CONTRACT DOCUMENTS AND TECHNICAL SPECIFICATIONS

HOP BROOK CULVERT REPLACEMENT
WARREN WRIGHT ROAD
BELCHERTOWN, MASSACHUSETTS

Prepared for:

Town of Belchertown
290 Jackston Street
Belchertown, MA 01007

MAY 2026

FUSS & O'NEILL

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ADVERTISEMENT FOR BIDS

The **Town of Belchertown** is requesting Bids for the construction of the following Project:

HOP BROOK CULVERT REPLACEMENT
WARREN WRIGHT ROAD

Sealed bids for the project will be received electronically at www.projectdog.com (Project Code # 874482) not later than **3:00 PM** local time on **June 4, 2026** at which time the bids will be opened publicly online. It is the sole responsibility of the bidder to ensure that the bid is submitted online prior to the bid opening time.

The Work for this Project includes, but is not limited to: replacement of the existing Warren Wright Road culvert crossing of Hop Brook (Bridge No. B-05-028), raising of Warren Wright Road, and the addition of a terrestrial organism passage. Work items include excavation and off-site disposal; installation of a bridge crossing and culvert; construction of gabion basket retaining walls; removal, raising, and reconstruction of Warren Wright Road; and restoration of the site.

Bid Forms and Contract Documents shall be available online at www.projectdog.com at project code # 874482. Please see the Projectdog E-Bidding Instructions to Bidders for additional details. Neither Owner nor Engineer will be responsible for full or partial sets of Bidding Documents, including Addenda if any, obtained from sources other than Projectdog, Inc.

Attendance at the pre-bid meeting is strongly recommended but is not mandatory. The **voluntary pre-bid conference** and site visit will be held at **11:00 AM** local time on **May 14, 2026**. Bidders should meet at the southwest corner of Orchard Road and Warren Wright Road, Belchertown, MA 01007.

Bidders requiring clarification or interpretation of the contract documents shall make a written request to the Akta Patel, at akta.patel@fando.com, prior to **4:00 PM local time on May 21, 2026**. Clarifications will be provided by **4:00 PM local time on May 28, 2026**.

Bids will be received for a single prime Contract. Bids shall be on a unit price basis as indicated in the Bid Form. For all further requirements regarding bid submittal, questions, qualifications, procedures, and contract award, refer to the Instructions to Bidders that are included in the Bidding Documents. Telephone inquiries are unacceptable.

The minimum wages to be paid for all labor on the project are established in a schedule issued by the Department of Labor and Workforce Development, in accordance with Section 26A- 27D, or Chapter 149 of the M.G.L., as amended. Said schedule(s) are included in the bid package.

It is the responsibility of the Contractor, before Bid opening, to request, if necessary, any additional information on Minimum Wage Rates for those trades people who may be employed for the proposed Work under this Contract. Materials, equipment and supplies to be used on this project are exempt from sales tax to the extent provided by M.G.L. Chapter 64H, Section 6 (f).

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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. The issuing office is the Town of Belchertown, Massachusetts.

B. *Successful Bidder* – The Bidder submitting a response Bid to whom the Owner (on the basis of Owner's evaluation as hereinafter provided) makes an award.

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 *Electronic Documents*

A. Bidding 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. 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.

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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 2.04 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. AutoCAD drawings as needed for project layout

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 must submit the qualifications statement (Section 00 45 13 "Bidder's Qualifications") and reference form (Section 00 45 14 "Bidder's Reference Form") demonstrating qualifications to do the work as part of their bid. Bidders must list a minimum of three and a maximum of five projects completed in the last 5 years and provide indicated information to demonstrate the Bidder's experience with projects similar in type and cost of construction.

3.02 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.

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C. Bidder's state or other contractor license number, if applicable.

D. Subcontractor and Supplier qualification information.

E. Other required information regarding qualifications.

3.03 A Bidder's failure to submit required qualification information within the times indicated may disqualify Bidder from receiving an award of the Contract.

3.04 No requirement in this Article 3 to submit information will prejudice the right of Owner to seek additional pertinent information regarding Bidder's qualifications.

3.05 Bidder is advised to carefully review those portions of the Bid Form requiring Bidder's representations and certifications.

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. 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

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structures at or adjacent to the Site (except Underground Facilities), that contain Technical Data.

c. Reports and drawings known to Owner relating to Hazardous Environmental Conditions that have been identified at or adjacent to the Site.

d. Technical Data contained in such reports and drawings.

2. Owner will make 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.

4. *Geotechnical Baseline Report/Geotechnical Data Report:* The Bidding Documents contain a Geotechnical Baseline Report (GBR) and Geotechnical Data Report (GDR).

a. As set forth in the Supplementary Conditions, the GBR describes certain select subsurface conditions that are anticipated to be encountered by Contractor during construction in specified locations ("Baseline Conditions"). The GBR is a Contract Document.

b. The Baseline Conditions in the GBR are intended to reduce uncertainty and the degree of contingency in submitted Bids. However, Bidders cannot rely solely on the Baseline Conditions. Bids should be based on a comprehensive approach that includes an independent review and analysis of the GBR, all other Contract Documents, Technical Data, other available information, and observable surface conditions. Not all potential subsurface conditions are baselined.

c. Nothing in the GBR is intended to relieve Bidders of the responsibility to make their own determinations regarding construction costs, bidding strategies, and Bid prices, nor of the responsibility to select and be responsible for the means, methods, techniques, sequences, and procedures of construction, and for safety precautions and programs incident thereto.

d. As set forth in the Supplementary Conditions, the GDR is a Contract Document containing data prepared by or for the Owner in support of the GBR.

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.

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5.03 *Site Visit and Testing by Bidders*

A. Bidder is encourage 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 during the pre-bid conference.

C. Bidders visiting the Site are required to arrange their own transportation to the Site.

D. Bidder is not required to conduct any subsurface testing, or exhaustive investigations of Site conditions.

E. 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.

F. 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.

G. 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.

5.04 *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.

5.05 *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

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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.

6.02 *It is the responsibility of each Bidder before submitting a Bid to:*

A. examine and carefully study the Bidding Documents, and any data and reference items identified in the Bidding Documents;

B. visit the site, conduct a thorough, alert visual examination of the site and adjacent areas, and become familiar with and satisfy itself as to the general, local, and site conditions that may affect cost, progress, and performance of the Work;

C. become familiar with and satisfy itself as to all Laws and Regulations that may affect cost, progress, and performance of the Work;

D. carefully study all: (1) reports of explorations and tests of subsurface conditions at or adjacent to the site and all drawings of physical conditions relating to existing surface or subsurface structures at the site that have been identified in the Supplementary Conditions, especially with respect to Technical Data in such reports and drawings.

E. consider 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 site-related reports and drawings identified in the Bidding Documents, with respect to the effect of such information, observations, and documents on (1) the cost, progress, and performance of the Work; (2) the means, methods, techniques, sequences, and procedures of construction to be employed by Bidder; and (3) Bidder's safety precautions and programs;

F. agree, based on the information and observations referred to in the preceding paragraph, that at the time of submitting its Bid no further examinations, investigations, explorations, tests, studies, or data are necessary for the determination of its Bid for performance of the Work at the price bid and within the times required, and in accordance with the other terms and conditions of the Bidding Documents;

G. become aware of the general nature of the work to be performed by Owner and others at the site that relates to the Work as indicated in the Bidding Documents;

H. promptly give Designer written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder discovers in the Bidding Documents and confirm that the written resolution thereof by Designer is acceptable to Bidder;

I. determine that the Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for the performance and furnishing of the Work; and

J. agree that the submission of a Bid will constitute an incontrovertible representation by Bidder that Bidder has complied with every requirement of this Article, that without

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exception the Bid and all prices in the Bid are premised upon performing and furnishing the Work required by the Bidding Documents.

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 as noted in the Advertisement to Bidders. Contact information and submittal procedures for such questions are as follows:

A. Submit all questions in writing to **Akta Patel, P.E., Project Manager, Fuss & O'Neill, at akta.patel@fando.com**. All questions must be received by **4 PM on May 21, 2026**. All questions and responses will be issued to registered bidders by **4 PM on May 28, 2026**.

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 after the time identified in 7.02 A above may not be answered. Bidders are responsible for determining that they have received all Addenda issued.

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 Owner in an amount of **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.

8.02 The Bid security of the apparent Successful Bidder will be retained until 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 may be retained by Owner until the earlier of 7 days after the Effective Date of the

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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. Due to the limited time constraints for this project and the terms of the grant, completion for **final payment by June 1, 2027** is extremely important.

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 The apparent Successful Bidder, and any other Bidder so requested, must submit to Owner a list of any Subcontractors or Suppliers proposed for any portions of the Work within five days after Bid opening.

11.02 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

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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.

11.03 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. A Bid price must be indicated for each section, Bid item, alternate, adjustment unit price item, and unit price item listed therein.

B. If the Bid Form expressly indicates that submitting pricing on a specific alternate item is optional, and Bidder elects to not furnish pricing for such optional alternate item, then Bidder may enter the words "No Bid" or "Not Applicable."

12.02 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.

12.03 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.

12.04 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.

12.05 A Bid by an individual must show the Bidder's name and official address.

12.06 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.

12.07 The Bid must contain an acknowledgment of receipt of all Addenda, the numbers of which must be filled in on the Bid Form.

12.08 Postal and e-mail addresses and telephone number for communications regarding the Bid must be shown.

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12.09 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.

12.10 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 *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.

13.02 *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 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.

14.02 Bidding procedures shall be in accordance with the provisions of Massachusetts General Laws (Ter. Ed.) M.G.L. Chapter 149, Sections 44A- 44J, inclusive, as amended. Said statutes are hereby made a part of these INSTRUCTIONS TO BIDDERS to the same extent as though herein reproduced in full. In the event of any inconsistency between the provisions of these Contract Documents and

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any of the cited statutes, anything herein to the contrary notwithstanding, the provisions of said statutes shall govern.

14.03 Bid Forms will be posted online at www.Projectdog.com. All required Bid Forms must be completed and submitted in unrestricted PDF formatted files. The Bidder must fill-in all required fields and signatures either digitally or manually (print, fill-in, and scan to PDF).

14.04 The Bidder shall access the Projectdog.com E-Bidding System by entering the **Project Code 874482** in the project locator box and then selecting "GC E-Bid" from the project's "Project Details" page. The Bidder must enter their bid price as a numeric, whole dollar value only with no punctuation. The E-Bidding system automatically translates the numeric value into words and displays the bid price in both figures and words on the submitted bid form.

14.05 Bidders may upload ("Add File" or "Replace File"), review ("View File"), Save, submit ("Submit my E-Bid"), or retract ("Retract my E-Bid") their E-Bid at any time prior to the designated deadline. The server clock is displayed on the project's E-Bidding page and is the time of record. Bidders must select "Submit my E-Bid" prior to the designated deadline to officially submit their E-Bid online. Once submitted, an E-Bid cannot be edited. To modify a submitted E-Bid, Bidders must retract their submission, make and Save any changes, and then submit the updated E-Bid. Upon submitting or retracting their E-Bid, Bidders will receive a convenience e-mail for informational purposes only. Bidders are encouraged to contact Projectdog if the email is not received.

14.06 Bidders are strongly encouraged to review their submitted E-Bid package by selecting "View My Bid Package" from the project's E-Bidding page. Uploaded files may be reviewed individually by selecting "View File". It is the Bidder's responsibility to confirm online that their E-Bid package has been submitted successfully. Timely submission of an E-Bid shall be the full responsibility of the Bidder. It is also the Bidder's responsibility to ensure that their submitted bid is 100% true, complete, and accurate.

ARTICLE 15—MODIFICATION AND WITHDRAWAL OF BID

15.01 Any bid may be withdrawn (retracted) prior to the designated deadline by selecting "Retract My E-Bid" from the project's E-Bidding page. Upon retracting, the Bidder will receive a convenience email for informational purposes only. It is the Bidder's responsibility to review and confirm online that their bid has been retracted successfully.

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 If within 24 hours after Bids are opened any Bidder files a duly signed written notice with Owner and promptly thereafter demonstrates to the reasonable satisfaction of Owner that there was a material and substantial mistake in the preparation of its Bid, the Bidder may withdraw its Bid,

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and the Bid security will be returned. Thereafter, if the Work is rebid, the Bidder will be disqualified from further bidding on the Work.

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.

16.02 Once the bid deadline has closed the E-Bid links are no longer available. All E-Bids are compiled in real time upon bid close and published forthwith on the "Project Details" page titled as "List of Bids Received". Official bid tabulations are posted at the discretion of the Awarding Authority

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 Owner finds, after reasonable inquiry and evaluation, to not be responsible or qualified.

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, then the Owner may reject the Bid as nonresponsive; provided that Owner also reserves the right to waive all minor informalities not involving price, time, or changes in the Work.

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

18.05 *Evaluation of Bids*

A. In evaluating Bids, Owner will consider whether the Bids comply with the prescribed requirements, and such alternates, 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.

18.06 In evaluating whether a Bidder is responsible, Owner will consider the qualifications of the Bidder and may consider the qualifications and experience of Subcontractors and Suppliers proposed for

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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 Owner deems necessary to establish the responsibility, qualifications, and financial ability of Bidders and any proposed Subcontractors or Suppliers.

ARTICLE 19—PROJECT CONTINGENCIES

19.01 No Damages for Non-Award: Bidders acknowledge that the Owner shall have no liability for any costs incurred in the preparation or submission of Bids, or for any other costs incurred in anticipation of award of the Contract, if the Project is delayed, modified, or canceled due to failure to satisfy these conditions.

ARTICLE 20—BONDS AND INSURANCE

20.01 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.

20.02 Article 8, Bid Security, of these Instructions, addresses any requirements for providing bid bonds as part of the bidding process.

ARTICLE 21—SIGNING OF AGREEMENT

21.01 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 15 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 22—MINIMUM WAGE RATES

22.01 Minimum Wage Rates as determined by the Commissioner of Department of Workforce Development under the provision of the Massachusetts General Laws, Chapter 149, Sections 26 to 27D, as amended, apply to this project. It is the responsibility of the contractor, before bid opening, to request if necessary, any additional information on Minimum Wage Rates for those

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trades people who may be employed for the proposed work under this contract. See Section 00 82 00 for Prevailing Wage Rates.

ARTICLE 23—SALES AND USE TAXES

23.01 Owner is exempt from Massachusetts state sales and use taxes on materials and equipment to be incorporated in the Work. Said taxes must not be included in the Bid. Refer to Paragraph SC-7.10 of the Supplementary Conditions for additional information.

ARTICLE 24—DELETION OF ITEMS

24.01 Owner reserves the right to reduce project scope by the elimination of Bid items, reduction of quantities on unit price Bid items, or deleting elements of lump sum Bid items. No adjustment to other Bid items prices will be permitted. In the case of a reduction of quantities on unit price items, the unit price will not be adjusted. Such adjustments to project scope will be determined prior to award of the Contract and will be negotiated with the apparent Successful Bidder only. If such negotiations are not satisfactory to Owner, Owner may reject all Bids.

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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 Belchertown, 290 Jackson Street, Belchertown, MA 01007.**

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 bond;

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;

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

3.01 *Lump Sum Bids*

A. Deleted.

3.02 *Unit Price Bids*

A. Bidder will perform the following Work at the indicated unit price in the attached bid schedule.

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.

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

Total Bid Price (Total of all Unit Price Bids)	$
Completion Date for Final Payment	

ARTICLE 4—DELETED

ARTICLE 5—DELETED

ARTICLE 6—TIME OF COMPLETION

6.01 Bidder agrees that the Work will be ready for Final Payment by **May 31, 2025.**

6.02 Deleted.

6.03 Deleted.

6.04 Bidder accepts the provisions of the Agreement as to liquidated damages.

ARTICLE 7—BIDDER'S ACKNOWLEDGEMENTS: ACCEPTANCE PERIOD, INSTRUCTIONS, AND RECEIPT OF ADDENDA

7.01 *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.

7.02 *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.

7.03 *Receipt of Addenda*

A. Bidder hereby acknowledges receipt of the following Addenda:

Addendum Number	Addendum Date

ARTICLE 8—BIDDER'S REPRESENTATIONS AND CERTIFICATIONS

8.01 *Bidder's Representations*

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

1. Bidder has examined and carefully studied the Bidding Documents, including Addenda.

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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.

8.02 *Bidder's Certifications*

A. The Bidder certifies the following:

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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: _____

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_____
(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) _____

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BID SCHEDULE

Item No.	Description	Unit	Estimated Quantity	Bid Unit Price	Bid Amount
101.	CLEARING AND GRUBBING	A	0.3		$
103.	TREE REMOVED - DIAMETER UNDER 24 INCHES	EA	10		$
104.	TREE REMOVED - DIAMETER 24 INCHES AND OVER	EA	1		$
115.1*	DEMOLITION OF BRIDGE NO. B-05-028 (5KR)	LS	1		$
120.	EARTH EXCAVATION	CY	180		$
121.	CLASS A ROCK EXCAVATION	CY	10		$
123.	MUCK EXCAVATION	CY	1585		$
129.2*	OLD PAVEMENT EXCAVATION	SY	1650		$
140.1	BRIDGE EXCAVATION WITHIN COFFERDAM	CY	310		$
150.	ORDINARY BORROW	CY	930		$
151.	GRAVEL BORROW	CY	580		$
151.2	GRAVEL BORROW FOR BACKFILLING STRUCTURES AND PIPES	CY	715		$
156.	CRUSHED STONE	TON	57		$
156.1	CRUSHED STONE FOR BRIDGE FOUNDATIONS	TON	130		$
157.1*	GABIONS	CY	120		$
170.	FINE GRADING AND COMPACTING - SUBGRADE AREA	SY	1650		$
190.1*	CONSTRUCTION PHASE BORINGS	FT	30		$
402.	DENSE GRADED CRUSHED STONE FOR SUB-BASE	CY	230		$

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Item No.	Description	Unit	Estimated Quantity	Bid Unit Price	Bid Amount
402.12*	DENSE GRADED CRUSHED STONE FOR SHOULDERS	CY	120		$
440.	CALCIUM CHLORIDE FOR ROADWAY DUST CONTROL	LB	6410		$
443	WATER FOR ROADWAY DUST CONTROL	MGL	7		$
450.231	SUPERPAVE SURFACE COURSE - 12.5 POLYMER (SSC - 12.5- P)	TON	180		$
450.31	SUPERPAVE INTERMEDIATE COURSE - 12.5 (SIC - 12.5)	TON	225		$
452.	ASPHALT EMULSION FOR TACK COAT	GAL	225		$
453.	HMA JOINT ADHESIVE	FT	45		$
620.131	GUARDRAIL, DEEP POST (SINGLE FACED)	FT	697		$
627.1	TRAILING ANCHORAGE	EA	2		$
627.82	GUARDRAIL TANGENT END TREATMENT, TL-2	EA	2		$
628.24	TRANSITION TO BRIDGE RAIL	EA	4		$
697.	SEDIMENTATION FENCE	FT	900		$
698.1*	GEOTEXTILE FABRIC FOR STABILIZATION	SY	800		$
698.3*	GEOTEXTILE FABRIC FOR SEPARATION	SY	785		$
734.*	SIGN REMOVED AND RESET	EA	1		$
748.	MOBILIZATION	LS	1		$
748.1*	TEMPORARY ACCESS ROAD FOR USE BY NATIONAL GRID	LS	1		$
751.	LOAM FOR ROADSIDES	CY	105		$
765.	SEEDING	SY	0		$

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Item No.	Description	Unit	Estimated Quantity	Bid Unit Price	Bid Amount
765.1*	VINE - VIRGINIA CREEPER	EA	120		$
765.554*	SEEDING - WETLAND MIX	LB	2		$
767.121*	SEDIMENT CONTROL BARRIER	FT	964		$
833.7	DELINEATION FOR GUARDRAIL TERMINAL	EA	4		$
851.11*	TRAFFIC CONES FOR TRAFFIC MANAGEMENT	LS	1		$
852.	SAFETY SIGNING FOR TRAFFIC MANAGEMENT	SF	220		$
853.1	PORTABLE BREAKAWAY BARRICADE TYPE III	EA	2		$
853.2	TEMPORARY BARRIER (TL-2)	FT	44		$
859.1*	REFLECTORIZED DRUM	LS	1		$
866.106	6 INCH REFLECTORIZED WHITE LINE (THERMOPLASTIC)	FT	1200		$
983.01*	STOCKPILE AND PLACEMENT OF NATURAL STREAMBED MATERIAL	CY	40		$
983.011*	STOCKPILE AND PLACEMENT OF WETLAND MATERIAL	CY	15		$
983.02*	SUPPLEMENTAL NATURAL STREAMBED MATERIAL	CY	20		$
983.03*	STONE SCOUR PROTECTION FHWA CLASS II	TON	230		$
983.031*	STONE SCOUR PROTECTION FHWA CLASS I	TON	65		$
990.1*	COFFERDAM STRUCTURE - BRIDGE NO. B-05-028	LS	1		$
990.11*	COFFERDAM STRUCTURE - CULVERT TERRESTRIAL PASSAGE	LS	1		$
991.1*	CONTROL OF WATER - STRUCTURE NO. B-05-028	LS	1		$
991.11*	CONTROL OF WATER - CULVERT TERRESTRIAL PASSAGE	LS	1		$

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Item No.	Description	Unit	Estimated Quantity	Bid Unit Price	Bid Amount
995.01*	BRIDGE STRUCTURE, BRIDGE NO. B-05-028	LS	1		$
995.011*	CULVERT STRUCTURE, TERRESTRIAL PASSAGE	LS	1		$

TOTAL BASE BID $_____

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BID BOND (PENAL SUM FORM)

Bidder Name: Address *(principal place of business)*:	**Surety** Name: Address *(principal place of business)*:
Owner Name: **Town of Belchertown** Address *(principal place of business)*: **290 Jackson Street** **P.O. Box 306** **Belchertown, MA 01007-06070**	**Bid** Project *(name and location)*: **Hop Brook Culvert Replacement** **Warren Wright Road** **Belchertown, MA** Bid Due Date: **June 4, 2026**
Bond 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
_____ *(Full formal name of Bidder)*	_____ *(Full formal name of Surety) (corporate seal)*
By: _____ *(Signature)*	By: _____ *(Signature) (Attach Power of Attorney)*
Name: _____ *(Printed or typed)*	Name: _____ *(Printed or typed)*
Title: _____	Title: _____
Attest: _____ *(Signature)*	Attest: _____ *(Signature)*
Name: _____ *(Printed or typed)*	Name: _____ *(Printed or typed)*
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.	

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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

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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.

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CERTIFICATE OF STATE TAX COMPLIANCE

Pursuant to Massachusetts General Laws, Chapter 62C, Section 49A

_____, authorized signatory for
NAME OF SIGNATORY

_____, whose
NAME OF CONTRACTOR

principal place of business is at _____,

_____does hereby certify under the pains and penalties of perjury that

_____ has paid all
NAME OF CONTRACTOR

Massachusetts taxes and has complied with all laws of the Commonwealth of Massachusetts relating to taxes, reporting of employees and contractors, and withholding and remitting child support.

_____

Signature Date

_____

Print Name

_____

Federal Tax ID # or Social Security #

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SECTION 00 45 13 – BIDDER'S QUALIFICATIONS

ARTICLE 1—GENERAL INFORMATION

1.01 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:			

1.02 Provide information on the Business's organizational structure:

Form of Business:	☐ Sole Proprietorship ☐ Partnership ☐ Corporation		
☐ Limited Liability Company ☐ Joint Venture comprised of the following companies:			
	1.		
	2.		
	3.		
Provide a separate Qualification Statement for each Joint Venturer.			
Date Business was formed:		State in which Business was formed:	
Is this Business authorized to operate in the Project location?	☐ Yes ☐ No ☐ Pending		

1.03 Identify all businesses that own Business in whole or in part (25% or greater), or that are wholly or partly (25% or greater) owned by Business:

Name of business:		Affiliation:	
Address:			
Name of business:		Affiliation:	
Address:			

Name of business:		Affiliation:	
Address:			

1.04 Provide information regarding the Business's officers, partners, and limits of authority.

Name:		Title:	
Authorized to sign contracts: ☐ Yes ☐ No		Limit of Authority:	$
Name:		Title:	
Authorized to sign contracts: ☐ Yes ☐ No		Limit of Authority:	$
Name:		Title:	
Authorized to sign contracts: ☐ Yes ☐ No		Limit of Authority:	$
Name:		Title:	

ARTICLE 2—LICENSING

2.01 Provide information regarding licensure for Business:

Name of License:			
Licensing Agency:			
License No:		Expiration Date:	
Name of License:			
Licensing Agency:			
License No:		Expiration Date:	

ARTICLE 3—DIVERSE BUSINESS CERTIFICATIONS

3.01 Provide information regarding Business's Diverse Business Certification, if any. Provide evidence of current certification.

Certification	Certifying Agency	Certification Date
☐ Disadvantaged Business Enterprise		
☐ Minority Business Enterprise		
☐ Woman-Owned Business Enterprise		
☐ Small Business Enterprise		
☐ Disabled Business Enterprise		
☐ Veteran-Owned Business Enterprise		
☐ Service-Disabled Veteran-Owned Business		

☐ HUBZone Business (Historically Underutilized) Business			
☐ Other			
☐ None			

ARTICLE 4—SAFETY

4.01 Provide information regarding Business's safety organization and safety performance.

Name of Business's Safety Officer:	

Safety Certifications		
Certification Name	Issuing Agency	Expiration

4.02 Provide Worker's Compensation Insurance Experience Modification Rate (EMR), Total Recordable Frequency Rate (TRFR) for incidents, and Total Number of Recorded Manhours (MH) for the last 3 years and the EMR, TRFR, and MH history for the last 3 years of any proposed Subcontractor(s) that will provide Work valued at 10% or more of the Contract Price. Provide documentation of the EMR history for Business and Subcontractor(s).

Year									
Company	EMR	TRFR	MH	EMR	TRFR	MH	EMR	TRFR	MH

ARTICLE 5—FINANCIAL

5.01 Provide information regarding the Business's financial stability. Provide the most recent audited financial statement, and if such audited financial statement is not current, also provide the most current financial statement.

Financial Institution:		
Business address:		
Date of Business's most recent financial statement:		☐ Attached
Date of Business's most recent audited financial statement:		☐ Attached
Financial indicators from the most recent financial statement		
Contractor's Current Ratio (Current Assets ÷ Current Liabilities)		

Contractor's Quick Ratio ((Cash and Cash Equivalents + Accounts Receivable + Short Term Investments) ÷ Current Liabilities)	

ARTICLE 6—SURETY INFORMATION

6.01 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?	☐ Yes ☐ 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? ☐ Yes ☐ No			
Mailing Address (principal place of business):			
Physical Address (principal place of business):			
Phone (main):		Phone (claims):	

ARTICLE 7—INSURANCE

7.01 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?	☐ Yes ☐ No
Does provider have an A.M. Best Rating of A-VII or better?	☐ Yes ☐ No
Mailing Address (principal place of business):	
Physical Address	

(principal place of business):			
Phone (main):		Phone (claims):	

ARTICLE 8—CONSTRUCTION EXPERIENCE

8.01 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:	

8.02 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? ☐ Yes ☐ No				
Been barred from contracting by any local, state, or federal agency within the last 5 years? ☐ Yes ☐ No				
Been released from a bid in the past 5 years? ☐ Yes ☐ No				
Defaulted on a project or failed to complete any contract awarded to it? ☐ Yes ☐ No				
Refused to construct or refused to provide materials defined in the contract documents or in a change order? ☐ Yes ☐ No				
Been a party to any currently pending litigation or arbitration? ☐ Yes ☐ No				
Provide full details in a separate attachment if the response to any of these questions is Yes.				

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

8.04 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.

8.05 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 9—REQUIRED ATTACHMENTS

9.01 Provide the following information with the Statement of Qualifications:

A. If Business is a Joint Venture, separate Qualifications Statements for each Joint Venturer, as required in Paragraph 1.02.

B. Diverse Business Certifications if required by Paragraph 3.01.

C. Certification of Business's safety performance if required by Paragraph 4.02.

D. Financial statements as required by Paragraph 5.01.

E. Attachments providing additional information as required by Paragraph 8.02.

F. Schedule A (Current Projects) as required by Paragraph 8.03.

G. Schedule B (Previous Experience with Similar Projects) as required by Paragraph 8.04.

H. Schedule C (Key Individuals) and resumes for the key individuals listed, as required by Paragraph 8.05.

I. 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					

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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					

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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					

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Designer					
Construction Manager					

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Schedule C—Key Individuals

Project Manager			
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	
Project Superintendent			
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	

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Candidate's role on project		Candidate's role on project	

Safety Manager			
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	
Quality Control Manager			
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	

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Telephone		Telephone	
Email		Email	
Project		Project	
Candidate's role on project		Candidate's role on project	

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SECTION 00 45 14 – BIDDER'S REFERENCE FORM

Bidder's Name: _____

Project Title: **Hop Brook Culvert Replacement**

The bidder must provide five (5) business references for similar projects performed & completed within the past five (5) years. Include dam removal work, as well as applicable ecological restoration and/or in-water work.

(1) Reference Name:_____ Contact: _____

Address:_____ Phone: ( ) _____

Contract Value: _____ Prime or Subcontractor: _____

Description and date(s) of work:

_____

_____

(2) Reference Name:_____ Contact: _____

Address:_____ Phone: ( ) _____

Contract Value: _____ Prime or Subcontractor: _____

Description and date(s) of work:

_____

_____

(3) Reference Name:_____ Contact: _____

Address:_____ Phone: ( ) _____

Contract Value: _____ Prime or Subcontractor: _____

Description and date(s) of work:

_____

_____

(4) Reference Name:_____ Contact: _____

Address:_____ Phone: ( ) _____

Contract Value: _____ Prime or Subcontractor: _____

Description and date(s) of work:

_____

_____

(5) Reference Name:_____ Contact: _____

Address:_____ Phone: ( ) _____

Contract Value: _____ Prime or Subcontractor: _____

Description and date(s) of work:

_____

_____

References will be contacted to confirm the bidder's skills, abilities and qualifications to faithfully perform the work specified. The Authority reserves the right to contact references not listed above. The Bidder will be given the opportunity to explain any unfavorable references received from such outreach.

SECTION 00 45 19 - NON-COLLUSION AFFIDAVIT OF BIDDER

Commonwealth of: _____

County of: _____

_____; being first duly sworn, deposes and says that:

1) They are (owner, partner, officer, representative or agent) of _____ , the Bidder that has submitted the attached Bid:

2) They are fully informed regarding the preparation and contents of the attached Bid and of all pertinent circumstances regarding such Bid:

3) Such Bid is genuine and is not a collusive or sham Bid:

4) Neither the said Bidder nor any of its officers, partners, owner, agents, representatives, employees or parties in interest, including this affiant, has in any way colluded, conspired, connived, or agreed, directly or indirectly with any other Bidder, firm or person to submit a collusive or sham Bid in connection with the Contract for which the attached Bid has been submitted or to refrain from bidding in connection with such Contract, or has in any manner, directly or indirectly, sought by agreement or collusion or communication or conference with any other Bidder, firm or person to fix the price or prices in the attached Bid or of any Bidder, or to fix any overhead, profit or cost element of the bid price or the bid price of any other Bidder or to secure through any collusion, conspiracy, connivance or unlawful agreement any advantage with the Owner or any person interested in the proposed Contract.

5) The price quoted in the attached Bid is fair and proper and is not tainted by collusion, conspiracy, connivance or unlawful agreement on the part of the Bidder or any of its agents, representatives, owners, employees, or parties in interest.

Signed: _____

Title: _____

Subscribed and sworn before me this _____ day of _____ , 20 _____ .

Notary Public: _____

My Commission expires: _____

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SECTION 00 51 00 – NOTICE OF AWARD

Date of Issuance:

Owner:	Town of Belchertown	Owner's Contract No.:	-
Designer:	Fuss & O'Neill, Inc.	Designer's Project No.:	120.0170390.070
Project:	**Hop Brook Culvert Replacement**	Contract Name:	-

Bidder:

Bidder's Address:

TO BIDDER:

You are notified that Owner has accepted your Bid dated [_____] for the above Contract, and that you are the Successful Bidder and are awarded a Contract for:

_____.

[describe Work, alternates, or sections of Work awarded]

The Contract Price of the awarded Contract is: $_____ *[note if subject to unit prices, or cost-plus]*

[ ] 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. *[revise if multiple copies accompany the Notice of Award]*

☐ a set of the 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, fully executed by Bidder
2. Deliver with the executed Agreement(s) the Contract security *[e.g., performance and payment bonds]* and insurance documentation as specified in the Instructions to Bidders and 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 ten days after you comply with the above conditions, Owner will return to you one fully executed counterpart of the Agreement, together with any additional copies of the Contract Documents as indicated in Paragraph 2.02 of the General Conditions.

_____

Authorized Signature

By:

Title:

Date:

Copy: Fuss & O'Neill, Inc.

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

This Agreement is by and between the **Town of Belchertown** ("Owner") and **[name of contracting entity]** ("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: **Removal and replacement of existing culvert; construction of aquatic organism passage culvert; construction of gabion basket retaining walls; removal, raising, and reconstruction of Warren Wright Road; and restoration of the site.**

ARTICLE 2—THE PROJECT

2.01 The Project, of which the Work under the Contract Documents is a part, is generally described as follows: **Replacement of the existing Warren Wright Road culvert crossing of Hop Brook (Bridge No. B-05-028), raising of Warren Wright Road, and the addition of a terrestrial organism passage.**

ARTICLE 3—ENGINEER

3.01 The Owner has retained Fuss & O'Neill, Inc. ("Designer" or "Engineer" or "Landscape Architect") 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 Fuss & O'Neill.

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. Work under the Base Bid will be substantially completed by **April 15, 2027**, and completed and ready for final payment in accordance with Paragraph 15.06 of the General Conditions by **June 1, 2027**.

4.03 *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

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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 $1,500.00 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 $1,500.00 for each day that expires after such time until the Work is completed and ready for final payment.

4. Liquidated damages for failing to timely attain Milestones, 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.

4.04 *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.

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ARTICLE 5—CONTRACT PRICE

5.01 Owner shall pay Contractor for completion of the Work in accordance with the Contract Documents, the amounts that follow, subject to adjustment under the Contract:.

A. For all Work, at the prices stated in Contractor's Bid, attached hereto as an exhibit.

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 last 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. 95 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.

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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. The Owner will generally pay monthly payment requisitions within 30 days; however, there are cases where it may take longer due to grant reimbursement timelines. In these cases, the Owner will not pay interest or late fees.

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 listed on the attached sheet index.
7. Addenda (numbers **[number]** to **[number]**, inclusive).
8. Exhibits to this Agreement (enumerated as follows):
    a. Contractor's Bid (pages ___ to ___, inclusive).
    b. All permits as listed in the table of contents of the project manual.
9. 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 attached to this Agreement (except as expressly noted otherwise above).

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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.

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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.

B. This Contract must include a certification of tax compliance by the Contractor, as required by Chapter 62C, Section 49A of the General Laws of Massachusetts (Requirement of Tax Compliance by All Contractors Providing Goods, Services, or Real Estate Space to the Commonwealth or Subdivision).

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

This Agreement will be effective on _____, 2026 (which is the Effective Date of the Contract).

Owner:	Contractor:
Town of Belchertown, Massachusetts *(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: _____ *(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.)*	Email: _____ License No.: _____ *(where applicable)* State: _____

Copy: Fuss & O'Neill, Inc.

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SECTION 00 55 00 - NOTICE TO PROCEED

Owner:	Town of Belchertown	Owner's Contract No.:	
Contractor:		Contractor's Project No.:	
Designer:	Fuss & O'Neill, Inc.	Designer's Project No.:	120.0170390.070
Project:	**Hop Brook Culvert Replacement**	Contract Name:	
		Effective Date of Contract:	

TO CONTRACTOR:

Owner hereby notifies Contractor that the Contract Times under the above Contract will commence to run on [_____, 20__]. *[see Paragraph 4.01 of the General Conditions]*

On that date, Contractor shall start performing its obligations under the Contract Documents. No Work shall be done at the Site prior to such date. In accordance with the Agreement, the date of Substantial Completion is **April 15, 2027**, and the date of readiness for final payment is **June 1, 2027**.

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

All Terms and Conditions of the Contract Agreement and specifications

Owner: Town of Belchertown, Massachusetts

By *(signature)*: _____

Name *(printed)*: _____

Title: _____

Date Issued: _____

Copy: Fuss & O'Neill, Inc.

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(FOR DUPLEX PRINTING PURPOSES)

SECTION 00 61 12 - PERFORMANCE BOND

Contractor Name: **[Full formal name of Contractor]** Address *(principal place of business)*: **[Address of Contractor's principal place of business]**	**Surety** Name: **[Full formal name of Surety]** Address *(principal place of business)*: **[Address of Surety's principal place of business]**
Owner Name: **Town of Belchertown** Mailing address *(principal place of business)*: **290 Jackson Street** **P.O. Box 306** **Belchertown, MA 01007-0670**	**Contract** Description *(name and location)*: **Hop Brook Culvert Replacement** **Warren Wright Road** **Belchertown, MA** Contract Price: **[Amount from Contract]** Effective Date of Contract: **[Date from Contract]**

Bond

Bond Amount: **[Amount]**

Date of Bond: **[Date]**

(Date of Bond cannot be earlier than Effective Date of Contract)

Modifications to this Bond form:

☐ None ☐ See Paragraph 16

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.

Contractor as Principal	Surety
_____ *(Full formal name of Contractor)*	_____ *(Full formal name of Surety) (corporate seal)*
By: _____ *(Signature)*	By: _____ *(Signature)(Attach Power of Attorney)*
Name: _____ *(Printed or typed)*	Name: _____ *(Printed or typed)*
Title: _____	Title: _____
Attest: _____ *(Signature)*	Attest: _____ *(Signature)*
Name: _____ *(Printed or typed)*	Name: _____ *(Printed or typed)*
Title: _____	Title: _____

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.

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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

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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.

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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: **[Describe modification or enter "None"]**

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SECTION 00 61 13 - PAYMENT BOND

Contractor	**Surety**
Name:	Name:
Address *(principal place of business)*:	Address *(principal place of business)*:
Owner	**Contract**
Name: **Town of Belchertown, MA**	Description *(name and location)*: **Hop Brook Culvert Replacement Warren Wright Road Belchertown, MA**
Mailing address *(principal place of business)*: **290 Jackson Street P.O. Box 306 Belchertown, MA 01007-0670**	Contract Price:
	Effective Date of Contract:

Bond

Bond Amount:

Date of Bond:

(Date of Bond cannot be earlier than Effective Date of Contract)

Modifications to this Bond form:

☐ None ☐ See Paragraph 18

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.

Contractor as Principal	Surety
(Full formal name of Contractor)	*(Full formal name of Surety) (corporate seal)*
By: _____ *(Signature)*	By: _____ *(Signature)(Attach Power of Attorney)*
Name: _____ *(Printed or typed)*	Name: _____ *(Printed or typed)*
Title: _____	Title: _____
Attest: _____ *(Signature)*	Attest: _____ *(Signature)*
Name: _____ *(Printed or typed)*	Name: _____ *(Printed or typed)*
Title: _____	Title: _____

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.

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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.

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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;

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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: None

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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.

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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.

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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.

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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'

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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,

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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).

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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.

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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

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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

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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

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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.

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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.

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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

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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.

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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.

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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.

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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

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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;

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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.

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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

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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

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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

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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.

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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.

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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;

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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

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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

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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.

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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

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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

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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

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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

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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.

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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.

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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.

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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).

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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.

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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

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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.

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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;

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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,

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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.

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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

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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.

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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.

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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

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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.

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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

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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

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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

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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.

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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

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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.

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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

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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

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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, expediters, 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

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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.

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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.

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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.

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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

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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.

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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

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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.

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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.

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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

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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,

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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.

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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.

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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.

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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;

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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.

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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

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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

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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.

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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

1.01 *Defined Terms*

SC-1.01 Add the following language at the end of Paragraph 1.01.A.3:

The Application for Payment form to be used on this Project is EJCDC C-620 or similar approved format.

SC-1.01 Add the following at the end of Paragraph 1.01.A.8:

The Change Order form to be used on this Project is EJCDC C-941.

SC-1.01 Add the following at the end of Paragraph 1.01.A.42:

For the purposes of M.G.L. Chapter 30, Section 39G, Completion of public works; semi-final and final estimates; payments; extra work; disputed items, Substantial Completion shall also mean either that the Work has been completed except for Work having a valued at less than 1 percent of the then adjusted total Contract Price, or substantially all of the Work has been completed and opened to public use except for minor incomplete or unsatisfactory Work items that do not materially impair the usefulness of the Work as required by the Contract.

SC-1.01 Add the following at the end of Paragraph 1.01.A.50:

A Work Change Directive cannot change Contract Price or Contract Times without a subsequent Change Order. The Work Change Directive form to be used on this Project is EJCDC C-940.

SC-1.01 Add the following new paragraph immediately after Paragraph 1.01.A.50:

A.51. “Project Closeout Documents” shall mean complete as-built drawings; warranties; project submittals and shop drawings; executed Substantial/Final Completion forms; or other documents as requested by the Owner or Engineer. As-builts shall be submitted in electronic, CAD format.

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ARTICLE 2—PRELIMINARY MATTERS

2.01 *Delivery of Bonds and Evidence of Insurance*

SC-2.01 Delete Paragraph 2.01.B. in its entirety and insert the following in its place:

2.03 *Before Starting Construction*

SC-2.03 Add a new paragraph immediately after Paragraph 2.03.A of the General Conditions, which is to read as follows:

Before any work at the site is started, Contractor shall deliver to Owner, with a copy to Engineer, certificates of insurance (and other evidence of insurance requested by Owner) which Contractor is required to purchase and maintain in accordance with the requirements of Article 6. Contractor shall include and identify on the certificate of insurance, indemnification as required by Article 7.18.

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,

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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 **20** 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.

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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.

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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

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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 **$200** 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

3.01 *Intent*

SC-3.01 Add the following subparagraph immediately under Paragraph 3.01.A of the General Conditions which is to read as follows:

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

SC-3.03 Delete Paragraph 3.03.A.3 in its entirety and insert the following:

Contractor shall be liable to Owner and/or Engineer for failure to report any such conflict, error, ambiguity or discrepancy if Contractor knew or reasonably should have known thereof.

ARTICLE 4—COMMENCEMENT AND PROGRESS OF THE WORK

4.03 *Reference Points*

SC-4.03 Add a new paragraph at the end of Paragraph 4.03.A of the General Conditions, which is to read as follows:

B. Engineer may check the lines, elevations, reference marks, batter boards, etc., set by Contractor, and Contractor shall correct any errors disclosed by such check. Such a check shall not be considered as approval of Contractor's work and shall not relieve Contractor of the responsibility for accurate and satisfactory construction and completion of the entire Work. Contractor shall furnish personnel to assist Engineer in checking lines and grades.

4.04 *Progress Schedule*

SC-4.04 Add the following paragraph after Paragraph 4.04.A.2 of the General Conditions:

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

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4.05 *Delays in Contractor's Progress*

SC-4.05 At the beginning of the first sentence of Paragraph 4.05.A, insert the following: "In accordance with G.L. c. 30, §39O, …" In the first sentence of paragraph 4.05.A, strike the word "shall" and replace with "may".

