0738  
Massachusetts Department of Environmental Protection  
100 Cambridge Street 9<sup>th</sup> Floor Boston, MA 02114  
TTY# MassRelay Service 1-800-439-2370 • <https://www.mass.gov/environmental-justice>  
(Version revised 4.21.2023) 310 CMR 1.03(5)(a)

### Русский Russian

Это важный документ, и он должен быть безотлагательно переведен. Если вам нужен перевод данного документа, пожалуйста, свяжитесь с директором по вопросам многообразия (Diversity Director) компании MassDEP по указанному ниже телефону.

### العربية Arabic

هذه الوثيقة مهمة ويجب ترجمتها على الفور. إذا كنت بحاجة إلى هذه الوثيقة مترجمة، يرجى الاتصال بمدير التنوع PMassDE على أرقام الهواتف المدرجة أدناه.

### 한국어 Korean

이 문서는 중요하고 즉시 번역해야 합니다. 이 문서의 번역이 필요하시다면, 아래의 전화 번호로 MassDEP의 다양성 담당 이사에 문의하시기 바랍니다.

### հայերէն Armenian

Այս փաստաթուղթը կարևոր է և պետք է անմիջապես թարգմանվի:  
Եթե Ձեզ անհրաժեշտ է այս փաստաթուղթը թարգմանել, դիմեք MassDEP-ի բազմազանության տնօրենին ստորև նշված հեռախոսահամարով:

### فارسی Farsi Persian

این سند مهم است و باید فوراً ترجمه شود.  
اگر به ترجمه این سند نیاز دارید، لطفاً با مدیر بخش تنوع نژادی MassDEP به شماره تلفن ذکر شده در زیر تماس بگیرید.

### Français French

Ce document est important et devrait être traduit immédiatement. Si vous avez besoin de ce document traduit, veuillez communiquer avec le directeur de la diversité MassDEP aux numéros de téléphone indiqués ci-dessous.

### Deutsch German

Dieses Dokument ist wichtig und sollte sofort übersetzt werden. Sofern Sie eine Übersetzung dieses Dokuments benötigen, wenden Sie sich bitte an den Diversity Director MassDEP unter der unten aufgeführten Telefonnummer.

### Ελληνική Greek

Το παρόν έγγραφο είναι σημαντικό και θα πρέπει να μεταφραστεί αμέσως. Αν χρειάζεστε μετάφραση του παρόντος εγγράφου, παρακαλούμε επικοινωνήστε με τον Διευθυντή Διαφορετικότητας του MassDEP στους αριθμούς τηλεφώνου που αναγράφονται παρακάτω.

### Italiano Italian

Comunicazione per parti che non parlano inglese. Questo documento è importante e dovrebbe essere tradotto immediatamente. Se avete bisogno di questo documento tradotto, potete contattare il Direttore di Diversità di MassDEP al numero di telefono elencato di seguito.

### Język Polski Polish

Dokument ten jest ważny i powinien zostać natychmiast przetłumaczony. Jeśli potrzebujesz przetłumaczonej wersji dokumentu, prosimy o kontakt z dyrektorem ds. różnorodności MassDEP pod jednym z numerów telefonu wymienionych poniżej.

### हिन्दी Hindi

यह दस्तावेज़ महत्वपूर्ण है और इसका तुरंत अनुवाद किया जाना चाहिए. यदि आपको इस दस्तावेज़ का अनुवाद करने की आवश्यकता है, तो कृपया नीचे सूचीबद्ध टेलीफोन नंबरों पर मासडेपस डाइवर्सिटी के निदेशक से संपर्क करें.

Contact Deneen Simpson 857-406-0738

Massachusetts Department of Environmental Protection  
100 Cambridge Street 9<sup>th</sup> Floor Boston, MA 02114

TTY# MassRelay Service 1-800-439-2370 • <https://www.mass.gov/environmental-justice>  
(Version revised 4.21.2023) 310 CMR 1.03(5)(a)

950 CMR: OFFICE OF THE SECRETARY OF THE COMMONWEALTH

APPENDIX A  
MASSACHUSETTS HISTORICAL COMMISSION  
220 MORRISSEY BOULEVARD  
BOSTON, MASS. 02125  
617-727-8470, FAX: 617-727-5128

RECEIVED

SEP 09 2014

MASS. HIST. COMM

\* 46 796

**PROJECT NOTIFICATION FORM**

Project Name: Godfrey Brook Improvement Project

Location / Address: Congress Terrace and Main Street

City / Town: Milford, MA

Project Proponent

Name: Town of Milford; Highway Department

Address: 12 Front Street

City/Town/Zip/Telephone: Milford, MA 01757 (508) 473-1274

After review of MHC files and the materials you submitted, it has been determined that this project is unlikely to affect significant historic or archaeological resources.

Rc. 46796

  
Jonathan K. Rajton  
Archaeologist / Preservation Planner  
Massachusetts Historical Commission

9/18/14  
Date

x C: Lydia Katchadourian, FEMA  
K K Adams USACE, New England District  
K A Wood

Agency license or funding for the project (list all licenses, permits, approvals, grants or other entitlements being sought from state and federal agencies).

Agency Name

- FEMA
- MA DEP
- U.S. Army Corps
- EEA

Type of License or funding (specify)

- Hazard Mitigation Grant Program
- Wetlands Permit and Chapter 91 WQC Permit
- 404 Permit
- MEPA Environmental Notification Form

**Project Description (narrative):**

(see attached narrative)

**Does the project include demolition? If so, specify nature of demolition and describe the building(s) which are proposed for demolition.**

The project does not include the demolition of any buildings.

**Does the project include rehabilitation of any existing buildings? If so, specify nature of rehabilitation and describe the building(s) which are proposed for rehabilitation.**

The project does not include rehabilitation of any existing buildings.

**Does the project include new construction? If so, describe (attach plans and elevations if necessary).**

See attached narrative.

950 CMR: OFFICE OF THE SECRETARY OF THE COMMONWEALTH

APPENDIX A (continued)

To the best of your knowledge, are any historic or archaeological properties known to exist within the project's area of potential impact? If so, specify.

To the best of our knowledge after consulting the National and State registries of historic places, no historic or archaeological properties are known to exist within the project's area of potential impact.

What is the total acreage of the project area?

Woodland	<u>0</u>	acres	Productive Resources:		
Wetland	<u>0</u>	acres	Agriculture	<u>0</u>	acres
Floodplain	<u>0.09</u>	acres	Forestry	<u>0</u>	acres
Open space	<u>0</u>	acres	Mining/Extraction	<u>0</u>	acres
Developed	<u>0.84</u>	acres	Total Project Acreage	<u>+/- 0.93</u>	acres

What is the acreage of the proposed new construction? 0 acres

What is the present land use of the project area?

Land uses within the project area include residential (multi-family, high density) and commercial

Please attach a copy of the section of the USGS quadrangle map which clearly marks the project location.

See attached

This Project Notification Form has been submitted to the MHC in compliance with 950 CMR 71.00.

---

Signature of Person submitting this form: Rosalie TF Starvish Date: 8/14/2014

Name: Rosalie Starvish

Address: 1350 Main Street; Suite 1400

City/Town/Zip: Springfield, MA 01103

Telephone: 413-726-2100

REGULATORY AUTHORITY

950 CMR 71.00: M.G.L. c. 9, §§ 26-27C as amended by St. 1988, c. 254.



DEPARTMENT OF THE ARMY  
US ARMY CORPS OF ENGINEERS  
NEW ENGLAND DISTRICT  
696 VIRGINIA ROAD  
CONCORD MA 01742-2751

February 14, 2025

Regulatory Division  
File Number: **NAE-2024-1170**

Town of Milford, Massachusetts Highway Department  
Attn: Scott Crisafulli, Highway Surveyor  
52 Main Street  
Milford, Massachusetts 01757  
Sent by email: [[scrisafulli@townofmilford.com](mailto:scrisafulli@townofmilford.com)]

Dear Mr. Crisafulli:

The U.S. Army Corps of Engineers (USACE) has reviewed your application to discharge dredged and/or fill material into approximately **3671** square feet (**0.08** acres) of waters of the United States, associated with Godfrey Brook and adjacent jurisdictional wetlands as part of the Godfrey Brook Drainage Improvement Project in Milford, Massachusetts. The goal of this project is to increase the hydraulic capacity of the Godfrey Brook channel between West Street and Water Street in Milford, Massachusetts.

This project involves widening the existing waterway channel and installing a three-sided concrete channel within approximately **540** linear feet of the waterway. Approximately 8-inches of natural stream bed materials will be installed along the bottom of the proposed channel/box culvert. The Town proposes to bypass flows around phased construction areas so that in-stream work can be completed "in the dry" to the maximum extent.

As part of this project an existing 6-foot wide by 6-foot long slab crossing will be replaced with a 9-foot wide by 5-foot high box culvert. This project also involves the installation of four area drains and four stormwater catch basins in adjacent areas.

This work is described on the plan drawings entitled "GODFREY BROOK CAPACITY IMPROVEMENTS PROJECT- WEST STREET TO WATER STREET, TOWN OF MILFORD, MASSACHUSETTS, MILFORD HIGHWAY DEPARTMENT and the OFFICE of PLANNING and ENGINEERING," on a total of fourteen sheets, dated "SEPTEMBER 2024".

Based on the information that you have provided, we verify that the activity is authorized under General Permit **#2** (Maintenance) and **#23** (Linear Transportation Projects and Wetland /Stream Crossings) of the June 2, 2023, federal permit known as the General Permits for the Commonwealth of Massachusetts (GP MA). The GP MA is available at <https://www.nae.usace.army.mil/Missions/Regulatory/State-General-Permits/Massachusetts-General-Permit>.



Please review the GP MA carefully, in particular the general conditions beginning on page 35, and ensure that you and all personnel performing work authorized by the GP MA are fully aware of and comply with its terms and conditions. A copy of the GP MA and this verification letter shall be available at the work site as required by General Condition #17. You must perform this project in compliance with the terms and conditions of the GP MA and also with the following special conditions:

1. You must maintain the activity authorized herein in good condition and in conformance with the terms and conditions of this authorization. You are not relieved of this requirement if you abandon the permitted activity, although you may make a good faith transfer to a third party in compliance with General Condition #39 on page 50 of the GP MA. Should you wish to cease to maintain the authorized activity, or should you desire to abandon it without a good faith transfer, you must obtain a modification of this authorization from this office, which may require restoration of the area.

2. The Town of Milford (the permittee) must complete and return the enclosed Work Start Notification Form to this office at least two weeks prior to starting the authorized work.

3. All construction shall be completed in accordance with the limits of construction and the construction sequences detailed on the attached plan drawings, entitled "GODFREY BROOK CAPACITY IMPROVEMENTS PROJECT- WEST STREET TO WATER STREET, TOWN OF MILFORD, MASSACHUSETTS, MILFORD HIGHWAY DEPARTMENT and the OFFICE of PLANNING and ENGINEERING," on a total of fourteen sheets, dated "SEPTEMBER 2024". If you propose to change the plans or construction methods for work within Godfrey Brook or in adjacent wetlands, please contact us immediately to discuss modification of this authorization. The Corps must approve any changes before you undertake them.

4. This Corps permit does not authorize you to "take" a federally listed endangered or threatened species, in particular the northern long-eared bat (*Myotis septentrionalis*) or the tricolored bat (*Perimyotis subflavus*). See 16 USC 1532(13) and 16 USC 1532(19) for definitions of take, which include harassment and harm. See 50 CFR 17.3 which further define harassment and harm.

5. No tree-clearing operations shall be conducted during the time-period between June 1<sup>st</sup> and July 31<sup>st</sup> of any year, in order to avoid impacts to bat pup roosting habitat areas. However, if an appropriate project-specific survey demonstrates that bats are absent from the action area, this special condition would not apply. Please contact us if you would like to conduct a survey in accordance with the "Range-Wide Indiana Bat & Northern Long-Eared Bat Survey Guidelines."

6. NOTE: General Condition **#14(d)** of the GP MA requires that you contact the Corps immediately if any previously unknown historic, cultural, or archaeological remains or artifacts are discovered during the construction phase of this project so that impacts to these potential historical properties can be minimized.

7. Appropriate measures must be taken to maintain normal downriver flows and to minimize flooding to the maximum extent practicable, when temporary structures, work, and discharges, including cofferdams, are necessary for construction activities, access fills, or dewatering of construction sites. Temporary fills must be placed in a manner that will not be eroded by expected high flows. See General Condition **#22(f)** of the GP MA for more details.

8. All temporary construction fills and non-biodegradable sedimentation/erosion controls installed during the construction phase of this project shall be removed promptly after the completion of construction, in order to minimize the potential entrapment of wildlife. Any plastic construction debris shall be completely removed from this site. See General Condition **#25(e)** of the GP MA for more details.

9. The introduction, spread, or the increased risk of invasion of non-native invasive plant or animal species on the project site, into new or disturbed areas, or areas adjacent to the project site caused by the site work is prohibited and shall be managed appropriately. The Corps may require the Town to develop a DRAFT invasive species control plan (ISCP) if this becomes an issue. The DRAFT ISCP would need to be coordinated with the Corps for our approval prior to implementing it. See General Condition **#29** of the GP MA for more details.

10. Prior to being onsite, the contractor shall thoroughly inspect and remove seeds, plant material, soil, mud, insects, and other invertebrates on all equipment, including construction mats, to be used on the project site to prohibit the introduction of invasive organisms. At a minimum, the following shall be inspected and cleaned on terrestrial vehicles where applicable:

**Rubber Tired Vehicles** - Crevices in upper surface and panels, tires, rims, and fender wells, spare tire mounting area, bumpers, front, and rear quarter panels, around and behind grills, bottom of radiator vent openings, brake mechanisms, transmission, stabilizer bar, shock absorbers, front and rear axles, beds, suspension units, exhaust systems, light casings, and mirrors.

**Tracked Land Vehicles** - Crevices in upper surface and panels, top of axles and tensioners, support rollers, between rubber or gridded areas, beneath fenders, hatches, under casings, and grills.

**Interiors of All Vehicles** - Beneath seats, beneath floor mats, upholstery, beneath foot pedals, inside folds of gear shift cover.

11. Sediment to be removed shall be dewatered in place or within an on-site dewatering facility. This will allow the suspended sediment to settle and the filtered water to evaporate, percolate into the ground, or flow downstream in Godfrey Brook. The scheduling of sediment removal and dewatering operations shall be such that the capacity of the dewatering area is not exceeded under any circumstances.

12. Prior to transporting any sediment off-site for permanent disposal, the Town of Milford or their contractor will coordinate with the Corps the location(s) of the upland facilities where the excavated sediments will be permanently disposed.

13. Except where stated otherwise, reports, drawings, correspondence, and any other submittals required by this permit shall be marked with the words "Permit #**NAE-2024-1170**" and submitted via: a) MAIL: Massachusetts Section - Regulatory Division, Corps of Engineers, New England District, 696 Virginia Road, Concord, MA 01742-2751; b) EMAIL: [paul.j.sneeringer@usace.army.mil](mailto:paul.j.sneeringer@usace.army.mil) and [cenae-r@usace.army.mil](mailto:cenae-r@usace.army.mil); or c) FAX: (978) 318-8303. Documents which are not marked and addressed in this manner may not reach their intended destination and do not comply with the requirements of this permit. Requirements for immediate notification to the Corps shall be done by telephone to (978) 318-8338.

14. Within one month of completing the authorized construction associated with the Godfrey Brook Drainage Improvement Project, the Town of Milford shall fill out and return the enclosed Compliance Certification Form verifying that that this project was completed in compliance with all the terms and conditions of this GP MA authorization. As part of this submission, the Town shall provide the Corps with post-construction photos of the Godfrey Brook replacement channel areas.

15. Within six months of the completion of the Godfrey Brook Drainage Improvement Project, the Town of Milford shall forward a set of project plans and relevant technical documentation to the Risk Analysis Branch, Mitigation Division, Federal Emergency Management Agency ("FEMA"), Region 1, 220 Binney Street, Cambridge, Massachusetts 02142. This submission shall be made in a digital format, and provide a level of content detail, acceptable to FEMA Region 1 personnel. Such a submission is necessary so that upon confirmation of the recent physical changes affecting flooding conditions, risk premium rates and flood plain management requirements will be based upon current data.

16. If at any time, there is a project design change that may:

- a) result in any increase to the crossed waterway's National Flood Insurance Program ("NFIP") Base Flood Elevation ("BFE") profile;
- b) result in a greater than 0.5 foot decrease to the crossed waterway's NFIP BFE profile; or
- c) require an alteration to the waterway's existing NFIP Regulatory Floodway delineation.

The Town of Milford shall coordinate with the FEMA Region 1 Risk Analysis Branch personnel to determine if initiation of an NFIP flood insurance study change review process is warranted. If FEMA personnel determine that a change to the flood insurance study pertinent to the project may be required, the Town will submit all required information to FEMA and complete the applicable process. Once completed, the Town will provide written notice to the Corps regarding the outcome of this coordination process outcome.

This authorization presumes that the work as described above and as shown on your plans noted above is in waters of the U.S

This authorization expires on June 1, 2028. You must commence or be under contract to commence the work authorized herein by June 1, 2028, and complete the work by June 1, 2029. If not, you must contact this office to determine the need for further authorization and we recommend you contact us *before* the work authorized herein expires. Please contact us immediately if you change the plans or construction methods for work within our jurisdiction as we must approve any changes before you undertake them. Performing work within our jurisdiction that is not specifically authorized by this determination or failing to comply with the special conditions provided above and all the terms and conditions of the GP MA may subject you to the enforcement provisions of our regulations.

This authorization does not obviate the need to obtain other federal, state, or local authorizations required by law. Applicants are responsible for applying for and obtaining any other approvals.

We continually strive to improve our customer service. To better serve you, we would appreciate your completing our Customer Service Survey located at <https://regulatory.ops.usace.army.mil/customer-service-survey>.

Please contact Mr. Paul Sneeringer of my staff at (978) 318-8491 or at [paul.j.sneeringer@usace.army.mil](mailto:paul.j.sneeringer@usace.army.mil) if you have any questions about this authorization letter.

Sincerely,

*Paul Maniccia*

Paul Maniccia  
Chief, Massachusetts Section  
Regulatory Division

Enclosures

Copies Furnished:

Ed Reiner, U.S. EPA, Region 1, Boston, MA, [reiner.ed@epa.gov](mailto:reiner.ed@epa.gov)  
Joseph Bishop, U.S. EPA, Region 1, Boston, MA, [bishop.joseph@epa.gov](mailto:bishop.joseph@epa.gov)  
David Simmons, USFWS, New England Field Office, Concord, New Hampshire,  
[david\\_simmons@fws.gov](mailto:david_simmons@fws.gov)  
Judith Schmitz, Massachusetts DEP Central Regional Office, Wetlands and Waterways,  
Worcester, MA, [judith.schmitz@mass.gov](mailto:judith.schmitz@mass.gov) (DEP Wetlands File #223-1233)  
Kenneth Alepidis, Massachusetts DEP Boston Central Office, Water Quality, Boston,  
Massachusetts, [kenneth.alepidis@mass.gov](mailto:kenneth.alepidis@mass.gov)  
(WQC Transmittal # **24-WW26-0030-APP**)  
Kerry Bogdan, Federal Emergency Management Agency, Region 1, 220 Binney Street,  
Cambridge, Massachusetts 02142, [kerry.bogdan@fema.dhs.gov](mailto:kerry.bogdan@fema.dhs.gov)  
Mary Shanks, Federal Emergency Management Agency, Region 1, 220 Binney Street,  
Cambridge, Massachusetts 02142, [mary.shanks@fema.dhs.gov](mailto:mary.shanks@fema.dhs.gov)  
David Woodbury, Massachusetts Emergency Management Agency, 400 Worcester  
Road, Framingham, Massachusetts, [david.woodbury@mass.gov](mailto:david.woodbury@mass.gov)  
David Robinson, Massachusetts Board of Underwater Archaeological Resources  
(BUAR), Boston, Massachusetts, [david.s.robinson@mass.gov](mailto:david.s.robinson@mass.gov)  
Elizabeth Mainini, Milford Town Engineer & Conservation Commission Agent,  
Milford Town Hall, 52 Main Street, Milford, Massachusetts,  
[emainini@milfordma.gov](mailto:emainini@milfordma.gov)  
Robin Casioppo, GZA GeoEnvironmental, Inc., 1350 Main Street, Suite 1400,  
Springfield, Massachusetts, [robin.casioppo@gza.com](mailto:robin.casioppo@gza.com)  
Rosalie Starvish, GZA GeoEnvironmental, Inc., 1350 Main Street, Suite 1400,  
Springfield, Massachusetts, [rosalie.starvish@gza.com](mailto:rosalie.starvish@gza.com)

Permittee: [scrisafulli@townofmilford.com](mailto:scrisafulli@townofmilford.com)



US Army Corps  
of Engineers®  
New England District

## General Permits for the Commonwealth of Massachusetts

### WORK-START NOTIFICATION FORM (Minimum Notice: Two weeks before work begins)

EMAIL TO: [paul.j.sneeringer@usace.army.mil](mailto:paul.j.sneeringer@usace.army.mil) and [cenae-r-ma@usace.army.mil](mailto:cenae-r-ma@usace.army.mil); or

MAIL TO: **Paul Sneeringer**  
Regulatory Division  
U.S. Army Corps of Engineers, New England District  
696 Virginia Road  
Concord, Massachusetts 01742-2751

A GP MA verification from the U.S. Army Corps of Engineers, file #NAE-2024-01170 was issued to the Town of Milford (the permittee) on February 14, 2025. This permit authorized the Town of Milford to discharge dredged and/or fill material into approximately 3,671 square feet (0.08 acres) of waters of the United States, associated with Godfrey Brook and adjacent jurisdictional wetlands. The goal of this project is to increase the hydraulic capacity of the Godfrey Brook channel between West Street and Water Street in Milford, Massachusetts.

The project involves widening the existing waterway channel and installing a three-sided concrete channel within approximately 540 linear feet of the waterway. Approximately 8-inches of natural stream bed materials will be installed along the bottom of the proposed channel/box culvert. The Town proposes to bypass flows around phased construction areas so that in-stream work can be completed "in the dry" to the maximum extent.

As part of this project an existing 6-foot wide by 6-foot long slab crossing will be replaced with a 9-foot wide by 5-foot high box culvert. This project also involves the installation of four area drains and four stormwater catch basins in adjacent areas.

This work is described on the plan drawings entitled "GODFREY BROOK CAPACITY IMPROVEMENTS PROJECT- WEST STREET TO WATER STREET, TOWN OF MILFORD, MASSACHUSETTS, MILFORD HIGHWAY DEPARTMENT and the OFFICE of PLANNING and ENGINEERING," on a total of fourteen sheets, dated "SEPTEMBER 2024".

The people (e.g., contractor) listed below will do the work, and they understand the permit's conditions and limitations.

#### PLEASE PRINT OR TYPE

Name of Person/Firm: \_\_\_\_\_

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

Phone & email: ( ) \_\_\_\_\_ ( ) \_\_\_\_\_

Proposed Work Dates: Start: \_\_\_\_\_ Finish: \_\_\_\_\_

Permittee/Agent Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Printed Name: \_\_\_\_\_ Title: \_\_\_\_\_

Date Permit Issued: February 14, 2025 Date Permit Expires: June 1, 2028

**FOR USE BY THE CORPS OF ENGINEERS**

PM: Paul Sneeringer Submittals Required: Yes

Inspection Recommendation: Yes



US Army Corps  
of Engineers®  
New England District

### COMPLIANCE CERTIFICATION FORM

(Minimum Notice: Permittee must sign and return notification  
within one month of the completion of work.)

Permit Number: NAE-2024-1170

Project Manager: Paul Sneeringer

Name of Permittee: Town of Milford DPW – Godfrey Brook Drainage Improvement

Permit Issuance Date: February 14, 2024

Please sign this certification and return it to our office upon completion of the activity.

```

*****
* E-MAIL TO: cenae-r-ma@usace.army.mil; or *
* * * * *
* MAIL TO: Massachusetts Section *
* Regulatory Division *
* U.S. Army Corps of Engineers, New England District *
* 696 Virginia Road *
* Concord, MA 01742-2751 *
*****

```

Please note that your permitted activity is subject to a compliance inspection by an U.S. Army Corps of Engineers representative. If you fail to comply with this permit you are subject to permit suspension, modification, or revocation.

**I hereby certify that the work authorized by the above referenced permit was completed in accordance with the terms and conditions of the above referenced permit, and any required mitigation was completed in accordance with the permit conditions.**

\_\_\_\_\_  
Signature of Permittee

\_\_\_\_\_  
Date

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

\_\_\_\_\_  
Date of Work Completion

( ) \_\_\_\_\_  
Telephone Number

( ) \_\_\_\_\_  
Telephone Number



- GODFREY BROOK CAPACITY IMPROVEMENTS PROJECT -  
 WEST STREET TO WATER STREET  
 TOWN of MILFORD, MASSACHUSETTS  
 MILFORD HIGHWAY DEPARTMENT  
 and the  
 OFFICE of PLANNING and ENGINEERING

SCOTT J. CRISAFULLI  
 HIGHWAY SURVEYOR



ELIZABETH MAININI, P.E.  
 TOWN ENGINEER

SEPTEMBER, 2024

PROJECT FUNDING ASSISTANCE PROVIDED BY:

PRE-DISASTER MITIGATION GRANT PROGRAM (PDM)

"A Federal, State, and Local Partnership through the Federal Emergency Management Agency (FEMA)"

PDM GRANT NUMBER PDMC-PJ-01-MA-2019-004

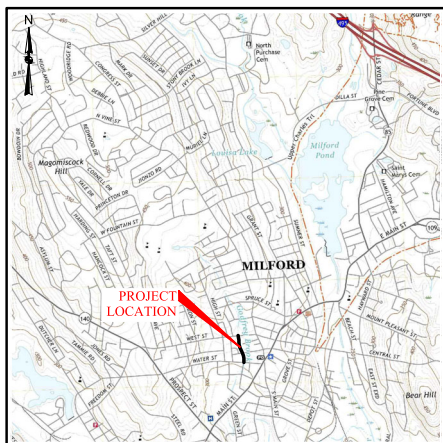
Commonwealth of Massachusetts  
 MAURA HEALEY, GOVERNOR

Massachusetts Emergency Management Agency  
 DAWN BRANTLEY, ACTING DIRECTOR

**PRELIMINARY DRAWINGS  
 TO ACCOMPANY THE UNITED STATES ARMY  
 CORPS OF ENGINEERS GENERAL PERMIT  
 PRE-CONSTRUCTION NOTIFICATION FILING**

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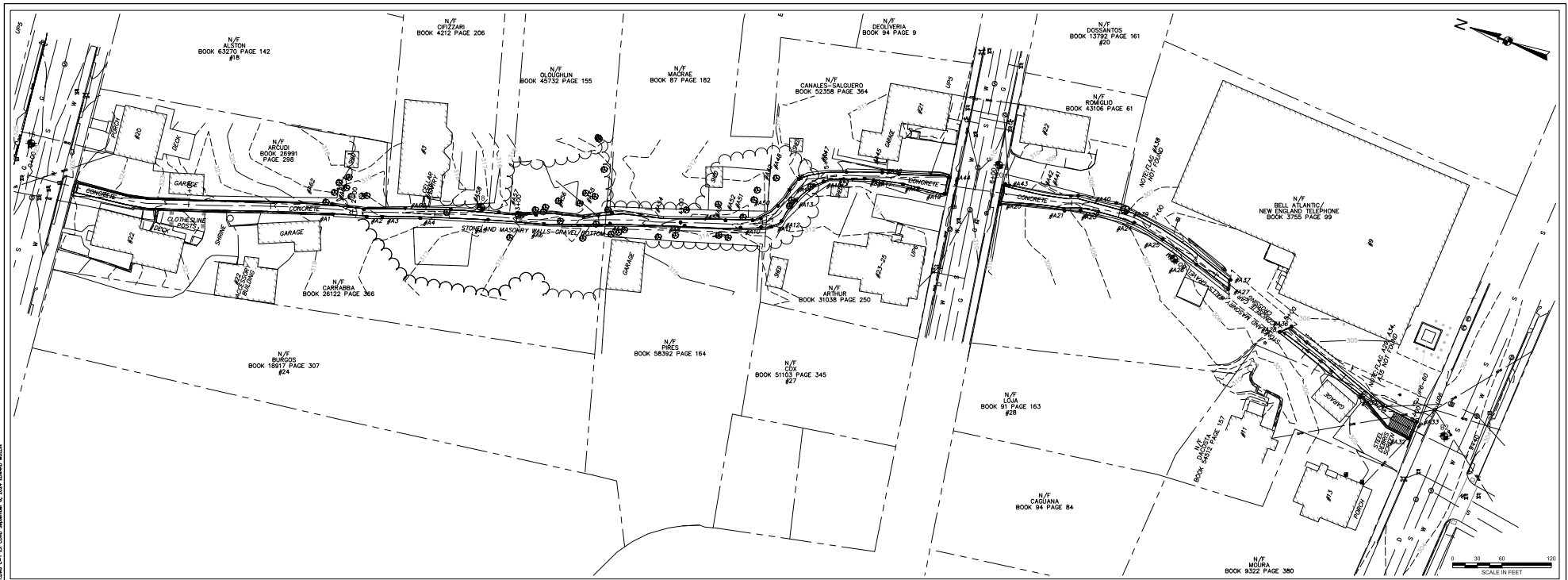
LOCUS PLAN  
 U.S.G.S., MILFORD QUAD 2021  
 1"=2,000'

PREPARED BY:



**GZA GeoEnvironmental, Inc.  
 Engineers and Scientists**  
 ONE FINANCIAL PLAZA  
 1350 Main Street, Suite 1400  
 Springfield, MA 01103  
 413-726-2100

DATE: 09/10/2024 BY: SCOTT J. CRISAFULLI, HIGHWAY SURVEYOR  
 CHECKED: 09/10/2024 BY: ELIZABETH MAININI, P.E., TOWN ENGINEER  
 DRAWN: 09/10/2024 BY: SCOTT J. CRISAFULLI, HIGHWAY SURVEYOR  
 PROJECT: GODFREY BROOK CAPACITY IMPROVEMENTS PROJECT, WEST STREET TO WATER STREET, MILFORD, MASSACHUSETTS



**EXISTING CONDITIONS**

**WEST STREET TO WATER STREET GENERAL NOTES**

1. BASE SURVEY FOR THIS PROJECT WAS PROVIDED BY GUERRIERE AND HALNON, INC., MILFORD, MASSACHUSETTS, DATED 01/19/22. HORIZONTAL DATUM IS MASS. COORD. NAD-83. VERTICAL DATUM IS NAVD 83. COMPLETE TOPOGRAPHICAL PLANS FROM THIS SURVEY WORK CAN BE OBTAINED FROM THE TOWN OF MILFORD.
2. THE ACCURACY AND COMPLETENESS OF UNDERGROUND AND OVERHEAD UTILITIES AS SHOWN ON THE PLANS ARE NOT GUARANTEED. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE EXACT LOCATION, SIZE, TYPE, ETC. OF ALL UTILITIES THAT MAY BE AFFECTED BY THE WORK OF THIS PROJECT.
3. ALL MATERIALS AND CONSTRUCTION METHODS AND DETAILS FOR THIS PROJECT SHALL CONFORM TO THE LATEST EDITION OF THE STANDARD SPECIFICATIONS FOR HIGHWAYS AND BRIDGES, MASSACHUSETTS HIGHWAY DEPARTMENT (MHD), AS AMENDED, REFERRED TO HEREIN AS THE "STANDARD SPECIFICATIONS".
4. THE CONTRACTOR MAY USE A CERTAIN PORTION OF THE VERIZON (BELL ATLANTIC) PROPERTY AT WATER STREET AS A STAGING AREA. THE CONTRACTOR SHALL REMOVE A PORTION OF THE FENCE FOR ACCESS FROM CHURCH STREET. AT THE END OF THIS PROJECT, THE CONTRACTOR SHALL REPLACE THE FENCE. REMOVE AND DISPOSE OF ALL INTERIOR FENCING AND OTHER INTERIOR IMPROVEMENTS AND SHALL SWEEP THE AREA CLEAN OF DUST AND DEBRIS AND RESTORE TO ORIGINAL CONDITION. ANY OTHER STAGING AREAS SHALL BE PROCEEDED BY THE CONTRACTOR AT THEIR OWN EXPENSE. ANY DAMAGE TO PRIVATE PROPERTY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
5. ALL PROPOSED CATCH BASIN AND DROP INLET FRAMES AND COVERS SHALL BE AS LEBARRON FOUNDRY, INC. MODEL NO. LF-248-2 OR EQUIVALENT. ALL PROP. CATCH BASINS SHALL BE AS SHOWN IN MHD (SD) 201.4.0 EXCEPT THAT THE SUMP SHALL BE 4'-0" DEEP. ALL CATCH BASINS SHALL BE EQUIPPED WITH HOODS AS PER MHD (SD) 201.12.0. ALL CATCH BASIN GRATES SHALL BE MARKED WITH LETTERING CAST INTO THE GRATE. "DUMP NO WASTE! DRAINS TO WATERWAYS".
6. ALL PROPOSED DRAINAGE STRUCTURES SHALL BE SUPPORTED WITH A 12" CRUSHED STONE (M2.01-1) FOUNDATION.
7. ALL REINFORCED CONCRETE PIPE USED ON THIS PROJECT SHALL BE CLASS IV, UNLESS OTHERWISE DESIGNATED ON THE PLANS.
8. ALL EXISTING DRAIN AND SANITARY SEWER LINES TO BE REPLACED SHALL BE ABANDONED IN PLACE AFTER REPLACEMENT. IF THEY CONFLICT WITH ANY PROPOSED WORK THEY SHALL BE REMOVED.
9. WHERE LINES OR STRUCTURES ARE ABANDONED IN PLACE, THE CONTRACTOR SHALL ENSURE THAT ALL CONNECTING PIPES, FITS, AND OUTLETS ARE DISJUGGED. ALL LIVE CONNECTIONS SHALL BE CONNECTED TO NEW WORK TO THE SATISFACTION OF THE ENGINEER.

10. CATCH BASIN, DROP INLET, AND MANHOLE FRAMES AND GRATES/COVERS SHALL CLEARLY ALIGN WITH THE OPENINGS IN THE PRECAST STRUCTURES.
11. ALL STRUCTURE STATIONS AND OFFSETS ARE TO THE CENTER POINT OF THE PROP. GRATE OR COVER.
12. NEW SIDEWALKS, WHEELCHAIR RAMPS, PRIVATE WALKS AND DRIVEWAYS SHALL BE CONSTRUCTED TO THE NEAREST SCORE LINE OR EXPANSION JOINT IN THE EXISTING ADJACENT SURFACES OR AS DIRECTED BY THE ENGINEER. PROPOSED CEMENT CONCRETE SIDEWALKS SHALL INCLUDE REMOVAL OF EXISTING SIDEWALK SURFACES.
13. ALL WHEELCHAIR RAMPS SHALL MEET THE LATEST REQUIREMENTS OF THE MASSACHUSETTS ARCHITECTURAL ACCESS BOARD AND THE LATEST STANDARDS OF THE MASSACHUSETTS DEPARTMENT OF TRANSPORTATION.
14. ALL DRIVEWAY REPAIRS SHALL BE "TYPICAL DRIVEWAYS" AS SHOWN IN THE DETAILS.
15. IN EXCAVATION AREAS, ALL TOPSOIL SHALL BE REMOVED TO A DEPTH OF 12" (MINIMUM) OR AS DIRECTED BY THE ENGINEER AND SHALL BE STOCKPILED FOR RESPREADING AFTER BACKFILLING IS COMPLETED.
16. MAILBOXES, FENCES, STREET SIGNS, LANDSCAPING FEATURES, ETC. THAT NEED TO BE REMOVED AND RESET OR RELOCATED SHALL BE DONE SO TO THE SATISFACTION OF THE ENGINEER. ALL ITEMS SHALL BE SET TO MHD STANDARDS. ELECTRIC DOG FENCES ENCOUNTERED DURING THE WORK SHALL BE PROTECTED OR RESTORED.
17. EXISTING STRUCTURES, INCLUDING BUILDINGS, ARE LOCATED PROXIMATE TO THE PROPOSED WORK. THE CONTRACTOR SHALL PROTECT ALL STRUCTURES TO REMAIN.
18. CONTRACTOR SHALL COMPLY IN ALL RESPECTS WITH ALL PERMITS ISSUED FOR THIS PROJECT.
19. SOME GODFREY BROOK FIELDSTONE WALLS HAVE BEEN REPLACED WITH CONCRETE WALLS.
20. IF ANY ARTIFACTS OR HUMAN REMAINS ARE FOUND DURING GROUND DISTURBING ACTIVITIES, THE CONTRACTOR SHALL CEASE WORK AND IMMEDIATELY NOTIFY THE ENGINEER.
21. ALL DISTURBED AREAS NOT OTHERWISE SURFACED SHALL RECEIVE 6" LOAM AND SEED AND BE ESTABLISHED AS LAWNS.

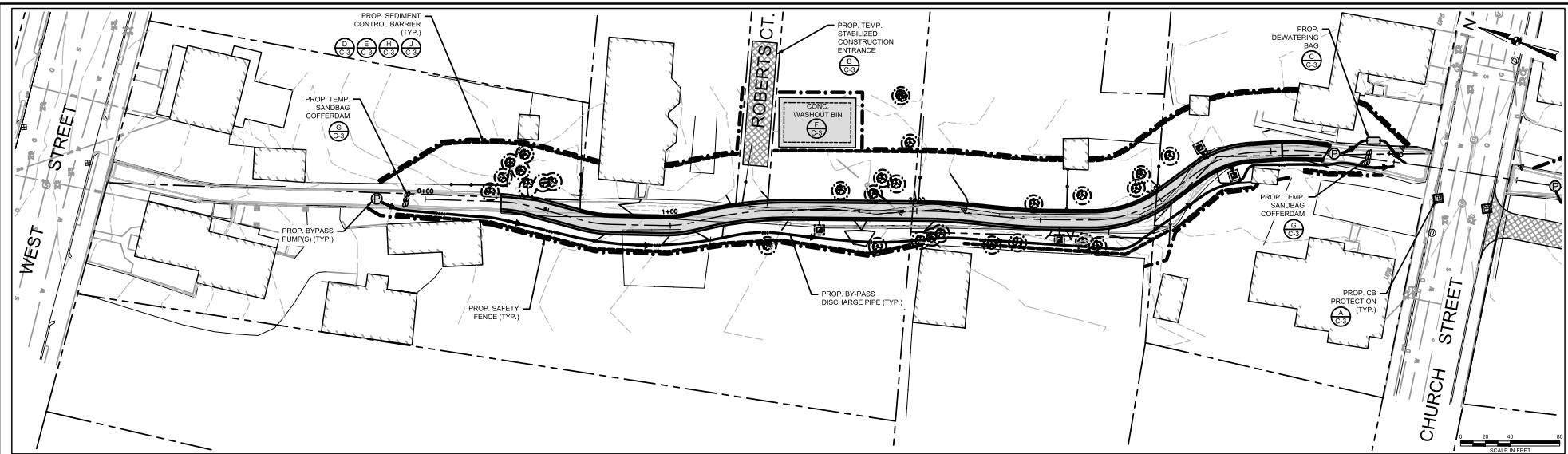
**LEGEND**

- PA20 EXISTING WETLAND FLAG
- BORING LOCATION
- EXISTING EDGE OF PAVEMENT
- EXISTING CURB
- EXISTING PROPERTY LINE
- 310 EXISTING 5 FT. CONTOUR
- 307 EXISTING 1 FT. CONTOUR
- EXISTING FENCE
- EXISTING GUARDRAIL
- EXISTING STORM DRAIN LINE
- EXISTING SANITARY SEWER LINE
- EXISTING GAS LINE
- EXISTING WATER LINE
- EXISTING OVERHEAD WIRES
- EXISTING TREE LINE
- EXISTING TREE
- EXISTING BOLLARD
- EXISTING CATCH BASIN
- EXISTING DRAIN MANHOLE
- EXISTING SANITARY MANHOLE
- EXISTING UTILITY POLE
- EXISTING HYDRANT
- EXISTING WATER SERVICE SHUT OFF
- EXISTING WATER GATE
- EXISTING GAS VALVE
- EXISTING CHANNEL CENTERLINE STATIONING

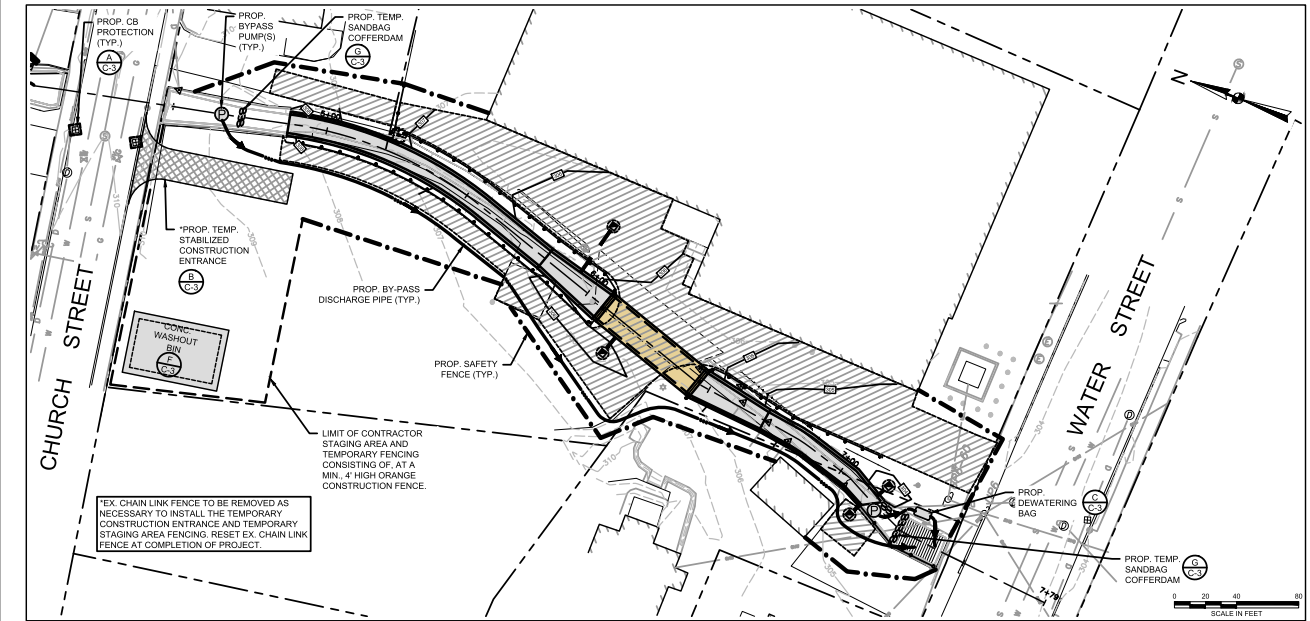
NO.	ISSUE/DESCRIPTION	BY	DATE
<b>GODFREY BROOK CAPACITY IMPROVEMENTS PROJECT MILFORD, MASSACHUSETTS</b>			
<b>EXISTING CONDITIONS PLAN (WEST STREET TO WATER STREET)</b>			
PREPARED BY: GZA GeoEnvironmental, Inc. www.gza.com	PREPARED FOR: MILFORD TOWN HALL 52 MAIN STREET MILFORD, MA 01757		
PROJECTOR: DESIGNED BY: DATE:	RTS RTS SEPTEMBER, 2024	CHECKED BY: SCALE:	JSA EDM AS NOTED REVISION NO.
			<b>C-1</b>

SHEET 15 OF 15  
 PROJECT: WEST STREET TO WATER STREET  
 DRAWN BY: JSA  
 CHECKED BY: EDM  
 DATE: SEPTEMBER 2024

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PROPOSED SITE PLAN  
(WEST STREET TO CHURCH STREET)

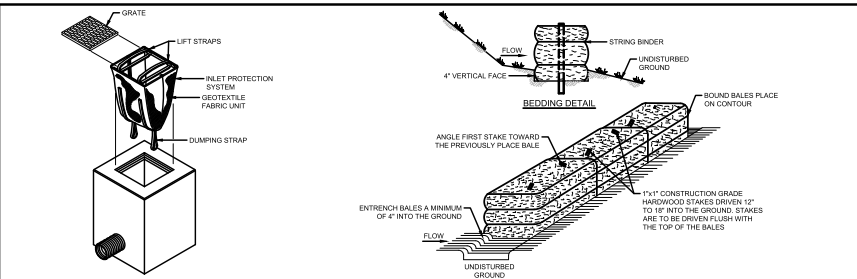


PROPOSED SITE PLAN  
(CHURCH STREET TO WATER STREET)

**SITE PLAN LEGEND**

	EXISTING WETLAND FLAG		PROPOSED CONTOUR
	EXISTING EDGE OF PAVEMENT		PROPOSED FENCE
	EXISTING CURB		PROPOSED GUARDRAIL
	EXISTING PROPERTY LINE		PROPOSED STORM DRAIN LINE
	EXISTING 5 FT. CONTOUR		PROPOSED CATCH BASIN
	EXISTING 1 FT. CONTOUR		PROPOSED AREA DRAIN
	EXISTING FENCE		PROPOSED CATCH-BASIN PROTECTION
	EXISTING GUARDRAIL		PROPOSED TREE PROTECTION
	EXISTING STORM DRAIN LINE		PROPOSED LIMIT OF WORK
	EXISTING SANITARY SEWER LINE		PROPOSED SEDIMENT CONTROL BARRIER
	EXISTING GAS LINE		PROPOSED BITUMINOUS CONCRETE PAVEMENT
	EXISTING WATER LINE		PROPOSED CHANNEL CENTERLINE STATIONING
	EXISTING OVERHEAD WIRES		
	EXISTING TREE LINE		
	EXISTING TREE		
	EXISTING BOLLARD		
	EXISTING CATCH BASIN		
	EXISTING DRAIN MANHOLE		
	EXISTING SANITARY MANHOLE		
	EXISTING UTILITY POLE		
	EXISTING HYDRANT		
	EXISTING WATER SERVICE SHUT OFF		
	EXISTING WATER GATE		
	EXISTING GAS VALVE		

NO.	ISSUE/DESCRIPTION	BY	DATE
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<b>GODFREY BROOK CAPACITY IMPROVEMENTS PROJECT</b> <b>MILFORD, MASSACHUSETTS</b>			
<b>PROPOSED SEDIMENT, EROSION AND WATER CONTROL PLAN</b>			
PREPARED BY: <b>G2A Geoenvironmental, Inc.</b> www.g2a.com	PREPARED FOR: <b>MILFORD TOWN HALL</b> 52 MAIN STREET MILFORD, MA 01757		
PROJECT: RTS DESIGNED BY: RTS DATE: SEPTEMBER, 2024	REVIEWED BY: JOA DRAWN BY: EDM PROJECT NO.: 15.0167038.00	CHECKED BY: ALL SCALE: AS NOTED REVISION NO.: -	<b>DRAWING</b> <b>C-2</b>



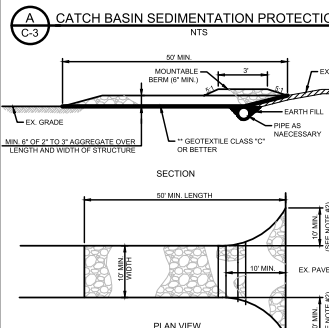
**INSTALLATION AND MAINTENANCE GUIDELINES**

**INSTALLATION:** REMOVE THE GRATE FROM CATCH BASIN. IF USING OPTIONAL OIL ABSORBENTS, PLACE ABSORBENT FLOW IN UNIT. STAND THE GRATE ON END MOVE THE TOP LIFTING STRAPS OUT OF THE WAY AND PLACE THE GRATE INTO THE GEOTEXTILE FABRIC UNIT SO THAT THE GRATE IS ABOVE THE TOP STRAPS AND ABOVE THE LOWER STRAPS. HOLDING THE LIFTING DEVICES, INSERT THE GRATE INTO THE INLET.

**MAINTENANCE:** REMOVE ALL ACCUMULATED SEDIMENT AND DEBRIS FROM VICINITY OF UNIT AFTER EACH STORM EVENT. AFTER EACH STORM EVENT AND AT REGULAR INTERVALS, LOOK INTO THE GEOTEXTILE FABRIC UNIT. IF THE CONTAMINATION AREA IS MORE THAN 10' LONG OF SEDIMENT, THE UNIT MUST BE EMPTIED. TO EMPTY UNIT, LIFT THE UNIT OUT OF THE INLET USING THE LIFTING STRAPS AND REMOVE THE GRATE. IF USING OPTIONAL OIL ABSORBENTS, REPLACE ABSORBENT WHEN NEAR SATURATION.

**CATCH BASIN SEDIMENTATION PROTECTION**

NTS



**STABILIZED CONSTRUCTION ENTRANCE SPECIFICATIONS**

- LENGTH - MINIMUM OF 50' (30' FOR SINGLE RESIDENCE LOT).
- WIDTH - 10' MINIMUM SHOULD BE FLARED AT THE EXISTING ROAD TO PROVIDE A TURNING RADIUS.
- GEOTEXTILE FABRIC (FILTER CLOTH) SHALL BE PLACED OVER THE EXISTING GROUND PRIOR TO PLACING STONE. THE PLAN APPROVAL AUTHORITY MAY NOT REQUIRE SINGLE FAMILY RESIDENCES TO USE GEOTEXTILE.
- STONE - CRUSHED AGGREGATE (2\"/>

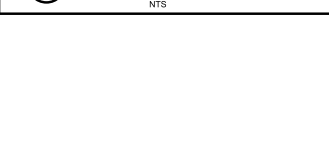


**DANDY DEWATERING BAG**

**INSTALLATION AND MAINTENANCE GUIDELINES**

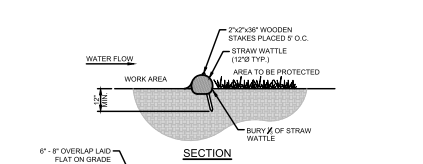
**INSTALLATION:** PLACE LIFTING STRAPS (NOT INCLUDED) UNDER THE UNIT TO FACILITATE REMOVAL AFTER USE. UNFOLD DANDY DEWATERING BAG ON A STABILIZED AREA OVER DENSE VEGETATION, STRAW, OR GRAVEL IF AN IMPROVED DRAINAGE SURFACE IS NEEDED. INSERT DISCHARGE HOSE FROM PUMP INTO DANDY DEWATERING BAG. MINIMUM OF SIX INCHES (6") AND TIGHTLY SECURE WITH THE ATTACHED STRAP TO PREVENT WATER FROM FLOWING OUT OF THE UNIT WITHOUT BEING FILTERED. IF USING OPTIONAL ABSORBENTS, PLACE ABSORBENT BOOM INTO THE DANDY DEWATERING BAG. CLIP ABSORBENT BOOM TO TETHER PROVIDED INSIDE THE UNIT.

**MAINTENANCE:** REPLACE THE UNIT WHEN 1/2 FULL OF SEDIMENT OR WHEN SEDIMENT HAS REDUCED THE FLOW RATE OF THE PUMP DISCHARGE TO AN IMPRACTICAL RATE. IF USING OPTIONAL OIL ABSORBENTS, REMOVE AND REPLACE ABSORBENT WHEN NEAR SATURATION.



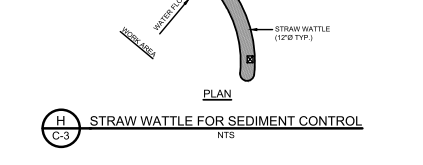
**STORMWATER PERMIT NOTES:**

1. THIS PROJECT IS NOT ANTICIPATED TO BE REGULATED UNDER THE U.S. EPA NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) STORMWATER PERMIT PROGRAM. OPERATORS OF CONSTRUCTION SITES WHICH DISTURB GREATER THAN OR EQUAL TO ONE ACRE OF LAND MUST MEET THE REQUIREMENTS OF EPA'S CONSTRUCTION GENERAL PERMIT (CGP). PART OF THE CGP REQUIREMENTS IS THE PREPARATION OF A STORMWATER POLLUTION PREVENTION PLAN (SWPPP) FOR THE PROJECT.



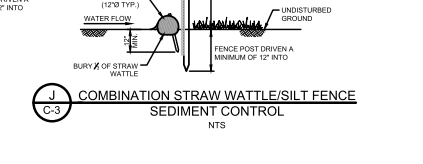
**STRAW WATTLE FOR SEDIMENT CONTROL**

NTS



**SILT FENCE**

NTS



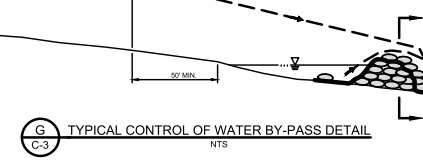
**COMBINATION STRAW WATTLE/SILT FENCE SEDIMENT CONTROL**

NTS



**CONCRETE WASHOUT BIN DETAIL**

NTS



**TYPICAL CONTROL OF WATER BY-PASS DETAIL**

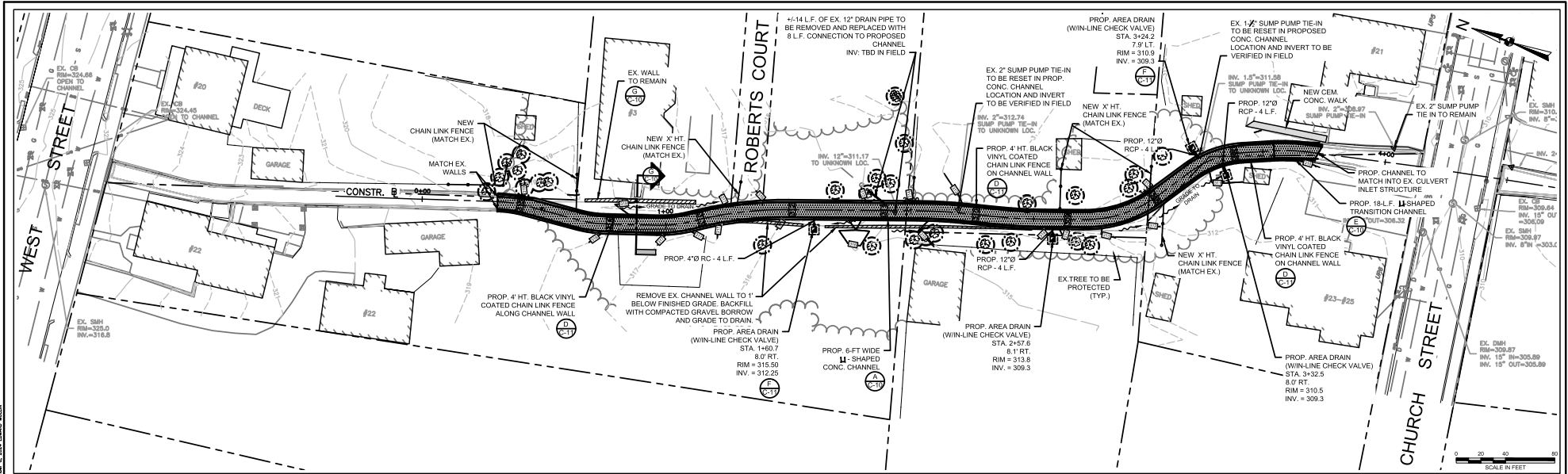
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**SEDIMENT AND EROSION CONTROL NOTES:**

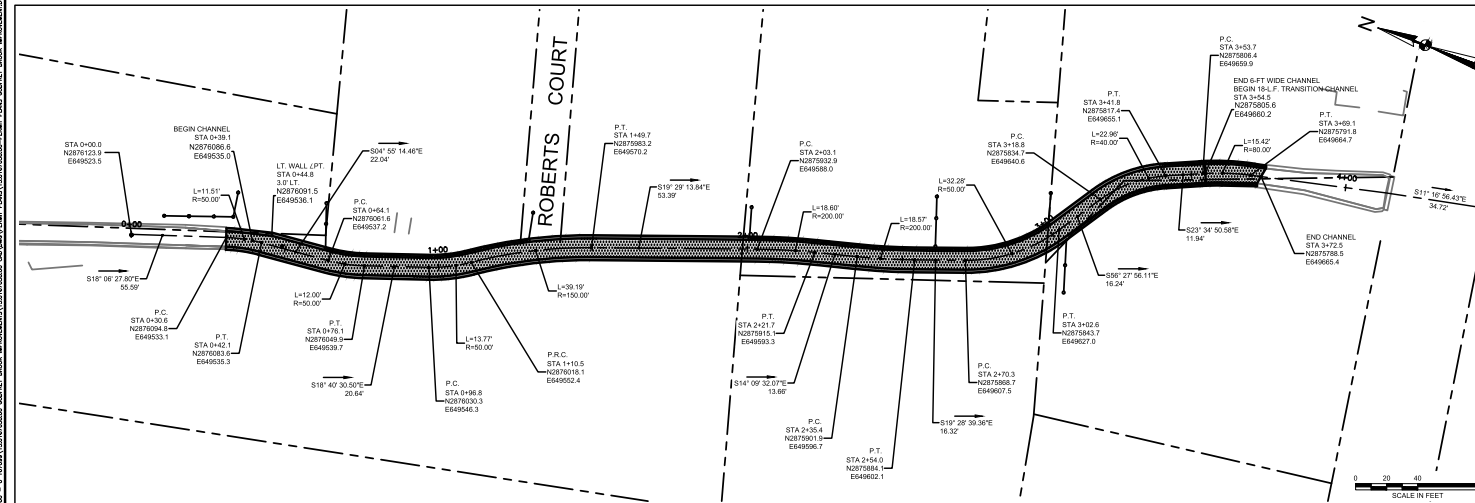
- SEDIMENT BARRIERS AND OTHER MEASURES INTENDED TO TRAP SEDIMENT SHALL BE CONSTRUCTED AS A FIRST STEP IN ANY LAND DISTURBING ACTIVITY AND SHALL BE MADE FUNCTIONAL BEFORE UPLAND LAND DISTURBANCE TAKES PLACE.
- THE CONTRACTOR SHALL CONSTRUCT ALL EROSION AND SEDIMENT CONTROL MEASURES PER THE SEDIMENT AND EROSION CONTROL (SEEC) PLAN AND STORMWATER POLLUTION PREVENTION PLAN (SWPPP) PRIOR TO BEGINNING ANY LAND DISTURBANCE FOR THAT PHASE OF THE WORK. SHALL ENSURE THAT ALL RUNOFF FROM DISTURBED AREAS IS DIRECTED TO THE SEDIMENT CONTROL DEVICES, AND SHALL NOT REMOVE ANY EROSION OR SEDIMENT CONTROL MEASURES UNTIL THE AREAS DRAINING TO THEM ARE FINAL STABILIZED. THE CONTRACTOR SHALL INSPECT DAILY AND MAINTAIN CONTINUOUSLY IN EFFECTIVE OPERATING CONDITION ALL EROSION AND SEDIMENT CONTROL MEASURES UNTIL SUCH TIME AS THEY ARE REMOVED. CONDUCT INSPECTIONS AND REPORTING IN ACCORDANCE WITH ALL PERMITS.
- ALL CATCH BASINS OR OTHER DRAIN INLETS WHICH MAY RECEIVE STORMWATER FROM DISTURBED AREAS SHALL BE PROVIDED WITH SUITABLE INLET PROTECTION CONSISTING OF AN OPEN-TOP FILTER FABRIC BAG THAT IS DESIGNED TO HANG UNDERNEATH A STORM GRATE TO FILTER SEDIMENT-LADEN STORMWATER. THE FILTER FABRIC BAGS SHALL BE INSPECTED WEEKLY AND AFTER EACH RAIN EVENT, AND CLEANED AND MAINTAINED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS. ADDITIONAL INLET PROTECTION MAY BE PROVIDED AS APPROPRIATE BY SURROUNDING THE CATCH BASIN WITH STRAWBALES.
- THE SEDIMENT AND EROSION CONTROL MEASURES AND BEST MANAGEMENT PRACTICES (BMPs) SHOWN ON THIS PLAN SHALL BE CONSIDERED AS MINIMUM REQUIREMENTS. IMMEDIATELY UPON DISCOVERING UNFORESEEN CIRCUMSTANCES POSING THE POTENTIAL FOR ACCELERATED EROSION AND/OR SEDIMENT POLLUTION, THE CONTRACTOR SHALL IMPLEMENT APPROPRIATE BMPs TO ELIMINATE THE POTENTIAL FOR ACCELERATED EROSION AND/OR SEDIMENT POLLUTION. THE CONTRACTOR SHALL INSTALL AND MAINTAIN, AT NO ADDITIONAL COST TO THE OWNER, ANY ADDITIONAL EROSION CONTROL MEASURES DEEMED NECESSARY FOR PERMIT COMPLIANCE BY THE CONTRACTOR, THE OWNER, AND/OR THEIR REPRESENTATIVES, OR BY FEDERAL/STATE/LOCAL GOVERNMENT INSPECTORS.
- ALL EROSION CONTROL MEASURES SHALL BE CONSTRUCTED AND MAINTAINED IN ACCORDANCE WITH APPLICABLE PUBLISHED STANDARDS AND SPECIFICATIONS AND THE MASSACHUSETTS EROSION AND SEDIMENT CONTROL GUIDELINES FOR URBAN AND SUBURBAN AREAS: A GUIDE FOR PLANNERS, DESIGNERS, AND MUNICIPAL OFFICIALS (MADEP, 2003).
- CONSTRUCTION ENTRANCE(S) SHALL BE INSTALLED CONCURRENTLY WITH THE INITIATION OF CLEARING AND GRUBBING OPERATIONS. THE CONTRACTOR SHALL PROTECT ALL POINTS OF CONSTRUCTION INGRESS AND EGRESS, INCLUDING AT STAGING AREAS, TO PREVENT THE DEPOSITION OF MATERIALS ONTO TRAVERSED PUBLIC THOROUGHFARES. ALL MATERIALS DEPOSITED ONTO PUBLIC THOROUGHFARES SHALL BE REMOVED IMMEDIATELY. ALL STAGING AREAS SHALL BE SURROUNDED BY SEDIMENT CONTROL BARRIER.
- THE CONTRACTOR SHALL BEGIN TO APPLY SOIL, SEED AND ANCHORED STRAW MULCH, OR OTHER APPROVED STABILIZATION MEASURES TO ALL DISTURBED AREAS IMMEDIATELY AFTER STRIPPING AND GRADING ACTIVITIES HAVE CEASED ON THAT AREA AND SHALL COMPLETE STABILIZATION ACTIVITIES WITHIN FOURTEEN (14) CALENDAR DAYS. MAINTENANCE SHALL BE PERFORMED TO ENSURE CONTINUED STABILIZATION. ACTIVE CONSTRUCTION AREAS, SUCH AS BORROW OR STOCKPILE AREAS, ROADWAY IMPROVEMENTS, AND AREAS WITHIN 50 FEET OF A BUILDING UNDER CONSTRUCTION MAY BE EXEMPTED FROM THIS REQUIREMENT, PROVIDED THAT OTHER APPROPRIATE SEDIMENT AND EROSION CONTROL MEASURES ARE INSTALLED AND MAINTAINED TO PROTECT AND PROVIDE SEDIMENT CONTROL FROM THOSE AREAS.
- ALL SEDIMENT BASINS, TRAP EMBANKMENTS, SWALES, PERIMETER DIKES, AND PERMANENT SLOPES STEEPER OR EQUAL TO 3:1 SHALL BE STABILIZED WITH SOIL, SEED AND ANCHORED STRAW MULCH, OR OTHER APPROVED STABILIZATION MEASURES, WITHIN SEVEN (7) CALENDAR DAYS OF ESTABLISHMENT. NO AREAS OUTSIDE OF THE PERIMETER SEDIMENT CONTROL BARRIER OR LIMIT OF WORK SHALL BE DISTURBED.
- ALL STOCKPILES SHALL BE SURROUNDED BY SEDIMENT CONTROL BARRIER, STOCKPILES WHICH WILL NOT BE USED FOR A PERIOD OF FOURTEEN (14) OR MORE CALENDAR DAYS SHALL BE COVERED, STABILIZED THROUGH THE APPLICATION OR SOIL, SEED, AND ANCHORED STRAW MULCH, COVERS, OR OTHER APPROVED STABILIZATION MEASURES.
- EFFLUENT FROM DEWATERING OPERATIONS AND LINE FLUSHING DISCHARGES SHALL BE DIRECTED ONTO FIBER MATS, STONE/PPRIP, NETTING, OR NATURALLY OCCURRING COVER TO MINIMIZE EROSION. EFFLUENT FROM DEWATERING OPERATIONS SHALL BE PUMPED TO SEDIMENT TANKS, GEOTEXTILE SEDIMENT BAGS, SEDIMENT TRAPS, OR OTHER APPROVED SEDIMENT REMOVAL CONTROL MEASURE FOR SEDIMENT REMOVAL. DEWATERING SHALL BE PERFORMED IN ACCORDANCE WITH THE MASSACHUSETTS EROSION AND SEDIMENT CONTROL GUIDELINES FOR URBAN AND SUBURBAN AREAS: A GUIDE FOR PLANNERS, DESIGNERS, AND MUNICIPAL OFFICIALS (MADEP, 2003) AND IN A MANNER THAT DOES NOT ADVERSELY AFFECT AREAS OUTSIDE OF THE LIMIT OF WORK.
- SEDIMENT TRAPPING/FILTERING BMPs SHALL BE CLEANED OUT WHEN THE SEDIMENT ACCUMULATES TO ONE HALF THE HEIGHT OF THE BMP, AT A MINIMUM.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE CONTROL OF DUST AND DIRT RISING AND SCATTERING IN THE AIR DURING CONSTRUCTION AND SHALL PROVIDE WATER SPRINKLING, CALCIUM CHLORIDE, AND/OR OTHER EFFECTIVE MEANS OF CONTROL.
- ALL WASTE MATERIALS GENERATED AT THE SITE SHALL BE IMMEDIATELY REMOVED AND DISPOSED OF IN A SECURELY COVERED CONTAINER IN ACCORDANCE WITH PROJECT PERMITS AND LOCAL AND STATE REGULATIONS. CONTAINER SHALL BE EMPTIED ON A REGULAR BASIS AND AS NEEDED. NO CONSTRUCTION WASTE OR DEBRIS SHALL BE BURIED ON-SITE.
- PRIOR TO REMOVAL OF SEDIMENT CONTROL MEASURES, THE CONTRACTOR SHALL STABILIZE ALL CONTRIBUTORY DISTURBED AREAS USING SOIL OR AN APPROVED PERMANENT SEED MIXTURE WITH REQUIRED SOIL AMENDMENTS AND AN APPROVED ANCHORED MULCH AREAS BROUGHT TO FINISHED GRADE DURING THE SEEDING SEASON SHALL BE PERMANENTLY STABILIZED WITHIN FOURTEEN (14) CALENDAR DAYS OF COMPLETION OF WORK. AREAS BROUGHT TO GRADE DURING THE MONTHS WHEN PERMANENT STABILIZATION IS FOUND TO BE IMPRACTICAL SHALL BE STABILIZED WITH AN APPROVED TEMPORARY SEED AND ANCHORED MULCH OR OTHER ACCEPTABLE MEANS AND PERMANENTLY STABILIZED DURING THE SEEDING SEASON.
- TEMPORARY SEDIMENT CONTROL DEVICES SHALL BE REMOVED WITHIN THIRTY (30) CALENDAR DAYS FOLLOWING ESTABLISHMENT OF PERMANENT STABILIZATION IN ALL CONTRIBUTORY DRAINAGE AREAS. STORMWATER MANAGEMENT STRUCTURES USED TEMPORARILY FOR SEDIMENT CONTROL SHALL BE CLEANED AND CONVERTED TO THEIR PERMANENT CONFIGURATION WITHIN THIS TIME PERIOD AS WELL. ALL STORM DRAINAGE STRUCTURES, SLUMPS, AND PIPES SHALL BE CLEANED OF ALL SEDIMENTS PRIOR TO FINAL PAYMENT. SEDIMENT CONTROL BARRIER MAY CONSIST OF STRAWBALE SILT BARRIER, SILT FENCE, OR COMPOST FILTER TUBE, OR EQUAL.