SC-4.05 Amend Paragraph 4.05.C by adding the following subparagraphs:

5. *Weather-Related Delays*

a. If "abnormal weather conditions" as set forth in Paragraph 4.05.C.2 of the General Conditions are the basis for a request for an equitable adjustment in the Contract Times, such request must be documented by data substantiating each of the following: 1) that weather conditions were abnormal for the period of time in which the delay occurred, 2) that such weather conditions could not have been reasonably anticipated, and 3) that such weather conditions had an adverse effect on the Work as scheduled.

b. Contractor shall base the bid on costs that anticipate up to five days of abnormal weather conditions throughout the duration of this Contract.

1) Every workday on which one or more of the following conditions exist will be considered a "bad weather day":

i) Total precipitation (as rain equivalent) occurring between 7:00 p.m. on the preceding day (regardless of whether such preceding day is a workday) through 7:00 p.m. on the workday in question equals or exceeds 2" of precipitation (as rain equivalent, based on the snow/rain conversion indicated in the table entitled Foreseeable Bad Weather Days; such table is hereby incorporated in this SC-4.05.C by reference.

SC-4.05 Delete Paragraph 4.05.G and insert the following in its place:

G. Delays caused by or within the control of the Owner: In such event, and except as provided in M.G.L. c. 30, §39O, the Contractor's sole remedy shall be an extension of the Contract Time. Except as provided in M.G.L. c. 30, §39O, Contractor shall not be eligible for any increase in the Contract Price on account of any delay in the Work, no matter by whom such delay is caused, and Contractor shall make no claim for such an increase, whether such claim is styled as a claim for delay damages, acceleration of work, loss of production, or otherwise.

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

5.02 Use of Site and Other Areas

SC-5.02 Add the following new paragraph immediately after Paragraph 5.02.A.2:

3. Environmental Site and Permit Requirements

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a. In-water work is restricted to periods of low-flow conditions which typically occurs between July 1 and October 31.

b. The Contractor shall meet the conditions and limitations of all environmental permits required for the performance of the Work, including but not limited to those listed in the table below. The Contractor shall comply with all conditions of such permits and shall promptly notify the Owner of any changes in permit status or conditions. The Owner shall be responsible for securing permits prior to commencement of work. Permits and approvals listed below are included as attachments. Copies of the documents listed below shall be made available at the work site.

Issuing Agency	Document Title	Date of Document	Requirements
Belchertown Conservation Commission	*Order of Conditions for DEP #104-1112*	*April 24, 2024*	*Restoration Order of Conditions related to temporary and permanent wetland impacts*
U.S. Army Corps of Engineers	*General Permits for the Commonwealth of Massachusetts*	*June 2, 2023*	*General Permit Conditions*
	Permit # NAE-2024-02104	*October 18, 2024*	*Submission of Work-Start Notification Form (min. notice of two weeks before work begins)*
The Natural Heritage & Endangered Species Program of the Massachusetts Division of Fisheries & Wildlife	*Turtle Protection Plan (awaiting final approval)*	*April 30, 2026*	*Protection during construction of the rare species Glyptemys insculpta (Wood Turtle)*

5.03 *Subsurface and Physical Conditions*

SC-5.03 In paragraph 5.03.C insert the word “reasonably” before the word “rely” in the first line and insert the following at the end of the first sentence:

The Owner does not warrant or guarantee the accuracy or completeness of the information therein, and the Contractor may not so rely to the extent that the Contractor knows, or reasonably should have known, of any inaccuracy or omission therein.

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:

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Report Title	Date of Report	Technical Data
Geotechnical Engineering Recommendations, Hop Brook Culvert Replacement, Bridge No. BIN B-05-028 (CMF)	April 13, 2026	Summary of subsurface conditions

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
Hop Brook Culvert Replacement Construction Plans	May 7, 2026	Existing conditions

5.04 *Differing Subsurface and Physical Conditions*

SC-5.04 Insert the following paragraph before Paragraph 5.04.A:

In accordance with Massachusetts General Laws Chapter 30, Section 39N, if, during the progress of the Work, the Contractor or the Owner discovers that the actual subsurface or latent physical conditions encountered at the site differ substantially or materially from those shown on the plans or indicated in the Contract Documents either the Contractor or the Owner may request an equitable adjustment in the Contract Price applying to work affected by the differing site conditions. A request for such an adjustment shall be in writing and shall be delivered by the party making such request to the other party as soon as possible after such conditions are discovered. Upon receipt of such a request from the Contractor, or upon its own initiative, the Owner will make an investigation of such physical conditions, and if they differ substantially or materially from those shown on the plans or indicated in the Contract Documents or from those ordinarily encountered and generally recognized as inherent in work of the character provided for in the plans and Contract Documents and are of such a nature as to cause an increase or decrease in the cost of performance of the Work or a change in the construction methods required for the performance of the Work which results in an increase or decrease in the cost of the Work, the Owner will make an equitable adjustment in the Contract Price and the Contract shall be modified in writing accordingly.

SC-5.04 Amend Paragraph 5.04.E to add the following before the first sentence of that paragraph:

Adjustments resulting from actual subsurface or latent physical conditions from those indicated will be in accordance with Massachusetts General Law, Chapter 30, Section 39N and the applicable provisions of the Contract Documents.

Replace the word “shall” in the first sentence with “may.”

Amend sub-paragraph b. to add the following after the words “Paragraph 13.03”:

and provided that the Contractor shall only be entitled to an adjustment in Contract Price to the extent required by Massachusetts General Law, Chapter 30, Section 39N

5.05 *Underground Facilities*

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SC-5.05 Delete the phrase "or was not shown or indicated with reasonable accuracy" following the words "Contract Documents" in the first sentence of Paragraph 5.05.B and Paragraph 5.05.C.1.

5.06 *Hazardous Environmental Conditions*

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

4. The following table lists the reports or drawings 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/Drawing Title	Date of Report/Drawing	Technical Data
None		

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:

1. *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).

2. *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).

3. Pursuant to M.G.L. Chapter 30, Section 39A, Construction contracts for public ways, airports or public works; truck rentals; security for payment, and M.G.L. Chapter 149, Section 29, Bonds for payment for labor, materials, rentals or transportation charges (et al), the required payment bond shall also cover payment by the Contractor and Subcontractors for the rental or hire of dump trucks and "the rental or hire of vehicles, steam shovels, rollers propelled by steam or other power, concrete mixers, tools and other appliances and equipment employed in such construction," and for payment of transportation charges directly related to such rental or hire. Such security for payment of transportation charges shall be incorporated by appropriate reference thereto as an additional obligation or condition in the required bonds.

4. In addition, such bonds shall cover payment by Contractor and Subcontractors of any sums due trustees or other persons authorized to collect such payments from the Contractor or Subcontractors, for health and welfare plans, supplementary unemployment benefit plans and other fringe benefits which are payable in cash and provided for in collective bargaining agreements between organized labor and the Contractor or Subcontractors.

Add the following new paragraph immediately after 6.01.H:

I. If there is more than one surety company, the surety companies shall be jointly and severally liable.

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6.02 *Insurance—General Provisions*

SC-6.02 Delete Paragraph 6.02.E in its entirety.

SC-6.02 Add the following paragraph immediately after 6.02.N

If Owner has any objection to the coverage afforded by or other provisions of the insurance purchased and maintained by Contractor in accordance with this Article 6 on the basis of its not complying with the Contract Documents, Owner will notify Contractor in writing thereof within thirty days of the date of delivery of such certificates to Owner in accordance with paragraph 2.01.B, and Contractor will provide such additional information in respect of insurance provided by him as Owner may reasonably request.

6.03 *Contractor's Insurance*

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

D. *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).

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

E. *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.

F. *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

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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.

G. *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.

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H. *Commercial General Liability—Minimum Policy Limits*

Commercial General Liability	Policy limits of not less than:
Property Damage – Each Occurrence	$1,000,000
Property Damage – Annual Aggregate	$3,000,000
Bodily Injury – Per Person	$1,000,000
Bodily Injury - Each Occurrence	$3,000,000

I. *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.

Automobile Liability	Policy limits of not less than:
Bodily Injury and Property Damage – Per Person	$500,000
Bodily Injury and Property Damage – Per Accident	$1,000,000

J. *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.

Excess or Umbrella Liability	Policy limits of not less than:
Each Occurrence	$5,000,000
General Aggregate	$5,000,000

K. *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.

Contractor's Pollution Liability	Policy limits of not less than:
Each Occurrence/Claim	$1,000,000
General Aggregate	$1,000,000

L. *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

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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 Occurrence/Claim	$1,000,000
Annual Aggregate	$3,000,000

6.04 *Builder's Risk and Other Property Insurance*

SC-6.04 Supplement Paragraph 6.04 of the General Conditions with the following provisions:

F. *Builder's Risk Requirements:* The builder's risk insurance must:

1. be written on a builder's risk "all risk" policy form that at a minimum includes insurance for physical loss or damage to the Work, temporary buildings, falsework, and materials and equipment stored and in transit, and must not exclude the coverage of the following risks: fire; windstorm; hail; flood; earthquake, volcanic activity, and other earth movement; lightning; riot; civil commotion; terrorism; vehicle impact; aircraft; smoke; theft; vandalism and malicious mischief; mechanical breakdown, boiler explosion, and artificially generated electric current; collapse; explosion; debris removal; demolition occasioned by enforcement of Laws and Regulations; and water damage (other than that caused by flood).

    a. Such policy will include an exception that results in coverage for ensuing losses from physical damage or loss with respect to any defective workmanship, methods, design, or materials exclusions.

    b. If insurance against mechanical breakdown, boiler explosion, and artificially generated electric current; earthquake, volcanic activity, and other earth movement; or flood, are not commercially available under builder's risk policies, by endorsement or otherwise, such insurance will be provided through other insurance policies acceptable to Owner and Contractor.

2. cover, as insured property, at least the following: (a) the Work and all materials, supplies, machinery, apparatus, equipment, fixtures, and other property of a similar nature that are to be incorporated into or used in the preparation, fabrication, construction, erection, or completion of the Work, including Owner-furnished or assigned property; (b) spare parts inventory required within the scope of the Contract; and (c) temporary works which are not intended to form part of the permanent constructed Work but which are intended to provide working access to the Site, or to the Work under construction, or which are intended to provide temporary support for the Work under construction, including scaffolding, form work, fences, shoring, falsework, and temporary structures.

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

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4. extend to cover damage or loss to insured property while in temporary storage at the Site or in a storage location outside the Site (but not including property stored at the premises of a manufacturer or Supplier). If this coverage is subject to a sublimit, such sublimit will be a minimum of $N/A.

5. extend to cover damage or loss to insured property while in transit. If this coverage is subject to a sublimit, such sublimit will be a minimum of $N/A.

6. allow for the waiver of the insurer's subrogation rights, as set forth in this Contract.

7. allow for partial occupancy or use by Owner by endorsement, and without cancellation or lapse of coverage.

8. include performance/hot testing and start-up, if applicable.

9. be maintained in effect until the Work is complete, as set forth in Paragraph 15.06.D of the General Conditions, or until written confirmation of Owner's procurement of property insurance following Substantial Completion, whichever occurs first.

10 include as named insureds the Owner, Contractor, Subcontractors (of every tier), and any other individuals or entities required by this Contract to be insured under such builder's risk policy. For purposes of Paragraphs 6.04, 6.05, and 6.06 of the General Conditions, and this and all other corresponding Supplementary Conditions, the parties required to be insured will be referred to collectively as "insureds." In addition to Owner, Contractor, and Subcontractors of every tier, include as insureds the following:

    a. None

11. include, in addition to the Contract Price amount, the value of the following equipment and materials to be installed by the Contractor but furnished by the Owner or third parties:

    a. None

12. If debris removal in connection with repair or replacement of insured property is subject to a coverage sublimit, such sublimit will be a minimum of $N/A.

13. In addition to the coverage sublimits stated above, the following coverages are also subject to sublimits, as follows:

    a. None.

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ARTICLE 7—CONTRACTOR'S RESPONSIBILITIES

7.01 *Supervision and Superintendence*

SC-7.02 Add the following new Paragraph 7.02.C immediately after Paragraph 7.02.B:

The site superintendent may be a direct employee of the subcontractor provided that this individual has the full authority and responsibility of the general contractor's specified superintendent. The General Contractor shall submit a letter to the Owner and the Engineer stating who the supervisor is and defining his/her authority during all construction related activities.

7.03 *Labor; Working Hours*

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

1. Regular working hours are defined as Monday through Friday, excluding holidays, between the hours of 7:00 AM and 7:00 PM. Requests to work other than regular working hours shall be submitted to Engineer not less than 48 hours prior to any proposed change. Occasional unscheduled overtime on weekdays may be permitted provided it is approved by Engineer.
2. Owner's legal holidays are: N/A.

SC-7.03 Add the following new paragraphs 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.

E. Contractor and Subcontractors shall, insofar as practicable, give preference in the hiring of workers for the Project to qualified local residents with first preference being given to citizens of the United States who have served in the armed forces of the United States and have been honorably discharged therefrom or released from active duty therein.

F. Contractor shall employ only competent persons to do the work and whenever Owner shall notify Contractor, in writing, that any person on the Work appears to be incompetent, disorderly, or otherwise unsatisfactory, such person shall be removed from the Project and shall not again be employed on it except with the consent of Owner."

. Contractor shall provide and maintain sanitary facilities for all persons employed on the Work, beginning with the first worker at the Site. Said facilities shall meet the following requirements unless otherwise specified in the Supplementary General Conditions or Specifications.

1. There shall be no fewer facilities than the number required by applicable Laws;

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2. Facilities shall be kept in a clean sanitary condition at all times and shall be adequately screened to be inaccessible to flies. (Note: If existing sanitary facilities at the Site are to be used by the Contractor, this requirement will be modified accordingly in the Supplementary General Conditions or Specifications.)"

7.05 *"Or Equals"*

SC-7.05 Insert the following at the end of the third sentence of Paragraph 7.05.A: ", and in accordance with G.L. c.30, §39M."

Add a new paragraph SC-7.04.A.1.c immediately after paragraph 7.04A.1.b, which is to read as follows:

c. It shall be Contractor's responsibility to coordinate all submittals to Engineer for approval to eliminate any conflicts which might arise due to the use of "or equal" items. Any additional costs incidental to the use of "or equal" items shall be paid by Contractor.

7.07 *Concerning Subcontractors and Suppliers*

SC-7.07 Delete the third and fourth sentences of Paragraph 7.07.E in their entirety and replace them as follows:

If Contractor has submitted the identity of certain Subcontractors or Suppliers for acceptance by Owner, and Owner has accepted it in writing, 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 a replacement for the rejected Subcontractor or Supplier that is acceptable to Owner.

Add the following paragraph immediately after Paragraph 7.07.M:

N. Contractor shall make payments to Subcontractors in accordance with Massachusetts General Laws Chapter 30, Section 39F.

7.10 *Taxes*

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

B. Per Section 6(f) of Chapter 64H of the Massachusetts General Laws, Owner is exempt from payment of sales and compensating use taxes of the State of Massachusetts and of cities and counties thereof on all building materials and supplies to be used in the Work. 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 material and supplies physically incorporated therein. Said words shall also include rental charges for construction vehicles, equipment and machinery rented specifically for use on the site of the project or while being used exclusively for the transportation of materials for the project. Contractor shall not include in their prices any amount therefore.

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.

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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.

7.12 *Record Documents*

SC-7.12 Add the following new paragraph and subparagraphs immediately after Paragraph 7.12.A.

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

7.16 *Submittals*

SC-7.16 Add the following new paragraph immediately after paragraph 7.16.F of the General Conditions, which is to read as follows:

G. The accuracy of all such information submitted by the Contractor is the responsibility of the Contractor. In reviewing Shop Drawings, Samples, and similar submittals, the Engineer shall be entitled to rely upon the Contractor's representation that such information is correct and accurate.

H. Add the following new paragraph immediately after paragraph 7.16.G, which is to read as follows:

Contractor to submit all product and material submittals as required by the project documents and to prepare for the start of Work. This shall include submission of a traffic management plan to be approved by the Owner and Engineer.

7.17 *Contractor's General Warranty and Guarantee*

SC-7.17 Add the following new paragraph 7.17.F, immediately after paragraph 7.17.E of the General Conditions:

F. Contractor shall guarantee all materials and equipment furnished and Work performed for a period of one (1) year from the date of Substantial Completion. Contractor warrants and guarantees for a period of one (1) year from the date of Substantial Completion that the completed Work is free from all defects due to faulty materials or workmanship and Contractor shall promptly make such corrections as may be necessary by reason of any such defects including the repairs of any damage to other parts of the Work resulting from such defects. In the event that Contractor should fail to make such repairs, adjustments, or other work that may be made necessary by such defects, Owner may do so and charge Contractor the cost thereby incurred. The Performance Bond shall remain in full force and effect through the guarantee period.

7.18 *Indemnification*

SC-7.18 Insert the following at the end of Paragraph 7.18.B:

If, through the acts or neglect of 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 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

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damage alleged to have been sustained, Owner shall notify Contractor, who shall indemnify and hold harmless Owner against any such claims.

ARTICLE 8—OTHER WORK AT THE SITE

8.02 *Coordination*

SC-8.02 Delete Paragraph 8.02 in its entirety and replace with the following:

Owner may contract with others for performance of work at the Site. Contractor will be responsible for the coordination of the performance of its Work at the Site.

ARTICLE 9—OWNER'S RESPONSIBILITIES

9.02 *Replacement of Engineer*

SC-9.02 Delete the phrase "provided Contractor makes no reasonable objection to the replacement engineer" in Paragraph 9.02.A.

9.09 *Limitations on Owner's Responsibilities*

SC-9.09 Insert the following after the first sentence of Paragraph 9.09.A:

However, the Owner shall have the right to direct the Contractor to perform the Work according to any sequence schedule set forth in the Contract Documents or established pursuant thereto.

ARTICLE 10—ENGINEER'S STATUS DURING CONSTRUCTION

10.01 *Owner's Representative*

SC-10.01 Add a new paragraph 10.01.B after paragraph 10.01.A of the General Conditions, which is to read as follows:

B. Nothing contained in the Contract Documents shall be construed to create a contractual relationship of any kind (1) between the Engineer and Contractor, (2) between the Owner and a Subcontractor or Subcontractors, or (3) between any person or entities other than the Owner and Contractor. The Engineer shall, however, be entitled to performance and enforcement of obligations under the Contract Documents intended to facilitate performance of the Engineer's duties.

10.02 *Visits to Site*

SC-10.02 Insert the following at the end of Paragraph 10.02.B:

However, the Engineer shall have the right to direct the Contractor to perform the Work according to any sequence schedule set forth in the Contract Documents or established pursuant thereto.

10.03 *Resident Project Representative*

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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.

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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.

10.07 *Limitations on Engineer's Authority and Responsibilities*

SC-10.07 Insert the following after the first sentence in Paragraph 10.07.B:

However, the Engineer shall have the right to direct the Contractor to perform the Work according to any sequence schedule set forth in the Contract Documents or established pursuant thereto.

SC-10.07 Add a new paragraph immediately after paragraph 10.07.E of the General Conditions which is to read as follows:

Engineer's interpretations will be made in accordance with Massachusetts General Laws Chapter 30, Section 39P.

ARTICLE 11—CHANGES TO THE CONTRACT

11.05 *Owner-Authorized Changes in Work*

SC-11.05 Add a new paragraph immediately after paragraph 11.05.A of the General Conditions which is to read as follows:

Engineer's interpretations will be made in accordance with Massachusetts General Law, Chapter 30, Section 39P.

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Add the following new paragraph immediately after paragraph 11.05.C of the General Conditions, which is to read as follows:

Upon request of the Owner or Engineer, the Contractor shall without cost to the Owner submit to the Engineer, in such form as the Engineer may require, an accurate written estimate of the cost of any such proposed extra Work or change. The estimate shall indicate the quantity and unit cost of each item of materials, and the number of hours of work and hourly rate for each class of labor, as well as the description and amounts of all other costs chargeable under the terms of this Article. Unit labor costs for the installation of each item of materials shall be shown if required by the Engineer. The Contractor shall promptly revise and resubmit such estimate if the Engineer determines that it is not in compliance with the requirements of this Article, or that it contains errors of facts or mathematical errors. If required by the Engineer, in order to establish the exact cost of new Work added or previously required Work omitted, the Contractor shall obtain and furnish to the Engineer bona fide proposals from recognized suppliers for furnishing any material included in such Work, and shall be furnished at Contractor's expense. The Contractor shall state in the estimate any extension of time required for the completion of the Work if the change or extra work is ordered.

11.07 *Change of Contract Price*

SC-11.07 In paragraph 11.07.C.2.a change "15 percent" to "10 percent."

Delete paragraph 11.07.C.2.c.

ARTICLE 12—CLAIMS

12.01 *Claims*

SC-12.01 Add a new paragraph immediately after paragraph 12.01.D.1 of the General Conditions to read as follows:

Contractor shall carry on the Work and maintain the progress schedule during the dispute resolution proceedings unless otherwise agreed in writing by Owner and Contractor.

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

13.01 *Cost of the Work*

SC-13.01 Add the following to the end of Paragraph 13.01.B.1 of the General Conditions to read as follows:

Following the Notice of Award and prior to the execution of the Agreement the Owner, prospective contractor and, if any, each prospective filed sub-bid contractor shall agree on what percentage markup shall be used as direct labor costs in determination of extra work costs.

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Delete subparagraphs a, d, e, f, g, and h of Paragraph 13.01.B.5.

13.02 *Allowances*

SC-13.02 Delete Paragraph 13.02.C of the General Conditions in its entirety.

13.03 *Unit Price Work*

SC-13.03 Delete Paragraph 13.03.E in its entirety and insert the following in its place:

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 the 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

14.02 *Tests, Inspections, and Approvals*

SC-14.02 Delete the remainder of Paragraph 14.02.F after the words "Contractor's expense."

14.05 *Uncovering Work*

SC-14.05 Delete Paragraph 14.05.C.2 in its entirety.

14.06 *Owner May Stop the Work*

SC-14.06 Insert the following new paragraph 14.06.B immediately after Paragraph 14.06.A:

If Owner stops Work under paragraph 14.06.A, Contractor shall not be entitled to any extension of Contract Time or increase in Contract Price, except as may be provided under G.L. c. 30, §39O.

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

15.01 *Applications for Payments*

SC-15.01.B.1 Delete the first phrase prior to the words "Contractor shall" in the first sentence of Paragraph 15.01.B.1 and insert the following:

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On a monthly basis and in accordance with G.L. c.30, §39G.

SC-15.01.B.4 Delete paragraph 15.01.B.4 and insert the following in its place:

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

Insert the following new paragraph immediately after Paragraph 15.01.B.4:

Contractor shall furnish evidence that payment received on the basis of materials and equipment not incorporated and suitably stored, has in fact been paid to the respective supplier(s) within ten (10) days of payment by Owner. Failure to provide such evidence of payment may result in the withdrawal of previous approval(s) and removal of the cost of related materials and equipment from the next submitted Application for Payment.

SC-15.01.B.5 Add new paragraph immediately after Paragraph 15.01.B.4:

5. The Application for Payment form to be used on this Project is EJCDC® C-620.

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

The Application for Payment with Engineer's recommendations will be presented to the Owner for consideration. If both the Owner find the Application for Payment acceptable, the recommended amount less any reduction under the provisions of Paragraph 15.01.E will become due twenty (20) days after the Application for Payment is presented to the Owner, and the Owner will make payment to the Contractor.

15.01.E3 Delete Paragraph 15.01.E.3 in its entirety.

15.02 *Contractor's Warranty of Title*

SC-15.02 Insert the following new paragraphs immediately after Paragraph 15.02.A:

B. No materials or supplies for the Work shall be purchased by Contractor or Subcontractor subject to any chattel mortgage or under a conditional sale contract or other agreement by which an interest is retained by the seller. Contractor warrants that Contractor has good title to all materials and supplies used by Contractor in the Work, free from all liens, claims or encumbrances.

C. Contractor shall indemnify and save Owner harmless from all claims growing out of the lawful demands of Subcontractors, laborers, workmen, mechanics, materialmen, and furnishers of machinery and parts thereof, equipment, power tools, and all supplies, including commissary, incurred in the furtherance of the performance of this Contract. Contractor shall, at Owner's request, furnish satisfactory evidence that all obligations of the nature hereinabove designated have been paid, discharged, or waived. If Contractor fails to do so, then Owner may, after having served written notice on the Contractor, either pay unpaid bills, of which Owner has written notice, or withhold from the Contractor's unpaid compensation a sum of money deemed reasonably sufficient to pay any and all such lawful claims until satisfactory evidence is furnished that all liabilities have been fully discharged whereupon payment to Contractor shall be resumed, in accordance with the terms of this Contract, but in no event shall the provisions of this

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sentence be construed to impose any obligation upon Owner to either Contractor, or Contractor's Surety. In paying any unpaid bills of the Contractor, Owner's payment shall be considered as payment made under the Contract by Owner to Contractor and Owner shall not be liable to Contractor for any such payment made in good faith.

15.03 *Substantial Completion*

SC-15.03.C Delete the third sentence of Paragraph 15.03.C and insert the following:

Owner may review the preliminary certificate and make written objection to Engineer as to any provisions of the certificate or attached list.

Delete the phrase ", within 14 days after submission of the preliminary certificate to Owner," in the fourth sentence of paragraph 15.03.C.

Delete the phrase ", within said 14 days," in the fifth sentence of Paragraph 15.03.C.

SC-15.03.G Insert the following new Paragraph 15.03.G immediately following 15.03.F

G. Notification to Owner and Engineer of Substantial Completion shall include the delivery of the Project Closeout Documents.

ARTICLE 16—SUSPENSION OF WORK AND TERMINATION

16.01 *Owner May Suspend Work*

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

Owner may suspend the Work or any portion thereof in accordance with M.1G.L. c.30, §39O.

16.02 *Owner May Terminate for Cause*

SC-16.02 Insert 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.

Append to the end of the last sentence of Paragraph 16.02.D, "…to Owner's satisfaction."

ARTICLE 17—FINAL RESOLUTIONS OF DISPUTES

17.01 *Methods and Procedures*

SC-17.01 Insert a new Paragraph 17.01.C after Paragraph 17.01.B:

C. Contractor shall carry on the Work and maintain the progress schedule during the dispute resolution proceedings, unless otherwise agreed by Contractor and Owner in writing.

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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:

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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.

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.

17.04 *Venue*

SC-17.04 Add the following new paragraph immediately after Paragraph 17.03.

A. Any legal action relating to this Contract shall be filed in the Superior Court for the County in the Commonwealth of Massachusetts in which the Project is located, unless otherwise agreed by Contractor and Owner in writing.

ARTICLE 18—MISCELLANEOUS

18.07 *Controlling Law*

SC-18.07 Amend Paragraph 18.07.A to state, "This contract is to be governed by the laws of the Commonwealth of Massachusetts."

18.10 *Wage Rates*

SC-18.10 Insert the following new paragraph:

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A. The requirements and provisions of all applicable laws and any amendments thereof or additions thereto as to employment of labor, and to the schedule of minimum wage rates established in compliance with laws shall be a part of the Contract Documents. If after the Notice of Award, it becomes necessary to employ any person in a trade or occupation not classified in the wage determinations, such person shall be paid at not less than such rates as shall be determined by the officials administering the laws mentioned above.

B. The schedule of wages referred to above is minimum rates only, and Owner will not consider any claims for additional compensation made by Contractor because of payment by Contractor of any wage in excess of the applicable, required rates."

18.12 *Conflicts of Interest*

SC-18.12 Insert the following new Paragraph 18.12.A:

The parties acknowledge the provisions of the State Conflict of Interest Law (General Laws Chapter 268A), and this Contract expressly prohibits any activity which shall constitute a violation of that law. The Contractor shall be deemed to have investigated the application of M.G.L. c. 268A to the performance of this Contract; and by executing the Contract documents the Contractor certifies to the Owner that neither it nor its agents, employees, or subcontractors are thereby in violation of General Laws Chapter 268A.

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SECTION 00 82 00 – THE COMMONWEALTH OF MASSACHUSETTS PREVAILING WAGE RATES

SEE ATTACHED SHEETS

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

MAURA HEALEY
Governor
KIM DRISCOLL
Lt. Governor

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

LAUREN JONES
Secretary
MICHAEL FLANAGAN
Director

Awarding Authority:	Belchertown - Department of Public Works	**City/Town:**	BELCHERTOWN
Contract Number:	NA		
Description of Work:	Culvert Replacement Project- Warren Wright Culvert over Hop Brook, Belchertown, MA.		
Job Location:	290 Jackson Street, Belchertown, MA		

Information about Prevailing Wage Schedules for Awarding Authorities and Contractors

- The wage rates will remain in effect for the duration of the project, except in the case of multi-year public construction projects. For construction projects lasting longer than one year, awarding authorities must request an updated wage schedule no later than two weeks before the anniversary of the date the contract was executed by the awarding authority and the general contractor. For multi-year CM AT RISK projects, the awarding authority must request an annual update no later than two weeks before the anniversary date, determined as the earlier of: (a) the execution date of the GMP Amendment, or (b) the execution date of the first amendment to permit procurement of construction services. The updated wage schedule must be provided to all contractors, including general and sub-contractors, working on the construction project.
- This annual update requirement is generally not applicable to 27F “rental of equipment” contracts. For such contracts, the prevailing wage rates issued by DLS shall remain in effect for the duration of the contract term. However, if the prevailing wage rate sheet issued does not contain wage rates for each year covered by the contract term, the Awarding Authority must request updated rate sheets from DLS and provide them to the contractor to ensure the correct rates are being paid throughout the duration of the contract. Additionally, if an Awarding Authority exercises an option to renew or extend the contract term, they must request updated rate sheets form DLS and provide them to the contractor.
- This wage schedule applies only to the specific project referenced at the top of this page and uniquely identified by the “Wage Request Number” on all pages of this schedule.
- An Awarding Authority must request an updated wage schedule if it has not opened bids or selected a contractor within 90 days of the date of issuance of the wage schedule. For CM AT RISK projects (bid pursuant to G.L. c.149A), the earlier of: (a) the execution date of the GMP Amendment, or (b) the bid for the first construction scope of work must be within 90-days of the wage schedule issuance date.
- The wage schedule shall be incorporated in any advertisement or call for bids for the project as required by M.G.L. c. 149, § 27. The wage schedule shall be made a part of the contract awarded for the project. The wage schedule must be posted in a conspicuous place at the work site for the life of the project in accordance with M.G.L. c. 149 § 27. The wages listed on the wage schedule must be paid to employees performing construction work on the project whether they are employed by the prime contractor, a filed sub-bidder, or a sub-contractor.
- Apprentices working on the project are required to be registered with the Massachusetts Division of Apprentice Standards (DAS). Apprentices must keep their apprentice identification card on their persons during all work hours on the project. An apprentice registered with DAS may be paid the lower apprentice wage rate at the applicable step as provided on the prevailing wage schedule. **Any apprentice not registered with DAS regardless of whether they are registered with another federal, state, local, or private agency must be paid the journeyworker's rate.**
- Every contractor or subcontractor working on the construction project must submit weekly payroll reports and a Statement of Compliance directly to the awarding authority by mail or email and keep them on file for three years. Each weekly payroll report must contain: the employee’s name, address, occupational classification, hours worked, and wages paid. Do not submit weekly payroll reports to DLS. For a sample payroll reporting form go to http://www.mass.gov/dols/pw.
- Contractors with questions about the wage rates or classifications included on the wage schedule have an affirmative obligation to inquire with DLS at (617) 626-6953.
- Contractors must obtain the wage schedules from awarding authorities. Failure of a contractor or subcontractor to pay the prevailing wage rates listed on the wage schedule to all employees who perform construction work on the project is a violation of the law and subjects the contractor or subcontractor to civil and criminal penalties.
- Employees not receiving the prevailing wage rate set forth on the wage schedule may file a complaint with the Fair Labor Division of the office of the Attorney General at (617) 727-3465.

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
(2 AXLE) DRIVER - EQUIPMENT TEAMSTERS JOINT COUNCIL NO. 10 TEAMSTERS JOINT COUNCIL NO. 10 ZONE B	1/1/2026	$40.95	$16.17	$21.78	$0.00	$0.00	$78.90
	6/1/2026	$41.95	$16.17	$21.78	$0.00	$0.00	$79.90
	12/1/2026	$41.95	$16.17	$23.52	$0.00	$0.00	$81.64
	1/1/2027	$41.95	$16.77	$23.52	$0.00	$0.00	$82.24
(3 AXLE) DRIVER - EQUIPMENT TEAMSTERS JOINT COUNCIL NO. 10 TEAMSTERS JOINT COUNCIL NO. 10 ZONE B	1/1/2026	$41.02	$16.17	$21.78	$0.00	$0.00	$78.97
	6/1/2026	$42.02	$16.17	$21.78	$0.00	$0.00	$79.97
	12/1/2026	$42.02	$16.17	$23.52	$0.00	$0.00	$81.71
	1/1/2027	$42.02	$16.77	$23.52	$0.00	$0.00	$82.31
(4 & 5 AXLE) DRIVER - EQUIPMENT TEAMSTERS JOINT COUNCIL NO. 10 TEAMSTERS JOINT COUNCIL NO. 10 ZONE B	1/1/2026	$41.14	$16.17	$21.78	$0.00	$0.00	$79.09
	6/1/2026	$42.14	$16.17	$21.78	$0.00	$0.00	$80.09
	12/1/2026	$42.14	$16.17	$23.52	$0.00	$0.00	$81.83
	1/1/2027	$42.14	$16.77	$23.52	$0.00	$0.00	$82.43
ADS/SUBMERSIBLE PILOT PILE DRIVER LOCAL 56 PILE DRIVER LOCAL 56 (ZONE 3) For apprentice rates see "Apprentice- PILE DRIVER"	8/1/2024	$117.16	$10.08	$11.62	$12.67	$0.00	$151.53
AIR TRACK OPERATOR LABORERS LABORERS - ZONE 3 (BUILDING & SITE)	12/1/2025	$36.75	$10.65	$9.75	$8.57	$0.00	$65.72
	6/1/2026	$38.05	$10.65	$9.75	$8.57	$0.00	$67.02
	12/7/2026	$39.35	$10.65	$9.75	$8.57	$0.00	$68.32
	6/7/2027	$40.75	$10.65	$9.75	$8.57	$0.00	$69.72
	12/6/2027	$42.15	$10.65	$9.75	$8.57	$0.00	$71.12
	6/5/2028	$43.65	$10.65	$9.75	$8.57	$0.00	$72.62
	12/4/2028	$45.15	$10.65	$9.75	$8.57	$0.00	$74.12
For apprentice rates see "Apprentice- LABORER"							
AIR TRACK OPERATOR (HEAVY & HIGHWAY) LABORERS LABORERS - ZONE 3 (HEAVY & HIGHWAY)	12/1/2025	$36.74	$10.65	$9.75	$6.56	$0.00	$63.70
	6/1/2026	$38.04	$10.65	$9.75	$6.56	$0.00	$65.00
	12/1/2026	$39.33	$10.65	$9.75	$6.56	$0.00	$66.29
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)							
ASBESTOS WORKER (PIPES & TANKS) HEAT & FROST INSULATORS LOCAL 6 HEAT & FROST INSULATORS LOCAL 6 (SPRINGFIELD)	12/1/2025	$40.32	$14.50	$4.30	$6.25	$0.00	$65.37
ASPHALT RAKER LABORERS LABORERS - ZONE 3 (BUILDING & SITE)	12/1/2025	$36.25	$10.65	$9.75	$8.57	$0.00	$65.22
	6/1/2026	$37.55	$10.65	$9.75	$8.57	$0.00	$66.52
	12/7/2026	$38.85	$10.65	$9.75	$8.57	$0.00	$67.82
	6/7/2027	$40.25	$10.65	$9.75	$8.57	$0.00	$69.22
	12/6/2027	$41.65	$10.65	$9.75	$8.57	$0.00	$70.62
	6/5/2028	$43.15	$10.65	$9.75	$8.57	$0.00	$72.12
	12/4/2028	$44.65	$10.65	$9.75	$8.57	$0.00	$73.62
For apprentice rates see "Apprentice- LABORER"							
ASPHALT RAKER (HEAVY & HIGHWAY) LABORERS LABORERS - ZONE 3 (HEAVY & HIGHWAY)	12/1/2025	$36.24	$10.65	$9.75	$6.56	$0.00	$63.20
	6/1/2026	$37.54	$10.65	$9.75	$6.56	$0.00	$64.50
	12/1/2026	$38.83	$10.65	$9.75	$6.56	$0.00	$65.79

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)							
AUTOMATIC GRADER-EXCAVATOR (RECLAIMER) OPERATING ENGINEERS LOCAL 98 OPERATING ENGINEERS LOCAL 98	12/1/2023	$39.56	$13.78	$12.15	$3.00	$0.00	$68.49
For apprentice rates see "Apprentice- OPERATING ENGINEERS"							
BACKHOE/FRONT-END LOADER OPERATOR OPERATING ENGINEERS LOCAL 98 OPERATING ENGINEERS LOCAL 98	12/1/2023	$39.56	$13.78	$12.15	$3.00	$0.00	$68.49
For apprentice rates see "Apprentice- OPERATING ENGINEERS"							
BARCO-TYPE JUMPING TAMPER LABORERS LABORERS - ZONE 3 (BUILDING & SITE)	12/1/2025	$36.25	$10.65	$9.75	$8.57	$0.00	$65.22
	6/1/2026	$37.55	$10.65	$9.75	$8.57	$0.00	$66.52
	12/7/2026	$38.85	$10.65	$9.75	$8.57	$0.00	$67.82
	6/7/2027	$40.25	$10.65	$9.75	$8.57	$0.00	$69.22
	12/6/2027	$41.65	$10.65	$9.75	$8.57	$0.00	$70.62
	6/5/2028	$43.15	$10.65	$9.75	$8.57	$0.00	$72.12
	12/4/2028	$44.65	$10.65	$9.75	$8.57	$0.00	$73.62
For apprentice rates see "Apprentice- LABORER"							
BATCH/CEMENT PLANT - ON SITE OPERATING ENGINEERS LOCAL 98 OPERATING ENGINEERS LOCAL 98	12/1/2023	$39.03	$13.78	$12.15	$3.00	$0.00	$67.96
For apprentice rates see "Apprentice- OPERATING ENGINEERS"							
BLOCK PAVER, RAMMER / CURB SETTER LABORERS LABORERS - ZONE 3 (BUILDING & SITE)	12/1/2025	$36.75	$10.65	$9.75	$8.57	$0.00	$65.72
	6/1/2026	$38.05	$10.65	$9.75	$8.57	$0.00	$67.02
	12/7/2026	$39.35	$10.65	$9.75	$8.57	$0.00	$68.32
	6/7/2027	$40.75	$10.65	$9.75	$8.57	$0.00	$69.72
	12/6/2027	$42.15	$10.65	$9.75	$8.57	$0.00	$71.12
	6/5/2028	$43.65	$10.65	$9.75	$8.57	$0.00	$72.62
	12/4/2028	$45.15	$10.65	$9.75	$8.57	$0.00	$74.12
For apprentice rates see "Apprentice- LABORER"							
BLOCK PAVER, RAMMER / CURB SETTER (HEAVY & HIGHWAY) LABORERS LABORERS - ZONE 3 (HEAVY & HIGHWAY)	12/1/2025	$36.74	$10.65	$9.75	$6.56	$0.00	$63.70
	6/1/2026	$38.04	$10.65	$9.75	$6.56	$0.00	$65.00
	12/1/2026	$39.33	$10.65	$9.75	$6.56	$0.00	$66.29
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)							
BOILER MAKER BOILERMAKERS LOCAL 29 BOILERMAKERS LOCAL 29	1/1/2024	$48.12	$7.07	$14.60	$6.00	$0.00	$75.79

Apprentice: BOILER MAKER

Effective Date: 1/1/2024

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	65.00	$31.28	$7.07	$9.32	$3.90	$0.00	$51.57
2	65.00	$31.28	$7.07	$9.32	$3.90	$0.00	$51.57

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate

Apprentice: BOILER MAKER

Effective Date: 1/1/2024

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
3	70.00	$33.68	$7.07	$10.03	$4.20	$0.00	$54.98
4	75.00	$36.09	$7.07	$10.74	$4.50	$0.00	$58.40
5	80.00	$38.50	$7.07	$11.45	$4.80	$0.00	$61.82
6	85.00	$40.90	$7.07	$12.18	$5.10	$0.00	$65.25
7	90.00	$43.31	$7.07	$12.88	$5.40	$0.00	$68.66
8	95.00	$45.71	$7.07	$13.62	$5.70	$0.00	$72.10

Apprentice to Journeyworker Ratio: 1:4

BRICK/STONE/ARTIFICIAL MASONRY (INCL. MASONRY WATERPROOFING) BRICKLAYERS LOCAL 3 BRICKLAYERS LOCAL 3 (SPRINGFIELD/PITTSFIELD)	2/1/2026	$56.36	$12.84	$15.57	$5.89	$0.00	$90.66
	8/1/2026	$58.56	$12.84	$15.57	$5.89	$0.00	$92.86
	2/1/2027	$59.96	$12.84	$15.57	$5.89	$0.00	$94.26

Apprentice: BRICK/STONE/ARTIFICIAL MASONRY (INCL. MASONRY WATERPROOFING)

Effective Date: 2/1/2026

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	$28.18	$12.84	$15.57	$5.89	$0.00	$62.48
2	60.00	$33.82	$12.84	$15.57	$5.89	$0.00	$68.12
3	70.00	$39.45	$12.84	$15.57	$5.89	$0.00	$73.75
4	80.00	$45.09	$12.84	$15.57	$5.89	$0.00	$79.39
5	90.00	$50.72	$12.84	$15.57	$5.89	$0.00	$85.02

Apprentice: BRICK/STONE/ARTIFICIAL MASONRY (INCL. MASONRY WATERPROOFING)

Effective Date: 8/1/2026

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	$29.28	$12.84	$15.57	$5.89	$0.00	$63.58
2	60.00	$35.14	$12.84	$15.57	$5.89	$0.00	$69.44
3	70.00	$40.99	$12.84	$15.57	$5.89	$0.00	$75.29
4	80.00	$46.85	$12.84	$15.57	$5.89	$0.00	$81.15
5	90.00	$52.70	$12.84	$15.57	$5.89	$0.00	$87.00

Apprentice to Journeyworker Ratio: 1:5

BULLDOZER/POWER SHOVEL/TREE SHREDDER /CLAM SHELL OPERATING ENGINEERS LOCAL 98 OPERATING ENGINEERS LOCAL 98	12/1/2023	$39.56	$13.78	$12.15	$3.00	$0.00	$68.49

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

CAISSON & UNDERPINNING BOTTOM MAN LABORERS LABORERS - FOUNDATION AND MARINE	12/1/2025	$49.10	$10.65	$9.75	$9.80	$0.00	$79.30
	6/1/2026	$50.65	$10.65	$9.75	$9.80	$0.00	$80.85

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
	12/1/2026	$52.15	$10.65	$9.75	$9.80	$0.00	$82.35
For apprentice rates see "Apprentice- LABORER"							
CAISSON & UNDERPINNING LABORER	12/1/2025	$47.95	$10.65	$9.75	$9.80	$0.00	$78.15
LABORERS	6/1/2026	$49.50	$10.65	$9.75	$9.80	$0.00	$79.70
LABORERS - FOUNDATION AND MARINE	12/1/2026	$51.00	$10.65	$9.75	$9.80	$0.00	$81.20
For apprentice rates see "Apprentice- LABORER"							
CAISSON & UNDERPINNING TOP MAN	12/1/2025	$48.28	$10.65	$9.75	$9.80	$0.00	$78.48
LABORERS	6/1/2026	$49.83	$10.65	$9.75	$9.80	$0.00	$80.03
LABORERS - FOUNDATION AND MARINE	12/1/2026	$51.33	$10.65	$9.75	$9.80	$0.00	$81.53
For apprentice rates see "Apprentice- LABORER"							
CARBIDE CORE DRILL OPERATOR	12/1/2025	$36.25	$10.65	$9.75	$8.57	$0.00	$65.22
LABORERS	6/1/2026	$37.55	$10.65	$9.75	$8.57	$0.00	$66.52
LABORERS - ZONE 3 (BUILDING & SITE)	12/7/2026	$38.85	$10.65	$9.75	$8.57	$0.00	$67.82
	6/7/2027	$40.25	$10.65	$9.75	$8.57	$0.00	$69.22
	12/6/2027	$41.65	$10.65	$9.75	$8.57	$0.00	$70.62
	6/5/2028	$43.15	$10.65	$9.75	$8.57	$0.00	$72.12
	12/4/2028	$44.65	$10.65	$9.75	$8.57	$0.00	$73.62
For apprentice rates see "Apprentice- LABORER"							
CARPENTER	3/1/2026	$43.81	$9.19	$11.25	$6.90	$0.00	$71.15
CARPENTERS	9/1/2026	$44.76	$9.19	$11.25	$6.90	$0.00	$72.10
CARPENTERS LOCAL 336 - HAMPDEN HAMPSHIRE FRANKLIN	3/1/2027	$45.66	$9.19	$11.25	$6.90	$0.00	$73.00

Apprentice: CARPENTER

Effective Date: 3/1/2026

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	45.00	$19.71	$9.19	$0.00	$1.38	$0.00	$30.28
2	45.00	$19.71	$1.28	$0.00	$1.38	$0.00	$22.37
3	55.00	$24.10	$9.19	$0.00	$2.76	$0.00	$36.05
4	55.00	$24.10	$9.19	$0.00	$2.76	$0.00	$36.05
5	70.00	$30.67	$9.19	$11.25	$4.14	$0.00	$55.25
6	70.00	$30.67	$9.19	$11.25	$4.14	$0.00	$55.25
7	80.00	$35.05	$9.19	$11.25	$5.52	$0.00	$61.01
8	80.00	$35.05	$9.19	$11.25	$5.52	$0.00	$61.01

Apprentice: CARPENTER

Effective Date: 9/1/2026

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	45.00	$20.14	$9.19	$0.00	$1.38	$0.00	$30.71
2	45.00	$20.14	$9.19	$0.00	$1.38	$0.00	$30.71
3	55.00	$24.62	$9.19	$0.00	$2.76	$0.00	$36.57
4	55.00	$24.62	$9.19	$0.00	$2.76	$0.00	$36.57

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
CARPENTER WOOD FRAME	10/1/2025	$27.37	$7.38	$4.47	$1.00	$0.00	$40.22
CARPENTERS	10/1/2026	$28.47	$7.38	$4.47	$1.00	$0.00	$41.32
CARPENTERS-ZONE 3 (Wood Frame)							
All Aspects of New Wood Frame Work							

Apprentice: CARPENTER

Effective Date: 9/1/2026

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
5	70.00	$31.33	$9.19	$11.25	$4.14	$0.00	$55.91
6	70.00	$31.33	$9.19	$11.25	$4.14	$0.00	$55.91
7	80.00	$35.81	$9.19	$11.25	$5.52	$0.00	$61.77
8	80.00	$35.81	$9.19	$11.25	$5.52	$0.00	$61.77

Apprentice to Journeyworker Ratio: 1:5

Apprentice: CARPENTER WOOD FRAME

Effective Date: 10/1/2025

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	60.00	$16.42	$7.38	$0.00	$0.00	$0.00	$23.80
2	60.00	$16.42	$7.38	$0.00	$0.00	$0.00	$23.80
3	65.00	$17.79	$7.38	$0.00	$1.00	$0.00	$26.17
4	70.00	$19.16	$7.38	$0.00	$1.00	$0.00	$27.54
5	75.00	$20.53	$7.38	$3.80	$1.00	$0.00	$32.71
6	80.00	$21.90	$7.38	$3.80	$1.00	$0.00	$34.08
7	85.00	$23.26	$7.38	$3.80	$1.00	$0.00	$35.44
8	90.00	$24.63	$7.38	$3.80	$1.00	$0.00	$36.81

Apprentice: CARPENTER WOOD FRAME

Effective Date: 10/1/2026

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	60.00	$17.08	$7.38	$0.00	$0.00	$0.00	$24.46
2	60.00	$17.08	$7.38	$0.00	$0.00	$0.00	$24.46
3	65.00	$18.51	$7.38	$0.00	$1.00	$0.00	$26.89
4	70.00	$19.93	$7.38	$0.00	$1.00	$0.00	$28.31
5	75.00	$21.35	$7.38	$3.80	$1.00	$0.00	$33.53
6	80.00	$22.78	$7.38	$3.80	$1.00	$0.00	$34.96
7	85.00	$24.20	$7.38	$3.80	$1.00	$0.00	$36.38
8	90.00	$25.62	$7.38	$3.80	$1.00	$0.00	$37.80

Apprentice to Journeyworker Ratio: 1:5

CEMENT MASONRY/PLASTERING	1/1/2026	$48.13	$13.20	$16.30	$2.93	$1.69	$82.25
PLASTERERS AND CEMENT MASONS LOCAL 534	7/1/2026	$49.32	$13.20	$16.30	$2.93	$1.69	$83.44
Plasterers and Cement Masons - Zone 2	1/1/2027	$50.51	$13.20	$16.30	$2.93	$1.69	$84.63
	7/1/2027	$51.70	$13.20	$16.30	$2.93	$1.69	$85.82

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
	1/1/2028	$52.89	$13.20	$16.30	$2.93	$1.69	$87.01

Apprentice: CEMENT MASONRY/PLASTERING

Effective Date: 1/1/2026

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	$24.07	$13.20	$16.30	$0.00	$0.00	$53.57
2	60.00	$28.88	$13.20	$16.30	$2.93	$1.69	$63.00
3	65.00	$31.28	$13.20	$16.30	$2.93	$1.69	$65.40
4	70.00	$33.69	$13.20	$16.30	$2.93	$1.69	$67.81
5	75.00	$36.10	$13.20	$16.30	$2.93	$1.69	$70.22
6	80.00	$38.50	$13.20	$16.30	$2.93	$1.69	$72.62
7	90.00	$43.32	$13.20	$16.30	$2.93	$1.69	$77.44

Apprentice: CEMENT MASONRY/PLASTERING

Effective Date: 7/1/2026

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	$24.66	$13.20	$16.30	$0.00	$0.00	$54.16
2	60.00	$29.59	$13.20	$16.30	$2.93	$1.69	$63.71
3	65.00	$32.06	$13.20	$16.30	$2.93	$1.69	$66.18
4	70.00	$34.52	$13.20	$16.30	$2.93	$1.69	$68.64
5	75.00	$36.99	$13.20	$16.30	$2.93	$1.69	$71.11
6	80.00	$39.46	$13.20	$16.30	$2.93	$1.69	$73.58
7	90.00	$44.39	$13.20	$16.30	$2.93	$0.00	$76.82

Apprentice to Journeyworker Ratio: 1:5

CHAIN SAW OPERATOR LABORERS LABORERS - ZONE 3 (BUILDING & SITE)	12/1/2025	$36.25	$10.65	$9.75	$8.57	$0.00	$65.22
	6/1/2026	$37.55	$10.65	$9.75	$8.57	$0.00	$66.52
	12/7/2026	$38.85	$10.65	$9.75	$8.57	$0.00	$67.82
	6/7/2027	$40.25	$10.65	$9.75	$8.57	$0.00	$69.22
	12/6/2027	$41.65	$10.65	$9.75	$8.57	$0.00	$70.62
	6/5/2028	$43.15	$10.65	$9.75	$8.57	$0.00	$72.12
	12/4/2028	$44.65	$10.65	$9.75	$8.57	$0.00	$73.62
For apprentice rates see "Apprentice- LABORER"							
COMPRESSOR OPERATOR OPERATING ENGINEERS LOCAL 98 OPERATING ENGINEERS LOCAL 98	12/1/2023	$39.03	$13.78	$12.15	$3.00	$0.00	$67.96
For apprentice rates see "Apprentice- OPERATING ENGINEERS"							
CRANE OPERATOR OPERATING ENGINEERS LOCAL 98 OPERATING ENGINEERS LOCAL 98	12/1/2023	$43.06	$13.78	$12.15	$3.00	$0.00	$71.99
For apprentice rates see "Apprentice- OPERATING ENGINEERS"							
DELEADER (BRIDGE) PAINTERS LOCAL 35	1/1/2026	$59.56	$10.35	$12.00	$12.60	$0.00	$94.51

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
PAINTERS LOCAL 35 - ZONE 3							

Apprentice: DELEADER (BRIDGE)

Effective Date: 1/1/2026

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	$29.78	$10.35	$0.00	$0.00	$0.00	$40.13
2	55.00	$32.76	$10.35	$0.00	$6.93	$0.00	$50.04
3	60.00	$35.74	$10.35	$0.00	$7.56	$0.00	$53.65
4	65.00	$38.71	$10.35	$0.00	$8.19	$0.00	$57.25
5	70.00	$41.69	$10.35	$12.00	$8.82	$0.00	$72.86
6	75.00	$44.67	$10.35	$12.00	$9.45	$0.00	$76.47
7	80.00	$47.65	$10.35	$12.00	$10.08	$0.00	$80.08
8	90.00	$53.60	$10.35	$12.00	$11.34	$0.00	$87.29

Apprentice to Journeyworker Ratio: 1:1

DEMO: ADZEMAN LABORERS LABORERS - ZONE 3 (BUILDING & SITE)	12/1/2025	$48.00	$10.65	$9.75	$9.65	$0.00	$78.05
	6/1/2026	$49.55	$10.65	$9.75	$9.65	$0.00	$79.60
	12/7/2026	$51.05	$10.65	$9.75	$9.65	$0.00	$81.10
	6/7/2027	$52.65	$10.65	$9.75	$9.65	$0.00	$82.70
	12/6/2027	$54.25	$10.65	$9.75	$9.65	$0.00	$84.30
	6/5/2028	$55.93	$10.65	$9.75	$9.65	$0.00	$85.98
	12/4/2028	$57.60	$10.65	$9.75	$9.65	$0.00	$87.65
For apprentice rates see "Apprentice- LABORER"							
DEMO: BACKHOE/LOADER/HAMMER OPERATOR LABORERS LABORERS - ZONE 3 (BUILDING & SITE)	12/1/2025	$49.00	$10.65	$9.75	$9.65	$0.00	$79.05
	6/1/2026	$50.55	$10.65	$9.75	$9.65	$0.00	$80.60
	12/7/2026	$52.05	$10.65	$9.75	$9.65	$0.00	$82.10
	6/7/2027	$53.65	$10.65	$9.75	$9.65	$0.00	$83.70
	12/6/2027	$55.25	$10.65	$9.75	$9.65	$0.00	$85.30
	6/5/2028	$56.93	$10.65	$9.75	$9.65	$0.00	$86.98
	12/4/2028	$58.60	$10.65	$9.75	$9.65	$0.00	$88.65
For apprentice rates see "Apprentice- LABORER"							
DEMO: BURNERS LABORERS LABORERS - ZONE 3 (BUILDING & SITE)	12/1/2025	$48.75	$10.65	$9.75	$9.65	$0.00	$78.80
	6/1/2026	$50.30	$10.65	$9.75	$9.65	$0.00	$80.35
	12/7/2026	$51.80	$10.65	$9.75	$9.65	$0.00	$81.85
	6/7/2027	$53.40	$10.65	$9.75	$9.65	$0.00	$83.45
	12/6/2027	$55.00	$10.65	$9.75	$9.65	$0.00	$85.05
	6/5/2028	$56.68	$10.65	$9.75	$9.65	$0.00	$86.73
	12/4/2028	$58.35	$10.65	$9.75	$9.65	$0.00	$88.40
For apprentice rates see "Apprentice- LABORER"							
DEMO: CONCRETE CUTTER/SAWYER LABORERS LABORERS - ZONE 3 (BUILDING & SITE)	12/1/2025	$49.00	$10.65	$9.75	$9.65	$0.00	$79.05
	6/1/2026	$50.55	$10.65	$9.75	$9.65	$0.00	$80.60
	12/7/2026	$52.05	$10.65	$9.75	$9.65	$0.00	$82.10
	6/7/2027	$53.65	$10.65	$9.75	$9.65	$0.00	$83.70
	12/6/2027	$55.25	$10.65	$9.75	$9.65	$0.00	$85.30

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
	6/5/2028	$56.93	$10.65	$9.75	$9.65	$0.00	$86.98
	12/4/2028	$58.60	$10.65	$9.75	$9.65	$0.00	$88.65
For apprentice rates see "Apprentice- LABORER"							
DEMO: JACKHAMMER OPERATOR	12/1/2025	$48.75	$10.65	$9.75	$9.65	$0.00	$78.80
LABORERS	6/1/2026	$50.30	$10.65	$9.75	$9.65	$0.00	$80.35
LABORERS - ZONE 3 (BUILDING & SITE)	12/7/2026	$51.80	$10.65	$9.75	$9.65	$0.00	$81.85
	6/7/2027	$53.40	$10.65	$9.75	$9.65	$0.00	$83.45
	12/6/2027	$55.00	$10.65	$9.75	$9.65	$0.00	$85.05
	6/5/2028	$56.68	$10.65	$9.75	$9.65	$0.00	$86.73
	12/4/2028	$58.35	$10.65	$9.75	$9.65	$0.00	$88.40
For apprentice rates see "Apprentice- LABORER"							
DEMO: WRECKING LABORER	12/1/2025	$48.00	$10.65	$9.75	$9.65	$0.00	$78.05
LABORERS	6/1/2026	$49.55	$10.65	$9.75	$9.65	$0.00	$79.60
LABORERS - ZONE 3 (BUILDING & SITE)	12/7/2026	$51.05	$10.65	$9.75	$9.65	$0.00	$81.10
	6/7/2027	$52.65	$10.65	$9.75	$9.65	$0.00	$82.70
	12/6/2027	$54.25	$10.65	$9.75	$9.65	$0.00	$84.30
	6/5/2028	$55.93	$10.65	$9.75	$9.65	$0.00	$85.98
	12/4/2028	$57.60	$10.65	$9.75	$9.65	$0.00	$87.65
For apprentice rates see "Apprentice- LABORER"							
DIVER	8/1/2024	$78.11	$10.08	$11.62	$12.67	$0.00	$112.48
PILE DRIVER LOCAL 56							
PILE DRIVER LOCAL 56 (ZONE 3)							
as of 8-1-24, Apprentices with diving licenses begin at second year. % of Diver wage 70/80/90 2A $69.83, 3A $91.79,4A $102.14 Total Rate							
DIVER TENDER	8/1/2024	$49.19	$10.08	$11.62	$12.67	$0.00	$83.56
PILE DRIVER LOCAL 56							
PILE DRIVER LOCAL 56 (ZONE 3)							
as of 8-1-24, Apprentices with diving licenses begin at second year. % of Piledriver wage 70/80/90 2A $54.20, 3A $73.93,4A $82.05 Total Rate							
DIVER TENDER (EFFLUENT)	8/1/2024	$83.69	$10.08	$11.62	$12.67	$0.00	$118.06
PILE DRIVER LOCAL 56							
PILE DRIVER LOCAL 56 (ZONE 3)							
For apprentice rates see "Apprentice- PILE DRIVER"							
DIVER/SLURRY (EFFLUENT)	8/1/2024	$117.16	$10.08	$11.62	$12.67	$0.00	$151.53
PILE DRIVER LOCAL 56							
PILE DRIVER LOCAL 56 (ZONE 3)							
For apprentice rates see "Apprentice- PILE DRIVER"							
DRAWBRIDGE OPERATOR (Construction)	7/1/2020	$26.77	$6.67	$3.93	$0.00	$0.16	$37.53
DRAWBRIDGE - SEIU LOCAL 888							
DRAWBRIDGE - SEIU LOCAL 888							
ELECTRICIAN (Including Core Drilling)	12/28/2025	$53.26	$13.75	$8.40	$6.96	$0.00	$82.37
ELECTRICIANS LOCAL 7	6/28/2026	$54.41	$14.00	$8.43	$7.03	$0.00	$83.87
ELECTRICIANS LOCAL 7	1/3/2027	$55.56	$14.25	$8.47	$7.09	$0.00	$85.37

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate

Apprentice: ELECTRICIAN (Including Core Drilling)

Effective Date: 12/28/2025

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	40.00	$21.30	$7.65	$0.63	$0.00	$0.00	$29.58
2	45.00	$23.97	$7.65	$0.70	$0.00	$0.00	$32.32
3	50.00	$26.63	$13.75	$7.53	$0.00	$0.00	$47.91
4	55.00	$29.29	$13.75	$7.61	$0.00	$0.00	$50.65
5	65.00	$34.62	$13.75	$9.84	$0.00	$0.00	$58.21
6	70.00	$37.28	$13.75	$11.30	$0.00	$0.00	$62.33

Apprentice: ELECTRICIAN (Including Core Drilling)

Effective Date: 6/28/2026

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	40.00	$21.76	$7.80	$0.63	$0.00	$0.00	$30.19
2	45.00	$24.48	$7.80	$0.70	$0.00	$0.00	$32.98
3	50.00	$27.21	$14.00	$7.53	$0.00	$0.00	$48.74
4	55.00	$29.93	$14.00	$7.61	$0.00	$0.00	$51.54
5	65.00	$35.37	$14.00	$9.84	$0.00	$0.00	$59.21
6	70.00	$38.09	$14.00	$11.30	$0.00	$0.00	$63.39

Apprentice to Journeyworker Ratio: 2:3

ELEVATOR CONSTRUCTOR	1/1/2026	$69.23	$16.38	$11.06	$10.70	$0.00	$107.37
ELEVATOR CONSTRUCTORS LOCAL 41	1/1/2027	$72.23	$16.48	$11.16	$11.00	$0.00	$110.87
ELEVATOR CONSTRUCTORS LOCAL 41							

Apprentice: ELEVATOR CONSTRUCTOR

Effective Date: 1/1/2026

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	$34.62	$16.38	$0.00	$0.00	$0.00	$51.00
2	55.00	$38.08	$16.38	$11.06	$10.70	$0.00	$76.22
3	65.00	$45.00	$16.38	$11.06	$10.70	$0.00	$83.14
4	70.00	$48.46	$16.38	$11.06	$10.70	$0.00	$86.60
5	80.00	$55.38	$16.38	$11.06	$10.70	$0.00	$93.52

Apprentice: ELEVATOR CONSTRUCTOR

Effective Date: 1/1/2027

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	$36.12	$16.48	$0.00	$0.00	$0.00	$52.60
2	55.00	$39.73	$16.48	$11.16	$11.00	$0.00	$78.37
3	65.00	$46.95	$16.48	$11.16	$11.00	$0.00	$85.59

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
Apprentice: ELEVATOR CONSTRUCTOR							
Effective Date: 1/1/2027							
Step / Percent		**Apprentice Base Wage**					
4 / 70.00		$50.56	$16.48	$11.16	$11.00	$0.00	$89.20
5 / 80.00		$57.78	$16.48	$11.16	$11.00	$0.00	$96.42
Apprentice to Journeyworker Ratio: 1:1							
ELEVATOR CONSTRUCTOR HELPER	1/1/2026	$48.46	$16.38	$11.06	$10.70	$0.00	$86.60
ELEVATOR CONSTRUCTORS LOCAL 41	1/1/2027	$50.56	$16.48	$11.16	$11.00	$0.00	$89.20
ELEVATOR CONSTRUCTORS LOCAL 41							
For apprentice rates see "Apprentice - ELEVATOR CONSTRUCTOR"							
FENCE & GUARD RAIL ERECTOR (HEAVY & HIGHWAY)	12/1/2025	$36.24	$10.65	$9.75	$6.56	$0.00	$63.20
LABORERS	6/1/2026	$37.54	$10.65	$9.75	$6.56	$0.00	$64.50
LABORERS - ZONE 3 (HEAVY & HIGHWAY)	12/1/2026	$38.83	$10.65	$9.75	$6.56	$0.00	$65.79
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)							
FIELD ENG.INST/ROD-BLDG,SITE,HVY/HWY	6/1/1999	$18.84	$4.80	$4.10	$0.00	$0.00	$27.74
OPERATING ENGINEERS LOCAL 98							
OPERATING ENGINEERS LOCAL 98							
FIELD ENG.PARTY CHIEF:BLDG,SITE,HVY/HWY	6/1/1999	$21.33	$4.80	$4.10	$0.00	$0.00	$30.23
OPERATING ENGINEERS LOCAL 98							
OPERATING ENGINEERS LOCAL 98							
FIELD ENG.SURVEY CHIEF-BLDG,SITE,HVY/HWY	6/1/1999	$22.33	$4.80	$4.10	$0.00	$0.00	$31.23
OPERATING ENGINEERS LOCAL 98							
OPERATING ENGINEERS LOCAL 98							
FIRE ALARM INSTALLER	12/28/2025	$53.26	$13.75	$8.40	$6.96	$0.00	$82.37
ELECTRICIANS LOCAL 7	6/28/2026	$54.41	$14.00	$8.43	$7.03	$0.00	$83.87
ELECTRICIANS LOCAL 7	1/3/2027	$55.56	$14.25	$8.47	$7.09	$0.00	$85.37
For apprentice rates see "Apprentice- ELECTRICIAN"							
FIRE ALARM REPAIR / MAINTENANCE	12/28/2025	$53.26	$13.75	$8.40	$6.96	$0.00	$82.37
/ COMMISSIONING	6/28/2026	$54.41	$14.00	$8.43	$7.03	$0.00	$83.87
ELECTRICIANS LOCAL 7	1/3/2027	$55.56	$14.25	$8.47	$7.09	$0.00	$85.37
ELECTRICIANS LOCAL 7							
For apprentice rates see "Apprentice- TELECOMMUNICATIONS TECHNICIAN"							
FIREMAN	12/1/2023	$39.03	$13.78	$12.15	$3.00	$0.00	$67.96
OPERATING ENGINEERS LOCAL 98							
OPERATING ENGINEERS LOCAL 98							
Apprentice: FIREMAN							
Effective Date: 12/1/2023							
Step / Percent		**Apprentice Base Wage**					

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate

Apprentice: FIREMAN

Effective Date: 12/1/2023

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	60.00	$23.42	$13.78	$12.15	$3.00	$0.00	$52.35
2	70.00	$27.32	$13.78	$12.15	$3.00	$0.00	$56.25
3	80.00	$31.22	$13.78	$12.15	$3.00	$0.00	$60.15
4	90.00	$35.13	$13.78	$12.15	$3.00	$0.00	$64.06

Apprentice to Journeyworker Ratio: 1:6

FLAGGER & SIGNALER (HEAVY & HIGHWAY)	12/1/2025	$28.09	$10.65	$9.75	$6.56	$0.00	$55.05
LABORERS LABORERS - ZONE 3 (HEAVY & HIGHWAY)	6/1/2026	$29.21	$10.65	$9.75	$6.56	$0.00	$56.17
	12/1/2026	$29.21	$10.65	$9.75	$6.56	$0.00	$56.17
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)							
FLOORCOVERER FLOORCOVERERS LOCAL 2168 FLOORCOVERERS LOCAL 2168 ZONE III	3/1/2026	$44.34	$8.56	$11.25	$6.90	$0.00	$71.05
	9/1/2026	$45.29	$8.56	$11.25	$6.90	$0.00	$72.00
	3/1/2027	$46.19	$8.56	$11.25	$6.90	$0.00	$72.90

Apprentice: FLOORCOVERER

Effective Date: 3/1/2026

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	45.00	$19.95	$8.56	$0.00	$1.38	$0.00	$29.89
2	45.00	$19.95	$8.56	$0.00	$1.38	$0.00	$29.89
3	55.00	$24.39	$8.56	$0.00	$2.76	$0.00	$35.71
4	55.00	$24.39	$8.56	$0.00	$2.76	$0.00	$35.71
5	70.00	$31.04	$8.56	$11.25	$4.14	$0.00	$54.99
6	70.00	$31.04	$8.56	$11.25	$4.14	$0.00	$54.99
7	80.00	$35.47	$8.56	$11.25	$5.52	$0.00	$60.80
8	80.00	$35.47	$8.56	$11.25	$5.52	$0.00	$60.80

Apprentice: FLOORCOVERER

Effective Date: 9/1/2026

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	45.00	$20.38	$8.56	$0.00	$1.38	$0.00	$30.32
2	45.00	$20.38	$8.56	$0.00	$1.38	$0.00	$30.32
3	55.00	$24.91	$8.56	$0.00	$2.76	$0.00	$36.23
4	55.00	$24.91	$8.56	$0.00	$2.76	$0.00	$36.23
5	70.00	$31.70	$8.56	$11.25	$4.14	$0.00	$55.65
6	70.00	$31.70	$8.56	$11.25	$4.14	$0.00	$55.65
7	80.00	$36.23	$8.56	$11.25	$5.52	$0.00	$61.56
8	80.00	$36.23	$8.56	$11.25	$5.52	$0.00	$61.56

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
Apprentice Notes Steps are 750 hrs.							
Apprentice to Journeyworker Ratio: 1:1							
FORK LIFT OPERATING ENGINEERS LOCAL 98 OPERATING ENGINEERS LOCAL 98 For apprentice rates see "Apprentice- OPERATING ENGINEERS"	12/1/2023	$39.25	$13.78	$12.15	$3.00	$0.00	$68.18
GENERATORS/LIGHTING PLANTS OPERATING ENGINEERS LOCAL 98 OPERATING ENGINEERS LOCAL 98 For apprentice rates see "Apprentice- OPERATING ENGINEERS"	12/1/2023	$35.80	$13.78	$12.15	$3.00	$0.00	$64.73
GLAZIER (GLASS PLANK/AIR BARRIER/INTERIOR SYSTEMS) GLAZIERS LOCAL 1333 GLAZIERS LOCAL 1333	6/1/2025	$43.13	$10.80	$8.25	$5.50	$0.00	$67.68
	6/1/2026	$44.73	$11.20	$8.40	$6.05	$0.00	$70.38
	6/1/2027	$46.73	$11.60	$8.55	$6.60	$0.00	$73.48
	6/1/2028	$48.73	$12.00	$8.70	$7.20	$0.00	$76.63

Apprentice: GLAZIER (GLASS PLANK/AIR BARRIER/INTERIOR SYSTEMS)

Effective Date: 6/1/2025

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	$21.57	$10.80	$8.25	$5.50	$0.00	$46.12
2	56.25	$24.26	$10.80	$8.25	$5.50	$0.00	$48.81
3	62.50	$26.96	$10.80	$8.25	$5.50	$0.00	$51.51
4	68.75	$29.65	$10.80	$8.25	$5.50	$0.00	$54.20
5	75.00	$32.35	$10.80	$8.25	$5.50	$0.00	$56.90
6	81.25	$35.04	$10.80	$8.25	$5.50	$0.00	$59.59
7	87.50	$37.74	$10.80	$8.25	$5.50	$0.00	$62.29
8	93.75	$40.43	$10.80	$8.25	$5.50	$0.00	$64.98

Apprentice: GLAZIER (GLASS PLANK/AIR BARRIER/INTERIOR SYSTEMS)

Effective Date: 6/1/2026

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	$22.37	$11.20	$8.40	$6.05	$0.00	$48.02
2	56.25	$25.16	$11.20	$8.40	$6.05	$0.00	$50.81
3	62.50	$27.96	$11.20	$8.40	$6.05	$0.00	$53.61
4	68.75	$30.75	$11.20	$8.40	$6.05	$0.00	$56.40
5	75.00	$33.55	$11.20	$8.40	$6.05	$0.00	$59.20
6	81.25	$36.34	$11.20	$8.40	$6.05	$0.00	$61.99
7	87.50	$39.14	$11.20	$8.40	$6.05	$0.00	$64.79
8	93.75	$41.93	$11.20	$8.40	$6.05	$0.00	$67.58

Apprentice to Journeyworker Ratio: 3:1

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
GRADER/TRENCHING MACHINE/DERRICK OPERATING ENGINEERS LOCAL 98 OPERATING ENGINEERS LOCAL 98	12/1/2023	$39.56	$13.78	$12.15	$3.00	$0.00	$68.49
For apprentice rates see "Apprentice- OPERATING ENGINEERS"							
HVAC (DUCTWORK) SHEETMETAL WORKERS LOCAL 63 SHEETMETAL WORKERS LOCAL 63	7/1/2025	$43.48	$12.94	$11.01	$8.72	$2.13	$78.28
	7/1/2026	$43.48	$13.24	$11.01	$9.92	$2.13	$79.78
	1/1/2027	$43.48	$13.54	$11.01	$11.12	$2.13	$81.28
	7/1/2027	$44.98	$13.54	$11.01	$11.12	$2.13	$82.78
	1/1/2028	$46.48	$13.54	$11.01	$11.12	$2.13	$84.28
For apprentice rates see "Apprentice- SHEET METAL WORKER"							
HVAC (ELECTRICAL CONTROLS) ELECTRICIANS LOCAL 7 ELECTRICIANS LOCAL 7	12/28/2025	$53.26	$13.75	$8.40	$6.96	$0.00	$82.37
	6/28/2026	$54.41	$14.00	$8.43	$7.03	$0.00	$83.87
	1/3/2027	$55.56	$14.25	$8.47	$7.09	$0.00	$85.37
For apprentice rates see "Apprentice- ELECTRICIAN"							
HVAC (TESTING AND BALANCING - AIR) SHEETMETAL WORKERS LOCAL 63 SHEETMETAL WORKERS LOCAL 63	7/1/2025	$43.48	$12.94	$11.01	$8.72	$2.13	$78.28
	7/1/2026	$43.48	$13.24	$11.01	$9.92	$2.13	$79.78
	1/1/2027	$43.48	$13.54	$11.01	$11.12	$2.13	$81.28
	7/1/2027	$44.98	$13.54	$11.01	$11.12	$2.13	$82.78
	1/1/2028	$46.48	$13.54	$11.01	$11.12	$2.13	$84.28
For apprentice rates see "Apprentice- SHEET METAL WORKER"							
HVAC (TESTING AND BALANCING -WATER) PLUMBERS & PIPEFITTERS LOCAL 104 PLUMBERS & PIPEFITTERS LOCAL 104	3/17/2026	$52.76	$13.50	$10.85	$7.10	$0.00	$84.21
	9/17/2026	$54.76	$13.50	$10.85	$7.10	$0.00	$86.21
	3/17/2027	$58.26	$12.00	$10.85	$7.10	$0.00	$88.21
	9/17/2027	$60.26	$12.00	$10.85	$7.10	$0.00	$90.21
	3/17/2028	$62.26	$12.00	$10.85	$7.10	$0.00	$92.21
	9/17/2028	$64.26	$12.00	$10.85	$7.10	$0.00	$94.21
	3/17/2029	$66.26	$12.00	$10.85	$7.10	$0.00	$96.21
For apprentice rates see "Apprentice- PIPEFITTER" or "PLUMBER/PIPEFITTER"							
HVAC MECHANIC PLUMBERS & PIPEFITTERS LOCAL 104 PLUMBERS & PIPEFITTERS LOCAL 104	3/17/2026	$52.76	$13.50	$10.85	$7.10	$0.00	$84.21
	9/17/2026	$54.76	$13.50	$10.85	$7.10	$0.00	$86.21
	3/17/2027	$58.26	$12.00	$10.85	$7.10	$0.00	$88.21
	9/17/2027	$60.26	$12.00	$10.85	$7.10	$0.00	$90.21
	3/17/2028	$62.26	$12.00	$10.85	$7.10	$0.00	$92.21
	9/17/2028	$64.26	$12.00	$10.85	$7.10	$0.00	$94.21
	3/17/2029	$66.26	$12.00	$10.85	$7.10	$0.00	$96.21
For apprentice rates see "Apprentice- PIPEFITTER" or "PLUMBER/PIPEFITTER"							
HYDRAULIC DRILLS (HEAVY & HIGHWAY) LABORERS LABORERS - ZONE 3 (HEAVY & HIGHWAY)	12/1/2025	$36.74	$10.65	$9.75	$6.56	$0.00	$63.70
	6/1/2026	$38.04	$10.65	$9.75	$6.56	$0.00	$65.00
	12/1/2026	$39.33	$10.65	$9.75	$6.56	$0.00	$66.29
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"							
INSULATOR (PIPES & TANKS) HEAT & FROST INSULATORS LOCAL 6 HEAT & FROST INSULATORS LOCAL 6 (SPRINGFIELD)	9/1/2025	$48.27	$14.75	$9.52	$10.09	$0.00	$82.63
	9/1/2026	$51.01	$14.75	$9.52	$10.09	$0.00	$85.37

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate

Apprentice: INSULATOR (PIPES & TANKS)

Effective Date: 9/1/2025

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	$24.14	$14.75	$9.27	$5.05	$0.00	$53.21
2	60.00	$28.96	$14.75	$9.32	$6.05	$0.00	$59.08
3	70.00	$33.79	$14.75	$9.37	$7.06	$0.00	$64.97
4	80.00	$38.62	$14.75	$9.42	$8.07	$0.00	$70.86

Apprentice: INSULATOR (PIPES & TANKS)

Effective Date: 9/1/2026

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	$25.51	$14.75	$9.27	$5.05	$0.00	$54.58
2	60.00	$30.61	$14.75	$9.32	$6.05	$0.00	$60.73
3	70.00	$35.71	$14.75	$9.37	$7.06	$0.00	$66.89
4	80.00	$40.81	$14.75	$9.42	$8.07	$0.00	$73.05

Apprentice to Journeyworker Ratio: 1:4

IRONWORKER/WELDER IRONWORKERS LOCAL 7 IRONWORKERS LOCAL 7 (SPRINGFIELD AREA)	3/16/2024	$40.66	$8.25	$12.70	$10.00	$0.00	$71.61

Apprentice: IRONWORKER/WELDER

Effective Date: 3/16/2024

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	60.00	$24.40	$8.25	$12.70	$10.00	$0.00	$55.35
2	70.00	$28.46	$8.25	$12.70	$10.00	$0.00	$59.41
3	75.00	$30.50	$8.25	$12.70	$10.00	$0.00	$61.45
4	80.00	$32.53	$8.25	$12.70	$10.00	$0.00	$63.48
5	85.00	$34.56	$8.25	$12.70	$10.00	$0.00	$65.51
6	90.00	$36.59	$8.25	$12.70	$10.00	$0.00	$67.54

Apprentice to Journeyworker Ratio: 1:4

JACKHAMMER & PAVING BREAKER OPERATOR LABORERS LABORERS - ZONE 3 (BUILDING & SITE)	12/1/2025	$36.25	$10.65	$9.75	$8.57	$0.00	$65.22
	6/1/2026	$37.55	$10.65	$9.75	$8.57	$0.00	$66.52
	12/7/2026	$38.85	$10.65	$9.75	$8.57	$0.00	$67.82
	6/7/2027	$40.25	$10.65	$9.75	$8.57	$0.00	$69.22
	12/6/2027	$41.65	$10.65	$9.75	$8.57	$0.00	$70.62
	6/5/2028	$43.15	$10.65	$9.75	$8.57	$0.00	$72.12
	12/4/2028	$44.65	$10.65	$9.75	$8.57	$0.00	$73.62
For apprentice rates see "Apprentice- LABORER"							
LABORER	12/1/2025	$36.00	$10.65	$9.75	$8.57	$0.00	$64.97

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
LABORERS	6/1/2026	$37.30	$10.65	$9.75	$8.57	$0.00	$66.27
LABORERS - ZONE 3 (BUILDING & SITE)	12/7/2026	$38.60	$10.65	$9.75	$8.57	$0.00	$67.57
	6/7/2027	$40.00	$10.65	$9.75	$8.57	$0.00	$68.97
	12/6/2027	$41.40	$10.65	$9.75	$8.57	$0.00	$70.37
	6/5/2028	$42.90	$10.65	$9.75	$8.57	$0.00	$71.87
	12/4/2028	$44.40	$10.65	$9.75	$8.57	$0.00	$73.37

Apprentice: LABORER

Effective Date: 12/1/2025

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	60.00	$22.05	$9.90	$9.25	$8.32	$0.00	$49.52
2	70.00	$25.73	$9.90	$9.25	$8.32	$0.00	$53.20
3	80.00	$29.40	$9.90	$9.25	$8.32	$0.00	$56.87
4	90.00	$33.08	$9.90	$9.25	$8.32	$0.00	$60.55

Apprentice: LABORER

Effective Date: 6/1/2026

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	60.00	$22.38	$10.65	$9.75	$8.57	$0.00	$51.35
2	70.00	$26.11	$10.65	$9.75	$8.57	$0.00	$55.08
3	80.00	$29.84	$10.65	$9.75	$8.57	$0.00	$58.81
4	90.00	$33.57	$10.65	$9.75	$8.57	$0.00	$62.54

Apprentice to Journeyworker Ratio: 1:5

LABORER (HEAVY & HIGHWAY)	12/1/2025	$35.99	$10.65	$9.75	$6.56	$0.00	$62.95
LABORERS	6/1/2026	$37.29	$10.65	$9.75	$6.56	$0.00	$64.25
LABORERS - ZONE 3 (HEAVY & HIGHWAY)	12/1/2026	$38.58	$10.65	$9.75	$6.56	$0.00	$65.54

Apprentice: LABORER (HEAVY & HIGHWAY)

Effective Date: 12/1/2025

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	60.00	$22.04	$9.90	$9.25	$6.31	$0.00	$47.50
2	70.00	$25.72	$9.90	$9.25	$6.31	$0.00	$51.18
3	80.00	$29.40	$9.90	$9.25	$6.31	$0.00	$54.86
4	90.00	$33.07	$9.90	$9.25	$6.31	$0.00	$58.53

Apprentice: LABORER (HEAVY & HIGHWAY)

Effective Date: 6/1/2026

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	60.00	$22.37	$10.65	$9.75	$6.56	$0.00	$49.33

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate

Apprentice: LABORER (HEAVY & HIGHWAY)

Effective Date: 6/1/2026

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
2	70.00	$26.10	$10.65	$9.75	$6.56	$0.00	$53.06
3	80.00	$29.83	$10.65	$9.75	$6.56	$0.00	$56.79
4	90.00	$33.56	$10.65	$9.75	$6.56	$0.00	$60.52

Apprentice to Journeyworker Ratio: 1:5

LABORER: CARPENTER TENDER LABORERS LABORERS - ZONE 3 (BUILDING & SITE)	12/1/2025	$36.00	$10.65	$9.75	$8.57	$0.00	$64.97
	6/1/2026	$37.30	$10.65	$9.75	$8.57	$0.00	$66.27
	12/7/2026	$38.60	$10.65	$9.75	$8.57	$0.00	$67.57
	6/7/2027	$40.00	$10.65	$9.75	$8.57	$0.00	$68.97
	12/6/2027	$41.40	$10.65	$9.75	$8.57	$0.00	$70.37
	6/5/2028	$42.90	$10.65	$9.75	$8.57	$0.00	$71.87
	12/4/2028	$44.40	$10.65	$9.75	$8.57	$0.00	$73.37
For apprentice rates see "Apprentice- LABORER"							
LABORER: CEMENT FINISHER TENDER LABORERS LABORERS - ZONE 3 (BUILDING & SITE)	12/1/2025	$36.00	$10.65	$9.75	$8.57	$0.00	$64.97
	6/1/2026	$37.30	$10.65	$9.75	$8.57	$0.00	$66.27
	12/7/2026	$38.60	$10.65	$9.75	$8.57	$0.00	$67.57
	6/7/2027	$40.00	$10.65	$9.75	$8.57	$0.00	$68.97
	12/6/2027	$41.40	$10.65	$9.75	$8.57	$0.00	$70.37
	6/5/2028	$42.90	$10.65	$9.75	$8.57	$0.00	$71.87
	12/4/2028	$44.40	$10.65	$9.75	$8.57	$0.00	$73.37
For apprentice rates see "Apprentice- LABORER"							
LABORER: HAZARDOUS WASTE/ASBESTOS REMOVER LABORERS LABORERS - ZONE 3 (BUILDING & SITE)	12/1/2025	$35.92	$10.65	$9.75	$8.70	$0.00	$65.02
	6/1/2026	$37.22	$10.65	$9.75	$8.70	$0.00	$66.32
	12/7/2026	$38.52	$10.65	$9.75	$8.70	$0.00	$67.62
	6/7/2027	$39.92	$10.65	$9.75	$8.70	$0.00	$69.02
	12/6/2027	$41.32	$10.65	$9.75	$8.70	$0.00	$70.42
	6/5/2028	$42.82	$10.65	$9.75	$8.70	$0.00	$71.92
	12/4/2028	$44.32	$10.65	$9.75	$8.70	$0.00	$73.42
For apprentice rates see "Apprentice- LABORER"							
LABORER: MASON TENDER LABORERS LABORERS - ZONE 3 (BUILDING & SITE)	12/1/2025	$39.00	$10.65	$9.75	$8.57	$0.00	$67.97
	6/1/2026	$40.30	$10.65	$9.75	$8.57	$0.00	$69.27
	12/7/2026	$41.60	$10.65	$9.75	$8.57	$0.00	$70.57
	6/7/2027	$43.00	$10.65	$9.75	$8.57	$0.00	$71.97
	12/6/2027	$44.40	$10.65	$9.75	$8.57	$0.00	$73.37
	6/5/2028	$45.90	$10.65	$9.75	$8.57	$0.00	$74.87
	12/4/2028	$47.40	$10.65	$9.75	$8.57	$0.00	$76.37
For apprentice rates see "Apprentice- LABORER"							
LABORER: MASON TENDER (HEAVY & HIGHWAY) LABORERS LABORERS - ZONE 3 (HEAVY & HIGHWAY)	12/1/2025	$36.24	$10.65	$9.75	$6.56	$0.00	$63.20
	6/1/2026	$37.54	$10.65	$9.75	$6.56	$0.00	$64.50
	12/1/2026	$38.83	$10.65	$9.75	$6.56	$0.00	$65.79