NO.	ISSUE/DESCRIPTION	BY	DATE
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<p><b>GODFREY BROOK CAPACITY IMPROVEMENTS PROJECT</b> MILFORD, MASSACHUSETTS</p>			
<p>SEDIMENT, EROSION AND WATER CONTROL PLAN NOTES AND DETAILS</p>			
<p>PREPARED BY: GZA GeoEnvironmental, Inc. www.gza.com</p>	<p>PREPARED FOR: MILFORD TOWN HALL 52 MAIN STREET MILFORD, MA 01757</p>	<p>DATE: SEPTEMBER, 2024</p>	
<p>DESIGNED BY: RTS DRAWN BY: ESM PROJECT NO.: 15-0167038.00</p>	<p>CHECKED BY: JLL SCALE: NTS REVISION NO.: -</p>	<p>DATE: 15-0167038.00</p>	





GODFREY BROOK PROPOSED SITE PLAN  
(WEST STREET TO CHURCH STREET)



GODFREY BROOK PROPOSED CHANNEL LAYOUT PLAN  
(WEST STREET TO CHURCH STREET)

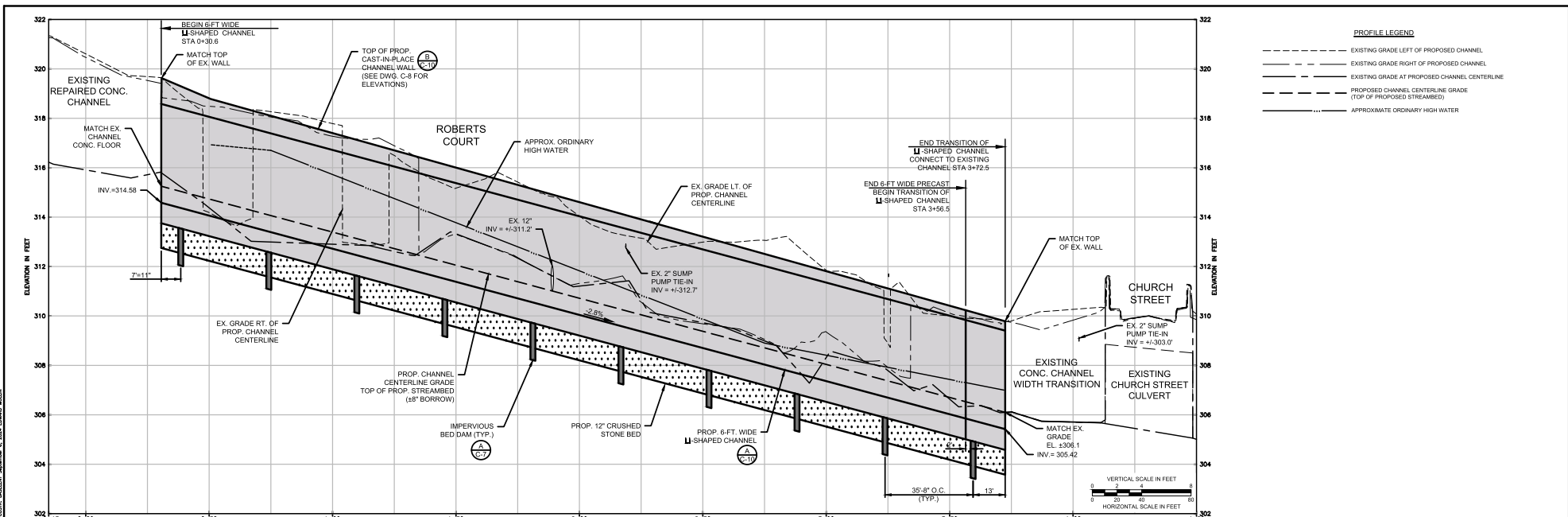
**SITE PLAN LEGEND**

---	EXISTING EDGE OF PAVEMENT	⊗	EXISTING CATCH BASIN
---	EXISTING CURB	⊗	EXISTING DRAIN MANHOLE
---	EXISTING PROPERTY LINE	⊗	EXISTING SANITARY MANHOLE
---	EXISTING 5 FT. CONTOUR	⊗	EXISTING UTILITY POLE
---	EXISTING 1 FT. CONTOUR	⊗	EXISTING HYDRANT
---	EXISTING FENCE	⊗	EXISTING WATER SERVICE SHUT OFF
---	EXISTING FENCE TO BE REMOVED AND REPLACED	⊗	EXISTING WATER GATE
---	EXISTING GUARDRAIL	⊗	EXISTING GAS VALVE
---	EXISTING STORM DRAIN LINE	⊗	PROPOSED CONTOUR
---	EXISTING SANITARY SEWER LINE	⊗	PROPOSED FENCE
---	EXISTING GAS LINE	⊗	PROPOSED GUARDRAIL
---	EXISTING WATER LINE	⊗	PROPOSED STORM DRAIN LINE
---	EXISTING OVERHEAD WIRES	⊗	PROPOSED AREA DRAIN
---	EXISTING TREE LINE	⊗	GRADE TO DRAIN
---	EXISTING TREE	⊗	EXISTING TREE PROTECTION
---	EXISTING BOLLARD	⊗	PROPOSED STREAMBED MATERIAL

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<p><b>GODFREY BROOK CAPACITY IMPROVEMENTS PROJECT</b> MILFORD, MASSACHUSETTS</p>			
<p>PROPOSED SITE PLAN AND PROPOSED CHANNEL LAYOUT PLAN (WEST STREET TO CHURCH STREET)</p>			
<p>PREPARED BY: GZA www.gza.com</p>	<p>PREPARED FOR: MILFORD TOWN HALL 52 MAIN STREET MILFORD, MA 01757</p>	<p>DRAWING NO. <b>C-5</b></p>	
<p>DESIGNED BY: RTS DATE: SEPTEMBER, 2024</p>	<p>REVIEWED BY: JDA DESIGN: ESM DRAWN BY: ESM REVISION NO.: -</p>	<p>CHECKED BY: JLL SCALE: AS NOTED</p>	<p>DATE: 15.016/038.00</p>

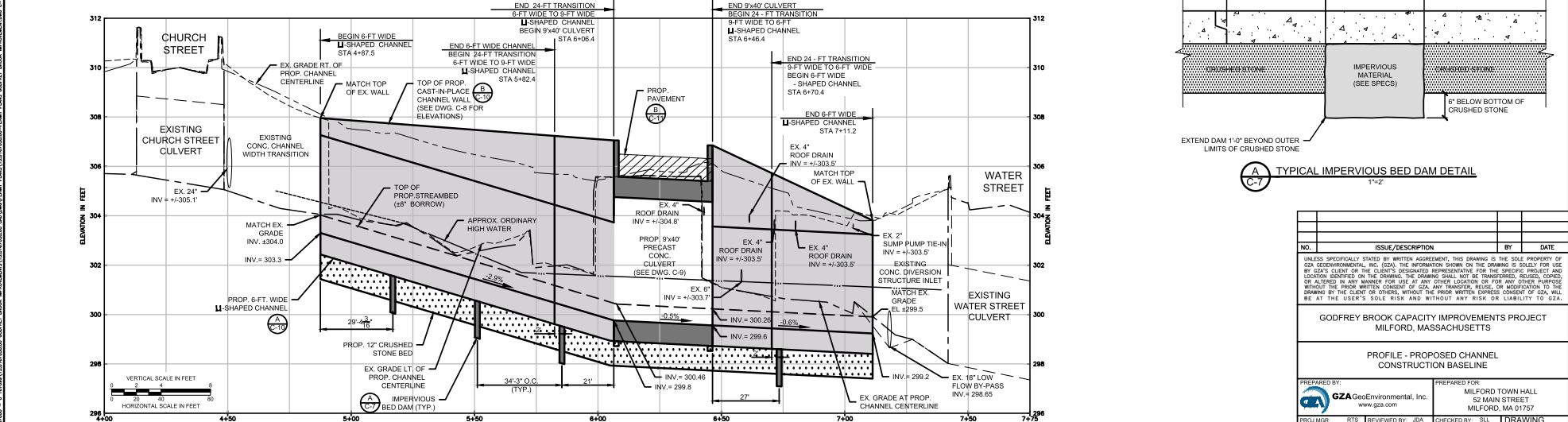
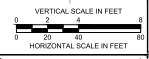
G:\Projects\2024\09\24\GODFREY BROOK CAPACITY IMPROVEMENTS PROJECT\DRAWING\GODFREY BROOK CAPACITY IMPROVEMENTS PROJECT - CHANNEL LAYOUT - September 6, 2024 (DWG)



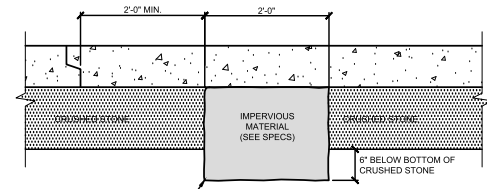


PROFILE - GODFREY BROOK PROPOSED CHANNEL CONSTRUCTION BASELINE  
(WEST STREET TO CHURCH STREET)

- PROFILE LEGEND**
- EXISTING GRADE LEFT OF PROPOSED CHANNEL
  - EXISTING GRADE RIGHT OF PROPOSED CHANNEL
  - EXISTING GRADE AT PROPOSED CHANNEL CENTERLINE
  - PROPOSED CHANNEL CENTERLINE GRADE (TOP OF PROPOSED STREAMBED)
  - APPROXIMATE ORDINARY HIGH WATER



PROFILE - GODFREY BROOK PROPOSED CHANNEL CONSTRUCTION BASELINE  
(CHURCH STREET TO WATER STREET)

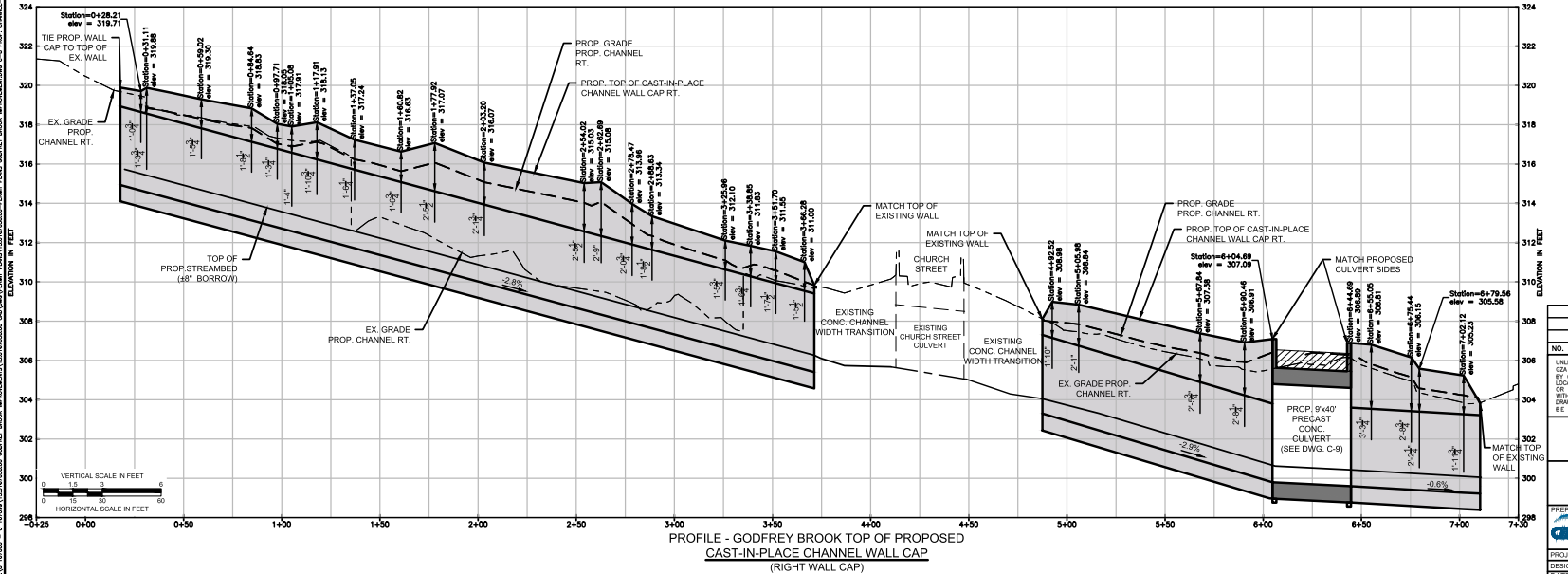
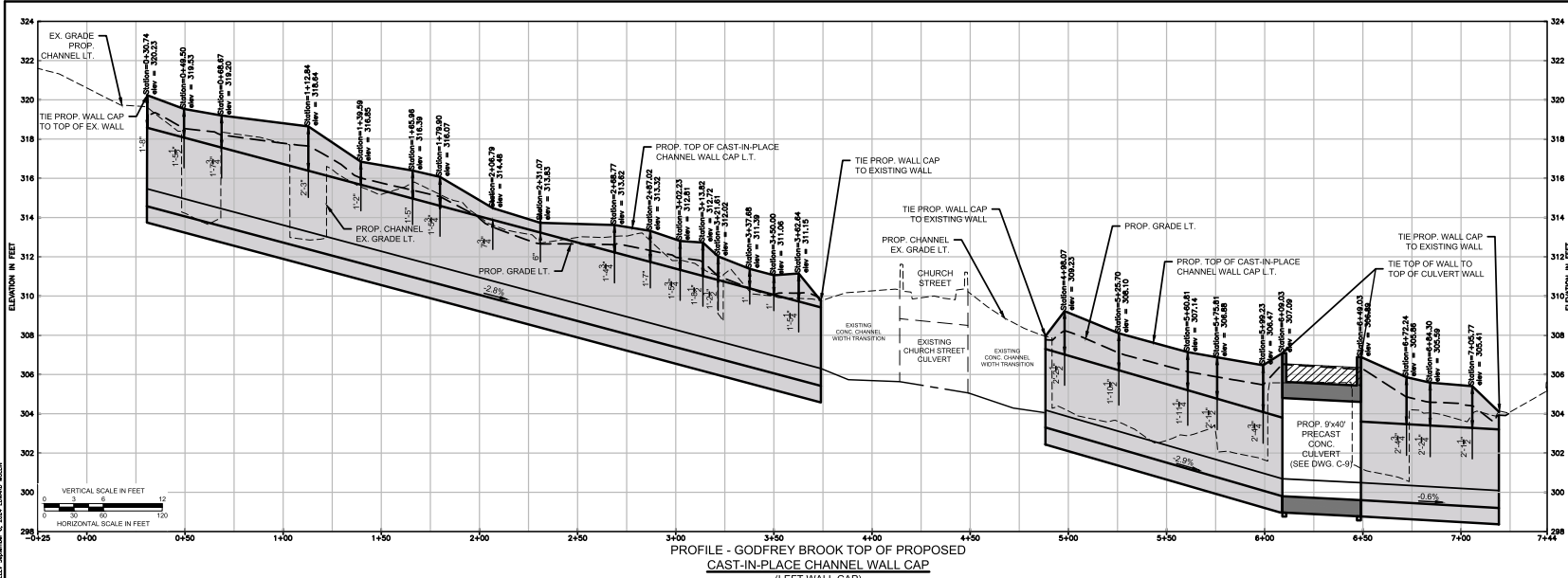


TYPICAL IMPERVIOUS BED DAM DETAIL

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<b>GODFREY BROOK CAPACITY IMPROVEMENTS PROJECT MILFORD, MASSACHUSETTS</b>			
<b>PROFILE - PROPOSED CHANNEL CONSTRUCTION BASELINE</b>			
PREPARED BY: GZA GeoEnvironmental, Inc. www.gza.com	PREPARED FOR: MILFORD TOWN HALL 52 MAIN STREET MILFORD, MA 01757	DRAWING NO. <b>C-7</b>	
PROJECT MANAGER: RTS	DESIGNED BY: RTS	CHECKED BY: RTS	SCALE: AS NOTED
DATE: SEPTEMBER, 2024	DRAWN BY: ESM	REVISION NO.:	

15.0167038.00 - GODFREY BROOK CAPACITY IMPROVEMENTS PROJECT - CHANNEL CENTERLINE CONSTRUCTION BASELINE - 2024 - 15.0167038.00





**PROFILE LEGEND**

- - - - - EXISTING GRADE LEFT OF PROPOSED CHANNEL
- - - - - EXISTING GRADE RIGHT OF PROPOSED CHANNEL
- - - - - EXISTING GRADE AT PROPOSED CHANNEL CENTERLINE
- - - - - PROPOSED CHANNEL CENTERLINE GRADE (TOP OF PROPOSED STREAMBED)

NO.	ISSUE/DESCRIPTION	BY	DATE

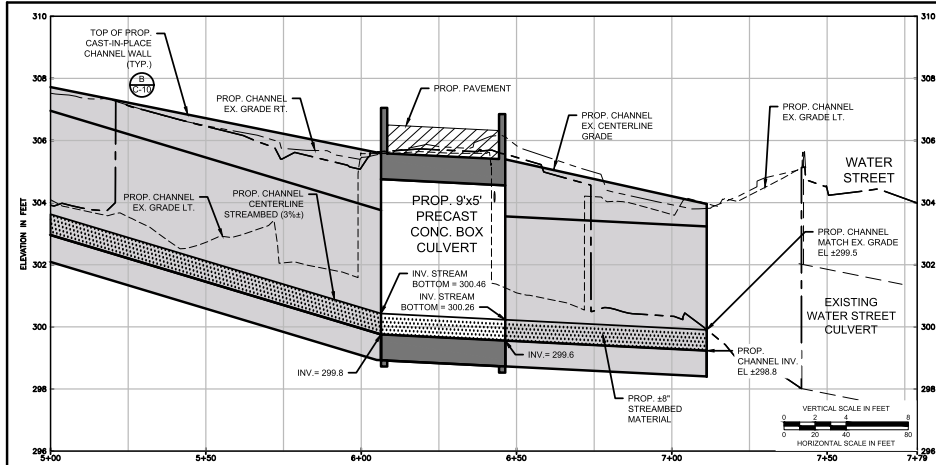
**GODFREY BROOK CAPACITY IMPROVEMENTS PROJECT  
MILFORD, MASSACHUSETTS**

**PROFILE - TOP OF PROPOSED CAST-IN-PLACE CHANNEL WALL CAP**

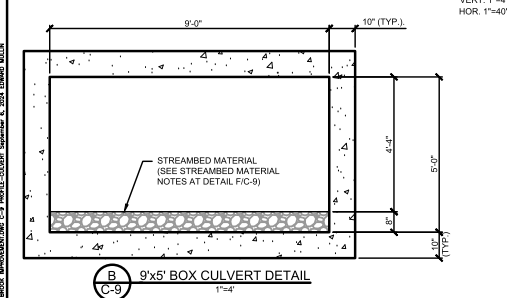
PREPARED BY: GZA GeoEnvironmental, Inc. www.gza.com	PREPARED FOR: MILFORD TOWN HALL 52 MAIN STREET MILFORD, MA 01757
DESIGNED BY: RTS	CHECKED BY: JEA
DRAWN BY: EDW	SCALE: AS NOTED
DATE: SEPTEMBER, 2024	PROJECT NO.: 15-0167038.00

**C-8**

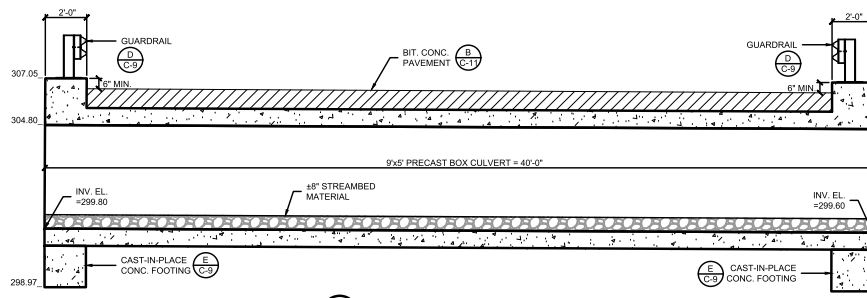
SCALE: 1"=40'-0" (VERTICAL); 1"=100'-0" (HORIZONTAL); PROFILES: 1"=40'-0" (VERTICAL); 1"=100'-0" (HORIZONTAL); CHANNEL WALL CAP: 1"=40'-0" (VERTICAL); 1"=100'-0" (HORIZONTAL)



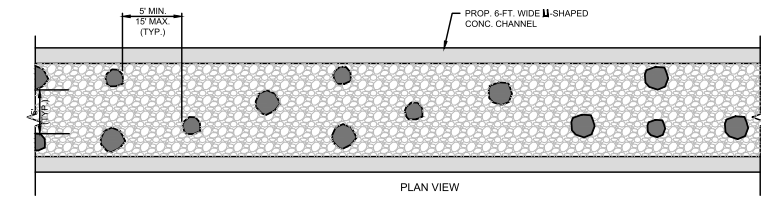
PROFILE-PROPOSED CENTERLINE GODFREY BROOK CULVERT



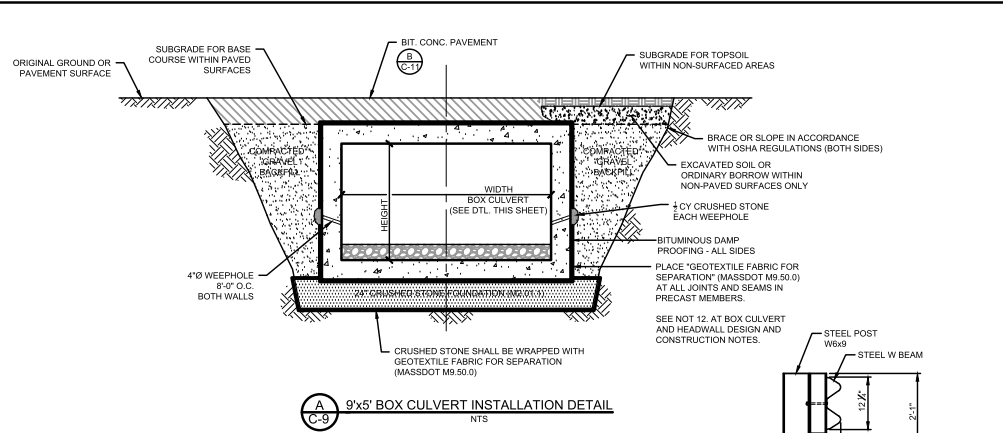
9'x5' BOX CULVERT DETAIL



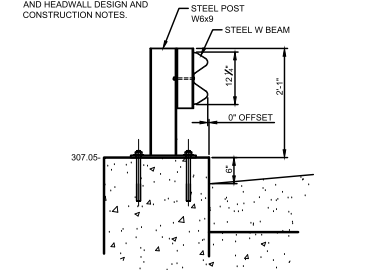
9'x5' BOX CULVERT PROJECTED SECTION



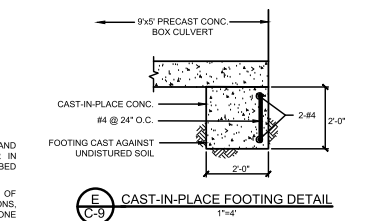
PROPOSED STREAMBED MATERIAL PLACEMENT



9'x5' BOX CULVERT INSTALLATION DETAIL



GUARDRAIL MOUNTING DETAIL AT HEADWALL



CAST-IN-PLACE FOOTING DETAIL

- BOX CULVERT AND HEADWALL DESIGN AND CONSTRUCTION.**
- SECTION DIMENSIONS, MATERIALS, AND REINFORCEMENT DETAILS FOR BOX CULVERT AND ASSOCIATED HEADWALLS SHALL BE ACCORDING TO THE REQUIREMENTS FOR ASTM C1037.
  - THE CONTRACTOR MAY PROPOSE TO FURNISH THE END SECTIONS USING PRECAST CONSTRUCTION METHODS AND THE END SECTIONS MAY CONSIST OF MULTIPLE PRECAST CONCRETE SEGMENTS.
  - ALTERNATIVELY, THE CONTRACTOR MAY PROPOSE USING CAST-IN-PLACE (CIP) CONSTRUCTION METHODS.
  - THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING ALL DETAILS ASSOCIATED WITH THE PRECAST OR THE CIP OPTION INCLUDING ANY STRENGTHENING OR STIFFENING PROVISIONS NECESSARY FOR HANDLING THE PRECAST SEGMENTS.
  - FOR EITHER CONSTRUCTION METHOD, CONCEPTUAL DETAILS FOLLOWED BY SHOP DRAWINGS AND DESIGN CALCULATIONS SEALED BY A MASSACHUSETTS LICENSED STRUCTURAL ENGINEER SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW.
  - EACH ELEMENT OF THE PRECAST OR CIP OPTION SHALL AT A MINIMUM RESULT IN THE SAME HEADWALL GEOMETRY AND NOT HAVE A THICKNESS LESS THAN THAT DETAILED HEREIN.
  - THE OPTION TO CONSTRUCT THE END SECTIONS USING PRECAST OR CIP CONSTRUCTION METHODS SHALL BE AT NO ADDITIONAL CHARGE.
  - FINAL DESIGN OF THE BOX CULVERT AND ASSOCIATED HEADWALL STRUCTURES SHALL ASSUME A SOIL BEARING CAPACITY OF 2,000 PSF. PRIOR TO INITIATING ANY SHOP DRAWINGS FOR THESE ITEMS, THE CONTRACTOR SHALL CONDUCT A TEST PIT TO THE SUBGRADE ELEVATION OF THE BOX CULVERT WHICH SHALL BE WITNESSED BY THE ENGINEER. THE TEST PIT WILL BE USED TO DETERMINE THE BEARING CAPACITY PRIOR TO THE CONTRACTOR'S PREPARATION OF FINAL DESIGN AND SHOP DRAWINGS FOR SUBMITTAL PURPOSES.
  - DESIGN FOR GUARDRAILS MOUNTED ON TOP OF HEADWALLS AND SIDEWALLS. LOCAL WALL STABILITY (OVERTURNING, SLIDING, AND BEARING PRESSURES) AND THE STEM DESIGN SHALL ACCOMMODATE VERTICAL COLLISION LOADS IN ACCORDANCE WITH THE MASSDOT 2013 LRFD BRIDGE MANUAL, SECTION 3.3.2.4. HEADWALLS AT CULVERT END SECTIONS SHALL BE CAST MONOLITHICALLY WITH THE CULVERT END SECTION. REFER TO GUARDRAIL DETAILS ON DWG. C-9.
- PRECAST DESIGN NOTES:**
- CONCRETE MINIMUM STRENGTH = 5000 PSI @ 28 DAYS
  - STEEL REINFORCEMENT - ASTM A615, GRADE 60
  - WHEEL LOADING - AASHTO H20-44 + IMPACT
  - COVER TO STEEL - 1.5 INCHES MINIMUM
  - EARTH COVER - VARIES
  - UNIT WEIGHT OF EARTH - 135 POUNDS PER CUBIC FOOT
  - ACTIVE PRESSURE COEFFICIENT - 0.25 MIN., 0.5 MAX.
- CAST-IN-PLACE NOTES:**
- CONCRETE MINIMUM STRENGTH = 4,000 PS @ 28 DAYS
  - STEEL REINFORCEMENT - ASTM A615, GRADE 60, EPOXY COATED.
  - ALL SURFACES VISIBLE WHEN COMPLETED SHALL HAVE RUBBED FINISH.
  - 1 1/4\"/>
- JOINTS BETWEEN PRECAST SECTIONS SHALL BE TONGUE & GROOVE WITH JOINT SEALANT. GEOTEXTILE FABRIC FOR SEPARATION (MASSDOT M9.50.0) SHALL BE PLACED AT ALL JOINTS BETWEEN PRECAST BOX SECTIONS, HEADWALLS, FOOTINGS, ETC. FABRIC SHALL BE MINIMUM WIDTH OF 2'0\", CENTERED ON THE JOINT, AND ALL FABRIC SPLICES SHALL INCLUDE A MINIMUM 2'0\"/>**

- STREAMBED MATERIAL NOTES:**
- THE STREAMBED MATERIAL SHALL BE OF NATURAL ORIGIN AND CONSIST OF ANGULAR TO SUB-ROUNDED STONES, SIMILAR IN APPEARANCE AND TEXTURE TO THE EXISTING STREAM BED MATERIAL IN THE PROJECT AREA.
  - THE STREAMBED MATERIAL SHALL BE SUBSTANTIALLY FREE OF SHALE, PRODUCTS FROM CRUSHING OR BLASTING OPERATIONS, ORGANIC MATERIALS, AND DEBRIS. STONES GREATER THAN ONE INCH IN DIAMETER SHALL BE GENERALLY FREE OF FRACTURED FACES OR ANY DIMENSIONS THAT ARE LARGER THAN THE MAXIMUM SIZE STATED IN THE STREAMBED MATERIAL GRADATION REQUIREMENTS.
  - MATERIALS SALVAGED FROM THE PROJECT SITE THAT MEET THE REQUIREMENTS OF STREAMBED MATERIAL MAY BE USED IF OBTAINED FROM WITHIN THE LIMIT OF WORK AND AS APPROVED BY THE ENGINEER.
- STREAMBED MATERIAL GRADATION:**
- STONE SHALL MEET THE FOLLOWING GRADATION:
- |      | MIN. | MAX. |
|------|------|------|
| d15  | 5.0  | 7.8  |
| #50  | 8.5  | 10.5 |
| #85  | 11.5 | 14.0 |
| d100 | 18.0 | 20.0 |
- THE Voids BETWEEN THE STONE MATRIX SHALL BE COMPLETELY FILLED WITH A PORTLAND CEMENT BASED GROUT IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS.
  - LARGER STONES 14 TO 20 INCHES IN DIAMETER SHALL BE PLACED IN A RANDOM FASHION BOTH LATEROALLY AND VERTICALLY. STONES SHALL BE PLACED AT DISTANCES APART OF BETWEEN FIVE AND FIFTEEN FEET. SOME OF THE STONES SHALL BE PLACED TO EXTEND ABOVE THE FINISHED STREAM PROFILE AT A DISTANCE OF UP TO 1 FOOT.

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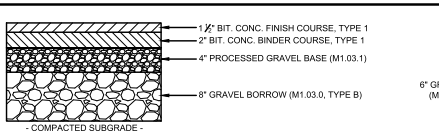
**GODFREY BROOK CAPACITY IMPROVEMENTS PROJECT  
MILFORD, MASSACHUSETTS**

**PROPOSED CULVERT PROFILE  
AND DETAILS**

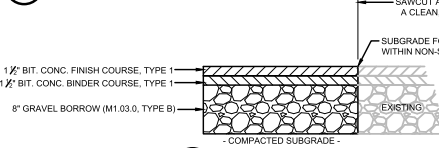
PREPARED BY: <b>GZA</b> GeoEnvironmental, Inc. www.gza.com	PREPARED FOR: MILFORD TOWN HALL 52 MAIN STREET MILFORD, MA 01757
PROJECT NO.: RTS	CHECKED BY: EDM
DESIGNED BY: RTS	SCALE: AS NOTED
DATE: SEPTEMBER, 2024	PROJECT NO.: 15.016.038.00
	REVISION NO.: -

**DRAWING  
C-9**

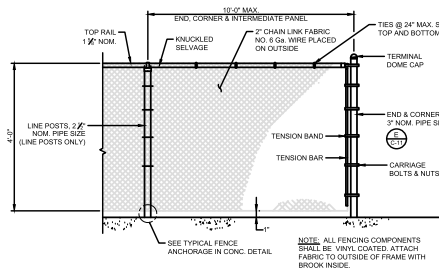




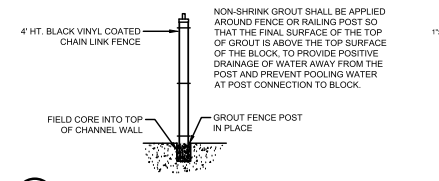
**A TYPICAL SECTION BITUMINOUS CONCRETE PAVEMENT**  
NTS



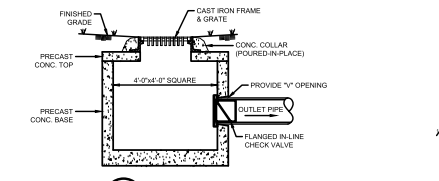
**B TYPICAL BITUMINOUS CONCRETE DRIVEWAY RECONSTRUCTION**  
NTS



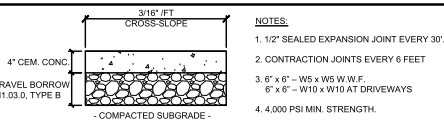
**D BLACK VINYL COATED CHAIN LINK FENCE**  
NTS



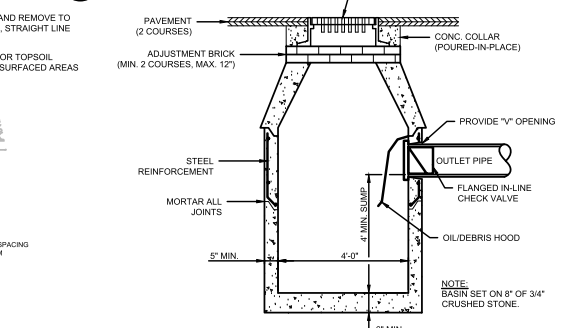
**E TYPICAL FENCE ANCHORAGE DETAIL IN CHANNEL IN WALL**  
NTS



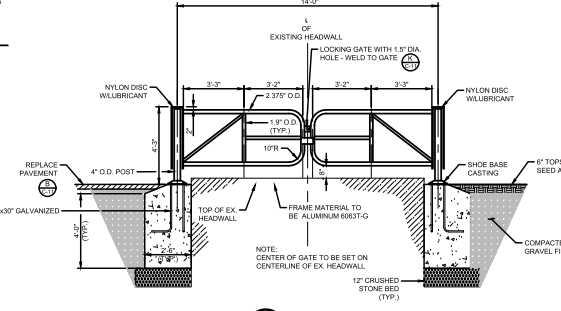
**F AREA DRAIN**  
NTS



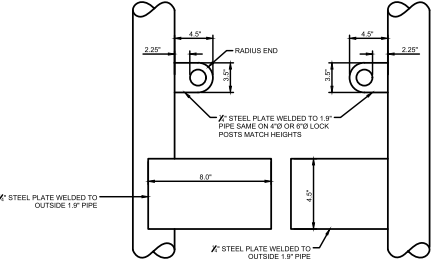
**C TYPICAL SECTION CEMENT CONCRETE WALKWAYS**  
NTS



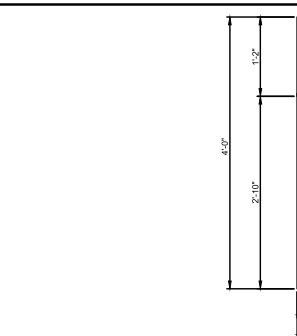
**G STANDARD PRECAST 4 FT. DIA. CONC. CATCH BASIN**  
NTS



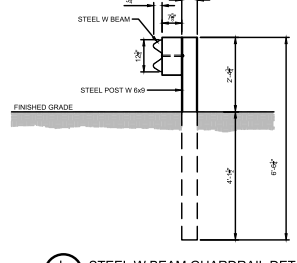
**J BAR GATE**  
NTS



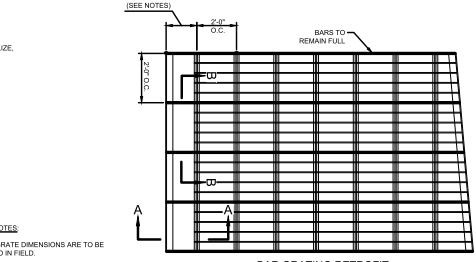
**K LOCK PLATE DETAIL**  
NTS



**L STEEL W BEAM GUARDRAIL DETAIL**  
NTS



**M TRASH RACK DETAIL**  
NTS



**PROFILE OF WATER STREET DIVERSION STRUCTURE GATE CHANNEL**

**TRASH RACK NOTES:**

- EXISTING GRATE DIMENSIONS ARE TO BE CONFIRMED IN FIELD.
- EXISTING GRATE AND STRUCTURE DETAILS CAN BE FOUND ON GODFREY BROOK FLOOD MITIGATION PROJECT PLAN SET, PREPARED FOR THE TOWN OF MILFORD, MA, PREPARED BY BAYSTATE ENVIRONMENTAL CONSULTANTS INC. DATED APRIL, 1999.
- LENGTH OF PROPOSED OUT OF VERTICAL BARS WILL DEPEND ON INFIELD MEASUREMENTS TO OBTAIN A 6 IN VERTICAL CLEARANCE, ACTUAL SLOPE OF EXISTING GRATE AND STRUCTURE INLET.
- SEE SHEETS 25 AND 26 OF GODFREY BROOK FLOOD MITIGATION PROJECT, MILFORD, MASSACHUSETTS

This project is funded by the 1.5'

## Pre-Disaster Mitigation Grant Program

A Federal, State, and Local Partnership through the Federal Emergency Management Agency (FEMA)

**GODFREY BROOK CAPACITY IMPROVEMENTS PROJECT**  
Town of Milford 1.5'

Commonwealth of Massachusetts 2'  
Governor Maura T. Healey 1.5'  
Lieutenant Governor Kimberley Driscoll 1.5'

Acting Director Dawn Brantley 1.5'  
Massachusetts Emergency Management Agency 1.5'

Town Administrator Richard A. Villani 1.5'

4'

1.5'

2'

1.5'

1.5'

1.5'

1.5'

www.mass.gov/mema

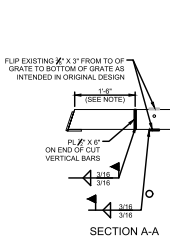
**H PROJECT SIGN DETAIL**  
NTS

**PROJECT SIGN NOTES:**

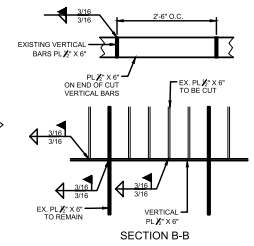
- TOP SECTION SHALL BE LIGHT BLUE BACKGROUND WITH IVORY LETTERING
- BOTTOM SECTION BACKGROUND SHALL BE VORY WITH DARK GREEN LETTERING.
- THE SIGN SHALL BE ERECTED AT A SUITABLE LOCATION NEAR THE PROJECT SITE TO BE APPROVED BY THE ENGINEER.

**NOTES:**

- STEEL W BEAM GUARD RAILS SHALL BE FURNISHED AND INSTALLED IN ACCORDANCE WITH MASSDOT STANDARDS.
- ALL STEEL COMPONENTS (INCLUDING BOLTS, NUTS AND WASHERS) SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153 AND ASTM A123.
- STEEL POST SPACING SHALL BE NO MORE THAN 6'. FOR POST SPACING NEAR THE BRIDGE, SEE 69-4.
- EACH W BEAM SHALL BE INSTALLED ON A MINIMUM OF 3 RAILS.
- FOR STEEL W BEAM AND RAIL SPICE DETAILS SEE MASSDOT CONSTRUCTION STANDARD M/E 401.7.0.
- FOR STEEL POST AND TERMINAL DETAILS SEE MASSDOT CONSTRUCTION STANDARD M/E 401.8.0.
- FOR CHANNELLED BLOCK-OUT DETAILS SEE MASSDOT CONSTRUCTION STANDARD M/E 401.9.0.
- FOR STEEL W BEAM DETAILS SEE MASSDOT CONSTRUCTION STANDARD M/E 401.7.0.
- IF THE STEEL POST CANNOT BE INSTALLED TO MINIMUM DEPTH, THE CONTRACTOR SHALL INSTALL A WOODEN POST WITH A CONCRETE FOOTING AS SPECIFIED ON MASSDOT CONSTRUCTION STANDARD M/E 401.12.0.

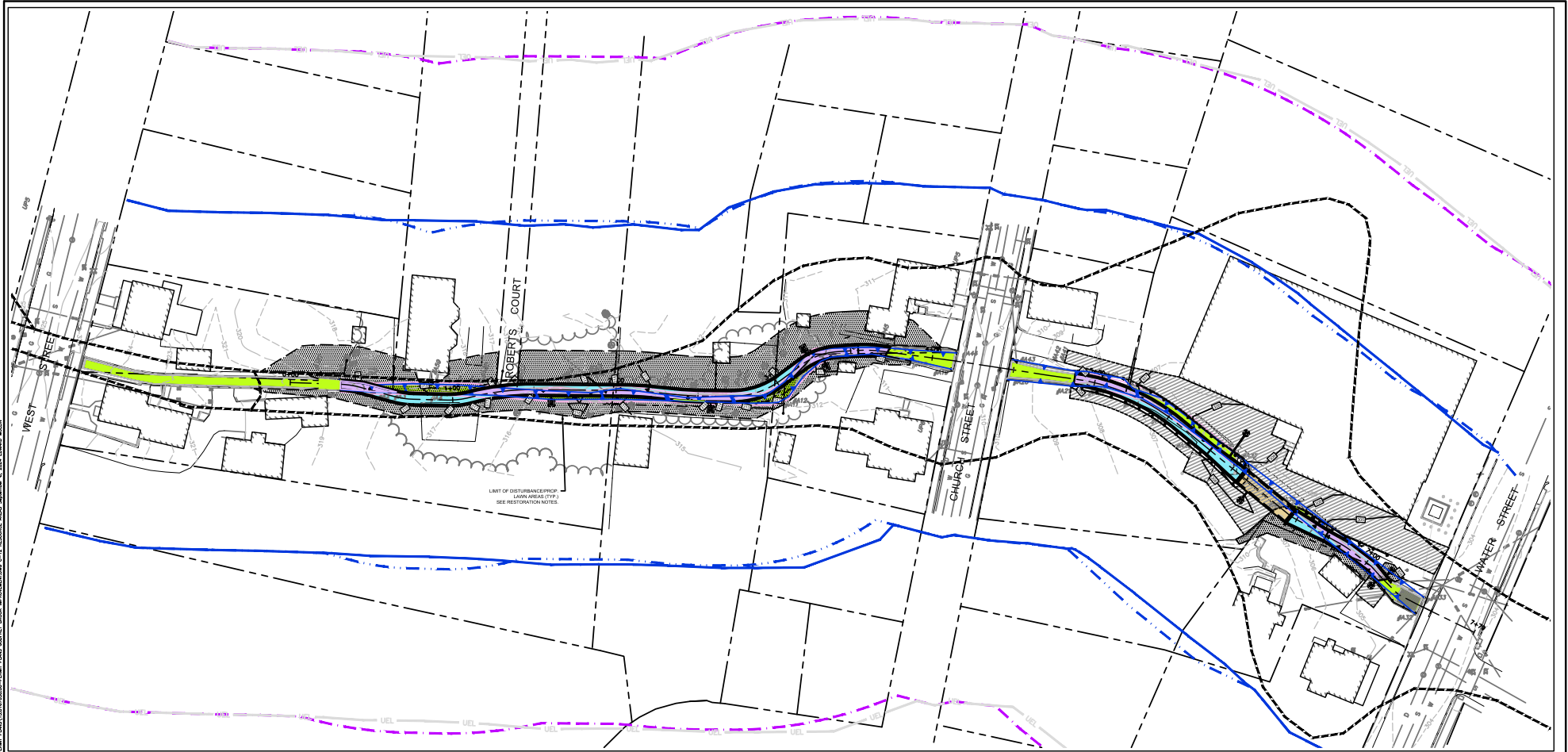


**SECTION A-A**



**SECTION B-B**

NO.	ISSUE/DESCRIPTION	BY	DATE
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<p><b>GODFREY BROOK CAPACITY IMPROVEMENTS PROJECT</b> MILFORD, MASSACHUSETTS</p>			
<p><b>SITE DETAILS</b></p>			
<p>PREPARED BY:  <b>GZA</b> GeoEnvironmental, Inc. www.gza.com</p>	<p>PREPARED FOR: MILFORD TOWN HALL 52 MAIN STREET MILFORD, MA 01757</p>	<p>CHECKED BY: <b>ALL</b></p>	<p>DRAWING</p>
<p>PROJECT NO.: <b>RTS</b></p>	<p>DESIGNED BY: <b>RTS</b></p>	<p>SCALE: <b>EDA</b></p>	<p>REVISION NO.: <b>NTS</b></p>
<p>DATE: <b>SEPTEMBER, 2024</b></p>	<p>PROJECT NO.: <b>15.0167038.00</b></p>	<p>REVISION NO.: <b>-</b></p>	<p><b>C-11</b></p>



**GODFREY BROOK WETLAND RESOURCE AREAS AND PROPOSED RESTORATION PLAN**  
(WEST STREET TO WATER STREET)

- SITE PLAN LEGEND**
- EXISTING WETLAND BOUNDARY
  - EXISTING EDGE OF PAVEMENT
  - EXISTING CURB
  - EXISTING PROPERTY LINE
  - EXISTING 5 FT. CONTOUR
  - EXISTING 1 FT. CONTOUR
  - EXISTING FENCE
  - EXISTING GUARDRAIL
  - EXISTING STORM DRAIN LINE
  - EXISTING SANITARY SEWER LINE
  - EXISTING GAS LINE
  - EXISTING WATER LINE
  - EXISTING OVERHEAD WIRES
  - EXISTING TREE LINE
  - EXISTING TREE
  - EXISTING BOLLARD
  - EXISTING CATCH BASIN
  - EXISTING DRAIN MANHOLE
  - EXISTING SANITARY MANHOLE
  - EXISTING UTILITY POLE
  - EXISTING HYDRANT
  - EXISTING WATER SERVICE SHUT OFF
  - EXISTING WATER GATE
  - EXISTING GAS VALVE
  - PROPOSED CONTOUR
  - PROPOSED FENCE
  - PROPOSED GUARDRAIL
  - PROPOSED STORM DRAIN LINE
  - PROPOSED AREA DRAIN
  - EXISTING 0 - 100 FT RIVERFRONT AREA
  - EXISTING 100 - 200 FT RIVERFRONT AREA
  - NEW 0 - 100 FT RIVERFRONT AREA
  - NEW 100 - 200 FT RIVERFRONT AREA

- FEMA 1% ANNUAL CHANCE OF FLOODING/BORDERING LAND SUBJECT TO FLOODING (APPROX. FROM FEMA NATIONAL FLOOD HAZARDOUS LAYER OBTAINED FROM MASSMAPPER)
- EXISTING LAND UNDERWATER
- NEW LAND UNDERWATER
- EXISTING AND NEW LAND UNDER WATER
- LIMIT OF DISTURBANCE/PROPOSED LAWN AREAS (SEE RESTORATION NOTES)
- PROPOSED BITUMINOUS CONCRETE PAVEMENT

SCALE IN FEET  
0 50 100

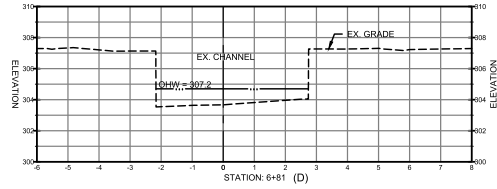
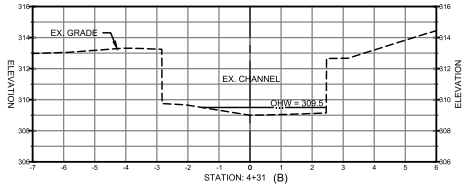
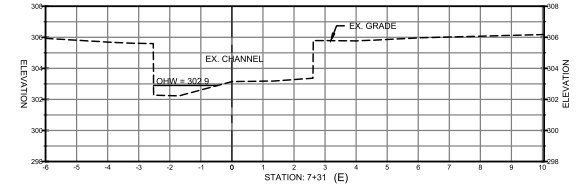
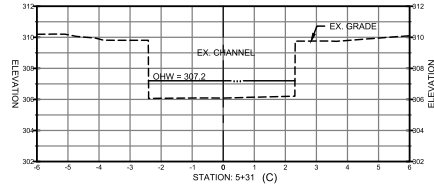
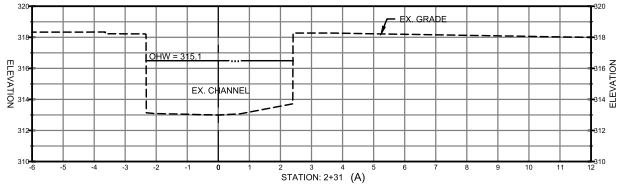
**RESTORATION NOTES:**

ALL AREAS DISTURBED DUE TO CONSTRUCTION OPERATIONS AND NOT DESIGNATED FOR OTHER SURFACE TREATMENT SHALL RECEIVE 6" MIN. THICKNESS OF LOAM AND SHALL BE FINE-GRADED, SEED, AND ESTABLISHED AS TURF GRASS PER SPECIFICATIONS, USING PERENNIAL RYE GRASSES SEED MIX APPLIED AT A RATE OF NOT LESS THAN 50 POUNDS/ACRE AND MULCHED WITH A 2" MIN. LAYER OF STRAW MULCH.

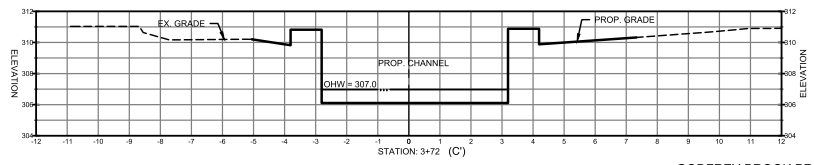
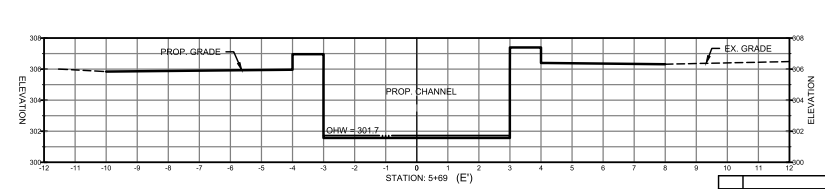
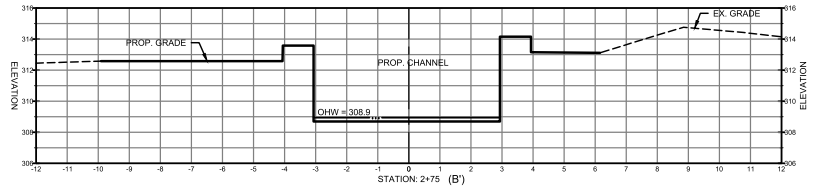
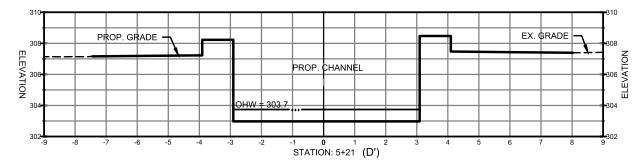
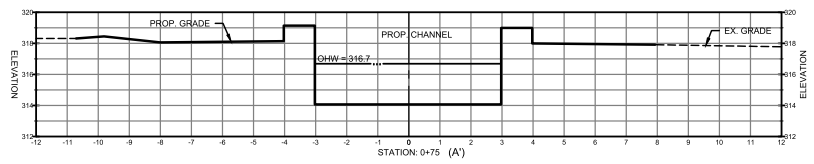
NO.	ISSUE/DESCRIPTION	BY	DATE
<b>GODFREY BROOK CAPACITY IMPROVEMENTS PROJECT</b> <b>MILFORD, MASSACHUSETTS</b>			
<b>WETLAND RESOURCE AREAS AND PROPOSED RESTORATION PLAN</b>			
PREPARED BY: GZA GeoEnvironmental, Inc. www.gza.com		PREPARED FOR: MILFORD TOWN HALL 52 MAIN STREET MILFORD, MA 01757	
PROJECT: RTS DESIGNED BY: RTS DATE: SEPTEMBER, 2024	REVIEWED BY: JDA DRAWN BY: EDM PROJECT NO.: 15.0167038.00	CHECKED BY: ALL SCALE: AS NOTED REVISION NO.: -	<b>DRAWING</b> <b>C-12</b>

G:\15.0167038.00\_GODFREY\_BROOK\_IMPROVEMENTS\15.0167038.00\_GODFREY\_BROOK\_IMPROVEMENTS\C-12\_RESTORATION\_PLAN.dwg  
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 USER: JDA  
 PLOT: 15.0167038.00\_GODFREY\_BROOK\_IMPROVEMENTS\C-12\_RESTORATION\_PLAN.dwg  
 PLOT DATE: 15.09.2024 10:00 AM  
 PLOT USER: JDA  
 PLOT DEVICE: HP DesignJet T1300

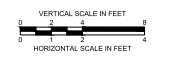
15.0167038.00 GODFREY BROOK CAPACITY IMPROVEMENTS PROJECT PLAN SHEET C-13 - SECTIONS SHEET 6 OF 6  
 15.0167038.00 GODFREY BROOK CAPACITY IMPROVEMENTS PROJECT PLAN SHEET C-13 - SECTIONS SHEET 6 OF 6



**GODFREY BROOK EXISTING CHANNEL CROSS SECTIONS**  
(REFERENCE EXISTING CHANNEL STATIONING ON DRAWING C-1)



**GODFREY BROOK PROPOSED CHANNEL CROSS SECTIONS**  
(REFERENCE PROPOSED CHANNEL STATIONING ON DRAWING C-2)



NO.	ISSUE/DESCRIPTION	BY	DATE

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**GODFREY BROOK CAPACITY IMPROVEMENTS PROJECT**  
MILFORD, MASSACHUSETTS

EXISTING BROOK & PROPOSED CHANNEL CROSS SECTIONS

PREPARED BY: GZA GeoEnvironmental, Inc. www.gza.com	PREPARED FOR: MILFORD TOWN HALL 52 MAIN STREET MILFORD, MA 01757
DESIGNED BY: RTS	CHECKED BY: JSA
DRAWN BY: EDM	SCALE: AS NOTED
DATE: SEPTEMBER, 2024	PROJECT NO.: 15.0167038.00
REVISION NO.: -	<b>DRAWING</b> <b>C-13</b>

## **SECTION 01300**

### **SUBMITTALS**

#### **PART I-GENERAL**

##### 1.01 SCOPE

- A. Submittal procedures.
- B. Construction progress schedules.
- C. Proposed products list.
- D. Shop drawings.
- E. Product data.
- F. Samples.
- G. Manufacturers' instructions.
- H. Manufacturers' certificates.
- I. Construction photographs.
- J. Contractor Responsibilities.
- K. Engineer's Duties.
- L. Town Duties.

##### 1.02 RELATED SECTIONS

- A. Section 01019 - Contract Considerations: Schedule of Values.
- B. Section 01400 - Quality Control: Manufacturers' field services and reports.
- C. Section 01560 – Temporary Sediment & Erosion Control
  - 1. Written plan detailing the methods and layouts of BMPs proposed to contain sediments, soils and debris at the Site.
  - 2. Methods and materials for proposed construction of individual BMPs, including sedimentation control fences or silt fence barriers.
- D. Section 01565 – Temporary Water Control
  - 1. Proposed design, sequence of operation, maintenance and supervision of the surface water and control systems, as needed for each phase of the work, and coordination with temporary groundwater control and any temporary cofferdams.