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)							
LABORER: MULTI-TRADE TENDER LABORERS LABORERS - ZONE 3 (BUILDING & SITE)	12/1/2025	$36.00	$10.65	$9.75	$8.57	$0.00	$64.97
	6/1/2026	$37.30	$10.65	$9.75	$8.57	$0.00	$66.27
	12/7/2026	$38.60	$10.65	$9.75	$8.57	$0.00	$67.57
	6/7/2027	$40.00	$10.65	$9.75	$8.57	$0.00	$68.97
	12/6/2027	$41.40	$10.65	$9.75	$8.57	$0.00	$70.37
	6/5/2028	$42.90	$10.65	$9.75	$8.57	$0.00	$71.87
	12/4/2028	$44.40	$10.65	$9.75	$8.57	$0.00	$73.37
For apprentice rates see "Apprentice- LABORER"							
LABORER: TREE REMOVER LABORERS LABORERS - ZONE 3 (BUILDING & SITE)	12/1/2025	$36.00	$10.65	$9.75	$8.57	$0.00	$64.97
	6/1/2026	$37.30	$10.65	$9.75	$8.57	$0.00	$66.27
	12/7/2026	$38.60	$10.65	$9.75	$8.57	$0.00	$67.57
	6/7/2027	$40.00	$10.65	$9.75	$8.57	$0.00	$68.97
	12/6/2027	$41.40	$10.65	$9.75	$8.57	$0.00	$70.37
	6/5/2028	$42.90	$10.65	$9.75	$8.57	$0.00	$71.87
	12/4/2028	$44.40	$10.65	$9.75	$8.57	$0.00	$73.37
This classification applies to the removal of standing trees, and the trimming and removal of branches and limbs when related to public works construction or site clearance incidental to construction . For apprentice rates see "Apprentice- LABORER"							
LASER BEAM OPERATOR LABORERS LABORERS - ZONE 3 (BUILDING & SITE)	12/1/2025	$36.25	$10.65	$9.75	$8.57	$0.00	$65.22
	6/1/2026	$37.55	$10.65	$9.75	$8.57	$0.00	$66.52
	12/7/2026	$38.85	$10.65	$9.75	$8.57	$0.00	$67.82
	6/7/2027	$40.25	$10.65	$9.75	$8.57	$0.00	$69.22
	12/6/2027	$41.65	$10.65	$9.75	$8.57	$0.00	$70.62
	6/5/2028	$43.15	$10.65	$9.75	$8.57	$0.00	$72.12
	12/4/2028	$44.65	$10.65	$9.75	$8.57	$0.00	$73.62
For apprentice rates see "Apprentice- LABORER"							
LASER BEAM OPERATOR (HEAVY & HIGHWAY) LABORERS LABORERS - ZONE 3 (HEAVY & HIGHWAY)	12/1/2025	$36.24	$10.65	$9.75	$6.56	$0.00	$63.20
	6/1/2026	$37.54	$10.65	$9.75	$6.56	$0.00	$64.50
	12/1/2026	$38.83	$10.65	$9.75	$6.56	$0.00	$65.79
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"							
MARBLE & TILE FINISHERS BRICKLAYERS LOCAL 3 BRICKLAYERS LOCAL 3 (SPR/PITT) - MARBLE & TILE	2/1/2026	$45.56	$12.84	$15.10	$5.41	$0.00	$78.91
	8/1/2026	$47.32	$12.84	$15.10	$5.41	$0.00	$80.67
	2/1/2027	$48.44	$12.84	$15.10	$5.41	$0.00	$81.79

Apprentice: MARBLE & TILE FINISHERS

Effective Date: 2/1/2026

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	$22.78	$12.84	$15.10	$5.41	$0.00	$56.13
2	60.00	$27.34	$12.84	$15.10	$5.41	$0.00	$60.69
3	70.00	$31.89	$12.84	$15.10	$5.41	$0.00	$65.24
4	80.00	$36.45	$12.84	$15.10	$5.41	$0.00	$69.80
5	90.00	$41.00	$12.84	$15.10	$5.41	$0.00	$74.35

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate

Apprentice: MARBLE & TILE FINISHERS

Effective Date: 8/1/2026

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	$23.66	$12.84	$15.10	$5.41	$0.00	$57.01
2	60.00	$28.39	$12.84	$15.10	$5.41	$0.00	$61.74
3	70.00	$33.12	$12.84	$15.10	$5.41	$0.00	$66.47
4	80.00	$37.86	$12.84	$15.10	$5.41	$0.00	$71.21
5	90.00	$42.59	$12.84	$15.10	$5.41	$0.00	$75.94

Apprentice to Journeyworker Ratio: 1:5

MECH. SWEEPER OPERATOR (ON CONST. SITES) OPERATING ENGINEERS LOCAL 98 OPERATING ENGINEERS LOCAL 98	12/1/2023	$39.56	$13.78	$12.15	$3.00	$0.00	$68.49

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

MECHANIC/WELDER/BOOM TRUCK OPERATING ENGINEERS LOCAL 98 OPERATING ENGINEERS LOCAL 98	12/1/2023	$39.03	$13.78	$12.15	$3.00	$0.00	$67.96

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

MILLWRIGHT (Zone 3) MILLWRIGHTS LOCAL 1121 MILLWRIGHTS LOCAL 1121 - Zone 3	1/5/2026	$45.20	$10.58	$11.47	$9.75	$0.00	$77.00

Apprentice: MILLWRIGHT (Zone 3)

Effective Date: 1/5/2026

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	55.00	$24.86	$10.58	$0.00	$5.36	$0.00	$40.80
2	65.00	$29.38	$10.58	$0.00	$6.34	$0.00	$46.30
3	75.00	$33.90	$10.58	$11.47	$7.31	$0.00	$63.26
4	85.00	$38.42	$10.58	$11.47	$8.29	$0.00	$68.76

Apprentice Notes

Step 1&2 Appr. indentured after 1/6/2020 receive no pension,

Apprentice to Journeyworker Ratio: 1:4

MORTAR MIXER LABORERS LABORERS - ZONE 3 (BUILDING & SITE)	12/1/2025	$36.25	$10.65	$9.75	$8.57	$0.00	$65.22
	6/1/2026	$37.55	$10.65	$9.75	$8.57	$0.00	$66.52
	12/7/2026	$38.85	$10.65	$9.75	$8.57	$0.00	$67.82
	6/7/2027	$40.25	$10.65	$9.75	$8.57	$0.00	$69.22
	12/6/2027	$41.65	$10.65	$9.75	$8.57	$0.00	$70.62
	6/5/2028	$43.15	$10.65	$9.75	$8.57	$0.00	$72.12
	12/4/2028	$44.65	$10.65	$9.75	$8.57	$0.00	$73.62

For apprentice rates see "Apprentice- LABORER"

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
OILER OPERATING ENGINEERS LOCAL 98 OPERATING ENGINEERS LOCAL 98 For apprentice rates see "Apprentice- OPERATING ENGINEERS"	12/1/2023	$35.02	$13.78	$12.15	$3.00	$0.00	$63.95
OTHER POWER DRIVEN EQUIPMENT - CLASS VI OPERATING ENGINEERS LOCAL 98 OPERATING ENGINEERS LOCAL 98 For apprentice rates see "Apprentice- OPERATING ENGINEERS"	12/1/2023	$32.74	$13.78	$12.15	$3.00	$0.00	$61.67
PAINTER (BRIDGES/TANKS) PAINTERS LOCAL 35 PAINTERS LOCAL 35 - ZONE 3	1/1/2026	$59.56	$10.35	$12.00	$12.60	$0.00	$94.51

Apprentice: PAINTER (BRIDGES/TANKS)

Effective Date: 1/1/2026

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	$29.78	$10.35	$0.00	$0.00	$0.00	$40.13
2	55.00	$32.76	$10.35	$0.00	$6.93	$0.00	$50.04
3	60.00	$35.74	$10.35	$0.00	$7.56	$0.00	$53.65
4	65.00	$38.71	$10.35	$0.00	$8.19	$0.00	$57.25
5	70.00	$41.69	$10.35	$12.00	$8.82	$0.00	$72.86
6	75.00	$44.67	$10.35	$12.00	$9.45	$0.00	$76.47
7	80.00	$47.65	$10.35	$12.00	$10.08	$0.00	$80.08
8	90.00	$53.60	$10.35	$12.00	$11.34	$0.00	$87.29

Apprentice to Journeyworker Ratio: 1:1

PAINTER (SPRAY OR SANDBLAST, NEW) * * If 30% or more of surfaces to be painted are new construction, NEW paint rate shall be used. PAINTERS LOCAL 35 PAINTERS LOCAL 35 - ZONE 3	1/1/2026	$42.03	$10.35	$12.00	$8.35	$0.00	$72.73

Apprentice: PAINTER (SPRAY OR SANDBLAST, NEW) *

Effective Date: 1/1/2026

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	$21.02	$10.35	$0.00	$0.00	$0.00	$31.37
2	55.00	$23.12	$10.35	$0.00	$4.59	$0.00	$38.06
3	60.00	$25.22	$10.35	$0.00	$5.01	$0.00	$40.58
4	65.00	$27.32	$10.35	$0.00	$5.43	$0.00	$43.10
5	70.00	$29.42	$10.35	$12.00	$5.85	$0.00	$57.62
6	75.00	$31.52	$10.35	$12.00	$6.26	$0.00	$60.13
7	80.00	$33.62	$10.35	$12.00	$6.68	$0.00	$62.65
8	90.00	$37.83	$10.35	$12.00	$7.52	$0.00	$67.70

Apprentice to Journeyworker Ratio: 1:1

PAINTER (SPRAY OR SANDBLAST, REPAINT)	1/1/2026	$39.35	$10.35	$12.00	$8.35	$0.00	$70.05

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
PAINTERS LOCAL 35 PAINTERS LOCAL 35 - ZONE 3							

Apprentice: PAINTER (SPRAY OR SANDBLAST, REPAINT)

Effective Date: 1/1/2026

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	$19.68	$10.35	$0.00	$0.00	$0.00	$30.03
2	55.00	$21.64	$10.35	$0.00	$4.59	$0.00	$36.58
3	60.00	$23.61	$10.35	$0.00	$5.01	$0.00	$38.97
4	65.00	$25.58	$10.35	$0.00	$5.43	$0.00	$41.36
5	70.00	$27.55	$10.35	$12.00	$5.85	$0.00	$55.75
6	75.00	$29.51	$10.35	$12.00	$6.26	$0.00	$58.12
7	80.00	$31.48	$10.35	$12.00	$6.68	$0.00	$60.51
8	90.00	$35.42	$10.35	$12.00	$7.52	$0.00	$65.29

Apprentice to Journeyworker Ratio: 1:1

PAINTER / TAPER (BRUSH, NEW) *	1/1/2026	$40.63	$10.35	$12.00	$8.35	$0.00	$71.33
* If 30% or more of surfaces to be painted are new construction, NEW paint rate shall be used. PAINTERS LOCAL 35 PAINTERS LOCAL 35 - ZONE 3							

Apprentice: PAINTER / TAPER (BRUSH, NEW) *

Effective Date: 1/1/2026

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	$20.32	$10.35	$0.00	$0.00	$0.00	$30.67
2	55.00	$22.35	$10.35	$0.00	$4.59	$0.00	$37.29
3	60.00	$24.38	$10.35	$0.00	$5.01	$0.00	$39.74
4	65.00	$26.41	$10.35	$0.00	$5.43	$0.00	$42.19
5	70.00	$28.44	$10.35	$12.00	$5.85	$0.00	$56.64
6	75.00	$30.47	$10.35	$12.00	$6.26	$0.00	$59.08
7	80.00	$32.50	$10.35	$12.00	$6.68	$0.00	$61.53
8	90.00	$36.57	$10.35	$12.00	$7.52	$0.00	$66.44

Apprentice to Journeyworker Ratio: 1:1

PAINTER / TAPER (BRUSH, REPAINT) PAINTERS LOCAL 35 PAINTERS LOCAL 35 - ZONE 3	1/1/2026	$37.95	$10.35	$12.00	$8.35	$0.00	$68.65

Apprentice: PAINTER / TAPER (BRUSH, REPAINT)

Effective Date: 1/1/2026

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	$18.98	$10.35	$0.00	$0.00	$0.00	$29.33

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
Apprentice: PAINTER / TAPER (BRUSH, REPAINT)							
Effective Date: 1/1/2026							
Step / Percent		**Apprentice Base Wage**					
2 / 55.00		$20.87	$10.35	$0.00	$4.59	$0.00	$35.81
3 / 60.00		$22.77	$10.35	$0.00	$5.01	$0.00	$38.13
4 / 65.00		$24.67	$10.35	$0.00	$5.43	$0.00	$40.45
5 / 70.00		$26.57	$10.35	$12.00	$5.85	$0.00	$54.77
6 / 75.00		$28.46	$10.35	$12.00	$6.26	$0.00	$57.07
7 / 80.00		$30.36	$10.35	$12.00	$6.68	$0.00	$59.39
8 / 90.00		$34.16	$10.35	$12.00	$7.52	$0.00	$64.03
Apprentice to Journeyworker Ratio: 1:1							
PAINTER TRAFFIC MARKINGS (HEAVY/HIGHWAY) LABORERS LABORERS - ZONE 3 (HEAVY & HIGHWAY)	12/1/2025	$35.99	$10.65	$9.75	$6.56	$0.00	$62.95
	6/1/2026	$37.29	$10.65	$9.75	$6.56	$0.00	$64.25
	12/1/2026	$38.58	$10.65	$9.75	$6.56	$0.00	$65.54
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)							
PANEL & PICKUP TRUCKS DRIVER TEAMSTERS JOINT COUNCIL NO. 10 TEAMSTERS JOINT COUNCIL NO. 10 ZONE B	1/1/2026	$40.78	$16.17	$21.78	$0.00	$0.00	$78.73
	6/1/2026	$41.78	$16.17	$21.78	$0.00	$0.00	$79.73
	12/1/2026	$41.78	$16.17	$23.52	$0.00	$0.00	$81.47
	1/1/2027	$41.78	$16.77	$23.52	$0.00	$0.00	$82.07
PIER AND DOCK CONSTRUCTOR (UNDERPINNING AND DECK) PILE DRIVER LOCAL 56 PILE DRIVER LOCAL 56 (ZONE 3)	8/1/2024	$49.19	$10.08	$11.62	$12.67	$0.00	$83.56
For apprentice rates see "Apprentice- PILE DRIVER"							
PILE DRIVER PILE DRIVER LOCAL 56 PILE DRIVER LOCAL 56 (ZONE 3)	8/1/2024	$49.19	$10.08	$11.62	$12.67	$0.00	$83.56
Apprentice: PILE DRIVER							
Effective Date: 8/1/2024							
Step / Percent		**Apprentice Base Wage**					
1 / 45.00		$22.14	$10.08	$0.00	$2.53	$0.00	$34.75
2 / 55.00		$27.05	$10.08	$0.00	$5.07	$0.00	$42.20
3 / 70.00		$34.43	$10.08	$11.62	$7.60	$0.00	$63.73
4 / 80.00		$39.35	$10.08	$11.62	$10.14	$0.00	$71.19
Apprentice to Journeyworker Ratio: 1:5							
PIPELAYER LABORERS LABORERS - ZONE 3 (BUILDING & SITE)	12/1/2025	$36.25	$10.65	$9.75	$8.57	$0.00	$65.22
	6/1/2026	$37.55	$10.65	$9.75	$8.57	$0.00	$66.52
	12/7/2026	$38.85	$10.65	$9.75	$8.57	$0.00	$67.82
	6/7/2027	$40.25	$10.65	$9.75	$8.57	$0.00	$69.22
	12/6/2027	$41.65	$10.65	$9.75	$8.57	$0.00	$70.62

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
	6/5/2028	$43.15	$10.65	$9.75	$8.57	$0.00	$72.12
	12/4/2028	$44.65	$10.65	$9.75	$8.57	$0.00	$73.62
For apprentice rates see "Apprentice- LABORER"							
PIPELAYER (HEAVY & HIGHWAY)	12/1/2025	$36.24	$10.65	$9.75	$6.56	$0.00	$63.20
LABORERS LABORERS - ZONE 3 (HEAVY & HIGHWAY)	6/1/2026	$37.54	$10.65	$9.75	$6.56	$0.00	$64.50
	12/1/2026	$38.83	$10.65	$9.75	$6.56	$0.00	$65.79
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"							
PLUMBER & PIPEFITTER PLUMBERS & PIPEFITTERS LOCAL 104 PLUMBERS & PIPEFITTERS LOCAL 104	3/17/2026	$52.76	$13.50	$10.85	$7.10	$0.00	$84.21
	9/17/2026	$54.76	$13.50	$10.85	$7.10	$0.00	$86.21
	3/17/2027	$58.26	$12.00	$10.85	$7.10	$0.00	$88.21
	9/17/2027	$60.26	$12.00	$10.85	$7.10	$0.00	$90.21
	3/17/2028	$62.26	$12.00	$10.85	$7.10	$0.00	$92.21
	9/17/2028	$64.26	$12.00	$10.85	$7.10	$0.00	$94.21
	3/17/2029	$66.26	$12.00	$10.85	$7.10	$0.00	$96.21

Apprentice: PLUMBER & PIPEFITTER

Effective Date: 3/17/2026

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	45.00	$23.74	$13.50	$10.85	$0.00	$0.00	$48.09
2	50.00	$26.38	$13.50	$10.85	$0.00	$0.00	$50.73
3	55.00	$29.02	$13.50	$10.85	$0.00	$0.00	$53.37
4	60.00	$31.66	$13.50	$10.85	$0.00	$0.00	$56.01
5	65.00	$34.29	$13.50	$10.85	$0.00	$0.00	$58.64
6	70.00	$36.93	$13.50	$10.85	$0.00	$0.00	$61.28
7	75.00	$39.57	$13.50	$10.85	$0.00	$0.00	$63.92
8	80.00	$42.21	$13.50	$10.85	$0.00	$0.00	$66.56
9	85.00	$44.85	$13.50	$10.85	$7.10	$0.00	$76.30
10	85.00	$44.85	$13.50	$10.85	$7.10	$0.00	$76.30

Apprentice: PLUMBER & PIPEFITTER

Effective Date: 9/17/2026

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	45.00	$24.64	$13.50	$0.00	$0.00	$0.00	$38.14
2	50.00	$27.38	$13.50	$0.00	$0.00	$0.00	$40.88
3	55.00	$30.12	$13.50	$0.00	$0.00	$0.00	$43.62
4	60.00	$32.86	$13.50	$0.00	$0.00	$0.00	$46.36
5	65.00	$35.59	$13.50	$0.00	$0.00	$0.00	$49.09
6	70.00	$38.33	$13.50	$0.00	$0.00	$0.00	$51.83
7	75.00	$41.07	$13.50	$0.00	$0.00	$0.00	$54.57
8	80.00	$43.81	$13.50	$0.00	$0.00	$0.00	$57.31
9	85.00	$46.55	$13.50	$0.00	$7.10	$0.00	$67.15
10	85.00	$46.55	$13.50	$0.00	$7.10	$0.00	$67.15

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
Apprentice Notes							
**1:1,2:5,3:9,4:12							
Apprentice to Journeyworker Ratio: 1:1							
PNEUMATIC CONTROLS (TEMP.)	3/17/2026	$52.76	$13.50	$10.85	$7.10	$0.00	$84.21
PLUMBERS & PIPEFITTERS LOCAL 104	9/17/2026	$54.76	$13.50	$10.85	$7.10	$0.00	$86.21
PLUMBERS & PIPEFITTERS LOCAL 104	3/17/2027	$58.26	$12.00	$10.85	$7.10	$0.00	$88.21
	9/17/2027	$60.26	$12.00	$10.85	$7.10	$0.00	$90.21
	3/17/2028	$62.26	$12.00	$10.85	$7.10	$0.00	$92.21
	9/17/2028	$64.26	$12.00	$10.85	$7.10	$0.00	$94.21
	3/17/2029	$66.26	$12.00	$10.85	$7.10	$0.00	$96.21
For apprentice rates see "Apprentice- PIPEFITTER" or "PLUMBER/PIPEFITTER"							
PNEUMATIC DRILL/TOOL OPERATOR (HEAVY & HIGHWAY)	12/1/2025	$36.24	$10.65	$9.75	$6.56	$0.00	$63.20
LABORERS	6/1/2026	$37.54	$10.65	$9.75	$6.56	$0.00	$64.50
LABORERS - ZONE 3 (HEAVY & HIGHWAY)	12/1/2026	$38.83	$10.65	$9.75	$6.56	$0.00	$65.79
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)							
POWDERMAN & BLASTER	12/1/2025	$37.00	$10.65	$9.75	$8.57	$0.00	$65.97
LABORERS	6/1/2026	$38.30	$10.65	$9.75	$8.57	$0.00	$67.27
LABORERS - ZONE 3 (BUILDING & SITE)	12/7/2026	$39.60	$10.65	$9.75	$8.57	$0.00	$68.57
	6/7/2027	$41.00	$10.65	$9.75	$8.57	$0.00	$69.97
	12/6/2027	$42.40	$10.65	$9.75	$8.57	$0.00	$71.37
	6/5/2028	$43.90	$10.65	$9.75	$8.57	$0.00	$72.87
	12/4/2028	$45.40	$10.65	$9.75	$8.57	$0.00	$74.37
For apprentice rates see "Apprentice- LABORER"							
POWDERMAN & BLASTER (HEAVY & HIGHWAY)	12/1/2025	$36.99	$10.65	$9.75	$6.56	$0.00	$63.95
LABORERS	6/1/2026	$38.29	$10.65	$9.75	$6.56	$0.00	$65.25
LABORERS - ZONE 3 (HEAVY & HIGHWAY)	12/1/2026	$39.58	$10.65	$9.75	$6.56	$0.00	$66.54
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)							
PUMP OPERATOR (CONCRETE)	12/1/2023	$39.56	$13.78	$12.15	$3.00	$0.00	$68.49
OPERATING ENGINEERS LOCAL 98							
OPERATING ENGINEERS LOCAL 98							
For apprentice rates see "Apprentice- OPERATING ENGINEERS"							
PUMP OPERATOR (DEWATERING, OTHER)	12/1/2023	$39.03	$13.78	$12.15	$3.00	$0.00	$67.96
OPERATING ENGINEERS LOCAL 98							
OPERATING ENGINEERS LOCAL 98							
For apprentice rates see "Apprentice- OPERATING ENGINEERS"							
READY-MIX CONCRETE DRIVER	5/1/2024	$26.14	$11.82	$7.25	$0.00	$0.00	$45.21
TEAMSTERS 404 - Construction Service (Northampton)							
TEAMSTERS 404 - Construction Service (Northampton)							
RIDE-ON MOTORIZED BUGGY OPERATOR	12/1/2025	$36.25	$10.65	$9.75	$8.57	$0.00	$65.22
LABORERS	6/1/2026	$37.55	$10.65	$9.75	$8.57	$0.00	$66.52
LABORERS - ZONE 3 (BUILDING & SITE)	12/7/2026	$38.85	$10.65	$9.75	$8.57	$0.00	$67.82
	6/7/2027	$40.25	$10.65	$9.75	$8.57	$0.00	$69.22

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
	12/6/2027	$41.65	$10.65	$9.75	$8.57	$0.00	$70.62
	6/5/2028	$43.15	$10.65	$9.75	$8.57	$0.00	$72.12
	12/4/2028	$44.65	$10.65	$9.75	$8.57	$0.00	$73.62
For apprentice rates see "Apprentice- LABORER"							
ROLLER OPERATOR OPERATING ENGINEERS LOCAL 98 OPERATING ENGINEERS LOCAL 98	12/1/2023	$38.42	$13.78	$12.15	$3.00	$0.00	$67.35
For apprentice rates see "Apprentice- OPERATING ENGINEERS"							
ROOFER (Coal tar pitch) ROOFERS LOCAL 248 ROOFERS LOCAL 248	10/2/2025	$44.73	$10.60	$8.70	$10.00	$0.00	$74.03
	7/16/2026	$46.73	$10.60	$8.70	$10.00	$0.00	$76.03
For apprentice rates see "Apprentice- ROOFER"							
ROOFER (Inc.Roofer Waterproofng &Roofer Damproofg) ROOFERS LOCAL 248 ROOFERS LOCAL 248	10/2/2025	$44.23	$10.60	$8.70	$10.00	$0.00	$73.53
	7/16/2026	$46.23	$10.60	$8.70	$10.00	$0.00	$75.53
ROOFER SLATE / TILE / PRECAST CONCRETE ROOFERS LOCAL 248 ROOFERS LOCAL 248	10/2/2025	$44.73	$10.60	$8.70	$10.00	$0.00	$74.03
	7/16/2026	$46.73	$10.60	$8.70	$10.00	$0.00	$76.03
For apprentice rates see "Apprentice- ROOFER"							
SCRAPER OPERATING ENGINEERS LOCAL 98 OPERATING ENGINEERS LOCAL 98	12/1/2023	$39.03	$13.78	$12.15	$3.00	$0.00	$67.96
For apprentice rates see "Apprentice- OPERATING ENGINEERS"							
SELF-POWERED ROLLERS AND COMPACTORS (TAMPERS) OPERATING ENGINEERS LOCAL 98 OPERATING ENGINEERS LOCAL 98	12/1/2023	$38.42	$13.78	$12.15	$3.00	$0.00	$67.35
For apprentice rates see "Apprentice- OPERATING ENGINEERS"							
SELF-PROPELLED POWER BROOM OPERATING ENGINEERS LOCAL 98 OPERATING ENGINEERS LOCAL 98	12/1/2023	$35.80	$13.78	$12.15	$3.00	$0.00	$64.73
For apprentice rates see "Apprentice- OPERATING ENGINEERS"							
SHEETMETAL WORKER SHEETMETAL WORKERS LOCAL 63 SHEETMETAL WORKERS LOCAL 63	7/1/2025	$43.48	$12.94	$11.01	$8.72	$2.13	$78.28
	7/1/2026	$43.48	$13.24	$11.01	$9.92	$2.13	$79.78
	1/1/2027	$43.48	$13.54	$11.01	$11.12	$2.13	$81.28
	7/1/2027	$44.98	$13.54	$11.01	$11.12	$2.13	$82.78
	1/1/2028	$46.48	$13.54	$11.01	$11.12	$2.13	$84.28

Apprentice: SHEETMETAL WORKER

Effective Date: 7/1/2025

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	45.00	$19.57	$5.82	$4.95	$0.00	$0.85	$31.19
2	50.00	$21.74	$6.47	$5.51	$0.00	$0.94	$34.66
3	55.00	$23.91	$7.12	$9.91	$0.00	$1.15	$42.09

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate

Apprentice: SHEETMETAL WORKER

Effective Date: 7/1/2025

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
4	60.00	$26.09	$7.76	$9.91	$0.00	$1.23	$44.99
5	65.00	$28.26	$8.41	$9.91	$0.00	$1.31	$47.89
6	70.00	$30.44	$9.06	$9.91	$0.00	$1.39	$50.80
7	75.00	$32.61	$9.71	$9.91	$0.00	$1.47	$53.70
8	80.00	$34.78	$10.35	$9.91	$8.72	$1.78	$65.54
9	85.00	$36.96	$11.00	$9.91	$8.72	$1.86	$68.45
10	90.00	$39.13	$11.65	$9.91	$8.72	$1.94	$71.35

Apprentice: SHEETMETAL WORKER

Effective Date: 7/1/2026

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	45.00	$19.57	$5.96	$4.95	$0.00	$0.85	$31.33
2	50.00	$21.74	$6.62	$5.51	$0.00	$0.94	$34.81
3	55.00	$23.91	$7.28	$9.91	$0.00	$1.15	$42.25
4	60.00	$26.09	$7.94	$9.91	$0.00	$1.23	$45.17
5	65.00	$28.26	$8.60	$9.91	$0.00	$1.31	$48.08
6	70.00	$30.44	$9.27	$9.91	$0.00	$1.39	$51.01
7	75.00	$32.61	$9.93	$9.91	$0.00	$1.47	$53.92
8	80.00	$34.78	$10.59	$9.91	$9.92	$1.78	$66.98
9	85.00	$36.96	$11.25	$9.91	$9.92	$1.86	$69.90
10	90.00	$39.13	$11.92	$9.91	$9.92	$1.94	$72.82

Apprentice to Journeyworker Ratio: 1:3

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
SPECIALIZED EARTH MOVING EQUIP < 35 TONS TEAMSTERS JOINT COUNCIL NO. 10 TEAMSTERS JOINT COUNCIL NO. 10 ZONE B	1/1/2026	$41.24	$16.17	$21.78	$0.00	$0.00	$79.19
	6/1/2026	$42.24	$16.17	$21.78	$0.00	$0.00	$80.19
	12/1/2026	$42.24	$16.17	$23.52	$0.00	$0.00	$81.93
	1/1/2027	$42.24	$16.77	$23.52	$0.00	$0.00	$82.53
SPECIALIZED EARTH MOVING EQUIP > 35 TONS TEAMSTERS JOINT COUNCIL NO. 10 TEAMSTERS JOINT COUNCIL NO. 10 ZONE B	1/1/2026	$41.53	$16.17	$21.78	$0.00	$0.00	$79.48
	6/1/2026	$42.53	$16.17	$21.78	$0.00	$0.00	$80.48
	12/1/2026	$42.53	$16.17	$23.52	$0.00	$0.00	$82.22
	1/1/2027	$42.53	$16.77	$23.52	$0.00	$0.00	$82.82
SPRINKLER FITTER SPRINKLER FITTERS LOCAL 669 SPRINKLER FITTERS LOCAL 669	4/1/2026	$56.54	$13.60	$7.45	$9.41	$0.00	$87.00
	7/1/2026	$56.54	$13.60	$7.45	$9.41	$0.00	$87.00
	10/1/2026	$56.54	$13.60	$7.45	$9.41	$0.00	$87.00
	1/1/2027	$56.54	$14.55	$7.50	$9.41	$0.00	$88.00
	4/1/2027	$59.83	$14.55	$7.50	$9.41	$0.00	$91.29
	7/1/2027	$59.83	$14.55	$7.50	$9.41	$0.00	$91.29
	10/1/2027	$59.83	$14.55	$7.50	$9.41	$0.00	$91.29
	1/1/2028	$59.83	$15.50	$7.55	$9.41	$0.00	$92.29

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate

Apprentice: SPRINKLER FITTER

Effective Date: 4/1/2026

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	43.00	$28.36	$9.64	$0.00	$0.00	$0.00	$38.00
2	48.00	$31.66	$9.64	$0.00	$0.00	$0.00	$41.30
3	52.00	$34.29	$13.60	$7.45	$1.15	$0.00	$56.49
4	56.00	$36.93	$13.60	$7.45	$1.15	$0.00	$59.13
5	59.00	$38.91	$13.60	$7.45	$1.40	$0.00	$61.36
6	64.00	$42.21	$13.60	$7.45	$1.40	$0.00	$64.66
7	68.00	$44.85	$13.60	$7.45	$1.40	$0.00	$67.30
8	72.00	$47.48	$13.60	$7.45	$1.40	$0.00	$69.93
9	76.00	$50.12	$13.60	$7.45	$1.40	$0.00	$72.57
10	80.00	$52.76	$13.60	$7.45	$1.40	$0.00	$75.21

Apprentice: SPRINKLER FITTER

Effective Date: 7/1/2026

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	43.00	$28.36	$9.64	$0.00	$0.00	$0.00	$38.00
2	48.00	$31.66	$9.64	$0.00	$0.00	$0.00	$41.30
3	52.00	$34.29	$13.60	$7.45	$1.15	$0.00	$56.49
4	56.00	$36.93	$13.60	$7.45	$1.15	$0.00	$59.13
5	59.00	$38.91	$13.60	$7.45	$1.40	$0.00	$61.36
6	64.00	$42.21	$13.60	$7.45	$1.40	$0.00	$64.66
7	68.00	$44.85	$13.60	$7.45	$1.40	$0.00	$67.30
8	72.00	$47.48	$13.60	$7.45	$1.40	$0.00	$69.93
9	76.00	$50.12	$13.60	$7.45	$1.40	$0.00	$72.57
10	80.00	$52.76	$13.60	$7.45	$1.40	$0.00	$75.21

Apprentice to Journeyworker Ratio: 1:1

TELECOMMUNICATION TECHNICIAN	12/28/2025	$53.26	$13.75	$8.40	$6.96	$0.00	$82.37
TELECOMMUNICATION TECHNICIAN	6/28/2026	$54.41	$14.00	$8.43	$7.03	$0.00	$83.87
ELECTRICIANS LOCAL 7	1/3/2027	$55.56	$14.25	$8.47	$7.09	$0.00	$85.37
ELECTRICIANS LOCAL 7							

For apprentice rates and ratios see "Apprentice- ELECTRICIAN"

Apprentice: TELECOMMUNICATION TECHNICIAN

Effective Date: 12/28/2025

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	40.00	$21.30	$7.65	$0.63	$0.00	$0.00	$29.58
2	45.00	$23.97	$7.65	$0.70	$0.00	$0.00	$32.32
3	50.00	$26.63	$13.75	$7.53	$0.00	$0.00	$47.91
4	55.00	$29.29	$13.75	$7.61	$0.00	$0.00	$50.65

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
TERRAZZO FINISHERS BRICKLAYERS LOCAL 3 BRICKLAYERS LOCAL 3 (SPR/PITT) - MARBLE & TILE	2/10/2026	$66.89	$12.84	$15.57	$8.02	$0.00	$103.32
	8/1/2026	$69.09	$12.84	$15.57	$8.02	$0.00	$105.52
	2/1/2027	$70.49	$12.84	$15.57	$8.02	$0.00	$106.92

Apprentice: TELECOMMUNICATION TECHNICIAN

Effective Date: 12/28/2025

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
5	65.00	$34.62	$13.75	$9.84	$0.00	$0.00	$58.21
6	70.00	$37.28	$13.75	$11.30	$0.00	$0.00	$62.33

Apprentice: TELECOMMUNICATION TECHNICIAN

Effective Date: 6/28/2026

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	40.00	$21.76	$7.80	$0.63	$0.00	$0.00	$30.19
2	45.00	$24.48	$7.80	$0.70	$0.00	$0.00	$32.98
3	50.00	$27.21	$14.00	$7.53	$0.00	$0.00	$48.74
4	55.00	$29.93	$14.00	$7.61	$0.00	$0.00	$51.54
5	65.00	$35.37	$14.00	$9.84	$0.00	$0.00	$59.21
6	70.00	$38.09	$14.00	$11.30	$0.00	$0.00	$63.39

Apprentice to Journeyworker Ratio: 1:1

Apprentice: TERRAZZO FINISHERS

Effective Date: 2/10/2026

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	$33.45	$12.84	$15.57	$8.02	$0.00	$69.88
2	60.00	$40.13	$12.84	$15.57	$8.02	$0.00	$76.56
3	70.00	$46.82	$12.84	$15.57	$8.02	$0.00	$83.25
4	80.00	$53.51	$12.84	$15.57	$8.02	$0.00	$89.94
5	90.00	$60.20	$12.84	$15.57	$8.02	$0.00	$96.63

Apprentice: TERRAZZO FINISHERS

Effective Date: 8/1/2026

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	$34.55	$12.84	$15.57	$8.02	$0.00	$70.98
2	60.00	$41.45	$12.84	$15.57	$8.02	$0.00	$77.88
3	70.00	$48.36	$12.84	$15.57	$8.02	$0.00	$84.79
4	80.00	$55.27	$12.84	$15.57	$8.02	$0.00	$91.70
5	90.00	$62.18	$12.84	$15.57	$8.02	$0.00	$98.61

Apprentice to Journeyworker Ratio: 1:5

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
TERRAZZO MECHANIC	2/1/2026	$67.97	$12.84	$15.57	$7.99	$0.00	$104.37
BRICKLAYERS LOCAL 3	8/1/2026	$70.17	$12.84	$15.57	$7.99	$0.00	$106.57
BRICKLAYERS LOCAL 3 (SPR/PITT) - MARBLE & TILE	2/1/2027	$71.57	$12.84	$15.57	$7.99	$0.00	$107.97

Apprentice: TERRAZZO MECHANIC

Effective Date: 2/1/2026

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	$33.99	$12.84	$15.57	$7.99	$0.00	$70.39
2	60.00	$40.78	$12.84	$15.57	$7.99	$0.00	$77.18
3	70.00	$47.58	$12.84	$15.57	$7.99	$0.00	$83.98
4	80.00	$54.38	$12.84	$15.57	$7.99	$0.00	$90.78
5	90.00	$61.17	$12.84	$15.57	$7.99	$0.00	$97.57

Apprentice: TERRAZZO MECHANIC

Effective Date: 8/1/2026

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	$35.09	$12.84	$15.57	$7.99	$0.00	$71.49
2	60.00	$42.10	$12.84	$15.57	$7.99	$0.00	$78.50
3	70.00	$49.12	$12.84	$15.57	$7.99	$0.00	$85.52
4	80.00	$56.14	$12.84	$15.57	$7.99	$0.00	$92.54
5	90.00	$63.15	$12.84	$15.57	$7.99	$0.00	$99.55

Apprentice to Journeyworker Ratio: 1:5

TEST BORING DRILLER	12/1/2025	$51.95	$10.65	$9.75	$9.80	$0.00	$82.15
LABORERS	6/1/2026	$53.50	$10.65	$9.75	$9.80	$0.00	$83.70
LABORERS - FOUNDATION AND MARINE	12/1/2026	$55.00	$10.65	$9.75	$9.80	$0.00	$85.20

For apprentice rates see "Apprentice- LABORER"

TEST BORING DRILLER HELPER	12/1/2025	$48.07	$10.65	$9.75	$9.80	$0.00	$78.27
LABORERS	6/1/2026	$49.62	$10.65	$9.75	$9.80	$0.00	$79.82
LABORERS - FOUNDATION AND MARINE	12/1/2026	$51.12	$10.65	$9.75	$9.80	$0.00	$81.32

For apprentice rates see "Apprentice- LABORER"

TEST BORING LABORER	12/1/2025	$47.95	$10.65	$9.75	$9.80	$0.00	$78.15
LABORERS	6/1/2026	$49.50	$10.65	$9.75	$9.80	$0.00	$79.70
LABORERS - FOUNDATION AND MARINE	12/1/2026	$51.00	$10.65	$9.75	$9.80	$0.00	$81.20

For apprentice rates see "Apprentice- LABORER"

TRACTORS	12/1/2023	$38.42	$13.78	$12.15	$3.00	$0.00	$67.35
OPERATING ENGINEERS LOCAL 98							
OPERATING ENGINEERS LOCAL 98							

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

TRAILERS FOR EARTH MOVING EQUIPMENT	1/1/2026	$41.82	$16.17	$21.78	$0.00	$0.00	$79.77
TEAMSTERS JOINT COUNCIL NO. 10	6/1/2026	$42.82	$16.17	$21.78	$0.00	$0.00	$80.77

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
TEAMSTERS JOINT COUNCIL NO. 10 ZONE B	12/1/2026	$42.82	$16.17	$23.52	$0.00	$0.00	$82.51
	1/1/2027	$42.82	$16.77	$23.52	$0.00	$0.00	$83.11
TUNNEL WORK - COMPRESSED AIR	12/1/2025	$60.18	$10.65	$9.75	$10.25	$0.00	$90.83
LABORERS LABORERS (COMPRESSED AIR)	6/1/2026	$61.73	$10.65	$9.75	$10.25	$0.00	$92.38
	12/1/2026	$63.23	$10.65	$9.75	$10.25	$0.00	$93.88
For apprentice rates see "Apprentice- LABORER"							
TUNNEL WORK - COMPRESSED AIR (HAZ. WASTE)	12/1/2025	$62.18	$10.65	$9.75	$10.25	$0.00	$92.83
LABORERS LABORERS (COMPRESSED AIR)	6/1/2026	$63.73	$10.65	$9.75	$10.25	$0.00	$94.38
	12/1/2026	$65.23	$10.65	$9.75	$10.25	$0.00	$95.88
For apprentice rates see "Apprentice- LABORER"							
TUNNEL WORK - FREE AIR	12/1/2025	$52.25	$10.65	$9.75	$10.25	$0.00	$82.90
LABORERS LABORERS (FREE AIR TUNNEL)	6/1/2026	$53.80	$10.65	$9.75	$10.25	$0.00	$84.45
	12/1/2026	$55.30	$10.65	$9.75	$10.25	$0.00	$85.95
For apprentice rates see "Apprentice- LABORER"							
TUNNEL WORK - FREE AIR (HAZ. WASTE)	12/1/2025	$54.25	$10.65	$9.75	$10.25	$0.00	$84.90
LABORERS LABORERS (FREE AIR TUNNEL)	6/1/2026	$55.80	$10.65	$9.75	$10.25	$0.00	$86.45
	12/1/2026	$57.30	$10.65	$9.75	$10.25	$0.00	$87.95
For apprentice rates see "Apprentice- LABORER"							
VAC-HAUL	1/1/2026	$41.24	$16.17	$21.78	$0.00	$0.00	$79.19
TEAMSTERS JOINT COUNCIL NO. 10 TEAMSTERS JOINT COUNCIL NO. 10 ZONE B	6/1/2026	$42.24	$16.17	$21.78	$0.00	$0.00	$80.19
	12/1/2026	$42.24	$16.17	$23.52	$0.00	$0.00	$81.93
	1/1/2027	$42.24	$16.77	$23.52	$0.00	$0.00	$82.53
WAGON DRILL OPERATOR	12/1/2025	$36.25	$10.65	$9.75	$8.57	$0.00	$65.22
LABORERS LABORERS - ZONE 3 (BUILDING & SITE)	6/1/2026	$37.55	$10.65	$9.75	$8.57	$0.00	$66.52
	12/7/2026	$38.85	$10.65	$9.75	$8.57	$0.00	$67.82
	6/7/2027	$40.25	$10.65	$9.75	$8.57	$0.00	$69.22
	12/6/2027	$41.65	$10.65	$9.75	$8.57	$0.00	$70.62
	6/5/2028	$43.15	$10.65	$9.75	$8.57	$0.00	$72.12
	12/4/2028	$44.65	$10.65	$9.75	$8.57	$0.00	$73.62
For apprentice rates see "Apprentice- LABORER"							
WAGON DRILL OPERATOR (HEAVY & HIGHWAY)	12/1/2025	$36.24	$10.65	$9.75	$6.56	$0.00	$63.20
LABORERS LABORERS - ZONE 3 (HEAVY & HIGHWAY)	6/1/2026	$37.54	$10.65	$9.75	$6.56	$0.00	$64.50
	12/1/2026	$38.83	$10.65	$9.75	$6.56	$0.00	$65.79
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"							
WATER METER INSTALLER	3/17/2026	$52.76	$13.50	$10.85	$7.10	$0.00	$84.21
PLUMBERS & PIPEFITTERS LOCAL 104 PLUMBERS & PIPEFITTERS LOCAL 104	9/17/2026	$56.26	$12.00	$10.85	$7.10	$0.00	$86.21
	3/17/2027	$58.26	$12.00	$10.85	$7.10	$0.00	$88.21
	9/17/2027	$60.26	$12.00	$10.85	$7.10	$0.00	$90.21
	3/17/2028	$62.26	$12.00	$10.85	$7.10	$0.00	$92.21
	9/17/2028	$64.26	$12.00	$10.85	$7.10	$0.00	$94.21
	3/17/2029	$66.26	$12.00	$10.85	$7.10	$0.00	$96.21
For apprentice rates see "Apprentice- PLUMBER/PIPEFITTER" or "PLUMBER/GASFITTER"							

Additional Apprentice Information

All apprentices must be registered with the Division of Apprenticeship Training(DAS) in accordance with M.G.L.c. 23, §§ 11E-11L. Minimum wage rates for apprentices employed on public works projects are listed above as a percentage of the hourly prevailing wage rate established by the Commissioner under the provisions of M.G.L.c. 149, §§ 26-27D.