2. Proposed contingency plan for additional surface water measures for all systems in the event of system failure – monitoring, instrumentation, on-call repair, etc.
  3. Schedule for installation of sedimentation and water control measures.
  4. Proposed contingency plan for potential storm emergency conditions (e.g., anticipated heavy rainfall). The contingency plan should address, but not be limited to, measures for protection of installed Work from flooding, handling flooding of the Work area and removing equipment and materials from the Work area.
- E. Section 01700 - Contract Closeout: Contract warranty, manufacturer's certificates and closeout submittals.
- F. Section 02200 – General Earthwork
1. Proposed construction schedule, sequence of construction, coordinate with temporary traffic controls, methods of construction including equipment to be used, excavation support methods and details, and proposed locations of haul roads and staging areas within work limits.
  2. Submit two (2) fifty-pound (50 lb.) samples of each type of fill proposed for use at the Site (on-site and off-site material) to the Town at least ten (10) days prior to intended use. The Contractor can coordinate with the Town and/or Engineer a visit to the quarry for visual inspection of the proposed riprap and stream cobble material prior to delivery to site.
  3. Testing information relative to the proposed source of all earth materials to be imported into the site. Testing information shall include the following:
    - a. Description of source(s) of materials.
    - b. Physical Properties.
    - c. Grain size analysis.
    - d. "Modified Proctor" analysis of maximum dry density and optimum moisture content (ASTM D1557)
    - e. Liquid and Plastic Limits.
  4. All plans, sections, details, and calculations describing the Contractor's proposed temporary earth support system. The design of the bracing and support system shall be certified by a Professional Engineer licensed in Massachusetts.
  5. Submit the name, contact information, qualifications, and certifications of its proposed Independent Materials Testing Laboratory, including the names and credentials of proposed field testing technicians. The Town shall be the sole judge of the appropriateness of the proposed Laboratory and personnel.
- G. Section 02230 – Management and Disposition of Contaminated Materials
1. Submit the following:
    - a. Documentation that the Contractor shall utilize appropriately trained staff to excavate potentially contaminated materials if encountered on site and that



the staff is informed of procedures to be followed to protect the Health and Safety of all on-site workers as it relates to possible contaminated materials to be removed. Documentation must show that workers involved in these activities have completed Health and Safety Training per Occupational Safety and Health Administration (OSHA) Regulation 29 CFR 1910.120.

- b. The Contractor is entirely responsible for the Health and Safety of his own employees and subcontractors.
  - c. Locations and methods, including drainage, for on-site stockpiling of excavated potentially contaminated soil as specified in this Section. Describe methods to keep different classifications of material segregated during processing operations.
  - d. Identification, via a Worker Health and Safety Plan prepared by a certified industrial hygienist or a certified safety professional, of a course of action to be taken when suspected contaminated materials are encountered during excavation.
  - e. Procedure for decontamination of personal protective equipment (PPE), tools and equipment.
  - f. Methodology for soil tracking as specified in Article 3.03 of this Section, including methodology to ensure cross contamination does not occur.
2. Proposed off-site disposal location(s) for MCP-Regulated Soil for review by the Environmental Consultant. Provide documentation certifying the suitability of proposed sites to receive soils. Proposed sites must meet the criteria specified in Articles 1.08 and 3.05 and are subject to approval by the Owner. Disposal of all excavated soil must be in conformance with Federal, state, and local regulations governing soil disposition. Identify the transporter, equipment and handling methods to be used during transport and disposal of soil.
  3. The time period(s) specified for submittals are the minimum required to review, evaluate and respond to the Contractor. If, after review, resubmission is required for any reason, the specified time period(s) shall commence upon the date of receipt of the resubmittals. The Contractor is responsible for scheduling specified submittals and resubmittals so as to prevent delays in the work.

#### H. Section 02500 – Paving and Surfacing

1. Provide copies of materials certificates signed by material producer and Contractor, certifying that each material item complies with, or exceeds, specified requirements.
2. For bituminous concrete base and pavement sections and for cement concrete sidewalk sections, submit design mix and test reports prepared by a professional testing laboratory acceptable to the Town with all submittals and mix design signed by a Professional Engineer licensed in the State of Massachusetts.

#### I. Section 02720 – Drainage and Precast Concrete Units

1. Submit manufacturer's product data and installation instructions for each product specified:
  - a. Precast Concrete Box Culvert Sections with MA PE stamped design.
  - b. Precast Concrete U-shaped Channel Sections with MA PE stamped design.
  - c. PVC Pipe and fittings.
  - d. RCP Pipe and gaskets.
  - e. Flanged in-line check valves.
  - f. Precast storm drain manholes and catch basins.
  - g. Flexible Butyl Resin Gaskets.
  - h. Manhole Covers.
  - i. Catch Basins, Area Drains, and drop inlet grates and frames.
  - j. Damp proofing.
  - k. Membrane Waterproofing.
  - l. Contractor's Testing Laboratory accreditation and description of prior work experience.
  - m. Concrete mix design, material test results, results of strength tests from trial concrete mixes by the Concrete supplier, product data for admixtures, and other proprietary materials, and Concrete supplier's accreditations.
  - n. Field test results from Contractor's independent testing agency with 7 day and 28 day breaks of concrete samples cylinders. Test results from other frequency breaks may be required.
  - o. Steel Fabricator as per Section 960.61A of the Standard Specifications.

J. Section 02800 – Site Improvements

1. Provide full submittals for all items required under this section, except those provided by Owner.
2. Provide copies of material certificates signed by material producer and Contractor, certifying that each material item complies with, or exceeds, specified requirements.
3. Provide shop drawings and detailed layout drawings and elevations for all guardrails, fences and handrails.

K. Section 02910 – Fences and Walls

1. Provide copies of materials certificates signed by material producer and Contractor, certifying that each material item complies with, or exceeds, specified requirements.
2. Contractor shall provide an engineering design and shop drawings for the guard rail, steel w beam.

L. Section 02970 – Restoration

1. Chemical analysis of the loam to be utilized with recommended rates of fertilization and liming based upon the analysis.
2. Submit manufacturer's data sheets for erosion control blankets.
3. Submit USDA certification for sod seed purity and blend, for areas to be sodded.
4. Restoration Schedule shall be submitted for review by the Town of the intended sequence and timeline for restoration of private properties impacted by the project and must be accepted prior to site preparation and demolition on the private property. Schedule will identify timeline for backfilling, topsoil spreading and seeding, plantings, and fences, walls decks and other structure replacements. The intent of this specification is to minimize the amount of time private property is left in a disturbed state following the installation of the drainage structures.

M. Section 03300 – Cast-in-Place Concrete

1. Shop drawings for proposed structures, including dimensions, elevations, locations of joints, reinforcing bar sizes, material grades, spacing, length, locations and quantities of reinforcing steel, bending and cutting schedules and supporting and spacing devices.
2. Shop drawings for concrete reinforcement prior to fabrication, showing bar bends, details and placement and certified copies of Mill Test Reports of reinforcement materials analysis.
3. Concrete Mix designs including past field performance test results.
4. Sieve analysis and soundness tests for fine and coarse aggregates taken within the last three (3) months.
5. Cement Manufacturer's Certificates of conformance with ASTM C150 taken during the last 3 months.
6. For all pozzolans proposed, submit certificates of conformance with respective ASTM standards indicated in part 2.4.B of this specification.
7. Product data and material safety data sheets for concrete admixtures.
8. Product data and material safety data sheets for concrete accessories.
9. Sample concrete mix delivery slip.
10. Product data and material safety data sheets for form release agent.
11. Schedule of labor, equipment and methods of concrete placement, curing and protection for approval. As part of this submittal include means and methods of delivering concrete to placement areas. This submittal shall include production, transportation, placing, protecting, curing and temperature monitoring of concrete during cold weather.

N. Section 03305 – Concrete Testing

1. Independent Testing Agency's qualifications, all testing reports, etc.
  - a. Independent Testing Agency will submit one copy each of all test reports to each of the following: Resident Engineer, Town, Contractor and concrete supplier.
  - b. Independent Testing Agency will submit reports within 5 days of testing or inspection.
  - c. Independent Testing Agency will telephone the Resident Engineer within 24 hours if tests indicate deficiencies.

O. Section 03346 – Concrete Finishing Curing and Repairs

1. Product data and material safety data sheets for curing compounds, floor sealers and hardeners, and repair materials.
2. Procedures prior to concrete placements for cold weather protection, hot weather protection and curing methods.
3. Qualifications of flatwork finisher.

P. Section 03604 – Non-Shrink Grout

1. Product data and material safety data sheets for products to be used.
2. Test data when required.
3. Manufacturer's installation instructions for products used.

1.03 SUBMITTAL PROCEDURES

A. Transmit each submittal with Engineer accepted form. The accepted form shall have the following:

1. Date and sequential number of submission, along with Section of the Technical Specification to which the submittal refers.
2. Project title and number.
3. Names of:
  - a. Contractor
  - b. Manufacturer/Supplier
4. Identification of product, with specification section number.
5. Field dimensions, clearly identified as such.
6. Relation to adjacent or critical features of work or materials.
7. Applicable standards, such as ASTM or other applicable federal or state regulations.
8. Identification of deviations from Contract Documents.
9. Identification of revisions on re-submittals.

10. Calculations and drawings certified and stamped by a Professional Engineer licensed in the Commonwealth of Massachusetts, if required.

Each submittal shall be numbered. The numbering system shall utilize the Section number to which the submittal pertains and then a sequential number designating the order of the submittal for that Section. For instance, the first submittal applying to Earthwork shall be numbered as 02200-1. The second submittal applying to Earthwork shall be numbered 02200-2.

- B. Apply Contractor's stamp, signed or initialed certifying that review, verification of products required, field dimensions, adjacent construction work, and coordination of information, is in accordance with the requirements of the Work and Contract Documents.
- C. Schedule submittals to expedite the Project. Coordinate submission of related items.
- D. At a minimum, submittals shall be provided electronically to the Town, to the Resident Engineer, and to the Town's Consultant. Additional requirements for the number of hard copies (if any) of each submittal are contained in the specific Specification sections.
- E. Revise and resubmit submittals as required, identify all changes made since previous submittals.
- F. Distribute copies of reviewed submittals to concerned parties. Instruct parties to promptly report any inability to comply with provisions.

#### 1.04 CONSTRUCTION PROGRESS SCHEDULES

- A. Submit initial progress schedule in duplicate within 10 days after date of Town/Contractor Agreement for Engineer review.
- B. Revise and resubmit as required.
- C. Submit revised schedules with each Application for Payment, identifying changes since previous version.
- D. Submit a horizontal bar chart with separate line for each major section of work or operation (Gantt chart format), identifying first work day of each week.
- E. Show complete sequence of construction by activity, identifying Work of separate stages and other logically grouped activities. Indicate the early and late start, early and late finish, float dates, and duration.
- F. Indicate estimated percentage of completion for each item of Work at each submission.
- G. Indicate submittal dates required for shop drawings, product data, samples, and product delivery dates, including those furnished by Town and under Allowances.

#### 1.05 PROPOSED PRODUCT LIST

- A. Within 15 days after date of Notice to Proceed, submit complete list of major products proposed for use, with name of manufacturer, trade name, and model number

of each product.

- B. For products specified only by reference standards, give manufacturer, trade name, model or catalog designation, and reference standards.

#### 1.06 SHOP DRAWINGS

- A. The Contractor shall prepare shop and working drawings, for temporary and permanent Work as required under the applicable Sections of the Contract Specifications, complete with all relevant calculations, descriptions, technical and performance data, as necessary to adequately perform the Work. The Contractor shall take responsibility for such drawings and for the safe and successful construction of the work.
- B. Shop drawings shall be presented in a clear and thorough manner, complete with respect to dimensions, design criteria, materials of construction, and like information to enable Consultant to review information as required.
- C. Sheet size: 8-1/2" x 11" or larger, as required. Typically, significant shop drawings shall be 24" x 36".
- D. Submit in accordance with the Special Conditions of this Contract.
- E. After review, reproduce and distribute in accordance with Articles on Procedures above and for Record Documents described in Section 01700 - Contract Closeout.

#### 1.07 PRODUCT DATA

- A. Submit the number of copies which the Contractor requires, plus two copies which will be retained by the Engineer.
- B. Mark each copy to identify applicable products, models, options, and other data. Supplement manufacturer's standard data to provide information unique to this Project.
- C. After review, distribute in accordance with Article on Procedures above and provide copies for Record Documents described in Section 01700 - Contract Closeout.

#### 1.08 SAMPLES

- A. Submit samples to illustrate functional and aesthetic characteristics of the Product, with integral parts and attachment devices. Coordinate sample submittals for interfacing work.
- B. Submit samples of finishes, colors selected, textures, and patterns for Engineer's selection.
- C. Include identification on each sample, with full Project information.
- D. Submit the number or samples specified in individual specification Sections; one of which will be retained by Engineer.
- E. Reviewed samples which may be used in the Work are indicated in individual

specification Sections.

#### 1.09 MANUFACTURER'S INSTRUCTIONS

- A. When specified in individual specification Sections, submit manufacturers' printed instructions for delivery, storage, assembly, installation, start-up, adjusting, and finishing, in quantities specified for Product Data.
- B. Identify conflicts between manufacturers' instructions and Contract Documents.

#### 1.10 MANUFACTURER'S CERTIFICATES

- A. When specified in individual specification Sections, submit manufacturers' certificates to Engineer for review, in quantities specified for Product Data.
- B. Indicate that material or product conforms to or exceeds specified requirements. Submit supporting reference date, affidavits, and certifications as appropriate.
- C. Certificates may be recent or previous test results on material or Product, but must be acceptable to Engineer.

#### 1.11 CONSTRUCTION PHOTOGRAPHS

- A. Once a month submit progress construction photographs to the Engineer.
- B. Photographs: Digital photographs or digital video on a permanent medium are acceptable as long as specialized software is not necessary to view.
- C. Prior to the beginning of work, the contractor shall take a minimum of twelve (12) site photographs from differing directions and locations to document pre-construction conditions along the right of way as well as on the private properties impacted by the project and as approved by the Engineer.
- D. On the last day of each month, for the duration of the contract, the Contractor shall take twelve (12) additional photographs from essentially the same location as the original photographs to demonstrate the progress of the work.
- E. Identify photographs with the date, time, orientation, project number, title of project, name of contractor and name of Engineer.
- F. Submit photographs each month with the progress payment requisition. Payment will not be made without the required photographs.

#### 1.12 CONTRACTOR RESPONSIBILITIES

- A. Review shop drawings and samples prior to submission.
- B. Determine and verify:
  - 1. Field measurements.
  - 2. Field construction criteria.
  - 3. Catalog numbers and similar data.

- 4. Conformance to specifications.
- C. Coordinate each submittal with requirements of work and of Contract Documents
- D. Notify Engineer and Town in writing, at time of submission, of any deviations in submittals from requirements of Contract Documents. Any such deviations permitted by Town will require modification to the Contract Documents.
- E. Begin no fabrication or work which requires submittals until submittals have been approved by the Town or Engineer.

#### 1.13 ENGINEER'S DUTIES

- A. The Engineer will review submittals only for general conformance to design concept of project and compliance with information given in Contract Documents. Review shall not extend to means, methods, sequences, techniques or procedures of performing the Work or to safety precautions or programs incident thereto. Review of a separate item as such will not indicate approval or assembly in which item functions.
- B. The Engineer will return submittals to the Contractor with the Engineer's written opinion as to the general conformance of the submittal with the Contract Documents for distribution or for resubmission, if required by the Contract Documents and/or due to the Engineer's opinion of their non-compliance and/or incompleteness. The Engineer will normally respond to all submittals within five (5) working days from the date of receipt, but no later than ten (10) working days from the date of receipt. Re-submittals required as a result of Engineer's review and comment shall be re-submitted promptly by the Contractor. Work shall not commence until all submittals related to it are submitted and accepted.
- C. The Engineer's review of Contractor's submittals or any concurrence in submittals shall not relieve Contractor from responsibility for any deviations from Contract Documents unless Contractor has, in writing, called attention to such deviation at time of submission and has received written concurrence from the Town pursuant to Contract Documents to specific deviation.
- D. The Engineer or other Town personnel may also perform submittal review duties, at the discretion of the Town and with the concurrence of the Engineering Design Consultant.

#### 1.14 TOWN DUTIES

- A. The Town will receive comments from the Engineer.
- B. The Town will have the final authority to judge the adequacy of the Contractor's submittal and shall have final authority for acceptance or rejection.

**\*\*\*\*\*END OF SECTION\*\*\*\*\***



## SECTION 01400

### QUALITY CONTROL

#### PART I - GENERAL

##### 1.01 SCOPE

- A. Quality assurance and control of installation.
- B. Protection of Work, Property and Persons.
- C. Supervision by Contractor.
- D. References.
- E. Field samples.
- F. Inspection and testing laboratory services.

##### 1.02 RELATED SECTIONS

- A. Section 01300 - Submittals: Submission of Manufacturers' Instructions and Certificates.
- B. Section 01600 – Material and Equipment: Requirements for materials and product quality.
- C. Section 02050 – Erosion Control
- D. Section 02100 – Site Preparation and Demolition
- E. Section 02200 – General Earthwork
- F. Section 02230 – Management and Disposition of Contaminated Material
- G. Section 02500 – Paving and Surfacing
- H. Section 02720 – Drainage and Concrete Units
- I. Section 02800 – Site Improvements
- J. Section 02910 – Fences and Walls
- K. Section 02970 – Restoration
- L. Section 03300 – Cast-in-Place Concrete
- M. Section 03305 – Concrete Testing
- N. Section 03346 – Concrete Finishing Curing and Repairs
- O. Section 03604 – Non-Shrink Grout
- P. Section 05502 - Guardrail

### 1.03 QUALITY ASSURANCE/CONTROL OF INSTALLATION

- A. Monitor quality control over suppliers, manufacturers, Products, services, site conditions, and workmanship, to produce Work of specified quality.
- B. Comply fully with manufacturers' instructions, including each step in sequence.
- C. Should manufacturers' instructions conflict with Contract Documents notify the Engineer.
- D. Comply with specified standards as a minimum quality for the Work except when more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.
- E. Perform work by persons qualified to produce workmanship of specified quality.
- F. Secure Products in place with positive anchorage devices designed and sized to withstand stresses, vibration, physical distortion or disfigurement.

### 1.04 PROTECTION OF WORK, PROPERTY AND PERSONS

- A. The Contractor will be responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the work. He will take all necessary precautions for the safety of, and will provide the necessary protection to prevent damage, injury, or loss to all employees on the work, and other persons who may be affected thereby, all the work and all materials or equipment to be incorporated therein, whether in storage on or off the site. These precautions and protections shall include other properties at the site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures and utilities not designated for removal, relocation or replacement in the course of construction.

The Contractor shall be responsible for and pay for all loss or damage to materials and property, whether such are to be incorporated in the work, or are adjacent thereto. The Contractor shall also replace or restore to original condition every public or private way, conduit, catch basin, tree, fence, wall, landscape feature, structure, or other thing injured or interfered with by the Contractor in carrying on the Contract.

### 1.05 SUPERVISION BY CONTRACTOR

- A. The Contractor will supervise and direct the work. He will be solely responsible for the means, methods, techniques, sequences and procedures of construction. The Contractor will employ and maintain on the work a qualified supervisor or superintendent who shall have been designated in writing to the Resident Project Representative by the Contractor as the Contractor's representative at the site. The supervisor shall have full authority to act on behalf of the Contractor and all communications given to the supervisor shall be as binding as if given to the

Contractor. The supervisor shall be present on the site at all times as required to perform adequate supervision and coordination of the work.

- B. The Contractor shall employ only competent persons to do the work and, whenever the Resident Project Representative shall notify the Contractor, in writing, that any person on the work is, in his opinion, incompetent, unfaithful, disorderly or otherwise unsatisfactory or not employed in accordance with the provisions of this contract, such persons shall be discharged from the work and shall not again be employed on it, except with the consent of the Engineer.
- C. In performance of the contract and insofar as his employees are concerned, the Contractor shall be responsible in addition to items specified elsewhere in the contract, for the following:
  - 1) Safety of his own tools and equipment whether inside or outside of the construction area.
  - 2) Protection of the construction site and all adjoining premises or property from all damage until the work has been accepted by the Town, and making good at his own expense all damage thereto arising out of any contract operations.
  - 3) Strictly prohibiting and taking all necessary measures to prevent the committing of nuisances on the land of the Town and adjacent properties.
- D. The Contractor shall coordinate his work with that of any Subcontractors working on the project and allow them all necessary access to the construction areas, so as to facilitate the progress of the work. The Contractor shall coordinate the work of all trades to complete the work within the time required. Each trade shall afford all other trades every reasonable opportunity for installation of their work and for storage of materials.
- E. All workmanship necessary to complete the work required by these specifications shall be of the highest quality. The Contractor shall, at all times, employ workmen in sufficient number and of the various degrees of skill and experience required to perform satisfactorily the work of these specifications in accordance with the best modern standard practice. The Contractor shall bear the entire expense and no separate or direct payment shall be made as a result of extra work which may be necessary because of inferior workmanship, or for specific items of work which are normally considered a part of good workmanship in completing any particular phase of the work.

#### 1.04 REFERENCES

- A. Conform to reference standard by date of issue current on date of Contract Documents.
- B. Obtain copies of standards when required by Contract Documents.
- C. Should specified reference standards conflict with Contract Documents, this conflict shall be brought to the attention of the Engineer.

1.05 FIELD SAMPLES

- A. Install field samples at the site as required by individual specification Sections for review.
- B. Acceptable samples represent a quality level for the Work.
- C. Where field samples are specified in individual Sections to be removed, clear area after field sample has been accepted by Engineer.

1.06 INSPECTION AND TESTING LABORATORY SERVICES

- A. Contractor will appoint and employ services of an independent firm to perform inspection and testing that have to be approved by Engineer and Town. The Contractor will pay for all services required. Retesting required because of nonconformance to specified requirements shall also be paid for by the Contractor.
- B. The independent firm will perform inspections, tests, and other services specified in individual specification Sections and as required by the Engineer.
- C. Reports will be submitted by the independent firm to the Engineer, in duplicate indicating observations and results of tests and indicating compliance or non-compliance with Contract Documents.
- D. Cooperate with independent firm; furnish samples of materials, design mix, equipment, tools, and storage and assistance as requested.
- E. Notify Engineer and independent firm 24 hours prior to expected time for operations requiring services.
- F. Make arrangements with independent firm and pay for additional samples and tests required for Contractor's use.
- G. Retesting required because of non-conformance to specified requirements shall be performed by the same independent firm on instructions by the Engineer. Payment for retesting will be paid by the Contractor.

**\*\*\*\*\*END OF SECTION\*\*\*\*\***

## SECTION 01500

### CONSTRUCTION FACILITIES AND TEMPORARY CONTROLS

#### PART I - GENERAL

##### 1.01 GENERAL REQUIREMENTS

- A. Attention is directed to the Contract and General Conditions and all Sections within Division I - General Requirements, which are hereby made a part of this Section of Specifications.
- B. The Contractor shall be responsible for providing and maintaining all temporary facilities until Substantial Completion. Removal of such prior to Substantial Completion must be with the concurrence of the Engineer. The Contractor bears full responsibility for providing any facility removed prior to Substantial Completion if required for the work.
- C. Removal of all temporary facilities shall be a condition precedent to Substantial Completion unless directed otherwise by the Engineer or specifically noted in the Specifications.
- D. The Contractor must comply with all safety laws and regulations of the Commonwealth of Massachusetts, the United States Government, and local government agencies applicable to the work under this contract. The Contractor's attention is directed to the Commonwealth of Massachusetts, Department of Labor and Industries 454 CMR.

##### 1.02 TEMPORARY WATER

- A. The Contractor shall provide connections, meter and pipe to the water main or nearest hydrant, subject to the approval of the Town. The Contractor shall pay for water used at the prevailing rate to the Utility Company. Upon completion of work, the Contractor shall remove the temporary connections and backfill if necessary.
- B. The General Contractor shall provide an adequate supply of drinking water from approved sources of acceptable quality, satisfactorily cooled, for his employees and those of his Subcontractors.
- C. The General Contractor shall provide facilities and adequate supply of water for irrigation, dust control, cleaning and associated activities required by these specifications.

### 1.03 WEATHER PROTECTION

- A. General: It is the intention of this contract that all work shall be completed outside adverse winter conditions. If for any reason the construction is protracted the following weather protection specifications shall be enforced.
- B. It is the intent of the Specifications to require that the General Contractor shall provide temporary enclosures to permit construction work to be carried out during the months of this Contract and as required in compliance with M.G.L. Chapter 149, Section 44D (G).
- C. "WEATHER PROTECTION" shall also mean the temporary protection of that work adversely affected by moisture, wind and cold, by covering, enclosing and/or heating. This protection shall provide adequate working areas during the work of the Contract as determined by the Town and Engineer and consistent with the approved construction schedule to permit the continuous progress of all work necessary to maintain an orderly and efficient sequence of construction operations. The General Contractor shall furnish and install all "weather protection" material and be responsible for all costs, including heating required to maintain a minimum temperature of 40 degrees F, at the working surface. This provision does not supersede any specific requirements for methods of construction, curing of materials or the applicable General Conditions set forth in the Contract Articles with added regard to performance obligations of the Contractor.
- D. Installation of weather protection and heating devices shall comply with all safety regulations including provisions for adequate ventilation and fire protection devices. Heating devices which may cause damage to finish surfaces shall not be used.

### 1.04 TEMPORARY POWER

- A. The General Contractor shall be responsible for the installation and temporary power and pay for all electric service used by himself and all Subcontractors during construction, at the prevailing rate to the Utility Company. The Contractor shall provide at its expense, all connections, meters, extension lines, wire, piping, and other items required for the utilization of such services.
- B. All temporary facilities shall comply with OSHA regulation, DLI Requirements, and other applicable codes, standards, statutes, rules and regulations.
- C. Make necessary arrangements with power company to install temporary service, if required, including temporary poles and transformer.
- D. General Contractor and all Sub-Contractors, individually, shall furnish all graded extension cords, sockets, lamps, motors, and accessories required for their work.
- E. All temporary wiring installed by the Electrical Sub-Contractor shall be removed after it has served its purpose. Use copper wire only.

### 1.05 TEMPORARY LIGHTING

- A. Provide branch wiring from power source to distribution boxes with lighting

conductors, pigtails, and lamps as required.

B. Maintain lighting and provide routine repairs.

#### 1.06 DUST CONTROL

- A. The General Contractor shall provide adequate means for the purpose of preventing dust caused by construction operations throughout the period of the construction Contract, and shall provide positive means to prevent airborne dust from dispersing into the atmosphere.
- B. This provision does not supersede any specific requirements for methods of construction or applicable General Conditions set forth in the Contract Articles with added regard to performance obligations of the General Contractor.
- C. All trash containers shall be located on the property if possible. The Contractor shall be responsible for securing permits, bonds, and pay required fees for trash containers to be located in the street, and exterior care in keeping all areas around trash containers and the site in general, clear of debris and accumulated trash.
- D. The Contractor shall provide additional collections and disposal of debris whenever periodic schedule is inadequate to prevent accumulation.

#### 1.07 CLEANING DURING CONSTRUCTION

A. General:

- 1. Unless otherwise specified under the various trade Sections of the Specifications, the General Contractor shall perform clean-up operations during construction as herein specified.
- 2. Control accumulation of waste materials and rubbish; periodically dispose of off-site and off premises. The General Contractor shall bear all costs, including permits and/or fees resulting from such disposal.

B. Safety and Disposal Requirements:

- 1. Standards: Maintain Project in accordance with all Commonwealth of Massachusetts and Federal Regulatory Requirements, and with Town agencies having jurisdiction at the site.
- 2. Hazards Control:
  - a. Store volatile wastes in covered, labeled metal containers, and remove from premises.
  - b. Prevent accumulation of wastes which create hazardous conditions.
  - c. Provide adequate ventilation during use of volatile or noxious substances.
- 3. Conduct cleaning and disposal operations to comply with local ordinances and anti-pollution laws.
  - a. Do not burn or bury rubbish or waste materials on Project site.

- b. Do not dispose of volatile wastes such as mineral spirits, oil, or paint thinner in storm or sanitary drains.
- c. Do not dispose of wastes into the earth or to streams or waterways.

C. Materials:

- 1. Use only those materials which will not create hazards to health or property and which will not damage surfaces.
- 2. Use only those cleaning materials and methods recommended by manufacturer of surface material to be cleaned.

D. Execution:

- 1. Execute cleaning on a daily basis to ensure that the site and adjacent properties are maintained free from accumulation of waste materials and rubbish and wind-blown debris, resulting from construction operations.
- 2. Provide on-site containers of non-combustible construction for collection of waste materials, debris and rubbish. Containers shall be partitioned so that a fire within same will not affect construction or existing trees.
- 3. Remove waste materials, debris, and rubbish from the site periodically and dispose of it at legal disposal areas off the construction site.
- 4. Handle materials in a controlled manner with as few handlings as possible.

1.08 NOISE CONTROL

- A. Develop and maintain a noise-abatement program and enforce strict discipline over all personnel to keep noise to a minimum. Adhere to the specified hours of work.
- B. Execute construction work by methods and by use of equipment which will reduce excess noise.
  - 1. Equip air compressors with silencers, and power equipment with mufflers.
  - 2. Manage vehicular traffic and scheduling to reduce noise.

1.09 POLLUTION CONTROL

- A. Provide methods, means and facilities required to prevent contamination of soil, water or atmosphere by the discharge of noxious substances from construction operations.
- B. Provide equipment and personnel, perform emergency measures required to contain any spillage, and to remove contaminated soils or liquids resulting from the work of this Contract.
- C. Excavate and dispose of any contaminated earth off-site, and replace with suitable compacted fill and topsoil.
- D. Take special measures to prevent harmful substances from entering public waters.
- E. Prevent disposal of wastes, effluents, chemicals, or other such substances adjacent



to streams, or in sanitary or storm sewers.

- F. Provide systems for control of atmospheric pollutants.
  - 1. Prevent toxic concentrations of chemicals.
  - 2. Prevent harmful dispersal of pollutants into the atmosphere.

#### 1.10 TOILET FACILITIES

- A. The Contractor shall provide temporary toilet facilities on the site to remain until substantial completion.
- B. The toilets shall be maintained by the Contractor in a clean and orderly condition in compliance with all local and state health requirements.

#### 1.11 PROTECTION OF WORK, PROPERTY, AND THE PUBLIC

- A. Construct barricades and protective facilities required for the protection of the public in accordance with Town and State regulations and these Specifications. Furnish and install all signs, lights, reflectors, and all such protection facilities as may be required.
- B. The Contractor shall save the Town harmless from claims arising from the use of public streets, sidewalks, and adjoining premises for construction purposes.
- C. Keep all access roads and walks clear of debris, materials, construction plant and equipment during construction operations. Repair streets, drives, curbs, sidewalks, fences, poles, and the like where disturbed in construction operations and leave them in as good condition after completion of the Work as before operations started.
- D. Provide ways and means to control the flow of water from every source which may cause delay or damage during the construction operations.
- E. Protect all planting, landscaping, trees and site improvements in the area of site work.
- F. The Contractor shall be responsible for the maintenance of construction barriers and traffic barriers in order to maintain pedestrian and automotive traffic over, through, or around the work included in this Contract with the maximum of safety and practical convenience of such traffic during the life of the Contract, and whether or not work has been suspended temporarily. He shall take all precautions for preventing injuries to persons or damage to property to or about the Work.
- G. The Work shall be carried on and the barriers erected in such a manner as to provide safe passage at all times for public travel and with least obstruction to traffic. The Contractor shall maintain at his own expense in a safe and passable condition such temporary bypasses as created by the barriers as may be necessary to accommodate both pedestrian and vehicular traffic.
- H. The Contractor shall establish and maintain all legally required means of egress, from existing buildings and site as may be affected by the Work, and shall not erect barriers which interfere with, or obstruct such means of egress.

- I. Whenever gale or high winds are forecast, take proper measures to secure all loose material, equipment, or other items which could blow about and be damaged or cause damage to materials and completed work. No such loose items shall be left unsecured at the end of working day.
- J. Take all required measures to protect the work at all times against fire, storm, theft, vandalism, and other losses.
- K. The Contractor shall be wholly responsible for patrolling and protecting the work under construction and the materials stored on the site; and shall reimburse the Town for any losses, damages, or injury not compensated by insurance, except those directly caused by the Town, its agents, or its employees.

#### 1.12 WATER CONTROL

- A. Grade site to drain. Maintain excavations free of water. Provide, operate, and maintain pumping equipment.
- B. Protect site from puddling or running water. Provide water barriers as required to protect site from soil erosion.
- C. All work is to be performed in the dry and not in flowing water along Godfrey Brook.
- D. Godfrey Brook is a significant watercourse with a large watershed that may experience high flow events in a short time (i.e. flashy), the flows can frequently exceed the capacity of the channel and thus the site may be subject to flooding. Contractor shall exercise care and remove equipment and materials out of the floodplain prior to any potentially large rainfall event.

#### 1.13 PARKING AND SITE ACCESS

- A. Arrange for temporary off-street parking to accommodate construction personnel.
- B. Restrict site access to only those vehicles actually performing the work.

#### 1.15 PROJECT SIGNAGE

##### A. PROJECT IDENTIFICATION

- 1. Provide 8 foot wide x 4 foot high project sign of 1" thick medium density overlaid exterior plywood laminated with waterproof glues. All edges of sign shall be banded with 1" x 1/2" pine banding. Sign shall be supported by two 4" x 4" post supports set into the ground to a depth of 4 feet and so that the lower edge of the sign is raised to a minimum of 4 feet above grade. (Note: Alternate methods of support required by site conditions may be proposed subject to approval by Town). All fasteners shall be galvanized.
- B. Sign shall be lettered by a professional sign painter in accordance with the detail on the plans.
- C. Information to be presented on the sign is shown on the plans. The Contractor shall submit shop drawings for Town's approval - drawings must indicate means of

support and graphic layout.

- D. The Town will direct location of the Project sign. No other signs, banners, notices, or advertisements may be displayed without written approval of the Town.
- E. The sign shall be maintained in good condition by the Contractor for the duration of the Project and removed only with the written approval of the Project manager.

#### 1.16 REMOVAL OF UTILITIES, FACILITIES, AND CONTROLS

- A. Remove temporary above grade or buried utilities, equipment, facilities, materials, prior to Final Application for Payment inspection.
- B. Remove underground installations to a minimum depth of 2 feet. Grade site as indicated.
- C. Clean and repair damage caused by installation or use of temporary work.

#### 1.17 REPORTING, RECORDING AND PRESERVING HISTORICAL AND ARCHAEOLOGICAL FINDS

- A. All items having any apparent historical or archaeological interest which are discovered in the course of any construction activities shall be carefully preserved so that proper action can be taken.
- B. The Contractor shall leave the archaeological find undisturbed and shall immediately report the find to the Town so that the proper authorities may be notified.

#### 1.18 REQUIREMENTS FOR WORK IN PUBLIC WAYS

- A. Maintain, at all times, fire lanes of a minimum width of 15 feet between all construction fencing and the nearest obstruction outside the.
- B. Normal Town restriction and permits/approvals will be required of the Contractor for work in all streets, sidewalks and public ways, including notification of all public and private utilities of all impending work.

#### 1.19 FIRE PREVENTION AND PROTECTION

- A. The Contractor shall establish a fire prevention and protection program approved by the Town's Project Manager prior to the start of any work. Contractor shall maintain open access to the adjacent fire hydrant to the job site.
- B. Hazard Control: Take all necessary precautions to prevent fire during construction. Do not store flammable or combustible liquids in existing buildings. Provide exterior and environmentally controlled storage facilities.
- C. Smoking: Smoking within buildings or temporary storage sheds is strictly prohibited.
- D. Protection equipment required: Vehicles and equipment - provide one extinguisher on each vehicle or piece of equipment.

## **PART 2 – PRODUCTS**

### **2.01 EQUIPMENT**

- A. The Contractor shall provide all necessary equipment related to the requirements of this Section such that the work of the Contract can be conducted in accordance with the applicable Contract Documents.
- B. All temporary equipment, facilities, and controls shall be clean and in good working order. All temporary equipment, facilities, and controls shall be drained of water and flushed with clean water prior to being brought on site.

### **2.02 CONSTRUCTION PROJECT AND OTHER SIGNAGE**

- A. Construction project signage shall be made of durable wood or metal and shall be maintained throughout the duration of the Contract.
- B. The location of the construction project signage shall be as designated and as approved by the Town. The Contractor shall also construct and install a Standard MassDEP Construction Sign as per the Order of Conditions. This sign shall be mounted below the Construction Sign.
- C. The final construction signage configuration and content shall be reviewed and approved by the Town prior to fabrication.

## **PART 3 - EXECUTION**

### **3.01 GENERAL**

- A. The Contractor shall sweep and clean as necessary to maintain neat, orderly work areas.
- B. The Contractor will take such steps as are necessary to reduce and/or warn of slip/trip hazards due with work zones.

### **3.02 FIELD OFFICE MAINTENANCE**

- A. The Contractor shall furnish full maintenance and service for all Temporary Facilities and Controls. Trash, garbage, and other wastes shall be lawfully, properly, and satisfactorily disposed of by the Contractor at regular intervals.

### 3.03 SIGNAGE

- A. Install the signage in locations as directed by the Town.
- B. Maintain signage throughout the duration of the project. The Contractor shall repair or replace the signage at his sole expense in the event of damage.
- C. Remove all temporary signage at the completion of the project and lawfully dispose. Fill post holes to grade following removal of signage.

### 3.04 DPW TRENCH PERMIT

- A. The Contractor shall submit Excavation/Trench Permit to Northampton Department of Public Works.
- B. Permit Fee shall be waived by the Town.

### 3.05 WORKING HOURS

- A. Regular working hours shall consist of an 8-hour period between 7:00 AM and 4:00 PM, EDT, Monday through Friday, and shall comply with local and state ordinances.
- B. If the Contractor desires to carry on work outside regular hours, including Saturdays, Sundays, city, federal, and state holidays, an application shall be delivered to the Town and the Town's designated field representative at least three (3) working days prior to the date(s) requested by the Contractor. The Contractor shall allow ample time to enable satisfactory arrangements to be made by the Town and the Town's designated field representative for observing the work in progress. The Contractor shall be responsible for all permits required to perform such work. No night shifts shall be allowed except where approved by the Town and as allowed by local ordinances. No additional payment shall be made for work outside regular hours. The Town will provide, in writing, approval or non-approval of the Contractor's request.

### 3.06 NOTIFICATIONS TO BE MADE BY THE CONTRACTOR

- A. The Contractor shall notify DIG SAFE by telephone 1-888-DIG-SAFE, or 811, as required by law prior to any activities where such notification is required. The Contractor shall make all other necessary efforts to identify other features which might interfere with the Work. Contractor shall retain the services of a qualified utility locating company, as appropriate, to assist in location of underground utilities, at no additional cost to the Town.
- B. The Contractor shall notify all appropriate agencies regarding work on public roads, including turnoff points for site access.

**PART 4 - MEASUREMENT AND PAYMENT**

**4.01 MEASUREMENT FOR PAYMENT**

- A. No measurement shall be made for general temporary facilities, other than as provided below. The bid item under this section is a lump sum quantity.
- B. No measurement shall be made for the provision of the Temporary Project Signage. The bid item under this section is a lump sum quantity.

**4.02 PAYMENT**

- A. Payment for the scope of the work specified herein, including all labor, materials, equipment and incidentals and mobilization/demobilization costs to provide, install, maintain, and remove Temporary Facilities and Controls associated with the work of this Contract shall be paid for at the applicable Lump Sum price for Item No. 01500-01 stated on the Form for Bid.
- B. Payment for the scope of the work specified herein, including all labor, materials, equipment and incidentals and mobilization/demobilization costs to provide, install, maintain, and remove Temporary Project Signage shall be paid for at the applicable Lump Sum price for Item No. 01500-02 stated on the Form for Bid. The cost of this item shall include the Project Sign, DEP Sign, a Project Information sign, and all mounting and supports.

<u>Item No.</u>	<u>Payment Item</u>	<u>Unit</u>
01500-01	Temporary Facilities and Controls	Lump Sum
01500-02	Temporary Project Signage	Lump Sum

\*\*\*\*\*END OF SECTION\*\*\*\*\*

## SECTION 01560

### TEMPORARY EROSION AND SEDIMENTATION CONTROLS

#### PART 1 - GENERAL

##### 1.01 DESCRIPTION

- A. The Contractor shall furnish all labor, materials and equipment and shall perform all work required to install, maintain, and remove erosion, sedimentation, and siltation control measures to protect the site, and upstream and downstream wetlands, water bodies, streams, and drainage structures from siltation and sedimentation damage and accumulation or damage from other byproducts of the work during this Contract, as specified herein and as directed by the Town, Resident Engineer, or Town's Consultant.
- B. Erosion control measures are used to prevent the displacement of soil. Such measures may include, but not be limited to, grading, erosion control matting/blankets, plastic coverings, mulching, temporary seeding, riprap, check dams, cross tracking, application of sprayed tackifier, and other items intended to stabilize soil material and/or reduce the erosive potential of water.
- C. Sedimentation and siltation control measures are used to prevent the movement and transport of soil particles. Sedimentation and siltation control measures may include, but not be limited to, use of sedimentation basins, filtration dams/berms, siltation sumps, silt fences, construction entrances and other items as necessary to contain sediment and other deleterious material produced from excavation and filling, dewatering, and related operations.
- D. The Work shall also include all work necessary to clean and maintain and promptly repair/replace all erosion, sedimentation, and siltation measures as needed to sustain their intended function and operability until all disturbed areas are permanently stabilized.
- E. It is the intent of this Section that the Contractor shall be responsible for the use of all Best Management Practices (BMPs), both structural and operational, to reduce, to the greatest extent possible, the erosion and transport of soil and sediment at the site and including staging and laydown areas. The Contractor shall be responsible for implementing all measures which are both prudent under good construction practices and required under local, state, and federal regulations and law. The Contractor shall also be responsible for all monitoring, maintenance, and repair of all BMPs utilized. In the event of the failure of sediment and erosion control BMPs, the Contractor shall be responsible, at no additional cost to the Town, for all work necessary to mitigate and correct the situation, including, but not limited to, the removal of transported sediment.

## 1.02 SCOPE OF WORK

- A. The Work of this Section shall include the installation of Silt Fences, Straw Bales, Straw Wattles, and other required erosion control measures as shown on the Contract Drawings, and as needed to control erosion and sedimentation. This work shall also include the monitoring, cleaning, maintenance, and repair/replacement of all installed silt fences, Stawbale/Silt Fence, Sandbags, and Compost Socks and the proper removal and disposal of silt fencing after final stabilization of the site.
- B. The Work covered and paid for under this Section shall include the installation of all other sediment and erosion control BMPs, as shown on the Contract Drawings, and as needed elsewhere. This work shall also include the monitoring, cleaning, maintenance, and repair of all installed sediment and erosion control BMPs and disposal of same fencing after final stabilization of the site. General work covered and paid for under this Section shall also include all other work, including recordkeeping and reporting, necessary to meet the conditions of the Contract Documents, Permits, Approvals, Licenses issued for the project and all relevant codes, rules, regulations, laws and ordinances applicable to sediment and erosion control.

## 1.03 SPECIAL CONDITIONS

- A. All work shall comply with all codes, rules, regulations, laws and ordinances and executed in conformance with any permits, licenses etc., as issued by the Town of Milford, Commonwealth of Massachusetts Department of Environmental Protection (DEP), the U.S. Army Corps of Engineers, U.S. Environmental Protection Agency (EPA) and all other authorities having jurisdiction within the project areas. All work necessary to make site preparation comply with such requirements shall be provided without additional cost to the Town.
- B. Copies of all permits and licenses obtained by the Town, as listed under Section 01060, will be forwarded to the Contractor prior to the beginning of the Work. The Contractor shall be responsible for conducting their work in accordance to all provisions of said permits.
- C. The Contractor shall procure all other required permits and licenses, (except for those to be obtained by the Town as stated in Section 01060 of the Specifications), pay all charges, fees and taxes and shall give all notices necessary and incidental to the due and lawful prosecution of the work under this Contract. The cost thereof shall be included in the prices bid for the various items specified herein for the work of this Contract. Copies of all required permits and licenses shall be filed with the Town prior to the beginning of the Work.
- E. The Contractor shall be responsible for adhering to the requirements of all applicable permits, address problems immediately, and contact MassDEP.
- F. No work of any type in any area shall commence until sedimentation control measures are in place to the satisfaction of the Town and the Milford Conservation Commission.



#### 1.04 IMPLEMENTATION

- A. The Contractor shall familiarize him/herself with the nature of Work to be performed. The Contractor shall be responsible for scheduling his submittals and/or meetings, if required, with the applicable regulatory agencies.
- B. Measures implemented by the Contractor may include, but not be limited to, the following:
  - Silt fences
  - Temporary coffer dams
  - Stabilized construction entrances
  - Compost socks
  - Sediment Settling Tanks
  - Filling and stabilizing of erosion gullies with gravel
  - Application of weed-free straw (or other) mulch
  - Track-roughening of slopes to slow runoff flow
  - Temporary swales to divert drainage flow
  - Energy dissipaters for pipe, culvert, and hose discharge points

#### 1.05 LOCATION AND STORAGE OF MATERIALS

- A. No materials shall be dispersed or stockpiled in any areas beyond authorized the limits of disturbance. No excavated materials shall be deposited within any watercourses, wetland areas or drainage facilities unless appropriate and approved measures are taken to protect the resource area and as approved by the Milford Conservation Commission. Materials dredged shall be removed and disposed of as soon as practical to do so. Adequate protective measures shall be implemented by the Contractor to prevent the erosion of stockpiled materials and resultant sedimentation of adjacent drainage facilities, during the course of performing the Work.

#### 1.06 PROTECTION OF THE STREAM AND WETLANDS

- A. The Contractor shall employ Best Management Practices (BMP's) throughout the conduct of the work of this Contract and ensure that impacts to surrounding areas is minimized.
- B. The Contractor shall not store or discharge fuel oil, sewage, septic water or other deleterious substances into streams, lakes, reservoirs, groundwater supplies or wetlands areas. The storage of fuel oil and refueling of equipment shall be restricted to designated, pre-approved areas with appropriate spill prevention and control measures (Submitted under Section 01060). This area shall be located on an asphalt paved surface away from catch basins and other drainage structures. Portable

secondary containment shall be provided, and sorbent material are to be placed around the perimeter of the fueling area.

- C. Any spillage of deleterious substance (fuel oil, sewage, septic waste, etc.) shall be reported to the Town, and appropriate regulatory agency, by the Contractor and appropriate measures taken, (at costs solely borne by the Contractor) as determined by the regulatory agency, to contain and to clean up the affected areas.
- D. The general sediment control performance standard is outlined in the Massachusetts State Water Quality Standards (314 CMR 4.00). These regulations state the following regarding discharges into freshwater waterways. The Contractor shall ensure that temporary erosion and sediments controls are adequate to ensure compliance with these regulations, or other more stringent regulations, as needed.

*Solids - These waters shall be free from floating, suspended and settleable solids in concentrations or combinations that would impair any use assigned to this class, that would cause aesthetically objectionable conditions, or that would impair the benthic biota or degrade the chemical composition of the bottom.*

*Color and Turbidity - These waters shall be free from color and turbidity in concentrations or combinations that are aesthetically objectionable or would impair any use assigned to this class.*

#### 1.07 RELATED SECTIONS

- A. Section 01060 – Regulatory Requirements
- B. Section 01565 – Temporary Water Control
- C. Section 02100 – Site Preparation & Demolition
- D. Section 02170 – Temporary Cofferdams
- E. Section 02200 – Earthwork
- F. Section 02500 – Paving and Surfacing
- G. Section 02720 – Drainage and Precast Concrete Units
- H. Section 02800 – Site Improvements
- I. Section 02910 – Fences and Walls
- J. Section 02970 – Restoration
- K. Section 03300 – Cast-in-Place Concrete

#### 1.08 SUBMITTALS

- A. A written plan detailing the methods and layout of BMPs proposed to contain sediments, soils, and debris at the Site must be submitted to the Town for review and approval prior to proceeding with the work of this Section. If required by the Order of Conditions, the plan shall also be submitted to the Conservation Commission.

- B The methods and materials for proposed construction of individual BMP's, including sedimentation control fences or silt fence barriers shall be submitted to the Town for review and approval prior to proceeding with the work of this Section.

## **PART 2 - PRODUCTS**

### **2.01 TEMPORARY GRASS SEED**

- A. Grass seed for temporary erosion control shall be Annual Ryegrass applied at a minimum rate of 2 pounds per 1,000 SF.

### **2.02 HAY BALES**

- A. Hay bales shall not be used.

### **2.03 STRAW BALES**

- A. Straw bales shall only be used for this work with approval from the Town or in accordance with the Contract Drawings. If approved for use, straw bales shall be composed only of the dry stalk of a cereal plant, with all the nutrient grain or seed removed. Straw bales shall contain no living plant material or seed product. Particular care shall be taken to ensure that straw bales are free of invasive plant material and seeds. Straw bales for use as sedimentation traps or perimeter barriers shall be rectangular shaped bales of hay weighing at least forty (40) pounds per bale either wire-bound or string-tied. Bales shall be installed with bindings horizontal to the ground surface.
- B. Stakes for anchoring straw bales shall be one-inch by one-inch (1" x 1") construction grade timber.
- C. Straw Wattles may be substituted for straw bales, at the same unit price, with the approval of the Town.

### **2.04 SILT FENCE**

- A. Siltation fence shall be made of woven 5 mil industrial polypropylene (2.5 oz/s.y.) fabric. Coefficient of permeability shall be 0.009 cm./sec. with a water flow rate of 10 gal./min./s.f. Opening size shall be a maximum of 30 (U.S. Standard Sieve). Fabric shall be stable against ultraviolet radiation. Fabric width shall be three feet.
- B. Siltation fence shall be "Envirofence" as manufactured by Mirafi Inc. Charlotte, North Carolina or approved equal.
- C. Stakes for anchoring the silt fence shall be one-inch by one-inch (1" x 1") construction grade timber.
- D. Contractor shall provide a backing mesh to provide stability to the silt fence fabric against blow over or knock down.

2.05 COMPOST SOCKS

- A. Material for the filter tubes shall be compost meeting Massachusetts Highway Department Specification 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. Particle size analysis: 98% shall pass through a 3-inch (75mm) sieve; 30-50% shall pass 3/8 inches (10mm) sieve.
- B. Tubes for compost filters shall be a minimum of 12 inches (300 mm), a maximum of 18" (450mm) in diameter (final, filled in-place dimensions). Tube material shall be a knitted mesh with 1/8" - 3/8" (3-10 mm) openings, and made of biodegradable (cotton or jute) materials. Photodegradable (HDPE or polypropylene) fabric may be used; however, photodegradable fabric must be removed and disposed of by the Contractor, at no additional expense to the Town, after final stabilization is achieved.
- C. The wedge of compost or crushed stone spread along the upgradient side of the filter tube shall be incidental to this item.
- E. Stakes, if required, shall be one-inch by one-inch (1" x 1") construction grade timber. Rebar may also be used for anchors.

2.06 CATCH BASIN INLET PROTECTION

- A. Catch basin inlet protection shall be open top geotextile fabric filter bags that is specifically designed to hang below the catch basin grate to filter sediment laden stormwater runoff.
- B. The unit shall have lifting straps to allow removal of the unit and manual inspection of the system.
- C. The unit shall have orange monofilament fabric manufactured in the U.S. with the following characteristics:

PROPERTY	TEST METHOD	UNITS	TEST RESULTS
Grab Tensile Strength	ASTM D 4632	lbs	450 x 300
Grab Tensile Elongation	ASTM D 4632	%	40 x 25
Puncture Strength	ASTM D 4833	lbs	130
Mullen Burst Strength	ASTM D 3786	psi	600
Trapezoid Tear Strength	ASTM D 4533	lbs	165 x 150
% Open Area (POA)	COE – 22125-86	%	28
Apparent Opening Size	ASTM D 4751	US Std Sieve	30
Permittivity	ASTM D 4491	sec <sup>1</sup>	3.5
Permeability	ASTM 4491	cm/sec	0.25
Water Flow Rate	ASTM 4491	gal/min/ft <sup>2</sup>	250
Ultraviolet Resistance	ASTM D 4355	%	70

## 2.08 OTHER MATERIALS

- A. Other materials required for completion of the work in this Section shall be of adequate quality and construction such that intended performance is satisfied.

## 2.09 SEDIMENT SETTLING TANKS AND DEWATERING BAGS

- A. If needed, the Contractor shall provide settling tanks for the purpose of treating discharge from all pumping systems. Settling tanks shall be constructed of metal with watertight seams and sufficient stiffness to accommodate full tank levels. The Contractor shall size the tanks sufficient to provide residence time commensurate with pumping rates and sediment grain size. Baffles and booms shall be provided as needed.
- B. An acceptable substitute for sediment settling tanks may be so-called dewatering bags. Such bags shall be made from permeable non-woven geotextile fabric into which water is pumped. Sediment is filtered on the inside of the bag and water diffuses out. The Contractor may propose dewatering bags as a substitute for settling tanks, provided the bags are sized appropriately, the apparent opening size of the geotextile is suitable for the sediment grain size distribution; and that for upland applications, the bags are placed on gravel bedding, and surrounded by a silt fence. Full dewatering bags must be removed from site and disposed of in a lawful manner.

## **PART 3 - EXECUTION**

### 3.01 INITIAL CONSTRUCTION ACTIVITIES AND PRELIMINARY DRAINAGE CONTROL

- A. The Contract Drawings show the deployment of silt fence and cofferdam. The limits of these controls have been established based on ground conditions, expected water surface elevation at the start of construction and in accordance with applicable permits and regulations. Prior to the installation of any sedimentation barrier, the Contractor, the Resident Engineer, and the Town's Consultant shall meet on site to discuss conditions. Any adjustments to the configuration shown on the Contract Plans shall be discussed at that time and mutually agreed upon. The Contractor should expect the possibility that sedimentation controls may be installed and/or removed in the wet.
- B. Prior to beginning any dewatering, clearing, stockpiling, excavation, the Contractor shall perform the following sequence of implementation of sedimentation and siltation control measures.
  1. Perform all necessary work to install all anticipated sedimentation barriers including but not necessarily limited to silt fences, straw wattles, inlet protection, stabilized construction entrances, and other items as necessary. Provide all necessary sedimentation and siltation control measures as required by the Town, Resident Engineer, and regulatory agencies, to minimize the potential for sedimentation or siltation occurring beyond the immediate limits of the Work.

2. In addition to initial sedimentation and siltation control set-up measures, take additional steps as necessary to minimize sedimentation and siltation within work areas and eliminate sedimentation and siltation outside of work areas throughout performance of the Work at no additional cost to the Town.
  3. Following initial setup of sediment and erosion controls, the site shall be inspected by the Town, the Town's Consultant, and Conservation Agent. No work can continue until the Erosion controls meet the approval of the Conservation Commission.
  4. Damaged or loose siltation fence or other control measures shall be maintained and replaced as necessary to provide their full function of controlling sedimentation and siltation.
- C. Remove any accumulation of silt or soil build-up behind silt fences or siltation dams/barriers, as it occurs. Remove accumulated sediment from siltation sumps, sedimentation basins and silt traps as necessary to properly maintain their function.
  - D. Following periodic cleaning of all sedimentation controls and upon completion of the use of the controls, the accumulated sediment shall be allowed to dry prior to transporting to lawful off-site upland disposal locations. Costs of said disposal shall be included as part of the price stated on the Bid Form.
  - E. The Contractor shall repair any damage resulting from sedimentation or siltation during performance of the Work and related activities and restore effected property to its prior condition at no additional cost to the Town. Determination of adequacy of restoration shall be solely made by the Town.

### 3.02 ADDITIONAL EROSION AND SEDIMENTATION CONTROLS

- A. The Town and the Town's Consultant may make periodic inspections of the Site and shall advise the Contractor of the need for additional erosion and sedimentation controls necessary to meet the performance standards of this Section. Representatives of the Town and of the Conservation Commission may also make inspections.
- B. Additional erosion and sedimentation control necessary to deal with transient conditions on the site, such as following the placement of topsoil but prior to the establishment of grass cover, shall be provided by the Contractor as needed and at no additional cost to the Town.

### 3.03 INSPECTION AND MAINTENANCE

- A. Throughout the entire duration of the Contract (including periods when work is not being actively conducted, e.g., temporary cessation of work for weather or other reasons), the Contractor shall perform weekly inspections of erosion and sediment control installations. Additional inspections shall be required immediately after each rain event exceeding one-half (0.5) inches. The Contractor shall develop a checklist to assist with periodic inspection and maintenance and shall keep completed copies of

the checklist for each inspection on file along with the sediment and erosion control plan.

- B. Throughout the entire duration of the Contract (including periods when work is not being actively conducted), the Contractor shall repair any damage resulting from sedimentation or erosion during construction and/or construction related activities and restore property to its prior condition at no additional cost to the Town. Determination of adequacy of restoration shall be solely made by the Town.
- C. Throughout the entire duration of the Contract (including periods when on actual site work is being conducted), the Contractor shall take such steps as are necessary to maintain the sediment and erosion controls in good working order, including repair or replacing controls and cleaning or removing sediment from controls.
- D. Construction entrances shall be maintained in a condition that will prevent tracking or flow of mud onto public right-of-way or private roadways and walks. All materials spilled, dropped, washed, or tracked from vehicles onto public roadways or into on- or off-site storm drains must be removed immediately.
- E. In the event of inclement weather, the Contractor shall protect the site and materials from damage or injury from the weather. If, in the opinion of the Town or its Resident Engineer, any portion of the Work or materials has been damaged by reason of failure on the part of the Contractor to so protect the Work, such Work and materials shall be removed and replaced with new materials and Work to the satisfaction of the Town. Weather protection shall include all activities necessary to prevent the spread of sediment from wind, runoff, erosion, and other causes.

### 3.04 REMOVAL AND CLEANUP

- A. After the site has been fully stabilized against erosion and upon the approval Town, remove sediment control devices and accumulated silt. Legally dispose of off-site all accumulated silt and all sedimentation and siltation control devices such as, but not limited to siltation fencing, sand bags, and other related products. On-site disposal of clean sediments in upland area shall be allowed only with the express approval of the Town.

## **PART 4 - MEASUREMENT AND PAYMENT**

### 4.01 MEASUREMENT FOR PAYMENT

- A. No measurement for payment of Temporary Erosion and Sedimentation Controls or materials including turbidity curtains, monitoring, inspections, and maintenance, shall be made. The bid item for Temporary Erosion and Sedimentation Controls shall be a lump sum quantity.

4.02 PAYMENT

- A. Payment for the scope of work specified herein, including all labor, materials, equipment and incidentals and mobilization/demobilization costs to provide, install, maintain, inspect, and remove all Temporary Erosion and Sedimentation Controls including turbidity curtains and CGP compliance work will be paid for at the applicable lump sum price for Item No. 01560-1 stated on the Bid Form.
- B. Partial payments for this item will be billable at 50% after initial installation and acceptance and NOI approval, with the remaining 50% after demobilization and final stabilization of all areas.

<u>Item No.</u>	<u>Payment Item</u>	<u>Unit</u>
01560-1	Temporary Erosion and Sedimentation Controls	Lump Sum

**\* \* \* \* \* END OF SECTION \* \* \* \* \***



## SECTION 01565

### TEMPORARY WATER CONTROL

Part A of this Section describes Temporary Surface Water Control.

Part B of this Section describes Temporary Construction Dewatering and Groundwater Control

#### PART A – TEMPORARY SURFACE WATER CONTROL

##### PART I-GENERAL

###### 1.01 SCOPE

- A. This Section specifies the removal and control of water in the work area in order to permit all excavation, construction, installation, and repairs to be performed in the dry (to the extent practicable). The Work under this Section includes the furnishing of all labor, equipment, supplies, materials and utilities required for the operation, maintenance and supervision of the control of water (except as specifically specified under other Sections) such that all construction within this Contract can proceed unhindered by water and flow into or through the work area. Water control shall also extend to all provisions necessary to control water in and from the limits of work, and surface drainage from upland areas from flowing into, disrupting, and damaging the work area. All work shall be performed in accordance with the Contract Documents (Drawing and Specifications) and to the satisfaction of the Town. Water control is of the utmost importance.
- B. The Contractor shall be responsible for determining the need for and the means and methods of implementing water control during the Work of the Contract, except as specifically stated herein and in other Sections. The Town may monitor conditions at the site and the effects of water levels and flows on the Work. If, in the Town's opinion, the presence of water has the potential to create a deleterious effect on the Work, then the Contractor shall take measures to control such water to the satisfaction of the Town at no additional cost to the Town. Monitoring of the site by the Town shall not remove the Contractor's responsibility to properly control water and protect all installed Work.
- C. The control of surface water shall consist of installing such provisions, as needed, to divert, reduce, or stop water which maybe flowing into, on, or through the work area. The need for control of surface water may change over the course of the project depending on the work underway, as well as rainfall/runoff conditions encountered. Pumping, siphoning, and/or diversion channels may be required for certain activities.

- D. Temporary construction dewatering systems will be necessary for completion of the Work of this Contract. The temporary construction dewatering systems which shall be provided are described in Part B of this Section. Temporary construction dewatering systems shall act in concert with the surface water control and temporary cofferdams.
- E. The Contractor shall take all necessary precautions during construction to provide and maintain proper equipment and facilities to remove promptly and dispose of properly, all water entering work area and keep work areas dry, as necessary. The Contractor shall implement such temporary surface water control measures as necessary to maintain the water level such that all Work, where judged necessary, proceeds in the dry. Temporary water control work may include, but shall not be limited to diversion pipes, channels, swales, pumps, siphons, culverts, temporary cofferdams, etc.
- F. Water control measures shall be in operation as needed until all work within those areas of the work zone subject to interference by surface water is complete and accepted by the Town.
- G. The Contractor shall remove all channeled, pumped, diverted, or siphoned surface water away from the work area, and provide sedimentation control and recharge in accordance with all applicable local codes and laws. Requirements specified in the Town of Milford Conservation Commission Order of Conditions and other permits shall be met during this process. All water which is discharged by water control measures shall be passed through appropriate and adequate sediment and/or filtration measures such that the effluent meets the standards set out in Section 01560, water quality standards, and those provided herein, as well as velocity dissipation measures to prevent erosion and scour at the outlet to meet all permit conditions.
- H. Only clean streamflow water diverted by the Contractor shall be pumped downstream of the work area. Adequate provisions for erosion control/velocity dissipation at the discharge point shall be provided as part of the Work of this Section.
- I. All temporary surface water control Work shall be coordinated with the sedimentation and erosion control Work as specified under Section 01560.

## 1.02 ADHERENCE TO REGULATORY CONDITIONS

- A. All Work shall comply with all codes, rules, regulations, laws and ordinances executed in conformance with any permits, licenses etc., as issued by the Town of Milford, Commonwealth of Massachusetts Department of Environmental Protection (DEP), the U.S. Army Corps of Engineers, Environmental Protection Agency, and all other authorities having jurisdiction within the project areas. All Work necessary to make the site comply with such requirements shall be provided without additional costs to the Town.
- B. The permits and licenses listed under Section 01060 are an integral part of the Contract. The Contractor shall be responsible for conducting their work in accordance

with all provisions of said permits.

- C. The Contractor shall procure all other required permits and licenses, (except for those to be obtained by the Town as stated herein), pay all charges, fees and taxes and shall give all notices necessary and incidental to the due and lawful prosecution of the work under this Contract. The cost thereof shall be included in the prices bid for the various items specified herein for the work of this Contract. Copies of all the required permits and licenses shall be filed with the Town prior to the beginning of the work.
- D. The Contractor shall be responsible for complying with all orders and permit conditions of the Milford Conservation Commission or other regulatory bodies for the installation, maintenance, and removal of all erosion and sedimentation control measures.
- E. No work of any type in any area shall commence until sedimentation control measures are in place to the satisfaction of the Town.

### 1.03 RELATED SECTIONS

- A. Section 01060 – Regulatory Requirements
- B. Section 01560 – Temporary Erosion Control and Sedimentation Controls
- C. Section 02020 – Mobilization
- D. Section 02100 – Site Preparation & Demolition
- E. Section 02200 – General Earthwork
- F. Section 02720 – Drainage and Precast Concrete
- G. Section 02970 – Restoration
- H. Section 03300 – Cast-in-Place Concrete
- I. Section 03346 – Concrete Finishing Curing and Repairs

### 1.04 SUBMITTALS

- A. Not less than ten (10) days prior to the scheduled start of work, the Contractor shall submit their proposed method of controlling surface water and maintaining dry conditions, to the Town and Conservation Commission for review. The submittal shall include as a minimum the following items:
  - 1. The Contractor's proposed design, sequence of operation, maintenance and supervision of the surface water and control systems, as needed for each phase of the work, and coordination with temporary groundwater control and any temporary cofferdams.
  - 2. The Contractor's proposed contingency plan for additional surface water measures for all systems in the event of system failure – monitoring, instrumentation, on-call repair, etc.
  - 3. Schedule for installation of sedimentation and water control measures.

4. The Contractor's proposed contingency plan for potential storm emergency conditions (e.g., anticipated heavy rainfall). The contingency plan should address, but not to be limited to, measures for protection of installed Work from flooding, handling flooding of the Work area and removing equipment and materials from the Work area.

#### 1.05 WATER CONTROL RESTRICTIONS

- A. The Contractor shall abide by the conditions of all relevant permits issued for the Project which pertain to water control. The Contractor alone shall be responsible for meeting the conditions of the permits and shall be held accountable for penalties as a result of violations of permit conditions.
- B. The Town makes no guarantee regarding the water surface elevation or stream flows at the start or at any time during the project.
- C. The Contractor is hereby made aware that inflow to the Project site cannot be fully controlled or predicted. Rainfall events may cause the level of Godfrey Brook to rise rapidly and lead to potential inundation of the work sites. In the event of uncontrolled increases in the Brook level, the Contractor shall undertake measures to protect existing structures and new work at no additional costs to the Town.

#### 1.06 PROTECTION OF WORK FROM FLOOD CONDITIONS

- A. The Contractor shall take all such precautions necessary to protect the site and the Works of this Contract, either completed or incomplete, from flood waters and flows which would damage the Work of the site or cause a delay to the Work.
- B. The Contractor shall be aware of the potential for the water level within Godfrey Brook to rise rapidly in response to significant rainfall event. Available hydraulic and hydrologic data for the portion of Godfrey Brook is included in Section 01566. If significant rainfall, or extensive flooding is expected, the Contractor shall implement his/her contingency plan to prepare for increased brook flows. The Contractor shall remove all equipment and erosion-susceptible material from areas liable to be inundated or otherwise impacted by flooding. The Contractor shall secure the site and make all efforts to protect completed and incomplete Work. The cost of these efforts shall be considered incidental to the Work.

#### 1.07 MAXIMUM WATER CONTROL DISCHARGE RATE

To protect the downstream portions of Godfrey Brook system, and reduce potential for increased erosion due to Contractor's activities, the total flow rate from all Contractor water control operations shall be such that significant downstream erosion, flooding, or other damage is avoided, in the opinion of the Town, or regulatory authority. The Contractor's water control measures shall not lead to an increase in downstream flood impacts.

## **PART 2 – PRODUCTS**

### **2.01 DIVERSION BARRIER / MINOR COFFERDAM MATERIALS**

- A. All materials used in the construction of cofferdams or diversion barriers, if used, shall be clean and free of substances or materials which might lead to contamination of the brook, river, or other water courses.
- B. Any sandbags shall be free of rips or tears which would lead to a loss of sand into the rivers or wetlands, and bags openings shall be tied to prevent the same.
- C. Loose soil material will NOT be an acceptable material for the construction of cofferdams or diversion barriers.
- D. Sandbags shall consist of polypropylene bags about 14" to 18" wide, and 24" to 30" deep. Sand bags shall be filled with Granular Fill as set out in Section 02200 – Earthwork or other approved material. "Super Sacks" may be used as appropriate.

### **2.02 PUMPS, HOUSES, SIPHONS**

- A. Pumps, hoses, or siphons used at the site shall be sized appropriately and shall be maintained in good working order by the Contractor.
- B. All equipment shall be thoroughly cleaned and free from contaminants prior to being brought to the Site.
- C. Pumps shall be sized appropriately by the Contractor and shall operate in a manner which does not create a nuisance to abutters (i.e. quietly and without significant exhaust).
- D. Pumps must be properly baffled against excessive noise.
- E. Secondary containment shall be provided for gasoline or diesel-powered pumping equipment.

### **2.03 PIPE**

- A. Pipe used for water control and/or diversions shall be sized appropriately and shall be in good working condition without leaks or cracks. Pipe pressure ratings shall be adequate for static head loading when pressure flow is expected. Pipe joints shall be watertight and installed as per the manufacturer's recommendations.
- B. Pipe shall be clean and free from contaminants.

## **PART 3 – EXECUTION**

### **3.01 GENERAL**

- A. The Contractor is responsible for means and methods and compliance with the specification will be judged on a performance criteria. The Contractor shall submit a water control plan to the Town for review and may, at that time, proposed alternative water control strategies. The Contractor's water control plan must however satisfy the terms and conditions of all permits issued to the project.
- B. If pumps or similar equipment are utilized, the Contractor shall maintain ready access to back-up electrical generators, fuel, pumps and related equipment and supplies with output capacity sufficient to maintain continuous operation of the water control systems in the event the original water control equipment or power source(s) which is in use becomes inoperable. The back-up generator, pumps and necessary equipment and supplies shall be capable of rapid deployment for replacement for the inoperable equipment.
- C. The Contractor shall take all reasonable and prudent precautions during construction to provide and maintain proper equipment and facilities to control and divert water.
- D. If necessary, water control systems shall be operated continuously during all construction specified herein. The operation time may include breaks, nights, weekends, holidays and other times when work is not otherwise being performed on the sites.
- E. Water control in the sites shall account for the range of flow reasonably expected into and out of the work areas during the course of the Project. Pumps, siphons, pipes, channels, etc. shall be sized appropriately. Any cofferdam/diversion barrier shall be constructed of such materials and to such extents that it will withstand the forces and pressures exerted by flows and depths of a reasonably expected magnitude and shall be capable of overtopping without damage or destruction. The cofferdam/diversion barriers shall be compatible with other dewatering, water control, and sedimentation control procedures. Dewatering equipment shall be provided as needed to remove water from the interior areas of cofferdams/diversion barriers.
- F. All cofferdams/diversion barriers constructed by the Contractor shall be completely removed upon completion of the Project. All material shall be legally disposed of off-site at the Contractor's expense. No material shall be left within the work area.
- G. If deployed by the Contractor, pumps must be operated in such a way as to not disturbed abutters (e.g. noise). Pump intakes shall be placed as to reduce potential for sediment entrainment and pump discharge points shall make provisions for reducing erosion potential through energy dissipation, riprap protection, etc.

- H. In general, the Contractor shall only work in the dry to the extent practicable, unless approved by the Town. If the Town approves the Contractor to work in the wet, the Work shall be performed such that the intent of the Work underway is not violated and the quality of the finished product is not reduced. The Town will monitor conditions at the Site and the effects of water surface levels and flows on the Work. If it is judged that the Contractor cannot appropriately complete the Work under the conditions present, the Town will notify the Contractor and the Contractor shall make provisions for water controls beyond what is already in-place.
- I. The Contractor shall install and maintain temporary staff gages and/or measurement points as necessary to provide for water level measurement during construction.
- J. Sand bags may be used to direct runoff or for other purposes shall be included as Work of this Section.

### 3.01 SITE SPECIFIC WATER CONTROL REQUIREMENTS

- A. Water Control is of the utmost importance during the Work of this Contract.
- B. During the Work of this contract, it is possible that the flow in Godfrey Brook would interrupt the work. The Contractor shall be responsible for selecting the appropriate means and methods for providing necessary water control.

## **PART B – TEMPORARY CONSTRUCTION DEWATERING AND GROUNDWATER CONTROL**

### **PART I-GENERAL**

#### 1.01 SCOPE

- A. This section specifies the removal and control of groundwater and hydrostatic pressures in the work area in order to permit excavation, construction, installations, and repairs to be performed in the dry. The work under this section includes the furnishing of all labor, equipment, supplies, materials and utilities required for the operation, maintenance and supervision of the dewatering system and control of water such that the excavation and/or backfilling operation can proceed unhindered by groundwater and flow into or through the work area. All work shall be performed in accordance with the Plans and Specifications and to the satisfaction of the Town.
- B. The Contractor shall implement groundwater dewatering and control measures to maintain the groundwater level such that excavation work proceeds in the dry, to the extent practicable. All outlets shall have sediment removal devices such as dewatering bags, etc. and velocity dissipation to prevent erosion/scour or resuspension of sediment.
- C. The Contractor shall take all reasonable and prudent precautions during construction to provide and maintain proper equipment and facilities to remove promptly and

dispose of properly, all groundwater entering work area and keep such areas dry so as to obtain a satisfactory undisturbed subgrade condition.

- D. Shallow sumps may be required to maintain the lowered groundwater level until work has been completed. Sumps shall be surrounded by suitable filter material to mitigate the movement of soil/fines during pumping. Sumps shall not disturb the liner of the pond.
- E. The Contractor shall remove all pumped water away from the work area, and provide sedimentation control and recharge in accordance with all applicable local codes and laws as well as the Sedimentation & Erosion Control and Surface Water Control Sections of the Contract Documents. Requirements specified in the Milford Conservation Commission's Order of Conditions shall be met during this process. All water which is discharged by dewatering measures shall be passed through appropriate and adequate sediment and/or filtration measures such that the effluent meets the standards set out in Section 01560 and this Section. The Contractor shall not discharge dewatering and groundwater control effluent directly into the adjacent rivers.
- F. Dewatering systems shall act in concert with surface water control systems and with the temporary cofferdams erected.

#### 1.02 AHERENCE TO REGULATORY CONDITIONS

- A. All work shall comply with all codes, rules, regulations, laws and ordinances and executed in conformance with any permits, licenses etc., as issued by the Town of Milford, Commonwealth of Massachusetts Department of Environmental Protection (DEP), Department, the U.S. Army Corps of Engineers, USEPA, and all other authorities having jurisdiction within the project areas. All work necessary to make the work site comply with such requirements shall be provided without additional cost to the Town.
- B. The permits and licenses listed under Section 01060 are an integral part of the Contract. The Contractor shall be responsible for conducting their work in accordance with all provisions of said permits.
- C. The Contractor shall procure all other required permits and licenses, (except for those to be obtained by the Town as stated herein), pay all charges, fees and taxes and shall give all notices necessary and incidental to the due and lawful prosecution of the work under this Contract. The cost thereof shall be included in the prices bid for the various items specified herein for the work of this Contract. Copies of all required permits and licenses shall be filed with the Town prior to the beginning of the work.
- D. The Contractor shall be responsible for working with representatives of the Milford Conservation Commission or other regulatory bodies for the installation, maintenance, and removal of all erosion and sedimentation control measures.
- E. No work of any type in any area shall commence until sedimentation control measures are in place to the satisfaction of the Town.
- F. The Contractor shall be responsible for obtaining all other necessary permits required for the work of this project, including permits relating to temporary dewatering and water control. If necessary, the Contractor shall file all the necessary applications and



documentation with the appropriate issuing authority(s). The Contractor shall obtain all permits required for planned dewatering and water control operations and shall abide by all appropriate terms and conditions as a part of the Work of this Section.

### 1.03 RELATED SECTIONS

- A. Section 01060 – Regulatory Requirements
- B. Section 01560 – Temporary Erosion Control and Sedimentation Controls
- C. Section 02020 – Mobilization
- D. Section 02100 – Site Preparation & Demolition
- E. Section 02200 – General Earthwork
- F. Section 02720 – Drainage and Precast Concrete
- G. Section 02970 – Restoration
- H. Section 03300 – Cast-in-Place Concrete
- I. Section 03346 – Concrete Finishing Curing and Repairs

### 1.04 DISCHARGE OF WATER

- A. The general performance standard for the discharge of effluent into State Waters states that the discharge water shall not have a significant impact on the receiving waters. The discharged water shall therefore meet the applicable standards, including but not limited to State Water Quality Standards.

### 1.05 SUBMITTALS

- A. Not less than ten (10) days prior to the scheduled start of work, the Contractor shall submit his proposed method of dewatering and maintaining dry conditions, to the Town and Conservation Commission for review. The submittal shall include as a minimum the following items:
  - The Contractor's proposed design, sequence of operation, maintenance and supervision of the dewatering system for the maintenance of groundwater levels as specified herein and as needed for the Contractor's operations.
  - The Contractor's proposed contingency plan for groundwater control measures for all systems.
  - Scheduling requirements with regard to sedimentation control.

## **PART 2 – PRODUCTS**

Not Used

## **PART 3 – EXECUTION**

### **3.01 GENERAL**

- A. The Contractor shall provide a back-up electrical generator, pumps and related equipment and supplies on-site with output capacity sufficient to maintain continuous operation of the dewatering systems in the event the original dewatering equipment or power source(s) which is in use becomes inoperable. The back-up generator, pumps and necessary equipment and supplies shall be connected to the operating system to the greatest degree possible prior to the start of all dewatering operations in such a manner to allow immediate replacement of the inoperable equipment.
- B. Dewatering systems shall be operated continuously and groundwater levels monitored and maintained at specified levels during all construction specified herein. The operation time is to include breaks, nights, weekends, holidays and other times when work is not otherwise being performed on the site.
- C. Prior to dewatering, all sedimentation controls shall be in-place and operable. Prior to excavation, groundwater levels shall be lowered and maintained by the dewatering system submitted by the Contractor and approved by the Resident Engineer to the subgrade elevation in all work areas. Compliance of the dewatered levels with the level specified herein shall be determined by visual observation of sumps, subgrades, etc.
- D. Where the Contractor proposes to remove groundwater from the bottom of the excavation by sumping as approved by the Town, the sump shall be surrounded by a suitable filter to prevent removal of soil fines. Pumping from sumps which remove fines from the soil shall be immediately terminated and the dewatering method revised accordingly.

### **3.02 GENERAL WATER CONTROL METHODOLOGY LIMITATIONS**

- A. In order to maintain the quality of dewatering and water control effluent and to prevent the discharge of unacceptable quantities of sediment, the following minimum restrictions shall be observed:
  - 1. When sumps are required, the intake must be placed within a perforated pipe and the annular space between the pipe and the sump pit (as well as the bottom of the pit) must be filled with crushed stone. Filter fabric may also be used, if necessary.
  - 2. Discharge water may be passed through “Silt socks,” “Dirt Bags,” or other proprietary devices which mitigate turbidity delivered to receiving waters. These devices should have a supplemental perimeter line of turbidity curtains or siltation barrier.
  - 3. Discharge may also be passed through a temporary sedimentation tank sized appropriately for the flow rate.

**PART 4 – COMPENSATION**

4.01 MEASUREMENT FOR PAYMENT

- A. No measurement for payment of Temporary Water Control or temporary cofferdams, piped diversions, sediment traps, and the control and diversion of water shall not be made. The bid item for Temporary Water Control shall be a lump sum quantity.

4.02 PAYMENT

- A. Payment for the scope of work specified herein, including all labor, materials, equipment and incidentals and mobilization/demobilization costs to provide, install, maintain, inspect, and removal all Temporary Water Control devices will be paid for at the applicable lump sum price for Item 01565-1 stated on the Bid Form.
- B. Excavation as required under this Section will not be separately paid for.

<u>Item No.</u>	<u>Payment Item</u>	<u>Unit</u>
01560-1	Temporary Water Control	Lump Sum

**\*\*\*\*\*END OF SECTION\*\*\*\*\***

## SECTION 01566

### HYDRAULIC AND HYDROLOGIC DATA

#### PART 1 - GENERAL

##### 1.01 PURPOSE AND INTENT OF DATA

No known site-specific data is available regarding either Godfrey Brook level fluctuations or inflow/outflow flow rates. The Engineering Design Consultant has compiled the data contained herein regarding certain theoretical hydraulic and hydrologic characteristics of the Godfrey Brook watershed and similar watersheds, as well as data on climate in the area, and the estimated hydraulic characteristics of the brook. This information is presented for general informational purposes only. Neither the Town nor the Engineering Design Consultant make any assurances as to the accuracy of the information depicted in this section. The Contractor is responsible for making their own assumptions, interpretations, and conclusions regarding the data contained herein. A bidder may, at their own expense, make additional investigations to confirm the information presented herein and is free to seek out and consider any other additional sources of data.

##### 1.02 STREAMFLOW DATA

Streamflow data provided in this Section was acquired from the United States Geological Survey's StreamStats—a Web-based Geographic Information Systems (GIS) application that provides users with access to an assortment of analytical tools that are useful for a variety of water-resources planning and management purposes, and for engineering and design purposes. StreamStats users can select USGS data-collection station locations shown on a map and obtain previously published information for the stations. Users also can select any location along a stream and obtain the drainage-basin boundary, basin characteristics, and estimates of streamflow statistics for the location. The streamflow statistics that StreamStats can provide for data-collection stations and for user-selected ungaged sites vary among the implemented states and among data-collection stations within states.

Streamflow data provided in this Section was generated by StreamStats v4.20.1. No warranty, expressed or implied, is made by the USGS or the U.S. Government as to the functionality of the software and related material nor shall the fact of release constitute any such warranty. The software is provided on the condition that neither the USGS nor the U.S. Government shall be held liable for any damages resulting from the authorized or unauthorized use of the software. Data attached to this Section consists of seven pages and includes:

- General Basin Characteristics
- Flow-Duration Statistics
- Low-Flow Statistics
- August Flow-Duration Statistics

- Bankfull Statistics
- Probability Statistics

### 1.03 RAINFALL DATA

#### Monthly Mean Precipitation<sup>1</sup> from 1991-2020 Milford COOP, Milford, MA

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Precip (in)	3.73	3.72	4.47	4.39	3.54	4.26	3.49	4.04	4.01	4.98	3.96	4.73

Point precipitation frequency estimates for the Site, from NOAA Atlas 14, Volume 10, Version 2, are as follows:

Average Recurrence Interval	24-Hour Duration Rainfall (inches)
1-year	2.78
2-year	3.40
5-year	4.41
10-year	5.25
25-year	6.40
50-year	7.25
100-year	8.18
200-year	9.32
500-year	11.1
1000-year	12.6

### 1.04 FLOOD FLOWS

Data on the hydrologic and hydraulic characteristics for the Godfrey Brook watershed are available from the Federal Emergency Management Agency (FEMA) contained in the preliminary Flood Insurance Study for the Town of Milford, Massachusetts, Worcester County. Godfrey Brook was included and the relevant pages are included with these specifications. Flowrates for the 100-year flood based on this data for the Site are as follows, with cross section identifications corresponding to map locations.

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<sup>1</sup> National Oceanic and Atmospheric Administration-National Centers for Environmental Information, *1991-2020 U.S. Climate Normals*;  
<https://www.weather.gov/wrh/climate?wfo=box>

Cross Section	Section Area (ft <sup>2</sup> )	Mean Velocity (ft/s)	Flow Rate (ft <sup>3</sup> /s)
AR	46	7.3	337
AS	115	2.9	337
AT	61	5.5	337
AU	53	6.1	337
AV	34	10.0	337
AW	37	9.0	337

The Contractor is responsible for making his or her own interpretation of possible precipitation and/or resultant flow conditions, and responsible for all such decisions which may affect Contractor's water control and construction methods or associated cost of construction.

**PART 2 – PRODUCTS**

Not Used

**PART 3 - EXECUTION**

Not Used

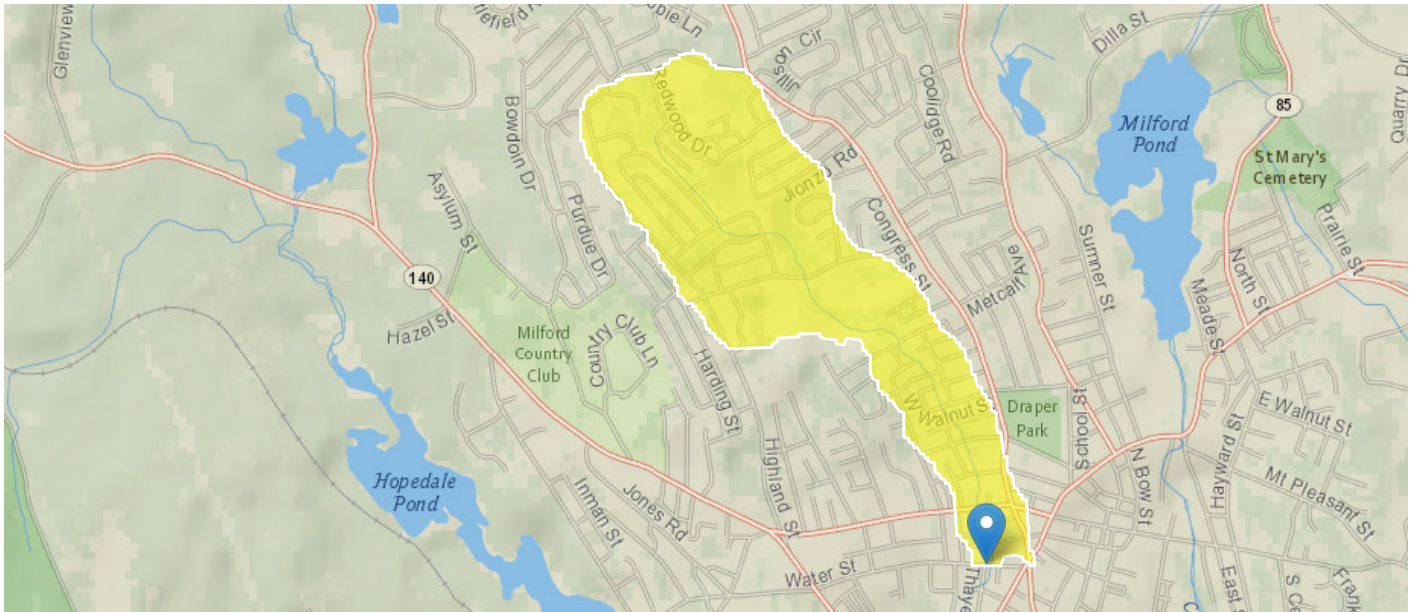
**PART 4 - MEASUREMENT AND PAYMENT**

No measurement shall be made of any work performed under this section. No separate payment shall be made for any work performed under this section. The cost of any work done or facilities provided under this section shall be included under other bid items within the Contract.

**\* \* \* END OF SECTION \* \* \***

# StreamStats Report

**Region ID:** MA  
**Workspace ID:** MA20240531173714193000  
**Clicked Point (Latitude, Longitude):** 42.13828, -71.52409  
**Time:** 2024-05-31 13:37:36 -0400



[+ Collapse All](#)

## Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
BSLDEM10M	Mean basin slope computed from 10 m DEM	4.14	percent
BSLDEM250	Mean basin slope computed from 1:250K DEM	2.876	percent
DRFTPERSTR	Area of stratified drift per unit of stream length	0	square mile per mile
DRNAREA	Area that drains to a point on a stream	0.64	square miles
ELEV	Mean Basin Elevation	451	feet
FOREST	Percentage of area covered by forest	9	percent
LC06STOR	Percentage of water bodies and wetlands determined from the NLCD 2006	0.38	percent
MAREGION	Region of Massachusetts 0 for Eastern 1 for Western	0	dimensionless
PCTSDNGRV	Percentage of land surface underlain by sand and gravel deposits	0	percent

## ➤ Peak-Flow Statistics

### Peak-Flow Statistics Parameters [Peak Statewide 2016 5156]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	0.64	square miles	0.16	512
ELEV	Mean Basin Elevation	451	feet	80.6	1948
LC06STOR	Percent Storage from NLCD2006	0.38	percent	0	32.3

### Peak-Flow Statistics Flow Report [Peak Statewide 2016 5156]

PIL: Lower 90% Prediction Interval, PIU: Upper 90% Prediction Interval, ASEp: Average Standard Error of Prediction, SE: Standard Error (other -- see report)

Statistic	Value	Unit	PIL	PIU	ASEp
50-percent AEP flood	35.7	ft <sup>3</sup> /s	18.1	70.6	42.3
20-percent AEP flood	60.5	ft <sup>3</sup> /s	30.1	121	43.4
10-percent AEP flood	80.7	ft <sup>3</sup> /s	39.2	166	44.7
4-percent AEP flood	111	ft <sup>3</sup> /s	52	237	47.1
2-percent AEP flood	136	ft <sup>3</sup> /s	61.6	300	49.4
1-percent AEP flood	163	ft <sup>3</sup> /s	71.5	371	51.8
0.5-percent AEP flood	193	ft <sup>3</sup> /s	82.1	454	54.1
0.2-percent AEP flood	236	ft <sup>3</sup> /s	95.7	582	57.6

#### Peak-Flow Statistics Citations

Zarriello, P.J., 2017, Magnitude of flood flows at selected annual exceedance probabilities for streams in Massachusetts: U.S. Geological Survey Scientific Investigations Report 2016–5156, 99 p. (<https://dx.doi.org/10.3133/sir20165156>)

## ➤ Low-Flow Statistics

### Low-Flow Statistics Parameters [Statewide Low Flow WRIR00 4135]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	0.64	square miles	1.61	149
BSLDEM250	Mean Basin Slope from 250K DEM	2.876	percent	0.32	24.6
DRFTPERSTR	Stratified Drift per Stream Length	0	square mile per mile	0	1.29
MAREGION	Massachusetts Region	0	dimensionless	0	1

### Low-Flow Statistics Disclaimers [Statewide Low Flow WRIR00 4135]

One or more of the parameters is outside the suggested range. Estimates were extrapolated with unknown errors.

### Low-Flow Statistics Flow Report [Statewide Low Flow WRIR00 4135]

Statistic	Value	Unit
7 Day 2 Year Low Flow	0.0193	ft <sup>3</sup> /s
7 Day 10 Year Low Flow	0.0054	ft <sup>3</sup> /s



*Low-Flow Statistics Citations*

Ries, K.G., III, 2000, Methods for estimating low-flow statistics for Massachusetts streams: U.S. Geological Survey Water Resources Investigations Report 00-4135, 81 p. (<http://pubs.usgs.gov/wri/wri004135/>)

➤ Flow-Duration Statistics

Flow-Duration Statistics Parameters [Statewide Low Flow WRIR00 4135]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	0.64	square miles	1.61	149
DRFTPERSTR	Stratified Drift per Stream Length	0	square mile per mile	0	1.29
MAREGION	Massachusetts Region	0	dimensionless	0	1
BSLDEM250	Mean Basin Slope from 250K DEM	2.876	percent	0.32	24.6

Flow-Duration Statistics Disclaimers [Statewide Low Flow WRIR00 4135]

One or more of the parameters is outside the suggested range. Estimates were extrapolated with unknown errors.

Flow-Duration Statistics Flow Report [Statewide Low Flow WRIR00 4135]

Statistic	Value	Unit
50 Percent Duration	0.606	ft <sup>3</sup> /s
60 Percent Duration	0.36	ft <sup>3</sup> /s
70 Percent Duration	0.166	ft <sup>3</sup> /s
75 Percent Duration	0.116	ft <sup>3</sup> /s
80 Percent Duration	0.0784	ft <sup>3</sup> /s
85 Percent Duration	0.053	ft <sup>3</sup> /s
90 Percent Duration	0.032	ft <sup>3</sup> /s
95 Percent Duration	0.0168	ft <sup>3</sup> /s
98 Percent Duration	0.0101	ft <sup>3</sup> /s
99 Percent Duration	0.00684	ft <sup>3</sup> /s

*Flow-Duration Statistics Citations*

Ries, K.G., III, 2000, Methods for estimating low-flow statistics for Massachusetts streams: U.S. Geological Survey Water Resources Investigations Report 00-4135, 81 p. (<http://pubs.usgs.gov/wri/wri004135/>)

➤ August Flow-Duration Statistics

August Flow-Duration Statistics Parameters [Statewide Low Flow WRIR00 4135]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	0.64	square miles	1.61	149
BSLDEM250	Mean Basin Slope from 250K DEM	2.876	percent	0.32	24.6
DRFTPERSTR	Stratified Drift per Stream Length	0	square mile per mile	0	1.29
MAREGION	Massachusetts Region	0	dimensionless	0	1

## August Flow-Duration Statistics Disclaimers [Statewide Low Flow WRIR00 4135]

One or more of the parameters is outside the suggested range. Estimates were extrapolated with unknown errors.

## August Flow-Duration Statistics Flow Report [Statewide Low Flow WRIR00 4135]

Statistic	Value	Unit
August 50 Percent Duration	0.0559	ft <sup>3</sup> /s

### August Flow-Duration Statistics Citations

Ries, K.G., III, 2000, Methods for estimating low-flow statistics for Massachusetts streams: U.S. Geological Survey Water Resources Investigations Report 00-4135, 81 p. (<http://pubs.usgs.gov/wri/wri004135/>)

## ➤ Bankfull Statistics

### Bankfull Statistics Parameters [Bankfull Statewide SIR2013 5155]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	0.64	square miles	0.6	329
BSLDEM10M	Mean Basin Slope from 10m DEM	4.14	percent	2.2	23.9

### Bankfull Statistics Parameters [Appalachian Highlands D Bieger 2015]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	0.64	square miles	0.07722	940.1535

### Bankfull Statistics Parameters [New England P Bieger 2015]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	0.64	square miles	3.799224	138.999861

### Bankfull Statistics Parameters [USA Bieger 2015]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	0.64	square miles	0.07722	59927.7393

### Bankfull Statistics Flow Report [Bankfull Statewide SIR2013 5155]

PIL: Lower 90% Prediction Interval, PIU: Upper 90% Prediction Interval, ASEp: Average Standard Error of Prediction, SE: Standard Error (other -- see report)

Statistic	Value	Unit	ASEp
Bankfull Width	11.5	ft	21.3
Bankfull Depth	0.777	ft	19.8
Bankfull Area	8.79	ft <sup>2</sup>	29
Bankfull Streamflow	17.5	ft <sup>3</sup> /s	55

### Bankfull Statistics Flow Report [Appalachian Highlands D Bieger 2015]

Statistic	Value	Unit
Bieger_D_channel_width	12.6	ft

Statistic	Value	Unit
Bieger_D_channel_depth	0.986	ft
Bieger_D_channel_cross_sectional_area	12.6	ft <sup>2</sup>

#### Bankfull Statistics Disclaimers [New England P Bieger 2015]

One or more of the parameters is outside the suggested range. Estimates were extrapolated with unknown errors.

#### Bankfull Statistics Flow Report [New England P Bieger 2015]

Statistic	Value	Unit
Bieger_P_channel_width	22.3	ft
Bieger_P_channel_depth	1.25	ft
Bieger_P_channel_cross_sectional_area	27.6	ft <sup>2</sup>

#### Bankfull Statistics Flow Report [USA Bieger 2015]

Statistic	Value	Unit
Bieger_USA_channel_width	10.6	ft
Bieger_USA_channel_depth	1.1	ft
Bieger_USA_channel_cross_sectional_area	13.4	ft <sup>2</sup>

#### Bankfull Statistics Flow Report [Area-Averaged]

PIL: Lower 90% Prediction Interval, PIU: Upper 90% Prediction Interval, ASEp: Average Standard Error of Prediction, SE: Standard Error (other -- see report)

Statistic	Value	Unit	ASEp
Bankfull Width	11.5	ft	21.3
Bankfull Depth	0.777	ft	19.8
Bankfull Area	8.79	ft <sup>2</sup>	29
Bankfull Streamflow	17.5	ft <sup>3</sup> /s	55
Bieger_D_channel_width	12.6	ft	
Bieger_D_channel_depth	0.986	ft	
Bieger_D_channel_cross_sectional_area	12.6	ft <sup>2</sup>	
Bieger_P_channel_width	22.3	ft	
Bieger_P_channel_depth	1.25	ft	
Bieger_P_channel_cross_sectional_area	27.6	ft <sup>2</sup>	
Bieger_USA_channel_width	10.6	ft	
Bieger_USA_channel_depth	1.1	ft	
Bieger_USA_channel_cross_sectional_area	13.4	ft <sup>2</sup>	

#### Bankfull Statistics Citations

**Bent, G.C., and Waite, A.M., 2013, Equations for estimating bankfull channel geometry and discharge for streams in Massachusetts: U.S. Geological Survey Scientific Investigations Report 2013–5155, 62 p., (<http://pubs.usgs.gov/sir/2013/5155/>)**

**Bieger, Katrin; Rathjens, Hendrik; Allen, Peter M.; and Arnold, Jeffrey G., 2015, Development and Evaluation of Bankfull Hydraulic Geometry Relationships for the Physiographic Regions of the United States, Publications from USDA-ARS / UNL Faculty, 17p. ([https://digitalcommons.unl.edu/usdaarsfacpub/1515?utm\\_source=digitalcommons.unl.edu%2Fusdaarsfacpub%2F1515&utm\\_medium=PDF&utm\\_campaign=PDFCoverPages](https://digitalcommons.unl.edu/usdaarsfacpub/1515?utm_source=digitalcommons.unl.edu%2Fusdaarsfacpub%2F1515&utm_medium=PDF&utm_campaign=PDFCoverPages))**

## ➤ Probability Statistics

### Probability Statistics Parameters [Perennial Flow Probability]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	0.64	square miles	0.01	1.99
PCTSDGRV	Percent Underlain By Sand And Gravel	0	percent	0	100
FOREST	Percent Forest	9	percent	0	100
MAREGION	Massachusetts Region	0	dimensionless	0	1

### Probability Statistics Flow Report [Perennial Flow Probability]

PIL: Lower 90% Prediction Interval, PIU: Upper 90% Prediction Interval, ASEp: Average Standard Error of Prediction, SE: Standard Error (other -- see report)

Statistic	Value	Unit	PC
Probability Stream Flowing Perennially	0.896	dim	71

#### *Probability Statistics Citations*

**Bent, G.C., and Steeves, P.A., 2006, A revised logistic regression equation and an automated procedure for mapping the probability of a stream flowing perennially in Massachusetts: U.S. Geological Survey Scientific Investigations Report 2006-5031, 107 p. ([http://pubs.usgs.gov/sir/2006/5031/pdfs/SIR\\_2006-5031rev.pdf](http://pubs.usgs.gov/sir/2006/5031/pdfs/SIR_2006-5031rev.pdf))**

## ➤ Maximum Probable Flood Statistics

### Maximum Probable Flood Statistics Parameters [Crippen Bue Region 2]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	0.64	square miles	0.1	3000

### Maximum Probable Flood Statistics Flow Report [Crippen Bue Region 2]

Statistic	Value	Unit
Maximum Flood Crippen Bue Regional	4100	ft <sup>3</sup> /s

#### *Maximum Probable Flood Statistics Citations*

**Crippen, J.R. and Bue, Conrad D. 1977, Maximum Floodflows in the Conterminous United States, Geological Survey Water-Supply Paper 1887, 52p. (<https://pubs.usgs.gov/wsp/1887/report.pdf>)**

USGS Data Disclaimer: Unless otherwise stated, all data, metadata and related materials are considered to satisfy the quality standards relative to the purpose for which the data were collected. Although these data and associated metadata have been reviewed for accuracy and completeness and approved for release by the U.S. Geological Survey (USGS), no warranty expressed or implied is made regarding the display or utility of the data for other purposes, nor on all computer systems, nor shall the act of distribution constitute any such warranty.

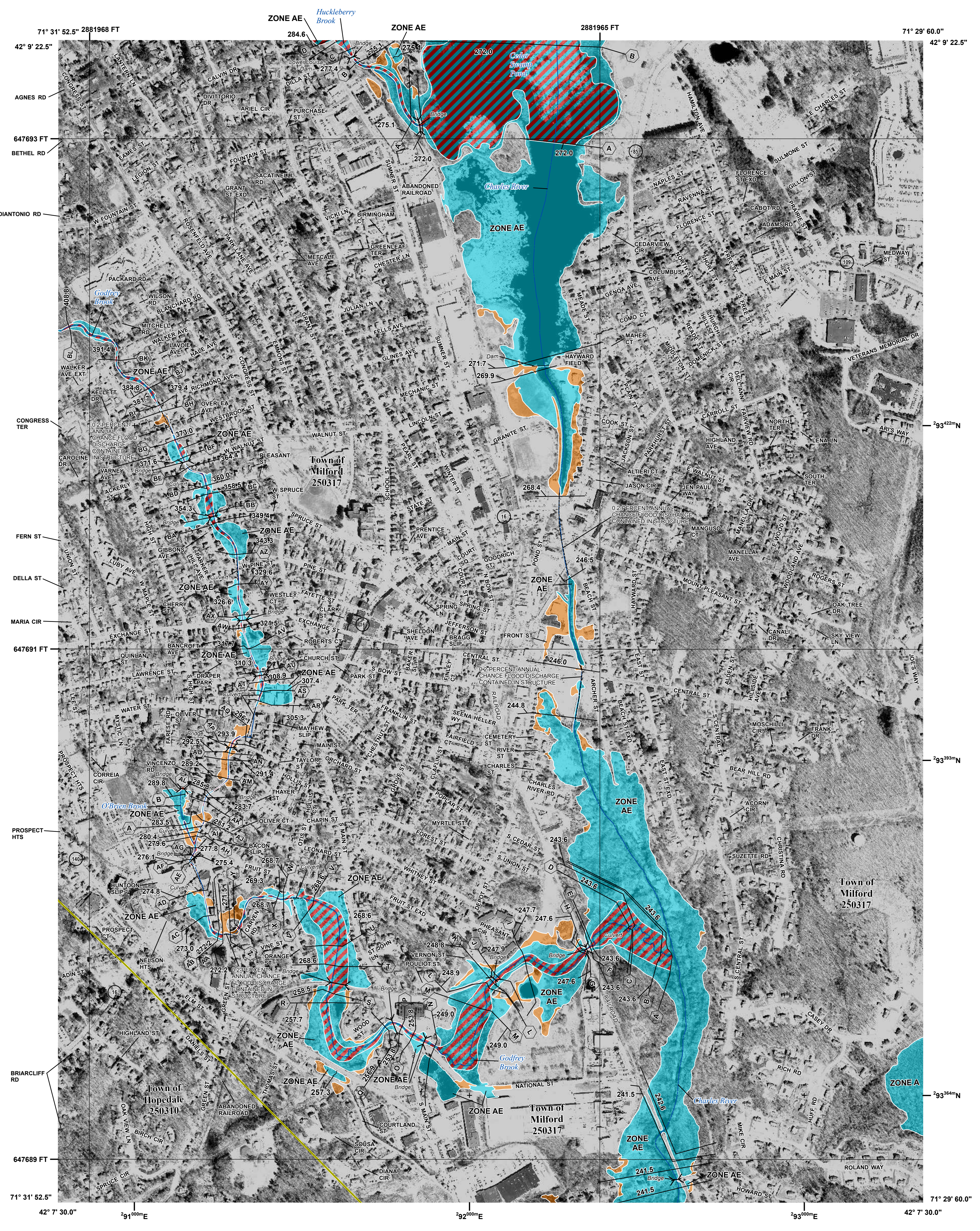
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Application Version: 4.20.1

StreamStats Services Version: 1.2.22

NSS Services Version: 2.2.1



**FLOOD HAZARD INFORMATION**

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT  
**THE INFORMATION DEPICTED ON THIS MAP AND SUPPORTING DOCUMENTATION ARE ALSO AVAILABLE IN DIGITAL FORMAT AT [HTTPS://MSC.FEMA.GOV](https://MSC.FEMA.GOV)**

	Without Base Flood Elevation (BFE) Zone A.V, A99
	With BFE or Depth Zone AE, AO, AH, VE, AR
	Regulatory Floodway
	0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile Zone X
	Future Conditions 1% Annual Chance Flood Hazard Zone X
	Area with Reduced Flood Risk due to Levee See Notes. Zone X
	Area with Flood Risk due to Levee Zone D
	NO SCREEN Area of Minimal Flood Hazard Zone X
	Area of Undetermined Flood Hazard Zone D
	Channel, Culvert, or Storm Sewer
	Levee, Dike, or Floodwall
	Cross Sections with 1% Annual Chance Water Surface Elevation
	Coastal Transect
	Coastal Transect Baseline
	Profile Baseline
	Hydrographic Feature
	Base Flood Elevation Line (BFE)
	Limit of Study
	Jurisdiction Boundary

**NOTES TO USERS**

For information and questions about this Flood Insurance Rate Map (FIRM), available products associated with this FIRM, including historic versions, the current map date for each FIRM panel, how to order products, or the National Flood Insurance Program (NFIP) in general, please call the FEMA Mapping and Insurance eXchange at 1-877-FEMA-MAP (1-877-336-2627) or visit the FEMA Flood Map Service Center website at <https://msc.fema.gov>. Available products may include previously issued Letters of Map Change, a Flood Insurance Study Report, and/or digital versions of this map. Many of these products can be ordered or obtained directly from the website.

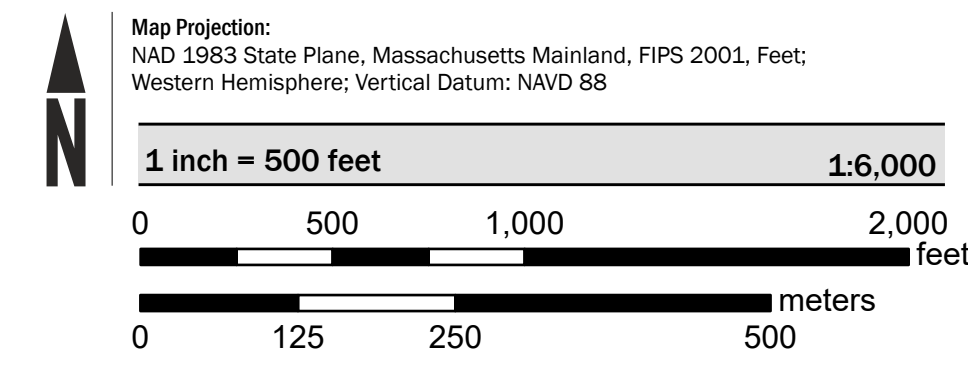
Communities annexing land on adjacent FIRM panels must obtain a current copy of the adjacent panel as well as the current FIRM Index. These may be ordered directly from the Flood Map Service Center at the number listed above.

For community and countywide map dates refer to the Flood Insurance Study Report for this jurisdiction.

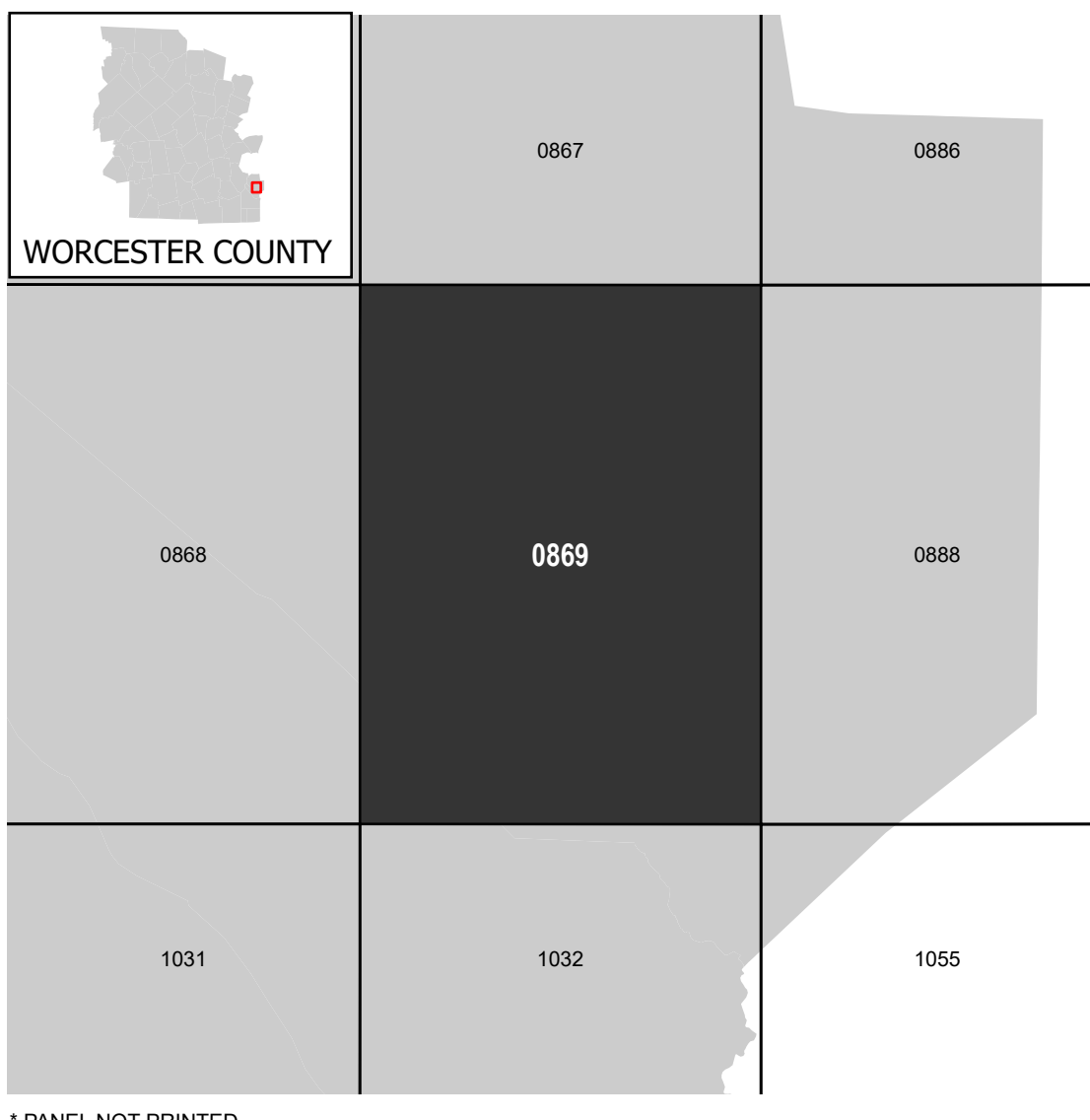
To determine if flood insurance is available in this community, contact your insurance agent or call the National Flood Insurance Program at 1-800-638-6620.

Base map information shown on the FIRM uses imagery from 2019 provided by the U.S. Geological Survey at a resolution of 0.15 meter and 2016 transportation data provided by the U.S. Census Bureau with an undefined scale, and political boundaries from 2017 provided by MassGIS at a scale of 1:5,000.

**SCALE**



**PANEL LOCATOR**



**National Flood Insurance Program**

**NATIONAL FLOOD INSURANCE PROGRAM**  
**FLOOD INSURANCE RATE MAP**

**WORCESTER COUNTY, MASSACHUSETTS**  
 (All Jurisdictions)

PANEL 0869 of 1055

COMMUNITY	NUMBER	PANEL	SUFFIX
HOPDALE, TOWN OF	250310	0869	F
MILFORD, TOWN OF	250317	0869	F

**PRELIMINARY**  
**08/13/2021**

VERSION NUMBER  
2.6.3.6

MAP NUMBER  
25027C0869F

MAP REVISED

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION ( FEET NAVD88)			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/ SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	3	317	866	1.0	242.8	241.2 <sup>2</sup>	242.2	1.0
B	123	304	591	1.4	242.8	241.2 <sup>2</sup>	242.2	1.0
C	747	511	1,280	0.6	242.8	241.7 <sup>2</sup>	242.7	1.0
D	811	535	1,524	0.5	242.8	241.7 <sup>2</sup>	242.7	1.0
E	1,398	75	128	6.5	242.8	242.2 <sup>2</sup>	242.8	0.6
F	1,427	39	110	7.5	243.0	243.0	243.6	0.6
G	1,491	78	622	1.3	247.6	247.6	247.6	0.0
H	1,514	108	716	1.2	247.6	247.6	247.6	0.0
I	2,239	74	310	2.7	247.7	247.7	247.7	0.0
J	2,564	67	252	3.3	247.9	247.9	248.0	0.1
K	2,640	66	327	2.5	248.8	248.8	249.5	0.7
L	2,696	100	655	1.3	248.9	248.9	249.7	0.8
M	2,954	259	1,469	0.6	249.0	249.0	249.8	0.8
N	4,025	31	126	6.6	249.0	249.0	250.0	1.0
O	4,269	61	338	2.5	253.8	253.8	254.8	1.0
P	4,407	38	204	4.1	253.8	253.8	254.8	1.0
Q	4,596	28	267	3.1	256.9	256.9	257.6	0.7
R	5,793	78	230	3.6	257.7	257.7	258.7	1.0
S	5,908	79	167	5.0	258.5	258.5	259.2	0.7
T	6,173	238	2,859	0.3	268.6	268.6	269.6	1.0
U	6,369	250	2,487	0.3	268.6	268.6	269.6	1.0

<sup>1</sup>Feet above confluence with Charles River

<sup>2</sup>Elevation computed without consideration of backwater effects from Charles River

TABLE 23	<b>FEDERAL EMERGENCY MANAGEMENT AGENCY</b> <b>WORCESTER COUNTY, MA</b> <b>(ALL JURISDICTIONS)</b>	<b>FLOODWAY DATA</b>
		<b>FLOODING SOURCE: GODFREY BROOK</b>

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION ( FEET NAVD88)			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/ SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
V	6,955	153	1,022	0.8	268.6	268.6	269.6	1.0
W	7,256	30	135	1.1	268.7	268.7	269.7	1.0
X	7,318	21	120	1.2	268.7	268.7	269.7	1.0
Y	7,898	30	16	8.9	269.3	269.3	269.3	0.0
Z	8,025	39	32	4.5	271.5	271.5	271.5	0.0
AA	8,099	41	100	1.4	272.2	272.2	272.2	0.0
AB	8,144	47	81	1.8	272.2	272.2	272.2	0.0
AC	8,364	13	21	6.8	273.0	273.0	273.0	0.0
AD	8,621	20	50	2.9	274.8	274.8	274.8	0.0
AE	8,928	16	14	2.9	275.4	275.4	275.4	0.0
AF	8,967	16	5	5.0	276.1	276.1	276.1	0.0
AG	9,025	24	11	2.4	277.8	277.8	277.8	0.0
AH	9,204	16	3	3.8	279.6	279.6	279.6	0.0
AI	9,247	10	4	3.4	280.4	280.4	280.4	0.0
AJ	9,371	12	5	2.7	281.2	281.2	281.2	0.0
AK	9,564	12	3	4.1	283.7	283.7	283.7	0.0
AL	9,656	10	3	4.3	285.8	285.8	285.8	0.0
AM	9,860	15	4	3.3	289.2	289.2	289.2	0.0
AN	10,081	12	4	3.6	291.4	291.4	291.4	0.0
AO	10,151	18	4	3.6	292.5	292.5	292.5	0.0
AP	10,248	22	4	3.0	293.9	293.9	293.9	0.0

<sup>1</sup>Feet above confluence with Charles River

TABLE 23	<b>FEDERAL EMERGENCY MANAGEMENT AGENCY</b> <b>WORCESTER COUNTY, MA</b> <b>(ALL JURISDICTIONS)</b>	<b>FLOODWAY DATA</b>
		<b>FLOODING SOURCE: GODFREY BROOK</b>



LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION ( FEET NAVD88)			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/ SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
AQ	10,414	16	4	3.8	296.1	296.1	296.1	0.0
AR	10,836	24	46	7.3	305.3	305.3	305.3	0.0
AS	10,933	27	115	2.9	307.4	307.4	308.3	0.9
AT	11,031	48	61	5.5	308.9	308.9	308.9	0.0
AU	11,126	12	53	6.4	310.3	310.3	310.6	0.3
AV	11,395	11	34	10.0	317.6	317.6	318.3	0.7
AW	11,608	15	37	9.0	321.5	321.5	322.4	0.9
AX	11,733	13	92	3.7	326.5	326.5	327.2	0.7
AY	12,043	26	52	6.4	329.6	329.6	330.6	1.0
AZ	12,335	25	124	2.7	343.3	343.3	343.9	0.6
BA	12,717	44	81	4.2	349.4	349.4	349.5	0.1
BB	12,813	71	153	2.2	354.3	354.3	354.3	0.0
BC	13,011	59	81	4.2	358.5	358.5	358.5	0.0
BD	13,095	28	82	4.1	360.0	360.0	360.5	0.5
BE	13,374	6	47	7.2	364.4	364.4	364.7	0.3
BF	13,484	36	138	2.5	371.6	371.6	371.8	0.2
BG	13,675	13	34	9.9	373.0	373.0	373.0	0.0
BH	13,980	12	33	10.3	379.4	379.4	379.4	0.0
BI	14,052	12	31	10.8	381.7	381.7	381.7	0.0
BJ	14,246	32	85	4.0	384.8	384.8	384.8	0.0
BK	14,710	20	49	6.9	391.4	391.4	391.4	0.0

<sup>1</sup>Feet above confluence with Charles River

TABLE 23	<b>FEDERAL EMERGENCY MANAGEMENT AGENCY</b> <b>WORCESTER COUNTY, MA</b> <b>(ALL JURISDICTIONS)</b>	<b>FLOODWAY DATA</b>
		<b>FLOODING SOURCE: GODFREY BROOK</b>

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION ( FEET NAVD88)			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/ SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
BL	15,418	27	50	6.8	408.8	408.8	408.8	0.0
BM	15,615	28	46	7.3	413.9	413.9	413.9	0.0
BN	15,669	60	126	2.7	416.9	416.9	416.9	0.0

<sup>1</sup>Feet above confluence with Charles River

TABLE 23	<b>FEDERAL EMERGENCY MANAGEMENT AGENCY</b> <b>WORCESTER COUNTY, MA</b> (ALL JURISDICTIONS)	<b>FLOODWAY DATA</b>
		<b>FLOODING SOURCE: GODFREY BROOK</b>

## SECTION 01600

### MATERIAL AND EQUIPMENT

#### PART I-GENERAL

##### 1.01 SCOPE

- A. Products.
- B. Transportation and handling.
- C. Storage and protection.
- D. Product options.
- E. Substitutions.

##### 1.02 RELATED SECTIONS

- A. Section 01400 - Quality Control

##### 1.03 PRODUCTS

- A. Products: Means new material, machinery, components, equipment, fixtures, and system forming the work. Does not include machinery and equipment used for preparation, fabrication, conveying and erection of the work. Products may also include existing materials or components required for reuse.
- B. Do not use materials and equipment removed from existing premises, except as specifically permitted by the Contract Documents.
- C. Provide interchangeable components of the same manufacturer, for similar components.

##### 1.04 TRANSPORTATION AND HANDLING

- A. Transport and handle products in accordance with manufacturer's instructions.
- B. Promptly inspect shipments to assure that products comply with requirements, quantities are correct, and products are undamaged.
- C. Provide equipment and personnel to handle products by methods to prevent soiling, disfigurement, or damage.

##### 1.05 STORAGE AND PROTECTION

- A. Store and protect products in accordance with manufacturer's instructions, with seals and labels intact and legible. Store sensitive products in weather-tight, climate controlled enclosures.
- B. For exterior storage of fabricated products, place on sloped supports, above ground.

- C. Provide off-site storage and protection when site does not permit on-site storage or protection.
- D. Cover products subject to deterioration with impervious sheet covering. Provide ventilation to avoid condensation.
- E. Store loose granular materials on solid flat surfaces in a well-drained area. Prevent mixing with foreign matter.
- F. Provide equipment and personnel to store products by methods to prevent soiling, disfigurement, or damage.
- G. Arrange storage of products to permit access for inspection. Periodically inspect to assure products are undamaged and are maintained under specified conditions.

#### 1.06 PRODUCT OPTIONS

- A. Products specified by reference standards or by description only: Any product meeting those standards or description.
- B. Products specified by naming one or more manufacturers with a provision for substitutions: Submit a request for substitution for any manufacturer not named.

#### 1.07 SUBSTITUTIONS

- A. Engineer will consider requests for substitutions only within 14 days after date of Town-Contractor Agreement.
- B. Document each request with complete data substantiating compliance of proposed substitution with contract documents.
- C. A request constitutes a representation that the Contractor:
  - 1. Has investigated proposed product and determined that it meets or exceeds the quality level of the specified product.
  - 2. Will provide the same warranty for the substitution as for the specified product.
  - 3. Will coordinate installation and make changes to other work which may be required for the work to be completed with no additional cost to the Town.
  - 4. Waives claims for additional costs or time extension which may subsequently become apparent.
- D. Substitutions will not be considered when they are indicated or implied on shop drawing or product data submittals, without separate written request, or when acceptance will require revision to the Contract Documents.

E. Substitution Submittal Procedure:

1. Submit two copies of requests for substitution for consideration. Limit each request to one proposed substitution.
2. Submit shop drawings, product data, and certified test results attesting to the proposed product equivalence.
3. The Engineer will notify Contractor, in writing, of decision to accept or reject request.

**\*\*\*\*\*END OF SECTION\*\*\*\*\***

## SECTION 01700

### CONTRACT CLOSEOUT

#### PART I - GENERAL

##### 1.01 SCOPE

- A. Closeout procedures.
- B. Final cleaning.
- C. Project record documents.
- D. Warranties.
- E. Maintenance materials.

##### 1.02 RELATED SECTIONS

- A. Section 01500 - Construction Facilities and Temporary Controls

##### 1.03 CLOSEOUT PROCEDURES

- A. Submit written certification that the Contract Documents have been reviewed, work has been inspected, and that work is complete in accordance with Contract Documents and ready for Engineer's inspection.
- B. Provide submittals to Engineer that are required by governing or other authorities.
- C. Submit final application for payment identifying total adjusted contract sum, previous payments, and sum remaining due.

##### 1.04 FINAL CLEANING

- A. Execute final cleaning prior to final inspection.
- B. Clean surfaces exposed to view.
- C. Clean equipment and fixtures to a sanitary condition.
- D. Clean site; sweep paved areas, rake clean landscaped surfaces.
- E. Remove waste and surplus materials, rubbish, and construction facilities from the site.
- F. Remove sedimentation control barriers once site is stabilized.