Apprentice ratios are established by DAS pursuant to M.G.L.c. 23, §§ 11E-11L. Ratios are expressed as the allowable number of apprentices to journeymen or fraction thereof, unless otherwise specified. The ratios listed herein have been taken from relevant private collective bargaining agreements(CBAs) and are provided for illustrative purposes only. They have not been independently verified as being accurate or continuing to be accurate.

Parties having questions regarding what ratio to use should contact DAS.

TECHNICAL SPECIFICATIONS AND SPECIAL PROVISIONS

SCOPE OF WORK

The work under this contract involves construction of the **Hop Brook Culvert Replacement at Warren Wright Road in Belchertown, MA**.

All work under this contract shall be done in conformance with the Massachusetts Department of Transportation (MassDOT) *Standard Specifications for Highways and Bridges* dated 2025 (and latest supplements); the October *2017 Construction Standard Details*, the *MassDOT Bridge Manual-Hundreth Anniversary Edition,* the *1996 Construction and Traffic Standard Details* (as relates to traffic standard details only); the *2009 Manual on Uniform Traffic Control Devices (MUTCD)* with *Massachusetts Amendments* and the *Standard Municipal Traffic Code*; the *1968 Standard Drawings for Traffic Signals and Highway Lighting*; the latest edition of *American Standard for Nursery Stock*; the Plans and these Special Provisions.

Plans and Specifications for the work on this improvement project refer to those drawings and documents prepared by the design engineer, Fuss & O'Neill, Inc., Consulting Engineers, 1550 Main Street Suite 400 Springfield, MA 01103, Tel. 413 452-0445.

The Department (or Owner) in these Special Provisions refers to the Town of Belchertown, in part being the Department of Public Works, the public body or authority, corporation, association, firm or person with whom the Contractor has entered into an agreement and for whom the work is to be provided.

The Engineer referred to in these Special Provisions shall mean the engineer employed at the site by The Owner, or other duly authorized engineer representing The Owner.

Any Town of Belchertown General Conditions, Supplementary Conditions and Special Provisions shall take precedence over the General Requirements of Division 1 of the Standard Specifications of the MassDOT.

PROSECUTION OF WORK AND PROVISIONS FOR TRAVEL

Before starting any work under this contract, the Contractor shall submit to the Engineer for approval a Schedule of Operations as provided in Section 8.02. The work schedule shall include a plan of his construction procedures and the safety measures he will use during the prosecution of the work as set forth in Section 850 of the Standard Specifications for Highways and Bridges.

The proposed safety measures shall include the temporary barricades, signs, cones, drums and other safety and traffic control devices to be employed during each stage and time period of the work to maintain and protect traffic and access to abutting properties. These measures may also include removal and resetting of these devices.

As necessary and/or as directed by the Engineer, uniformed traffic police shall be employed for the protection and maintenance of traffic.

The Contractor shall schedule his operations to minimize interruption to the normal flow of traffic during

the period of time required for the completion of the work.
Attention is further directed to the following provisions unless otherwise directed by the Engineer.

1. Alternate one-way traffic will be permitted with stop signs.
2. Access to all buildings shall be maintained at all times.
3. No detouring of traffic shall be allowed without written permission of the Town. Trucks shall not be excluded from any detour roadway.
4. The Fire Department and Police Department shall be notified 48 hours prior to the start of any work that will affect the operations of their departments (e.g. the partial street closures, trenching, etc.).

Particular care should be taken to establish and maintain methods and procedures that will not create unnecessary or unusual hazards to public safety. Work areas on this project shall not be left overnight without adequate safety precautions. A sufficient number of traffic cones, drums, barricades, temporary signals and hazard warning light devices shall be placed and maintained as necessary and as directed by the Engineer.

Signs having messages that are irrelevant to normal traffic conditions shall be removed or properly covered at the end of each work period. Signs shall be kept clean at all times and legends shall be distinctive and unmarred.

PROCEDURES FOR SHOP DRAWINGS SUBMITTAL

The following procedures shall be followed when making Shop Drawings submittals for this Project:

1. The Prime Contractor shall submit electronically all drawings directly to the Department's field representative to be forwarded to the appropriate parties for preliminary review.
2. A written reply will be forwarded to the Prime Contractor, within 14 days of receipt.
3. If the reply indicates rejection or advice corrections or additions to the drawings, Steps 1 and 2 are repeated until the approval will be given.
4. The Contractor shall take care that every separate document in each set of every submittal shall carry the following identifying information:

   Information Required
   a) Community name of Project.
   b) Federal or State Aid Project Number, if applicable.
   c) Identifying item number from proposal, if applicable.
   d) Locations where material is proposed to be used, if applicable.
   e) Name of submitting Contractor.
   f) Personal signature and title of an official of the Prime Contractor

g) Authorized to make shop drawing submittals.

h) Date of signature or submittal.

The Contractor shall not receive payment for, nor shall he be allowed to install any item or materials that require shop drawings approval unless and until he receives shop drawing approval for that item as detailed above.

STEEL PLATES IN CONSTRUCTION ZONES

At the end of each working day where trenches in areas of public travel are covered with steel plates, each edge of such plates shall either be beveled or protected by a slope of 2-feet horizontally to 1-inch vertically. Any temporary patching materials and their maintenance and removal will be considered incidental to the Item involved with no separate payment.

PLANS

The Contractor shall furnish all changes made during the construction period to the Design Engineer prior to the date of final acceptance for incorporation into "AS BUILT" plans and signal permits.

COOPERATION OF THE CONTRACTOR

Agents of various public service agencies, municipal and State departments may be entering on the work site to remove existing facilities, to construct or place new facilities or to make alterations to existing facilities.

The Contractor shall perform the work in cooperation with the various agencies in a manner which causes the least interference with the operations of the aforementioned agencies and shall have no claim for delay which may be due, or result, from said work of these agents.

PROTECTION OF UNDERGROUND FACILITIES

The Contractor shall make his own investigation to assure that no damage to existing structures, drainage lines, traffic signal conduits, and other utilities will occur as a result of his operations.

The Contractor shall notify "Mass. DIG SAFE" and procure a DIG SAFE number of each location prior to disturbing ground in any way.

"DIG-SAFE" Call Center: Telephone 1-888-DIG-SAFE (l-888-344-7233)

PROTECTION OF UTILITIES AND PROPERTY

The Contractor, in constructing or installing facilities alongside or near sanitary sewers, storm drains, water or gas pipes, electric or telephone conduits, poles, sidewalks, walls or other structures, shall, at his expense, sustain them securely in place, cooperating with the officers and agents of the various utility companies and municipal departments which control them, so that the services of these structures shall be maintained. He shall also be responsible for the repair or replacement, at his own expense, of any damage to such structures caused by his acts or neglect, and shall leave them in the same condition as

they existed prior to the commencement of work.

In case of damage to utilities, the Contractor shall promptly notify the Owner and shall, if requested by the Engineer, furnish laborers to work temporarily under the Owner's direction in providing access to the utility. Pipes or other structures damaged by the operation of the Contractor may be repaired by the utility company that suffers the loss. The cost of such repairs shall be borne by the Contractor, without compensation therefore.

If, as the work progresses, it is found that any of the utility structures are so placed as to render it impracticable in the judgment of the Engineer, to do the work called for under this Contract, the Contractor shall protect and maintain the services in such utilities and structures and the

Department will, as soon thereafter as it reasonably can, cause the position of the utilities to be changed or take such other action as it deems suitable and proper.

If live service connections are to be interrupted by excavation of any kind, the Contractor shall not break the service until new services are provided. Abandoned services shall also be plugged off or otherwise made secure by the utility company involved.

Full compensation for furnishing all labor, materials, tools, equipment and incidentals and for doing all the work involved in protecting or repairing property as specified in this section shall be considered as included in the prices paid for the various contract items of work and no additional compensation will be allowed therefore

PREVENTION OF WATER POLLUTION - SANITARY PROVISIONS
(Supplementing Subsection 7.02)

During the performance of all Work done under this contract, the Contractor shall adopt such precautions in the conduct of his operations as may be necessary to avoid contaminating water in adjacent streams, pond or channel areas. All moving of equipment and other operations likely to create silting, shall be so planned and conducted as to minimize pollution in adjacent streams, pond or channel areas. Water used for any purpose by the Contractor, which has been contaminated with soil, bitumen, salt or other pollutants shall be so discharged as to avoid affecting nearby waters. Under no circumstances shall the Contractor discharge pollutants directly into any stream or pond area.

When the Contractor uses water from natural sources for any of his operations, intake methods shall be such as to avoid contaminating the source of supply and maintain adequate downstream flow when the source is a stream.

SAWCUTS

Sawcuts shall be made in the existing pavement at areas of new or reset curb, limits of full depth pavement construction, limits of new sidewalk, limits of existing HMA and new HMA driveways and as specified or shown anywhere else on the contract plans or documents and as directed by the Engineer.
Payment for this work shall be included in the unit price under the applicable items for which the sawcut is associated with. No separate payment shall be made individually for sawcutting.

SHEETING AND BRACING

The Contractor shall furnish, place, and remove (unless otherwise noted) all sheeting and bracing required to support the sides of all trenches or other excavations for this Project.

The Contractor shall be solely responsible for the safety of the workmen and the adjacent facilities from danger of caving and sliding. All work to be done shall be in strict accordance with the Department of Labor, Occupational Safety and Health Administration regulations and suggested practices for construction excavations and/or other applicable codes and regulations. Special precautions shall be taken to guard against any damage to or settlement of pavements, buildings, walls, pipes, ducts or other structures and facilities which are adjacent to the work. The cost of providing and removing sheeting, shoring and bracing shall be included in the cost of the various items of work under this Contract and no additional compensation will be allowed therefore.

EXCAVATION AND PATCHING OF TRENCHES ON PAVED SURFACES
(Supplementing Subsection 801.60)

Whenever the existing pavement or sidewalk is to be disturbed, the existing surface shall be cut in neat true lines by mechanical means along the length of the trench, equally spaced from the center line of the trench and not more than one and one-half (1.50 ft) feet apart. The trench shall then be excavated, conduit placed and backfilled in accordance with MassDOT Specifications and Standard Drawings, to a compacted depth of one and one-half (1.5 in) inches below the existing surface. The trench will then be patched temporarily with one and one-half (1.5 in) inches of hot mix asphalt placed in one course, unless otherwise approved by the Engineer.

Permanent patching will not begin until, in the Engineer's judgment, final compaction and settlement of the trench area has taken place.

All abutting edges of existing pavement shall be painted with Bitumen (RS-1), immediately prior to placement of permanent patch. All trenches shall be maintained at all times from inception until final acceptance of the project.

MATERIAL REMOVED AND STACKED

Material to be stacked, as designated by the Engineer, shall remain the property of the Town of Belchertown and its disposition will be at the sole discretion of the Town of Belchertown's representative.

DISPOSAL OF EXCAVATION MATERIAL

Surplus materials obtained from any type of excavation, and not needed for further use as determined by the Engineer shall become the property of the Contractor and shall be disposed of by him outside the location subject to the regulations and requirements of local authorities governing the disposal of such materials, at no additional compensation.

DISPOSAL OF SURPLUS MATERIALS

All existing and other materials not required or needed for use on the project, and not required to be removed and stacked, shall become the property of the Contractor and shall be removed from the site during the construction period and legally disposed of. No separate payment will be made for this work, but all costs in connection there with shall be included in the prices bid for various contract items.

MATERIAL OPTIONS

In the case of all option items, as listed in the proposal, the Contractor shall inform the Engineer of his option prior to the installation of the material. Once the option is designated, all material for a particular item shall remain the same throughout the job.

MAINTENANCE AND CLEANING OF ROADS

Existing roadways intended to be used for hauling earth and rock excavated materials shall be cleaned and maintained by the Contractor during the length of the Project. If necessary, the Contractor shall be responsible for providing street sweepers and operators for sweeping of haul road paved surfaces. Sweeping services shall be provided on an hourly basis at the discretion of Engineer. Street sweepers shall be self-propelled, diesel powered units with brushes and a water spray, less than three years old. The Contractor shall remove debris from the work area and deposit sweepings at locations as directed by the Engineer. The Contractor shall also be responsible for repairing roadways and bridges damaged by construction vehicles. Payment for maintenance and cleaning of roads will not be paid for separately but shall be considered incidental to the contract.

PRESERVATION OF ROADSIDE GROWTH

The Contractor shall take all necessary care when excavating or working in the vicinity of existing trees so that the root systems, trunks and branches are not damaged. All precautions shall be taken to insure that heavy equipment does not damage any roots, including those that lie below the limits of excavation. Do not store equipment or stockpile materials within drip line of trees or in areas enclosed by tree protection fencing.

Extreme care shall be exercised during excavation operations beneath the canopy of trees designated to be preserved. All excavation within ten feet of designated trees shall be performed by hand labor to preserve the root system of the tree.

Avoid any direct soil contamination in root zone area by petroleum, petroleum products or solvents, salts or any other pollutant during construction.

All cutting or trimming of trees to be preserved shall be executed by a Massachusetts Certified Arborist. The Contractor shall provide the Engineer with a copy of the certification prior to any work on trees.

Trees that, in the judgment of the Engineer, have been irreparably damaged by the Contractor shall be replaced in kind and in size, or, with a quantity of 2" caliper replacement trees (the quantity of which shall be determined by the Engineer) such that the cumulative caliper of the replacement trees will be up to the equivalent of diameter of the lost tree at breast height. Cost of replacement trees shall be paid by the Contractor.

Cost of removal of destroyed tree, including roots and stump, as well as the cost of replacement trees, shall be paid for by the Contractor.

OIL AND HAZARDOUS MATERIAL SPILL PREVENTION

Measures must be taken by the Contractor to prevent spills and leaks of oils and other hazardous materials to the environment. Such measures include but are not limited to properly maintaining construction equipment, establishing fuel and hazardous material handling areas that are designed to prevent releases to the environment (include containment structures if needed), instructing personnel in proper waste handling procedures and strictly prohibiting disposal into drains, water ways or receptacles, such as dumpsters, designed for non-hazardous waste. Spills or leaks of oil or hazardous materials must be reported to the DEP in accordance with the reportable quantities and criteria for "spills" as designed by the DEP in 310 CMR 40.370.

Notification to the Engineer and to DEP must be made as soon as possible, but not more than two (2) hours after a spill or leak occurs.

ARCHITECTURAL ACCESS BOARD TOLERANCES

The Contractor is hereby notified that they are ultimately responsible for constructing all project elements in strict compliance with the current AAB/ADA rules, regulations and standards.

All construction elements in this project associated with sidewalks, walkways, wheelchair ramps and curb cuts are controlled by 521CMR - Rules and Regulations of the Architectural Access Board (AAB). These construction elements shall also be in conformance with ADA requirements of detect ability. Detectable warning surfaces shall be 2 feet wide square-pattern truncated dome surfaces setback 6 inches from the gutter line.

The AAB Rules and Regulations specify maximum slopes and minimum dimensions required for construction acceptance. There is no tolerance allowed for slopes greater than the maximum slope nor for dimensions less than the minimum dimensions.

Contractors shall establish grade elevations at all wheel chair ramp locations, and shall set transition lengths according to the appropriate table in the Construction Standards (or to the details shown on the plans).

All pedestrian curb ramp joints and transition sections which define grade changes shall be formed, staked and checked prior to placing cement concrete. All grade changes are to be made at joints.

STANDARD SPECIFICATIONS

Item numbers and item descriptions noted in the Standard Specifications below refer to MassDOT Standard Specification items as contained in the "STANDARD SPECIFICATIONS FOR HIGHWAYS AND BRIDGES", dated 2024 and all Subsequent Supplements, Errata and Addenda. Accordingly, these Standard Specifications are incorporated herein by reference.

ITEM 101.	**CLEARING AND GRUBBING**	**A**
ITEM 103.	**TREE REMOVED – DIAMETER UNDER 24 INCHES**	**EA**
ITEM 104.	**TREE REMOVED - DIAMETER 24 INCHES AND OVER**	**EA**
ITEM 120.	**EARTH EXCAVATION**	**CY**
ITEM 121.	**CLASS A ROCK EXCAVATION**	**CY**
ITEM 123.	**MUCK EXCAVATION**	**CY**
ITEM 140.1	**BRIDGE EXCAVATION WITHIN COFFERDAM**	**CY**
ITEM 150.	**ORDINARY BORROW**	**CY**
ITEM 151.	**GRAVEL BORROW**	**CY**
ITEM 151.2	**GRAVEL BORROW FOR BACKFILLING STRUCTURES AND PIPES**	**CY**
ITEM 156.	**CRUSHED STONE**	**TON**
ITEM 156.1	**CRUSHED STONE FOR BRIDGE FOUNDATION**	**TON**
ITEM 170.	**FINE GRADING AND COMPACTING – SUBGRADE AREA**	**SY**
ITEM 402.	**DENSE GRADED CRUSHED STONE FOR SUB-BASE**	**CY**
ITEM 440.	**CALCIUM CHLORIDE FOR ROADWAY DUST CONTROL**	**LB**
ITEM 443.	**WATER FOR ROADWAY DUST CONTROL**	**MGL**
ITEM 450.231	**SUPERPAVE SURFACE COURSE – 12.5 POLYMER (SSC – 12.5 – P)**	**TON**
ITEM 450.31	**SUPERPAVE INTERMEDIATE COURSE – 12.5 (SIC – 12.5)**	**TON**
ITEM 452.	**ASPHALT EMULSION FOR TACK COAT**	**GAL**
ITEM 453.	**HMA JOINT ADHESIVE**	**FT**
ITEM 620.131	**GUARDRAIL, DEEP POST (SINGLE FACED)**	**FT**
ITEM 627.1	**TRAILING ANCHORAGE**	**EA**
ITEM 627.82	**GUARDRAIL TANGENT END TREATMENT, TL-2**	**EA**
ITEM 628.24	**TRANSITION TO BRIDGE RAIL**	**EA**
ITEM 697.	**SEDIMENTATION FENCE**	**FT**
ITEM 748.	**MOBILIZATION**	**LS**
ITEM 751.	**LOAM FOR ROADSIDES**	**CY**
ITEM 765.	**SEEDING**	**SY**
ITEM 833.7	**DELINEATION FOR GUARDRAIL TERMINAL**	**EA**
ITEM 852.	**SAFETY SIGNING FOR TRAFFIC MANAGEMENT**	**SF**
ITEM 853.1	**PORTABLE BREAKAWAY BARRICADE TYPE III**	**EA**
ITEM 853.2	**TEMPORARY BARRIER (TL-2)**	**FT**
ITEM 866.106	**6 INCH REFLECTORIZED WHITE LINE (THERMOPLASTIC)**	**FT**

SUPPLEMENTAL SPECIFICATIONS: Warren Wright Road over Hop Brook

ITEM 115.1	**DEMOLITION OF BRIDGE NO. B-05-028 (5KR)**	**LS**
ITEM 129.2	**OLD PAVEMENT EXCAVATION**	**SY**
ITEM 157.1	**GABIONS**	**CY**
ITEM 190.1	**CONSTRUCTION PHASE BORINGS**	**FT**
ITEM 402.12	**DENSE GRADED CRUSHED STONE FOR SHOULDERS**	**CY**
ITEM 698.1	**GEOTEXTILE FABRIC FOR STABILIZATION**	**SY**
ITEM 698.3	**GEOTEXTILE FABRIC FOR SEPARATION**	**SY**
ITEM 734.	**SIGN REMOVED AND RESET**	**EA**
ITEM 748.1	**TEMPORARY ACCESS ROAD FOR USE BY NATIONAL GRID**	**LS**
ITEM 765.1	**VINE – VIRGINIA CREEPER**	**EA**
ITEM 765.554	**SEEDING – WETLAND MIX**	**LB**
ITEM 767.121	**SEDIMENT CONTROL BARRIER**	**FT**
ITEM 851.11	**TRAFFIC CONES FOR TRAFFIC MANAGEMENT**	**LS**
ITEM 859.1	**REFLECTORIZED DRUMS**	**LS**
ITEM 983.01	**STOCKPILE AND PLACEMENT OF NATURAL STREAMBED MATERIAL**	**CY**
ITEM 983.011	**STOCKPILE AND PLACEMENT OF NATIVE WETLAND MATERIAL**	**CY**
ITEM 983.02	**SUPPLEMENTAL NATURAL STREAMBED MATERIAL**	**CY**
ITEM 983.03	**STONE SCOUR PROTECTION FHWA CLASS II RIPRAP**	**TON**
ITEM 983.031	**STONE SCOUR PROTECTION FHWA CLASS I RIPRAP**	**TON**
ITEM 990.1	**COFFERDAM STRUCTURE – BRIDGE NO. B-05-028**	**LS**
ITEM 990.11	**COFFERDAM STRUCTURE – CULVERT TERRESTRIAL PASSAGE**	**LS**
ITEM 991.1	**CONTROL OF WATER – STRUCTURE NO. B-05-028 (CMF)**	**LS**
ITEM 991.11	**CONTROL OF WATER – CULVERT TERRESTRIAL PASSAGE**	**LS**
ITEM 995.01	**BRIDGE STRUCTURE, BRIDGE NO. B-05-028**	**LS**
ITEM 995.011	**CULVERT STRUCTURE, TERRESTRIAL PASSAGE**	**LS**

ITEM 115.1 DEMOLITION OF BRIDGE NO. B-05-028 (5KR) LS

The work to be done under this Item shall conform to the relevant provisions of Subsection 112, 120, and 140 of the Standard Specifications, amended and or supplemented as follows:

The work to be done under this Item shall consist of the demolition and satisfactory removal of the existing bridge to the limits shown on the plans.

Existing materials to be removed and disposed of under this Item include, but are not limited to, the following:

- The existing corrugated metal pipe culverts (3)
- The existing steel guardrail

Within 10 working days of the notice to proceed, the Contractor shall submit a plan indicating his proposed demolition procedures and methods to be used including equipment, tools, devices, crane or excavator capacity and location, schedule of operations, methods of utility protection, etc., to the Engineer for approval. The requirements for equipment and all procedures utilized shall be in conformance with the intent of Subsection 960.61 Erection of the Specifications.

The demolition procedures and any necessary calculations and drawings shall be stamped by a Professional Engineer registered in Massachusetts certifying that all existing structural members are suitably supported throughout the demolition process. In determining the stresses to which the structure will be subjected, all loading combinations including traffic and the Contractor's equipment shall be considered. The method of determining stresses shall conform to the latest AASHTO Standard Specifications for Highway Bridges. Work under this Item may not commence until the Engineer has given written approval.

No debris, tools or incidental equipment of any kind will be permitted to fall into areas within the vicinity of the waterway under. Any material that accidentally falls into such areas shall be removed immediately.

Prior to the start of work, the Contractor shall locate all utilities and shall submit to the Engineer and the utility companies his proposed method of protecting them during the demolition operations as part of the Demolition Procedure. Procedure approval shall not serve to relieve the Contractor of his responsibility to protect all utilities from damage at all times. Any damage resulting from Contractor Operations shall be repaired at his expense.

All materials removed under Item 115.11 shall become the property of the Contractor and shall be removed from the job site and disposed of properly.

PAYMENT

Unless otherwise covered under other contract items, full payment for this work shall be included under the lump sum price for Item 115.1, Demolition of Bridge, and shall include all labor, equipment and materials necessary to complete the work.

ITEM 129.2 OLD PAVEMENT EXCAVATION SY

The Work under this item shall conform to the relevant provisions of Section 100 of the Standard Specifications for Highways and Bridges and Subsection 415 Pavement Milling.

This item includes the removal of existing asphalt pavement as shown on the drawings and as specified herein. The work area shall include the existing pavement width of Warren Wright Road and other miscellaneous asphalt pavement excavation per the plans that may be encountered during the course of the work within the roadway only.

Existing pavement is to be excavated by milling. Only suitable excavated sub-base material shall be retained for reuse as new base if testing, performed at the Contractor's expense and approved by the Engineer, confirms compliance with MassDOT specifications for reclaimed pavement borrow. Non-suitable material shall be removed and discarded off-site incidental to this item. New material, including dense graded crushed stone and gravel borrow, will be brought in to complete the proposed sub-base per the pavement design in the plans.

Work shall include the removal of the existing asphalt pavement surface to its full depth. All excavated material shall become the property of the Contractor and shall be removed from the site and disposed of legally.

METHOD OF MEASUREMENT

Measurement for Item 129.2 shall be the area of pavement removed in square yards to the hatch shown in the plans. Full-depth pavement removal, regardless of asphalt thickness encountered, is considered incidental to Item 129.2 and shall not be paid for separately.

BASIS OF PAYMENT

Payment for work under this item shall be made at the Contract unit bid price per square yard and shall include full compensation for furnishing all labor, materials, and equipment; removal and disposal of unwanted material; stockpiling and transport of suitable material reusable as sub-base; and any other incidental items necessary for the satisfactory completion of this work as specified.

ITEM 157.1 **GABIONS** **CY**

The work shall consist of furnishing, assembling, and installing gabion basket retaining walls, filled with aggregate, at the locations and in the manner shown on the plans or as directed by the Engineer.

MATERIALS

Wire mesh – The double twisted hexagonal woven wire mesh used for galvanized gabions shall be made of galvanized steel wire with a minimum diameter of 0.118". The tensile strength of lacing wire and wire used for manufacturing the baskets shall be at least 60,000 psi, and shall have a minimum elongation of 12%, when tested in accordance with ASTM A641. The maximum dimension of the mesh opening shall be 4.5 inches, and the area of the mesh opening shall not exceed 8 square inches. A selvedge wire running through the edges of the basket shall be made of galvanized steel wire with a minimum diameter of 0.148". The lacing wire necessary for assembling and lacing the basket units and the connecting wires shall be made of galvanized steel wire with a minimum diameter of 0.087".

Aggregate – The aggregate used shall be sound, tough, durable, and angular, free from decomposed stones or other defects that would impair durability. Aggregates susceptible to deterioration from repeated freezing and thawing shall not be used. Each side of the aggregate shall be at least 4 inches and not more than 12 inches. The aggregate shall be reasonably well graded between the limiting sizes. The dry unit weight of the graded aggregate fill shall be between 120 pcf and 180 pcf to ensure proper performance of the gabion baskets as designed.

CONSTRUCTION METHODS

Fabrication – The baskets shall be fabricated with equal compartments separated by diaphragms of the same mesh and wire diameter as the basket body. The length of each compartment shall not exceed its width. The baskets shall be fabricated so that the sides, ends, lids, and diaphragms can be assembled at the site into rectangular baskets of the sizes specified on the plans. The wire mesh shall be cut so as to be non-raveling. The front, base, back, and lid shall be woven into a single unit. The ends shall be either woven as part of the same unit with the front, base, back, and lid, or factory-connected to the base section of the basket so that strength and flexibility at the point of connection are at least equal to that of the mesh. The baskets shall be furnished with the necessary diaphragms secured in proper position on the base. All perimeter edges of the mesh shall be securely fastened with selvedge wire so that the joints have at least the same strength as the wire mesh. Lacing wire shall be supplied in a quantity sufficient for securely fastening all edges of the baskets and diaphragms and for the necessary internal connecting wires in each compartment.

Foundation Preparation – The foundation shall be excavated to the extent shown on the plans or as directed by the Engineer. Compacted gravel borrow and geotextile fabric shall be placed following methods detailed in their respective specifications, to the extent shown on the plans or as directed by the Engineer. The geotextile fabric surface shall be free of damage such as rips or holes, and free of tension, folds, wrinkles, or creases, prior to gabion basket placement.

Assembly and Placement – Each basket unit shall be assembled by binding together all vertical edges, including the diaphragms, with lacing wire at intervals of no more than 5 inch spacing or by a continuous piece of lacing wire looped around the vertical edges with at least one tie every 5 inches. Cross connecting wires shall be placed in each compartment, spaced vertically at equal spacings of approximately 1/8 of base width. Cross connecting wires shall not be placed prior to filling, but shall be placed in conjunction with filling as described below. Empty baskets shall be set to line and grade as shown on the plans. Filling of basket units in one place and then transporting them to their final position will not be permitted. All adjoining empty basket units must be laced along the perimeter of their contact surfaces in the manner described previously for assembling. After filling the lower tier, the empty upper baskets that form the upper tier shall also be laced to the top of the lower ones. A standard fence-stretcher or other approved device shall be used to remove any kinks from the mesh and hold alignment of the units. The aggregate shall be carefully placed to ensure alignment, avoid bulges, and create a minimum of voids. Aggregate shall be placed in runs across the entire length of a gabion assembly, to avoid bulging between adjacent units. At no time shall any cell be filled to a depth exceeding 1 foot more than the adjoining cell. After the aggregate is placed to the level at which the connecting wires are to be installed, 2 connecting wires are to be placed perpendicular to each other, then looped and tied around 2 meshes of each gabion wall. Filling is then resumed until the level of the next connecting wires or the top of the gabion is reached. After a gabion has been filled, the lid shall be stretched tightly over the filling until the lid meets the perimeter edges of the front and end panels. The lid shall then be tightly laced along all edges, ends and diaphragms in the manner described for assembling. The Contractor shall furnish the Engineer with working drawings detailing the layout of the gabions at least 2 weeks prior to their installation.

METHOD OF MEASUREMENT

This work will be measured for payment by the number of cubic yards of "Gabions," measured in place within neat lines as shown on the plans or as directed by the Engineer. Excavation, geotextile fabric, and compacted gravel borrow shall be paid for under separate items.

BASIS OF PAYMENT

This work will be paid for at the contract unit price per cubic yard for "Gabions," complete in place, including all materials, equipment, tools, and labor incidental thereto.

Excavation, geotextile fabric, and compacted gravel borrow will be paid for at the contract unit price for their appropriate respective items.

Pay Item	Pay Unit
Gabions	C.Y.

ITEM 190.1 CONSTRUCTION PHASE BORING FT

The work under this Item shall conform to the relevant provisions of Subsection 190 of the Standard Specifications and the following:

Work performed under this Item consists of the Contractor taking two (2) additional drive sample borings (one (1) at the bridge crossing and one (1) at the terrestrial passage culvert) during the Construction Phase to assess acceptability of soils for supporting the proposed structure.

GENERAL

The Contractor shall take Construction Phase Borings as an early site action and submit the boring reports to the Engineer a minimum of 30 days before the Contractor develops shop drawings for the precast substructure elements. This allows for potential modifications if unexpected unsuitable soils are encountered.

The Contractor shall coordinate necessary permits and traffic control to accomplish the Construction Phase Borings.

SUBMITTALS

The Contractor shall submit a sketch showing their proposed boring locations, based on the approximate locations shown on the plans, for the Engineer's review and approval before the Contractor takes any borings.

After the borings are taken, the Contractor shall submit the compiled boring report (prepared per Subsection 190 of the Standard Specifications) to the Engineer for review. All boring logs are to have northing and easting coordinates presented on each boring log. All boring logs shall be to scale not less than 1/8 inch = 1 foot. Construction Plans to be updated to included additional construction phase boring logs.

CONSTRUCTION METHODS

Borings shall be performed to a minimum depth of 15 feet below planned footing elevation for the bridge and to a minimum depth of 15 feet below the bottom of the culvert elevation for the terrestrial passage culvert.

METHOD OF MEASUREMENT AND BASIS OF PAYMENT

Measurement and compensation for the work performed under this Item shall be at the contract unit bid price per linear foot, inclusive of combined soil and rock core length.

Such price shall be considered full compensation for all incidentals, labor, tools, equipment, mobilization, demobilization, and materials necessary to complete the work as described herein and in a satisfactory manner to the Engineer.

Any permitting, notification, and temporary traffic control measures necessary to perform this work shall be considered incidental to this Item.

ITEM 402.12 DENSE GRADED CRUSHED STONE FOR SHOULDERS CY

The work under this Item shall conform to the relevant provisions of Section 445 of the Standard Specifications and the following:

As directed by the Engineer the top portion of guardrail shelf shall be graded with Dense Graded Crushed Stone (DGCS) adjacent to highway pavement. The top surface of the DGCS shall be finish graded and compacted with the cross slope shown on the plans.

MATERIALS

This material shall meet the requirements of M2.01.7 with the exception of the fine aggregate which shall consist of stone screenings and the following grading requirements:

SIEVE DESIGNATION	% BY WEIGHT PASSING SQUARE MESH SIEVES
3/4 inches	100
1/2 inches	80-95
3/8 inches	65-85
No. 4	35-55
No.16	13-25
300 µm	5-15
75 µm	0-10

METHOD OF MEASUREMENT & BASIS OF PAYMENT

Item 402.12 will be measured and paid at the Contract unit price per Cubic Yard at a depth of 8 inches, complete in place, which price shall include all labor, equipment, materials, tools and all incidental costs required for the completion of the work.

ITEM 698.1 GEOTEXTILE FABRIC FOR STABILIZATION SY

The work performed under this Item shall consist of furnishing and installing geotextile fabric in conjunction with the slope protection as shown on the Plans or as directed by the Engineer.

The Construction/Installation Guidelines, Appendix of AASHTO M 288, and the following shall be followed.

Atmospheric exposure of the geotextile fabric to the elements following lay-down shall be a maximum of 14 days. If laid under water, the covering crushed stone shall be placed on the same day as the geotextile.

For seams, which are sewn in the field, the Contractor shall provide at least a 5-foot length of sewn seam for sampling by the Engineer before the geotextile is installed. The seams sewn for sampling shall be sewn using the same equipment and procedures as will be used for the production seams. If seams are sewn in both the machine and cross-machine direction, samples of seams from both directions shall be provided. The seam assembly description shall be submitted by the Contractor along with the sample of the seam. This description shall include the seam type, stitch type, sewing thread, and stitch density.

The geotextile shall be placed in intimate contact with the soils without wrinkles or folds, and it shall be anchored on a smooth-graded surface approved by the Engineer. The geotextile shall be placed in such a manner that placement of the overlaying materials will not excessively stretch so as to tear the geotextile.

The geotextile shall be placed so that the machine direction is horizontal and runs along the slope. Adjacent geotextile sheets shall be jointed by either sewing or overlapping. Overlapped seams at roll ends shall be a minimum of 12 inches except if placed under water. In such instances, the overlap shall be a minimum of 3 feet. Overlaps of adjacent rolls shall be a minimum of 12 inches in all instances.

Care shall be taken during installation so as to avoid damage to the geotextile as a result of the installation process. Should the geotextile be damaged during installation, a geotextile patch shall be placed over the damaged area extending 3 feet beyond the limits of the damage.

The armoring system placement shall begin at the toe of the slope and proceed up the slope. Placement shall take place so as to avoid stretching and subsequent tearing of the geotextile. No stone material shall be dropped from a height exceeding 3 feet.

Field monitoring shall be performed to verify that the armoring system placement does not damage the geotextile. Any geotextile damaged during this placement shall be replaced as directed by the Engineer, at the Contractor’s expense.

METHOD OF MEASUREMENT & BASIS OF PAYMENT

Geotextile fabric for stabilization will be measured for payment by the square yard, complete in place. There shall be no additional payment for overlaps. The area of geotextile folded over at the toe of the slope will be included in the quantity measurement.

Geotextile fabric for stabilization placed as necessary to stabilize slopes during construction and prevent erosion will be paid for at the Contract unit price per square yard, which price shall include all labor, materials, equipment, and incidental costs required to complete the work.

ITEM 698.3 GEOTEXTILE FABRIC FOR SEPARATION SY

The work shall consist of furnishing and installing approved geotextile filter fabric at the locations and in the manner shown on the plans or as directed by the Engineer.

The work under this item includes the furnishing and installation of geotextile fabric under modified rock fill.

MATERIALS

The geotextile fabric shall be selected from the MassDOT QCML.

CONSTRUCTION METHODS

The geotextiles shall be protected from exposure to sunlight during transport and storage. After placement, the geotextile shall not be left uncovered for more than two (2) weeks.

Traffic or construction equipment will not be permitted directly on the geotextile. Geotextiles may be joined either by sewing or overlapping. Sewn seams shall be lapped a minimum of four inches and double sewn. The thread used to sew the seam shall be nylon or polypropylene. Overlapped seams shall have a minimum overlap of 18 inches. All seams shall be subject to the approval of the Engineer. Geotextile that becomes torn or damaged shall be replaced or patched. The patch shall extend 3 feet beyond the perimeter of the tear or damage.

Bedding and Slope Protection: The geotextile shall be placed and anchored on a prepared surface approved by the Engineer. The geotextile shall be laid loosely so that placement of the overlaying materials will not stretch or tear the geotextile. The backfill placement shall begin at the toe and proceed up the slope. Successive geotextile sheets shall be overlapped in such a manner that the upstream sheet is placed over the downstream sheet.

Modified rock fill shall not be dropped onto the geotextile from a height greater than 12 inches.

The surface upon which the geotextile is to be placed shall be within reasonable conformity to the proposed grade. The overlaying course shall be placed in one (1) lift and compacted as approved by the Engineer.

METHOD OF MEASUREMENT

The quantity of geotextile filter fabric will be the number of square yards computed from the payment lines shown on the plans or from payment lines established in writing by the Engineer. Measurement will not be made for geotextile used for repairs, seams or overlaps.

BASIS OF PAYMENT

The contract unit price per square yard for this item shall include the cost of furnishing all labor, equipment, and materials necessary to complete the work, including the cost of preparing the surface upon which the geotextile is placed.

ITEM 734. SIGN REMOVED AND RESET EA

The work shall consist of removing and resetting as directed for the sign. The existing poles are to be maintained and reset in the specified location, unless the Engineer determines that the poles are in inadequate condition and/or need to be placed in another location. The sign shall be reconstructed at the new location similar to the existing condition. No cement concrete foundation is required unless determined by the Engineer.

METHOD OF MEASUREMENT AND BASIS OF PAYMENT

Private Sign Removed and Reset will be measured under a lump sum payment. Private Sign Removed and Reset will be paid for at the contract unit price under a lump sum payment, which price shall include removal, resetting, and all other incidental work for the proper completion of this item. The contractor shall not be paid for removing and resetting signs multiple times within areas of construction for convenience. Any damage to the sign shall be repaired or sign replaced in kind by the contractor at no additional cost.

ITEM 748.1 TEMPORARY ACCESS ROAD FOR USE BY NATIONAL GRID LS

The work shall include the construction of a temporary access road for use by National Grid for the proposed temporary utility pole relocation and permanent utility pole placement, as detailed on the Plans. Clearing and grubbing of trees and ground brush (at pole location and along the proposed spans of wires) in order to stake poles shall be completed in accordance with Item 101.

ENGINEERING AND DESIGN

Minimum width of the access road shall be 20 feet. Maximum grade shall be no more than 8%.

The maximum distance between the edge of the access road and the location of National Grid's equipment placements shall be no more than 10 feet with less than 5 degree grade change. Greater than 5 degree grade change will require site specific approval.

A turnaround area for vehicles to exit without backing up should be provided where possible.

The minimum width of an entrance gate shall be at least 18 feet, or greater if the entrance radius dictates. The gate shall be capable of accommodating a National Grid lock, either by a "married" lock arrangement or by some other agreed arrangement.

CONSTRUCTION METHOD

The access road for the temporary utility pole relocation shall be constructed using specialized timber mats for use in swampy conditions (also known as swamp mats). Mats shall be in good working condition and must be able to support heavy machinery.

Place mats so the individual boards are perpendicular to the direction of traffic. Ensure there are no gaps between the mats. Mats must be placed on firm ground.

Minimize impacts to wetlands during installation, use, and removal. All matted wetland areas shall be restored as indicated on the Plans.

METHOD OF MEASUREMENT & BASIS OF PAYMENT

The measurement and payment for this Item shall be made by Lump Sum as bid which shall include all labor, equipment, tools, materials, coordination and incidentals necessary to complete the work to the satisfaction of the Engineer.

ITEM 765.1 VINE – VIRGINIA CREEPER EA

This work shall consist of furnishing and installing container-grown Virginia creeper vines at locations shown on the plans or as directed by the Engineer, in accordance with these specifications and the relevant provisions of MassDOT Standard Specifications Section 700 Subsection 771: Planting Trees, Shrubs, and Groundcover.

MATERIALS

Plants shall conform to the requirements of Section 700 and the following:

- Botanical Name: *Parthenocissus quinquefolia*
- Common Name: Virginia Creeper
- Hardiness: Provide plant stock certified to have been grown within hardiness Zones 2 through 6 as established by the USDA's Plant Hardiness Zone Map. Submit certification if so requested by the Engineer.
- Plant Character: All plants shall be typical of their species or variety and shall have a normal habit of growth and be legibly tagged with the proper name. Form and size shall comply with ANSI Z60.1. 1.
- Provide healthy plants from a commercial nursery, of species and variety shown or listed.
- Container stock shall have a full container with a well-developed root system. Plants loose in the container are not acceptable. The root zone shall be free of circling or kinked roots. Large matted roots at the sides or bottom of the container will not be accepted.
- The Contractor shall scarify the rootballs of container plants. Using a sharp knife, make vertical cuts the full height of the rootball at a depth of 2" and every 3" o.c.
- Seeding shall occur during the following periods unless otherwise approved by the Engineer:
    - Spring: April 1 - May 30
    - Fall: Spetember 15 – November 15

CONSTRUCTION

Plants shall be installed at the toe of the gabion retaining walls as required to promote full vegetative coverage of the wall face. Planting locations shall be adjusted in the field, as directed by the Engineer, to optimize growing conditions and ensure adequate soil volume and proximity to the gabion surface.

Planting pits shall be excavated to dimensions sufficient to accommodate the root ball and provide a minimum of 12 inches of loosened soil beyond the root mass in all directions. Where existing material is unsuitable for plant growth, it shall be removed and replaced with approved topsoil. Where gabion stone backfill is present, the Contractor shall provide a localized pockets of topsoil to support root establishment.

Plants shall be set plumb and at the same depth as grown in the container, with all containers removed prior to placement. Backfill shall consist of approved topsoil, thoroughly compacted and watered to eliminate air pockets. A mulch layer 2 to 3 inches in thickness shall be placed at each planting location, with mulch kept clear of plant stems and not placed on gabion stone surfaces.

Vines shall be oriented toward and placed in direct contact with the gabion face at the time of installation. The Contractor shall manually train the vines onto the gabion surface and secure initial growth to the wire baskets or stone using biodegradable ties or other approved methods as necessary to promote attachment. Where required to ensure establishment, temporary biodegradable support systems, such as jute netting or approved equal, shall be installed on the gabion face until the vines are self-supporting.

Plants shall be spaced to achieve continuous vegetative coverage of the gabion surface within the establishment period, as determined by the Engineer. The Contractor shall water plants immediately after installation and maintain them in a healthy growing condition. Maintenance shall include watering, retraining of vines onto the gabion surface, and replacement of dead, damaged, or unacceptable plants in accordance with Section 700.

METHOD OF MEASUREMENT & BASIS OF PAYMENT

Payment for this item will be made at the Contract Unit Price per each, which price shall include all labor, materials, equipment, excavation, backfill, mulch, watering, maintenance, and all incidental work necessary to complete the item.

ITEM 765.554 SEEDING – WETLAND MIX LB

Work under this item shall consist of furnishing and delivering the Wetland Seed Mix specified herein for use in areas where wetland are disturbed as indicated on the plans.

All seed shall be native species suitable for wetland and basin conditions and shall originate from sources within the northeastern United States where available.

SUBMITTALS

Prior to ordering seed, the Contractor shall submit supplier documentation verifying availability of the specified seed species and quantities.