## 1.05 PROJECT RECORD DOCUMENTS

- A. Maintain on site, one set of the following record documents; record actual revisions to the work:
  - 1. Contract drawings.
  - 2. Specifications.
  - 3. Addenda.
  - 4. Change Orders and other modifications to the contract.
  - 5. Reviewed shop drawings, product data, and samples.
- B. Store record documents separate from documents used for construction.
- C. Record information concurrent with construction progress.
- D. Specifications: Legibly mark and record at each product section description of actual products installed, including the following:
  - 1. Manufacturer's name and product model and number.
  - 2. Product substitutions or alternates utilized.
  - 3. Changes made by addenda and modifications.
- E. Record documents and shop drawings: Legibly mark each item to record actual construction including:
  - 1. Measured depths of foundations in relation to finish ground level datum.
  - 2. Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.
  - 3. Measured locations of internal utilities and appurtenances concealed in construction, referenced to visible and accessible features of the work.
  - 4. Field changes of dimension and detail.
  - 5. Details not on original Contract Drawings.
- F. Prior to final acceptance of the work, all "as built" data shall be transferred to the Engineer. A complete set of reproducible record drawings will be completed by the Engineer. After review and approval by the Town, the record drawings will be completed and delivered to the Town. The record drawings shall be provided in the following formats: one (1) hard copy, and electronic files in both AutoCAD and PDF format.
- G. Submit documents to Engineer with claim for final application for payment.

## 1.07 WARRANTIES

- A. Provide duplicate notarized copies.
- B. Execute and assemble documents from subcontractors, suppliers and manufacturers.
- C. Provide table of contents and assemble in Adobe Portable Document Format (PDF).
- D. Submit prior to final application for payment.
- E. For items of work delayed beyond date of substantial completion, provide updated submittal within ten days after acceptance, listing date of acceptance as start of warranty period.

## 1.08 SPARE PARTS AND MAINTENANCE MATERIALS

- A. Provide products, spare parts, maintenance and extra materials in quantities specified in individual specification Sections.
- B. Deliver to and place in location as directed. Obtain receipt prior to final payment.

**\*\*\*\*\*END OF SECTION\*\***



## **SECTION 02010**

### **SUBSURFACE EXPLORATION RESULTS**

#### **PART 1 - GENERAL**

Subsurface boring logs are included in the Contract Documents at the end of this Section and shall serve as a general description of the subsurface soil conditions at the points and time of investigation only. Numbering of the boring locations are as indicated on the Plans. The Town makes no representations as to the accuracy or completeness of this information, or to the subsurface conditions at points other than those at which borings were taken. The Contractor shall make his own geotechnical investigations and develop his own conclusions as to the subsurface soil conditions of the work area. No claim for any delays, damage, or extra work occasioned thereby shall be allowed.

**\*\*\*\*\*END OF SECTION\*\*\*\*\***

**GUILD DRILLING CO., INC.**  
100 WATER STREET • EAST PROVIDENCE, R.I.

SHEET 1 OF 1

Client State Environmental Consultants  
Project Godfrey Brook Flood Mitigation  
above / Project

ADDRESS East Longmeadow, Mass.  
LOCATION Milford, Mass.  
OUR JOB NO. 98-184

HOLE NO. B-2  
PROJ. NO. \_\_\_\_\_  
SURF. ELEV. \_\_\_\_\_

WATER OBSERVATIONS	CASING	SAMPLER	CORE BAR.	DATE
after <u>Comp</u> Hours	Type <u>H/S/A</u>	<u>S/S</u>	_____	Start <u>4/6/98</u>
after _____ Hours	Size I.D. <u>3-1/4"</u>	<u>1-3/8"</u>	_____	Complete <u>4/6/98</u>
	Hammer Wt. _____	<u>140#</u>	BIT	Boring Foreman <u>T. Paquette</u>
	Hammer Fall _____	<u>30"</u>	_____	Inspector/Engr. _____

**(Truck Rig)**

Sample Depths From - To	Type of Sample	Blows per 6" on Sampler			Moisture Density or Consist.	Strata Change Elev./Depth	SOIL OR ROCK IDENTIFICATION Remarks include color, gradation, type of soil etc. Rock-color, type, condition, hardness, drilling time, seams, etc.	SAMPLE		
		0-6	6-12	12-18				No.	Pen"	Rec."
1.0-3.0	D	10	16	13		0.8 Black Top & Base	1	24	21	
				7		3.5 Brown fine to medium SAND, little silt, trace fine to coarse gravel - Fill				
5.0-7.0	D	91	47	24		8.2 Brown fine to medium SAND, some fine to coarse gravel, trace silt, cobbles	2	24	16	
				21		8.2 Refusal - Bottom of Boring 8.2'				

USED	CASING:	THEN	
Proportions Used	140 lb. Wt x 30" fall on 2" O.D. Sampler		<b>SUMMARY:</b>
trace 0 to 10%	Cohesionless Density	Cohesive Consistency	Earth Boring <u>8.2'</u>
little 10 to 20%	0-10	0-4	Rock Coring _____
some 20 to 35%	10-30	M./Stiff	Samples <u>2</u>
and 35 to 50%	30-50	Stiff	
	50+	V-Stiff	
		30 + Hard	HOLE NO. <u>B-2</u>

W = Washed  
UT = Shelby Tube  
A = Auger  
End Rod

**TEST BORING LOG**



**GZA**  
**GeoEnvironmental, Inc.**  
*Engineers and Scientists*

**GODFREY BROOK  
 MILFORD, MASSACHUSETTS**

**EXPLORATION NO.:** GB-16  
**SHEET:** 1 of 1  
**PROJECT NO:** 15.0166148.1  
**REVIEWED BY:** JER

**Logged By:** J. Davis  
**Drilling Co.:** Drilex  
**Foreman:** A. Boudreau

**Type of Rig:** ATV  
**Rig Model:** CME-55LC  
**Drilling Method:** HSA

**Boring Location:** West St.  
**Ground Surface Elev. (ft.):** 325  
**Final Boring Depth (ft.):** 8.5  
**Date Start - Finish:** 8/17/2011 - 8/17/2011

**H. Datum:** Project  
**V. Datum:** Project

**Hammer Type:** Safety Hammer  
**Hammer Weight (lb.):** 140  
**Hammer Fall (in.):** 30  
**Auger or Casing O.D./I.D Dia (in.):** 4-1/4" ID

**Sampler Type:** Split Spoon  
**Sampler O.D. (in.):** 2.0  
**Sampler Length (in.):** 24  
**Rock Core Size:** NA

**Groundwater Depth (ft.)**

Date	Time	Water Depth	Stab. Time
8/17/11	1445	7.5'	5 min.

Depth (ft)	Casing Blows/ Core Rate	Sample						Sample Description and Identification (Modified Burmister Procedure)	Remark	Field Test Data	Depth (ft.)	Stratum Description	Elev. (ft.)	
		No.	Depth (ft.)	Pen. (in)	Rec. (in)	Blows (per 6 in.)	SPT Value							
5		S-1	0.2-2.2	24	8	3 6 3 2	9	S-1 : Loose, gray-brown, fine to coarse SAND, some fine to coarse Gravel, little Silt	1		0.2	ASPHALT	324.8	
		S-2	2.2-4.2	24	2	3 7 8 8	15	S-2 : Medium dense, brown, fine to coarse SAND, some Silt, some fine Gravel					FILL	
		S-3	5-7	24	6	14 9 20 30	29	S-3 : Medium dense, brown to black, fine to coarse SAND, some Silt, some fine to coarse Gravel				6		319.0
		S-4	7-8.3	15	4	26 23 50/3"	R	S-4 : Orange-brown, fine to coarse GRAVEL, some fine to coarse Sand, little Silt				8.5	GLACIAL TILL	316.5
10								End of exploration at 8.5 feet.	2					

**REMARKS**

1 - Increased drilling resistance noted from 3 to 8.5 feet below grade.  
 2 - Auger refusal at approximately 8.5 feet below grade.

Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

**Exploration No.:**  
**GB-16**

GZA TEMPLATE TEST BORING; 9/14/2011; 2:50:20 PM

**TEST BORING LOG**



**GZA**  
**GeoEnvironmental, Inc.**  
*Engineers and Scientists*

**GODFREY BROOK  
 MILFORD, MASSACHUSETTS**

**EXPLORATION NO.:** GB-18  
**SHEET:** 1 of 1  
**PROJECT NO:** 15.0166148.1  
**REVIEWED BY:** JER

**Logged By:** T. Bjartmarz  
**Drilling Co.:** Drilex  
**Foreman:** A. Boudreau

**Type of Rig:** ATV  
**Rig Model:** CME-55LC  
**Drilling Method:** HSA

**Boring Location:** #3 Roberts Court  
**Ground Surface Elev. (ft.):** 318  
**Final Boring Depth (ft.):** 9  
**Date Start - Finish:** 8/5/2011 - 8/5/2011

**H. Datum:** Project  
**V. Datum:** Project

**Hammer Type:** Safety Hammer  
**Hammer Weight (lb.):** 140  
**Hammer Fall (in.):** 30  
**Auger or Casing O.D./I.D Dia (in.):** 4-1/4" ID

**Sampler Type:** Split Spoon  
**Sampler O.D. (in.):** 2.0  
**Sampler Length (in.):** 24  
**Rock Core Size:** NA

**Groundwater Depth (ft.)**

Date	Time	Water Depth	Stab. Time
8/5/11	1044	7.5'	5 min.

Depth (ft)	Casing Blows/ Core Rate	Sample						Sample Description and Identification (Modified Burmister Procedure)	Remark	Field Test Data	Depth (ft.)	Stratum Description	Elev. (ft.)
		No.	Depth (ft.)	Pen. (in)	Rec. (in)	Blows (per 6 in.)	SPT Value						
5		S-1	0-2	24	6	3 5 5 3	10	S-1 : Medium dense, brown, fine to coarse SAND, some Silt, little fine Gravel, trace Roots					
		S-2	2-4	24	13	3 2 1 1	3	S-2 : Very loose, brown, fine to coarse SAND, some Silt, little fine to coarse Gravel, trace Roots				FILL	
		S-3	5-7	24	8	20 9 20 21	29	S-3 : Medium dense, brown, fine to coarse SAND and fine to coarse GRAVEL, little Silt			7		311.0
		S-4	7-9	24	18	16 20 18 17	38	S-4 : Dense, brown, fine to coarse SAND, some fine to coarse Gravel, some Silt (wet)			9	GLACIAL TILL	309.0
10								End of exploration at 9 feet.	1				

**REMARKS**  
 1 - Difficult drilling may indicate the presence of cobbles or boulders within the fill.

Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

**Exploration No.:**  
**GB-18**

GZA TEMPLATE TEST BORING; 9/14/2011, 2:50:21 PM

**TEST BORING LOG**



**GZA**  
**GeoEnvironmental, Inc.**  
*Engineers and Scientists*

**GODFREY BROOK  
 MILFORD, MASSACHUSETTS**

**EXPLORATION NO.:** GB-20  
**SHEET:** 1 of 1  
**PROJECT NO:** 15.0166148.1  
**REVIEWED BY:** JER

**Logged By:** T. Bjartmarz  
**Drilling Co.:** Drilex  
**Foreman:** A. Bourdreau

**Type of Rig:** ATV  
**Rig Model:** CME-55LC  
**Drilling Method:** HSA

**Boring Location:** Church St.  
**Ground Surface Elev. (ft.):** 310  
**Final Boring Depth (ft.):** 9  
**Date Start - Finish:** 8/4/2011 - 8/4/2011

**H. Datum:** Project  
**V. Datum:** Project

**Hammer Type:** Safety Hammer  
**Hammer Weight (lb.):** 140  
**Hammer Fall (in.):** 30  
**Auger or Casing O.D./I.D Dia (in.):** 4-1/4" ID

**Sampler Type:** Split Spoon  
**Sampler O.D. (in.):** 2.0  
**Sampler Length (in.):** 24  
**Rock Core Size:** NA

**Groundwater Depth (ft.)**

Date	Time	Water Depth	Stab. Time
8/4/11	0850	7'	5 min.

Depth (ft)	Casing Blows/ Core Rate	Sample					SPT Value	Sample Description and Identification (Modified Burmister Procedure)	Remark	Field Test Data	Depth (ft.)	Stratum Description	Elev. (ft.)
		No.	Depth (ft.)	Pen. (in)	Rec. (in)	Blows (per 6 in.)							
5		S-1	0-2	24	12	3 5 6 8	11	S-1 : Medium dense, dark brown to black, fine to coarse SAND, some Silt, little fine to coarse Gravel			0.6	ASPHALT	309.4
		S-2	2-4	24	9	3 13 13 12	26	S-2 : Medium dense, light brown, fine to coarse SAND and fine to coarse GRAVEL, trace Silt				FILL	
		S-3	5-7	24	12	7 15 16 18	31	S-3 : Dense, brown, fine to coarse SAND, some fine to coarse Gravel, little Silt			5		305.0
		S-4	7-9	24	17	22 19 23 21	42	S-4 : Dense, brown, fine to coarse SAND, some fine to coarse Gravel, little Silt (wet)			9	GLACIAL TILL	301.0
10								End of exploration at 9 feet.	1				

**REMARKS**  
 1 - Difficult drilling may indicate the presence of cobbles or boulders within the fill.

Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

**Exploration No.:**  
**GB-20**

GZA TEMPLATE TEST BORING: 9/14/2011: 2:50:21 PM

**TEST BORING LOG**



**GZA**  
**GeoEnvironmental, Inc.**  
*Engineers and Scientists*

**GODFREY BROOK  
MILFORD, MASSACHUSETTS**

**EXPLORATION NO.:** GB-21  
**SHEET:** 1 of 1  
**PROJECT NO:** 15.0166148.1  
**REVIEWED BY:** JER

**Logged By:** T. Bjartmarz  
**Drilling Co.:** Drilex  
**Foreman:** A. Boudreau

**Type of Rig:** ATV  
**Rig Model:** CME-55LC  
**Drilling Method:** HSA

**Boring Location:** Verizon Parking Lot  
**Ground Surface Elev. (ft.):** 306  
**Final Boring Depth (ft.):** 7.3  
**Date Start - Finish:** 8/5/2011 - 8/5/2011

**H. Datum:** Project  
**V. Datum:** Project

**Hammer Type:** Safety Hammer  
**Hammer Weight (lb.):** 140  
**Hammer Fall (in.):** 30  
**Auger or Casing O.D./I.D Dia (in.):** 4-1/4" ID

**Sampler Type:** Split Spoon  
**Sampler O.D. (in.):** 2.0  
**Sampler Length (in.):** 24  
**Rock Core Size:** NA

**Groundwater Depth (ft.)**

Date	Time	Water Depth	Stab. Time
8/5/11	1400	Not Encountered	5 min.

Depth (ft)	Casing Blows/ Core Rate	Sample						Sample Description and Identification (Modified Burmister Procedure)	Remark	Field Test Data	Depth (ft.)	Stratum Description	Elev. (ft.)
		No.	Depth (ft.)	Pen. (in)	Rec. (in)	Blows (per 6 in.)	SPT Value						
		S-1	0-2	24	10	3 32 22 8	54	S-1 : Very dense, brown, fine to coarse SAND and fine to coarse GRAVEL, trace Silt			0.3	ASPHALT	305.7
		S-2	2-4	24	14	2 8 8 14	16	S-2 : Medium dense, dark brown to black, fine to coarse SAND, some Silt, little fine to coarse Gravel, trace Brick				FILL	
5		S-3	5-7	24	8	4 7 25 64	32	S-3 : Dense, light brown, fine to coarse SAND and fine to coarse GRAVEL, little Silt			6		300.0
		S-4	7-7.3	3	1	100/3"	R	S-4 : Brown, fine to coarse GRAVEL, some fine to coarse Sand, little Silt	1		7.3	GLACIAL TILL	298.7
10								End of exploration at 7.3 feet.					
15													
20													
25													
30													

**REMARKS**  
1 - Exploration terminated at split spoon refusal at approximately 7.3 feet below grade.

Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

**Exploration No.:**  
**GB-21**

GZA TEMPLATE TEST BORING: 9/14/2011; 2:50:22 PM

## SECTION 02020

### MOBILIZATION

#### PART 1 - GENERAL

##### 1.01 GENERAL PROVISIONS

- A. Attention is directed to the CONTRACT and all Sections within DIVISION 1 - GENERAL REQUIREMENTS, which are hereby made a part of this Section of the Specifications.

##### 1.02 DESCRIPTION OF WORK

- A. Contractor shall provide all labor, materials, and equipment necessary for the movement of personnel, materials, and equipment to the project site, and for the establishment of all Contractor's field offices and other facilities necessary to the performance of the work and their removal at the completion of work. This Section also includes the costs of Bonds/Fees/Licenses/Insurance, etc. that are required of the Contractor to perform the work.
- B. The Work under this Section consists of the Contractor's preparatory work and operations, including, but not limited to transporting equipment, supplies, personnel and incidentals to and from the work site, and all other operations which must be performed or for costs which must be incurred prior to commencement of the Work.
- C. Work under this Section includes all work, services, equipment, and other incidental items, whether specifically mentioned herein or not, to perform similar tasks at the work site at the conclusion of the Work, in order to restore the site to its intended condition and remove all items which are not a permanent part of the work from the site, and to leave the site in a clean and orderly manner as directed by the Owner.
- D. The Work of this Section includes any potential work, labor, equipment, and other expenses necessary for emergency protection of, demobilization from, and remobilization to the project site in the event of heavy rains, increased flows, and/or high water levels which cause the inundation of the job site or other weather-related conditions which temporarily restrict access to the work areas.
- E. The Work of this Section includes all work, services, equipment materials, supplies, personnel, and other incidental items necessary for the adequate and appropriate documentation of the existing structures and facilities at the site and the condition of said structures and facilities prior to the start of Construction at the site. Prior to the start of work, the Contractor shall document the pre-construction conditions of those areas which might be disturbed by the Work of the Contract. This documentation, in the form of photographs, video tapes, and written documentation shall be provided to the Owner. This Work is intended to establish and document site conditions and provide a basis for restoration requirements.

- F. The Work of this Section includes the provision, installation, inspection, maintenance, and removal of all temporary facilities and controls necessary for the Contractor to successfully complete the Work of this Contract in accordance with the Drawings, Specifications, Permits, and all applicable local, state, and Federal laws and regulations and not specified in other Sections.
- G. The Work of this Section includes all work and operations, including, but not limited to equipment, supplies, material, personnel, and incidentals for site preparation as well as the dismantling, relocation, demolition, removal, and lawful off-site disposal of certain existing materials at the site.
- H. The Work of this Section includes all work and operations, including, but not limited to equipment, supplies, material, personnel, and incidentals for site restoration work not specified elsewhere to restore all disturbed areas in and around the project site to pre-construction conditions, including all areas disturbed or damaged by the Contractor.
- I. The Work of this Section includes the provision, which may be the services of a Registered Land Surveyor (RLS), or a competent person designated as the surveyor by the Contractor, to provide site layout, control points, temporary and permanent benchmarks, and other similar work, including maintenance and preparation of complete and
- J. The Work of this Section includes any potential work, labor, equipment, materials, labor, and other expenses necessary for emergency protection of, demobilization from, and remobilization to the project site in the event of heavy rains, increased flows, and/or high water levels which cause the inundation of the job site or other weather-related conditions which temporarily restrict access to the work areas.

#### 1.03 DEMOBILIZATION / REMOBILIZATION DUE TO INCLEMENT WEATHER

- A. The Work of this Contract will take place in Godfrey Brook. Portions of this Work will require personnel and equipment to be located in or adjacent to areas typically subject to water flow. This work will require diligent surface water and groundwater control efforts. Certain weather conditions (such as an extended period of heavy rainfall and/or a weather event such as a hurricane) could cause a significant rise in the water level of the river, which may potentially inhibit proposed work.
- B. The Contractor's responses to weather events are the Contractor's responsibility and no extra payment shall be made. The Contractor shall make provision for contingencies to deal with inclement weather, the cost of which shall be incidental to other pay items. In the event of rising waters and increasing flow, the Contractor shall protect their work, including removal of personnel and equipment from potentially affected areas. The Contractor may have to demobilize from the potentially affected areas on a temporary basis. Prior to leaving the area, the Contractor shall protect completed Work and Work in progress and remove all equipment and materials from areas with the potential for inundation. The Contractor shall be solely responsible for any loss or damage to their Work, equipment, or material. After water levels/flows have receded, the Contractor shall



remobilize to the site at no additional cost. Remobilization will include all effort required to restart the Work.

- C. To reduce the chance of high water levels / flows affecting the Work, the Contractor is urged to pay particular attention to weather forecasts for the area and to schedule work in vulnerable areas for periods which are anticipated to be relatively dry. The Contractor shall sequence their work in such a manner as to reduce the potential for inundation of the work areas.

#### 1.03 EXISTING CONDITIONS

- A. The Project Site is located within the Godfrey Brook, and the surrounding areas. The Work of the Contract will involve temporary water control measures installed to protect the Work. The Town does not typically control flows within Godfrey Brook. The Contractor shall design their temporary water control measures or work plan to accommodate for rapid rising of water levels. Appropriate water safety precautions shall be provided by the Contractor as per OSHA regulations as needed for work in and around the brook.
- B. Possible onsite contractor staging areas are noted on the Drawings. The Contractor shall mark and maintain all existing structures and utilities within the staging area and the work areas before, during, and after the course of work. Contractor shall notify Dig Safe® and all appropriate entities required by the permits issued for the project prior to commencing work.
- C. Access into the project area is off public ways. Contractor shall protect the surfaces of the surrounding roadways and existing gravel and paved surfaces used to access the pond and work areas within the surrounding park.
- D. The Contractor shall provide working platforms/ramps, cribbing, shoring, matting, and all other specialized support equipment required to ensure safe access of all personnel, equipment and materials necessary for completion of the work of this Contract in accordance with the Specifications and Drawings.

## **PART 2 - PRODUCTS**

Not Applicable to this Section.

## **PART 3 - EXECUTION**

### **3.01 GENERAL**

- A. The work required to provide the above facilities and services shall be done in a safe and workmanlike manner and shall conform with any pertinent local, state, or federal law, regulation, or code. Good housekeeping consistent with safety shall be maintained. The Town has procured an agreement with the owners of #9 Water Street, Bell Atlantic/New England Telephone Company, #18 Congress St., Carlos A. Punin Saetros, and #22 West Street, Filomena Carrabba Life Estate, for the use of a portion of their property as construction staging area, with conditions, as shown on the plans. The Contractor shall coordinate with the Town and the property owners as to the conditions and schedule for use of the property as staging areas. No additional staging areas for the Contractor's potential use have been designated on the plans as no rights have been acquired by the Town from other private property owners.
- B. Contractor shall negotiate use of additional properties with the private property owners at their own expense and if so done, Contractor shall provide the Town with a copy of the written agreement with the private property owner. It is required that the Contractor fence all staging areas for safety. Fencing shall be of minimum six foot (6') height. All staging areas must be restored at the completion of the project and all Contractor-installed temporary fencing removed. Any conditions, improvements or fees negotiated with the private property owners will be paid for by the Contractor at no additional cost to the Town.

### **3.02 PRE-CONSTRUCTION SITE MEETING**

- A. A meeting with the Town (and/or their Representative) and the Engineer will occur prior to the beginning of any work at the Site. During this meeting, the Contractor will become familiar with the Site, including working conditions, existing access, and access restrictions. During this meeting, the final locations of laydown and access will be discussed, and confirmation that the appropriate notifications and clearances (e.g. Dig Safe® and Town of Milford, etc., as applicable) have been executed.

**PART 4 - COMPENSATION**

**4.01 MEASUREMENT AND PAYMENT**

- A. The work required under this Section will be measured for payment in the following manner:
  - 1. When the first payment request is made, up to 50 percent of the lump sum bid price for these items, or 5 percent of the total original contract price, whichever is less, will be certified for payment.
  - 2. Up to 75 percent of the lump sum price for the Project will be certified for payment when the work has been judged by the Engineer to be at least 50% completed.
  - 3. After the Contractor has received written notice from the Engineer to proceed with demobilization from the Project and has successfully demobilized to the satisfaction of the Engineer, 100 percent of the lump sum price of this item will be certified for payment.
- B. Nothing herein shall be construed to limit or preclude partial payments otherwise allowed for by the contract.
- C. The work required under this Section will be paid for at the lump sum unit price for this item, which shall include all materials, equipment, tools, labor, transportation, operations and all work incidental thereto.

**4.02 PAYMENT ITEM**

<u>Pay Item</u>	<u>Description</u>	<u>Pay Unit</u>
02020-1	Mobilization	Lump Sum

THERE ARE NO OTHER PAY ITEMS UNDER THIS SECTION.

PAYMENT FOR OTHER WORK REQUIRED BY THIS SECTION SHALL BE INCLUDED IN THE CONTRACT UNIT PRICES OF THESE ITEMS.

**\*\*\*\*\*END OF SECTION\*\*\*\*\***

## SECTION 02100

### SITE PREPARATION AND DEMOLITION

#### PART 1 - GENERAL

##### 1.01 GENERAL PROVISIONS

- A. Attention is directed to the CONTRACT and all Sections within DIVISION 1 - GENERAL REQUIREMENTS, which are hereby made a part of this Section of the Specifications.

##### 1.02 DESCRIPTION OF WORK

- A. Work Included: Provide labor, materials and equipment necessary to complete the work of this Section, including, but not limited to the following:
1. Locate and stake out all construction and underground utilities.
  2. Furnish all safety fencing as required herein or as directed by the Engineer.
  3. Documentation of existing conditions.
  4. Perform all necessary clearing and grubbing operations.
  5. Remove and reset street signage, mailboxes, and other existing items in the public rights of way unless specifically noted to be removed and disposed of.
  6. Removal, wholly or in part, and satisfactory disposal of all bituminous paving, underground concrete or brick structures, underground utility piping, stumps, debris, trash, railings, masonry, trees and other vegetation, and any other obstructions which are not designated or permitted to remain. It also includes backfilling any resulting trenches, holes, and pits.

##### 1.03 QUALITY ASSURANCE

- A. Codes and Standards:
1. All work and materials shall conform to the latest applicable sections of the Standard Specifications for Highways and Bridges, Massachusetts Department of Transportation, hereinafter referred to as the "Standard Specifications", as well as the codes and standards referenced in the individual sections. In case of conflict, the codes and standards referenced in the individual sections shall govern.
  2. All work and materials shall also be in full accordance with the latest rules, regulations, and safety orders of state, county, city, municipality, and utility laws, rules and regulations. Nothing in these Contract Documents shall be construed to permit work not conforming to the above.

3. Site clearing work and any required site demolition work shall be conducted in accordance with the applicable safety requirements of the State's Administrative code, the Associated General Contractors' Manual of Accident Prevention in Construction, latest edition, and the applicable requirements of the Building code, latest applicable edition.

B. Permits and Licenses:

1. The Contractor shall secure all local permits required to complete the work and shall pay all charges and fees for same, without cost to the Town, and give all notices necessary and incidental to the due and lawful prosecution of the work.
2. The Contractor shall follow all local, state and federal permits which pertain to this project, which can be found in Section 01060 of these specifications.

C. Ordinances and Protection:

1. Conform to all federal, state, and local ordinances relating to the protection of the public and Contractor's personnel and the flow of traffic. Provide protection for persons and property throughout the progress of the work.
2. The limits of the project are indicated on the Contract Documents. The Contractor shall confine his operations within the limits of work as indicated.
3. Clearing and grubbing work shall not be commenced until all required temporary work such as fences, barricades, and required warning lights and apparatus and erosion control systems are furnished and installed.

1.04 LAYOUT WORK

A. Perform required field layout work to establish lines, hubs, grade stakes, and other layout work necessary to construct the work.

B. The Engineer will provide local coordinated control points for use by the Contractor.

C. Grades, lines, levels and permanent markers:

1. Staking: Contractor shall employ a qualified individual or firm to be in responsible charge of staking services, to locate and stake out all new facilities. The staked location and alignment of the facilities shall be checked and approved by the Engineer prior to any operations by the Contractor or his subcontractor. Acceptance or approval of the surveying by the Engineer will not constitute relief of Contractor's responsibility for accuracy.
2. Responsibility for Correctness: Contractor will be held responsible for the correctness of the layout and for establishing the location of any buried utility lines. In the event there is any conflict between actual conditions and the Contract Documents, Contractor shall notify the Engineer immediately and shall not proceed with the work until directed by the Engineer.
3. Preservation of Markers: All stakes, boundary lines, corner markers, bench marks or survey markers, etc., which have been or may be established in any part of the site, shall be carefully preserved and respected by the Contractor and

shall be restored at the Contractor's expense if lost or destroyed as a result of his operations.

#### 1.05 LOCATION OF UNDERGROUND OBSTRUCTIONS

- A. The Contract Documents show approximate location of known obstructions. The location of existing piping and underground utilities has been determined from available information. During construction utilities other than those shown may be encountered or designated. In areas where it is necessary that exact locations of underground lines be known, the Contractor shall, at his own expense, furnish all labor and tools to either verify and substantiate or definitely establish the location of the lines.
- B. Locate and mark all underground pipelines and utilities within construction area.

### **PART 2 - PRODUCTS**

#### 2.01 MATERIALS

- A. Safety/Limit of Work Fencing: Safety/Limit of Work Fencing shall be minimum 4' high, and shall be orange or other highly visible color. Tenax Beacon Plus Fence, Conwed Plastics "Light Duty Fence", Geo-Tex Fabricators, Inc., or equal.

### **PART 3 - EXECUTION**

#### 3.01 SITE INVESTIGATION

- A. Contractor shall visit the site to determine the full extent of the site clearing and demolition work and any other matters that in any way affect the Work. Failure of the Contractor to acquaint himself with all available information concerning conditions will not relieve him from responsibility for estimating the difficulty or the cost of the Work.

#### 3.02 DOCUMENTATION OF EXISTING CONDITIONS

- A. Prior to the start of work, the Contractor shall be responsible for documenting the pre-construction conditions of those areas which might be disturbed by the Work of the Contract, including, but not limited to, the paved areas, grassed or vegetated areas, fencing, signage, etc. on both private and public properties. Contractor will notify the Town two days in advance of when the documentation work will be conducted and such work will be performed with the Town in attendance. This documentation, in the form of photographs, video tapes, and written documentation shall be provided to the Town prior to any demolition. This documentation shall be used to determine the extent to which post-construction site restoration shall be needed. Particular attention is drawn to the existing conditions of the hatchway of the house at #3 Roberts Court; fence, garage and garage foundation located on #7-#11 Draper Park; building and building foundation of #21 Church Street; the shed

and fencing of #23-#25 Church Street; the garage and garage foundation of #11 Water Street; and building and building foundation of #9 Water Street. Contractor shall carefully document the conditions of the listed structures to the extent allowed by the owner, in particular cracks, settlement, or indications of prior movement.

### 3.03 ACCURACY OF DATA

- A. Site data given on the Contract Documents are as exact as could be secured, but their absolute accuracy cannot be guaranteed. Exact locations, distances, and elevations, shall be finally governed by field conditions and the instructions of the Engineer.

### 3.04 EXISTING UTILITIES

- A. Contractor shall verify on site, the location and depth (elevation) of all utilities and services before excavation. The Contractor shall call the regional Dig-Safe number 1-888-Dig Safe, 72 hours prior to any excavation operations.

### 3.05 EXISTING IMPROVEMENTS

- A. Except as specified in other sections, Contractor shall relocate, reconstruct, replace or repair, or cause to be relocated, reconstructed, replaced or repaired at his own expense, all existing utilities, walls, fences, services, and other structures or improvements of whatever nature, which are in the line of construction or which may be damaged, removed, disrupted, or otherwise disturbed by the Contractor, whether shown on the Contract Documents or not; and the Contractor shall connect, or cause to be connected, such utilities to existing systems and leave all in a workable and operating condition at his own expense.
- B. Walls or fences or other man-made features on private property shall be removed in a manner that prevents damage, properly stored, and reconstructed at the completion of the project. If agreed to in advance by the property owner, new elements may be substituted for existing.
- C. Contractor shall, at his own expense, construct, or cause to be constructed, temporary utilities to maintain continuous service to surrounding buildings and facilities and adjacent property owners.

### 3.06 SITE ACCESS

- A. Access to the site shall be via the public rights of way within the Town of Milford and across temporary construction easements obtained by the Town of Milford.
- B. The Contractor is responsible for maintaining safety fencing as needed around the perimeter of the active work area and for protecting the public from the Contractor's actions and work areas.
- C. The Contractor shall coordinate all of his activities with the Engineer in order to provide for the continued use of the public rights of way and the temporary easements to the maximum extent possible.

- D. All access across temporary easements shall be done in a manner which has the minimum disturbance on the land and vegetation within the easement. All disturbed areas within the temporary easements shall be restored at the end of the project to the satisfaction of the Engineer and individual property owner.
- E. When temporary access roads are constructed, these must be abandoned at the end of the project by removing all surfacing and grading and loaming for a neat and natural appearance for proper drainage of surface water, as directed.

### 3.07 CARE OF EXISTING TREES

- A. No trees or timber outside of the easements or public rights of way may be cut or damaged, unless otherwise indicated on the Contract Documents.
- B. All trees to remain shall be protected from damage by constructing suitable wood barriers or fences at, or near, the drip line of the tree. Vehicles, equipment, materials, and debris shall not be placed or parked in these areas.

### 3.08 INSTALLATION OF SAFETY/LIMIT OF WORK FENCING

- A. Safety/Limit of Work Fencing shall be installed around all open excavations and around all other work as required to maintain safe pedestrian and vehicle traffic. Installation shall be as per manufacturer's standard installation instructions, using sound, hardwood stakes with minimum dimensions of 1" x 1" x 60" long, spaced 12 feet maximum. Contractor shall maintain fencing throughout the life of the project, including repair or resetting areas of sagging fencing. Safety/Limit of Work Fencing is to be considered part of the lump sum item, Site Preparation and Demolition at each site and will not be measured or paid for separately.

### 3.09 CLEARING, GRUBBING, DEMOLISHING, AND DISPOSAL

- A. Demolish, raze, remove and dispose of all pavements, piping, structures, and other obstructions to new work, except operating utilities and those items for which other provisions have been made for removal and/or protection. All materials shall become the property of the Contractor and shall be disposed of at an off-site location.
- B. All unsurfaced areas within the permanent easement areas shall be cleared and grubbed of vegetation in conformance with Section 101 of the Standard Specifications.
- C. All tree clearing shall be performed in accordance with United States Army Corps of Engineers (USACE) 404 Authorization (File Number NAE-2024-1170) under the General Permits for the Commonwealth of Massachusetts. Tree clearing operations shall be performed prior to June 1<sup>st</sup>, and shall not occur between June 1<sup>st</sup> and July 31<sup>st</sup>.
- D. All other trees, shrubs, and other vegetation outside of the permanent easement lines but within the temporary easement lines shall be cleared as required by the Contractor to complete the work of the Project, with the exception of trees designated on the plans as to remain.



- E. Disposal of all trees, branches, snags, brush, stumps, etc., resulting from the clearing and grubbing shall be the responsibility of the Contractor and shall be disposed of by optionally chipping and grinding and then removal from the property to a legal disposal area. No on-site burning nor on-site burial will be allowed.
- F. All costs in connection with disposing of the material will be at the Contractor's expense. Material disposed of shall be in a manner that will avoid all hazards, such as damage to existing structures, construction in progress, trees and vegetation. The Contractor shall be responsible for compliance with all federal, state and local laws and regulations relative to the disposal. All liability of any nature resulting from the disposal of said material shall become the responsibility of the Contractor. Uncontaminated roadway pavement, brick and concrete rubble free of reinforcing steel may be transported and disposed of by the Contractor at the Town of Milford's Asylum Street property, in coordination with the Highway Surveyor.

3.10 FILLING AND BACKFILLING

- A. Pits and depressions shall be filled with approved non-compressible material as soon as possible. Broken concrete, masonry, asphalt, or debris will not be permitted for filling of pits. See SECTION 02200 - GENERAL EARTHWORK.

**PART 4 – COMPENSATION**

4.01 METHOD OF MEASUREMENT

- A. No measurement will be made for Site Preparation and Demolition at either site. The bid items for Site Preparation and Demolition are lump sum quantities.

4.02 BASIS OF PAYMENT

- A. Site Preparation and Demolition will be paid for at the contract lump sum price, complete and accepted in place.

4.03 PAYMENT ITEMS

<u>Pay Item</u>	<u>Description</u>	<u>Pay Unit</u>
02100-1	Site Preparation and Demolition	Lump Sum

THERE ARE NO OTHER PAY ITEMS UNDER THIS SECTION.

PAYMENT FOR OTHER WORK REQUIRED BY THIS SECTION SHALL BE INCLUDED IN THE CONTRACT UNIT PRICES OF THESE ITEMS.

\*\*\*\*\*END OF SECTION\*\*\*\*\*

## SECTION 02200

### GENERAL EARTHWORK

#### PART 1 – GENERAL

##### 1.01 GENERAL PROVISIONS

- A. Attention is directed to the CONSTRUCTION CONTRACT and all Sections within DIVISION 1 - GENERAL REQUIREMENTS, which are hereby made a part of this Section of the Specifications.

##### 1.02 DESCRIPTION OF WORK

- A. Contractor shall furnish all labor, materials, equipment, supervision, and shall perform all operations required to complete the work shown on the drawings, as directed by the Engineer, as herein specified, and as required to properly complete the work.
- B. The work includes, but is not limited to, the following as outlined in these specifications or shown on the Contract Documents:
1. Pre-construction surveys of adjacent buildings and structures.
  2. Installation, baseline surveying, and monitoring of deformation monitoring points as required on existing adjacent buildings at the following properties:
    - a. 3 Roberts Ct
    - b. 372 Draper Park
    - c. 21 Church St.
    - d. 23-25 Church St.
    - e. 9 Water St.
    - f. 11 Water St.
  3. Crack gauges shall be installed on existing cracks observed on building walls during the pre-construction survey.
  4. Trench excavation, bedding and backfill for all structures and utilities, complete.
  5. Excavation, haul, backfill, compaction, and grading for all work of the documents.
  6. The removal, hauling, and stockpiling of suitable excavated materials for subsequent use on the project including topsoil.
  7. All rehandling, hauling, and placing of stockpiled materials for use in refilling, filling, backfilling and grading.
  8. Protection of existing vegetation, buildings, decks, pavements and utilities not otherwise disturbed as part of the work.
  9. Protection of the work of other Contractors or utilities, who may be performing work within the project area simultaneously with the work of this contract.

10. Design, furnishing, installing and removing all sheeting, shoring and bracing of general excavations (as required) to prevent damage to existing improvements and limit excavation quantities. As a minimum, loads on the temporary lateral support system will be those from soil, water, and traffic and construction equipment surcharges.
11. All excess materials not suitable or necessary for use in refilling, filling, backfilling and grading shall become the property of the Contractor and shall be removed from the site.
12. Provision and installation of all borrow earth materials needed to perform the work of the Contract, including processed gravel, crushed stone, riprap, streambank borrow, etc.
13. The spreading of onsite and borrow topsoil.

## QUALITY ASSURANCE

- A. General: Perform all earthwork in compliance with the latest edition of the Massachusetts Department of Transportation's Standard Specifications for Highways and Bridges hereinafter referred to as the "Standard Specifications".
- B. Referenced Standards:
  1. ASTM D422 Method for Particle Size Analysis of Soils.
  2. ASTM D698 Test for Moisture-Density Relations of Soils using 5.5 lb Rammer and 12-inch Drop (Standard Proctor).
  3. ASTM D1556 Test Method for Density of Soil in Place by the Sand Cone Method
  4. ASTM D1557 Test Methods for moisture-density relations of soils and soil aggregate mixtures using 10 lb. Rammer and 18-inch drop.
  5. ASTM D2167 Test for Density of Soil in Place by the Rubber Balloon Method.
  6. ASTM D2487 Classification of Soils for Engineering Purposes.
  7. ASTM D2922 Test Methods for Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth).
  8. ASTM D3017 Test for Moisture Content of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth).
  9. ASTM D4318 Test for Plastic Limit, Liquid Limit, and Plasticity Index of Soils.
- C. Special Requirements:
  1. Protection: Comply with all applicable regulations and safety orders in effect at the place of construction. Protect this and adjacent properties from all damage due to this operation. Protect open excavations, trenches, etc., with fences, covers or railings as required to maintain safe pedestrian and vehicular traffic.
  2. Responsibility: The Contractor is responsible for the finished condition of their work. Notify the Engineer promptly in writing if any conditions exist which are contrary to requirements. Restore, without extra cost to the Engineer, street pavements, walks, curbs, gutters, trees, etc., that may be damaged in the

performance of work under this section, in a manner prescribed by authorities having jurisdiction.

3. **Surveyor Qualifications:** The Contractor's Professional Land Surveyors shall be registered in the Commonwealth of Massachusetts and with at least five (5) years of experience performing construction surveying and monitoring of geotechnical instrumentation.
4. **Unusual Conditions:** The Contractor shall not work in excessively cold, wet or other unfavorable weather. Other unusual conditions encountered during operations, if not covered herein, will be brought promptly to the attention of the Engineer and appropriate instructions will be issued. Rock, soft spots at locations where bearing value is required, and other concealed site conditions are in this category. No work is to be done over spongy or other unsuitable material without such instructions.

**D. Codes and Standards:**

1. All work and materials shall conform to the latest applicable sections under the state's various jurisdictions; the Standard Specifications for Highways and Bridges, Massachusetts Department of Transportation, hereinafter referred to as the "Standard Specifications"; as well as the codes and standards referenced in the individual sections. In case of conflict, the codes and standards referenced in the individual sections shall govern.
2. All work and materials shall also be in full accordance with the latest rules, regulations, and safety orders of the State's Division of Industrial Safety OSHA, A.N.S.I. - A10.1 Safety Code for Building Construction, and all other state, county, city, municipality, and the utility laws rules, and regulations. Nothing in these Plans and Specifications shall be construed to permit work not conforming to the above.
3. When the Specifications call for material or construction of better quality or larger size than is required by the above-mentioned codes and standards, then the provisions of the Specifications shall take precedence over the requirements of said codes and standards. If there is any direct conflict between the above-referenced codes and standards and Plans or Specifications, the codes and standards shall govern.

**E. Permits:**

1. **Order of Conditions:** All work shall comply with the Order of Conditions issued by the Milford Conservation Commission under the Massachusetts Wetlands Protection Act. Refer to Section 01060 Regulatory Requirements, Section 01560 Temporary Sediment & Erosion Control.
2. **401 Water Quality Certification:** All work shall comply with the 401 Water Quality Certification issued by the Massachusetts Department of Environmental Protection Agency. Refer to Section 01060 Regulatory Requirements, Section 01560 Temporary Sediment & Erosion Control.
3. **Section 404 Self Verification Notification Form:** All work shall comply with the United States Army Corps of Engineers Section 404 Self Verification Notification

Form. Refer to Section 01060 Regulatory Requirements, Section 01560 Temporary Sediment & Erosion Control.

#### **1.04 JOB CONDITIONS:**

- A. Site Information: Data on indicated subsurface conditions are not intended as representations or warranties of accuracy. It shall be expressly understood that Engineer will not be responsible for interpretations or conclusions drawn therefrom by Contractor. Data is made available for convenience of Contractor.
- B. Existing Utilities:
  - 1. Locate existing underground utilities. Contact Dig Safe (1-888-344-7233) 72 hours prior to any excavation work.
  - 2. Should uncharted or incorrectly charted utilities be encountered, consult utility company, Engineer immediately for directions. Cooperate with Engineer and utility companies in keeping respective services and facilities in operation. Repair damaged utilities to the satisfaction of utility company and Engineer. Provide minimum 48-hour notice to the Engineer and utility company prior to interruption.
- C. Construction Procedures: The Contractor shall be solely responsible for and shall have control over construction means, methods, techniques, sequences and procedures. The Contractor shall assume full responsibility for his actions and shall be responsible for adequately insuring against all claims which may arise from any construction procedure. The Contractor shall indemnify and hold harmless the Engineer and/or any of his Agents from any claim arising from the Contractor's (or subcontractor's) actions.
- D. Protection of Persons and Property:
  - 1. Barricade open excavations and post warning signs and lights. Operate warning lights as required by authorities having jurisdiction.
  - 2. Protect all existing structures during construction.
  - 3. Contractor shall conduct a pre-construction survey of the abutting properties and structures and monitor existing properties for deformation and/or settlement during construction.
- E. Dust Control: Control dust on and near the Work, and on and near all off-site borrow areas. Thoroughly moisten all surfaces to prevent dust from being a nuisance to the public, and operation of existing facilities.

#### **1.05 SAFETY**

- A. General: The Contractor is solely responsible for designing and constructing stable temporary excavations and should shore, slope, or bench the sides of the excavation as required to maintain the stability of both the excavation sides and bottom. Construction site safety generally is the sole responsibility of the Contractor, who shall also be solely responsible for the means, methods and sequencing of construction

operations. Under no circumstances should the information provided in these plans and specifications be interpreted to mean that the Engineer is assuming responsibility for construction site safety or the Contractor's activities; such responsibility is not being implied and should not be inferred.

- B. Regulations: All excavations shall be made in conformance with all applicable laws and regulations. In particular, all excavations shall be in conformance with the regulations of the U.S. Department of Labor, Occupational Safety and Health Administration (OSHA). These regulations are the Occupational Safety and Health Standards - Excavations found in 29 CFR Part 1926 Subpart P - Excavations, as amended.
- C. Excavations and Slopes: The Contractor's "responsible person", as defined in 29 CFR Part 1926, should evaluate the soils exposed in the excavations as part of the Contractor's safety procedures. The Contractor's "responsible person" should establish a minimum lateral distance from the crest of all slopes for all vehicles and spoil piles. Likewise, the Contractor's "responsible person" should establish protective measures for exposed slope faces.

#### 1.06 SUBMITTALS

- A. Refer to SECTION 01300 - SUBMITTALS for submittal provisions and procedures.
- B. Contractor shall submit, at least ten (10) days prior to the commencement of work, the proposed construction schedule, sequence of construction, coordinate with temporary traffic controls, methods of construction including equipment to be used, excavation support methods and details, and proposed locations of haul roads and staging areas within work limits.
- C. The Contractor shall submit two (2) fifty-pound (50 lb.) samples of each type of fill proposed for use at the Site (on-site and off-site material) to the Town at least ten (10) days prior to intended use. The Contractor can coordinate with the Town and/or Engineer a visit to the quarry for visual inspection of the proposed riprap and stream cobble material prior to delivery to site.
- D. Contractor shall submit, at least ten (10) days prior to placement, testing information relative to the proposed source of all earth materials to be imported into the site. Testing information shall include the following:
  - 1. Description of source(s) of materials.
  - 2. Physical Properties.
  - 3. Grain size analysis.
  - 4. "Modified Proctor" analysis of maximum dry density and optimum moisture content (ASTM D1557)
  - 5. Liquid and Plastic Limits.
- E. Contractor shall submit all plans, sections, details, and calculations describing the Contractor's proposed temporary earth support system. The design of the bracing

and support system shall be certified by a Professional Engineer licensed in Massachusetts.

- F. Within two (2) weeks of the Notice to Proceed but no later than ten (10) days prior to the start of work at the Site, the Contractor shall submit the name, contact information, qualifications, and certifications of its proposed Independent Materials Testing Laboratory, including the names and credentials of proposed field testing technicians. The Town shall be the sole judge of the appropriateness of the proposed Laboratory and personnel.

#### 1.07 FIELD MEASUREMENTS

- A. Contractor shall verify survey benchmarks and intended elevations for the work prior to commencement of work.
- B. Contractor shall verify final grades for conformance to design plans.
- C. Contractor shall make measurements for determination of pay quantities per Specification associated with the work.

#### 1.08 COORDINATION OF WORK

- A. Other contractors, as well as various utility companies, may also be working on the site. The Contractor must coordinate his activities with all such parties so as to prevent conflicts in construction operations.

#### 1.09 LAYOUT AND GRADES

- A. Lines and grades shall be set by a Professional Land Surveyor, registered in the State of Massachusetts, in accordance with the Contractor Drawings and Specifications. Establish and maintain permanent benchmarks. Maintain all established bounds and benchmarks and replace as directed any which are destroyed or disturbed.

#### 1.10 FROST PROTECTION AND SNOW REMOVAL

- A. The Contractor shall, at their own expense, keep the operations under this Contract clear and free of accumulations of ice and snow within the limit of work and elsewhere as needed to carry out the active work.
- B. Although the placement of fill is not expected, the Contractor shall not place fill over frozen soils and shall not place frozen fill. All frozen soils shall be removed to the satisfaction of the Engineer prior to fill placement.

## **PART 2 – PRODUCTS**

#### 2.01 SOIL MATERIALS

- A. General: Fill and backfill material shall have less than 1% organic material by weight and shall be free from deleterious substances. Backfill shall not contain any

materials over 12 inches in greatest dimension. Material having a dimension greater than 6 inches shall not be used for backfill within 6 inches of any pipe, culvert, or structure, or in the upper 6 inches of fill. Materials shall be selected from approved on-site, or off-site borrow sources.

- B. Ordinary Borrow: Ordinary Borrow shall meet the requirements under Subsection M1.01.0 of the Standard Specifications. This material shall have the physical characteristics of soils designated as group A-1, A-2-4, or A-3 under AASHTO-M145. It shall have properties such that it may be readily spread and compacted for the intended use.
- C. Gravel Borrow: Gravel Borrow shall meet the requirements for Gravel Borrow per Subsection M.1.03.0 of the Standard Specifications. Gravel Borrow shall conform to the following gradation requirements:

<u>Sieve Size</u>	<u>Percent Passing by Weight</u>
1/2-inch	50-85
No. 4	40-75
No. 50	8-28
No. 200	0-10

Maximum size of stone in gravel shall be as follows:

- Type b: 3 inches largest dimension
- Type c: 2 inches largest dimension

- D. Processed Gravel Borrow: Processed Gravel shall meet the requirements of Subsection M.1.03.1 of the Massachusetts Department of Transportation, Standard Specifications for Highways and Bridges. Processed Gravel shall conform to the following gradation requirements:

<u>Sieve Size</u>	<u>Percent Passing by Weight</u>
3-inch	100
1 1/2-inch	70-100
1/4 inch	50-85
No. 4	30-60
No. 200	0-15

- E. Topsoil Borrow:

- 1. Topsoil Borrow shall consist of fertile, friable, natural topsoil, reasonably free of stumps, roots, stiff clay, stones larger than 1 inch diameter, noxious weeds, sticks, brush, or other litter, and shall otherwise meet the requirements of Subsection M1.07.0 of the Standard Specifications.
- 2. Topsoil Borrow shall be obtained from off-site sources.

- F. Low Permeability Material Borrow: Low Permeability Material borrow shall meet the requirements for Impervious Borrow per Subsection M.1.08.0 of the Standard Specifications except borrow shall not be 'peat and other highly organic soils'.



- G. All other materials not specifically described but required for proper completion of the Work shall be as approved by the Engineer.

2.02 AGGREGATES AND RELATED MATERIALS

- A. Pipe Bedding Material: Where called for on the Drawings, Pipe Bedding Material shall consist of Crushed Stone as specified in this Section.
- B. Crushed Stone: Crushed Stone shall meet the requirements of Subsection M2.01.0 and M2.01.1 of the Standard Specifications. Crushed Stone shall conform to the following gradation requirements:

<u>Sieve Size</u>	<u>Percent Passing by Weight</u>
2-inch	100
1 1/2-inch	95-100
1-inch	35-70
3/4-inch	0-25

- C. Streambed Borrow:

1. Streambed Borrow shall be of natural origin and consist of angular to sub-rounded stones, similar in appearance and texture to the existing stream bed material in the project area.
2. Streambed Borrow shall be substantially free of shale, products from crushing or blasting operations, organic materials, and debris. Stones greater than one inch in diameter shall be generally free of fractured faces or any dimensions that are larger than the maximum size stated in the streambed material gradation requirements.
3. Materials salvaged from the project site that meet the requirements of streambed material may be used if obtained from within the limit of work and as approved by the Engineer.
4. Streambed borrow shall meet the following gradation:

	<u>MIN. (in.)</u>	<u>MAX. (in.)</u>
D <sub>15</sub>	5.5	7.8
D <sub>50</sub>	8.5	10.5
D <sub>85</sub>	11.5	14.0
D <sub>100</sub>	18.0	20.0

- D. Riprap: Riprap shall meet the requirements for "Stone for Pipe Ends" of Subsection M2.02.3 of the Massachusetts Department of Transportation, Standard Specifications for Highways and Bridges.

## 2.03 GEOTEXTILE FABRIC

- A. Geotextile Fabric shall be used as called out in the project drawings and to separate crushed stone from surrounding soils. The fabric shall meet Subsection M9.50.0 of the Massachusetts Department of Transportation, Standard Specifications for Highways and Bridges. The fabric shall consist of Mirafi 600X or approved equal.

## **PART 3 - EXECUTION**

### 3.01 GENERAL

- A. Work under this Section shall include earthwork necessary for installation of culverts, utility piping and conduit, utility structures, site retaining walls, fencing and other work of the project. Earthwork under this Section shall also include earthwork to prepare subgrade and sub-base materials as required for pavement construction.

### 3.02 SHEETING AND SHORING

- A. Mobilization for sheeting and shoring operations shall not begin until after design of soil support system has been reviewed by the Town and Engineer.
- B. Work shall not be started until all materials and equipment necessary for proper sheeting and shoring of the excavation are either on the site of the work or immediately available for use as required.
- C. All sheeting and shoring shall meet the requirements of OSHA Regulations (Standards – 29 CFR) 1926 Subpart P Excavations.

### 3.03 EARTH EXCAVATION

- A. Earth excavation is otherwise unclassified and includes excavation to required elevations, regardless of character of materials and obstructions encountered, other than rock.
- B. Earth excavation includes the excavation of existing pavements, utility structures, and masonry.
- C. Earth Excavation includes onsite topsoil stripped and stacked or stockpiled for re-spreading at project completion. Contractor shall make efforts to isolate the stripped topsoil from other materials prior to reuse.
- D. Unauthorized Excavation: Materials removed beyond indicated subgrade elevations or dimensions shall be corrected by backfilling and compacting with gravel borrow at the Contractor's expense.
- E. When excavation has reached required subgrade elevations, notify Engineer for inspection. If unsuitable bearing materials are encountered, excavate and replace as directed by the Engineer. Removal of unsuitable material and its replacement shall be paid on basis of unit prices established in the Contract for Earth excavation.

- F. Stability of Excavations: Slope sides of excavations to comply with codes and ordinances having jurisdiction. Shore and brace where sloping is not possible because of space restrictions or instability of material excavated. Maintain sides and slopes of excavations in safe condition until completion of backfilling. See sub-section 1.05 SAFETY in this Section.
- G. Cold Weather Protection: Protect excavation bottoms against freezing.

### 3.04 ROCK EXCAVATION

- A. Definitions and Classifications: The following classifications of excavation will be made only when rock excavation is encountered:
  - 1. Earth excavation consists of removal and disposal of pavements and other obstructions visible on the ground surface, underground structures and utilities indicated to be demolished and removed, material of any classification indicated in data on subsurface conditions, and other materials encountered that are not otherwise classified as rock excavation as defined below.
  - 2. Rock excavation consists of removal and disposal of materials encountered that cannot be excavated without continuous and systematic drilling and blasting or continuous use of a ripper or other special equipment, except such materials that are classed as earth excavation. Typical of materials classified as Rock Excavation are as follows:
    - a. Rock or stone in original ledge
    - b. Hard shale or limestone in original ledge
    - c. Boulders on-site, outside trench limits exceeding two cubic yards in volume. Excavation of existing stone channels, even if grouted together, shall not be considered rock excavation unless individual stones exceed two cubic yards.
    - d. Boulders within trench limits exceeding one cubic yard in volume
  - 3. "Trench" is defined as an excavation of any length in which the width is less than the depth, except that no excavation in excess of eight (8) feet wide shall be considered as a trench. No excavation above final finished grades shall be considered as a Trench.
  - 4. Should highly fractured or weathered bedrock be encountered during excavation, the following rules shall apply:
    - a. When the material is encountered in trenching operations or under footings and may be excavated or ripped with a hydraulic backhoe equivalent to or larger than a Caterpillar 235, it shall be classified as Earth Excavation. When it is demonstrated to the satisfaction of the Engineer that this material can no longer be removed with a hydraulic backhoe and requires drilling and blasting or hammering, this material shall be classified as Rock Excavation.
    - b. When this material is encountered in open excavation, it shall be classified as Earth Excavation until drilling and blasting or continuous ripping is necessary as defined herein above.

5. Intermittent drilling and ripping performed to increase production and not necessary to permit excavation of material encountered will be classified as Earth Excavation.

#### B. Measurements

1. When, during the process of excavation, rock is encountered, such material shall be uncovered and exposed, and the Engineer shall be notified by the Contractor, before proceeding further. The areas in question shall then be measured as hereinafter specified.
2. Failure on the part of the Contractor to uncover such material and to notify the Engineer and proceeding by the Contractor with the excavation before measurements are taken, will forfeit the Contractor's right of claim towards the classification of the excavated material as rock.
3. The Contractor shall take measurements of rock before removal and make computations of volume of rock encountered within the Payment Lines. Measurements shall be taken in the presence of the Engineer and the computations approved by the Engineer. The Owner has the option to perform independent measurements and computations of rock quantities.
4. Where removal of boulder or ledge is required outside the established payment lines, the extent of this removal and basis of payment shall be determined by the Engineer.
5. Excavate rock encountered to subgrade as specified herein and shown on the Drawings.

#### 3.05 EXCESS EXCAVATION

- A. Clean excess earth or rock excavation may be transported and disposed of by the Contractor at the Town of Milford's Asylum Street property, in coordination with the Highway Surveyor.

#### 3.06 MATERIAL STORAGE

- A. Stockpile satisfactory excavated materials only where directed in the field by the Engineer. Place, grade and shape stockpiles for proper drainage. Do not store within drip line of trees.

#### 3.07 TRENCHING

- A. General: Verify all existing grades, inverts, utilities, obstacles, and topographical conditions prior to trenching. If existing conditions differ from Contract Documents, immediately notify Engineer.
- B. Existing Surfaces: All existing surfaces which will be reused, such as topsoil or granite curbing, shall be removed at the start of the excavation process and shall be stockpiled in such a manner as to be readily available for replacement at the completion of backfill operations. Surfacing which shall not be reused shall be disposed of by the Contractor.

- C. Width: Trenches shall be at least 12" wide, but should not be wider than the pipe outside diameter plus 8" clear each side, unless shown otherwise on the plans. Provide minimum 6" clear each side of pipe.
- D. Trench Foundation:
  - 1. Provide a smooth, firm, and stable surface free from rock points. Provide crushed stone pipe bedding material or foundation as shown on the plans.
  - 2. Accurately shape all pipe foundations (soil or granular material) to fit the bottom of the pipe shape and; at each joint, shape foundation to ensure continuous bearing of pipe barrel.
- E. Grading and Stockpiling Trenched Material: Control the stockpiling of trenched material in a manner to prevent water running into the excavations.

### 3.07 CHANNEL EXCAVATION

- A. General: Verify all existing grades, inverts, utilities, obstacles, and topographical conditions prior to conducting channel excavation. If existing conditions differ from Contract Drawings, immediately notify the Engineer.
- B. Width: Channel excavation shall be at least width of precast concrete channel plus four (4) feet in earth material, and plus three (3) feet in rock material, as shown on the Contract Drawings.
- C. Depth: Depth of channel shall be to grade set within the Contract Drawings.
- D. Grading and Stockpiling Excavated Material: Control the stockpiling of excavated material in a manner to prevent water running into the excavations.

### 3.08 BLASTING

- A. When blasting is found necessary for removal of rock, the Contractor shall comply with the provisions of this Section and shall take all reasonable precautions for the protection of individuals and property exposed to his operations. Explosives shall be stored, handled and employed in accordance with Federal, State, and local regulations and permitting authorities.
- B. Pre-blast surveys will be required.
- C. The Contractor shall submit to the Engineer a complete description of his proposed plans and methods of blasting prior to proceeding with the work. As part of his review of the Contractor's plan, the Engineer may designate an exploratory area of rock excavation to which the Contractor will confine this initial drilling and blasting operation. No additional drilling or blasting will be performed until the Engineer examination of the blasting effects has been completed and the original plan of operations reaffirmed or revised in writing, based on the Engineer.
- D. Approval of methods and procedures for initiating the work, as well as meeting the herein stated maximum peak particle velocity and overpressure requirements, will not relieve the Contractor of his responsibilities in connection with the work, safety, or direct or indirect damages to existing or new structures. All damage caused by

Contractor's blasting operations shall be repaired to the full satisfaction of the Town at no additional cost to the Owner.

- E. Blasting shall be done by experienced powdermen who are licensed to use explosives. Accurate records shall be maintained, noting the location of each blast, time of detonation, total explosive weight in each blast, maximum explosive weight per delay in each blast hole, and designation of delay cap used in each hole.
- F. The Contractor shall take all precautions necessary to warn and/or protect any individuals exposed to his operations prior to any blasting. Blasting mats or other approved flyrock protection will be employed for all blasting.
- G. Contractor shall use controlled blasting procedures to meet the requirements of this specification and to prevent overblast and fracture damage to rock remaining in place, particularly where such rock is supporting structures or utilities. Controlled blasting procedures shall include, but are not limited to, line drilling and presplit blasting.
- H. Non-explosive demolition and rock excavation techniques will be required where the Contractor is unable to satisfy the requirements of this Section with explosive techniques. Such non-explosive techniques shall include, but not be limited to, the use of jackhammers and expanding chemical demolition agents.
- I. The amount of vibration and overpressure generated by blasting shall not exceed regulatory statutes or directives established by State, Town or other authorities. In no case shall the peak particle velocity generated by blasting exceed one (1) inch per second as measured at the property line, nor shall the overpressure be greater than 140 decibels. Additionally, peak particle velocities experienced by freshly placed concrete shall be controlled to the following limits:

<u>Elapsed Time After Casting</u>	<u>Maximum Peak Particle Velocity</u>
0 to 2 Hours	0.1 inch per second
2 to 24 Hours	0.5 inch per second
24 to 72 Hours	1 inch per second
more than 72 Hours	2 inches per second

### 3.09 DEWATERING

- A. Construction Dewatering shall comply with provisions and standards of all environmental permits and Section 01565 Temporary Water Control.
- B. Prevent surface water from flowing into excavations.
- C. Remove water to prevent softening of trenches, foundation bottoms, undercutting of footings, and soil changes detrimental to stability of subgrades and foundations. Provide and maintain pumps, well points, sumps and discharge lines, and other dewatering system components necessary to convey water away from excavations.