The Contractor shall provide original seed tags or photo documentation of seed tags for each bag of seed supplied to the project. Seed tags shall include the following information:

- Botanical and common name
- Lot number
- Purity percentage
- Germination percentage
- Percentage of inert matter, weed seed, and other crop seed
- Origin of seed
- Germination test date
- Net weight
- Name and address of supplier

Delivered seed quantities shall match the approved mix and required Pure Live Seed (PLS) quantities.

SEEDING SEASON

Seeding shall occur during the following periods unless otherwise approved by the Engineer:

Spring: April 1 - May 15
Fall: October 1 - December 1 for dormant seeding

PERMANENT SEED MIX(ES)

Quantities specified are based on **Pure Live Seed (PLS)**. Greater quantities of bulk seed may be required depending on seed purity and germination.

Pure Live Seed (PLS) shall be calculated as:
PLS = (% Purity) × (% Germination + % Hard Seed + % Dormant Seed)

Contractor shall adjust bulk seed quantities as required to achieve the specified PLS seeding rate.

WETLAND MIX
Permanent seed mixture for the wetland restoration areas:

	Botanical Name	Common Name	% PLS By Weight
Grass			
	Elymus riparius	Riverbank Wild Rye	20.00%
	Andropogon gerardii NY Eco	Big Bluestem NY Eco	12.00%
	Carex lupulina	Hop Sedge	10.00%
	Panicum clandestinum 'Tioga'	Deer Tongue 'Tioga'	10.00%
	Carex vulpinoidea	Fox Sedge	10.00%
	Carex scoparia	Broom sedge	8.00%
	Sorghastrum nutans NY Eco	Indiangrass NY Ecotype	8.00%
	Panicum virgatum	Switch Grass	8.00%
	Juncus effusus	Soft Rush	2.00%
	Juncus tenuis	Path Rush	1.00%
			89.00%
Herb/Forb			
	Verbena hastata	Blue Vervain	4.00%
	Desmodium canadense	Showy Tick Trefoil	2.00%
	Eupatorium maculatum	Joe-pye Weed	1.00%
	Asclepias incarnata	Swamp Milkweed	1.00%
	Aster novae-angliae	New England Aster	1.00%
	Eupatorium perfoliatum	Boneset	0.70%
	Helenium autumnale	Common Sneezeweed	0.50%
	Aster puniceus	Aster - Swamp	0.50%
	Mimulus ringens	Monkey Flower	0.20%
	Vernonia noveboracensis	New York Ironweed	0.10%
			11.00%
			100.00%

APPLICATION RATE

Wetland Mix shall be applied at a rate of 20 pounds per acre Pure Live Seed (PLS).No cover crop shall be applied with this mix.

If seeding occurs outside the specified seeding season or after placement of compost blanket, the permanent seed mix shall be increased by 50 percent.

METHOD OF MEASUREMENT & BASIS OF PAYMENT

Item 765.554 will be measured by the pound of Pure Live Seed furnished and delivered. Overseeding required to correct poor germination or establishment shall be incidental to the item.

Application and establishment of seed mix for the disturbed areas outside of wetland disturbed areas will be paid for separately under Item 765. Seeding, except in wetland replication and restoration areas where seeding is included in the respective wetland work items.

ITEM 767.121 SEDIMENT CONTROL BARRIER FT

The work under this item shall conform to the relevant provisions of Sections 751 and 767 of the Standard Specifications and Section 670 of the Standard Supplemental Specifications and shall include the furnishing and placement of a sediment control barrier. Sediment Control Barrier shall be installed prior to disturbing upslope soil.

The purpose of the sediment control barrier is to slow runoff velocity and filter suspended sediments from storm water flow. Sediment barrier may be used to contain stockpile sediments, to break slope length, and to slow or prevent up gradient water or water off road surfaces from flowing into a work zone. Contractor shall be responsible for ensuring that barriers fulfill the intent of adequately controlling siltation and runoff.

Twelve-inch diameter (after installation) compost filter tubes are intended to be the primary sedimentation control barrier.

For small areas of disturbance with minimal slope and slope length, the Engineer may approve the following sediment control methods;

- Straw tubes/wattles which shall be trenched
- Straw bales which shall be trenched

Additional barriers (adding depth or height) shall be used at specific locations of concentrated flow such as at gully points, steep slopes, or identified failure points in the sediment capture line.

Where specified or required by permits, silt fence shall be used in addition to compost filter tubes or straw bales and shall be incidental to the item.

MATERIALS AND CONSTRUCTION

Prior to initial placement of barriers, the Contractor and the Engineer shall review locations specified on the plans to ensure that the placement will provide maximum effectiveness.

Barriers shall be staked, trenched and/or wedged as specified herein and shall be securely in contact with existing soil such that there is no flow beneath the barrier.

Compost Filter Tube

Compost material inside the filter tube shall meet M1.06.0, except for the following: no manure or bio-solids shall be used; no kiln-dried wood or construction debris shall be allowed; material shall pass through a 2-inch sieve; and the C:N ratio shall be disregarded.

Outer tube fabric shall be a knitted mesh with 1/8 - 3/8" openings and made of 100% biodegradable materials (i.e., cotton, hemp or jute).

Compost filter tubes shall be a minimum of 12 inches in diameter installed. Tubes shall be placed, filled, and staked in place as required to ensure stability against water flows. All tubes shall be tamped, but not trenched, to ensure good contact with soil.

Where reinforcement is necessary, additional tubes shall be installed as shown on the plans.

Straw Bales

Straw bales shall conform to the requirements of Section M6.04.3 of the Standard Specifications and the following:

Bales should be a minimum size of 12 x 16 x 36 inches and shall be placed in a single row, lengthwise on the contour, with ends of adjacent bales tightly abutting one another.

The bales shall be trenched and backfilled. The trench shall be excavated the width of the bale and the length of the proposed barrier to a depth of 4 inches. After the bales are staked the excavated soil shall be backfilled against the barrier. Backfill soil shall conform to the ground level on the downhill side and shall be built up to 4 inches against the uphill side of the barrier.

Straw Wattle

Straw wattle shall be a minimum of 12 inches in diameter. Straw filling shall conform to the requirements of Section M6.04.3, shall be encased in durable netting, and shall have a density of 3 lb/foot.

Straw wattle shall be trenched in 3 inches deep and staked according to the plans. The wattles shall be sufficiently secure on the upstream side to prevent water flowing underneath the wattle.
Stakes

Stakes for anchoring Compost Filter Tubes, Straw Wattles, and Straw Bales shall be as shown on the plans and shall be a minimum of 1x1 inch diameter x 4 feet hardwood stakes.

When used with Silt Fence, stakes for Compost Filter Tubes shall be driven 12 inches into the ground, Stakes for Straw Bales shall be driven 16 inches into the ground.
Stakes of other material of equivalent strength may be used if approved by the Engineer.

MAINTENANCE

Maintenance of Sediment Control Barriers shall be per Section 670.40 of the Standard Supplemental Specifications or per the Stormwater Pollution Prevention Plan (SWPPP).

The contractor shall inspect the sediment barrier after each rain event and as specified in relevant permits to ensure that they are working effectively and as intended. Contractor shall be responsible for ensuring that an effective barrier is in place for all phases of the contract.

Barriers that decompose naturally due to weatherization over time such that they no longer provide the function required shall be repaired or replaced as directed. If the resulting berm of compost within the fabric tube is sufficiently intact and continues to provide water and sediment control, barrier does not necessarily require replacement.

DISMANTLING & REMOVING

Barriers shall be dismantled and/or removed when construction work is complete and when site conditions are sufficiently stable to prevent surface erosion and after receiving permission to do so from the Engineer.

For all instances, all nonbiodegradable material, including photo-biodegradable fabric, plastic netting, nylon twine, and silt fence, shall be removed and disposed off-site by the Contractor regardless of site context.

For naturalized areas, biodegradable, natural fabric, and material may be left in place to decompose on-site. Compost filter tubes may be left as they are with stakes removed. Straw bales shall be broken down and spread evenly. All nylon or nonbiodegradable twine shall be removed along with silt fence. Wooden stakes may be left on site, placed neatly and discretely.

In urban, residential, and other locations where aesthetics is a concern, the following shall apply:

- Filter tube fabric shall be cut and removed, and compost shall be raked to blend evenly (similar to a soil amendment or mulch). Not more than a 2-inch depth shall be left on soil substrate.
- Straw bales shall be removed and disposed off-site by the Contractor. Areas of trenching shall be raked smooth and disturbed soils stabilized with a seed mix matching adjacent grasses (i.e., lawn or native grass mix).
- Silt fence, stakes, and other debris shall be removed and disposed off-site. Site shall look neat and clean upon completion.

METHOD OF MEASUREMENT & BASIS OF PAYMENT

Item 767.121 will be measured and paid for at the contract unit price per foot of sediment control barrier which price shall include all labor, equipment, materials, maintenance, dismantling, removal, restoration of soil, and all incidental costs required to complete the work.

Silt fence, when used in conjunction with compost filter tubes or straw bales, will be incidental to this item.

Additional barrier, such as double or triple stacking of compost filter tubes, if requested by Engineer shall be paid for per foot of tube installed.

Barriers that have been driven over or otherwise damage by construction activities shall be repaired or replaced as directed by the Engineer at the Contractors expense.

ITEM 851.11 TRAFFIC CONES FOR TRAFFIC MANAGEMENT LS

The Work under this item shall conform to the relevant provisions of Section 850 of the Standard Specifications for Highways and Bridges.

Traffic Cones for Traffic Management consists of furnishing, positioning, repositioning, maintaining and removing, as needed and/or as directed, traffic cones and necessary ballast for the purpose of closing a lane, shifting traffic, channelizing, or otherwise redirecting traffic in accordance with the Traffic Management Plan as developed by the Contractor and approved by the Engineer.

Traffic cones shall meet the requirements of M9.30.11: Traffic Cones.

METHOD OF MEASUREMENT & BASIS OF PAYMENT

Traffic Cones for Traffic Management will be measured as a lump sum which includes full compensation for furnishing, positioning, repositioning, and removing traffic cones as directed by the Engineer. Other uses of traffic cones shall be incidental to the work activity with which the cones are associated. Ballast to weight the cones shall be incidental to the work with no additional compensation.

ITEM 859.1 REFLECTORIZED DRUMS LS

The Work under this item shall conform to the relevant provisions of Section 850 of the Standard Specifications for Highways and Bridges.

Reflectorized Drums consists of furnishing, positioning, repositioning, maintaining, and removing reflectorized plastic drums and necessary ballast, as needed and/or as directed by the Engineer and in accordance with the Traffic Management Plan as developed by the Contractor and approved by the Engineer.

Reflectorized Drums Reflectorized drums shall conform to M9.30.9: Reflectorized Drum. Warning lights shall conform to the MUTCD Type A. All drums shall be maintained in a satisfactory manner including the removal of dirt and road film that causes a reduction in sheeting retroreflective efficiency.

METHOD OF MEASUREMENT & BASIS OF PAYMENT

Reflectorized Drums will be measured as a lump sum which shall include full compensation for furnishing, positioning, repositioning, and removing Reflectorized Drums as directed by the Engineer.

ITEM 983.01	**STOCKPILE AND PLACEMENT OF NATURAL STREAMBED MATERIAL**	**CY**
ITEM 983.011	**STOCKPILE AND PLACEMENT OF NATIVE WETLAND MATERIAL**	**CY**

DESCRIPTION

The Contractor shall provide for the stockpiling and placement of natural streambed material from the waterway to restore the streambed and bank to pre-construction conditions to the maximum extent practicable for the bridge structure B-05-028. The intent is to reuse the existing native streambed material that must be excavated for the installation of the bridge and scour countermeasures. If additional streambed material is needed, it shall be furnished and installed as described in item 983.02. The intent of this item is to establish a high-quality, natural streambed and banks that improve aquatic organism habitat and passage through the structure.

The Contractor shall provide for the stockpiling and placement of native wetland material from the disturbed wetland areas to restore the opening of the terrestrial passage to imitate adjacent natural wetland conditions to the maximum extent practicable. Material for this item shall consist of native organic wetland soils classified under Item 123 Muck Excavation and removed during construction of the gabion basket walls and culvert. No additional wetland material is anticipated to be required, as the quantity of salvaged material is expected to exceed the quantity necessary for restoration.
The work shall conform with the MassDOT Standard, Supplemental, and Interim Specifications and the following:

The Contractor is advised that compliance with this item does not relieve compliance with U.S. Army Corps of Engineers (USACE) and Massachusetts Department of Environmental Protection (MassDEP) permit Conditions for this Project which includes, but is not limited to, Conditions for submittals, reviews, and approvals for pre-construction, construction, and post-construction work for streambed restoration. In the event of conflicts of the Plan with Permit conditions, the Contractor shall immediately notify the Engineer.

The Engineer shall be present during construction to monitor installation activities including but not limited to erosion control, stockpiling and dewatering.

MATERIALS

Materials shall be native streambed/wetland materials excavated from on site as described below.

The Contractor shall perform the following:

1. The grade, bedforms, and composition of the existing streambed/wetland shall be observed and noted to ensure the material is replaced to match existing conditions as closely as possible;
2. Any boulders shall be identified for use to create hydraulic diversity along the surface of the streambed restoration area;
3. The existing streambed/wetland material shall be excavated and stockpiled in separate locations or be separated by double-stacked straw bales or temporary concrete barriers to prevent mixing and allow for reinstallation of the correct material on the bed and banks;
4. Excavation of streambed/wetland materials shall only be conducted within impact areas approved by the USACE and MassDEP permits;
5. The streambed material shall be fully removed and stockpiled prior to proceeding with earth excavation for the installation of the culverts;
6. If there is a shortage of excavated and stockpiled streambed material matching the characteristics of the existing channel substrate in the vicinity of the work area, the native materials may be supplemented by a material described in item 983.02.

Characterization of the suitability of the existing streambed/wetland material shall be determined by the Engineer.

CONSTRUCTION METHODS

A layer of streambed/wetland material is to be placed within the restored channel as indicated in the Drawings. Place material such that the constructed surface forms a dense, uniform, well-graded surface without segregation of particle sizes. The material shall be shaped to resemble a natural channel as depicted on the plans. Wash fines into voids by water jetting. Plate compactors shall not be used. The material shall be installed during dewatered conditions in accordance with the environmental permits.

After all material has been placed in the channel and approved by the Engineer, the Contractor shall remove control of water in such a way to slowly wet the stream to minimize the initial sediment pulse. Every attempt shall be made to minimize the downstream movement of sediment.

The final streambed shall look like a natural stream, shall match nearby stream reaches, and there shall be minimal to no subsurface flow upon final inspection by the Engineer.
The final wetland shall look like the adjacent natural wetlanda areas, and there shall be minimal to no subsurface flow upon final inspection by the Engineer.

The Contractor shall submit to the Engineer for approval prior to the start of operations, a placement plan and method of placement, which shall be approved prior to the commencement of streambed restoration.

The stockpiled material shall be kept moist and covered during stockpiling and shall be reused within two weeks of its initial excavation.

The Contractor shall comply with the following:

1. All heavy equipment shall be located at the road surface or from the top of bank and outside of the vegetated wetlands. Excavation of the channel shall be from the roadway with no equipment in the channel. Any additional work and equipment required within the wetlands and channel shall consist of workers and hand tools.
2. After scour protection is installed, a layer of natural streambed/wetland material will be replaced over the undisturbed base to completely cover it and to match preconstruction conditions to the maximum extent possible.
3. Excess native materials, if any, shall be disposed of properly.

METHOD OF MEASUREMENT & BASIS OF PAYMENT

There will be no separate measurement or payment for any materials, tools, labor, or equipment stored or used in order to comply with USACE or MassDEP permit conditions or any other local, state, and federal regulations or conditions.

The quantity of this item measured for payment shall be the Cubic Yard of Natural Streambed/Native Wetland Material stockpiled and re-installed complete in place as shown on the plans.

Incidental to the work of this Section shall be any tools, labor, equipment, and materials needed to complete the work of this Section, including: stacking, screening, sorting, placement and replacement of materials. Removal and disposal of excess native material, if any, shall be considered incidental.

The work to be done under this item shall be paid for at the Contract Unit Price per Cubic Yard. Said price shall be considered full compensation for all labor, tools, equipment, materials and incidental costs necessary to furnish streambed material in accordance with the plans. Removal and disposal of excess native material, if any, shall be considered incidental.

ITEM 983.02 SUPPLEMENTAL NATURAL STREAMBED MATERIAL CY

The Contractor shall provide for the furnishing and transport of supplemental natural streambed material.

MATERIALS

Supplemental borrow materials are to be used when stockpiled native materials have been exhausted or if stockpiled native materials are found to be unsuitable. If supplemental borrow materials are used, the Contractor shall notify the Engineer 24 hours in advance of installation of the supplemental borrow materials so that the Engineer can observe the amount of supplemental borrow material installed.

The supplemental borrow for native material shall be locally sourced material that matches the composition of the native streambed. Supplemental borrow for native streambed material gradation shall be as provided on the Plans.

The supplemental borrow for native streambed material shall be approved by the Engineer prior to material installation. Prior to placement of the supplemental material, the Contractor shall obtain approval from the Engineer regarding the suitability of the actual material used. For the Engineer's review, the Contractor shall provide two samples, at 2.5 gallon minimum each, of the supplemental borrow material with any amendments incorporated, to the Engineer. In the event that the submitted material is not acceptable, the Contractor shall re-sample, re-test, and re-submit materials at the Contractor's expense until the Engineer accepts the submitted materials.

Supplemental borrow material shall not be mixed with native materials prior to installation, and must be handled separately and installed separately for measurement and payment purposes. Mixing and blending of placed materials on the streambed is acceptable and recommended. Supplemental borrow materials are only to be used when stockpiled native materials have been exhausted.

CONSTRUCTION METHODS

Supplemental natural streambed material shall be placed in accordance with the specification for Item 983.01.

METHOD OF MEASUREMENT & BASIS OF PAYMENT

There will be no separate measurement or payment for any materials, tools, labor, or equipment stored or used in order to comply with USACE or MassDEP permit conditions or any other local, state, and federal regulations or conditions.

The quantity of this item measured for payment shall be the Cubic Yard of imported supplemental Streambed Material installed complete in place as shown on the plans.

Incidental to the work of this Section shall be any tools, labor, equipment, and materials needed to complete the work of this Section.
The work to be done under this item shall be paid for at the Contract Unit Price per Cubic Yard. Said price shall be considered full compensation for all labor, tools, equipment, materials and incidental costs necessary to furnish Supplemental Natural Streambed Material in accordance with the Plans.

ITEM 983.03 STONE SCOUR PROTECTION FHWA CLASS II RIPRAP TON
ITEM 983.031 STONE SCOUR PROTECTION FHWA CLASS I RIPRAP TON

This work shall consist of furnishing and placing stone scour protection at locations shown on the plans, in accordance with the relevant provisions of Section 900 of the Standard Specifications for Highways and Bridges and Subsection 983: Revetment.

Riprap shall consist of sound, durable stone meeting the quality requirements of M2.02.0 and shall conform to the following gradations:

- FHWA Class I Riprap shall conform to FHWA Class I gradation requirements.
- FHWA Class II Riprap shall conform to FHWA Class II gradation requirements.

CONSTRUCTION METHODS

The Contractor shall prepare the foundation surface by removing all unsuitable material, vegetation, and debris prior to placement of riprap. The subgrade shall be shaped to the lines and grades shown on the plans and approved by the Engineer.

Riprap shall be placed to the full thickness shown on the plans and shall be constructed to the lines and grades specified. Placement shall be performed in such a manner as to avoid segregation of stone sizes.

Where riprap is placed in flowing water, the Contractor shall take all necessary precautions to prevent loss of material and to ensure proper placement. Any material that is displaced or not properly placed shall be removed and replaced to the satisfaction of the Engineer.

Filter fabric, where required, shall be placed beneath the bedding or riprap in accordance with Subsection 983.

METHOD OF MEASUREMENT & BASIS OF PAYMENT

Stone scour protection will be measured for payment by the number of tons of riprap furnished, placed, and accepted. Payment for this work will be made at the Contract Unit Price per ton for the respective item, which price shall include all labor, equipment, materials, excavation, preparation of subgrade, placement, and all incidental work necessary to complete the work.

ITEM 990.1 COFFERDAM STRUCTURE – BRIDGE NO. B-05-028 LS

The Contractor shall furnish, install, monitor, maintain and remove cofferdams within the project location to control surface water action and maintain any necessary work in the dry. A suggested location of cofferdam is shown on the Plans, however, the Contractor shall be responsible for the proper design and execution of any cofferdam system necessary to control surface water action and maintain any necessary work in the dry. The cofferdam system shall also function as a Temporary Support of Excavation system which meets the applicable requirements of the MassDOT Bridge Manual for Excavation Support Systems. The cofferdam shall provide adequate lateral earth support, maintain excavation stability, and support construction operations within the excavation limits. Manufacturer's and /or Contractor's design/plan/sequence of installation and removal shall be submitted to the Owner and the Engineer for review and approval. Control of water is covered under Item 991.1, Control of Water – Structure No. B-05-028 (CMF).

MATERIALS

Cofferdams shall be constructed from sheet piles, or an approved pre-manufactured system, or approved equal as shown on the drawings.

CONSTRUCTION METHODS

The Contractor shall install cofferdam around the proposed structures shown on the Plans. A suggested location of cofferdam has been provided on the Plans, and it is up to the Contractor properly design and implement the system. The Contractor shall install the cofferdam system to control surface water action and maintain any necessary work in the dry. The top of the cofferdam elevation shall not exceed the elevation of the existing top of culvert openings, as originally designed. The Contractor may install a cofferdam downstream of the project location, as necessary, to control surface water action, backwatering, and maintain any necessary work in the dry. In all cases of cofferdam removal, the Contractor shall gradually release flows as to avoid large volumes of water and erosive velocities to discharge downstream. Cofferdams shall be designed taking into account the full range of water levels, support of earth during excavation and maintaining a dry excavation.

BASIS OF PAYMENT

The measurement for this Item shall be made by Lump Sum as bid for Item 990.1 which shall include all labor, equipment, tools, materials and incidentals necessary to complete the work to the satisfaction of the Engineer.

ITEM 990.11 COFFERDAM STRUCTURE – CULVERT TERRESTRIAL PASSAGE LS

The Contractor shall furnish, install, monitor, maintain, and remove cofferdams within the project location to control surface water action and maintain any necessary work in the dry. A suggested location of cofferdam is shown on the Plans, however, the Contractor shall be responsible for the proper design and execution of any cofferdam system necessary to control surface water action and maintain any necessary work in the dry. Manufacturer's and /or Contractor's design/plan/sequence of installation and removal shall be submitted to the Owner and the Engineer for review and approval. Control of water is covered under Item 991.11, Control of Water – Culvert Terrestrial Passage.

MATERIALS

Cofferdams shall be constructed with sandbags as shown on the drawings, or approved equal.

CONSTRUCTION METHODS

The Contractor shall install cofferdam around the terrestrial passage culvert, as shown on the Plans. A suggested location of cofferdam has been provided on the Plans, and it is up to the Contractor to properly design and implement the system. The Contractor shall install the cofferdam system to control surface water action and maintain any necessary work in the dry. The top of the cofferdam elevation shall not exceed the elevation of the existing top of culvert openings, as originally designed. The Contractor may install a cofferdam downstream of the project location, as necessary, to control surface water action, backwatering, and maintain any necessary work in the dry. Cofferdams shall be designed taking into account the full range of water levels, support of earth during excavation and maintaining a dry excavation.

BASIS OF PAYMENT

The measurement for this Item shall be made by Lump Sum as bid for Item 990.11 which shall include all labor, equipment, tools, materials and incidentals necessary to complete the work to the satisfaction of the Engineer.

ITEM 991.1 CONTROL OF WATER – STRUCTURE NO. B-05-028 (CMF) LS

The work to be done under this item shall conform to the relevant provisions of Subsections 140 and 950 of the Standard Specifications and the following:

The work shall include the furnishing, installation, operation, maintenance, and removal of a stream diversion/bypass system, dewatering system, and sedimentation treatment basins required for the construction of the proposed bridge and wingwalls. The dewatering system shall be capable of both preventing flow through the constructed works and the lowering of the water table to an elevation below the bottom of the proposed footings, as shown on the plans.

In addition to the support of excavation/cofferdam, a water control dam constructed of sandbags shall be placed as necessary to prevent water flow into the construction area for flows up to the 2-year storm event water surface elevation noted in the Temporary Water Control Design Data Table. The sand and bag material (fabric) shall be clean and free of any deleterious substances. The Contractor shall adjust the height of the water control dam structure if needed and use supplemental pumping in the event of an extreme rain event or unusually high flows.

The use of earthen berms in the stream is prohibited.

All dewatering and related earthwork shall be conducted in such a manner as to prevent siltation or contamination of the waterway. The pumping discharge shall not be allowed to enter directly into the waterway. The water from the work areas shall be pumped to a settling basin or other type of measure such as a silt sack. This basin shall be constructed to allow the pumped water to pass through the basin with sediments settling out before out-letting. At a minimum, the basin shall be constructed of an earthen or stone berm lined with geotextile fabric and surrounded by staked straw bales or compost filter tubes. The basin shall meet or exceed the following criteria:

1. The size and location of the basins shall be determined based on the size of the contractor's pump and the anticipated flows for the construction of the bridge and wingwalls in the dry.
2. The outlet/weir of the dewatering basins shall not cause erosion of the surrounding area. An approved method of controlling erosion, such as an erosion control blanket, stone, etc., shall be used at the outlet of the basin.
3. The Contractor shall maintain the dewatering operations in working condition, including periodic removal of accumulated sediment within the basins to permit its proper function. The water pump and hoses for dewatering shall be in good working condition and of adequate power and size for the operation.

The contractor shall inspect straw bales/compost filter tubes that surround the outlets daily and shall immediately replace any that are damaged.

The proposed location and design of the settling basins shall be subject to the approval of the Engineer and MassDEP prior to construction.

Plans and calculations (if applicable) for all sandbagging, settling basins, pumps and other water diversion/control measures shall be developed by the Contractor for this item. These plans and calculations shall be prepared and stamped by a Professional Engineer registered in Massachusetts and shall be submitted for the approval of the Engineer prior to the start of construction.

The Contractor shall be responsible for the removal and proper disposal of all sediments and temporary structures or devices to an off-site location. At the completion of the work the contractor shall remove the sandbags from the abutments and all disturbed areas shall be restored.

METHOD OF MEASUREMENT & BASIS OF PAYMENT

Payment for all water control work, including design for water diversion/bypass system, flood prevention of excavated areas, water pollution prevention and dewatering operations, all necessary tools, material, installation, and removal of all temporary measures necessary for the measures outlined above, shall be included in the Contract Lump Sum Price for this Item.

Payment under this Item is a partial progressive payment of the Lump Sum Contract Bid Price of this Item and shall be made based upon the following percentages: 50% upon completion of the installation of the water control system to the satisfaction and approval of the Engineer, and 50% upon the removal and satisfactory disposal of the water control system from the project site at the completion of the work.

ITEM 991.11 CONTROL OF WATER – CULVERT TERRESTRIAL PASSAGE LS

The work to be done under this item shall conform to the relevant provisions of Subsections 140 and 950 of the Standard Specifications and the following:

The work shall include the furnishing, installation, operation, maintenance, and removal of a dewatering system and sedimentation treatment basins required for the construction of the proposed terrestrial passage culvert and wingwalls. The dewatering system shall be capable of both preventing flow through the constructed works (as applicable) and the lowering of the water table to an elevation below the bottom of the proposed footings.

Contractor shall use supplemental pumping in the event of an extreme rain event or unusually high flows.

The use of earthen berms in the stream is prohibited.

All dewatering and related earthwork shall be conducted in such a manner as to prevent siltation or contamination of the waterway. The pumping discharge shall not be allowed to enter directly into the waterway. The water from the work areas shall be pumped to a settling basin or other type of measure such as a silt sack. This basin shall be constructed to allow the pumped water to pass through the basin with sediments settling out before out-letting. At a minimum, the basin shall be constructed of an earthen or stone berm lined with geotextile fabric and surrounded by staked straw bales or compost filter tubes. The basin shall meet or exceed the following criteria:

1. The size and location of the basins shall be determined based on the size of the contractor's pump and the anticipated groundwater infiltration for the construction of the culvert and wingwalls in the dry.
2. The outlet/weir of the dewatering basins shall not cause erosion of the surrounding area. An approved method of controlling erosion, such as an erosion control blanket, stone, etc., shall be used at the outlet of the basin.
3. The Contractor shall maintain the dewatering operations in working condition, including periodic removal of accumulated sediment within the basins to permit its proper function. The water pump and hoses for dewatering shall be in good working condition and of adequate power and size for the operation.

The contractor shall inspect straw bales/compost filter tubes that surround the outlets daily and shall immediately replace any that are damaged.

The proposed location and design of the settling basins shall be subject to the approval of the Engineer prior to construction.

Plans and calculations (if applicable) for all sandbagging, settling basins, pumps and other water control measures shall be developed by the Contractor for this item. These plans and calculations shall be prepared and stamped by a Professional Engineer registered in Massachusetts and shall be submitted for the approval of the Engineer prior to the start of construction.

The Contractor shall be responsible for the removal and proper disposal of all sediments and temporary structures or devices to an off-site location. At the completion of the work the contractor shall remove the sandbags, and all disturbed areas shall be restored.

METHOD OF MEASUREMENT & BASIS OF PAYMENT

Payment for all water control work, including water pollution prevention and dewatering operation, all necessary tools, material, installation, and removal of all temporary measures necessary for the measures outlined above, shall be included in the Contract Lump Sum Price for this Item.

Payment under this Item is a partial progressive payment of the Lump Sum Contract Bid Price of this Item and shall be made based upon the following percentages: 50% upon completion of the installation of the water control system to the satisfaction and approval of the Engineer, and 50% upon the removal and satisfactory disposal of the water control system from the project site at the completion of the work.

ITEM 995.01 BRIDGE STRUCTURE, BRIDGE NO. B-05-028 LS

The work to be done under this Item shall conform to the applicable provisions of Subsections 901 and 995 of the Standard Specifications and the specific requirements stipulated below for the component parts of this Item.

Work under this Item shall include all materials, equipment and labor needed to construct the following components of the bridge: the precast 3-sided frame sections, precast concrete highway guardrail transitions, cast-in-place headwalls, risers and footings, cast-in-place concrete wingwalls, S3-MTL4 bridge railings, and the application of damp-proofing to the top surfaces of the frame and footings and to the back surfaces of the frame, risers, and wingwalls.

This work does not include any items listed separately in the proposal. Payment for materials shown on the plans as being part of this bridge structure or which may be incidental to its construction and are not specifically included for payment under another Item shall be considered incidental to the work performed under this Item and shall be included in the unit price of the component of which they are a part.

CAST-IN-PLACE INSTALLATION PREPARATION

To ensure correct installation of the precast concrete bridge system, care and caution must be exercised in placing the support areas for the cast-in-place concrete footings and wingwall elements. Exercising special care for these elements will facilitate the rapid installation of the precast components.

5000 PSI, ¾ IN., 685 HP CEMENT CONCRETE

The work to be done under this heading shall conform to the relevant provisions of Subsection 901 of the Standard (and/or Supplemental) Specifications and the following:

5000 PSI, ¾ IN., 685 HP Cement Concrete shall be used for all cast-in-place concrete pours, unless otherwise specified. This concrete shall conform to all material requirements contained in Subsection M4.06.1 of the Supplemental Specifications, with the exception of the cementitious content, which shall be limited to a maximum of 685 pounds per cubic yard.

The Contractor shall submit a Request for Information (RFI) to utilize the available 5000 psi HP Concrete.

Plastic waterstops shall conform to the relevant provisions of M9.07.0 and the Plans.

The following shall be included in the unit price per cubic yard of concrete, as stated by the Contractor and as approved by the Engineer in the respective “Basis for Partial Payments”: methacrylate, preformed and premolded filler, joint sealer, joint bond breaker material, materials complete in place at construction joints, caulking, closed cell foam, all other work considered as incidental to the work involved in furnishing and placing the concrete and all other work not covered in the schedule of Basis for Partial Payments or for which payment is not provided elsewhere in the Contract.

PREFORMED JOINT FILLER

Work to be done under this Item consists of providing and installing joint filler material as shown on the plans. All closed cell expansion joint fillers used under this Item shall conform to Materials Specification M9.14.0, "Preformed Expansion Joint Filler" and shall be installed per manufacturer’s recommendations. Preformed Joint Filler will be included under the Lump Sum price of Item 995.01, which price shall include all labor, tools, material, equipment and incidental costs required to complete the work.

CRUSHED STONE

The work under this item shall conform to the relevant provisions of Section 150 of the Specifications in close conformity with the lines and grades shown on the plans and the following:

Crushed stone conforming to M2.01.3 shall be placed within backfill of the wing walls adjacent to weep holes as shown in the plans. Crushed stone will be paid for under its own item, Item 156., separate from the Lump Sum price of Item 995.01. The price for Item 156. shall include all labor, tools, material, equipment and incidental costs required to complete the work.

DAMP-PROOFING

All units shall be coated with Damp-Proofing conforming to the relevant provisions of Section 970 of the Specifications on all surfaces which will be in contact with backfill soils. For precast elements, this coating shall be applied at the precasting plant and allowed to cure prior to shipping to the job site.

METAL BRIDGE RAILING (3 RAIL), STEEL (TYPE S3-MTL4)

The work to be performed under this heading shall consist of the fabrication and installation of a S3-MTL4 Metal Bridge Rail system. Work shall conform to the relevant provisions of Section 975, Metal Bridge Railings and Protective Screen, of the Supplemental Specifications to the Standard Specifications for Highways and Bridges and to Materials Specification M8.13.1.

PRECAST HIGHWAY GUARDRAIL TRANSITIONS
PRECAST CONCRETE THREE-SIDED FRAME

GENERAL

The work under this Heading consists of fabricating, transporting and installing Precast Highway Guardrail Transitions and Precast Concrete Three-Sided Frame and includes all necessary labor, materials, and equipment to complete the work as shown on the Plans. The Precast Concrete Bridge Elements shall meet the requirements of Section M4: Cement Concrete and Related Materials.

MATERIALS

Materials shall conform to M4.09.1 and the following:

Non-Shrink Grout Products	M4.04.5
Controlled Low-Strength Material – Structural Non-Excavatable	M4.08.0
Welded Steel Wire Fabric	M8.01.2
Mechanical Reinforcing Bar Splicer	M8.01.9
Lifting Devices	PCI MNL-116
Corrugated Metal Pipe	AASHTO M 36

Vertical Adjustment Assembly.
Vertical Adjustment Assembly details and material requirements shall be as shown on the plans. Alternate devices may be used provided that they are adjustable and can support the anticipated loads. The design of the leveling devices, with necessary calculations, shall be submitted to the Engineer of Record for approval.

Threaded Inserts.
Threaded inserts are permissible to facilitate forming the keyway pours. Threaded inserts shall be hot dip galvanized or made of stainless steel. The number of threaded inserts shall be minimized, and the inserts shall not come in contact with the reinforcing steel.

Corrugated Metal Pipe.
Corrugated Metal Pipe to be used for forming voids as specified on the plans shall be fabricated from steel and shall have a protective metallic coating of zinc (galvanizing).

CONSTRUCTION METHODS – PLANT FABRICATION

A. Three-Sided Frame

The Contractor shall submit design computations for the rigid frame elements to the Engineer for review and approval. The computations shall be prepared in accordance with the latest AASHTO LRFD Bridge Design Specifications, the MassDOT Bridge Manual (Hundreth Anniversary Edition), and the Plans using English units and HL-93 live loading. The design computations shall consider all Strength, Extreme Event and Service Limit States as are appropriate for each stage of fabrication, shipment, construction, and for the final in-service condition. Design computations and shop drawings shall be prepared and stamped by a Professional Engineer licensed to practice in the Commonwealth of Massachusetts. The shop drawings shall be prepared and submitted in

accordance with M4.09.2B.

The frame dimensions provided on the plans are shown to establish the size of the proposed opening. The width and thickness of each frame unit may vary depending upon the manufacturer's specifications provided that the opening size is maintained. The Contractor shall be responsible for modifying the dimensions of the frame bridge elements to compensate for elastic shortening, shrinkage, grade corrections, and other phenomena that make in-process fabricating dimensions different from those shown on the drawings. Approval of the shop drawings shall not relieve the Contractor from responsibility for the correctness of the dimensions shown.

1. Joints

The precast reinforced concrete three-sided frame shall be produced with grout-filled keyways per the details on the plans, the manufacturer's recommendations, and as approved by the Engineer. The ends shall be manufactured such that when the sections are laid together they will make a continuous line of frames with a smooth interior surface free of appreciable irregularities, and in compliance with the permissible variations.

2. Marking

The following information shall be clearly marked on the interior of each frame by indentation, waterproof paint, or other approved means:

(a) Frame span and rise
(b) Date of manufacture and lot number
(c) Name and trademark of the manufacturer

B. Pre-Production Meeting

The Contractor shall notify the MassDOT Research and Materials Section to determine if a pre-production meeting will be required to review the specification, shop drawings, curing plan, schedule, and discuss any specific requirements. The meeting shall be held prior to scheduling a MassDOT Inspector (refer to M4.09.4 Department Acceptance), and at least seven (7) days prior to the scheduled casting of any Precast Concrete Bridge Element or control section. The Contractor shall schedule the meeting, which shall include representatives of the Fabricator and MassDOT.

C. Reinforcement

The reinforcing bars shall be installed in accordance with Subsection 901.35, including tolerances for cover and horizontal spacing of bars. Components of mechanical reinforcing bar splicers shall be set with the tolerances shown on the plans. The reinforcing bars and mechanical reinforcing bar splicers shall be assembled into a rigid cage that will maintain its shape in the form and which will not allow individual reinforcing bars to move during the placement of concrete. This cage shall be secured in the form so that the clearances to all faces of the concrete, as shown on the plans, shall be maintained.

Where reinforcing bars are to protrude from one Precast Concrete Bridge Element in order to mate with reinforcing bar splicers in a second precast concrete element, the fabricator shall set the reinforcing bars and the reinforcing bar splicers with a template in order to ensure proper fit up within the tolerances specified on the plans.

D. Tolerances

Fabrication shall comply with tolerances specified on the plans. Tolerances for steel reinforcement placement shall be in accordance with Subsection 901.35. In the absence of specifications on the plans, tolerances shall comply with the latest version of the PCI MNL 135, Precast Tolerance Manual.

E. Forms

Concrete shall be cast in rigidly constructed forms, which will maintain the Precast Concrete Bridge Elements within specified tolerances to the shapes, lines and dimensions shown on the approved fabrication drawings. Forms shall be constructed from flat, smooth, non-absorbent material and shall be sufficiently tight to prevent the leakage of the plastic concrete. When wood forms are used, all faces in contact with the concrete shall be laminated or coated with a non-absorbent material. All worn or damaged forms, which cause irregularities on the concrete surface or damage to the concrete during form removal, shall be repaired or replaced before being reused. If threaded inserts are cast into the elements for support of formwork, the inserts shall be recessed a minimum of 1 inch and shall be plugged after use with a grout of the same color as that of the precast cement concrete. The finished surface condition shall be that of a smooth steel form or troweled surface.

CONSTRUCTION METHODS – FIELD CONSTRUCTION

A. General

All of the Contractor's field personnel involved in the erection and assembly of the Precast Concrete Bridge Elements shall have knowledge of and follow the approved Erection Procedure and Quality Control Plan for Precast Concrete Bridge Element Assembly.

Prior to installation, the following documentation shall be reviewed and confirmed by the MassDOT Resident Engineer or designee:

(a) QC Compressive Strength Test Report Forms attaining Design Strength, f'c for the Precast Concrete Bridge Element's representative sublot.
(b) Certificate of Compliance generated by the Fabricator as described under the Fabricator Quality Control section.
(c) QC Inspection Reports signed by the Quality Control Manager.

Field construction staff shall verify that the Resident Engineer has accepted all Precast Concrete Bridge Elements prior to installation.

B. Erection Procedure and Quality Control Plan for Precast Concrete Bridge Element Assembly

Prior to the erection, the Contractor shall submit an Erection Procedure and a Quality Control Plan for Precast Concrete Bridge Element Assembly for approval by the Engineer. This submittal shall include computations and drawings for the transport, hoisting, erection and handling of the Precast Concrete Bridge Elements. The Erection Procedure and Quality Control Plan for Precast Concrete Bridge Element Assembly shall be prepared and stamped by a Professional Engineer registered in the Commonwealth of Massachusetts with working knowledge of the Contractor's equipment, approved shop drawings, and materials to build the bridge. The Erection Procedure and Quality Control Plan for Precast Concrete Bridge Element Assembly shall, at a minimum, include the following:

1. Erection Procedure

The Erection Procedure shall be prepared to conform to the requirements of 960.61, Design, Fabrication and Erection and the applicable sections in Chapter 8 of the PCI Design Handbook (eighth edition) for handling, erection, and bracing requirements. At a minimum, the Erection Procedure shall provide:

(a) Minimum concrete compressive strength for handling the Precast Concrete Bridge Elements.
(b) Concrete stresses during handling, transport, and erection.
(c) Crane capacities, pick radii, sling geometry, and lifting hardware.
(d) Verification that the equipment can handle all pick loads and weights with the required factor of safety.
(e) Evaluation of construction sequence and evaluation of any geometric conflicts in the lifting of the Precast Concrete Bridge Elements and setting them as shown on the plans.
(f) Design of crane supports including verification of subgrade for support.
(g) Location and design of all temporary bracing that will be required during erection.

Non-shrink grout and concrete materials, approved by the Engineer, shall be placed as shown on the plans. Fill joints, keyways, and voids, in strict accordance with the specifications and manufacturer's recommendations and instructions.

For footings, approach slabs and highway guardrail transitions, once these Precast Concrete Bridge Elements have been set to the correct horizontal and vertical alignment, the void between them and the supporting soil shall be filled with Controlled Low-Strength Material – Structural Non-Excavatable to the limits as shown on the plans. Add additional grout ports in the footings to facilitate the bedding process if required.

Except in approach slabs, joints shall be filled flush to the top with non-shrink grout, and any vertical misalignment between adjacent elements shall be feathered out on a slope of 1 to 12.

Curing of grout or concrete shall be performed in strict accordance with the specifications and manufacturer's recommendations. Filling shall not be completed in cold weather when either the ambient temperature or the precast member's temperature is below the manufacturer's recommendation. No localized heating of either the precast members or of the air surrounding the element will be permitted in an attempt to reach application temperatures.

If the joints or voids are not filled within five days after the Precast Bridge Elements are erected, the Contractor shall cover and protect the openings from weather and debris until they are filled.

2. Quality Control Plan for Precast Concrete Bridge Element Assembly

The Quality Control Plan for Precast Concrete Bridge Element Assembly is a document prepared and submitted by the Contractor prior to the start of work which requires the Contractor to identify and detail the sequence of construction in accordance with the project schedule and which clearly identifies all stages of field construction. The assembly procedures for the Precast Concrete Bridge Elements shall be submitted in PDF format on 24”x36” sheets. This document will be treated as a Construction Procedure and will be reviewed by both the Designer and the District Construction Office. The approval of this document will serve as a guideline for setting interim concrete and grout strengths and curing procedures to allow construction to proceed without waiting for the final in-service strengths to be achieved.