### 3.10 BACKFILL FOR UTILITY TRENCHES AND STRUCTURES

- A. Bedding for Pipes: Place pipe on minimum 6" specified pipe bedding material in trench (minimum 8" in rock), fill simultaneously on each side of the pipe, for the full width of the trench to provide complete crushed stone bedding as shown on the plans for the bottom quadrant of the pipe.
- B. Bedding for Box Culverts and Precast Channels: Place utility structures and box culverts on minimum 12" crushed stone foundation. Place and compact as specified.
- C. Backfill for Pipes, Culverts, and Structures:
  - 1. All backfill beneath areas not to be subsequently paved shall consist of suitable material excavated from the trench or, where suitable material is not available, ordinary borrow from offsite sources. The intent shall be to utilize excavated material whenever possible.
  - 2. The Engineer may direct the Contractor to use ordinary borrow as backfill whenever, in the Engineer's opinion, the excavated material is unsuitable for reuse as backfill material.
  - 3. The backfill material shall be spread and compacted in layers not exceeding eight inches (8") compacted thickness, except the last layer which shall be 4" in compacted depth.

### 3.11 COMPACTION

- A. Percentage of Maximum Density Requirements: Compact each layer of fill, backfill and granular materials to not less than the following percentages of the maximum dry density as described by ASTM D1557 (Modified Proctor):
  - 92 Percent     beneath disturbed areas which are to remain unpaved;
  - 95 Percent     beneath structural components and beneath areas which are to be paved.
- B. Equipment: Use power-driven hand tampers for compacting materials adjacent to structures and in trenches. Provide equipment capable of adding moisture to the soil material or for aerating the soil as determined necessary by moisture-density tests.
- C. Moisture Conditioning: Uniformly apply water in such manner as to prevent free water appearing on the surface, either during or subsequent to compaction operations. Compaction by flooding is prohibited.
- D. Re-fill, re-grade and re-finish any area that becomes unsatisfactory due to settling. All areas or portions thereof that do not meet minimum density requirements shall be reworked and compacted until they meet the project density requirements.

### 3.12 GRADING

- A. General: Uniformly grade areas within limits of grading, including adjacent

transition areas. Finish surfaces within specified tolerances, compact with uniform levels or slopes between points where elevations are indicated, or between such points and existing grades.

- B. Grading Tolerances: Plus or minus 0.1 foot of finished grade.
- C. Placing Fill Materials: Place and compact fill materials so as to attain the indicated thicknesses uniformly, and grade to smooth transitions.
- D. Placing Topsoil and Fine Grading:
  - 1. Scarify sub-grade to depth of 2 inches before placing topsoil.
  - 2. Contractor shall utilize previously stockpiled topsoil stripped from on-site locations unless specifically directed by the Engineer. All large, stiff clods, lumps, stones over three inches, brush, roots, stumps, litter and other foreign materials shall be removed from the topsoil prior to placement. Compaction shall be obtained by rolling or any method that produces satisfactory results and depressions caused by settlement or compaction shall be regraded to provide a smooth uniform even finished grade. If necessary on-site topsoil may be augmented with Topsoil Borrow.
  - 3. Topsoil shall be evenly spread and compacted to a minimum thickness of 6 inches. Maximum depth of topsoil shall be 12 inches.
  - 4. Do not handle topsoil in a wet or muddy state, or dump or spread in areas where subgrade is not in proper condition.
  - 5. Unless otherwise noted, topsoil surface shall be 1/2 inch below top of header boards, walks, pavement, and utility structures.

### 3.13 CONTROL AND TESTING

- A. The services of qualified geotechnical personnel will be engaged by the Contractor for the making of tests to determine the moisture-density relationships, and suitability of materials for compaction, for observing the installation and monitoring of the settlement platforms and for observation of the site preparation and the selection, placing, and compaction of the fill. In-place density and moisture content tests will be performed as required.
- B. The Contractor shall cooperate with the testing personnel so as to permit proper observation and testing of the work without unnecessary delays.
- C. Perform compaction testing as specified herein. Minimum testing frequency shall be two (2) tests per 200 linear feet of trench backfilled, one at approximately one-half the total backfill height, and one at top of backfill, or as otherwise determined by the Engineer.

### 3.14 TRENCHING THROUGH PAVEMENT

- A. Trenching Through Newly Installed Pavement: Trenching through new pavement installed under this contract is prohibited. When trenching is necessary, contact Engineer for approval. Backfill full height of trench using compacted gravel borrow



or other materials as directed by Engineer.

- B. Trenching through Existing Pavement: Backfill full height of trench using compacted gravel borrow.

### 3.15 CUTTING AND FILLING AROUND EXISTING TREES

- A. Excavating, filling or grading within the branch drip line of trees that are to remain shall be performed as follows:
  1. Trenching: Do not cut tree roots. Tunnel under or around by careful hand digging to prevent injury to roots.
  2. Lowering Grades: Leave rounded mounds at tree, grading smoothly into lower level. Exposed or broken roots shall be cut clean, painted with tree paint and covered with 3 inches of fill.

### 3.16 DISPOSAL OF EXCESS AND UNSUITABLE MATERIAL

- A. Excess or unsuitable excavated materials, including topsoil, waste materials, trash, debris, and previously-installed pipe and appurtenances shall become the property of the Contractor and shall be properly disposed of at off-site disposal areas in an appropriate location consistent with all local, state and federal regulations at no additional cost to the Town.
- B. Burning on site is prohibited.

### 3.18 STREAMBED BORROW

- A. General: Streambed borrow material shall be installed within the precast stream channel to create a natural stream substrate.
- B. Placing Streambed Borrow:
  1. Clean stream channel of loose aggregate, dust, laitance, dirt, oil grease by brush-hammering, chipping or brushing.
  2. Thoroughly dampen the bottom of the concrete channel.
  3. Pour non-shrink grout within channel to a depth of 4 inches.
  4. Dump streambed borrow onto the non-shrink grout to the depth shown on design plans. Borrow shall be a consistent depth of approximately 8 inches.
  5. Larger stones 14 to 20 inches in diameter shall be placed in a random fashion both laterally and vertically. Stones shall be placed at distances apart of between five and fifteen feet. Some of the stones shall be placed to extend above the finished stream profile at a distance of up to 1 foot.

### 3.18 MAINTENANCE

- A. Protect areas graded to final subgrade elevations from traffic and erosion. Keep free of trash and debris. Repair and re-establish grades in settled, eroded and rutted areas to specified elevations.

- B. Where settlement is noticeable during general project warranty period, remove surface pavement, lawn or other finish; backfill and compact with appropriate fill material as directed by geotechnical engineer; and replace surface treatment. Restore appearance, quality and conditions of surface or finish to match adjacent work, and eliminate evidence of restoration to greatest extent possible.

## **PART 4 - COMPENSATION**

### **4.01 METHOD OF MEASUREMENT**

- A. Excavation: Earth and Rock Excavation will be measured in their original position by the cross section method except that where such measurement is impractical the volume shall be measured by such other methods as the Engineer may determine. In calculating excavation, the sides of the excavation shall be considered vertical, from the bottom of the excavation to the surface. Horizontal excavation limits for pipes and box culverts have been denoted on the plans. Horizontal excavation limits for other structures shall be as detailed on the plans or if not detailed shall be 1 foot beyond the outside of the structure in rock or 2 feet beyond the outside of the structure in earth. When approved by the Engineer, excavation of unsuitable materials shall be measured in the original position. Excavation otherwise outside the limits prescribed for payment will be considered as for the Contractor's convenience and will not be included for payment in any excavation item, nor will the refilling of any such area be included under any item of filling material.
- B. Borrow: Ordinary Borrow, Gravel Borrow, and Topsoil Borrow will be measured in place in their final compacted and trimmed condition. When this method of measurement is impractical, the Engineer and Contractor shall agree in writing to an alternate method of measurement.
- C. Crushed Stone: Crushed stone complete in place shall be measured by the ton. The weight slips shall be countersigned by the Engineer upon delivery, and no weight slip not so countersigned shall be included for any payment under the Contract.
- D. Streambed Borrow: Streambed borrow complete in place shall be measured by the ton. The weight slips shall be countersigned by the Engineer upon delivery, and no weight slip not so countersigned shall be included for any payment under the Contract.
- E. Riprap: Riprap complete in place shall be measured by the ton. The weight slips shall be countersigned by the Engineer upon delivery, and no weight slip not so countersigned shall be included for any payment under the Contract.
- F. Geotextile Fabric: Geotextile fabric shall be measured by the square foot of fabric laid in place. All overlap of geotextile fabric shall be incidental to the placement of the fabric and shall not be measured.

#### 4.02 BASIS OF PAYMENT

- A. Earth Excavation will be paid for at the contract unit price per cubic yard, complete in place, and shall include all backfilling of excavations using suitable excavated material or borrow, compaction and the respreading of onsite topsoil, grading and fine grading. Backfilling material when not using excavated material will be paid for at the contract unit price for the material authorized to be used.
- B. Rock Excavation will be paid for at the contract unit price per cubic yard, complete in place, and shall include all backfilling of excavations using suitable excavated material or borrow. Backfilling material when not using excavated material will be paid for at the contract unit price for the material authorized to be used.
- C. Ordinary Borrow will be paid for at the contract unit price per cubic yard, complete in place.
- D. Gravel Borrow will be paid for at the contract unit price per cubic yard, complete in place and accepted.
- E. Crushed Stone will be paid for at the contract unit price per ton, complete in place and accepted.
- F. Topsoil Borrow will be paid for at the contract unit price per cubic yard, complete in place and accepted.
- G. Riprap will be paid for at the contract unit price per ton, complete in place and accepted, including all geotextile fabric as required by the plans.
- H. Streambed Borrow will be paid for at the contract unit price per ton, complete in place and accepted.
- I. Geotextile Fabric will be paid for at the contract unit price per square yard, complete in place and accepted.

#### 4.03 PAYMENT ITEMS

<u>Pay Item</u>	<u>Description</u>	<u>Pay Unit</u>
02200-1	Earth Excavation	Cubic Yard
02200-2	Rock Excavation	Cubic Yard
02200-3	Ordinary Borrow	Cubic Yard
02200-4	Gravel Borrow	Cubic Yard
02200-5	Processed Gravel Borrow	Cubic Yard
02200-6	Crushed Stone	Ton
02200-7	Topsoil Borrow	Cubic Yard
02200-8	Riprap	Ton
02200-9	Streambed Borrow	Ton
02200-10	Geotextile Fabric	Square Yard

THERE ARE NO OTHER PAY ITEMS UNDER THIS SECTION.

PAYMENT FOR OTHER WORK REQUIRED BY THIS SECTION SHALL BE INCLUDED IN  
THE CONTRACT UNIT PRICES OF THESE ITEMS.

**\*\*\*\*\*END OF SECTION\*\*\*\*\***

## SECTION 02230

### MANAGEMENT AND DISPOSITION OF CONTAMINATED MATERIAL

#### PART 1 - GENERAL

##### 1.01 GENERAL

- A. The Contractor shall coordinate work with that of all other trades or contracts affecting or affected by work of this Section. The Contractor shall cooperate with such trades to assure the steady progress of all work under the Contract.
- B. Examine all other sections of the Specifications for requirements which affect the work of this Section, whether or not such work is specifically included in this section.

##### 1.02 DESCRIPTION OF WORK

- A. This Section specifies the requirements for handling, stockpiling, transporting, tracking and disposal of contaminated or potentially contaminated material that may be encountered as part of construction activities. The Contractor shall transport and dispose of all contaminated materials (including but not limited to soil, impacted debris and asbestos pipe) to appropriate disposal facilities from the site including manifesting the loads, and obtaining approval from receiving facilities as necessary and as required by applicable laws.
- B. It is the Owner's intent that soil excavated at the Site is reused on Site to the greatest extent possible and off-site disposal will only be allowed upon written authorization of the Owner. Classification of excess material (if any) will be the responsibility of the Environmental Consultant engaged by the Owner.
- C. It is possible that contamination (defined in Section 1.08 below) could be found in surficial and/or subsurface soils at the Site, including metals and petroleum related constituents.

GZA has prepared a September 2011 Geotechnical Engineering Report. This report is not part of these specifications, but is intended to be for informational purposes to the Contractor. These supporting documents may be obtained from the Owner upon request.

##### D. Potentially Contaminated Materials:

- 1. The Contractor shall be familiar with the Massachusetts Department of Environmental Protection (MassDEP) Hazardous Waste Regulations 310 CMR 30.00 and the Massachusetts Contingency Plan (MCP) 310 CMR 40.00 when conducting earthwork operations.
- 2. The Contractor shall excavate soil only in the presence of the Owner's Representative who shall assist the Contractor in identifying material to be segregated based on visual, olfactory, or other evidence. Contractor shall provide

reasonable assistance to Owner and to Owner's Environmental Consultant for access to potential contamination areas for proper assessment of hazardous conditions.

3. The Owner shall engage an Environmental Consultant to test any earth materials suspected of containing oil or hazardous materials ("OHM"). The results shall be evaluated by the Environmental Consultant and compared with reporting thresholds found in the Massachusetts Contingency Plan (MCP) 310 CMR 40.0000. The Owner shall inform the Contractor of the laboratory test results and discuss the possible soil management, disposal, and recycling options available. Contaminated soils (as described in Section 1.08) shall be managed and handled in compliance with applicable state/federal regulations, guidelines, and policies.
  4. Appropriate testing of soils will be performed by the Environmental Consultant to assess the potential presence of OHM. Earth material shall not be removed from the site unless on-site reuse is not possible.
  5. Proper documentation of legal disposal of contaminated materials handled by the Contractor shall be provided by the Contractor to the Owner and Environmental Consultant. Guidance for possible disposal activities can be found in the Department of Environmental Protection's Policy #COMM-97-001, Reuse and Disposal of Contaminated Soil at Massachusetts Landfills.
  6. Based on data currently available, it is not anticipated that the soil will be managed as a Release Abatement Measure (RAM) Plan under the MCP. An Immediate Response Action (IRA) may be used to manage and dispose of small soil quantities.
  7. If suspected asbestos containing material (ACM), including building debris, transite pipe, tiles, etc. or soil surrounding these materials is encountered, it shall be segregated and stockpiled pending confirmatory analysis to determine appropriate disposal requirements. Managing these materials shall be in accordance with MassDEP's ASBESTOS CEMENT PIPE GUIDANCE DOCUMENT dated July 2019.
- E. No environmentally-impacted soil shall be removed from the site unless required by State environmental regulations or where soil is deemed unsuitable for reuse by the geotechnical engineer, or as approved by the Owner.
- F. In the event soil must be disposed off-site as approved by the Owner, all material shall be transported under appropriate documentation (Massachusetts Department of Environmental Protection (MassDEP) Bills of Lading (BOL), Material Shipping Logs, etc.). The Contractor is responsible for proposing disposal locations for approval by the Owner. The Environmental Consultant will prepare off-site disposal documentation based on information provided by the Contractor. The Owner will sign documents as the Generator.
- G. References:
1. MassDEP's MCP (310 CMR 40.0000)

### 1.03 RELATED WORK SPECIFIED IN OTHER SECTIONS

- A. Section 02200:        General Earthwork

#### 1.04 SUBMITTALS

- A. The Contractor shall submit in writing the following to the Owner for review by the Environmental Consultant:
1. Documentation that the Contractor shall utilize appropriately trained staff to excavate potentially contaminated materials if encountered on site and that the staff is informed of procedures to be followed to protect the Health and Safety of all on-site workers as it relates to possible contaminated materials to be removed. Documentation must show that workers involved in these activities have completed Health and Safety Training per Occupational Safety and Health Administration (OSHA) Regulation 29 CFR 1910.120.
  2. The Contractor is entirely responsible for the Health and Safety of his own employees and subcontractors.
  3. Locations and methods, including drainage, for on-site stockpiling of excavated potentially contaminated soil as specified in this Section. Describe methods to keep different classifications of material segregated during processing operations.
  4. Identification, via a Worker Health and Safety Plan prepared by a certified industrial hygienist or a certified safety professional, of a course of action to be taken when suspected contaminated materials are encountered during excavation.
  5. Procedure for decontamination of personal protective equipment (PPE), tools and equipment.
  6. Methodology for soil tracking as specified in Article 3.03 of this Section, including methodology to ensure cross contamination does not occur.
- B. The Contractor shall submit proposed off-site disposal location(s) for MCP-Regulated Soil for review by the Environmental Consultant. Provide documentation certifying the suitability of proposed sites to receive soils. Proposed sites must meet the criteria specified in Articles 1.08 and 3.05 and are subject to approval by the Owner. Disposal of all excavated soil must be in conformance with Federal, state, and local regulations governing soil disposition. Identify the transporter, equipment and handling methods to be used during transport and disposal of soil.
- C. The time period(s) specified for submittals are the minimum required to review, evaluate and respond to the Contractor. If, after review, resubmission is required for any reason, the specified time period(s) shall commence upon the date of receipt of the resubmittals. The Contractor is responsible for scheduling specified submittals and resubmittals so as to prevent delays in the work.

#### 1.05 RESPONSIBILITY OF THE CONTRACTOR

- A. The Contractor is responsible for adhering to regulations, specifications, and recognized standard practices related to the management of contaminated and potentially contaminated material during excavation and removal activities. The Owner and Environmental Consultant will not be responsible at any time for the Contractor's violation of pertinent State or Federal regulations or endangerment of laborers, passers-by or any others.
- B. Minimum precautions noted in this Section shall in no way relieve the Contractor of his responsibility for implementing stricter health and safety precautions should they

be warranted by the work.

- C. The Owner and Environmental Consultant will not be held negligent nor liable for any inadequacies or deficiencies in the Contractor's site-specific worker health and safety plan or for any oversight or inadequacies in the Contractor's implementation of the safety plan.
- D. Provide labor, materials and equipment necessary to complete the work shown on the drawings and as specified in this Section, which, without limiting the generality thereof, includes:
  - 1. On-site transportation, stockpiling, and maintenance of excavated material.
  - 2. Disposal off-site of all materials classified as MCP Regulated Soil.
  - 3. For soils exhibiting unanticipated contamination (if encountered), locate the materials in plan and elevation using survey techniques.
  - 4. The Contractor is responsible for all construction, protection and maintenance of soil stockpiles from excavation through possible chemical testing and on-site re-use or off-site disposal (if required). Contractor shall stockpile material only in areas designated by the Owner.
  - 5. The Contractor is required to fully cooperate with the Environmental Consultant during efforts of segregating and stockpiling excavated soils. If contaminated soils are excavated, the Contractor should anticipate delays to his operation as a result of sampling and screening of excavated material by the Environmental Consultant.
  - 6. The Contractor is responsible for providing all documentation to track potentially contaminated material from the time of excavation until it is accepted by and disposed of at the disposal facility.
  - 7. The Environmental Consultant shall obtain all samples and/or analyses beyond those listed in Article 1.06 to comply with the requirements of any in-state or out-of-state permitted landfill facility or in-state or out-of-state recycling facility receiving material or any other disposal/reuse sites.
- E. Coordinate work with that of all other trades or contracts effecting or effected by work of this Section. Cooperate with such trades to assure the steady progress of all work under the Contract.

#### 1.06 RESPONSIBILITIES OF OTHERS

- A. The Owner will retain an Environmental Consultant to perform on-site observation and testing of soils as required to classify potentially contaminated soils in one of the categories described in Article 1.08. Final off-site disposal locations of the soils will be dependent on this classification. This testing may be done on samples retrieved from stockpiles created and maintained by the Contractor. The following suite of chemical testing will be performed on a representative sample from protected soil stockpiles. One testing suite will be performed to represent each 500 cubic yards of soil to be removed from the site.
  - Volatile Organics (EPA 8260)
  - Semi-volatile Organic Compounds (EPA 8270)
  - Total Petroleum Hydrocarbons, TPH (Mod. EPA 8100)



- RCRA 8 Metals (Totals)
  - Reactivity (SW-846.7)
  - Flashpoint (EAP 1010)
  - pH (EAP 9045)
  - Polychlorinated Biphenyls (EPA 8082)
  - Conductivity
- B. For petroleum impacted soils, TPH analyses will be conducted to represent each 100 cubic yard of soils to be removed from the site. Toxicity Characteristic Leaching Procedure (TCLP) will be performed if initial Totals analyses indicate the soil has the potential to fail TCLP criteria.
- C. As may be required pursuant to the MCP, the Environmental Consultant will act on behalf of the Owner in the capacity of the Licensed Site Professional (LSP), responsible for reviewing the adequacy of the chemical testing of soil and the appropriateness of the off-site disposal facility to accept the soil material. The Environmental Consultant will also be responsible for signing the documentation required for off-site disposal.

#### 1.07 PERMITS, CODES, POLICIES, AND SAFETY REGULATIONS

- A. All work shall conform to the Drawings and Specifications and shall comply with applicable codes, permits, and regulations.
- B. Comply with all rules, regulations, laws, permits and ordinances of all authorities having jurisdiction including, but not limited to, MassDEP, the U.S. Environmental Protection Agency (EPA), the Town of Milford and the Commonwealth of Massachusetts. In particular, the Contractor should be familiar with the following policies, guidance documents, and material tracking forms issued by MassDEP. Copies of the following documents are available for review at the office of the Owner.
- MassDEP - Bureau of Waste Site Cleanup, Policy No. WSC-94-400, "Interim Remediation Waste Management Policy for Petroleum Contaminated Soils", April 21, 1994.
  - MassDEP - Bureau of Waste Prevention, Policy No. COMM-97-001, "Reuse and Disposal of Contaminated Soils at Massachusetts Landfills", August 15, 1997.
  - MassDEP - Bureau of Waste Site Cleanup, "Policy No. WSC-00-425 Construction of Buildings in Contaminated Areas", January 26, 2000.
  - MassDEP - BWSC, Bill of Lading Package (BWSC-012).
  - MassDEP - BWP, Material Shipping Record & Log.
  - MassDEP's ASBESTOS CEMENT PIPE GUIDANCE DOCUMENT (July 2019).

All labor, materials, equipment, and services necessary to make the work comply with such requirements shall be provided by the Contractor without additional cost to the Owner.

- C. Comply with the provisions of the Manual of Accident Prevention in Construction of the Associated General Contractors of America, Inc., the Massachusetts Construction

Industry Rules and Regulations (454 CMR 10.00), and the requirements of OSHA, United States Department of Labor.

- D. Unless otherwise noted in the Supplementary Conditions, the Contractor shall procure and pay for all permits and licenses required for the complete work specified herein and shown on the Drawings.

#### 1.08 SOIL CLASSIFICATION SYSTEM

Contaminated soil will be given a designation for off-site disposal, reuse, or recycling based on chemical testing performed by the Environmental Consultant during construction on some of the soil, as described herein. These designations are defined as follows:

- A. MCP-Regulated Soil: MCP-Regulated Soil consists of material containing measurable levels of OHM that:
  - 1. are equal to or above the applicable RCs for the site's Reporting Category ("RC") (i.e., RCS-1 or RCS-2) as defined in 310 CMR 40.0361 and can be reused or disposed at unlined or lined landfills within the Commonwealth of Massachusetts (in accordance with MassDEP Policy No. 97-001) or a lined landfill that is approved by MassDEP for accepting such material, or at a similar out-of-state facility;
  - 2. may be recycled off site at a MassDEP-approved recycling facility possessing a Class A recycling permit, subject to acceptance by the facility and compliance with MassDEP Policy No. WSC-94-400; or
  - 3. Cannot be reused/recycled in an in-state landfill or in-state recycling facility because it exceeds the Allowable Contaminant Levels for Reuse at Lined Landfills (MassDEP Policy No. COMM-97-001) and Massachusetts Soil Recycling Facility Summary Levels (MassDEP Policy No. WSC-94-400) and therefore must be either recycled/disposed out-of-state in accordance with the policies and regulations of other state agencies or disposed of at a Massachusetts landfill with specific prior approval by MassDEP Division of Solid Waste Management.

For this project there are four (4) categories of MCP-Regulated Soil, depending on the final disposal location.

Type A	Soil re-used as cover at an in-state unlined landfill.
Type B	Soil re-used as cover at an in-state lined landfill.
Type C	Soil recycled at an in-state asphalt batching facility.
Type D	Soil recycled/reused at an out-of state facility.

- B. Special Waste: Special Waste is any solid waste determined not to be hazardous pursuant to 310 CMR 30.000 but has other characteristics preventing it from being disposed as a solid waste. Asbestos containing material is an example of special waste.
- C. Hazardous Waste: Material in this category will meet one or more of the criteria for a listed or characteristic Hazardous Waste as defined in 40 CFR 261. Excavated materials classified as Hazardous Waste shall be disposed off site, in an out-of-state permitted facility which is operated in full compliance with 40 CFR 260-265 and 310 CMR 30.00, or the equivalent regulations of other states. Hazardous Waste is not anticipated to be

present on this project.

## PART 2 - PRODUCTS

### 2.01 POLYETHYLENE BARRIER

- A. Polyethylene barrier for use in protecting stockpiles from spreading contamination or for protecting truck bodies shall be minimum 6-mil (0.006 inches) thick. At least two (2) layers of polyethylene shall be used beneath stockpiles of impacted materials to protect the ground surface. At least one (1) layer of black, 6-mil polyethylene shall be used to cover stockpiles of impacted material at all times except when modifying stockpiles.

### 2.02 PERSONAL PROTECTIVE EQUIPMENT

- A. Personal protective equipment and protective clothing for use by all Contractors' employees shall be consistent with the levels of protection for this work as indicted in the Contractor's Hazardous Materials Health and Safety Plan.

## PART 3 - EXECUTION

### 3.01 SOIL CLASSIFICATION PROCESS

- A. The classification of excess excavated fill material necessary to be removed from the site will be under the direction of the Environmental Consultant.
- B. Soil classification will be via characterization of representative samples from stockpiled soil. No material shall leave the site until completed testing results are reviewed by the Environmental Consultant and a disposal site agreed to by the Environmental Consultant, Contractor and Owner.
- C. The Contractor shall be prepared to allow the Environmental Consultant access to the stockpile from time to time and should be prepared for periodic interruptions to his operations during these activities. Within ten (10) calendar days after the material is temporarily stockpiled, the Environmental Consultant will provide the classification of the material to be disposed of by the Contractor, as necessary.
- D. The Contractor is responsible for the construction, protection and maintenance of temporary stockpiles. After completion of classification, materials shall be removed from the Site by the Contractor. Stockpiles shall not contain solid waste material.

### 3.02 WEIGHT MEASUREMENT

- A. The Contractor shall provide certified tare and gross weight slips for each load received at the accepted facility which shall be attached to a copy of each Manifest/Bill of Lading/Materials Shipping Record.

### 3.03 SOIL TRACKING

- A. For soils exhibiting olfactory or visual evidence of potential contamination, provide soil tracking system to track all excavated soils between excavation and final disposition.
  - 1. Soil tracking system shall include identification of the source of material (area, depth, date of excavation, etc.). The system shall be designed by the Contractor and shall be submitted to the Environmental Consultant for review and acceptance. The system should include daily log sheets for tracking all soils from excavation through final transport and disposal.
  - 2. Provide to the Environmental Consultant, on a daily basis, copies of field records documenting the location of stockpiled material, and stockpile identification data. This documentation shall be provided on a daily basis when stockpiles are present on-site.

### 3.04 STOCKPILE CRITERIA

- A. The Contractor shall separately stockpile all excavated material that exhibits olfactory or visual evidence of potential contamination as directed by the Environmental Consultant. Soils that exhibit different levels of contamination, debris, etc. may require additionally separate stockpiles.
- B. The Contractor is responsible for the construction, protection and maintenance of temporary stockpiles during chemical testing and final soil category classification by the Environmental Consultant and through the final disposal or re-use of those stockpiles by the Contractor. Materials shall be removed from the site by the Contractor as directed by the Environmental Consultant.
  - 1. Stockpile areas shall be graded such that storm water runoff is diverted from stockpiled soils; berms (that is, hay bales, silt fencing, gravel) shall be placed around the perimeter of the area to prevent contact of runoff with contaminated soils.
  - 2. The area shall be blocked off to minimize worker and passersby contact with stockpiled soils. The area shall be visibly marked with appropriate warning signs of potential hazards.
  - 3. For potentially contaminated soils, the first lift of stockpiled soil shall be placed on a minimum of two layers of six-mil-thick (0.006") or one layer of 20-mil-thick (0.020") polyethylene barrier over existing soils or pavement.
  - 4. The size of the individual stockpiles (for soil to be tested) shall be limited such that no individual stockpile is larger than 500 cubic yards. Total dimensions and locations of the stockpile areas shall be at the discretion and approval of the Owner.
- C. The transfer of soil materials from the excavation to the stockpile areas shall be conducted by the Contractor in such a manner as to prevent the spread of contaminated or potentially contaminated materials across the site and to minimize the mixing of soils from different areas of the excavation in different stockpiles.
- D. The Contractor shall place stockpiled soils within a designated stockpile area, graded to shed water, and shall cover the stockpiled soils prior to inclement weather and at the end of each work day with a minimum six-mil-thick (0.006") black polyethylene cover overlapped and weighted to form a continuous waterproof barrier over the soil.

The cover shall be maintained by the Contractor throughout the stockpile period to prevent water from entering the soils and to prevent blowing dust.

- E. Excavation and soil handling shall be performed in a manner which limits mixing of soils with different levels and types of contamination to the highest degree possible. Disposal of soil which is contaminated as a result of the Contractor's careless or unauthorized procedures for excavation or soil handling and stockpiling shall be at his own expense. All stockpiles shall be located within the Project limits.
- F. Soil which is being stockpiled for further testing by the Environmental Consultant pursuant to this Specification shall be placed at a height not exceeding six feet (6') above ground surface. The stockpile shall not be moved or rearranged without the approvals of the Environmental Consultant and Owner.
- G. No rehandling of stockpiled soil shall be carried out after chemical testing without the observation of the Environmental Consultant. No material shall be removed from the site without classification by the Environmental Consultant.
- H. Stockpiles for excavated soil classified as Hazardous Waste (if any) shall be stored on drip pads designed and operated under 40 CFR Subpart W. Drip pads shall be constructed of non-permeable, non-earthen materials, sloped for proper drainage, with bermed perimeter of sufficient structural strength and thickness. Drip pad construction shall include a synthetic liner below the pad, leakage detection, and collection system above the liner.

### 3.05 DISPOSAL OF MATERIAL

- A. Excavation of existing subsurface material shall include the excavation of contaminated materials. Soils that exhibit evidence of potential contamination shall be stockpiled separately from other excavated soil.
- B. The Environmental Consultant shall classify material for disposal as MCP Regulated, Special Waste or Hazardous Waste, depending on laboratory results. The Contractor shall recommend the proposed disposal or recycling location(s) for the Environmental Consultant's review and Owner's approval prior to disposal.
- C. All material designated for off-site disposal shall be transported to an off-site location via a tracking form (for example, 21E BOL, Hazardous Waste Manifest, or Material Shipping Record), appropriate for the material classification in accordance with the laws of the appropriate local, state, and federal authorities.
- D. No stockpiled soil shall be removed for off-site disposal until the results of final classification chemical analyses have been received and the materials have been properly classified. It is expected that for stockpiled soils, the time required between sampling and classification of the soils by chemical criteria may be about 10 calendar days depending on the turnaround time achieved by the Environmental Consultant's testing laboratory.
- E. The Owner will be the designated generator for all soil transported off-site, in accordance with these Specifications and with all applicable local, state, and federal requirements.
- F. All materials transported off-site shall be loaded under the direction of the Contractor into properly licensed and permitted vehicles and transported directly to the selected

facility. As a minimum, trucks shall be covered with a minimum six (6) mil-thick polyethylene liner or a continuous waterproof tarpaulin to protect the load from wind and rain.

- G. Contingency Measures: There is a possibility of encountering unanticipated buried waste during excavations. In that event, the Contractor shall stop construction in that vicinity immediately and notify the Owner who will have the material evaluated and managed in accordance with State and Federal guidelines.

In addition, excavated material may contain various amounts of unsuitable material such as building debris, wood, concrete, etc. This material may not be stockpiled with potentially contaminated soils. The Contractor shall be prepared to mobilize labor and equipment necessary to remove this material from the soil (mechanical screening or manual picking). These materials shall be stockpiled by the Contractor in areas at the construction site, as designated by the Owner. The Contractor shall be required to dispose of these materials. Refuse, coal ash, cinders, glass, wood and other "nonchemical" waste products as regulated by MassDEP Division of Solid Waste Management (DSWM) shall be disposed of in accordance with MCP 310 CMR 19.00. Generally, these materials, if brought off site, must be disposed of at a sanitary landfill, or recycled in an approved manner. Roadway pavement, brick and concrete rubble free of reinforcing steel may be exempt from the solid waste requirements if processed and reused in accordance with MassDEP regulation 310 CMR 16.05.

### 3.06 WASTE PROFILES AND MANIFESTS:

- A. The Contractor shall be responsible for preparing and submitting to the Environmental Consultant for review all waste profile applications and questionnaires and accompanying waste analysis, and coordination with disposal facilities and all federal and state environmental agencies.
- B. The Contractor shall be responsible for providing the Environmental Consultant information required for preparing all Hazardous Waste Manifests, BOL, and Material Shipping Record (MSR) forms with all applicable notification, and control forms. The Environmental Consultant will prepare the Manifests, BOLs and MSRs with input from the Contractor.
- C. The Contractor shall provide certified tare and gross weight slips for each load received at the designated facility which shall be attached to each returned manifest.
- D. The Owner will be designated as generator, and will sign all manifests and waste profile applications or questionnaires. The Environmental Consultant will serve as the LSP for preparing, accepting and signing of MassDEP BOL.
- E. The Contractor shall furnish all generator copies of the hazardous waste manifest to the Environmental Consultant for submittal to the appropriate state environmental agencies and to retain for the Owner's records.
- F. The Contractor shall submit to the Owner for review by the Environmental Consultant, prior to receiving progress payment, documentation certifying that all materials were transported to accepted, and disposed of at the selected disposal sites. The documentation shall include the following, as a minimum.
1. Documentation shall be provided for each load from the site to the disposal site, including all manifests and any other transfer documentation as applicable.

2. All documentation for each load shall be tracked by the original manifest document number that was assigned at the site. The documentation shall include a location designation, established by the Environmental Consultant and Contractor prior to excavation, and original elevation of the material.

**3.07 DECONTAMINATION OF EQUIPMENT**

- A. Contractor's tools and equipment which have been in contact with site soils and are to be taken from the site shall be decontaminated on the site using methods approved by the Owner such as water steam cleaning. This shall include all tools, heavy machinery, and excavating and hauling equipment used during excavations, stockpiling, and rehandling of contaminated material. The Contractor shall provide a clean pad for loading trucks and shall minimize contamination of the trucks.

**PART 4 - COMPENSATION**

**4.01 MEASUREMENT AND PAYMENT**

- A. Measurement and payment for handling, loading, transportation and disposal of MCP-Regulated Soil will be by the ton (including all taxes, permits and fees) based on actual weights as determined by a calibrated scale documented by the disposal facility.
- B. Measurement and payment for handling, loading, transportation and disposal of Special Waste – Bulk will be by the ton (including all taxes, permits and fees) based on actual weights as determined by a calibrated scale documented by the disposal facility.
- C. Measurement and payment for handling, loading, transportation and disposal of Special Waste – Pipe will be by linear foot (including all taxes, permits and fees) based on actual lengths as determined by measurement in the field.
- D. If encountered, payment for Hazardous Waste handling management and disposal will be negotiated between the Owner and Contractor.

**4.02 PAYMENT ITEMS:**

<u>Pay Item</u>	<u>Description</u>	<u>Pay Unit</u>
02230-1	Handling, Loading, Transportation and Disposal of Type A – MCP Regulated Soil – Re-Use at Unlined Landfill	Ton
02230-2	Handling, Loading, Transportation and Disposal of Type B – MCP Regulated Soil – Re-Use at Lined Landfill	Ton

02230-3	Handling, Loading, Transportation and Disposal of Type C – MCP Regulated Soil – In-State Recycling	Ton
02230-4	Handling, Loading, Transportation and Disposal of Type D – MCP Regulated Soil – Out-of State Recycling/ Disposal	Ton
02230-5	Handling, Loading, Transportation and Disposal of Special Waste-Bulk	Ton
02230-6	Handling, Loading, Transportation and Disposal of Special Waste-Pipe	Linear Foot

THERE ARE NO OTHER PAY ITEMS UNDER THIS SECTION.

PAYMENT FOR OTHER WORK REQUIRED BY THIS SECTION SHALL BE INCLUDED IN THE  
CONTRACT UNIT PRICES OF THESE ITEMS.

\*\*\*\*\*END OF SECTION\*\*\*\*\*



## SECTION 02500

### PAVING AND SURFACING

#### PART 1 - GENERAL

##### 1.01 GENERAL PROVISIONS

- A. Attention is directed to the CONTRACT and all Sections within DIVISION 1 - GENERAL REQUIREMENTS, which are hereby made a part of this Section of the Specifications.

##### 1.02 DESCRIPTION OF WORK

- A. Work Included: Provide labor, materials and equipment necessary to complete the work of this Section, including, but not limited to the following:
  1. Removal and reconstruction of bituminous concrete driveway and other pavements disturbed as a consequence of constructing the work of the Contract.
  2. Removal and reconstruction of cement and bituminous concrete sidewalks disturbed as a consequence of constructing the work of the Contract.
  3. Repainting of pavement markings in areas of repaired pavement.
  4. Other paving and surfacing work as may be required to ensure completion of this project.

##### 1.03 SUBMITTALS

- A. Refer to DIVISION I for submittal provisions and procedures.
- B. Provide copies of materials certificates signed by material producer and Contractor, certifying that each material item complies with, or exceeds, specified requirements.
- C. For bituminous concrete base and pavement sections and for cement concrete sidewalk sections, submit design mix and test reports prepared by a professional testing laboratory acceptable to the Town with all submittals and mix design signed by a Professional Engineer licensed in the State of Massachusetts.

##### 1.04 QUALITY ASSURANCE

- A. Bituminous and cement concrete materials shall not be placed until the Engineer has inspected and approved the sub-base.
- B. Weather Conditions: Bituminous or cement concrete material shall not be placed when the ambient temperature is below 40° Fahrenheit, or when there is frost in the base, or at any other time when weather conditions are unsuitable.

C. Codes and Standards:

1. All work and materials shall conform to the latest applicable sections of the Massachusetts Department of Transportation Standard Specifications for Highways and Bridges, hereinafter referred to as the "Standard Specifications", as well as the codes and standards referenced in the individual sections of this specification. In case of conflict, the codes and standards referenced in the individual sections shall govern.
2. All work shall be in full accordance with the latest rules, regulations and safety orders of O.S.H.A. and all other local, state and federal worker safety laws. Nothing in the Contract Documents shall be construed to permit work not in accordance with the above.
3. When the Contract Documents call for material or construction of better quality or larger size than required by the above codes and standards, then the provisions of the Contract Documents shall take precedence.

## **PART 2 - PRODUCTS**

### **2.01 BITUMINOUS CONCRETE**

- A. Pavement: Bituminous concrete pavement shall be Class I and conform to Materials Standard M3.11.03-Table A-Binder and Top Course of the Standard Specifications 1988.

### **2.02 TACK COAT**

- A. Emulsified asphalt CRS-1, CRS-1H or CSS-1H; diluted with equal parts water.

### **2.03 CEMENT CONCRETE SIDEWALKS**

- A. Cement concrete for sidewalks shall meet the requirements for "Cement concrete (Air-entrained 4000 psi,  $\frac{3}{4}$ ", 610 lb/cy)", as specified in Subsection M4.02.00 of the Standard Specifications.
- B. Preformed Expansion Joint Filler shall conform to Subsection M9.14.0 of the Standard Specifications.

### **2.04 MISCELLANEOUS PRODUCTS**

- A. Pavement Marking Paint: Shall meet the requirements of MADOT Standard Specifications M7.01.05 White Traffic Paint, or M7.01.10 Fast Drying White Traffic Paint.
- B. Glass Beads: Shall meet the requirements of MADOT Standard Specifications M7.01.07.
- C. Gravel Borrow shall be Type b, as specified in Section 02200 of these Specifications.

- D. Traffic Signs shall conform with the requirements of Standard Specifications Section 828.

### **PART 3 - EXECUTION**

#### **3.01 SAW CUTTING**

- A. Contractor shall layout the limits of the pavement and sidewalks to be cut in the field and shall saw cut in a neat, clean, uniform manner.
- B. Jack hammer cutting is not a substitute for saw cutting.

#### **3.02 REMOVAL**

- A. Contractor shall remove existing paving and sidewalks as noted on the plans and within the saw cut limits. All removed material shall become the property of the Contractor and shall be removed off site and disposed of properly by the Contractor unless said materials are to be reset or reused on the project.
- B. Removal limits are shown on the plans and may be revised by the Engineer upon field review.
- C. Unless prior approval is granted by the Engineer, removal beyond the limits as shown on the plans will be considered as for the Contractor's convenience and will not be included for payment in any excavation item, nor will the refilling of any such area be included under any item of filling material.

#### **3.03 BITUMINOUS CONCRETE DRIVEWAY RECONSTRUCTION**

##### **A. Preparation:**

1. Contractor shall place gravel borrow or processed gravel sub-base with a maximum loose lift thickness of 8 inches. Gravel shall be compacted to 95% of the maximum dry density as described by ASTM D1557 (Modified Proctor).
2. Contractor shall tack coat the vertical saw cut edge where new bituminous pavement will abut the existing pavement walkway. Tack coat shall be applied by brush or spray to contact bituminous surfaces at a rate between 0.05 and 0.15 gallons per square yard of surface.
3. After sub-base has been prepared, the Contractor shall check all frames, covers, boxes, and other miscellaneous castings located in proposed pavement to ensure they are accurately positioned and set to the proper slope and elevation. All covers and grates shall be set flush with finished pavement surface.

##### **B. Paving**

1. General: Place bituminous concrete mixture on prepared surface free from standing water. The minimum surface temperature of the base shall be 60°F when only one roller is used for breakdown rolling (15 minutes) or 40°F when

- two rollers are used (8 minutes). Spread mixture at minimum temperature of 275 deg. F. Place inaccessible and small areas by hand. Place each course to required grade, cross-section, and appropriate thickness to yield required minimum depth after rolling.
2. Place bituminous concrete in widest strip practical. After first strip has been placed and rolled, place succeeding strips and extend rolling to overlap previous strips. Courses shall be placed in approximately equal layers not exceeding 3 inches in depth after compaction. Care shall be taken to match abutting pavements in elevation and grade with a smooth transition.
  3. Joints: Make joints between old and new pavements, or between successive days' work, to ensure continuous bond between adjoining work. Construct joints to have same texture, density and smoothness as other sections of bituminous concrete course. Clean contact surfaces and apply tack coat. The longitudinal joint in one layer shall offset the joint in the layer immediately below by 12 inches.
  4. Begin rolling with a steel-wheeled roller when mixture will bear roller weight without excessive displacement. Compact mixture with hot hand tampers or vibrating plate compactors in areas inaccessible to rollers.
  5. Breakdown Rolling: Accomplish breakdown or initial rolling immediately following rolling of joints and outside edge. Check surface after breakdown rolling, and repair displaced areas by loosening and filling with hot material.
  6. Second Rolling: Follow breakdown rolling as soon as possible, while mixture is still hot. Continue second rolling until mixture has been thoroughly compacted.
  7. Finish Rolling: Perform finish rolling while mixture is still warm enough for removal of roller marks. Continue rolling until roller marks are eliminated and course has attained 95 percent maximum density as measured by the density test specified in SECTION 02200 – GENERAL EARTHWORK.
  8. Remove and replace paving areas mixed with foreign materials or otherwise defective. Cut-out such areas and fill with fresh, hot bituminous concrete. Compact by rolling to maximum surface density and smoothness.
  9. After final rolling, do not permit vehicular traffic on pavement until it has cooled and hardened. Erect barricades to protect paving from traffic until mixture has cooled enough not to become marked.

### 3.04 REFLECTORIZED PAVEMENT MARKINGS AND TRAFFIC SIGNS

- A. ReflectORIZED pavement markings shall conform to Section 860 and Traffic Signs shall conform to Section 828 of the Standard Specifications.

### 3.05 CEMENT CONCRETE SIDEWALKS AND WHEELCHAIR RAMPS

#### A. Subgrade and Foundation

1. The subgrade for sidewalks and ramps shall be shaped parallel to the proposed

- surface of the walks and ramps and shall be thoroughly compacted. All depressions occurring shall be filled with suitable material and again compacted until the surface is smooth and hard.
2. A foundation of compacted gravel shall be placed upon the prepared subgrade. The foundation shall be at least 8 inches in depth and parallel to the proposed surface.
- B. Forms shall comply with Subsection 701.61 of the Standard Specifications.
  - C. Placing and finishing of concrete shall conform to Subsection 701.61 of the Standard Specifications.
  - D. Note that concrete sidewalks shall be 4 inches in depth except for at driveways where the depth shall be increased to 6 inches.

## **PART 4 – COMPENSATION**

### **4.01 METHOD OF MEASUREMENT**

- A. Bituminous Concrete Pavement for driveway reconstruction will be measured by the ton, complete in place and accepted.
- B. Concrete Sidewalks, both 4 inch and 6 inch thickness, will be measured for payment by the square yard, complete in place and accepted.
- C. Pavement Escalation Contingency will be based upon the actual tonnage of hot mix asphalt laid and accepted in any one month. Contractor will report to the Town the total tonnage of hot mix asphalt laid each month for Bituminous Concrete Paving.

### **4.02 BASIS OF PAYMENT**

- A. Bituminous concrete for driveway reconstruction will be paid for at the contract unit price per ton, and shall include all pavement markings and traffic signs.
- B. Concrete Sidewalks, both 4 inch and 6 inch thickness, will be paid for at the contract unit price per square yard.
- C. Pavement Escalation Contingency will be determined by multiplying the number of tons of hot mix asphalt paid during each one month period by the liquid asphalt content percentage (0.055) times the variance in price between the Base Price and the Period Price of liquid asphalt for that month. The above stated liquid asphalt content percentage will be utilized regardless of percentages established in individual job mix formulas. Payment will be made for increases in asphalt price adjustment to the Contractor or credits due to the Town for decreases in asphalt price adjustment. No price adjustment will be paid to the Contractor or credited to the Town if the difference between the Base Price and the Period Price for the period in which the asphalt is placed is less than 5%.

4.03 PAYMENT ITEMS

<u>Pay Item</u>	<u>Description</u>	<u>Pay Unit</u>
02500-1	Bituminous Concrete Paving	Ton
02500-2	Concrete Sidewalks	Square Yard

THERE ARE NO OTHER PAY ITEMS UNDER THIS SECTION.

PAYMENT FOR OTHER WORK REQUIRED BY THIS SECTION SHALL BE INCLUDED IN THE CONTRACT UNIT PRICES OF THESE ITEMS.

**\*\*\*\*\*END OF SECTION\*\*\*\*\***

## SECTION 02720

### STORM DRAINAGE AND PRECAST CONCRETE UNITS

#### PART 1 – GENERAL

##### 1.01 GENERAL PROVISIONS

- A. Attention is directed to the CONTRACT and all Sections within DIVISION 1 – GENERAL REQUIREMENTS, which are hereby made a part of this Section of the Specifications.

##### 1.02 DESCRIPTION OF WORK

- A. Contractor shall furnish all labor, materials, equipment, supervision, and shall perform all operations required to complete the work shown on the drawings, as directed by the Town, as herein specified, and as evidently required to properly complete the work.
- B. The work includes, but is not limited to, the following as outlined in these specifications or shown on the Contract Documents:
  - 1. Construct storm drainage pipes, area drains and catch basins. Installation of flanged in-line check valves.
  - 2. Provide structural design of precast components.
  - 3. Construct precast box culverts sections including precast nose sections and precast U-shaped channel sections.
  - 4. Cast in place cement concrete masonry with epoxy coated reinforcement.
  - 5. Remove and reset existing pipe drains. Trim or extend existing pipe drains to discharge to new U-shaped channel walls.
  - 6. Installation of Membrane Waterproofing on culverts as noted in the plans.
  - 7. Contracting accredited independent testing agency to provide field and laboratory services regarding quality control for cast-in-place concrete.

##### 1.03 QUALITY ASSURANCE

- A. General: Perform storm drainage work in compliance with applicable requirements of governing authorities having jurisdiction.
- B. Special Requirements:
  - 1. Protection: Comply with all applicable regulations and safety orders in effect at the place of construction. Protect this and adjacent properties from all damage

due to this operation. Protect open excavations, trenches, etc., with fences, covers or railings as required to maintain safe pedestrian and vehicular traffic.

2. Responsibility: The Contractor is responsible for the finished condition of his work. Notify the Town promptly in writing if any conditions exist which are contrary to requirements. Restore, without extra cost to the Town, street pavements, walks, curbs, gutters, trees, etc., that may be damaged in the performance of work under this section, in a manner prescribed by authorities having jurisdiction.

C. Codes and Standards:

1. All work and materials shall also be in full accordance with the latest rules, regulations, and safety orders of the State's Division of Industrial Safety, OSHA, A.N.S.I. - A10.1 Safety Code for Building Construction, and all other state, county, city, municipality, and the utility laws rules, and regulations. Nothing in these Plans and Specifications shall be construed to permit work not conforming to the above.

- D. The Contractor's proposed independent testing agency for testing the cast in place concrete is subject to approval by the Town. The Contractor shall engage at their own expense, the testing agency to perform all quality control tests including:

1. Minimum Cement Content and Minimum Strength: Standard field test concrete cylinders conforming to ASTM C31 shall be taken on the job for 7 day and 28 day breaks.
2. Slump Test: 3-5 inch slump
3. Air Content in accordance with ASTM C260

#### 1.04 JOB CONDITIONS

- A. Exact location and dimensions of all existing utilities shall be determined by the Contractor in the field prior to commencing construction and ordering structures.

#### 1.05 PRODUCT HANDLING

- A. Protection: Use all means necessary to protect the materials of this Section before, during and after installation and to protect the installed work and materials of this and all other trades.
- B. Replacements: In the event of damage, immediately make all repairs and replacements necessary to the approval of the Engineer and at no additional cost to the Town.

#### 1.06 SUBSTITUTION

- A. The U-shaped channel and transitions have been detailed on the plans as precast U-shaped channel section with a cast in place cement concrete wall extension with steel reinforcement. Contractor may substitute an all precast U-shaped channel section matching the channel interior dimensions indicated on the plans. If so



proposed, appropriate shop drawings and design calculations shall be submitted the same as for all other precast U-shaped channel sections and installed in the same manner as specified herein.

- B. The box culvert section has been detailed as a single unit without a horizontal construction joint. Contractor may propose to substitute two U-shaped sections. If so proposed, appropriate shop drawings and design calculations shall be submitted.

#### 1.07 SUBMITTALS

- A. Prior to the start of work, the Contractor shall submit manufacturer's product data and installation instructions for each product specified, in accordance with the requirements of Division-1. Products include, but are not limited to, the following items:

1. Precast Concrete Box Culvert Sections with MA PE stamped design.
2. Precast Concrete U-shaped Channel Sections with MA PE stamped design.
3. PVC Pipe and fittings.
4. RCP Pipe and gaskets.
5. Flanged in-line check valves.
6. Precast storm drain manholes and catch basins.
7. Flexible Butyl Resin Gaskets.
8. Manhole Covers.
9. Catch Basins, Area Drains, and drop inlet grates and frames.
10. Damp proofing.
11. Membrane Waterproofing.
12. Contractor's Testing Laboratory accreditation and description of prior work experience.
13. Concrete mix design, material test results, results of strength tests from trial concrete mixes by the Concrete supplier, product data for admixtures, and other proprietary materials, and Concrete supplier's accreditations.
14. Field test results from Contractor's independent testing agency with 7 day and 28 day breaks of concrete samples cylinders. Test results from other frequency breaks may be required.
15. Steel Fabricator as per Section 960.61A of the Standard Specifications.

#### 1.08 SHOP DRAWINGS

- A. Contractor shall provide an engineering design and shop drawings for the following structures. The design and shop drawings shall be prepared by a Registered Professional Engineer who shall affix his stamp and signature to the submitted design

and drawings. Contractor shall submit shop drawings in accordance with Division-1 for:

1. Precast Concrete Box Culvert and Precast U-shaped Channel.
2. All cast-in-place cement concrete components and steel reinforcement.
3. Pre-fabricated RCP area drains, RCP catch basins, tees and elbows.

#### 1.09 COORDINATION OF WORK

- A. Other contractors, as well as various utility companies, may also be working on the site. The Contractor must coordinate his activities with all such parties so as to prevent conflicts in construction operations.
- B. The final location and elevation of all existing utilities must be verified by the Contractor prior to construction.
- C. Contractor shall coordinate the relocation of all gas, water, electric, telephone, and cable tv utilities required as a result of this project.

### **PART 2 - PRODUCTS**

#### 2.01 REINFORCED CONCRETE PIPE DRAIN

- A. Reinforced concrete pipe shall conform to the requirements of Subsection M5.02.1 of the Massachusetts Department of Transportation Standard Specifications for Highways and Bridges. Pipe shall be Class III, unless otherwise noted on the plans.
- B. Flexible water tight gaskets shall be provided for all concrete pipes. Gaskets shall conform to the requirements of AASHTO M 198.
- C. Shop-fabricated elbows and manhole tee fittings shall meet the requirements of ASTM C361. Steel area in elbow connections shall exceed that in the adjacent pipe barrel section.

#### 2.02 POLY VINYL CHLORIDE PIPE DRAIN

- A. Polyvinyl Chloride (PVC) pipe for storm sewers shall conform to the requirements for ASTM D 3034 for SDR 35 pipe. PVC resin compound shall conform to ASTM D 1784. Gasketed joints shall conform to ASTM D 3212 and ASTM F 477.
- B. Couplings and Fittings shall be the same material as the pipe and shall have bell and/or spigot configurations compatible with that of the pipe and other pipe types to be joined.

## 2.03 PRECAST CONCRETE BOX CULVERT AND U-SHAPED CHANNEL

- A. General: Precast concrete box culvert and U-shaped channel shall be a four-sided box section or three-sided U section with open ends monolithically cast of reinforced concrete in a steel form. Fillets may be monolithically cast into the inside corners. Length of section may vary to preference of manufacturer.
- B. Structural Design: Culverts shall be designed by manufacturer for HS 20-44 Traffic loading plus impact in addition to the earth loadings based upon the plans. Note that the U-shaped channel will be surcharged with a cast in place wall section raising the grade above the top of the precast section.
- C. Joints: Each section shall have a male and female end with a minimum 4-inch overlap. Each joint shall have a preplaced closed cell rubber gasket cemented to the joint surface.
- D. Weep Holes: Precast sections shall contain a minimum of two 4 inch weep holes per section.
- E. Special precast units for use at transitions shall be manufactured for field assembly as designated on the plans or as detailed in the accepted shop drawings.
- F. Precast units shall come with appropriately sized openings to accept all incoming storm drain lines.
- G. Precast units shall come with appropriately sized openings to accept all access ports as shown on the plans.
- H. Manufacture: Precast units shall be certified by the Manufacturer to meet the requirements of Subsection M4.02.14 of the Massachusetts Department of Transportation Standard Specifications for Highways and Bridges, except that 5,000 psi concrete shall be used.

## 2.04 PRECAST CATCH BASINS AND AREA DRAINS

- A. Precast Concrete: Precast concrete catch basins shall be supplied to the dimensions shown on the plans and shall be manufactured of air-entrained 5000 psi cement concrete true to line, plane and dimensions. Precast structures shall be constructed in accordance with ASTM C 478. All precast units shall be subject to inspection by the Engineer and any units showing defects or damages before the completion of the project shall be removed and replaced at the expense of the contractor. The precast units shall be certified by the manufacturer to meet the requirements of Subsection M4.02.14 of the Massachusetts Department of Transportation Standard Specifications for Highways and Bridges. Bottom slab may be monolithically molded with walls or, at Contractor's option, cast-in-place concrete bases as detailed shall conform to Division 3. Joints between sections shall be flexible, watertight rubber gaskets, or other approved jointing compound. Piping shall be secured in openings using non-shrink grout.

B. Masonry Units:

Masonry Units to raise frame to grade shall conform of the following:

1. Brick shall conform to "Sewer Brick (Made from Clay or Shale)", ASTM C32, Grade MS; or "Building Brick (Solid Masonry Units Made From Clay or Shale)", ASTM C62, Grade SW.
  2. Concrete Block shall be solid block and shall conform to the "Specifications for Concrete Masonry Units for Construction of Catch Basins and Manholes," ASTM C139.
  3. Mortar shall conform to ASTM C270, Type M. The mortar shall be composed of Portland Cement hydrated lime, and sand, in the proportions of 1 part cement to 1/4 part hydrated lime to 3 1/2 parts sand (by volume).
  4. Cement shall be Type I or II Portland Cement conforming to ASTM C150.
  5. Hydrated lime shall be Type S, conforming to ASTM D207.
  6. Sand for masonry Mortar shall conform to ASTM C144.
- C. Catch Basin Grate: Catch basin grates shall consist of an iron frame and grate conforming to the requirements of AASHTO-M105, Class No. 30 unless otherwise specified. Grate shall be of a bar grate type. Finish with one coat of coal tar epoxy paint.
- D. Steel Castings: Cast Steel shall conform to the requirements of ASTM A 27, Grade optional, and shall be thoroughly annealed.
- E. Iron Castings: Heavy-duty, cast-iron, conforming to ASTM A48.
- F. Ladder Rungs: Ladder rungs (manhole steps) shall conform to AASHTO M199 (ASTM C 478, paragraph 11) and shall be copolymer polypropylene plastic with 1/2" diameter Grade 60 steel reinforcement.

2.05 MEMBRANE WATERPROOFING

- A. Membrane waterproofing shall conform with the material requirements specified in Section 967 of the Standard Specifications.

2.06 DAMP PROOFING

- A. Damp proofing shall conform with the material requirements specified in Section 970 of the Standard Specifications.

2.07 FLEXIBLE BUTYL RESIN GASKETS

- A. Flexible butyl resin gaskets shall be provided for all new storm drain structures. Gaskets shall conform to the provisions of AASHTO M-198 and shall be manufacturer's recommended sizes.

## 2.08 CEMENT CONCRETE MASONRY

- A. Cement Concrete Masonry with or without reinforcement as required for cut off walls, channel walls, and parapets, and the U-shaped transition section shall be constructed to the designs and dimensions indicated on the plans or as otherwise directed by the Engineer.
- B. Cement Concrete Masonry shall conform to Section 901 of the Standard Specifications
- C. All reinforcing steel shall be epoxy coated, conforming to AASHTO-M284 and ASTM A-61 Grade 60.
- D. All materials used shall otherwise meet the requirements of Subsection 901.40 of the Standard Specifications.
- E. The following class of cement concrete shall be used for all cast in place concrete as indicated on the plans:
  - a. 4000 psi, 3/4 in., 610 lb/cy (Class D) for sidewalks.
  - b. 4000 psi, 1 1/2 in., 565 lb/cy (Class A) for walls and footings.

## 2.09 FLANGED IN-LINE CHECK VALVE

- A. Supplier shall have at least ten years experience in the design and manufacture of elastomeric style check valves. The valve must allow passage of flow in one direction while preventing reverse flow and the unit shall be installed within the pipe and not protrude beyond the length of pipe. Check Valve shall be rated for up to 10 feet of water head.
- B. Valve to be all rubber cured and vulcanized into a one-piece unit. No metal, mechanical hinges or fasteners are to be used other than the flanged section for connection to the face of the outfall pipe. Flange shall be furnished with stainless steel, ANSI 125/150 drilled, retaining ring.
- C. Flanged 'Checkmate' In-line Check Valve by Tideflex Technologies or equal shall be considered as meeting the intent of these specifications.

## 2.10 MISCELLANEOUS MASONRY MATERIALS

- A. Manhole Brick: ANSI/ASTM C 32, Grade MS
- B. Masonry Mortar: ANSI/ASTM C 270, Type M. For minor amounts of mortar, packaged materials complying with ANSI/ASTM C 387, Type M, will be acceptable.
- C. Granite Block shall conform with the Standard Specifications.

## 2.11 STRUCTURAL STEEL SECTIONS

- A. Steel: ASTM A-588 (Weathering) and conform with M8.05 of the standard specifications.

- B. Bolts, nuts and washers shall be stainless steel and conform with M8.01.5 of the standard specifications.