The following list details the minimum criteria that should be included in the Quality Control Plan for Precast Concrete Bridge Element Assembly:

(a) A detailed schedule showing the sequence of operations that the Contractor will follow. The schedule shall include a timeline for installation of all major elements of the bridge accounting for the installation of temporary works and cure times of grouts or closure pour concrete and other selected materials.
(b) Calculations that support the schedule outlined above should be included verifying that the selected materials have adequate interim strength to proceed from one step to another. Final material strengths are not normally required until the bridge is opened to vehicular traffic. The minimum factor of safety of two (2) will be required for the interim strength of grouts and closure pour concrete before construction is allowed to proceed to subsequent steps. The factor of safety is applied to the service loads that are supported by the elements and materials during various stages of construction. For example, if the Contractor calculates that the grout between the precast pier cap and pier wall requires a strength of 100 psi to support the dead load of the beams in the next step, a cylinder break of 200 psi will be required prior to allowing the pier cap to be loaded with the beams. The required strength of materials for subsequent construction stages shall also be calculated and the material strength verified.
(c) The Contractor is responsible for determining the center of gravity for all elements. Special care shall be used for unusual elements that are not symmetric. These elements may require special lifting hardware to allow for installation in a plumb or flat position.
(d) Plan of the work area, depicting items such as temporary earth support, utilities within the immediate vicinity of the work, drainage structures, etc. The Contractor shall coordinate the various subcontractors that will need to occupy the same area and shall ensure that there are no conflicts. For example, if the Contractor is having different

Subcontractors prepare and submit plans for temporary earth support and demolition, and the earth support is required to be installed prior to the demolition, it shall be the Contractor's responsibility to ensure that the Quality Control Plan for Precast Concrete Bridge Element Assembly submission allows both operations to be performed without field modification.

(e) Details of all equipment that shall be employed for the construction of the bridge.
(f) Methods of providing temporary support of the elements. Include methods of adjusting and securing the element after placement.
(g) Vertical Adjustment Assemblies to be used as a means of setting precast concrete footings to the correct elevations.
(h) Procedures for controlling the overall horizontal dimensions and the vertical elevations as each precast concrete bridge element is erected by using the tolerance limits of the joints as detailed on the plans.
(i) Methods for curing grout.
(j) Proposed methods for installing non-shrink grout and the sequence and equipment for the grouting operation.
(k) Methods for sealing the keyways in preparation for filling with non-shrink grout, including the use of backer rods. The Contractor shall not assume that the backer rods will restrain the pressure from the grout in vertical grout joints. Provide additional forming to retain the backer rod.

C. Survey and Layout

Working points, working lines, and benchmark elevations shall be established prior to placement of all elements. The Contractor is responsible for field survey as necessary to complete the work. MassDOT reserves the right to perform additional independent survey. If discrepancies are found, the Contractor may be required to verify previous survey data.

D. Preparation of Closure Pours and Grouted Keyways

Immediately prior to erecting the Precast Concrete Bridge Elements, the closure pours and grouted keyways shall be cleaned at the job site of all dust, dirt, carbonation, laitance, and other potentially detrimental materials which may interfere with the bonding of the closure pour concrete or grout and precast concrete using a high-pressure water blast. Any exposed reinforcing steel in the precast concrete shall be protected from damage during the cleaning of the keyways. Damaged epoxy coating of steel reinforcement shall be repaired, and the reinforcing steel shall be cleaned as directed by the Engineer. The surfaces of the closure pours and grouted keyways shall be wetted so that the surfaces shall have a Saturated Surface Dry (SSD) condition for at least 24 hours prior to the placement of the closure pour concrete.

E. Erection

The elements shall be placed in the sequence and according to the methods outlined in the Erection Procedure and Quality Control Plan for Precast Concrete Bridge Element Assembly. As the erection proceeds, the Contractor shall constantly monitor the assembly to ensure that the precast concrete bridge element is within proper horizontal and vertical location and tolerances prior to

releasing it from the crane and setting the next unit. The Contractor may use shims to maintain proper setting tolerances.

The concrete elements shall be lifted only by the lifting devices, and the utmost care shall be taken to prevent distortion of the elements during handling, transportation or storage.

This approval will be contingent on the Contractor demonstrating by calculations, prepared by a Professional Engineer registered in Massachusetts, that the elements will not be damaged by the non-vertical lifting force and by documentation that the capacity of the lifting devices is adequate for the non-vertical lifting force.

After all Precast Concrete Bridge Elements have been placed, the actual overall dimensions of the structure, both horizontal and vertical, as laid out shall not deviate from the nominal dimensions shown on the plans beyond a tolerance of +0 inches and -1 inches. Once the layout of Precast Concrete Bridge Elements has been accepted by the Engineer, the Contractor shall cut all lifting devices off below the surfaces of the elements.

F. <u>Three-Sided Frame</u>

Backfilling operations shall not begin until the following checks have been made:

(a) The frame to footing key joints are grouted as shown on the plans;
(b) The joints between exterior frame bridge elements and wingwall stems are complete as shown on the plans;
(c) All joint seals are properly placed.

Backfill shall be paid for under separate items. The backfilling procedures shall be in accordance with Sections 120, 150, and 170 of the Standard Specifications and Supplemental Specifications modified as follows:

(a) Fill shall be placed and compacted in layers not exceeding one foot in depth;
(b) Dumping of fill shall not be allowed any nearer to the structure than 3.25 feet from a vertical plane extending from the back of the footing;
(c) Backfill shall be placed as symmetrically as possible around the structure with differential depths of backfill on each side of the structure not exceeding 1.5 feet with respect to each other;
(d) Compaction shall be achieved using hand compaction equipment for all fill within one foot of the structure;
(e) The bare structure shall not be crossed by any equipment heavier than that specified by the frame manufacturer. All damage resulting from equipment damage shall be rectified to the satisfaction of the Engineer at no cost to the Department;
(f) Construction equipment will not be permitted atop an uncompleted structure;
(g) Construction equipment whose weight exceeds the design capacity shall not be permitted atop the completed structure under any circumstances;
(h) The use of vibratory rollers for compaction purposes will not be permitted.

A representative of the manufacturer shall be on site at the commencement of the installation, at no cost to the Department, to assist the Contractor. The representative shall offer advisory assistance only and shall not supplant the Contractor's representative, or the Engineer.

G. Filling of Blockouts for Lifting Devices and Threaded inserts.

If the blockouts in the Precast Concrete Bridge Elements where the lifting devices were located will be exposed and visible after assembly is complete, the Contractor shall fill these blockouts with Mortar (M4.04.5).

After the formwork has been removed, all threaded inserts that have been cast into the precast concrete bridge deck for support of the formwork shall be filled with a grout of the same color as that of the precast concrete.

CHAPTER 85 SHOP DRAWING REVIEW

The Final MassDOT Chapter 85 Approval Process for Prefabricated Structures is as follows:

1. After the construction contract is executed, the Contractor shall submit PE-stamped shop drawings and design calculations prepared by the Fabricator Engineer to the Designer for review and approval. In addition to requirements already specified, shop drawings shall include, at a minimum,
    - Catalogue cut-sheets for all hardware to be used in the precast elements;
    - Description of the fabricating plant, including any backup concrete mixing facilities,
    - Proposed admixtures to be added to the concrete mix, including brand and dosage rates, which shall be consistent with the MassDOT approved mix design;
    - The name of the Manufacturer of all reinforcing steel;
    - Provisions for repair of minor non-structural defects.
2. Upon receipt, the Designer shall forward shop drawings and calculations (PDF) to MassDOT for their concurrent review with the Designer’s review. At any time MassDOT may forward comments to the Designer who will address the comments or forward them to the Contractor for their responses.
3. The Designer shall review shop drawings and calculations and resolve any comments with the Contractor (and Fabricator Engineer as appropriate) through the normal shop drawing review process. The Designer shall forward any review comments to the Contractor, with a copy to MassDOT. The Designer shall forward any Contractor resubmittals to MassDOT, again PDF.
4. Upon resolution of all Designer comments, the Designer shall submit a PDF of the Designer-approved shop drawings and calculations to MassDOT for approval. All sheets of the final set of shop drawings shall include the Standard Chapter 85 Approval Stamp shown below, along with the Designer’s shop drawing approval stamp.
5. Once all MassDOT comments are resolved, the Designer shall submit a PDF of the shop drawings and calculations to MassDOT. Each sheet of the shop drawings shall have the Standard Chapter 85 Approval Stamp, the Fabricator’s Registered Professional Engineer’s stamp, and the Designer’s Shop Drawing Approval Stamp. MassDOT will forward their approval to the Designer, who will forward notification to the Contractor so that fabrication may begin. This approval shall constitute the final approval as stipulated by Chapter 85 Section

35 of the Massachusetts General Laws

It is recommended to allow sufficient time for shop drawing approval by the Designer and MassDOT per the process described above. Any fabrication prior to final Chapter 85 approval by MassDOT will be at the Contractor's own risk.

SCHEDULE OF BASIS FOR PARTIAL PAYMENT

The Contractor shall submit a schedule of unit prices for the major component Sub-Items that make up Item 995.01 as well as his/her total Bridge Structure Lump Sum cost. The Bridge Structure Lump Sum breakdown quantities provided in the proposal form are estimated and not guaranteed. The total of all partial payments to the Contractor shall equal the Lump Sum contract price regardless of the accuracy of the quantities furnished by the Engineer for the individual bridge components. The cost of labor and materials for any Item not listed but required to complete the work shall be considered incidental to Item 995.01 and no further compensation will be allowed.

The schedule on the proposal form applies only to Bridge Structure B-05-028 (CMF). Payment for similar materials and construction at locations other than at this bridge structure shall not be included under this Item. Sub-Item numbering is presented for information only in coordination with MassDOT Standard Nomenclature.

995.01	**Bridge Structure, BRIDGE NO. B-05-028**		
Sub-Item	**Description**	**QTY.**	**UNIT**
904.3	5000 PSI, ¾ in., 685 HP Cement Concrete	200	CY
910.2	Steel Reinforcement for Structures - Epoxy Coated	35025	LB
970.	Damp-proofing	3230	SF
975.1	Metal Bridge Railing (3 Rail), Steel (Type S3-MTL4)	55	FT
-	Precast Concrete Three Sided Frame	1	EA
-	Precast Highway Guardrail Transition	4	EA

ITEM 995.011 CULVERT STRUCTURE, TERRESTRIAL PASSAGE LS

The work to be done under this Item shall conform to the applicable provisions of Subsections 901 and 995 of the Standard Specifications and the specific requirements stipulated below for the component parts of this Item.

Work under this Item shall include all materials, equipment and labor needed to complete the work as shown on the Plans which includes the precast concretebox sections, headwalls, wingwalls, and footings, and the application of damp-proofing to the outer surfaces of the box culvert, the top surfaces of the wingwall footings, and to the back surfaces of the wingwalls. A clamshell configuration is anticipated to accommodate installation of stone scour protection and wetland material. For those component parts where no specific requirement is stipulated, the Standard Specifications shall apply except for payment.

Any temporary shoring required for crane support to construct or place the structure shall be included in this item.

This work does not include any items listed separately in the proposal. Payment for materials shown on the plans as being part of this structure or which may be incidental to its construction and are not specifically included for payment under another Item shall be considered incidental to the work performed under this Item and shall be included in the unit price of the component of which they are a part.

CONCRETE

All precast concrete box culvert components shall be produced using a minimum 5000 psi HP cement concrete mix design. All other precast concrete elements: wingwall footings and stems, shall be minimum 5000 psi cement concrete. All concrete mix designs for precast shall be approved MassDOT High Performance cement concrete mixes.

STEEL REINFORCEMENT

The minimum steel yield strength shall be 60,000 psi, unless otherwise required by the design and noted on the shop drawings.

All reinforcing steel bars shall be epoxy coated in accordance with ASTM A775. All welded wire fabric shall be epoxy coated in accordance with ASTM A884.

Placement of Reinforcement in Precast Units - The cover of concrete over the reinforcement of the precast units shall be 2 inches minimum.

STEEL HARDWARE AS A MINIMUM

- Bolts and threaded rods shall conform to ASTM A 307. Nuts shall conform to AASHTO M292 (ASTM A194) Grade 2H. All bolts, threaded rods and nuts used shall be mechanically zinc coated in accordance with ASTM B695 Class 50.
- Structural Steel for connection plates and plate washers shall conform to AASHTO M 270 (ASTM A709) Grade 50 and shall be hot dip galvanized as per AASHTO M111 (ASTM A123).
- Reinforcing bar splices shall be made using the Dowel Bar Splicer System as manufactured by Dayton Superior, and shall consist of the Dowel Bar Splicer (DB-SAE) and Dowel-In (DI).

DAMP-PROOFING

All units shall be coated with Damp-Proofing conforming to the relevant provisions of Section 970 of the Specifications on all surfaces which will be in contact with backfill soils. This coating shall be applied at the precasting plant and allowed to cure prior to shipping to the job site.

MATERIALS

Materials shall conform to M4.09.1 and the following:

Non-Shrink Grout Products	M4.04.5
Controlled Low-Strength Material – Structural Non-Excavatable	M4.08.0
Welded Steel Wire Fabric	M8.01.2
Mechanical Reinforcing Bar Splicer	M8.01.9
Lifting Devices	PCI MNL-116
Corrugated Metal Pipe	AASHTO M 36

Vertical Adjustment Assembly.
Vertical Adjustment Assembly details and material requirements shall be as shown on the plans. Alternate devices may be used provided that they are adjustable and can support the anticipated loads. The design of the leveling devices, with necessary calculations, shall be submitted to the Engineer of Record for approval.

Threaded Inserts.
Threaded inserts are permissible to facilitate forming the keyway pours. Threaded inserts shall be hot dip galvanized or made of stainless steel. The number of threaded inserts shall be minimized, and the inserts shall not come in contact with the reinforcing steel.

Corrugated Metal Pipe.
Corrugated Metal Pipe to be used for forming voids as specified on the plans shall be fabricated from steel and shall have a protective metallic coating of zinc (galvanizing).

CONSTRUCTION METHODS – PLANT FABRICATION

A. Box Culverts and Wingwalls.

The Contractor shall submit design computations for the box culvert, headwalls, and wingwalls to the Engineer for review and approval. The computations shall be prepared in accordance with the latest AASHTO LRFD Bridge Design Specifications, and the Plans using English units and HL-93 live loading. The design computations shall consider all Strength, Extreme Event and Service Limit States as are appropriate for each stage of fabrication, shipment, construction, and for the final in-service condition. Design computations and shop drawings shall be prepared and stamped by a Professional Engineer licensed to practice in the Commonwealth of Massachusetts. The shop drawings shall be prepared and submitted in accordance with M4.09.2B.

The frame dimensions provided on the plans are shown to establish the size of the proposed opening. The width and thickness of each frame unit may vary depending upon the manufacturer's specifications provided that the span and opening size is maintained or increased. The wingwall shall be a precast concrete wingwall anchorage system or approved equal. The bottoms of precast concrete wingwall footings shall be set at or below a frost depth of 4 feet.The Contractor shall be responsible for modifying the dimensions of the box elements to compensate for elastic shortening, shrinkage, grade corrections, and other phenomena that make in-process fabricating dimensions different from those shown on the

drawings. Approval of the shop drawings shall not relieve the Contractor from responsibility for the correctness of the dimensions shown.

1. Joints.
The precast box culvert shall be produced with grout-filled keyways per the details on the plans, the manufacturer's recommendations, and as approved by the Engineer. The ends shall be manufactured such that when the sections are laid together they will make a continuous line of frames with a smooth interior surface free of appreciable irregularities, and in compliance with the permissible variations.

2. Marking.
The following information shall be clearly marked on the interior of each frame by indentation, waterproof paint, or other approved means:

(a) Frame span and rise
(b) Date of manufacture and lot number
(c) Name and trademark of the manufacturer

B. Pre-Production Meeting.

The Contractor shall notify the MassDOT Research and Materials Section to determine if a pre-production meeting will be required to review the specification, shop drawings, curing plan, schedule, and discuss any specific requirements. The meeting shall be held prior to scheduling a MassDOT Inspector (refer to M4.09.4 *Department Acceptance*), and at least seven (7) days prior to the scheduled casting of any Precast Concrete Bridge Element or control section. The Contractor shall schedule the meeting, which shall include representatives of the Fabricator and MassDOT.

C. Reinforcement.

The reinforcing bars shall be installed in accordance with Subsection 901.35, including tolerances for cover and horizontal spacing of bars. Components of mechanical reinforcing bar splicers shall be set with the tolerances shown on the plans. The reinforcing bars and mechanical reinforcing bar splicers shall be assembled into a rigid cage that will maintain its shape in the form and which will not allow individual reinforcing bars to move during the placement of concrete. This cage shall be secured in the form so that the clearances to all faces of the concrete, as shown on the plans, shall be maintained.

Where reinforcing bars are to protrude from one Precast Concrete Bridge Element in order to mate with reinforcing bar splicers in a second precast concrete element, the fabricator shall set the reinforcing bars and the reinforcing bar splicers with a template in order to ensure proper fit up within the tolerances specified on the plans.

D. Tolerances.

Fabrication shall comply with tolerances specified on the plans. Tolerances for steel reinforcement placement shall be in accordance with Subsection 901.35. In the absence of specifications on the plans, tolerances shall comply with the latest version of the PCI MNL 135, Precast Tolerance Manual.

E. Forms.

Concrete shall be cast in rigidly constructed forms, which will maintain the Precast Concrete Bridge Elements within specified tolerances to the shapes, lines and dimensions shown on the approved fabrication drawings. Forms shall be constructed from flat, smooth, non-absorbent material and shall be sufficiently tight to prevent the leakage of the plastic concrete. When wood forms are used, all faces in contact with the concrete shall be laminated or coated with a non-absorbent material. All worn or damaged forms, which cause irregularities on the concrete surface or damage to the concrete during form removal, shall be repaired or replaced before being reused. If threaded inserts are cast into the elements for support of formwork, the inserts shall be recessed a minimum of 1 inch and shall be plugged after use with a grout of the same color as that of the precast cement concrete.

CONSTRUCTION METHODS – FIELD CONSTRUCTION

A. General.

All of the Contractor's field personnel involved in the erection and assembly of the Precast Concrete Bridge Elements shall have knowledge of and follow the approved Erection.

Prior to installation, the following documentation shall be reviewed and confirmed by the MassDOT Resident Engineer or designee:

(a) QC Compressive Strength Test Report Forms attaining Design Strength, f'c for the Precast Concrete Bridge Element's representative sublot.
(b) Certificate of Compliance generated by the Fabricator as described under the Fabricator Quality Control section.
(c) QC Inspection Reports signed by the Quality Control Manager.

Field construction staff shall verify that the Resident Engineer has accepted all Precast Concrete Bridge Elements prior to installation.

B. Erection Procedure.

Prior to the erection, the Contractor shall submit an Erection Procedure for approval by the Engineer. This submittal shall include computations and drawings for the transport, hoisting, erection and handling of the Precast Concrete Bridge Elements. The Erection Procedure shall be prepared and stamped by a Professional Engineer registered in the Commonwealth of Massachusetts with working knowledge of the Contractor's equipment, approved shop drawings, and materials to build the bridge. The Erection Procedure shall, at a minimum, include the following:

1. Erection Procedure

The Erection Procedure shall be prepared to conform to the requirements of 960.61, Design, Fabrication and Erection and the applicable sections in Chapter 8 of the PCI Design Handbook (eighth edition) for handling, erection, and bracing requirements. At a minimum, the Erection Procedure shall provide:

(a) Minimum concrete compressive strength for handling the Precast Concrete Bridge Elements.

(b) Concrete stresses during handling, transport, and erection.
(c) Crane capacities, pick radii, sling geometry, and lifting hardware.
(d) Verification that the equipment can handle all pick loads and weights with the required factor of safety.
(e) Evaluation of construction sequence and evaluation of any geometric conflicts in the lifting of the Precast Concrete Bridge Elements and setting them as shown on the plans.
(f) Design of crane supports including verification of subgrade for support.
(g) Location and design of all temporary bracing that will be required during erection.

Non-shrink grout and concrete materials, approved by the Engineer, shall be placed as shown on the plans. Fill joints, keyways, and voids, in strict accordance with the specifications and manufacturer's recommendations and instructions.

For wingwall footings, once these Precast Concrete Bridge Elements have been set to the correct horizontal and vertical alignment, the void between them and the supporting soil shall be filled with Controlled Low-Strength Material – Structural Non-Excavatable to the limits as shown on the plans. Add additional grout ports in the footings to facilitate the bedding process if required.

Joints shall be filled flush to the top with non-shrink grout, and any vertical misalignment between adjacent elements shall be feathered out on a slope of 1 to 12.

Curing of grout or concrete shall be performed in strict accordance with the specifications and manufacturer's recommendations. Filling shall not be completed in cold weather when either the ambient temperature or the precast member's temperature is below the manufacturer's recommendation. No localized heating of either the precast members or of the air surrounding the element will be permitted in an attempt to reach application temperatures.

If the joints or voids are not filled within five days after the Precast Bridge Elements are erected, the Contractor shall cover and protect the openings from weather and debris until they are filled.

C. Survey and Layout.

Working points, working lines, and benchmark elevations shall be established prior to placement of all elements. The Contractor is responsible for field survey as necessary to complete the work.

D. Preparation of Closure Pours and Grouted Keyways.

Immediately prior to erecting the Precast Concrete Bridge Elements, the closure pours and grouted keyways shall be cleaned at the job site of all dust, dirt, carbonation, laitance, and other potentially detrimental materials which may interfere with the bonding of the closure pour concrete or grout and precast concrete using a high-pressure water blast. Any exposed reinforcing steel in the precast concrete shall be protected from damage during the cleaning of the keyways. Damaged epoxy coating of steel reinforcement shall be repaired, and the reinforcing steel shall be cleaned as directed by the Engineer. The surfaces of the closure pours and grouted keyways shall be wetted so that the surfaces shall have a Saturated Surface Dry (SSD) condition for at least 24 hours prior to the placement of the closure pour concrete.

E. Erection.

The elements shall be placed in the sequence and according to the methods outlined in the Erection Procedure. As the erection proceeds, the Contractor shall constantly monitor the assembly to ensure that the precast concrete bridge element is within proper horizontal and vertical location and tolerances prior to releasing it from the crane and setting the next unit. The Contractor may use shims to maintain proper setting tolerances.

The concrete elements shall be lifted only by the lifting devices, and the utmost care shall be taken to prevent distortion of the elements during handling, transportation or storage.

This approval will be contingent on the Contractor demonstrating by calculations, prepared by a Professional Engineer registered in Massachusetts, that the elements will not be damaged by the non-vertical lifting force and by documentation that the capacity of the lifting devices is adequate for the non-vertical lifting force.

After all Precast Concrete Bridge Elements have been placed, the actual overall dimensions of the structure both horizontal and vertical, as laid out shall not deviate from the nominal dimensions shown on the plans beyond a tolerance of +0 inches and -1 inches. Once the layout of Precast Concrete Bridge Elements has been accepted by the Engineer, the Contractor shall cut all lifting devices off below the surfaces of the elements.

F. Box Culverts and Wingwalls.

Backfilling operations shall not begin until the following checks have been made:

(a) The frame to footing key joints are grouted as shown on the plans;
(b) The joints between exterior frame bridge elements and wingwall stems are complete as shown on the plans;
(c) All joint seals are properly placed.

Backfill shall be paid for under separate items. The backfilling procedures shall be in accordance with Sections 120, 150, and 170 of the Standard Specifications and Supplemental Specifications modified as follows:

(a) Fill shall be placed and compacted in layers not exceeding one foot in depth;
(b) Dumping of fill shall not be allowed any nearer to the structure than 3.25 feet from a vertical plane extending from the back of the footing;
(c) Backfill shall be placed as symmetrically as possible around the structure with differential depths of backfill on each side of the structure not exceeding 1.5 feet with respect to each other;
(d) Compaction shall be achieved using hand compaction equipment for all fill within one foot of the structure;
(e) The bare structure shall not be crossed by any equipment heavier than that specified by the frame manufacturer. All damage resulting from equipment damage shall be rectified to the satisfaction of the Engineer at no cost to the Department;
(f) Construction equipment will not be permitted atop an uncompleted structure;

(g) Construction equipment whose weight exceeds the design capacity shall not be permitted atop the completed structure under any circumstances;
(h) The use of vibratory rollers for compaction purposes will not be permitted.

A representative of the manufacturer shall be on site at the commencement of the installation, at no cost to the Department, to assist the Contractor. The representative shall offer advisory assistance only and shall not supplant the Contractor's representative, or the Engineer.

G. Filling of Blockouts for Lifting Devices and Threaded inserts.

If the blockouts in the Precast Concrete Bridge Elements where the lifting devices were located will be exposed and visible after assembly is complete, the Contractor shall fill these blockouts with Mortar (M4.04.5).

After the formwork has been removed, all threaded inserts that have been cast into the precast concrete bridge deck for support of the formwork shall be filled with a grout of the same color as that of the precast concrete.

SHOP DRAWING REVIEW

The Approval Process for Prefabricated Structures is as follows:

1. After the construction contract is executed, the Contractor shall submit PE-stamped shop drawings and design calculations prepared by the Fabricator Engineer to the Designer for review and approval. In addition to requirements already specified, shop drawings shall include, at a minimum,
    - Catalogue cut-sheets for all hardware to be used in the precast elements;
    - Description of the fabricating plant, including any backup concrete mixing facilities,
    - Proposed admixtures to be added to the concrete mix, including brand and dosage rates, which shall be consistent with the MassDOT approved mix design;
    - The name of the Manufacturer of all reinforcing steel;
    - Provisions for repair of minor non-structural defects.
2. The Designer shall review shop drawings and calculations and resolve any comments with the Contractor (and Fabricator Engineer as appropriate) through the normal shop drawing review process.

SCHEDULE OF BASIS FOR PARTIAL PAYMENT

The Contractor shall submit a schedule of unit prices for the major component Sub-Items that make up Item 995.011 as well as his/her total Culvert Structure Lump Sum cost. The Culvert Lump Sum breakdown quantities provided in the proposal form are estimated and not guaranteed. The total of all partial payments to the Contractor shall equal the Lump Sum contract price regardless of the accuracy of the quantities furnished by the Engineer for the individual culvert components. The cost of labor and materials for any Item not listed but required to complete the work shall be considered incidental to Item 995.011 and no further compensation will be allowed.

The schedule on the proposal form applies only to Culvert Structure, Terrestrial Passage. Payment for similar materials and construction at locations other than this culvert structure shall not be included under this Item. Sub-Item numbering is presented for information only in coordination with MassDOT Standard Nomenclature.

995.011	**Culvert Structure, Terrestrial Passage**		
Sub-Item	**Description**	**QTY.**	**UNIT**
970.	Damp-proofing	1150	SF
-	Precast Concrete Box Culvert	1	EA
-	Precast Concrete Headwalls	2	EA
-	Precast Concrete Wingwall Footings	4	EA
-	Precast Concrete Wingwalls	4	EA

ATTACHMENTS

ATTACHMENT A

OTO GEOTECHNICAL REPORT

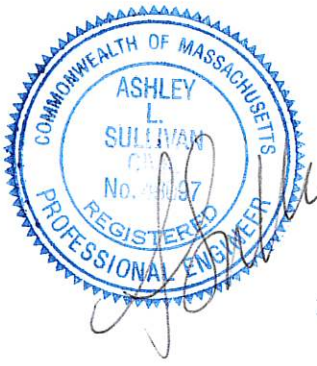
O'Reilly, Talbot & Okun
ENGINEERING ASSOCIATES

J2950-12-05
June 10, 2024
Rev. June 2, 2025
Rev. February 27, 2026/April 13, 2026

Geotechnical Engineering Recommendations
Hop Brook Culvert Replacement
Bridge No. BIN B-05-028 (CMF)
Belchertown, Massachusetts 01075

PREPARED FOR:
Fuss & O'Neill, Inc.
1550 Main Street, Suite 400
Springfield, Massachusetts, 01103

Attention: Ms. Akta Patel, P.E.



PREPARED BY:
O'Reilly, Talbot & Okun Associates, Inc.
276 Bridge Street, No.302
Springfield, MA 01103

O'Reilly, Talbot & Okun
ENGINEERING ASSOCIATES

J2950-12-04
June 10, 2024
Rev. June 2, 2025
Rev. February 27, 2026/April 13, 2026

Ms. Akta Patel, P.E.
Fuss & O'Neill, Inc.
1550 Main Street, Suite 400
Springfield, Massachusetts, 01103

Re: Revised (02-27-2026/04-13-2026) Geotechnical Engineering Recommendations
Hop Brook Culvert Replacement Project
Belchertown, Massachusetts

Dear Ms. Patel:

O'Reilly, Talbot & Okun Associates, Inc. (OTO) is pleased to provide this revised geotechnical findings and recommendations report for the culvert replacement project referenced above. The subject culvert is located on Warren Wright Road and spans Hop Brook, approximately 550 feet north of the intersection with Orchard Road in Belchertown, Massachusetts. A Site Locus and Boring Location Plan are attached.

Our geotechnical recommendations are based upon published information and subsurface conditions observed in four soil borings. Our services consisted of a review of published geologic information, the full-time observation of the borings, review of the logs and soil samples, engineering analyses, and preparation of this report. This report is subject to the limitations attached in Appendix A.

If you have any questions, please do not hesitate to contact the undersigned.

Sincerely yours,
O'Reilly, Talbot & Okun Associates, Inc.

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Michael J. Talbot, P.E.
Principal (Reviewer)

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1.0 EXECUTIVE SUMMARY

This report provides our geotechnical findings and recommendations for the design of foundations for the proposed Warren Wright Road replacement culvert over Hop Brook in Belchertown, Massachusetts. The location of the Site is shown in Figure 1. The existing and proposed structures are shown in Figure 2.

We understand that the three existing pipe culverts will be completely removed, and a new culvert will be constructed in their place. Based upon information provided by Fuss & O'Neill, we understand the new culvert will likely be a three-sided concrete box culvert with a clear span of 23 feet.

Table 1
Summary of Existing and Proposed Structures

Structure and Type	Size	Invert Elevation[1] (ft)	
		Inlet	Outlet
Existing Structure: Three (3) Pipe Culverts	5-foot diameter	179.6 – 179.8	179.9 – 180.1
Proposed Replacement: Precast Concrete Three-Sided Box[2]	23-foot span	179.2	179.0
Proposed Terrestrial Crossing: Precast Concrete Three-Sided Box	9-foot span	184.0	183.8

Notes:
1. Elevations in this report in reference to vertical datum NAVD 88, unless noted otherwise.
2. Steel pipe culverts are also being considered

A scour analysis was performed by others; the scour depths are provided below:

Table 2
Results of Scour Analysis by Others

Flow Event	Scour Depth (ft)	Approximate Elevation (ft)
Design Scour, 25-year Flow	4.5	174.5
Check Scour, 50-year Flow	5.3	173.7

Based upon the proposed type of structure(s), existing data and estimated 50-year design scour depth, we anticipate that the most cost-effective foundation will be traditional spread footing foundations bearing on at least one foot of Crushed Stone or a concrete mud mat over native soils. The minimum embedment depth of foundations should be at a depth of 48 inches below the surrounding ground surface or below the maximum scour depth, whichever is greater. At this time, it appears that the foundations will bear 2.5 feet below the check scour depth (or at an elevation of 171.2 feet).

The Crushed Stone layer or concrete mud mat should be placed on the native fine grained soils to provide a firm bearing surface, facilitate dewatering, and protect the subgrade from disturbance during construction. A geosynthetic separation fabric should be installed

between the bottom of the Crushed Stone layer and the native soil layer. The fabric is not required for the mud mat alternative.

We anticipate that the maximum excavation depth (near elevation 170 feet) will be approximately 16 feet below the existing road surface. Therefore, the excavation side slopes will need to be supported by temporary earth support and a robust dewatering/cofferdam system will be needed to installed to provide a safe and dry work area during construction.

We note that a new 9-foot span box culvert will also be constructed as a wildlife terrestrial crossing, approximately 200 feet to the north of the replacement culvert. We anticipate that this structure can be founded on traditional spread footing foundations. The terrestrial crossing will not be subject to a MassDOT Chapter 85 review because the clear span is less than ten feet. Therefore, that structure is not covered in further detail in this report. Additional recommendations can be provided upon request. A construction phase confirmatory boring at this location is recommended in Section 5.6.

1.1 Subsurface Conditions

Four soil borings were performed in the study area: HB-1 and HB-2 in November 2021, and HB-101 and HB-102 in November and December 2022. Each boring was performed off the shoulder of the road, within 50 feet of the proposed replacement culvert. These borings could not be located closer to the culvert replacement area due to the presence of overhead lines and proximity to the existing guardrail. Boring HB-101 was terminated due to limitations of the equipment used (maximum depth of equipment was reached). Borings HB-1, HB-2, and HB-102 were terminated due to time constraints.

Table 3
Summary of Soil Boring Information[1]

Location	Boring	Ground Surface Elev. (ft)[2]	Depth (ft) / Elev. (ft) to Bottom of:			
			Fill/ Reworked	Interbedded Silt & Clay	Sandy Glacial Till	Exploration
North Abutment	HB-1	186.0	7.5 / 178.5	N/A[3]	N/A	42.0 / 144.0
	HB-101	186.0	10.0 / 176.0	56.5 / 129.5	95.0 / 91.0	120.0 / 66.0
South Abutment	HB-102	188.0	1.0 / 187.0	54.0 / 134.0	N/A	65.5 / 122.5
	HB-2	188.5	1.0 / 187.5	N/A[3]	N/A	42.0 / 146.5

Notes:
1. Subsurface conditions are based upon conditions encountered in the soil borings. Data shown in this table should be considered accurate only to the degree implied by the methods used.
2. Ground surface elevations were determined from contours shown on the Boring Location Plan (Figure 2).
3. N/A indicates that the interface boundary was not identified before the boring was terminated. Borings HB-1 and HB-2 were terminated within the silt and clay layer.

Near surface soil conditions at the Site generally consist of a surficial layer of either non-engineered fill, reworked soils, and/or fine to medium sand. Interbedded fine sand, silt and clay is present beginning at an approximate depth of 10 feet (elevation 177 feet). This layer is underlain by medium to very dense sand and gravel, with glacial till or soft Arkose beginning at a depth of 95 feet (elevation 91 feet). Subsurface conditions are summarized

in Table 3. An idealized subsurface cross section is attached as Figure 4. Boring logs are provided in Appendix B.

No cores of bedrock were obtained during this study; however, the deep boring for this study (HB-101) was terminated at a depth of 120 feet (elevation 66 feet) and appears to have penetrated into soft rock (consistent with arkosic sandstone).

Groundwater was encountered at an approximate depth of 1.8 to 3.5 feet below ground surface (elevation 184.2 to 185 feet), which is near the water elevation in Hop Brook. We anticipate that the groundwater level will fluctuate with changes in the brook level.

The seismic Site Class was determined according to the AASHTO LRFD Culvert Design Specifications, Article 3.10.3.1. Using the SPT N-value, the Site was determined to be Site Class D. Based upon the composition and density of saturated Site soils observed in the soil borings, it is unlikely that significant amounts of liquefaction-induced settlement would occur under the design earthquake.

1.2 Recommended Foundation System

The selection of the most suitable foundation alternative is dependent on soil conditions, anticipated loading, scour depth, access considerations, and cost. Based upon these factors, the most suitable foundation for the replacement culvert appears to be spread footing foundations. Foundation recommendations are presented in Section 2, including Tables 4 and 5.

Wing walls should be supported upon the same foundation system as the culvert (i.e., spread footing foundations). Soil properties and design parameters to be used in the determination of lateral earth pressures for design of wing walls are provided in Table 6. We understand that the project will include gabion basket retaining walls along the roadway adjacent to the proposed culvert The values provided in Table 6 may also be used in the design of these retaining walls.

Table 4
Properties and Design Parameters for Culvert Shallow Foundations
Bearing on One Foot of Crushed Stone (or Mud Mat) over Native Soils

Property/Design Parameter	Recommended Value
Interface Friction Angle[1]	19 degrees (Cast in Place) 14 degrees (Precast)
Coefficient of Friction[1]	0.34 (Cast in Place) 0.25 (Precast)
Bearing Resistance Factor[2], φ_b	0.45
Sliding Resistance Factor[2,3], φ_τ	0.85
Passive Earth Pressure Component of Sliding Resistance[2,3], φ_{ep}	0.50

Notes:
1. Interface friction and coefficient of friction for Crushed Stone in contact with concrete from AASHTO Table 3.11.5.3-1.
2. Bearing and sliding resistance factors from AASHTO Table 10.5.5.2.2-1.
3. Sliding resistance factors for footings placed on Crushed Stone leveling pad (or concrete mud mat).

Table 5
Bearing Resistance for Varying Footing Widths

Footing Width (feet)	Bearing Resistance[2]		
	Strength Limit State (ksf)		Service Limit State Nominal (ksf)[3]
	Nominal	Factored	
Footing Embedment Depth (D) =2.5’			
6	6.5	2.9	2.9
12	9.7	4.4	2.3

Notes:
1. Scour Depth >4 feet, therefore, scour depth will govern. Embedment depth assumed to be 2.5 feet, i.e., 2.5 feet below check scour depth
2. Bearing resistance values assumed firm bearing surface, i.e., subgrade is over excavated by a minimum of 12 inches and 12 inches of crushed stone placed beneath footings or mud mat constructed. Bearing pressures should be evaluated on the basis of the “effective footing width” in accordance with Article 10.6.1.3 of the AASHTO LRFD.
3. Bearing resistance for post construction settlement of approximately 1 inch.
4. Minimum embedment depth will be the greater either frost depth (48 inches below finished grade) or scour depth. It appears that scour depth will govern design. Values in table based upon embedment depth of 2.5’.

Table 6
Soil Properties for Determination of Lateral Earth Pressures[1]

Soil Property/ Design Parameter	M1.03.0 Type B Gravel Borrow	Near Surface Soils
Angle of Internal Friction	37 degrees	30 degrees
Soil Unit Weight	120 pcf	115 pcf
Equivalent Fluid Pressure[2]	35 pcf	35 pcf
Interface Friction Angle[3]	24 degrees	17 degrees
Friction Factor[3]	0.45	0.31
Earth Pressure Coefficients[5,6,7]		
Active, K_a	0.25	N/A[4]
At-Rest, K_0	0.40	N/A
Passive, K_p	3.00	N/A
Dynamic, K_{ae}	0.45	N/A
Additional Information for Gabion Basket Walls[8]		
Strength Limit State – Nominal Bearing Resistance[9]	3.0 ksf	3.0 ksf
Strength Limit State – Factored Bearing Resistance[9]	1.3 ksf	1.3 ksf
Service Limit State – Bearing Resistance for Settlement of 1 inch[9]	1.3 ksf	1.3 ksf
Bearing Resistance Factor[10], φ_b	0.45	0.45
Sliding Resistance Factor[10], φ_τ	0.80	0.80
Passive Earth Pressure Component of Sliding Resistance[10], φ_{ep}	0.50	0.50

Notes:
1. Values presented in this table assume drained soil conditions.
2. Equivalent fluid pressure assumes that retaining walls will be unbraced and free to deflect (cantilevered).
3. Interface friction and friction factor for direct contact with cast-in-place concrete from AASHTO Table 3.11.5.3-1.
4. N/A indicates that the material should not be used as backfill immediately behind retaining walls.
5. Cantilever walls greater than 5' (in height) not founded on rock or piles shall use Ka.
6. Cantilever walls that are less than or equal to 5' in height not founded on rock or piles shall use 0.5 (K_0 + Ka)
7. Cantilever, counterfort, or gravity walls of any height founded on rock or piles shall use K_0.
8. Gabion walls not associated or connected with the culvert structure.
9. Bearing resistance assumes 12-inch embedment depth, organic soils at footing subgrade removed, and through proof compaction beneath structures.
10. Bearing and sliding resistance factors from AASHTO Table 10.5.5.2.2-1.

1.3 Construction Considerations

1.3.1 Water Control

The replacement culvert will be installed below the water level in Hop Brook. We anticipate that a sheet pile wall/cofferdam will be necessary for temporary earth support and to allow for the construction of foundations and installation of the culvert in the dry. The wall/cofferdam and significant dewatering should also be designed to protect the work during periods of high water in Hop Brook and the adjacent wetland areas. We recommend that the sheet piles be embedded into the interbedded soils present at a depth of approximately 10 feet for lateral support and to limit the infiltration of water from the brook into the construction excavations.

1.3.2 Variable Fill

The near-surface fill at the Site is variable in composition and density. As such, we recommend that provisions for removal of large obstructions, such as boulders, be included in specifications.

2.0 INTRODUCTION

2.1 Scope of Report

This report provides geotechnical engineering recommendations for foundation design of the proposed Hop Brook replacement culvert on Warren Wright Road in Belchertown, Massachusetts. The location of the Site is shown on Figure 1. This report also addresses earthwork considerations associated with the proposed construction.

2.2 Subject Background, Proposed Construction, and History

2.2.1 Existing Conditions

The existing pipe culverts currently carry Hop Brook, which flows from east to west within the Site area, beneath Warren Wright Road. The existing culvert and brook alignments are shown on the attached Boring Location Plan. The existing culverts have a diameter of five feet (60 inches) and an approximate length of 35 feet. The existing invert elevations are summarized in Table 1, above. The inlet and outlet invert elevation of each culvert is shown on the Boring Location Plan, attached as Figure 2.

There are currently two 9.5-foot wide travel lanes along Warren Wright Road in the study area. There is less than three feet of non-paved shoulder between the edge of the paved surface and the guardrail. The roadway surface in the study area (elevation 187 feet) is approximately 2.5 feet above the top of the existing culverts.

An overhead power line is located off the west shoulder of the road and runs approximately parallel to the paved surface. There are no known underground utilities in the study area.

2.2.2 Proposed Construction

Project plans call for the removal of the existing culverts and their replacement with an open bottom rigid three-sided frame culvert. Based upon information provided by Fuss & O'Neill, we understand the new culvert will likely be a rigid three-sided frame concrete box culvert with a clear span of 23 feet, and a total length of 30 feet. We anticipate that the new culvert will be founded on spread footing foundations.

Project plans indicate that the roadway will be reconstructed near elevation 191 feet, or approximately three feet higher than the existing road surface. In addition, gabion baskets will be placed along the roadway, likely to stabilize the embankment during flood conditions.

2.3 Site Reconnaissance and Overall Description

The Site is located on Warren Wright Road, approximately 550 feet north of the intersection with the Orchard Road intersection in Belchertown, Massachusetts. The state (MassDOT) and federal functional classification for Warren Wright Road is 'local' (federal code 7, MassDOT code 0).

Topography along the roadway slopes downward from the north and the south, with a minimum elevation of 186.5 feet north of the culvert replacement. Within the culvert area, roadway topography is generally flat at approximate elevations between 186.5 and 188 feet. The roadway embankment slopes downwards towards the east and west, to approximate elevation 184 feet in the wetlands adjacent to Hop Brook.

Hop Brook flows through a wide wetland in the study area. A defined channel is not shown on the Site plans. The wetland area is delineated below approximate elevation 187.5 feet in the study area. Therefore, water levels and flow rates likely fluctuate significantly throughout the year. These features are shown on the attached Boring Location Plan.