## 2.12 OTHER MATERIALS

- A. Flexible Connection to Building Service: A flexible connection shall be provided at the interface between the site utility and building utility. The connection shall be capable of tolerating a vertical deflection of 6 inches.
- B. Bituminous Coating: Bituminous coating shall be in accordance with ANSI A21.51/AWWA C151 (Sec. 51-8.1).
- C. Pipe Coupling: Pipe coupling shall provide a watertight seal, material shall be leak-proof and resistant to chemicals, ultraviolet rays, and fungus growth. The coupling shall conform to ASTM D 5926, C 1173c CSA B602. Coupling shall be of Fernco series or similar coupling approved by the Engineer.
- D. All other materials not specifically described but required for a complete and proper installation of the work of this Section shall be selected by the Contractor subject to the approval of the Engineer.

## **PART 3 - EXECUTION**

### 3.01 GENERAL

- A. Inspection
  - 1. Prior to all work of this Section, carefully inspect the installed work of all other trades and verify that all such work is complete to the point where this installation may properly commence.
  - 2. Verify that storm drains and diversions may be installed in accordance with the Contract Documents, all pertinent codes and regulations, and all pertinent portions of the referenced standards.
- B. Discrepancies
  - 1. In the event of discrepancy, immediately notify the Engineer.
  - 2. Do not proceed with installation in areas of discrepancy until all such discrepancies have been fully resolved.

### 3.02 INSTALLATION OF STORM DRAIN CATCH BASINS AND AREA DRAINS

- A. Storm drain structures shall be built to the lines, grades, dimensions and design shown on the plans and in accordance with these specifications. Construction shall include necessary frames, grates, etc.
- B. The joints between precast sections shall be provided with an elastic gasket as

specified in this section.

- C. Pipe and culvert junctions with diversion structures and junction chambers shall be constructed as shown on the plans.
- D. Frame castings shall be set in full mortar beds. Set frame and grate of catch basins at the elevations shown on the Drawings within the acceptable tolerances herein defined.
- E. Inlet and outlet pipes shall extend through the walls for a sufficient distance beyond the outside walls to allow for satisfactory connections. The pipe openings shall be equipped with an elastic gasket to prevent leakage into or out of the structure.
- F. No structure shall be backfilled until all mortar around pipe openings has completely set.
- G. Alteration of the adjacent finish grade to compensate for improperly constructed catch basin tops will not be permitted.

### 3.03 CEMENT CONCRETE MASONRY

- A. Forms shall meet the requirements of Subsection 901.60 of the Standard Specifications.
- B. Steel Reinforcement shall meet the requirements of Subsection 901.61 of the Standard Specifications. Any damaged epoxy coating shall be field repaired to the satisfaction of the Engineer.
- C. Handling and Placing Concrete shall conform in all respects to Subsection 901.65 of the Standard Specifications.
- D. All joints to be placed in the concrete structures shall conform to Subsection 901.66 of the Standard Specifications.
- E. Weep holes shall be provided in accordance with Subsection 901.67 of the Standard Specifications.
- F. All protection, curing, and finishing of concrete shall conform to Subsection 901.68 of the Standard Specifications.
- G. Note that all concrete surfaces exposed to view shall receive a rubbed finish.
- H. All other methods of construction shall conform to applicable sections of Section 901 of the Standard Specifications.
- I. The U-shaped Channel transition section at the box culvert inlet has been detailed partially as a pre-cast section. Contractor has the option to propose a cast in place section.
- J. Granite Block shall be set into wet concrete as noted on the plans or cast in a grout mortar at the option of the Contractor.

### 3.04 CEMENT CONCRETE MASONRY FIELD QUALITY CONTROL AND TESTING

- A. Testing Services: The Contractor shall be responsible for coordinating with the Testing and Inspection Agency during the placement of concrete. Test results for field tests shall be immediately reported to the Town.

Testing of composite samples of fresh concrete obtained according to ASTM C172 shall be performed according to the following requirements:

1. Testing Frequency: Obtain one composite sample for each day's pour of each concrete mix exceeding 4 CY, but less than 25 CY, plus one set for each additional 50 CY or fraction thereof. Measurements shall be taken not less than once per day.
  2. Slump: ASTM C143; one test at point of placement for each composite sample, but not less than one test for each day's pour of each concrete mix. Perform additional tests when concrete consistency appears to change.
  3. Air Content: ASTM C231, pressure method, for normal-weight concrete; ASTM C173, volumetric method, for structural lightweight concrete; one test for each composite sample, but not less than one test for each day's pour of each concrete mix.
  4. Concrete Temperature: ASTM C1064; one test hourly when air temperature is 40° F and below and when 80° F and above, and one test for each composite sample.
  5. Unit Weight: ASTM C567, fresh unit weight of structural lightweight concrete; one test for each composite sample, but not less than one test for each day's pour of each concrete mix.
  6. Compression Test Specimens: ASTM C31/C31M;
    - a. Cast and laboratory cure one set of six (6) standard cylinder specimens for each composite sample.
  7. Compressive-Strength Tests: ASTM C39;
    - a. Test two laboratory-cured specimens at 7 days and two at 28 days.
    - b. A compressive-strength test shall be the average compressive strength from two specimens obtained from same composite sample and tested at age indicated. One average for lab cured specimens and a separate average for field cured specimens.
    - c. Two remaining cylinders shall be retained until notified by the Town of approval for disposal.
- B. When strength of field-cured cylinders (if required) is less than 85 percent of companion laboratory-cured cylinders, Contractor shall evaluate operations and provide corrective procedures for protecting and curing in-place concrete.
- C. Strength of each concrete mix will be satisfactory if every average of any three consecutive compressive-strength tests equals or exceeds specified compressive



strength and no compressive-strength test value falls below specified compressive strength by more than 500 psi.

D. Test results shall be reported in writing to the Town, concrete manufacturer, and Contractor within 48 hours of testing. Reports of compressive-strength tests shall contain Project identification name and number, date of concrete placement, name of concrete testing and inspecting agency, location of concrete batch in Work, design compressive strength at 28 days, concrete mix proportions and materials, compressive breaking strength, and type of break for both 7-and 28-day tests.

E. Additional Tests:

Testing and inspecting agency shall make additional tests of concrete when test results indicate that slump, air entrainment, compressive strengths, or other requirements have not been met, as directed by Town. Testing and inspecting agency may conduct tests to determine adequacy of concrete by cored cylinders complying with ASTM C42 or by other methods as directed by Town.

F. Acceptance of Concrete at Site:

Reject concrete delivered without a complete concrete delivery batch ticket as specified. Copies of the signed batch ticket will be furnished by the concrete supplier to the Contractor and the Town. Inspect the concrete transit truck's barrel revolution counter and gauge for measuring water added to the concrete. Reject concrete which exceeds the maximum barrel revolution of 300 or which has had water added during transit. Reject concrete exceeding specified time limitations. Concrete not conforming to these Specifications shall be rejected by the Contractor or the Town before discharging into the forms.

### 3.05 INSTALLATION OF DRAINAGE PIPE

A. Bedding Pipes: The bedding for the pipe shall be shaped to conform relatively closely to the lower 10 % of the pipe with recesses excavated for bells of bell and spigot pipes. All pipe shall be laid to the specified line and grade, with a firm bearing throughout each length and with the bell ends uphill.

B. Pipe Joints: Pipe joints shall be made using appropriate manufactured couplings and fittings, and shall be installed so that the continuity of the invert is maintained throughout the sections of pipe.

C. Inline Check Valves: Inline check valves shall be installed according to manufacturer's specifications on the drainage lines as shown on the contract drawings.

D. Cleaning Piping: Clear interior of piping of dirt and other superfluous material as work progresses. Place plugs in ends of uncompleted pipe at end of day or whenever work stops.

E. Joint Adapters: Make joints between different types of pipe with standard manufactured adapters and fittings.

F. Pipe Removed and Reset: Contractor shall expose the existing pipe to the limits of the proposed excavation, remove the minimum length necessary to conduct the work and reset and reconnect to the realigned channel through the precast box or cast in place U-shaped channel. Any damaged pipe sections will not be reused and

contractor is warned that elliptical pipe can be a long lead order item.

### 3.06 INSTALLATION OF CONCRETE BOX CULVERT AND U-SHAPED CHANNEL

- A. Box Culvert and U-shaped Channel shall be installed in dry trench conditions. At no time shall water in the trench be permitted to flow into the culvert.
- B. As soon as excavation has been completed to the proper depth, the Box Culvert or U-shaped Channel bed shall be prepared by placing and compacting crushed stone to the elevation necessary to bring the precast unit to grade. The compacted material shall be shaped so that the precast unit bottom rests firmly on the bedding for the entire length of the section. Low permeability material bed dams shall be constructed within the crushed stone base in accordance with the plans.
- C. Each Box Culvert and U-shaped Channel section shall be placed into position on the bedding in such a manner and by such means required to avoid injury to persons, any property, or the precast unit.
- D. Assembly hardware provided by the manufacturer shall be used to lift and draw sections together.
- E. Jointing shall conform to the manufacturer's instructions.
- F. Pipes connecting directly into the Box Culvert or U-shaped Channel sections shall be constructed in such a manner that the pipes do not extend beyond the precast interior wall. Any pipes extending beyond the interior wall shall be cut flush with the wall or shall be removed and replaced. Existing drainage pipes which are lengthened or shortened to connect to the Box Culvert or U-shaped Channel shall have a check valve installed at the outlet of the pipe.
- G. Any debris, tools, etc. shall be removed from the pipe.
- H. The precast nose sections shall be placed in accordance with the manufacturer's recommendations. A vertical backer rod shall be installed between the box culvert cells and the nose section set in place with exposed reinforcing extending into the void between the boxes and the void then filled with a non-shrink grout.
- I. After placement of the surrounding backfill, the Box Culvert and U-shaped Channel shall be checked for alignment and grade. If the precast unit has been properly installed, the Contractor may refill or backfill the remainder of the trench in accordance with the Contract Documents.

### 3.07 BACKFILLING FOR STORM DRAIN PIPES, AND STRUCTURES

- A. All suitable materials obtained from the excavation for the structures, pipes and culverts shall be used for backfill under, over or around the structures, pipes and culverts. No frozen materials shall be used for backfill and backfill shall not be placed on frozen material. If during the backfilling operation the top layer becomes frozen, the frozen materials shall be removed before a succeeding layer of backfill is placed. Frozen excavated material which will be suitable when dry shall be allowed to thaw and dry before being used for backfill. No additional compensation will be

made for excavating, storing and rehandling of frozen materials. Stumps, rubbish, sod and other unsuitable materials will not be used for backfill.

- B. All backfilling shall consist of suitable material formed in successive layers not more than 6 inches in depth, uniformly distributed and thoroughly compacted. When suitable backfilling materials cannot be obtained from excavation, the material shall consist of satisfactory borrow.
- C. No load greater than 8 tons shall be moved over any pipe or structure until a fully compacted backfill of at least 2 feet has been placed over the top of the pipe or structure. Compliance with this requirement is not to be construed as relieving the Contractor of any responsibility concerning damage to the pipe.
- D. Backfill material to a point 2 feet over a pipe shall contain no stones larger than 3 inches in greatest dimension. Backfill below the haunches of pipes shall be placed in 6 inch layers and compacted simultaneously on both sides of the pipe. Backfill material shall be moist prior to and during compaction.

### 3.08 MEMBRANE WATERPROOFING

- A. Membrane waterproofing shall be installed in accordance with the requirements specified in Section 965 of the Standard Specifications.

### 3.09 DAMP PROOFING

- A. Damp proofing shall be installed in accordance with the requirements specified in Section 970 of the Standard Specifications. Damp proofing may be applied to the precast units by the manufacturer prior to delivery to the site. Damaged damp proofing will be corrected on site by the Contractor in accordance with the manufacturer's recommendations to the satisfaction of the Engineer.

### 3.10 TOLERANCES

- A. Finish all surfaces and inverts to the following tolerances:
  - 1. Manhole Covers and Catch Basin Grates: Plus 0.05 feet to minus 0.05 feet from elevation shown on the Drawings.
  - 2. Pipe Line Invert Elevations: Plus 0.05 feet to minus 0.05 feet from elevation shown on the Drawings.

### 3.11 REMEDIAL MEASURES

- A. Upon direction of the Town, remove, reconstruct, and/or reinstall all components of the storm drain and culvert/stream system which do not meet the requirements of this Section.

### 3.12 CLEANING

- A. Upon completion of the work of this Section, leave all components of the storm

drain and culvert/stream system completely cleaned of silt, debris and other obstructions; free of water or other liquids, and approved to enter into service. Restore all surfaces to the condition existing prior to the start of the work of this Section.

## **PART 4 – COMPENSATION**

### **4.01 METHOD OF MEASUREMENT**

- A. Pipes shall be measured in place and the quantity to be paid for shall be the length actually constructed. For measurement purposes the end of pipe in closed structures shall be considered at the inside face of the wall or structure. At open structures shall be the outside face of the open structure.
- B. Catch Basins shall be measured as complete units, regardless of total depth.
- C. Area Drains shall be measured as complete units, regardless of total depth.
- D. Flanged In-line Check Valve shall be measured as complete units.
- E. Precast U- Shaped Channels and Box Culverts shall be measured in place and the quantity to be paid for shall be the length actually constructed. For measurement purposes the length of channel or culvert shall be considered along the centerline of each open cell.
- F. Membrane Waterproofing will be measured for payment by the actual square yardage installed in place, including vertical and horizontal surfaces.

### **4.02 BASIS OF PAYMENT**

- A. Pipe drains will be paid for at the contract unit price per lineal foot of the kind of pipe required, installed and complete in place, including all fittings.
- B. Catch Basins will be paid for at the contract unit price per each, complete and in place, which shall include the cost of all frames and grates, castings, concrete collars, sumps, hoods, and weep holes.
- C. Area Drains will be paid for at the contract unit price per each, complete and in place, which shall include the cost of all frames and grates, castings, concrete collars, sumps, and weep holes.
- D. Flanged In-line Check Valve shall be paid for at the contract unit price per each, complete and in place, which shall include the cost of drilling and bolting of the flange to the inside face of the area drain structure.
- E. Box Culverts will be paid for at the contract unit price per linear foot, as shown on the plans or as directed, complete in place and accepted. Included in this price shall be the precast nose sections, installed with non-shrink grout.
- F. Precast U-shaped Channel (each width) will be paid for at the contract unit price per linear foot, complete in place and accepted.

G. Yard, as shown on the plans or as directed, complete in place and accepted.

**4.03 PAYMENT ITEMS**

<u>Pay Item</u>	<u>Description</u>	<u>Pay Unit</u>
02720-1	12" RCP Drain	Linear Foot
02720-2	4" PVC Drain	Linear Foot
02720-3	Catch Basin	Each
02720-4	Area Drain	Each
02720-5	12" Flanged Inline Check Valve	Each
02720-6	9'W x 5'H Precast Box Culvert	Linear Foot
02720-7	Precast U-Shaped Channel (6' Wide)	Linear Foot
02720-8	Precast U-Shaped Channel (Width Varies)	Linear Foot
02720-9	Membrane Waterproofing	Square Yard

THERE ARE NO OTHER PAY ITEMS UNDER THIS SECTION.

PAYMENT FOR OTHER WORK REQUIRED BY THIS SECTION SHALL BE INCLUDED IN THE CONTRACT UNIT PRICES OF THESE ITEMS.

**\*\*\*\*\*END OF SECTION\*\*\*\*\***

**SECTION 02800**  
**SITE IMPROVEMENTS**

**PART 1 - GENERAL**

1.01 DESCRIPTION OF WORK

- A. Work Included: Provide labor, materials and equipment necessary to complete the work of this Section, including, but not limited to the following:
1. Vehicle Bar Gate installation on top of headwall extension at Water Street.
  2. Trash Rack Improvements.
  3. Other work as detailed on the drawings.

1.02 SUBMITTALS

- A. Provide full submittals for all items required under this section, except those provided by Owner.
- B. Provide copies of material certificates signed by material producer and Contractor, certifying that each material item complies with, or exceeds, specified requirements.
- C. Provide shop drawings and detailed layout drawings and elevations for all guard-rails, fences and handrails.

1.03 QUALITY ASSURANCE

- A. Weather Conditions: Cement mortar material shall not be placed when the ambient temperature is below 40° Fahrenheit, or when there is frost in the base, or at any other time when weather conditions are unsuitable.
- B. Codes and Standards:
1. All work and materials shall conform to the latest applicable sections of the Massachusetts Department of Transportation Standard Specifications for Highways and Bridges, hereinafter referred to as the "Standard Specifications", as well as the codes and standards referenced in the individual sections of this specification. In case of conflict, the codes and standards referenced in the individual sections shall govern.
  2. All work shall be in full accordance with the latest rules, regulations and safety orders of O.S.H.A. and all other local, state and federal worker safety laws. Nothing in the Contract Documents shall be construed to permit work not in accordance with the above.
  3. When the Contract Documents call for material or construction of better quality

or larger size than required by the above codes and standards, then the provisions of the Contract Documents shall take precedence.

## **PART 2 - MATERIALS**

### **2.01 VEHICLE BAR GATES**

- A. Bar gates shall be completed units fabricated by a single source including hinge, lock posts, gates, fittings, and fasteners, all of aluminum pipe framing, and aluminum alloy casting with black finish.
  - 1. Bar gates shall be as specified herein, and as detailed on the Project Plans.
  - 2. Contractor shall field verify existing headwall dimensions prior to fabrication of Vehicle Bar Gate.
- B. Shop Assembly: Pre-assemble items in shop to greatest extent possible to minimize field splicing and assembly.
- C. General
  - 1. Materials:
    - a. Metals
      - 1.) Metal Surfaces, General: Use only materials that are smooth and free of surface pitting, seam marks, and general roughness.
      - 2.) Aluminum Pipe: Schedule 40 Alloy 6063-T6, ASTM B-429, mill finish.
      - 3.) Brackets, Flanges, and Anchors: Cast or formed metal of 356 aluminum alloy with natural finish, unless otherwise indicated.
    - 2. Final Finish: All frames, cast base, lock and holdback posts are to be furnished in black color.
    - 3. Fasteners: Provide aluminum or stainless steel fasteners. Bolts, nuts and washers – regular hexagon head, ASTM A307 Grade A.
    - 4. Anchor Bolts: Per manufacturer's specifications.
    - 5. Shoe Base: Per manufacturer's specifications.
    - 6. Stud Post: Per manufacturer's specifications.
    - 7. Sleeve: Per manufacturer's specifications.
- D. FABRICATION GENERAL
  - 1. Workmanship
    - a. Use materials of size indicated or as required to produce strength and durability for intended use. Work to dimensions shown on approved shop drawings, using proven details of fabrication and support.
    - b. Form exposed work true to line and level with accurate angles and surfaces.

Ease exposed edges to a 1/32" radius unless otherwise shown.

- c. Weld corners and seams continuously, complying with AWS recommendations. At exposed connections, grind exposed welds smooth and flush to match and blend with adjoining surfaces.
  - d. Form exposed connections with hairline joints, flush and smooth, using concealed fasteners wherever possible.
  - e. Cut, reinforce, drill and tap miscellaneous metal work as indicated to receive finish hardware and similar items.
2. Miscellaneous Metal Fabrication:
- a. Gate Hardware: Furnish bent or otherwise custom fabricated bolts, plates, anchors, hangers, dowels, and other miscellaneous stainless steel and/or iron shapes as required for framing and supporting gates.
  - b. Fabricate items to sizes, shapes, and dimensions required.

## 2.02 TRASH RACK IMPROVEMENTS

- A. All steel shall conform to the requirements of ASTM A588 grade 50 steel.
- B. Bar grating panel shall be fabricated in full length panels.
- C. Bar grating panels and all support structure shall be hot-dip galvanized after fabrication and test fitting. Galvanizing shall meet the requirements of ASTM A123/A123M-15.
- D. All required hardware shall be Type 304 stainless steel or carbon steel, as specified on the drawings.
- E. Steel plates shall conform to ASTM A36 steel.

## **PART 3 – EXECUTION**

### 3.01 VEHICLE BAR GATE

- A. Do not begin installation and erection until final grading and surfacing is completed, unless otherwise permitted.
- B. Excavation: Drill or hand-excavate holes for posts to diameters and spacing indicated in firm, undisturbed or compacted soil.
- C. Setting Posts: Align posts in holes as shown on plans. Place concrete around posts and vibrate or tamp for consolidation. Check posts for vertical and top alignments, and hold in position during finishing operations. Each pair of hinge posts are to be set plumb, with tops at same elevation.



- D. Bars: When installation is complete, bars are to be horizontal, at same height and properly aligned with both hold back posts and locking posts.
- E. Field Welding: Comply with AWS code for procedures of manual-shielded metal-arc welding, appearance and quality of welds made, and methods used in correcting welding work.

3.02 TRASH RACK IMPROVEMENTS

- A. Existing trash rack shall be removed from site and brought off site to be re-fabricated.
- B. The trash rack vertical bars shall be cut as shown on plans.
- C. Horizontal flat bars shall be cut from the top of the trash rack and installed on the bottom of the rack as shown on plans.
- D. Re-install the trash rack in existing location once improvements have been completed.

**PART 4 – MEASUREMENT AND PAYMENT**

4.01 MEASUREMENT FOR PAYMENT

- A. Measurement for Vehicle Bar Gate shall be on a basis of the actual, in-place number of bar gates delivered, accepted and successfully placed, including signage and reflective tape, per Each. No separate measurement shall be made for earthwork or concrete footings.
- B. No measurement will be made for Trash Rack Improvement. The bid item for Trash Rack Improvement is a lump sum quantity.

4.02 PAYMENT

- A. Payment for the scope of work specified herein, including all labor, materials, equipment and incidentals, associated with provision, handling and installation of Vehicle Bar Gate shall be paid for at the applicable unit price for Item 02800-1 as stated on the Schedule of Unit Bid Prices.
- B. Trash Rack Improvement will be paid for at the contract lump sum price, complete and accepted in place.

<u>Item No.</u>	<u>Payment Item</u>	<u>Unit</u>
02800-1	Vehicle Bar Gate	Each
02800-2	Trash Rack Improvements	Lump Sum

**\*\*\*\*\*END OF SECTION\*\*\*\*\***

## SECTION 02910

### FENCES AND WALLS

#### PART 1 - GENERAL

##### 1.01 GENERAL PROVISIONS

- A. Attention is directed to the CONTRACT and all Sections within DIVISION 1 - GENERAL REQUIREMENTS, which are hereby made a part of this Section of the Specifications.

##### 1.02 DESCRIPTION OF WORK

- A. Work Included: Provide labor, materials and equipment necessary to complete the work of this Section, including, but not limited to the following:
  - 1. Installing new guardrail, steel w beam complete with terminal sections.
  - 2. Installing new black vinyl-coated chain link fencing.

##### 1.03 SUBMITTALS

- A. Refer to DIVISION I for submittal provisions and procedures.
- B. Provide copies of materials certificates signed by material producer and Contractor, certifying that each material item complies with, or exceeds, specified requirements.
- C. Contractor shall provide an engineering design and shop drawings for the guard rail, steel w beam.

##### 1.04 QUALITY ASSURANCE

- A. Weather Conditions: Cement mortar material shall not be placed when the ambient temperature is below 40° Fahrenheit, or when there is frost in the base, or at any other time when weather conditions are unsuitable.
- B. Codes and Standards:
  - 1. All work and materials shall conform to the latest applicable sections of the Massachusetts Department of Transportation Standard Specifications for Highways and Bridges, hereinafter referred to as the "Standard Specifications", as well as the codes and standards referenced in the individual sections of this specification. In case of conflict, the codes and standards referenced in the individual sections shall govern.
  - 2. All work shall be in full accordance with the latest rules, regulations and safety

orders of O.S.H.A. and all other local, state and federal worker safety laws. Nothing in the Contract Documents shall be construed to permit work not in accordance with the above.

3. When the Contract Documents call for material or construction of better quality or larger size than required by the above codes and standards, then the provisions of the Contract Documents shall take precedence.

## **PART 2 - MATERIALS**

### **2.01 CHAIN LINK FENCE**

- A. Manufacturers: Provide products complying with requirements of the contract documents and made by one of the following:
  1. Zinc-coated galvanized steel fencing, black PVC-coated.
    - a. American Security Fence Corporation
    - b. Anchor Fence, Inc.
    - c. Eastern Wholesale Fence Co., Inc., Medford, NY
- B. Fencing Accessories
  1. Material and finish of accessories shall match fencework specified in Mass. Highway Department "Standard Specifications", Section M.8.09.0 or as specified herein. Fence fabric and all components shall be black PVC-coated.
  2. Caps:
    - a. Formed steel, malleable or cast iron, or aluminum alloy, with ring to receive top rail or loop to receive tension wire according to fence configuration.
    - b. Snug-fitting, weathertight closure of posts.
  3. Rail Ends: Formed steel, malleable or cast iron, or aluminum alloy.
  4. Rail Sleeves:
    - a. Formed of same material as rail.
    - b. Minimum length: 6 inches.
    - c. Rails with 3-inch swaged ends will not require rail sleeves.
  5. Wire Ties and Clips:
    - a. Size: Not less than fabric wire gauge size.
    - b. Minimum zinc coating weight: 0.8 ounce per square foot.
  6. Brace Bands and Tension Bands:

- a. 3/4 inch by 1/10 inch thick (nominal).
- 7. Tension Bars:
  - a. 3/4 by 3/16 inch (or equivalent section) for 1-3/4 and 2-inch mesh.
  - b. Continuous length to match fabric width.
- 8. Truss Rods:
  - a. 5/16 inch minimum diameter rod.
- 9. Permit latching and locking operation from either side of gate.
  - a. Padlock eye integral part of latch.
- C. Fabric:
  - 1. Material: zinc-coated steel, ASTM F 668, Type 2b.
  - 2. Core wire diameter: 0.192 inch (6 gauge);
  - 3. Mesh size: 2 inches.
  - 4. Fabric width: 48 inches.
- D. Fence Framework:
  - 1. Zinc coating of steel shapes (ASTM A 90):
    - a. Hot-dipped zinc-coating of line posts; weight of coating 2.0 ounces per square foot; hot-dip zinc coating of terminal posts; weight of coating, 2.0 ounces per square foot.
    - b. All rails to be hot-dip zinc coated; weight of coat; 2.0 ounces per square foot.
  - 2. Toprail, bottom rail length: 18 foot minimum lengths.
  - 3. Material: Conform to ASTM F 669, Light Industrial category.
    - a. Group IA: Steel pipe.
  - 4. Rail size: 1.660 inches outside diameter by 0.112 inch wall thickness, 1.82 pounds per foot.
  - 5. Line post size: See drawings
  - 6. Terminal post size: See drawings.

### 2.03 GUARDRAIL STEEL W BEAM

- A. Galvanized steel guardrails and posts shall conform to MassDOT Standard Specifications, Section M8.07.0.
- B. Steel Posts shall conform to the requirements indicated in the MassDOT Construction Standard M/E 401.8.0R- Steel W Beam Highway Guard on Steel Posts – Posts and Terminal Section Details and shall conform to AASHTO M

183, and be galvanized in conformance with AASHTO M111, or weathering steel as specified below.

- C. Steel guardrails shall conform to the requirements indicated in the MassDOT Construction Standard: M/E 401.7.0 – Steel W Beam Highway Guard on Steel Posts – Rail Detail, shall be galvanized or weathering steel, as directed by the Town, and shall conform to the requirements of AASHTO M180 Class A.
- D. Channelized Block-Outs shall conform to the requirements indicated in the MassDOT Construction Standard M/E 401.20.0 – Channelized Block-Outs for Steel W Beam Guardrail on Steel Posts.

All bolts, nuts and washers shall conform to ASTM A307 and be galvanized in accordance with AASHTO M232, or weathering steel as directed by the Town.

### **PART 3 - EXECUTION**

#### **3.01 GUARD RAILS, STEEL W BEAM**

##### **A. POSTS:**

1. Posts shall be installed to the depths and spacing as shown on the Contract Drawings in accordance with the referenced MassDOT Standards and as shown on the Contract Drawings. All posts shall be plumb. Posts shall be installed in the presence of the Resident Engineer or representative of the Town.
2. Posts shall be driven by an approved mechanical device, designed and manufactured specifically for guardrail post installation. When in the opinion of the Resident Engineer, driving operations are producing unsatisfactory results, the posts shall be set in dug or bored holes. Drive posts into pilot holes that are punched or drilled. The dimensions of the pilot hole shall not exceed the dimensions of the post by more than 5/8 inch. Set posts plumb, backfill, and compact.
3. Post spacing shall not exceed 6'3" unless noted otherwise on the Contract Drawings. Smaller spacing may be required.
4. If a post cannot be installed to the minimum depth shown on the Contract Drawings due to an obstruction, or where specifically indicated on the Contract Drawings, a Modified Post Installation shall be performed in accordance with the provisions outlined in MassDOT Construction Standard M/E 401.12.0. The use of the Modified Post Installation must be authorized by the Town. The steel post shall be installed with a concrete foundation with dimensions based on embedment depths. The concrete foundation shall be at least 4,000 psi concrete and shall be furnished and installed in accordance Section 03300. The dimension of the concrete foundation shall be as indicate in Table 1:

**Table 1- Modified Guardrail Post Installation**

Post Embedment Depth Range (in)	Dimension of Concrete Foundation		
	Height (in)	Width (in)	Length (in)
12- 18	12-18	30	30
18-30	18-30	24	24
Over 30*	30	18	18

\*Dimensions shall also apply to locations specifically identified on Contract Drawings where post embedment is within slope fill.

**B. TRAFFIC RAILS:**

1. The rails shall be set so as to form a continuous rail, conforming to the required lines and grades shown on the Contract Drawings and following the grade of the finished roadway.
2. The top of the installed rail shall measure 31 inches above the finished pavement grade plus or minus one 0.5-inches.
3. Steel W Beam and Weathering Steel guardrails shall be attached to posts as shown on MassDOT Construction Standard – M/E 401.7.0. Each guardrail section shall be installed on a minimum of three (3) posts. Lap guardrail sections in the direction of traffic flow.
4. Splices shall only occur at posts.
5. Install standard white, reflective highway delineators, approximately every 12 feet, at post locations unless otherwise directed by the Town.

**C. TERMINAL SECTIONS:**

1. Terminal sections shall be provided at the end of each rail section as shown on the Contract Drawings.

**3.02 CHAIN-LINK FENCING**

- A. Verify that line of fence has been properly identified.
- B. Verify that proper grade has been established.
- C. Verify location of underground utilities and structures.
- D. Begin fence construction only after adequate clearance on both sides of fence is available.
- E. Layout

1. Install fencing true to line and grade.
  2. Elevation of fence shall follow ground line unless otherwise indicated on drawings. Bottom of fabric shall run at a uniform distance above ground of 1 inch, plus or minus ½ inch.
- F. Install braces, fabric, and other components in accordance with manufacturer's recommendations and to meet or exceed requirements of ASTM F 567.
  - G. Pull fabric taut and secure to rails at 1 foot on both sides of each post and at intervals of 24 inches, maximum, on center.
  - H. Secure fabric to line posts with tie wires or clips at intervals of 15 inches, maximum, on center.
  - I. Secure fabric to terminal posts for the full width of fabric by using stretcher bars and bands or by integrally weaving fabric to fastening loops on posts.

## **PART 4 – COMPENSATION**

### **4.01 METHOD OF MEASUREMENT**

- A. The measurement of Chain Link Fence shall be made in the final position from outside to outside of end posts or top rail whichever is greater, complete in place and accepted.
- B. Guardrail, Steel W Beam will be measured by the linear foot measured from one end of the terminal section to the other, complete in place and accepted. The limiting dimensions shall not exceed those shown on the plans or as ordered by the Engineer.

### **4.02 BASIS OF PAYMENT**

- A. Chain Link Fence will be paid for at the contract unit price per linear foot, complete and accepted in place, including, railings, posts, fabric, coring of existing walls for post installation, and all hardware.
- B. Guardrail, Steel W Beam will be paid for at the contract unit price per linear foot, complete and accepted in place, including terminal sections, railings, posts and all hardware.

4.03 PAYMENT ITEMS

<u>Pay Item</u>	<u>Description</u>	<u>Pay Unit</u>
02910-1	Chain Link Fence	Linear Foot
02910-2	Guardrail, Steel W Beam	Linear Foot

THERE ARE NO OTHER PAY ITEMS UNDER THIS SECTION.

PAYMENT FOR OTHER WORK REQUIRED BY THIS SECTION SHALL BE INCLUDED IN THE CONTRACT UNIT PRICES OF THESE ITEMS.

\*\*\*\*\*END OF SECTION\*\*\*\*\*



## SECTION 02970

### RESTORATION OF DISTURBED AREAS

#### PART 1 - GENERAL

##### 1.01 GENERAL PROVISIONS

- A. Attention is directed to the CONTRACT and all Sections within DIVISION 1 - GENERAL REQUIREMENTS, which are hereby made a part of this Section of the Specifications.

##### 1.02 DESCRIPTION OF WORK

- A. Work Included: Provide labor, materials and equipment necessary to complete the work of this Section, including, but not limited to the following:
1. All areas disturbed during construction shall be rough graded, restored with topsoil, fine graded, sodded, seeded and maintained until a healthy stand of grass is established.
  2. Replacement trees, shrubs and/or plantings shall be installed and maintained until accepted as noted on the plans or as directed by the Town.
  3. All fences and walls and other site elements previously removed shall be restored to their initial condition, size and location.
  4. All decks or other structures removed or partially removed shall be restored, repaired or rebuilt to their initial condition, size and location.
  5. Any structure damaged by the operations of the Contractor that were to remain is to be restored by the Contractor to their initial condition, size and location.
  6. Paved areas shall be restored to original conditions as per Section 02500 - PAVING AND SURFACING.
  7. The Contractor shall take such steps and measures as are necessary to protect the project site and adjacent areas from damage by construction activities and thereby minimize the extent of work to be done under this Section.

### 1.03 QUALITY ASSURANCE

#### A. General:

1. Perform restoration work in compliance with applicable requirements of governing authorities having jurisdiction.

#### B. Codes and Standards:

1. All work and materials shall conform to the latest applicable sections under the state's various jurisdictions; the Standard Specifications for Highways and Bridges, Massachusetts Department of Transportation, hereinafter referred to as the "Standard Specifications"; as well as the codes and standards referenced in the individual sections. In case of conflict, the codes and standards referenced in the individual sections shall govern.
2. All work and materials shall also be in full accordance with the latest rules, regulations, and safety orders of the State's Division of Industrial Safety OSHA, A.N.S.I. - A10.1 Safety Code for Building Construction, and all other state, county, city, municipality, and the utility laws rules, and regulations. Nothing in these Plans and Specifications shall be construed to permit work not conforming to the above.
3. Plants and planting shall conform to American Association of Nurserymen's Standards for Nursery Stock (ANSI Z601) for size, shape, number of leaders, branching patterns, health, etc. Plants shall be nursery grown under similar climatic conditions to those of the project locality for a minimum of two (2) years.

#### C. Source Quality Control:

1. General: Ship landscape materials with Certificates of Inspection as required by governing authorities. Comply with regulations applicable to landscape materials.
2. Do not make substitutions. If specified landscape material is not obtainable, submit proof to Town of non-availability and proposal for use of equivalent material. When authorized, adjustment of Agreement amount will be made.
3. Plant names indicated comply with the latest edition of Hortus III. Names of varieties not listed conform generally with names accepted by the nursery trade. Provide stock true to botanical name.
4. Comply with sizing and grading standards of the latest edition of "American Standard for Nursery Stock" ANSI Z60.1.
5. Plants shall be at least the minimum size indicated. Larger stock is acceptable if approved by the Owner, at no additional cost. When larger plants are used, increase the spacing proportionally.

- #### D. Inspection: Owner reserves the right to inspect and approve trees, shrubs, plantings and sod at the place of growth for compliance with specification requirements for name, variety, health, sizes, and quality.

E. Special Requirements:

1. Protection: Comply with all applicable regulations and safety orders in effect at the place of construction. Protect this and adjacent properties from all damage due to this operation. Protect open excavations, trenches, etc., with fences, covers or railings as required to maintain safe pedestrian and vehicular traffic.
2. Responsibility: The Contractor is responsible for the finished condition of his work. Notify the Engineer promptly in writing if any conditions exist which are contrary to requirements. Without extra cost to the Town restore street pavements, walks, curbs, gutters, trees, etc., that may be damaged in the performance of work under this section, in a manner prescribed by any authorities having jurisdiction.
3. Setting and Establishing Finish Elevation Lines: All elevations, grades, lines, etc., required to complete the work under this Section shall be arranged and paid for by the Contractor, and performed by a qualified employee of the Contractor. It is the Contractor's sole responsibility to establish elevations, and to set and protect stakes during operations.

1.04 JOB CONDITIONS

- A. Coordination: Coordinate all work of this section with related work of other sections. Failure to coordinate properly will not reduce the obligation to meet the standards of acceptance of the various elements of work contained herein.
- B. Sequencing and Scheduling:
1. No grass shall be begun until acceptance of fine grading by the Engineer.
  2. No permanent seeding shall be done in areas where construction operations may damage the work.
  3. All existing or new grass areas damaged by construction operations or other causes shall be repaired to the Engineer's satisfaction, at no additional cost to the Town.
- C. Existing Conditions: All work that the work of this section is contingent upon shall be examined and any deficiencies shall be reported to the Engineer. Commencement of work will be construed to mean complete acceptance of the preparatory work. No adjustment will be made for discrepancies brought to the attention of the Engineer after work has begun. Contractor shall refer to the pre-construction site documentation package.
- D. Extent of Work: Areas to be loamed, seeded, and mulched include all areas disturbed by the Contractor's activities which are not scheduled for other surfaces. All areas disturbed by the work and not otherwise covered or protected by other surfacing shall be dressed, seeded, and mulched.
- E. Planting Time: Plant grasses, plantings and shrubs during recognized normal planting seasons.

#### F. Trees and Shrubs:

1. Provide freshly dug trees and shrubs. Do not prune prior to delivery. Do not bend or bind trees or shrubs in such manner as to damage bark, break branches, or destroy natural shape. Provide protective covering during delivery.
2. Deliver trees and shrubs after preparation for planting has been completed and plant immediately. If planting is delayed more than six (6) hours after delivery, set trees and shrubs in shade, protect from weather and mechanical damage, and keep roots moist.
3. Label at least one tree and one shrub of each variety with a securely attached waterproof tag bearing legible designation of a botanical and common name. Tag shall remain legible a minimum of 60 days.

#### G. Sod:

1. All turfgrass sod shall be subject to the inspection and approval of the Owner's Representative before planting.

The Contractor shall notify the Owner's Representative at least (5) days prior to the delivery date of the turfgrass sod. No more turfgrass sod shall be delivered to the job site on any day than can be placed and watered on that day.

Inspection of turfgrass sod by the Owner's Representative may be made at the growing site, but such inspection will not preclude rejection after delivery to the job site. Any turfgrass sod so rejected shall be removed from the site immediately and replaced with acceptable turfgrass sod. Inspection of turfgrass sod shall include conformity to quantity, specified nomenclature, and health requirements, in conformance with the current edition of the Specifications for Sodding and Soil Preparation published by the New England Sod Producers' Association and as specified herein and on the drawings.

### 1.05 SUBMITTALS

- A. Chemical analysis of the loam to be utilized with recommended rates of fertilization and liming based upon the analysis.
- B. Submit manufacturer's data sheets for erosion control blankets.
- C. Submit USDA certification for sod seed purity and blend, for areas to be sodded.
- D. Restoration Schedule shall be submitted for review by the Town of the intended sequence and timeline for restoration of private properties impacted by the project and must be accepted prior to site preparation and demolition on the private property. Schedule will identify timeline for backfilling, topsoil spreading and seeding, plantings, and fences, walls decks and other structure replacements. The intent of this specification is to minimize the amount of time private property is left in a disturbed state following the installation of the drainage structures.

## 1.06 SPECIAL PROJECT WARRANTY

- A. Lawns: Provide a uniform stand of grass by watering, mowing, and maintaining lawn areas until final acceptance. Replant areas which fail to provide a uniform stand of grass with specified materials, until all affected areas are accepted by the Engineer.

## **PART 2 - PRODUCTS**

### 2.01 TOPSOIL

- A. General Contractor shall spread stacked on-site topsoil to depth and extent as originally was present in the disturbed areas to a minimum thickness of 6 inches or use topsoil borrow as specified in SECTION 02200.

### 2.02 SOIL AMENDMENTS

- A. Follow recommendations from soil test reports.
- B. Ground Limestone: Ground Limestone shall contain not less than 85% of total carbonates, ground to such fineness that 90% passes through a 20-mesh sieve and 50% passes through a 100-mesh sieve.
- C. General Fertilizer: Commercial type approved by Engineer of neutral character, with some elements derived from organic sources and containing following percentages of available plant nutrients.
  - 1. Use 5-10-5 50% organic or other approved formulation for planting mixes.
  - 2. Use granular non-burning product for lawn areas. Provide material composed of not less than 50% organic, slow acting, guaranteed analysis fertilizer. Use a percentage of nitrogen to provide not less than one (1) pound of actual nitrogen per 1,000 square feet of lawn area. Provide nitrogen in a form that will be available to lawn during initial period of growth.

### 2.03 PLANT MATERIALS

- A. General Qualifications:
  - 1. Plant material shall be good examples of their species or variety, with uniform, well developed branch structure. Trees shall have a balanced head and single leader.
  - 2. Trees shall be in accordance with the American Standard of Nursery Stock of the American Association of Nurserymen.

3. Plant materials shall be freshly dug. No plants from cold storage or previously held in stock will be accepted.
  4. All material shall be nursery grown. No collected material will be accepted.
  5. Only materials grown with Hardiness Zones 1 through 5, as established by the Arnold Arboretum, Jamaica Plain, Massachusetts, or USDA zones 2-6 will be accepted. The Contractor shall certify in writing that the stock has been grown under zone 5 or hardier conditions.
  6. Plant material shall be sound, healthy, and vigorous of growth, free of disease, insect pests, eggs or larvae. All parts shall be moist and show active green cambium when cut.
- B. Deciduous Trees: Provide trees of height and caliper listed or shown with branching configuration recommended by ANSI Z60.1 for type and species required. Provide single stem trees except where special forms are shown or listed.
  - C. Deciduous Shrubs: Provide shrubs of the height or spread listed and with not less than minimum number of canes specified by ANSI Z60.1 for type and height of shrub required.
  - D. Containergrown deciduous shrubs will be acceptable in lieu of balled and burlapped deciduous shrubs, subject to specified limitations for containergrown stock.
  - E. Coniferous and Broadleafed Evergreens: Provide evergreens of sizes shown or listed. Dimensions shall be in accordance with ANSI Z60.1.

#### 2.04 MISCELLANEOUS LANDSCAPE MATERIALS

- A. Water: Shall be free of substances harmful to plant growth. Source, hoses, pumps, or other methods of transportation shall be furnished by Contractor.
- B. Seed Mulch:
  1. Mechanical Seeding: Provide clean, seed-free, salt hay or threshed straw of wheat, rye, oats or barley.
- C. Seed Requirements and Analysis:
  1. Grass seed shall be fresh, clean, dry, new crop seed meeting the standards of SRA-156, U.S. Department of Agriculture Rules and Regulations under the Federal Seed Act.

2. Seed shall be of the following varieties, mixed in proportion by weight and testing the minimum percentages of purity and germination.

<u>Pounds/ 1000 SF</u>	<u>Seed Variety</u>	<u>Percent Purity</u>	<u>Percent Germination</u>
3.0	Creeping Red Fescue	97	85
1.5	Turf Type Tall Fescue	90	75
<u>0.5</u>	Annual Rye Grass	98	90
5.0			

- 1) Creeping Red Fescue shall consist of one or more of the following varieties: Dawson, Ensylva, and Ruby.
- 2) Turf Type Tall Fescue shall be Rebel Jr. or approved equal.
- 3) Weed seed shall not exceed 0.5% by weight.

D. Sod:

1. Sod shall be strongly rooted, at least eighteen (18) months old, fresh cultivated turf grass sod, weed, disease, and insect free. Sod shall be composed of 25% Jasper Creeping Red Fescue, 25% Victory Chewings Fescue, 25% Spartan Hard Fescue, 15% America Kentucky Bluegrass, and 10% Jefferson Kentucky Bluegrass. Submit USDA certification for purity and seed blend.
  - a. Thickness of cut: 1/2 inch to 3/4 inch, exclusive of top growth and thatch.
  - b. Pad size: supplier's standard.
  - c. Broken, torn, or uneven pads will not be acceptable. Standard sections shall be strong enough to support their own weight when suspended vertically from a firm grasp on the upper ten percent of the section.

**PART 3 – EXECUTION**

3.01 RATES OF APPLICATION

- A. Chemical controls and preventatives and grass seed shall be applied at the following rates:

<u>Material</u>	<u>Per 1,000 Sq. Ft</u>
Initial Soil Amendments	Soil Test Recommendations
Grass Seed	5 pounds
Hay Mulch	2 inch depth
Grass Refertilizing	20 pounds

### 3.02 INSTALLATION

#### A. Soil Preparation:

1. Soil Preparation of New Grass Areas or Areas Disturbed by Contractor's Operations:
  - a. Where grass is to be planted in areas that have been altered or disturbed by excavating, grading, or stripping operations, prepare soil as follows:
    - 1) Limit soil preparation to areas to be planted within 7 days.
    - 2) Loosen topsoil within lawn areas to a minimum depth of 4 inches. Remove by mechanical raking all stones over 1-1/2" in any dimension, sticks, weeds, clods, lumps, roots, rubbish, and other extraneous matter.
  - b. Protect existing grass areas and create a smooth transition between them and new work. Repair any damage done to the satisfaction of the Engineer.
  - c. Fine grade as necessary to achieve a smooth even surface true to line and grade. Match grades smoothly with existing grass areas to remain.
  - d. Secure acceptance of fine grading by the Engineer prior to the commencement of seeding or sodding operations.

#### B. Seeding Season:

1. The calendar dates for seeding shall be:

Spring -	March 15 to June 15
Fall -	August 15 to September 15
2. All disturbed areas shall be treated during the seeding season as follows:
  - a. Areas at final grade: Permanent seeding shall be accomplished.
  - b. Areas not to be brought to final grade for an extended period of time: Temporary seeding shall be perennial ryegrass (*Lolium perenne*) at the rate of 3 pounds per 1000 square feet.
  - c. During "out of season" periods unseeded areas shall be treated in accordance with the Standard Specifications. "Out of Season" treatments shall be removed prior to seeding unless otherwise directed by the Engineer.

#### C. Seeding New Grass Areas:

1. Where new grass areas abut other newly planted or existing planted areas establish limits of new grass with lime. Secure approval by Engineer of limed edge prior to beginning seeding operations.
2. Application of Soil Amendments:



- a. Apply fertilizer, lime, and other initial soil amendments evenly at rates determined by topsoil test results and thoroughly incorporate into the upper 2 inches of topsoil by discing, harrowing or other acceptable methods.
  - b. Rake the finished surface smooth.
3. Mechanical Seeding of New Grass:
- a. Do not use wet seed or seed which is moldy or has been damaged in transit or storage.
  - b. Sow seed using a spreader or seeding machine. Do not seed when wind velocity exceeds 5 miles per hour or when the ground is in a frozen, wet, or otherwise nontillable condition.
  - c. Sow no less than the quantity of seed specified.
  - d. Cover seed with a thin layer of topsoil by raking or dragging.
  - e. Immediately after the seeding operations have been completed, the entire area shall be compacted by use of a roller weighing 60 to 80 pounds per linear foot. If the soil is of such a type that a smooth or corrugated roller cannot be operated satisfactorily, a pneumatic roller may be used if it has tires of sufficient size so that complete coverage of soils is obtained. When a cultipacker or similar equipment is used, the final rolling shall be at right angles to the prevailing winds to prevent wind erosion.
  - f. Protect seeded areas against erosion either by spreading specified hay mulch or hydro-mulching immediately after completion of seeding operations. If hay mulch is used, spread uniformly to form a continuous blanket not less than 2" loose measurement over seeded areas. Spread by hand, blower or other suitable equipment.
4. Erosion Preventative: Slopes steeper than one foot vertical to 3 feet horizontal or greater, or any areas which will receive concentrated run-off water, shall be covered with jute netting erosion preventative. If jute netting is used, overlap no less than one foot, and the material shall be secured by pegs. Do not remove material after germination. Let it decompose.
5. Maintain a moist seed bed at all times. Water the seed bed so that the topsoil is wet to a depth of two inches.
6. Protect the seed bed with barricades, if necessary, to keep all traffic off the areas.
7. After grass has appeared, re-seed all areas which have failed to show a uniform stand of grass. For isolated points of erosion that are not able to be stabilized by re-seeding, use sod.

D. Hydroseeding New Grass:

1. Landscaper may elect to hydroseed some or all lawn areas except areas to be sodded. The Landscaper shall submit a written description of the proposed process, complete with materials and equipment to be used, to the Engineer for approval prior to initiation of any hydroseeding operations.

2. Mix specified seed, fertilizer, pulverized mulch and pulverized mulch tackifier in water, using equipment specifically designed for hydroseed application. Continue mixing until uniformly blended into homogeneous slurry suitable for hydraulic application.
3. Apply slurry uniformly to all areas to be seeded. Rate of application as required to obtain specified seed sowing rate.
4. Reference Paragraphs 3.02 A, B, and C.

E. Sod:

1. Planting of Turfgrass Sod Lawns: Turfgrass sod shall be placed on prepared soil that has been watered and is still moist. Turfgrass sod shall be laid with tight joints, rolled, and thoroughly watered. The soil shall not be worked when the moisture content is so great that excessive compaction will occur, or when it is so dry that a dust will form in the air or that clods will not break readily. Water shall be applied, if necessary, to provide ideal moisture content for tilling and for planting as herein specified.

The Contractor shall be responsible for maintaining the finish grade in all planting areas, and for performing any fine grading as may be necessary or incidental to the planting operations.

Preliminary grading shall be done in such a manner as to anticipate the finish grading. Excess soil shall be redistributed before application of fertilizer. Before and during preliminary and finish grading, all weeds and grasses shall be dug out by the roots and disposed of off the site except the weeds and grasses that are not of the perennial type, are less than 2 1/2 inches high, and are not bearing seeds which may be turned under.

F. Existing Grass:

1. All existing grassed or vegetated areas shall be protected from unnecessary damage due to construction operations.
2. Existing grassed or vegetated areas within the project site shall be maintained by the Contractor.

G. Trees and Shrubs

1. All trees and shrubs are to be installed according to nursery provider recommendations. They shall be planted according to the planting schedule on the plans. All materials and products necessary for the proper planting of shrubs shall be supplied by the Contractor at no additional cost to the Owner including but not limited to: topsoil, mulch, fertilizer, etc.
2. Excavate pits, beds, and trenches with vertical sides and with bottom of excavation slightly raised at center to provide proper drainage. Loosen hard subsoil in bottom of excavation.
3. Bare Root Shrubs: Make excavations at least 10 inches wider than root spread and deep enough to allow for setting of roots on a layer of compacted backfill

and with collar set at same grade as in nursery.

4. Balled and Burlapped Trees and Shrubs: Make excavations at least two (2) feet wider than the ball diameter and equal to the ball depth.
5. Notify Owner in writing of all soil or drainage conditions which Contractor considers harmful to growth of plant material. State condition and submit proposal for correcting condition, including additional cost, if any.
6. Test drainage of plant beds and pits by filling with water. Conditions permitting the retention of water for more than 24 hours shall be brought to the immediate attention of the Owner's Representative. State condition and proposal for correcting condition including additional costs for correction. Obtain approval from Engineer before proceeding.

#### H. Planting:

1. Balled and Burlapped Stock: Set plant plumb and in center of pit or trench with top of ball at same elevation as adjacent finished landscape grades. Remove burlap from sides of ball. Remove all metal baskets when set, place additional backfill around base and sides of ball, and work each layer to settle backfill and eliminate voids and air pockets. When excavation is approximately 2/3 full, water thoroughly before placing remainder of backfill. Repeat watering until no more is absorbed. Water again after placing final layer of backfill.
2. Bare Root Stock: Cut injured roots clean; do not break. Set roots on cushion of planting soil mixture. Spread roots and carefully work backfill around roots by hand and puddle with water until backfill layers are completely saturated. Plumb before backfilling and maintain plumb while working backfill around roots and placing layers above roots. Set collar at same grade as to finish landscape grades. Spread out roots without tangling or turning up to surface.
3. Dish top of backfill to allow for mulching.
4. Prune, thin out and shape trees and shrubs in accordance with standard horticultural practice. Prune trees to retain required height and spread. Unless otherwise directed by Engineer, do not cut tree leaders, and remove only injured or dead branches from flowering trees, if any. Prune shrubs to retain natural character and accomplish their use in the landscape design.
5. Remove and replace excessively pruned or misformed stock resulting from improper pruning.
6. Inspect tree trunks for injury, improper pruning and insect infestation, and take corrective measures before wrapping.
7. Wrap tree trunks of two (2) inch caliper and larger. Start at ground and cover trunk to height of first branches, and securely attach.
8. Guy and stake trees immediately after planting, as indicated.
9. Space plants in accordance with indicated dimensions or Owner's Representative's instruction. Adjust spacing as necessary to evenly fill planting bed with indicated quantity of plants.

10. Dig holes large enough to allow for spreading of roots and backfill with planting soil. Work soil around roots to eliminate air pockets and leave a slight saucer indentation around plants to hold water. Water thoroughly after planting, taking care not to cover crowns of plants with wet soils.

### 3.03 PROTECTION

- A. Erect barricades and warning signs as required to protect newly seeded and sodded areas and existing grass areas to remain from traffic. Maintain barricades until final acceptance.

### 3.04 MAINTENANCE

- A. General: Final acceptance of all work will be at the end of the maintenance period herein specified.
- B. Maintenance Period: Begin maintenance of new grass and plantings immediately after each area is planted and continue until final acceptance.

#### C. Specific Operations:

##### 1. Maintenance shall consist of the following elements:

- a. Watering, fertilizing, weed control, disease control, insect control, mowing, trimming, and other operations such as rolling, regrading, replanting, as required to establish a smooth, acceptable lawn, free of eroded or bare areas.
- b. Remulch with new mulch in areas where the mulch has been displaced by wind or maintenance operations. Anchor as required to prevent displacement.
- c. Replant bare areas using same materials specified for grass.
- d. Watering: If irrigation has not been installed, provide and maintain temporary piping, hoses and grass watering equipment to convey water from sources and to keep grass areas uniformly moist as required for proper growth. Lay out temporary grass watering system and arrange watering scheduling to avoid walking over muddy or newly seeded areas. Use equipment and water in such a way as to prevent puddling, water erosion, and displacement of seed or mulch.
- e. Initial grass mowing shall occur when grass reaches a height of 4 inches. Time the subsequent mowings to maintain the grass at a 2" to 3" height. Do not mow lower than 2 inches. Do not delay mowing until grass blades bend over and become matted.
- f. Apply fertilizer after first mowing and when the grass is dry. Use fertilizer which will provide not less than 1.0 lb of actual nitrogen per 1,000 sq. ft. of grass area.

### 3.05 FINAL ACCEPTANCE OF PLANTINGS AND GRASS

#### A. General:

1. Seeded grass and plantings will be acceptable provided requirements, including maintenance, have been complied with, and a healthy, uniform close stand of specified grass is established, free of weeds, disease, insects, bare spots and surface irregularities.
2. No grass will be accepted prior to 60 days from its installation and 2 mowings minimum.

#### B. Inspections:

1. Preliminary Inspection for Final Acceptance:
  - a. Prior to granting final acceptance, a preliminary inspection for acceptance will be made by the Engineer to determine that all grass and plantings and all other required and related work is in place and that it has been installed in accordance with the Plans and specifications.
2. Inspection for Final Acceptance:
  - a. A final inspection for acceptance of all grass and plantings will be held after all adjustments required by the preliminary inspection for acceptance have been made. The Contractor shall notify the Engineer in writing requesting an inspection to grant final acceptance.
  - b. At the discretion of the Engineer, final acceptance may be granted to individual areas. Any such agreements shall be determined at the pre-installation meeting.
  - c. Following acceptance, the owner shall assume responsibility for all lawn maintenance.

### 3.06 TREES

- A. The Contractor shall be responsible for pruning and other actions necessary to repair construction-related damage to trees which are shown to remain in place or are outside of the construction areas.
- B. The Contractor shall consult with the Town if restoration work on large trees is necessary.

### 3.07 FENCES AND WALLS

- A. The Contractor shall restore any disturbed fencing, gates and walls or other elements removed by the Contractor to gain access to the work areas. Fencing and walls shall be reset in the same location, height and with the same materials as were originally on site unless jointly decided upon by the property owner and the Contractor to change materials or location. Such decisions will be documented in writing and a copy provided to the Town. Contractor may rebuild with all new

- materials in lieu of using the previously removed materials only if concurred by the property owner. The materials removed shall be utilized in the fences and gates for resetting except, where necessary, new posts and bases shall be furnished by the Contractor. Any materials missing, damaged or lost during or subsequent to removal shall be replaced by the Contractor without additional compensation.
- B. Fences and walls shall be reset plumb on the line and grade as required and shall conform to the original fence or as the Engineer directs. Backfilling around the fence posts or walls shall consist of suitable material satisfactorily compacted. If the fence posts or walls were originally set in concrete bases they shall be reset in their new locations in concrete bases, conforming to 4000 psi 1½" 565 Cement Concrete (Subsection M4.02.00 of Division III, Materials, of the Standard Specifications).
  - C. If repainting of the fences which have been painted originally is required, such work shall be done as directed.

### 3.08 DECKS AND OTHER STRUCTURES

- A. Decks and other structures that must be removed in whole or in part to gain access for the work to progress shall be restored in the same location, height and with the same materials and refinished as were originally on site unless jointly decided upon by the property owner and the Contractor to change materials or location. Such decisions will be documented in writing and a copy provided to the Town. Contractor may rebuild with all new materials in lieu of using the previously removed materials only if concurred by the property owner.

## **PART 4 - COMPENSATION**

### 4.01 METHOD OF MEASUREMENT

- A. No measurement will be made for Site Restoration at either site. The bid items for Site Restoration are lump sum quantities. Site Restoration will not include Seeding,
- B. Seeding shall be measured by the square yard, which shall include all materials, equipment, tools, labor, transportation, operations and all work incidental thereto.

### 4.02 BASIS OF PAYMENT

- A. Site Restoration will be paid for at the contract lump sum price, complete in place and accepted.
- B. Seeding will be paid for at the contract unit price per square yard, which shall include all materials, equipment, tools, labor, transportation, operations and all work incidental thereto. Partial payment of up to sixty (60) percent may be made for work completed, but not accepted. No separate payment will be made for restoration of wetland areas as shown on the plans. Final payment of 100%, less any prior

payment, will be made after establishment of a dense turf and final acceptance by the Engineer. This may extent into a second growing season.

4.03 PAYMENT ITEM

<u>Pay Item</u>	<u>Description</u>	<u>Pay Unit</u>
02970-1	Site Restoration	Lump Sum
02970-2	Seeding	Square Yard

THERE ARE NO OTHER PAY ITEMS UNDER THIS SECTION.

PAYMENT FOR OTHER WORK REQUIRED BY THIS SECTION SHALL BE INCLUDED IN THE CONTRACT UNIT PRICES OF THESE ITEMS.

**\*\*\*\*\*END OF SECTION\*\*\*\*\***

## SECTION 03300

### CAST-IN-PLACE CONCRETE

#### PART 1 - GENERAL

##### 1.01 DESCRIPTION

- A. The Work of this section includes furnishing and placing cast-in-place cement concrete composed of specified proportions of cement, aggregates, water and approved admixtures, mixed to form a homogeneous composition and consolidated in the Work as indicated without segregation. Also included in the Work of this Section is the furnishing and placement of epoxy-coated reinforcing steel within the concrete structures. All other work incidental to the construction of the reinforced concrete structures as shown on the Contract Drawings or in these Specifications is also included in this Section.
- B. The Work of this Section includes all formwork, bracing, and temporary construction required to build cast-in-place concrete structures as shown on the Contract Drawings. Also included in the Work of this Section is all work required to properly finish, protect, and cure cast-in-place concrete.
- C. The Work of this Section also include the engagement by the Contractor of an Independent Testing Agency to provide field and laboratory testing services and reports in regard to quality control for cast-in-place concrete. The cost of these services shall be included in the bid price for cast-in-place concrete. The Town may perform additional Quality Assurance testing of concrete materials. As such, the Contractor shall provide the Town with a minimum of 48 hours advance notice of each day of concrete placement operations.
- D. Work shall conform to the Standard Specifications for Highways and Bridges by the Massachusetts Department of Transportation except as stated herein.

##### 1.02 SCOPE OF WORK

- A. The Work of this Section shall include construction of a new cast-in-place concrete walls on top of pre-cast U-shaped channel and headwall extension. All concrete shall be a minimum 4,000 psi mix. Reinforcing steel shall be epoxy-coated Grade 60 bars.
- B. Other reinforced concrete structures may be included as incidental to other Pay Items of the Work. These structures shall be constructed as per this Section but paid for under other Items.

##### 1.03 RELATED SECTIONS

- A. Section 01300 – Submittals
- B. Section 01565 – Temporary Water Control
- C. Section 01955 – Record Drawings



- D. Section 02200 – Earthwork
- E. Section 02720 – Storm Drainage System and Concrete Units
- F. Section 03305 – Concrete Testing
- G. Section 03346 – Concrete Finishing, Curing and Repairs
- H. Section 03604 – Non-Shrink Grout

#### 1.04 REFERENCES

- |    |                    |   |   |
|----|--------------------|---|---|
| A. | ACI 211.1-91       | - | Standard Practice for Selecting Proportions for Normal Heavyweight, and Mass Concrete |
| B. | ACI 301-05         | - | Standard Specifications for Structural Concrete                                       |
| C. | ACI 302.1R-04      | - | Guide for Concrete Floor and Slab Construction  |
| D. | ACI 304.2R-96      | - | Placing Concrete by Pumping Methods   |
| E. | ACI 305R-99        | - | Hot Weather Concreting  |
| F. | ACI 306.1-90       | - | Standard Specification for Cold Weather Concreting                                    |
| G. | ACI 308R-01        | - | Guide to Curing Concrete  |
| H. | ACI 308.1-98       | - | Standard Specification for Curing Concrete  |
| I. | ACI 309R-05        | - | Guide for Consolidation of Concrete   |
| J. | ACI 318-08         | - | Building Code Requirements for Structural Concrete and Commentary                     |
| K. | ACI 318-17         | - | Anchoring to Concrete   |
| L. | ACI 347-04         | - | Guide to Formwork for Concrete  |
| M. | ACI 350-06         | - | Code Requirements for Environmental Engineering Concrete Structures                   |
| N. | ASTM A82M-07       | - | Specification for Steel Wire, Plain, for Concrete Reinforcement                       |
| O. | ASTM A185M-07      | - | Specification for Steel Welded Wire Reinforcement, Plain, for Concrete                |
| P. | ASTM A615/A615M-07 | - | Specification for Deformed and Plain Billet - Steel Bars for Concrete Reinforcement   |

Q.	ASTM A675/A675M-03e1	-	Specification for Steel Bars, Carbon, Hot-Wrought, Special Quality, Mechanical Properties
R.	ASTM C33-07	-	Specification for Concrete Aggregates
S.	ASTM C94/C94M-07	-	Specification for Ready Mixed Concrete
T.	ASTM C150-07	-	Specification for Portland Cement
U.	ASTM C260-06	-	Specification for Air Entraining Admixtures for Concrete
V.	ASTM C309-98a	-	Specification for Liquid Membrane-Forming Compounds for Curing Concrete
W.	ASTM C494/C494M-99a	-	Specification for Chemical Admixtures for Concrete
X.	ASTM C595-08	-	Specification for Blended Hydraulic Cements
Y.	ASTM C618-05	-	Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use in Concrete
Z.	ASTM C881/C881M-02	-	Specification for Epoxy-Resin-Base Bonding Systems for Concrete
AA.	ASTM C989-06	-	Specification for Ground Granulated Blast-Furnace Slag for Use in Concrete and Mortars
BB.	ASTM C1240-05	-	Specification for Silica Fume Used in Cementitious Mixtures
CC.	ASTM C1602-04	-	Specification for Mixing Water Used in the Production of Hydraulic Cement Concrete
DD.	Concrete Reinforcing Steel Institute	-	Manual of Standard Practice
EE.	Concrete Reinforcing Steel Institute	-	Placing Reinforcing Bars

## 1.05 QUALITY ASSURANCE

### A. Reinforcing Steel

1. Do not fabricate reinforcement until shop drawings have been accepted by the Town.
2. Perform Work in accordance with the most recent versions of the CRSI - Manual of Standard Practice, ACI 301, ACI SP-66 and ACI 318. Where contradictions exist, the more stringent code shall govern. Maintain one copy of each document on site.

3. Replace all reinforcement with bends and kinks not shown on the accepted fabrication shop drawings, or otherwise damaged reinforcement.
4. Remove from job site all such reinforcement and replace with new fabricated reinforcement at no additional cost to the Town. Field bending of reinforcement is prohibited, without prior written approval of the Town.

B. Cement Concrete

1. Perform work in accordance with ACI 301, ACI 318 and ACI 350R as modified here-in. Maintain one copy of each document on site.
2. Acquire cement and aggregate from one source for Work.
3. Materials and installed work may require testing and retesting at any time during progress of work. Retesting of rejected materials for installed work shall be done at the Contractor's expense.
4. Do not use admixtures which will cause accelerated setting of the cement in concrete. Use of calcium chloride will not be permitted.
5. Employ an Independent Testing Agency, acceptable to the Town.
6. Acceptance of completed concrete work requires conformance with dimensional tolerances, appearance, and strength as specified and indicated.

1.06 SUBMITTALS

A. The Contractor shall submit to the Town the following:

1. Submit shop drawings for proposed structures, including dimensions, elevations, locations of joints, reinforcing bar sizes, material grades, spacing, length, locations and quantities of reinforcing steel, bending and cutting schedules and supporting and spacing devices.
2. Submit shop drawings for concrete reinforcement prior to fabrication, showing bar bends, details and placement and certified copies of Mill Test Reports of reinforcement materials analysis.
3. Submit Concrete Mix designs including past field performance test results.
4. Submit sieve analysis and soundness tests for fine and coarse aggregates taken within the last three (3) months.
5. Submit Cement Manufacturer's Certificates of conformance with ASTM C150 taken during the last 3 months.
6. For all pozzolans proposed, submit certificates of conformance with respective ASTM standards indicated in part 2.4.B of this specification.
7. Submit product data and material safety data sheets for concrete admixtures.
8. Submit product data and material safety data sheets for concrete accessories.
9. Submit sample concrete mix delivery slip.
10. Submit product data and material safety data sheets for form release agent.

11. Submit product data and sample for form ties.
12. Submit product data for Epoxy Adhesive Anchoring System
13. Within ten (10) days of Notice to Proceed, the Contractor shall submit a schedule of labor, equipment and methods of concrete placement, curing and protection for approval. As part of this submittal include means and methods of delivering concrete to placement areas. This submittal shall include production, transportation, placing, protecting, curing and temperature monitoring of concrete during cold weather.

#### 1.07 PRE-CONCRETE CONFERENCE

- A. Pre-Concrete Conference shall be held after the concrete mix design has been reviewed by the Town and Engineer and more than 14 days prior to the first concrete placement to review concrete procedures.
- B. Meeting Minutes: Resident Engineer shall record minutes of meeting and distribute to attending parties.
- C. Attendance: Contractor; Concrete Supplier; Independent Testing Agency; concrete subcontractor; admixture manufacturer; concrete pumping contractor, Town and Resident Engineer.

### **PART 2 - PRODUCTS**

#### 2.01 FORM MATERIALS

- A. Plywood: APA, B-B Plyform Class I exterior.
- B. Lumber: Southern pine, No. 2 grade or equal.
- C. Steel: Minimum 16 ga. sheet, well matched, tight fitting, stiffened to resist loads without excess deflection.
- D. Form Liner: Plywood conforming to PS-1, Grade B-B exterior (concrete form) not less than 1/4 inch thick.
- E. Chamfer Corners: Chamfer, Wood Strip Type; 1" x 1" minimum, maximum possible length.
- F. Form Ties:
  1. All structures shall have factory fabricated assembly providing at least 1.5 inch break back dimension with at least a 1 inch diameter tapered wood or plastic cones to leave a uniform hole for patching. Single rod ties require a tightly fitted waterstop washer at the mid point. Multi rod ties do not require washers.
- G. Form release agent: Non-staining colorless, compatible with finishes, and non-toxic for potable water. CRETE-LEASE 727 Release Agent by Cresset Chemical, Super-X Emulsive by A.H. Harris & Sons, Inc. or equivalent. No diesel fuel will be allowed.

H. Conform to ACI 301 and ACI 347

2.02 REINFORCING STEEL

- A. Bars, Bedrock Anchors (Rock Bolts): ASTM A615 Grade 60; deformed new materials, epoxy coated, less than 2% damage to epoxy coating in each 12 inch bar length.
- B. Welded wire fabric: ASTM A185, Class A epoxy coated, Type 1 deformed steel
- C. Tie wire: ASTM A82, annealed, epoxy coated.
- D. Bolsters, chairs and supports: plastic coated, stainless steel, or epoxy coated.

2.03 FABRICATION OF REINFORCING STEEL

- A. Conform to CRSI Code of Standard Practice-Fabrication.
- B. Cold bend bars. Heating during bending shall not be permitted.
- C. Bend bars around revolving collar of recommended size per ACI 318.

2.04 CONCRETE MATERIALS

- A. Portland cement: ASTM C150; Type II. Tricalcium Aluminate (C<sub>3</sub>A) content in cement shall be less than 8%. Cement shall be furnished from one source during the project. In the event that the proposed cement is not low alkali, submit evidence that the proposed aggregate is not reactive per ASTM C1260 or AASHTO T303.
- B. Pozzolans:
  - 1. Ground Granulated Blast Furnace Slag: ASTM C989 - Grade 100 or 120.
  - 2. Fly Ash: ASTM C618 - Type F
- C. Aggregates:
  - 1. Fine aggregate shall consist of washed inert natural sand, manufactured sand or combination thereof, free from mineral or other coatings, soft particles, clay, loam or other deleterious materials conforming to the requirements of ASTM Specification C-33, and the following requirements:

SIEVE NO.	PERCENT PASSING
4	95 to 100
8	80 to 100
16	50 to 85
30	24 to 60
50	5 to 30
100	0 to 10

Fineness Modulus 2.6 to 3.0

The percent passing the #200 sieve shall not exceed 2 percent by dry sieving or 3% by wet sieving.

2. Coarse aggregate shall consist of a well graded crushed stone or a washed gravel or a combination thereof, conforming to the requirements of ASTM Specification C-33 and the following requirements. Aggregate shall not be considered susceptible to Alkali-Silica Reactivity (ASR) as determined in accordance with ASTM AC295.

PERCENT PASSING				
SIEVE	NO. 67 (3/4")	NO. 57 (1")	NO. 8 (3/8")	NO. 467 (1 1/2 ")
1-1/2 inch	--	100	--	100
1 inch	100	95-100	--	--
3/4 inch	90-100	--	--	35-70
1/2 inch	--	25-60	100	--
3/8 inch	20-55	--	85-100	10-30
No. 4	0-10	0-10	10-30	0-5
No. 8	0-5	0-5	0-10	--
No. 16	--	--	0-5	--
No. 50	--	--	--	--

Limits of deleterious substances and physical property requirements shall be as listed in ASTM C33, Table 3, for severe weathering regions.

- D. Water: potable from municipal water supply or shall meet the requirements of ASTM C1602.
- E. Admixtures: As specified herein and all from one common manufacturer.

## 2.05 ADMIXTURES

- A. Low Range Water Reducer: Pozzolith 210 by Master Builders; WRDA with HYCOL by Grace Construction Products Division; or equivalent meeting ASTM C494 Type A.
- B. High Range Water Reducer (superplasticiser): Rheobuild 1000 or Glenium 3000 NS by Master Builders; Daracem 100 or ADVA 100 by W.R. Grace; or equivalent meeting ASTM C494 type F.
- C. Air entraining agent: Micro-Air by Master Builders, DAREX II AEA by Grace Construction Products; or equivalent meeting ASTM C260.
- D. Non-corrosive non-chloride accelerator: Pozzutec 20+ by Master Builders; Polarsset by W. R. Grace; or equivalent meeting ASTM C494 type C or E.
- E. Not permitted: Calcium chloride, thiocyanates or admixtures containing chloride ions.

2.06 ACCESSORIES

- A. Joint filler and slab perimeters: J-Joint polyethylene foam with tear off strip for sealant or equivalent; joint filler to be slab thickness in depth less 0.5 inch for sealant.
- B. Expansion joint filler: Self expanding cork by W.R. Meadows or W.R. Grace or equivalent, size as indicated on the Contract Drawings.
- C. PVC water-stops shall be extruded polyvinylchloride with virgin resin and shall be either the flat ribbed type or wire reinforced flat ribbed type:
  - 1. Flat Ribbed Type Waterstop:
    - a. Construction Joints: 0.375 inch thick by 9 inches wide. Type R9-38 by Vinylex Corporation, Style 786 by Greenstreak Plastics Products, Type FR-9380 by Paul Murphy Plastics Company or equivalent.
- D. Epoxy bonding adhesive: Epoxy resin/portland cement moisture resistant bonding agent:, Armatec 110 EpoCem by Sika Corporation, Corr-Bond by Euclid Chemical Company, Epobond by L&M Construction Chemicals, Inc. or equivalent.
- E. Epoxy adhesive: HIT-RE 500 V3 by Hilti or equivalent.
- F. Structural inserts: of type and size shown on the drawings; Richmond Screw Anchor or Heckman Building Products, Hohman and Barnard, Dayton Sure-Grip or equivalent.
- G. Bond Breaker: Thompson's Water Seal or equivalent, or form oil.

2.07 MECHANICAL BAR SPLICERS

- A. Develop 125% of yield strength of bar across mechanical splice.
- B. Use metal filled sleeve type: Richmond DB-SAE Splicer Systems, Dayton Superior D-250 Bar Lock Coupler or equivalent.

2.08 CONCRETE CLASS

- A. Cement Concrete shall be Class A

2.09 CONCRETE

- A. Concrete proportioning shall conform to ACI 318, Chapter 5 except as modified in the table below:

Class	Strength (f'c)	Coarse Aggregate	% Air ± (1.5%)	Cem. Frac (LB/CY)	Max W/C Ratio	Min.-Max. Slump (INCES)
A	4000 PSI	No. 467	5	564	0.45	3 5

(1 ½")

- B. An alternate concrete mix design using blended hydraulic cements and Pozzolans may be proposed. Any alternate mix design proposed shall include a minimum of 30 compressive strength test results from the past 12 months exhibiting a consistent strength and standard deviation. The proposed mix shall contain cementitious materials in the following proportions
  - 1. Portland Cement - No less than 50% of the total by weight.
  - 2. Ground Granulated Blast Furnace Slag - No greater than 50% of the total by weight.
  - 3. Fly Ash - No greater than 30% of the total by weight.
- C. The maximum slump as indicated in the above table will be as measured at the batch plant.
- D. Pumped Concrete: Conform to Chapter 4 - ACI 304.2.
- E. High range water reducer shall be added either at the concrete batch plant or on site to obtain the slumps as indicated above only with prior approval of the Town when circumstances dictate its necessity to facilitate placement.
- F. No additional mix water shall be added to the concrete on site which will increase the water-cement ratio of the mix. If additional water is to be added on site, it shall be held back from the specified quantity in the mix design during batching and shall be added on-site for the sole purpose of providing the initial slump as specified prior to adding the high range water reducer. The amount of water held back from the mix shall be clearly indicated on the concrete mix delivery slip. The Resident Engineer shall be notified prior to adding the water on site. The addition of a greater quantity of water than that indicated shall be cause for non-compliance and potential rejection of the concrete truck.
- G. Concrete shall be furnished from one supplier and batch plant during the project.

## 2.10 SELECTION OF CONCRETE PROPORTIONS

- A. The Concrete producer shall select the concrete mix proportions on the basis of past field performance and the use of trial mixes. The changes in materials and proportions within the population of background tests shall not have been more closely restricted than they will be for the proposed work. The test record shall represent only a single record of consecutive tests that span a period of not less than 45 calendar days. The concrete mix proportions shall produce an average strength at least as great as the required average strength ( $f'_{cr}$ ).
- B. Field Experience
  - 1. Concrete mix proportions shall be established on the basis of field test data with similar materials to be used for the project. Past field experience will be considered suitable if it consists of data from one group of at least 30 consecutive



compressive strength tests. To be acceptable, the test data shall be based on similar mix proportions to those for the project.

2. The Standard Deviation (s) shall be computed from such test data and the required average strength ( $f'_{cr}$ ) to be used for the selection of the concrete proportions shall exceed the specified strength ( $f'_c$ ) in accordance with the following formulae:
  - a. When the standard deviation (s) is less than 500 psi:
 
$$f'_{cr} = f'_c + 1.34s$$
  - b. When the standard deviation (s) is greater than or equal to 500 psi:
 
$$f'_{cr} = f'_c + 2.33s - 500$$
3. When a Concrete producer does not have test data meeting the requirements listed in Section 2.10.B.1, but does have data based on a single group of 15 to 29 consecutive tests, a standard deviation shall be established as the product of the calculated standard deviation and modification factor indicated below. To be acceptable, the test data shall be based on similar mix proportions to those for the project.

NO. OF TESTS	MODIFICATION FACTOR FOR STANDARD DEVIATION
15	1.16
20	1.08
25	1.03
30 or more	1.00

4. When a Concrete producer does not have test data meeting the requirements listed in Section 2.10.B.3, but does have data based on a two groups of consecutive tests totaling at least 30. To be acceptable, none of the two groups shall consist of less than 10 tests with similar mix proportions to those for the project. The group containing 15 or more test results which have different mix proportions from those for the project shall be within 1,000 psi of the specified strength. A standard deviation shall be established as the product of the calculated standard deviation based upon the group containing 15 or more test results and modification factor indicated above.
5. Document that the calculated average strength for the proposed concrete proportions, using past field performance data for the proposed concrete proportions consisting of at least 10 consecutive test records, is at least greater than or equal to the required average strength ( $f'_{cr}$ ). If the past field performance data consists of two groups of strength tests for two different mixes, plot the average strength versus the water cement ratio of the two mixes. Interpolate between the corresponding mixture proportions to determine the mixture proportions for the required average strength ( $f'_{cr}$ ).

### C. Laboratory Trial Batches

1. Trial mixes shall be designed and tested. Concrete proportions established from trial mixtures meeting the following restrictions shall be permitted:
  - a. Combination of materials shall be that for proposed work.
  - b. The required average compressive strength ( $f'_{cr}$ ) shall be 4,000 PSI.
  - c. Trial mixtures having proportions and consistencies required for proposed work shall be made using at least three (3) different water-cementitious materials ratios which will be less than or equal to 0.45 and will produce a range of strengths encompassing the required average strength ( $f'_{cr}$ ).
  - d. The maximum cement factor as listed in Section 2.10.A shall not be exceeded.
  - e. Trial mixtures shall be designed to produce a slump within + or - 0.75 in. of maximum permitted, and for air entrained concrete, within + or - 0.5 percent of maximum air content.
  - f. For each water-cementitious materials ratio, at least three (3) test cylinders for each test age shall be made and cured in accordance with ASTM C 192. Cylinders shall be tested at 7, 21 and 28 days.
  - g. Maximum water-cementitious materials ratio for concrete to be used in proposed work shall be selected by the curve to produce the average strength required ( $f'_{cr}$ ).

D. Adjustments to Required Average Strength ( $f'_{cr}$ ).

1. Adjustments in the Required Average Strength ( $f'_{cr}$ ) may be made during the progress of the work on the following basis:
  - a. When a minimum of fifteen 28-day tests from this project are available, the average strength and standard deviation shall be computed. Should these determinations indicate an excessive compressive strength with a low standard deviation as determined by the Town, modification of the concrete mix may be made to achieve a lower average strength based upon a new standard deviation. In the event such determination should indicate a lower average strength or higher Standard Deviation than anticipated, the Engineer will require corrective measures to be taken immediately which may include one or more of the following but not limited to:
    - (1) An increase in the cementitious material
    - (2) Changes in mixture proportions
    - (3) Reductions in, or better control of levels of slump supplied
    - (4) A reduction in the delivery time
    - (5) Closer control of air content.
    - (6) Decrease in the water-cement ratio.
    - (7) An improvement in the quality of the testing, including strict compliance with standard test procedures.

(8) Procedural changes as deemed necessary by the Town.

## 2.11 STORAGE OF MATERIALS

- A. Protect materials from ground and the elements.
- B. Maintain cement in dry condition.
- C. Store reinforcement and all other embedded items on skids.
- D. Remove defective materials from site. Do not store on site.

## **PART 3 - EXECUTION**

### **3.01 FORMWORK**

- A. Conform to ACI 301 and ACI 347
- B. Verify lines, levels and measurements before proceeding.
- C. Erect plumb and straight. Maintain rigid. Brace sufficiently.
- D. Allow no concrete leakage. Provide continuous, straight, smooth exposed surfaces.
- E. Treat forms with form release agent prior to erecting forms. Protect reinforcing from contact with form release agent.
- F. Earth forms not permitted.
- G. Camber formwork as necessary.
- H. Provide port holes in wall and column forms or removable panels to allow cleaning and inspection every 8'-0" on center.
- I. Chamfer all exposed outside corners and edges 0.75 inch unless otherwise noted.
- J. Clean out inside of forms of all foreign materials prior to concrete placement.
- K. Maintain specified tolerances.
- L. Maintain forms and shores supporting the cast concrete for the time periods indicated:
  - 1. Walls and Vertical Surfaces (non-water retaining) \*36 Hours
  - 2. Walls and Vertical Surfaces (water retaining) \*48 Hours

\* These periods represent cumulative number of days or hours during which the temperature of the air surrounding the concrete is above 50°F and the concrete has been damp and no loss of moisture has occurred.
- M. Reshore as required.
- N. Form pressures increase with the use of concrete with High Range Water Reducers. Design forms accordingly.

- O. Clean and repair surfaces of forms to be re-used in work. Split, frayed, delaminated or otherwise damaged form facing material will not be acceptable for exposed surfaces. Apply new form release agent as specified for new formwork.
- P. All concrete formwork, including reinforcing steel and embedment items, shall have a temperature greater than or equal to 35°F at the time of concrete placement.

### 3.02 REINFORCEMENT

- A. Furnish reinforcement bars in full lengths to the extent practicable.
- B. Conform to the CRSI Code of Standard Practice - Field Erection for surface condition, bending, spacing and placement tolerance.
- C. Weld no reinforcement unless approved in advance by the Town in writing.
- D. Splicing reinforcement: conform to ACI 318 and ACI 350; welded wire fabric to be lapped 1½ courses or 12 inches; tie fabric at 24 inches on center maximum spacing.
- E. Provide bar supports: on grade use concrete brick; elsewhere use manufactured wire supports.
- F. Do not bend reinforcing partially embedded in the concrete.
- G. Field cutting of the reinforcement will not be allowed.
- H. Mechanical connections shall be installed in accordance with splice device manufacturer's recommendations. Additional mechanical connections proposed by the Contractor shall only be installed only after being reviewed and approved in advance by the Town in writing.

### 3.03 EMBEDDED ITEMS

- A. Contractor shall coordinate the installation and securing of all embedded items such as guardrail anchor bolts, bedrock anchors, preformed joints, pipes, conduit, embedded angles, reinforcing steel dowels and all other required embedded items indicated in the Contract Documents.
- B. Pipes or Conduits for embedment within a slab, wall or beam, other than those merely passing through, shall satisfy the following:
  - 1. Shall not be larger in outside diameter than one-third (1/3) the thickness of the slab, wall or beam.
  - 2. Shall not be spaced closer than 3 diameters on center.
  - 3. Shall not impair significantly the strength of the concrete.
- C. Do not install weepholes unless specifically called for on the Contract Drawings.

3.04 WATERSTOPS

- A. Waterstops shall be continuous around all corners and intersections. Use prefabricated vinyl corners, tees and crosses. Bending waterstop around corners will not be acceptable.
- B. Splice vinyl waterstops as recommended by manufacturer; develop 80% tensile strength in splice; form continuous seal at joint intersections; terminate with 2" concrete cover where designed to discontinue.
- C. Secure waterstops on both sides at 12" on center maximum spacing; dumbbell type with manufactured clips; place center of waterstop at joint.
- D. Joints: hold vinyl waterstop rigid with split bulkhead forms.
- E. Place concrete uniformly and with care to avoid displacing waterstop.
- F. Thoroughly vibrate concrete around waterstop to avoid honeycombing and voids in concrete and to ensure complete contact between waterstop and concrete.
- G. Notify Town a minimum of 24 hours prior to installing waterstops.
- H. Place great importance on the successful installation of joint waterstops.

3.05 PLACING CONCRETE

- A. Notify Town and Independent Testing Laboratory 24 hours minimum prior to each placement.
- B. All concrete shall be tested as specified in Section 03305.
- C. Assure placement and proper location of all embedded items.
- D. Place no concrete on frozen ground.
- E. Place concrete from mixing truck to final location quickly and without segregation.
- F. Place concrete within 90 minutes of batching.
- G. Freefall from concrete truck discharge chute, pump hose and hopper hose: 4 feet maximum.
- H. Place continuously and against plastic concrete only.
- I. Do not place partially hardened concrete.
- J. Consolidate concrete by vibrating. Penetrate preceding lift 4 inches to blend layers. Do not use vibrator to move fresh concrete laterally. Insert vibrator at approximately 18 inch intervals. Consolidate concrete without segregation. Conform to ACI 309.
- K. Conform to ACI 306R for placing, curing and maintaining concrete in cold weather when environmental conditions exist as defined in Section 03346.
  - 1. Temperature limitations on concrete when delivered to site:

	Concrete Thickness
--	--------------------

Item	Air Temperature	Less than 12 in.	12-36 in.	36-72 in.	Greater than 72 in.
Minimum concrete temperature as placed and maintained					
1	--	55 F	50 F	45 F	40 F
Minimum concrete temperature as mixed for indicated air temperature					
2	Above 30 F	60 F	55 F	50 F	45 F
3	0 to 30 F	65 F	60 F	55 F	50 F
4	Below 0 F	70 F	65 F	60 F	55 F

- L. Conform to ACI 305R for placing, curing and maintaining concrete in hot weather when environmental conditions exist as defined in Section 03346.
  - 1. Temperature of concrete placed shall not exceed 90°F.
- M. Provide to the Resident Engineer, concrete Delivery Slip prepared at batch plant with each truck load of concrete showing ticket number, date, truck number, mix strength, maximum stone size, weight of coarse aggregate, weight of fine aggregate, cement weight, volume of concrete, gallons of water added at plant, time water added at plant, quantities of all admixtures used and gallons of water withheld at the plant.
- N. High Range Water Reducing Admixtures shall be used for all concrete to be pumped or with a specified water/cement ratio below 0.50. Maximum slump 8 inches with admixture.
- O. Use non-corrosive, non-chloride accelerator when placing concrete in air temperatures below 50°F.
- P. Thoroughly moisten subgrade materials prior to placing slabs on grade.
- Q. Unless otherwise shown on the drawings, apply epoxy adhesive to existing concrete to bond to new concrete.
- R. Set anchor bolts for wall mounted guardrail with templates at correct elevations using manufacturer's shop drawings reviewed by the Town with no exceptions taken unless otherwise indicated.
- S. Contractor shall coordinate concrete truck wash-out area with Town.

### 3.06 JOINTS

- A. Provide joints only where shown on the drawings or as otherwise approved after written request.
- B. Install waterstops in construction joints as shown on the Contract Drawings. The waterstop shall extend the entire length of the joint and shall be positioned across the center of the joint.
- C. Apply bondbreaker to surface of control joints.

- D. Install keyways as indicated. Provide a minimum 2 inches clearance between edge of keyway and reinforcing steel.
- E. Thoroughly clean the surface of the concrete at construction and control joints and remove laitance prior to placing adjoining concrete. Do not place concrete against the hardened side of a joint for at least 48 hours.

3.07 DRILLING AND GROUTING ANCHORS

- A. Use rotary drills and cores (non-percussive) and drill holes into precast concrete to the depth indicated. Hole size shall be one-half (1/2) inch larger in diameter than the anchor diameter unless otherwise indicated on the Contract Drawings.
- B. Scour the hole by thoroughly roughening the sides with a coarse, wire flue brush or use the appropriate drill bits to provide a roughened surface appropriate for the grout utilized.
- C. Clean hole thoroughly of dust and debris with a power vacuum or compressed air.
- D. Insert anchor and secure in required position; apply grout with pressure in accordance with the Contract Drawings and per grout manufacturer's recommendations.
- E. Maintain anchors stationary until grout dries.

3.08 TOLERANCES

- A. Maximum allowable deviations from dimensions, elevations, slopes and positions as indicated below:
  - 1. Variation from plumb:
    - a. In the lines and surfaces of piers, walls, and in arises:
      - i. In any 10 feet of length: 1/4 in
      - ii. Maximum for the entire length: 1 in
    - b. For exposed corner of columns, control-joint grooves, and other conspicuous lines:
      - i. In any 20 feet of length: 1/4 in
      - ii. Maximum for the entire length: 1/2 in
  - 2. Variation from the level or from the grades specified in the Contract Documents:
    - a. In slab soffits, ceilings, beam soffits and in arises, measured before removal of supporting shores:
      - i. In any 10 feet of length: 1/4 in

ii. In any bay or in any 20 feet of length:	3/8 in
iii. Maximum for the entire length:	3/4 in
b. In exposed lintels, sills, parapets, horizontal grooves, and other conspicuous lines:	
i. In any bay or in 20 feet of length:	1/4 in
ii. Maximum for the entire length:	1/2 in
3. Top elevation of piers, walls and arises:	±1/4 in
4. Top elevation of slabs:	±1/4 in
i. In any bay:	1/2 in
ii. In any 20 feet of length:	1/2 in
iii. Maximum for the entire length:	1 in
5. Variation in the sizes and location of sleeves, floor openings, and wall openings:	± 1/4 in
6. Variation of in the thickness of slabs and walls:	
i. Minus:	1/4 in
ii. Plus:	1/2 in
7. Footings:*	
a. Variations in dimensions in plan:	
i. Minus:	1/2 in
ii. Plus:	2 in
b. Misplacement or eccentricity:	
i. 2% of the footing width in the direction of misplacement but not more than:	2 in
c. Thickness:	
i. Decrease in specified thickness:	5%
ii. Increase in specified thickness:	No limit



d. Elevation of top:  $\pm 1/4$  in

\*Tolerances apply to concrete dimensions only, not to positioning of vertical reinforcing steel, dowels, or embedded items.

### 3.09 FAILURE TO MEET STRENGTH REQUIREMENTS

- A. The strength of the concrete in place will be considered substandard if any one of the following results occur: Note: A test is defined as the average of two cylinders
  - 1. The arithmetic average of 28-day cylinder tests for any three (3) consecutive test results are less than the specified strength ( $f'_c$ ).
  - 2. More than 10 percent of the 28-day cylinder tests have strengths less than the specified strength ( $f'_c$ ).
  - 3. A compressive strength test result falls below the specified strength ( $f'_c$ ) by more than 500 psi.
- B. Concrete which fails to meet the strength requirements as outlined above will be reviewed by the Engineer. The Engineer will determine whether the substandard concrete will be accepted, rejected.

### 3.10 DEFECTIVE CONCRETE

- A. Defective concrete is defined as concrete in place which does not conform to strength, shapes, alignments, appearances and/or elevation as shown on the drawings and/or presents faulty surface areas.
- B. Reinforcing steel size, quantity, strength, position, or arrangement at variance with the Drawings will be considered defective.
- C. Concrete which differs from the required dimensions or locations in such a manner as to reduce the strength will be considered defective.
- D. Concrete surfaces not finished or not cured in accordance with Section 03346 shall be classified as defective concrete.
- E. Formed surfaces larger or smaller than dimensional tolerances specified in this Section may be rejected. If the Town permits the Contractor to correct the error, such correction shall be as directed by the Engineer and in such a manner as to maintain the strength, function and appearance of the structure.
- F. Concrete members cast in the wrong location may be rejected and shall be removed at no additional cost to the Town if the strength, appearance or function of the structure is adversely affected.
- G. Inaccurately formed surfaces exposed to view may be rejected and shall be repaired or removed and replaced at no additional cost to Town.
- H. Concrete exposed to view with defects which adversely affect the appearance of the specified finish shall be repaired. Excessive honeycomb or embedded debris in

concrete is not acceptable. If, in the opinion of the Town, the defects cannot be repaired, the concrete may be accepted or rejected in accordance with the decision of the Engineer.

### 3.11 PROTECTION FROM COLD

- A. Concrete structures shall be covered, insulated and heated as required to prevent frost penetration beneath the structures until acceptance by the Town. The use of ridge barriers for weather protection shall be used as required and as directed by the Town or Engineer.
- B. All material and equipment required for cold weather placement and curing protection shall be available at the project site before commencing concrete placement.
- C. All snow, ice and frost shall be removed from the surfaces, including reinforcement and the subgrade, against which the concrete is to be placed. The temperature of any surface that will come into contact with fresh concrete shall be at least 35° F and shall be maintained at a temperature of 35° F or above during the placement of concrete.
- D. As much as possible, any enclosure for protection shall be in place before depositing of any concrete and the remainder shall be installed as rapidly as possible in order to reduce heat losses to a minimum. Heating within the enclosure shall be attained by such means of artificial heat as will maintain the temperatures specified continuously and with a reasonable degree of uniformity in all parts of the enclosures. All exposed surfaces of concrete within the enclosure shall be kept sufficiently moist to prevent any drying of the surface concrete with possible resulting damage to the concrete in place. Heating appliances shall not be placed in such a manner as to endanger the enclosure, forms or supports, or expose any area of concrete to drying out or other injury due to excessive temperatures.

## **PART 4 - MEASUREMENT AND PAYMENT**

### 4.01 MEASUREMENT FOR PAYMENT

- A. Measurement of cast-in-place reinforced concrete for construction of the channel wall as shown on the Contract Drawings shall be on a basis of the actual, in-place volume of the Cast-in-Place Reinforced Concrete placed, in cubic yards. Concrete used to refill below the lines and grades shown in the plans due to overblasted rock shall not be included in the measurement for payment. Measurement shall be made by taping the dimensions of the concrete structures or by other methods mutually acceptable to the Town and the Contractor. No measurement of reinforcing bars or other incidental items shall be made.

- B. There shall not be measurement of Anchors (also referred to as Rock Bolts) for construction of the channel wall as shown on the Contract Drawings shall be on a basis of the actual number of bedrock anchors installed.

4.02 PAYMENT

- A. Payment for the scope of the work specified herein, including all labor, materials, testing, equipment, and incidentals and mobilization/demobilization costs of Cast-in-Place Reinforced Concrete for construction of the channel wall as shown on the Contract Drawings, including reinforcing steel, cold weather protection, and all other incidentals, shall be paid for at the applicable unit price of Item 03300-01 stated on the Form for Bid.
- B. The work specified herein, including all labor, materials, testing, equipment, and incidentals and mobilization/demobilization costs of installation and testing of Anchors (Also referred to as Rock Bolts) for construction of the cast-in-place channel wall as shown on the Contract Drawings, including cold weather protection, and all other incidentals, shall be incidental to Cast-in-Place Reinforced Concrete.
- C. No payment shall be made for concrete incidental to the Work of other Sections.

<u>Item No.</u>	<u>Payment Item</u>	<u>Unit</u>
03300.01	Cast-in-Place Reinforced Concrete	Cubic Yard

\* \* \* \* **END OF SECTION** \* \* \* \*

## SECTION 03305

### CONCRETE TESTING

#### PART 1 - GENERAL

##### 1.01 SECTION INCLUDES

- A. Concrete Testing

##### 1.02 RELATED SECTIONS

- A. Section 01300 - Submittals
- B. Section 03300 - Cast-In-Place Concrete
- C. Section 03346 - Concrete Finishing, Curing and Repairs
- D. Section 03604 - Non-Shrink Grout

##### 1.03 REFERENCES

- A. ASTM C31/C31M-06 - Standard Practice for Making and Curing Concrete Test Specimens in the Field
- B. ASTM C39/C39M-05e1 - Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens
- C. ASTM C42/C42M-04 - Standard Test Method of Obtaining and Testing Drilled Cores and Sawed Beams of Concrete
- D. ASTM C172-07a - Practice for Sampling Freshly Mixed Concrete
- E. ASTM C231-04 - Test Method for Air Content of Freshly Mixed Concrete by the Pressure Method
- F. ASTM E329-07a - Specification for Agencies Engaged in the Testing and/or Inspection of Materials Used in Construction
- G. ASTM C1602/C1602M-06 - Specification for Mixing Water Used in the Production of Hydraulic Cement Concrete
- H. ACI 301-05 - Standard Specifications for Structural Concrete

- I. ACI 350.1-01/350.1R-01 - Tightness Testing of Environmental Engineering Concrete Structures

#### 1.04 QUALIFICATIONS

- A. Independent Testing Agency shall conform to concrete testing requirements of ASTM E329.
- B. Key personnel must be qualified and experienced in concrete quality assurance.
- C. Perform concrete field quality control testing with personnel certified as an ACI Concrete Field Testing Technician, Grade 1 according to the American Concrete Institute (ACI).

#### 1.05 SUBMITTALS

- A. The Contractor shall be responsible for the submittals for review and acceptance by the Resident Engineer and Town at no additional cost to the Town. Submittals shall include Independent Testing Agency's qualifications, all testing reports, etc.
- B. Independent Testing Agency will submit one copy each of all test reports to each of the following: Resident Engineer, Town, Contractor and concrete supplier.
- C. Independent Testing Agency will submit reports within 5 days of testing or inspection.
- D. Independent Testing Agency will telephone the Resident Engineer within 24 hours if tests indicate deficiencies.

#### 1.06 QUALITY CONTROL

- A. The responsibility of the Resident Engineer includes the inspection of the test results provided by the Independent Testing Agency for the following factors controlling the mix.
- B. The Contractor shall be required to engage, at his own expense, an Independent Testing Agency to perform all quality control tests. The Independent Testing Agency is subject to approval by the Town. In addition, the Town may also perform materials testing for quality assurance purposes.

## **PART 2 - PRODUCTS**

not used

## **PART 3 - EXECUTION**

### **3.01 CAST-IN-PLACE CONCRETE**

- A. An Independent Testing Agency, selected, accepted by the Town and paid for by the Contractor shall test and sample concrete for strength, slump and air content as indicated herein.
- B. The Contractor shall notify the Independent Testing Agency of proposed upcoming concrete placements as follows.
  - 1. The Contractor shall notify the Testing Agency of proposed concrete placements on a weekly basis.
  - 2. The Contractor shall notify the Testing Agency of specific placements a minimum of 24 hours in advance.
- C. Obtain 5 standard test cylinder samples (6" x 12") for each day's pour of each concrete mix exceeding 5 CY, but less than 25 CY, plus one set for each additional 50 CY or fraction thereof. Measurements shall be taken not less than once per day.
- D. Test 2 cylinders at 7 days; 2 cylinders at 28 days. Hold one cylinder for later testing.
- E. Perform slump tests and air entrainment tests at the project site on each truck and at each sampling. Perform slump and air entrainment tests before addition of High Range Water Reducer (when the high range water reducer is added on site) and slump and air entrainment tests after addition of High Range Water Reducer (all concrete).
- F. Sample concrete for testing of air and slump at the discharge end of the truck. When concrete is pumped, concrete taken for test cylinders shall be at the discharge end of the pump hose. All concrete sampled for testing shall be taken from the beginning of the concrete truck discharge. No concrete shall be placed until the testing is complete. All concrete sampled for casting of cylinders shall be taken from the middle third of the concrete truck discharge.
- G. Perform strength, slump and air entrainment tests at other times when directed by the Resident Engineer.

- H. Additional testing and sampling required as a result of deficient results or improper curing shall be paid for by the Contractor.
- I. Contractor shall provide and maintain an insulated, heated concrete cylinder curing box, 4 foot square minimum, with a min.-max. thermometer and maintain the temperature between 60°F and 80°F. Contractor to coordinate the location and specific details of the curing box with the Independent Testing Agency and Resident Engineer.
- J. Contractor shall always provide access to the site for the Independent Testing Agency Personnel.

### 3.02    ADDITIONAL TESTS

- A. Independent Testing Agency shall provide additional testing of in-place concrete as directed by Resident Engineer due to non-compliance or considered substandard. Additional tests may consist of non-destructive testing, cores drilled from the area in question or load tests. Costs of additional testing will be paid by the Contractor.
- B. When the concrete strength is substandard as defined in Specification 03300 Section 3.09 paragraph A, concrete core specimens shall be obtained and tested from the affected area.
  - 1. Three (3) cores shall be taken for each sample in which the strength requirements were not met. The drilled cores shall be obtained and tested in conformance with ASTM C 42 "Method of Obtaining and Testing Drilled Cores and Sawed Beams of Concrete".
- C. Field cured cylinders may be cast and tested by the Independent Testing Agency at the request of the Contractor. The costs of these tests shall be borne by the Contractor. If the field cured cylinders are cast and tested prior to 28-days to determine the in-place concrete strength in order to facilitate an accelerated schedule for subsequent concrete placements, or backfilling the following criteria must be met:
  - 1. The Contractor shall notify the Resident Engineer and Independent Testing Agency 48 hours in advance of the concrete placement. The Resident Engineer will determine at that point if the results of the field cured cylinders may be used to determine the in-place concrete strength. The Contractor shall notify the Resident Engineer as to when the field cured cylinders will be tested and for what purpose.

2. A minimum of 2 cylinders shall be cast for each separate test the Contractor requests. A test consisting of at least two cylinders will be required to be considered valid.
  3. The field cured cylinders shall be left in the field and located such that they are exposed to the identical environmental conditions as the concrete structure. The cylinders shall remain at this location a minimum of 14 days prior to testing.
  4. The Resident Engineer shall determine if the strengths indicated by the field cured cylinder tests are adequate for their intended purpose.
- D. Load Testing.
1. Should the compression test of the cores taken from the structure fail to be in compliance with these Specifications, the Contractor will be directed by the Town to conduct a load test of the structure in conformance with ACI 318 under the direction of the Contractor's Independent Testing Agency. Should the load test fail, the structure shall be removed from the site and replaced. All tests associated with the load testing and removal and replacement of the structure will be by the Contractor, at no cost to the Town.

## **PART 4 - MEASUREMENT AND PAYMENT**

### **4.01 MEASUREMENT FOR PAYMENT**

- A. No measurement shall be made of any work performed under this Section.

### **4.02 PAYMENT**

- A. No separate payment shall be made for any work performed under this section. The cost of any work done or facilities provided under this section shall be included under other Bid Items in Section 03300 Cast-in-Place concrete.

**\* \* \* \* END OF SECTION \* \* \* \***



## SECTION 03346

### CONCRETE FINISHING, CURING AND REPAIRS

#### PART 1 - GENERAL

##### 1.01 SECTION INCLUDES

- A. Concrete Curing
- B. Concrete Finishing
- C. Concrete Repairs

##### 1.02 RELATED SECTION

- A. Section 01300 - Submittals
- B. Section 03300 - Cast-in-Place Concrete
- C. Section 03604 - Non-Shrink Grout

##### 1.03 REFERENCES

- A. ACI 301-05 - Standard Specifications for Structural Concrete
- B. ACI 302.1R-04 - Guide for Concrete Floor and Slab Construction
- C. ACI 305R-99 - Hot Weather Concreting
- D. ACI 306.1-90 - Standard Specification for Cold Weather Concreting
- E. ACI 308R-01 - Guide to Curing Concrete
- F. ACI 350-06 - Code Requirements Environmental Engineering Concrete Structures
- G. ASTM C309-07 - Specification for Liquid Membrane - Forming Compounds for Curing Concrete
- H. ASTM C1602/C1602M-06 - Specification for Mixing Water Used in the Production of Hydraulic Cement Production

#### 1.04 SUBMITTALS

- A. Submit product data and material safety data sheets for curing compounds, floor sealers and hardeners, and repair materials.
- B. Submit procedures prior to concrete placements for cold weather protection, hot weather protection and curing methods.
- C. Submit qualifications of flatwork finisher.

#### 1.05 SAMPLES

- A. For each type of wall finish used on the project, the first 100 square feet of finished area shall be observed by the Town for acceptance. Sample areas shall be provided until no exceptions are taken with the wall finish. The accepted sample area shall serve as a guide for the remainder of the project.

#### 1.06 ENVIRONMENTAL CONDITIONS

- A. Environmental Conditions are defined as follows:
  - 1. Cold Weather - When temperature conditions during the concrete placement or during the 7 day curing period following the placement will fall below 40°F.
  - 2. Hot Weather - When temperature conditions during the concrete placement or during the 7 day curing period following the placement will rise above 90°F.

#### 1.07 QUALITY ASSURANCE

- A. All curing, finishing and repair materials shall meet all Federal and State regulations pertaining to Volatile Organic Compounds (VOC) Compliance.
- B. Contractor performing flatwork finishing of concrete slabs shall provide at least one (1) flatwork finisher certified as an ACI Concrete Flatwork finisher.

## **PART 2 - PRODUCTS**

### **2.01 CURING MATERIALS**

- A. Curing and Sealing Compound; ASTM C309 Type 1 Class B. Application rate 200 square feet per gallon. Super Kurseal 25 by A.H. Harris & Sons, Inc. Emulsion Kurseal 309 by A.H. Harris & Sons, Inc. or equivalent.
- B. Dissipating Resin Curing Compound: ASTM C1315 type 1; Film must break down in two to four weeks. Application rate 200 square feet per gallon. Kurez-DR by Euclid Chemical Company, KonKure Clear Emulsion by A.H. Harris & Sons, Inc., or equivalent.
- C. Curing/Hardening Compound: Sodium Silicate Type. Application rate 200 square feet per gallon. Eucosil by Euclid Chemical Company, Super KurHard by A.H. Harris & Sons, Inc., or equivalent.
- D. Curing, Sealing and Hardening Compound: Ashford Formula by Curecrete, or equivalent. Application Rate 200 square feet per gallon.
- E. Curing Water: Water shall be potable from a municipal water supply or shall meet the requirements of ASTM C1602, and shall be free of materials that have the potential to stain concrete. The temperature of the curing water shall not be lower than 20°F cooler than the surface temperature of the concrete at the time the water and concrete come in contact.

### **2.02 FINISHING MATERIALS**

- A. Sealer: Siloxane based 96% chloride ion screen, Euco-Guard-100 by Euclid Chemical, SikaGard 701W by Sika Corporation or equivalent. Do not apply to surfaces cured with curing compounds, except for that specified in paragraph 2.01.B.
- B. Bonding Admixture: Latex, non-rewettable type SBR Latex or Flex-con by Euclid Chemical, Daraweld C by W.R. Grace or equivalent.
- C. Grout Paint: mix 1 part Portland Cement, 1.5 part fine sand, 50:50 mixture of bonding admixture to consistency of thick paint.
- D. Patching Mortar: 1 part of a mixture of white and grey Portland Cement to 2.5 parts of damp loose sand. Cement type to match substrate.

## 2.03 REPAIR MATERIALS

- A. Epoxy Adhesive: Armatec 110 by Sika Corporation, Corr-Bond by Euclid Chemical Company or equivalent.
- B. Repair Mortar: polymer improved, cementitious, 2 component, trowel grade mortar equal to Concrete Coat by Euclid Chemical; Sikatop 122 Plus by Sika Corp. or equivalent.

## **PART 3 - EXECUTION**

### 3.01 FINISHES

- A. Repair all holes and defects and allow to set prior to finishing concrete.
- B. Clean all exposed concrete surfaces and adjoining work stained by leakage of concrete.
- C. Finish concrete surfaces as scheduled.

### 3.02 FINISHING FLATWORK

- A. Screed to bring concrete surface to proper contour and elevation.
- B. Highway straightedge, bull float or darby float the concrete surface immediately after screeding.
- C. Allow bleed water to evaporate or remove.
- D. (STF) Steel Troweled Finish: Float the surface with magnesium or cast aluminum float or with a power finishing machine. Steel trowel surface immediately after floating to produce smooth surface. Steel trowel again after concrete has hardened enough so that mortar does not adhere to trowel edge. Ringing sound should be apparent when performing second troweling due to tilted, compacting motion.
- E. (WFF) Wood Float Finish: allow concrete to stiffen; float surface twice or more to a uniform sandy texture.
- F. (LBF) Light Broom Finish: wood float finish as in E above; while plastic draw a soft-bristled broom, over the concrete in long even strokes with downward pressure. Broom transverse to traffic or at right angles to the slope of the slab.
- G. Finish to receive concrete fill: do not bull float; remove water scum, laitance and loose aggregate from surface after concrete has started to harden with stiff bristle brush to partially expose coarse aggregate. Clean surface with brooms, water jets or air jets. Maintain

wet for 12 hours immediately before placing fill concrete. As fill concrete is placed and just ahead of placement, broom in grout paint to the damp concrete surface. Do not allow grout paint to set prior to placement of concrete fill.

### 3.03 FINISHING VERTICAL SURFACES

- A. (RFF) Rough Form Finish: Repair structural defects only and patch tie holes as specified in the paragraph titled "STRUCTURAL DEFECTS" in this Section. Fins exceeding 1/4 in. in height to be removed by grinding and/or rubbing.
- B. (SFF) Smooth Form Finish: The concrete surface shall be of uniform color, texture and free of all irregularities. The arrangement of the facing material shall be orderly and symmetrical, with the number of seams kept to the minimum. Material with raised grain, torn surfaces, worn edges, patches, dents, or other defects which will impair the texture of the concrete surface shall not be used. Remove fins flush by grinding and/or rubbing. Repair surface and structural defects as specified in the paragraphs titled "SURFACE DEFECTS" and "STRUCTURAL DEFECTS" in this Section.

### 3.04 MISCELLANEOUS CONCRETE SURFACE

- A. Curbs: Provide monolithic finish to curbs by stripping forms while concrete is still green and steel-troweling surfaces to a hard, dense finish with corners, intersections, and terminations chamfered.

### 3.05 CURING

- A. Curing: Curing shall begin immediately following the initial set of concrete or after slab surface finishing has been completed and shall continue after form removal. All concrete shall be cured to attain strength and durability by one of the following methods for a minimum of seven days after placement regardless of the ambient air temperature: See Schedule of Finishes and Curing Requirements in this Section:
  - 1. Moist Cure
    - a. Ponding or continuous sprinkling. Intermittent wetting and drying is not an acceptable curing method.
    - b. Application of absorptive mats of fabric kept continuously wet.

2. Application of concrete curing compounds. If applying slab sealing compounds, use dissipating resin curing compound. Allow dissipating resin curing compound to chemically break-down, and remove residuals and other foreign material, prior to applying slab sealing compound.
- B. Moisture loss from surfaces placed against wooden or metal forms exposed to heating by the sun shall be minimized by keeping the forms wet until they can be safely removed. After form removal, the concrete shall be cured by one of the methods described above, for the balance of time remaining as specified above.
- C. Cold Weather:
1. The use of ridge barriers for weather protection shall be used as required and as directed by the Town. Unless otherwise indicated, conform to ACI 306.
  2. Maintain concrete temperature between 50°F and 70°F for a minimum of seven days after placement. Enclose and heat, or insulate concrete as required.
  3. Protect concrete from damage due to concentrated heat sources to minimize local carbonation of the concrete surfaces. Combustion heaters shall be located so they do not apply heat directly to the concrete surfaces.
  4. For those surfaces requiring curing compounds, reapply curing compounds every two days during heating period or at greater frequencies as required by the manufacturer.
  5. The maximum allowable temperature drop of the concrete surfaces during the first 24 hours after the end of the curing period shall not exceed 5°F in any 1 hour and shall not exceed the following total gradual temperature drop in the first 24 hours:

Concrete Thickness			
Less than 12 in.	12 to 36 in.	36 to 72 in.	Greater than 72 in.
50 F	40 F	30 F	20 F

- D. Hot Weather:
1. Unless otherwise indicated, conform to ACI 305.

2. Concrete temperature as delivered to the project site shall not be greater than 90°F. Protect from loss of slump, flash set, plastic cracking and rapid evaporation of water.
3. Place concrete quickly, shade from direct sun and protect from wind. Concrete shall be cured for seven days after placement by one of the methods specified in this Section.

**3.07 SCHEDULE OF FINISHES AND CURING REQUIREMENTS**

- A. Provide finishes on concrete surfaces according to the following schedule:

SCHEDULE OF FINISHES AND CURING REQUIREMENTS		
Location	Finish	Curing Requirements
Walls / Vertical Surfaces		
Abutments, Retaining, Training Walls (interior and exterior faces)	SFF	Moist cure

**NOTES:**

1. When two (2) coats of materials are required as indicated above, second coat shall be applied perpendicular to the first coat.

**3.08 SURFACE DEFECTS**

- A. As soon as the forms have been stripped and the concrete surfaces exposed, allow the Town to inspect concrete surfaces. Excessive honeycombing is not considered acceptable. If approved by the Town, repair all surface defects. Surface defects include all form tie holes, minor honeycombed areas and surface blemishes including air voids and bug holes with a nominal diameter or depth greater than ¼ inch, visible construction joints, fins, burs and other defects. All concrete repair work shall result in a concrete surface of uniform color and texture, and shall be free of all irregularities. Honeycombed and/or rat holes larger than 50 cubic inches are considered a structural defect.
- B. Cut out and remove honeycombed areas and rock pockets down to solid concrete, but in no case to a depth less than 1 inch, by means of hand chisels or pneumatic chipping hammers. Saw cut the edges perpendicular to the surface. No feather-edges shall be allowed.
- C. Remove all loose aggregate paste and debris and scrub clean; thoroughly wet area to be repaired; brush and scrub grout paint into the substrate of the area to be repaired.

- D. Apply a stiff consistency of patching mortar to the area with a trowel; apply prior to the set of grout paint (but after it has cast its water sheen): leave patched surface slightly higher than surrounding surface; do not finish for 1 hour minimum. Cure in same manner as adjacent concrete.
- E. Mix patching mortar using as little water as possible; allow to stand with frequent manipulation of trowel to achieve stiffest consistency; blend white and gray Portland cement to achieve color match with surrounding concrete.
- F. Form Tie Holes: After cleaned and thoroughly dampened, apply grout paint and fill tie holes solid with patching mortar.
- G. Finished Flatwork exceeding specified tolerances:
  - 1. High areas shall be repaired by grinding after the concrete has cured 14 days.
  - 2. Low areas shall be repaired by cutting out low areas and replaced with concrete. Finish repair area to match adjacent concrete.

### 3.09 STRUCTURAL DEFECTS

- A. Remove and replace or repair all structural defects. Structural defects include honeycombed areas and/or rat holes greater than 50 cubic inches, areas which cracking, spalling or other signs of deterioration are present or develop during the initial curing or thereafter until accepted by the Town. The Contractor shall propose a specific repair method, suitable for the situation, and the Town will review the method prior to the repair.
- B. Cut out and remove defective concrete, honeycombed areas and rock pockets to sound concrete by means of hand chisels or pneumatic chipping hammers. Saw cut 1 inch minimum the edges perpendicular to the surfaces. If honeycomb exists around reinforcement, chip to provide a clear space at least 1 inch wide all around the reinforcement. Moisten surfaces and allow to dry until damp. Apply bonding agent. Apply a polymer-modified cement with 3/8 inch coarse aggregate. Cure as required by manufacturer.
- C. Random Cracks:
  - 1. Random shrinkage or structural cracks shall be repaired utilizing a low viscosity, 100% solids, two (2) component epoxy resin system. Remove all dust, debris or disintegrated material from crack or void by use of oil-free compressed air or vacuuming.



2. Crack or void must be dry at time of application. Cracks saturated with oil or grease must be chipped out to unsaturated concrete. "Vee" out cracks in horizontal surfaces slightly.
3. Where cracks extend through members and are accessible, seal bottom of crack which is to receive the epoxy. Apply epoxy in strict accordance with manufacturer's recommendations.
4. Patching of vertical wall or overhead cracks shall be accomplished in the same manner using a similar epoxy material of higher viscosity as recommended by the manufacturer.
5. Materials shall be as indicated in Part F below.

D. Excessive Cracking:

1. Excessive cracking shall be defined as areas containing racks averaging 1/64<sup>th</sup>-inch wide or greater, and in excess of 15 linear feet of cracks per 100 square feet of wall facing.
2. Materials shall be as indicated in Part F below.

E. Spalls:

1. All weakened, damaged or disintegrated concrete shall be removed to sound concrete. For defective areas involving only the surface and/or the finish of the concrete, refer to the paragraph titles "SURFACE DEFECTS" in this Section.
2. For spalled areas involving depths generally in excess of three (3) inches, utilize 3/8" peastone in the repair material.
3. Materials shall be as indicated in Part F below.

F. Repair Materials:

1. Repair materials shall be as indicated in the table below:

REPAIR MATERIALS			
Company	Random Cracks	Excessive Cracking	Spalls
Sika	Sidadur 35 Hi-Mod LV	SikaTop 121 Plus	SikaTop 121 Plus
L&M	Epoflex SL	Durathin Patch	Duracrete
Euco	Euco 8000	Concrete Coat	Eucocrete

NOTES:

1. All repair materials shall be installed in accordance with the manufacturer's recommendations.

2. All cracks that are wet (either damp or leaking) at the time of repair shall be repaired with a material that is specifically intended for wet repair as recommended by the manufacturer.
3. All spall repair material shall be bonded to the concrete with an epoxy adhesive material.
4. All repair materials in contact with potable water shall be NSF Standard 61 approved.

### 3.10 PROTECTION

- A. Protect concrete from high and low temperatures for seven days.
- B. Protect against vibration until concrete has attained 33% of its 28-day strength. Do not excavate rock within 100 feet of freshly placed concrete until concrete has attained 33% of its 28-day strength.
- C. Protect against premature loads until the 28-day strength has been attained.

## **PART 4 - MEASUREMENT AND PAYMENT**

### 4.01 MEASUREMENT FOR PAYMENT

- A. No measurement shall be made of any work performed under this Section.

### 4.02 PAYMENT

- A. No separate payment shall be made for any work performed under this section. The cost of any work done or facilities provided under this section shall be included under other Bid Items Section 03300 Cast-in-Place concrete.

**\* \* \* \* END OF SECTION \* \* \* \***

## SECTION 03604

### NON-SHRINK GROUT

#### PART 1 - GENERAL

##### 1.01 SECTION INCLUDES

- A. Non-shrink grouting.

##### 1.02 RELATED SECTIONS

- A. Section 01300 - Submittals
- B. Section 03300 - Cast-in-Place Concrete
- C. Section 03346 - Concrete Curing, Finishing and Repairs

##### 1.03 REFERENCES

- A. ASTM C33-03a - Specification For Concrete Aggregates
- B. ASTM C109/C109M-02 - Test Method For Compressive Strength of Hydraulic Cement Mortars
- C. ASTM C827-95a - Test Method For Changes In Height at Early Ages of Cylindrical Specimens From Cementitious Mixtures
- D. CRD-C611-80 - Test Method for Flow of Grout Mixtures
- E. CRD-C621-81 - Specification for Non-Shrink Grout

##### 1.04 SUBMITTALS

- A. Submit product data and material safety data sheets for products to be used.
- B. Submit test data when required.
- C. Submit manufacturer's installation instructions for products used.

##### 1.05 QUALITY ASSURANCE

- A. Conform to Army Corps of Engineers Specification CRD-C621-81.

- B. Grouts shall exhibit non-shrink characteristics when tested according to ASTM C827.

#### 1.06 DELIVERY, STORAGE AND HANDLING

- A. Deliver in sealed, labeled containers.
- B. Store in dry conditions above freezing and below 90°F.
- C. Keep unused portions of opened containers dry and warm.
- D. Store aggregate covered and protected from the elements.

#### 1.07 ENVIRONMENTAL CONDITIONS

- A. Do not place grout when exposed to precipitation or in wet conditions.
- B. Place grout when temperature of substrate and ambient air are above 40°F and below 90°F.
- C. Place grout outside these limits when approved by heating substrates, enclosing work, shading, cooling or other measure to mitigate adverse weather conditions.

### **PART 2 - PRODUCTS**

#### 2.01 MATERIALS

- A. Aggregates: ASTM C33 fine aggregate, washed.
- B. Pea Stone: ASTM C33 coarse aggregate, size number 8 (max. size 0.375 inches), washed.
- C. Water: Potable, from municipal water supply.

#### 2.02 GROUT FOR INSTALLING DOWELS AND ANCHOR RODS

- A. Grout shall be Super Por-Rok by Minwax Construction Products, Crystex by L&M Construction Chemicals, Masterflow 713 by Master Builders, or approved equivalent.

## 2.03 TESTS

- A. All grouts shall achieve a minimum 28 day strength of 6,000 psi according to ASTM C109.
- B. Grouts when tested by flow cone according to CRD-C 611-80 shall take more than 20 seconds to flow as a maximum limit on fluidity.
- C. Test grout when requested.

## **PART 3 - EXECUTION**

### 3.01 PREPARATION

- A. Clean substrates of loose aggregate, dust, laitance, dirt, oil, grease by bush-hammering, chipping or brushing.
- B. Thoroughly dampen the concrete substrate.
- C. Follow manufacturer's instructions.
- D. Heat the substrate, enclose the area or make other necessary preparations.
- E. Install leak-proof forms, if necessary, to retain grout in shapes shown on the Contract Drawings.

### 3.02 MIXING

- A. Mix only as much grout as can be placed in 20 minutes.
- B. Mix according to manufacturer's instructions.
- C. Minimize water for the application.
- D. Add no more water after mixing.
- E. Do not exceed maximum flowability of the product as specified by the manufacturer.

### 3.03 PLACING

- A. Place quickly and continuously by pouring, pumping or by gravity pressure.
- B. Dry pack placement shall not be permitted without prior approval by the Town.

- C. Install horizontal anchor bolts or dowels using a trowel consistency grout.
- D. Place grout so as to avoid entrapping excess air.
- E. Trim grout shoulders.

### 3.04 CURING

- A. Moist cure for 3 days.
- B. Cover with moist cloths, curing blankets or curing compound.

### 3.05 PROTECTION

- A. Protect from vibration due to adjacent operations until the grout is well set up.
- B. Protect bolts and dowels from force or impact until grout has achieved 50% of its 28 day strength.

## **PART 4 - MEASUREMENT AND PAYMENT**

### 4.01 MEASUREMENT FOR PAYMENT

- A. No measurement shall be made of any work performed under this Section.

### 4.02 PAYMENT

- A. No separate payment shall be made for any work performed under this section. The cost of any work done or facilities provided under this section shall be included under other Bid Items in Section 03300 Cast-in-Place concrete.

**\* \* \* \* END OF SECTION \* \* \* \***