The subject area is located within a National Flood Insurance Program (NFIP) identified 100-year (Zone A) flood boundary[1]. The 100-year flood elevation is 187.5 feet, which would overtop a 200-foot stretch of Warren Wright Road at its current roadway surface elevation. The regulatory width of the floodway is approximately 400 feet immediately adjacent to the roadway embankment. A 500-year (Zone B) flood boundary is not shown on NFIP maps for the study area.

3.0 SUBSURFACE CONDITIONS

3.1 Local Geology

We reviewed the surficial geologic map for the Belchertown Quadrangle[2] to evaluate likely geologic conditions at the Site. This map indicates Hop Brook at this crossing flows through postglacial swamp deposits, which are underlain by fine glacial stratified deposits. The fine glacial stratified deposits consist of thin varves (well sorted alternating layers) of very fine sand, silt, and clay or thicker layers of very fine sand and silt. The fine glacial stratified deposits are in turn underlain by coarse glacial stratified deposits, consisting of sand and gravel. This soil profile is consistent with formerly glaciated lowland areas in the Connecticut River Valley. A portion of the Surficial Geologic Map for the Site area is provided as Figure 3, attached. Bedrock in the area is identified as New Haven Arkose.

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[1] Federal Emergency Management Agency, Federal Insurance Administration (1981). "FIRM (Flood Insurance Rate Map): Town of Belchertown, Massachusetts, Hampshire County", *National Flood Insurance Program*, Community Panel Number 250157 0005 B, Panel 5 of 40.

[2] Stone, Janet R. & DiGiacomo-Cohen, Mary (2018). "Surficial Materials Map of the Belchertown Quadrangle, Massachusetts" *US Geological Survey*, Scientific Investigations Map 3402, Quadrangle 50 – Belchertown.

3.2 Subsurface Exploration Program and Testing

Subsurface investigations consisted of four soil borings performed by Seaboard Drilling of Chicopee, Massachusetts. Each boring was performed along the shoulder of Warren Wright Road and was advanced using drive and wash drilling techniques. Borings HB-1 and HB-2 were performed on November 8, 2021, using a mobile B-53 truck-mounted rig. Borings HB-101 and HB-102 were performed between November 29 and December 7, 2022, using a Diedrich D-50 track mounted drill rig. The boring locations were selected based upon rig access and proximity to overhead utilities. Boring locations are shown on Figure 2. Boring logs are provided in Appendix B.

Soil samples were generally collected continuously from the ground surface to a depth of eight or ten feet below ground surface, and at five-foot intervals thereafter. Soil samples were collected using a two-inch diameter split spoon sampler, driven 24 inches with a 140-pound safety (2021 borings) or automatic (2022 borings) hammer falling 30 inches (American Society for Testing and Materials Test Method D1586 “Standard Test Method for Penetration Test and Split-Barrel Sampling of Soils”). The number of blows required to drive the sampler each six inches was recorded. The standard penetration resistance, or N-value, is the number of blows required to drive the sampler the middle 12 inches. Soil properties, such as strength and density, are related to the N-value. The field N-values are corrected to a standard 60% hammer efficiency, known as N_{60}, to account for differing hammer efficiencies for each hammer type and drill rig. The N-values presented on the boring logs are field values, which are not adjusted for hammer efficiency, sampler type, and borehole diameter. However, the adjusted N_{60} values were used in our engineering calculations and analysis. The adjusted N_{60} values are shown on the Cross Section, attached as Figure 4.

An OTO engineer observed and logged the borings. Samples were classified according to a modified version of the Burmister Soil Classification System.

3.2.1 Rock Cores

Soft, fractured rock was likely encountered at a depth of 95 feet (elevation 91 feet). However, this rock was easily penetrated using a rotary drill bit and would likely not have resulted in the successful completion and extraction of a rock core sample. Therefore, the boring was advanced in an effort to encounter more competent rock that could be cored. To save time, samples were not collected from this interval. Competent rock was not identified before reaching the limitations of the drilling equipment. Therefore, no rock cores were obtained at this Site. Competent bedrock below a depth of 120 feet would have no influence on the design of the proposed foundation system.

3.2.2 Field Strength Testing

Field strength testing was performed on selected samples of the silt and clay using pocket torvane (E-285 Pocket Vane Shear Tester) and pocket penetrometer devices. These field measurements are intended to provide an approximation of the strength of fine-grained soils. The pocket penetrometer provides a measure of the unconfined compressive

strength of soil by failing the clay by "punching." The torvane device provides an estimate of the undrained shear strength of fine-grained soils by failing the silt and/or clay in a rotational shearing mode. Theoretically, the unconfined compressive strength is twice the undrained shear strength. A total of three pocket penetrometer and torvane tests (each) were completed in the field. Pocket torvane and pocket penetrometer results are presented on the attached boring logs and are discussed below.

3.3 Verification of Sample Descriptions on Boring Logs

I, Dustin A. Humphrey, a Massachusetts registered professional engineer, attest that I visually and manually examined the soil samples as part of the preparation of this geotechnical report. Samples collected from the subsurface investigations were reviewed at the O'Reilly, Talbot, & Okun Associates, Inc. office, located in Springfield, Massachusetts on May 3, 2023. The soil descriptions presented on the boring logs are consistent with the soil samples collected during the Site explorations.

3.4 Subsurface Profile

Subsurface conditions were interpreted based upon information collected in the soil borings and upon our review of published geologic maps. In general, subsurface conditions at the boring locations consisted of the following, in order of increasing depth: non-engineered fill and reworked soils with organics; interbedded fine-grained soils; sandy glacial till; and glacial till or soft (friable) Arkose. Cross Section A-A' is provided as Figure 4, which was inferred from the conditions encountered in the soil borings. Boring logs are provided in Appendix B.

It appears that fill soils were placed directly over the wetland organic deposits during construction of the existing roadway embankment. Soil conditions beneath the surficial non-engineered fill, reworked soils, and organic material consist of native fine grained soil. The recommended foundation system, spread footing foundations, will have a proposed bottom elevation of 171.2 feet.

3.4.1 Soil Conditions

Non-Engineered Fill: Non-engineered fill was encountered in each of the borings, to a depth of 1 to 1.5 feet below ground surface. The fill generally consists of fine to medium sand with little to trace amounts of coarse sand, silt, debris (asphalt), and organics (roots).

Reworked Soils and Organics The non-engineered fill in borings HB-1 and HB-101 was underlain by loose to very loose (or soft, where plastic) silt with little to trace fine to medium sand and trace amounts of organics (roots, wood). This layer appears to consist of hydric soils associated with the Hop Brook wetland area and had a distinct organic odor.

Near Surface Granular Deposits: The non-engineered fill in borings HB-2 and HB-102 was immediately underlain by loose to medium dense, fine to medium sand with little to trace amounts of gravel, coarse sand, and silt. This deposit was also observed beneath the silty organic layer in boring HB-1.

Interbedded Sand, Silt, and Clay: Fine-grained soils were encountered beneath the surficial reworked/organic silt and granular deposits, beginning at a depth of 10 to 11 feet below ground surface (elevation of 175 to 178.5 feet). The fine-grained soils consisted of fine sand, silt, and clay in varying proportions. A few layers containing up to 50% medium sand. The interbedded materials varied in density/consistency both laterally and horizontally but were generally very loose to medium dense (or soft to very stiff, where plastic). Portions of this layer contain enough clay to affect the engineering properties and behavior of the soil. Borings HB-1 and HB-2 were terminated within this layer at a depth of 42 feet below ground surface (elevation 144 and 146.5 feet, respectively).

Field measurements of shear strength ranged from approximately 300 to 1,100 pounds per square foot (psf), and measurements of unconfined compression strength ranged from approximately 1,500 to 2,500 psf. Pocket vane shear and penetrometer test results are presented in the boring logs, attached as Appendix B. Only a small portion of the interbedded fine-grained soils contained sufficient clay to exhibit plastic behavior. These plastic soils were encountered at an approximate depth of 15 to 20 feet below ground surface and were observed to be medium stiff to very stiff in consistency.

Sandy Glacial Till: A medium dense to very dense, sand and gravel, with silt and clay was encountered beginning at a depth of 56.5 and 54 feet (elevation 129.5 and 134 feet) in borings HB-101 and HB-102, respectively. This layer may also contain significant cobbles and boulders based on drilling conditions were encountered. Boring HB-102 was terminated within the sand and gravel layer at a depth of 65.5 feet (elevation 122.5 feet).

Glacial Till or Soft Arkose: In an effort to identify the depth to competent bedrock, standard penetration resistance (SPT) split spoon samples were not obtained below a depth of 80 feet in boring HB-101. Furthermore, it became very difficult and time consuming to drive casing at a depth of 90 feet, and the remainder of boring HB-101 was drilled using open hole methodology.

Based upon drilling conditions and cuttings collected from the recirculated wash water, it is likely that soft fractured bedrock was encountered at an approximate depth of 95 feet (elevation 91 feet) in boring HB-101. However, this layer was easily penetrated with the rotary drill bit used to advance the bore hole, indicating that the material would be too friable to successfully collect a bedrock core sample.

The recirculated wash water contained red/brown fine to medium sand and became predominantly fine sand with depth. It is possible that this layer is a dense, sandy glacial till. However, bedrock in the area is identified as New Haven Arkose on geologic maps[3]. The geology map describes the rock as, “red, pink, and gray coarse-grained, locally conglomeratic arkose interbedded with brick-red shaley siltstone and fine-grained arkosic sandstone,” which is consistent with the cuttings collected from the wash water. Boring

[3] Zen, E., Editor (1983). “Bedrock Geologic Map of Massachusetts” USGS and Massachusetts Department of Public Works.

HB-101 was terminated within this likely bedrock or possible glacial till layer at a depth of 120 feet (elevation 66 feet), which was the practical limit of the drilling equipment used.

3.4.2 Groundwater Conditions

Groundwater was encountered borings HB-1 and HB-101 (north of the culvert) at a depth of approximately 1.8 feet below ground surface (elevation 184.2 feet) and in boring HB-2 (south of the culvert) at 3.5 feet below surface (elevation 185 feet). These measurements approximately correspond to the water level in the Hop Brook and the adjacent wetlands at the time of our explorations. We note that the groundwater measurements do not account for weather-related and seasonal variations. The groundwater elevation will vary with changing water levels in Hop Brook and the adjacent wetland areas.

A robust dewatering/cofferdam system will be necessary to construct foundations and place the new culvert.

3.5 Seismic Design Category Evaluation

Seismic design and analysis of the replacement culvert should be performed in accordance with the specifications provided in the 2013 MassDOT *Bridge Manual*, Revised January 2020 (MassDOT) and the most recent version of AASHTO *LRFD Bridge Design Specifications* (AASHTO).

Section 3.4 of MassDOT covers seismic analysis and design. Lateral forces generated during a seismic event are dependent on the type and properties of soils present beneath the Site as well as geographic location. The *USGS Seismic Design Maps* web service was used to determine seismic parameters for the Site. The peak ground acceleration (PGA), as well as the maximum considered earthquake spectral response accelerations for short periods (S_s) and for one-second (S_1) were determined for Belchertown, Massachusetts. These values are for a non-critical/non-essential bridge and based upon a seven percent probability of exceedance in 75 years for a 1,000-year event.

Table 7
Seismic Design Parameters

Parameter	Value	Parameter	Value
PGA 0.059			
As	0.094	F_{pga}	1.6
S_s	0.131	F_a	1.6
S_1	0.039	F_v	2.4
S_{DS}	0.21	S_{D1}	0.093
Seismic Site Class D			
Seismic Design Category A			

Soil properties are represented through Site Classification. Procedures for the Site-specific determination of Site Classification are provided in Article 3.10.3.1 of AASHTO. We evaluated Site Classification using Standard Penetration Resistance (SPT N-value).

Furthermore, the Site coefficients F_{pga}, F_a, and F_v are determined using the PGA, S_s, and S_1 values and the Site Class. Seismic design parameters for this Site are provided in Table 7.

3.6 Liquefaction Potential

The potential for liquefaction was evaluated for the Site soils beneath the groundwater table. Liquefaction of the saturated granular soils is unlikely to occur based upon the probable ground accelerations during design earthquake and composition of soils.

4.0 RECOMMENDED FOUNDATION SYSTEM

The following recommendations are provided for design of culvert, headwall, and wingwall foundations, including gabion basket walls. Foundations will be designed to resist lateral and vertical loads. Vertical loads consist of downward pressures due to the dead weight of the culvert, the weight of soils on the culvert roof, and live traffic loads, as well as uplift pressures due to overturning loads (such as buoyant and seismic forces). All foundations should be designed according to requirements provided in the 2013 MassDOT *Bridge Manual* (MassDOT), Revised January 2020 (MassDOT) and the most recent AASHTO *LRFD Bridge Design Specifications* (AASHTO). We anticipate that the most appropriate foundation system will be spread footings bearing on a one-foot-thick (minimum) layer of Crushed Stone or mud mat, over the native, fine grained soils.

4.1 Retain or Modify Existing Foundation

Original construction drawings were not available at the time of this report. We anticipate that the existing culverts were bedded directly in native soils, and no existing foundation exists for reuse. In addition, we do not anticipate the presence of other substructures.

4.2 Embankment Considerations

The proposed replacement culvert will utilize the existing approach embankments along Warren Wright Road. However, the roadway surface will be raised approximately three feet to accommodate for the new structure and prevent overtopping of the road during the 100-year flood. Therefore, the fills anticipated as part of this project will include:

- Backfill around and over the replacement, rigid three-sided frame culvert.
- Replacement of soils disturbed during construction.
- Backfill against wing walls.
- Placement of Gravel Borrow (within roadway or beneath structures) or Special Borrow (in other areas, such as the shoulder of the road) to prepare subgrades and/or achieve final grades.
- Placement of Processed Gravel for Subbase beneath final pavements.

We anticipate that long-term settlement due to compression of the fine grained soils will be relatively small, given the stiffness of the deposit, significant amounts of fine sand and

silt present in the soil matrix, and the anticipated loads. We anticipate that post-construction settlement will be one inch or less.

An evaluation of the global stability of the embankment was not performed for this study. However, we do not anticipate any concerns with global stability, since only two to three feet of fill is proposed to raise the existing roadway surface. These recommendations should be reviewed, and a stability analysis may be necessary if the proposed roadway surface differs from the details described in this report.

4.3 Deep Foundation Design

At this time, we do not anticipate that deep foundations will be used to support the proposed replacement culvert.

4.4 Shallow Foundations

The proposed culvert and associated head/wingwalls can be founded upon shallow spread footings bearing on a one-foot-thick (minimum) layer of Crushed Stone (or mud mat) over the native, fine grained soils. Table 4 provides soil properties and design parameters for use in design of spread footings. Spread footings should bear a minimum of four feet below adjacent ground surface for frost protection, or below the estimated scour depth, whichever is greater. Based upon the calculated scour depth and current plans, the new culvert and wingwalls will bear in the native fine grained soil layer at approximate elevation 171.2 feet.

The culvert footings should bear on either a 12-inch-thick layer of Crushed Stone or a concrete mud mat. We recommend that a geosynthetic separation fabric be placed beneath and around the Crushed Stone layer beneath footings to prevent the migration of stone into the underlying clay. An 8- to 12-inch-thick concrete mud mat may also be used to provide a firm working surface for the culvert foundations.

We understand that the proposed gabion basket retaining walls (designed by others) will have a minimum embedment depth of 12 inches. In addition, if organic soils are encountered within or near the subgrade of the gabion wall, these should be removed and replaced as described above to limit differential settlement due to compression or degradation.

The soil properties and parameters shown in Table 6 of this report may be used for the design of gabion basket retaining walls, provided the recommendations in this section are followed. The soil properties were based upon the borings performed as part of this study.

No borings were performed within the footprint of the wingwalls and/or Gabion walls. Any organic soils encountered beneath these structures should be removed and backfilled with compacted Gravel Borrow or Crushed Stone fill. Thes layers should be reviewed by the geotechnical engineer at the time of construction. Deep, thin or low organic content layers (5 percent or less) may not impact the structure or warrant full removal and replacement; however, these conditions should be reviewed at the time of construction. We recommend that a contingency budget be available for removal and replacement of some amount of

unsuitable soils. Organic containing soils should not be re-used as structural backfill. In addition, the footprint of the retaining wall should be thoroughly proof compacted using a minimum of three passes with a 6,000-pound vibratory roller.

4.4.1 Lateral Earth Pressures

Static lateral earth pressures will be imposed against the proposed culvert, wingwalls, retaining walls, and any other earth retaining structures (such as earth support systems used during construction). In addition, dynamic lateral earth pressures under the design earthquake must be considered. These structures should be backfilled with MassDOT Gravel Borrow (M1.03.0 Type B). A drainage system should be provided as required by MassDOT specifications. Soil properties and design parameters for the determination of lateral loading under drained conditions are provided in Table 6.

4.4.2 Scour Protection

We understand that a scour analysis has been performed by others, and the modeled scour depth is on the order of 5.3 feet below the stream bed elevation at the culvert (or near an average elevation 173.7 feet, based upon upstream and downstream bed elevations). We recommend that scour-reduction features be incorporated into final design of the replacement culvert to reduce scour and minimize the modeled scour depth.

5.0 CONSTRUCTION CONSIDERATIONS

5.1 Groundwater Considerations and Recommended Method for Water Control

Groundwater was encountered at a depth of approximately 2 to 3.5 feet below ground surface (elevation 184.2 to 185 feet). We anticipate that groundwater levels will vary with changing water levels in Hop Brook. We note that both the wetland boundary and the 100-year flood are at approximate elevation 187.5 feet in the study area. Therefore, groundwater levels will likely be at this elevation during the design flood event.

Since the recently measured groundwater levels are above the anticipated footing level, water will likely be present in excavations for spread footings and to construct the replacement culvert.

Since the measured groundwater level is over 10 feet above the deepest excavation, a robust system (such as sheet pile cutoff walls) will likely be necessary to provide a dry excavation. The contractor should review the results of the design phase hydraulic analysis (and supplement with his own analyses as appropriate) to evaluate potential water, which will need to be considered for construction. The designer of dewatering and/or trench shoring systems should check the potential for basal heave to occur in excavations extending below the surrounding groundwater table.

5.2 Engineered Fill Recommendations

Four types of engineered fill are recommended:

- Gravel Borrow (MassDOT designation M1.03.0, Type B) for use immediately behind wing walls.
- Processed Gravel for Subbase (M1.03.1) for use immediately below pavements.
- Special Borrow (M1.02.0) for use as miscellaneous fill.
- Crushed Stone (M2.01.4) for use in drainage structures and in place of Gravel Borrow.

Grain size distribution requirements are presented in Table 8.

We anticipate that some amount of organic soils may be encountered and will need to be removed and replaced with engineered fill (Gravel Borrow or Crushed Stone). Additional information is discussed in Section 4.4.

Table 8
Grain Size Distribution Requirements

Fill Type / Use	Gravel Borrow	Processed Gravel for Subbase	Special Borrow	Crushed Stone
MassDOT Designation	M1.03.0, Type B	M1.03.1	M1.02.0	M2.01.4
Sieve Size	**Percent Finer by Weight**			
3 inch	100	100	100 (6” max)	---
2 inch	---	---	90 – 100	---
1 ½ inch	---	70 – 100	---	---
1 inch	---	---	---	100
¾ inch	---	50 – 85	---	90 – 100
½ inch	50 – 85	---	---	10 – 50
⅜ inch	---	---	---	0 – 20
No. 4	40 – 75	30 – 60	20 – 65	0 – 5
No. 50	8 – 28	---	---	---
No. 200	0 – 10	0 – 10	0 – 12	---

5.2.1 Compaction Recommendations

We recommend that final footing subgrade excavations be completed with a smooth-bladed excavator bucket to prevent disturbance to the silt, sand, and clay subgrade. Since the subgrade for the footing will be below the water level in Hop Brook, we recommend that a concrete mud mat or a 12 inch Crushed Stone layer be placed to protect the subgrade from disturbance and provide a firm working surface.

Compacted fill should be placed in lifts ranging in thickness between 6 and 12 inches depending on the size and type of equipment. Recommended degrees of compaction and compaction means and methods are presented on Table 1-1 on Sheet 1. Compaction within five feet of the culvert or wingwalls and gabion walls should be performed using a hand-operated roller or vibratory plate compactor weighing 250 pounds or less.

5.3 Excavations

Temporary earth support and/or sloping will be needed to perform demolition, the removal of non-engineered fill soils, the installation of utilities, and the construction of the new culverts and wingwalls. As we discussed above, sheet pile cutoff walls will be likely needed to limit water infiltration into excavations below the water level in Hop Brook. The owner should consider leaving the sheet piles in place as discussed below.

5.3.1 Demolition of Existing Drainage Pipe

The existing culverts will be demolished to prepare the Site for the new construction. Any existing structures located within the footprint of the replacement culvert should be removed in their entirety. Existing structures outside of the new foundation area should be removed to at least 24 inches of the new ground surface or bottom of the new pavement section. Any excavations resulting from the removal of existing foundations, piles, abutments, utilities, or other structures should be backfilled with compacted engineered fill, consistent with the recommendations provided in Section 5.2 of this report.

Abandoned buried utilities containing asbestos (such as electrical conduit insulation or transite pipe) are commonly found during construction excavations. Furthermore, former structures (pipes, conduits, foundations walls) may contain or be covered with materials containing asbestos. Such materials should be handled in accordance with MassDEP's asbestos regulations (310 CMR 7.15). We recommend that suspect materials be managed appropriately and tested by a Department of Labor Standards (DLS) certified asbestos inspector prior to disturbances.

5.3.2 Sloping and Earth Support

Soil may become unstable when excavations extend deeper than four feet below the existing ground surface or beneath the groundwater table. The soils present in the upper 20 feet are estimated to be Type C soils for slope stability purposes. The maximum allowable slope for excavation of Type C soils is 1.5H:1V (34°). All excavations should conform to current Occupational Safety and Health Administration (OSHA) requirements. These conditions apply only to excavations above the groundwater table. Recommended methods for groundwater control are provided in Section 5.1 of this report. We note that earth support systems for any excavation exceeding 20 feet in depth must be designed by a registered professional engineer.

In areas where sloping is not feasible, excavations may require temporary earth support systems during construction. The design and engineering of these systems should be the responsibility of the contractor.

The replacement culvert will be installed below the water level in Hop Brook. We anticipate that a sheet pile wall/cofferdam will be necessary for temporary earth support and to allow for the construction of foundations and installation of the culvert in the dry. The wall/cofferdam should also be designed to protect the work during periods of high water in Hop Brook and the adjacent wetland areas. We recommend that the sheet piles be

embedded into the interbedded soils present at a depth of approximately 10 feet for lateral support and to limit the infiltration of water from the brook into the construction excavations.

Sheet piles should be decommissioned consistent with recommendations provided in the Bridge Manual. Sheet piles (or other means of temporary support of excavation) that protrude into the soil that supports the structure should be cut off and left in place. Supporting soil is defined as soil directly below the footings and within a series of places that originate at the perimeter of footing and project down and away at a 45 degree angle from the horizontal. OTO recommends that these references be worked in to the plans and specifications, as appropriate.

5.4 Obstructions

While not encountered as part of this study, large boulders, cobbles, or other obstructions may be encountered in the non-engineered fill and native granular layers. We recommend that provisions for removal of large obstructions, such as boulders, be included in specifications. In addition, we recommend that the owner carry contingencies in the event that large obstructions must be removed.

5.5 Protection of Adjacent Structures and Utilities

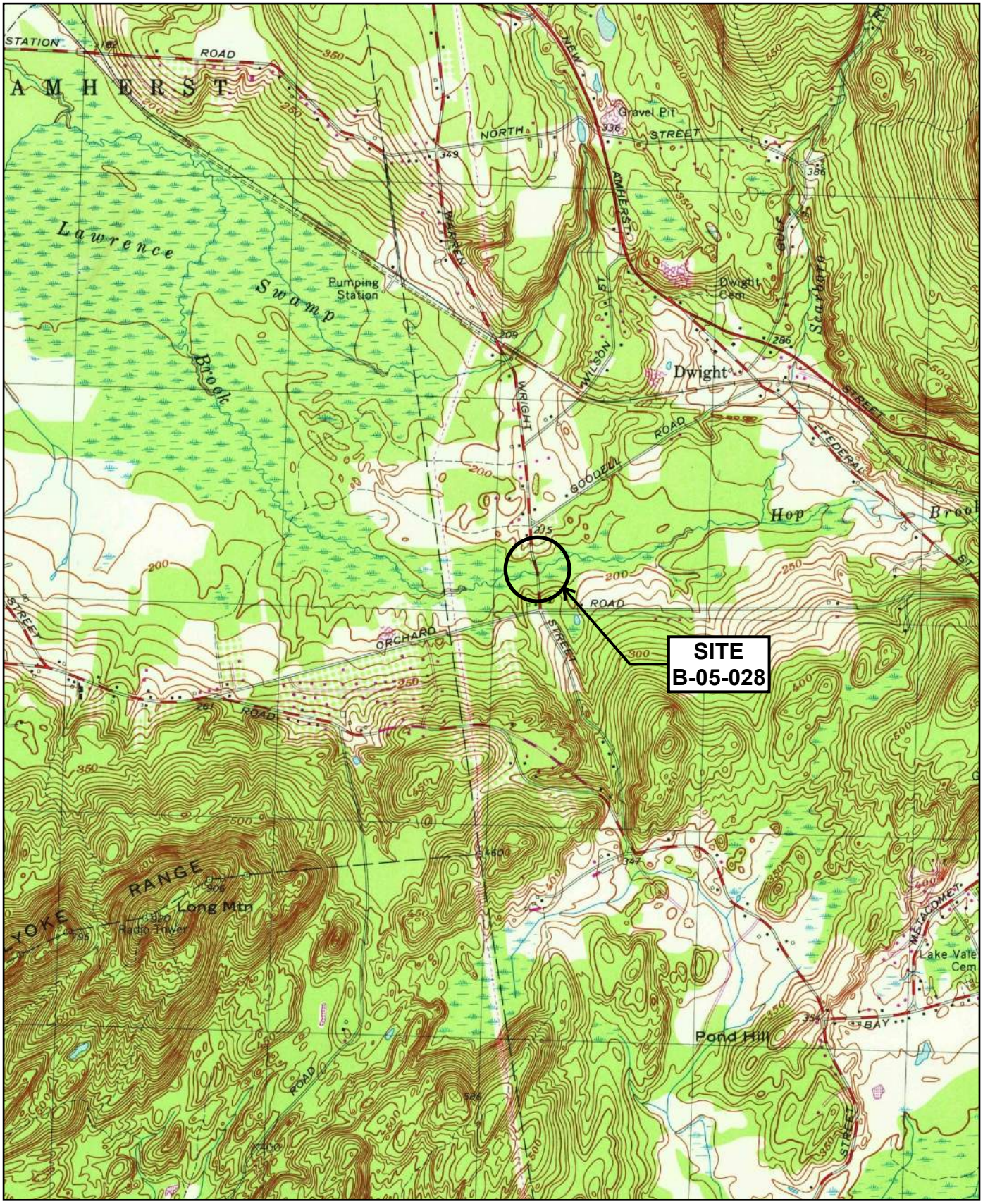
The nearest residences are located at 207 and 169 Warren Wright Road and are approximately 550 and 450 feet from the study area, respectively. In addition, no known buried utilities are located within the study area. Therefore, vibration monitoring and documentation of the condition of the nearby buildings will not be necessary, even if driven sheets are selected for this project. It will be necessary to temporarily move the overhead electric lines at the west shoulder of the road to allow for the installation of these sheet piles or other elements as part as cofferdams and earth support.

5.6 Construction Borings

No borings were performed within the footprint of the proposed bridge due to the presence of overhead wires, underground utilities, and guard rails. Therefore, we recommend that construction phase boring(s) be included in the construction contract, consistent with Section 1.2.7 of the MassDOT LRFD Bridge Manual. This will allow the additional borings to be performed without interference, since the project area will be cleared of structures prior to starting construction. The conditions encountered in the construction phase borings should be reviewed for consistency with assumed conditions described in the report.

We recommend that a minimum of (1) boring be performed to a minimum depth of 15 feet below planned footing elevation. If time allows during one day of drilling, we recommend that a second boring be performed at the location of the terrestrial crossing. The boring log(s) should record a description of soil, blow counts, and core recovery for each sample, and depth and elevation at each change in strata. Recommended locations for the construction phase borings are shown on Figure 2.

FIGURES & SHEETS



0 1000 FEET

0 0.5 1.0 MILES

0 0.5 1 KILOMETERS

1:25,000 SCALE NATIONAL GEODETIC VERTICAL DATUM 1929 10 FOOT CONTOUR INTERVAL

O:\J2900\2950 Fuss & O'Neill\12-04 Belchertown Hop Brook - Review\Figures\2950-12-04 Figure 1 - Site Locus (25k scale) 2024-04.pdf

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BELCHERTOWN, MASSACHUSETTS

SITE LOCUS

Topographic Map Quadrant: BELCHERTOWN, MA

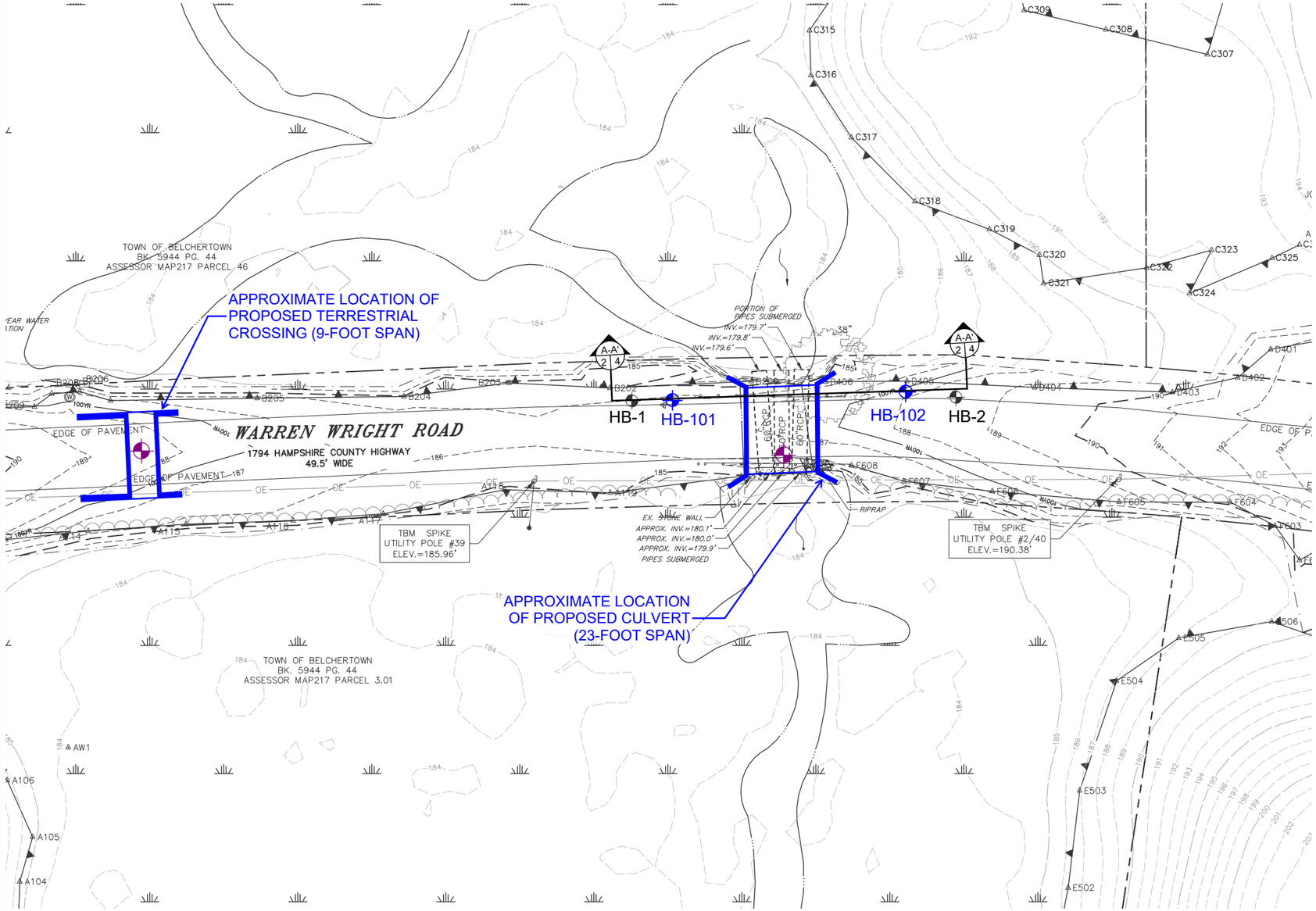
Map Version: 1964

Current As Of: 1979

Date: APRIL 2024

PROJECT No. J2950-12-04

FIGURE No. 1



SCALE IN FEET
1" = 40'

0' 20' 40' 80'

BORING LOCATIONS (FEET)

	BORING	NORTHING	EASTING	STATION	OFFSET	SURFACE ELEV.
North of	HB-1	2,943,058	396,290	-	-	186.0
Culvert	HB-101	2,943,044	396,292	-	-	186.0
South of	HB-102	2,942,966	396,305	-	-	187.5
Culvert	HB-2	2,942,950	396,306	-	-	188.5

NOTES:

1. BASE MAP PROVIDED TO OTO IN ELECTRONIC FORMAT BY FUSS & O`NEILL. ORIGINAL DRAWING TITLED "EXISTING CONDITIONS" (SHEET CI-101), BY FUSS & O'NEILL, DATED JUNE 2022
2. SAMPLE LOCATIONS ARE SHOWN ACCORDING TO TAPED MEASUREMENTS TAKEN FROM EXISTING SITE FEATURES
3. ALL DATA IS TO BE CONSIDERED ACCURATE ONLY TO THE DEGREE IMPLIED BY THE METHODS USED IN THE DEVELOPMENT OF THIS PLAN

A-A' 2 3 — A-A' 2 4

CROSS SECTION LABEL

FIGURE SHOWING CROSS SECTION

FIGURE CROSS SECTION IS CUT FROM

LEGEND:

- APPROXIMATE SOIL BORING LOCATION PERFORMED BY SEABOARD DRILLING ON 11/08/2021, OBSERVED BY OTO
- APPROXIMATE SOIL BORING LOCATION PERFORMED BY SEABOARD DRILLING ON 11/29/2022, 11/30/2022, 12/02/2022, AND 12/7/2022 OBSERVED BY OTO
- APPROXIMATE PROPOSED SOIL BORING LOCATION FOR CONSTRUCTION (CONFIRMATORY BORINGS)

PROJECT FILE NO. 2950-12-04

massDOT
Massachusetts Department of Transportation
Highway Division

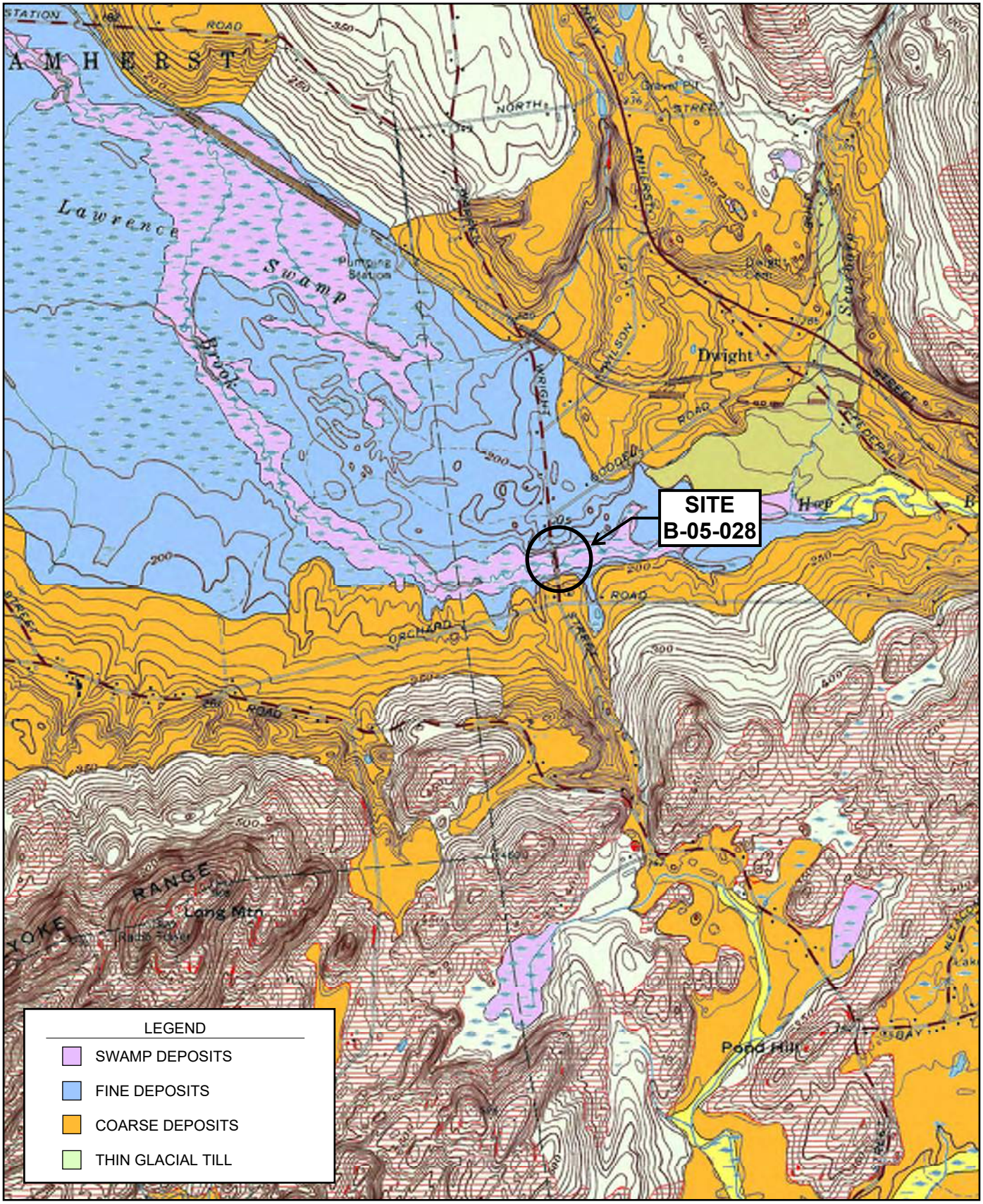
BORING LOCATION PLAN OF PROPOSED CULVERT IN BELCHERTOWN

HOP BROOK

MASSACHUSETTS DEPARTMENT OF TRANSPORTATION
HIGHWAY DIVISION

SCALE: 1" = 40'-0" April 2024

O:\J2900\2950 Fuss & O'Neill\12-04 Belchertown Hop Brook - Review\Figures\2950-12-04 Figure 2 - Boring Locations 2024-04.pdf



1:24,000 SCALE NATIONAL GEODETIC VERTICAL DATUM 1929 10 FOOT CONTOUR INTERVAL

O:\J2900\2950 Fuss & O'Neill\12-04 Belchertown Hop Brook - Review\Figures\2950-12-04 Figure 3 Surficial Geologic Map 2024-04.pdf

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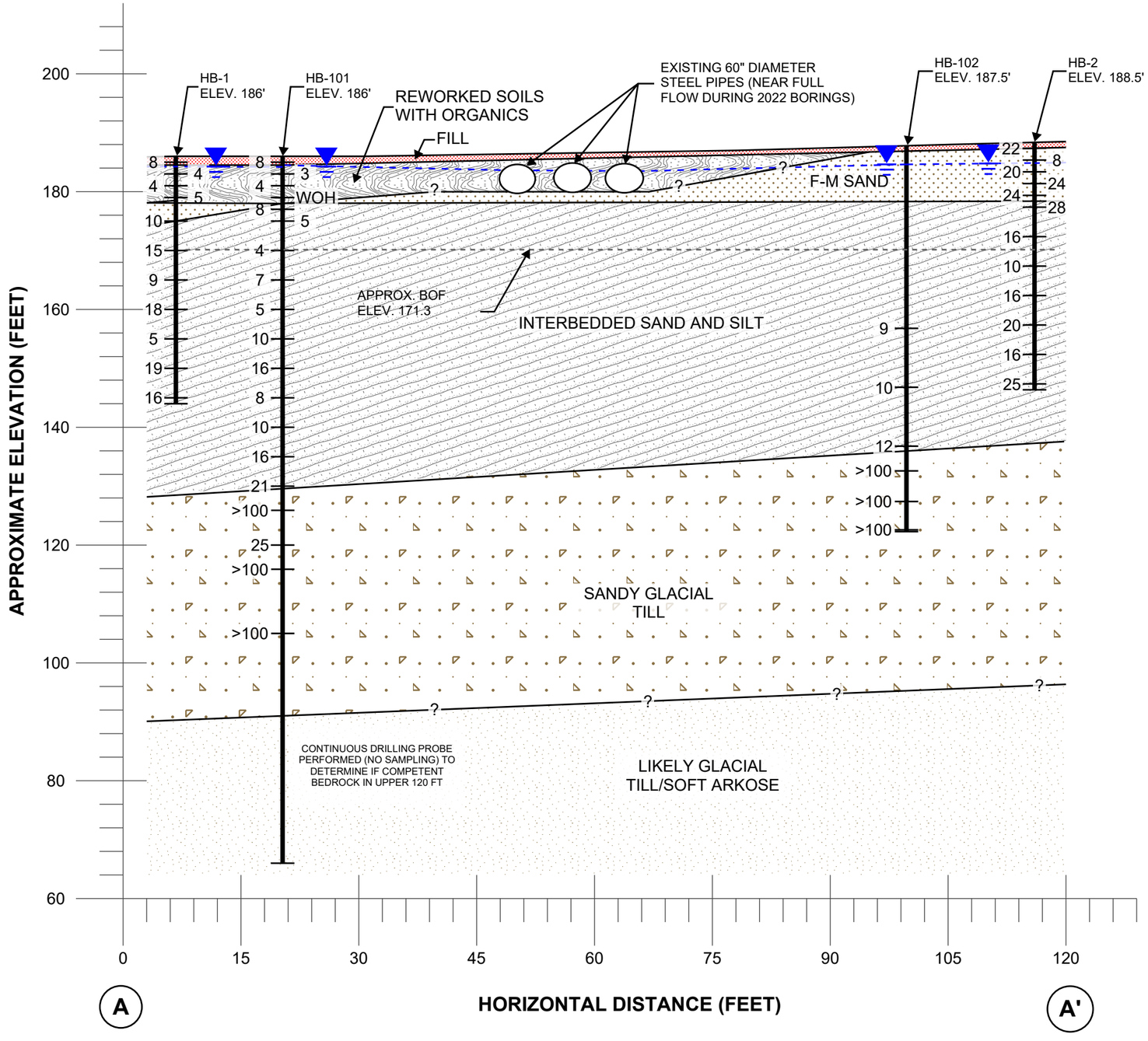
SURFICIAL GEOLOGIC MAP

Source:
"Surficial Materials Map of the Belchertown Quadrangle, Massachusetts" US Geological Survey, Scientific Investigations Map 3402, Quadrangle 50 – Belchertown, 2018

PROJECT No.
J2950-12-04

FIGURE No.
3

SECTION A-A'



VERTICAL SCALE
1" = 20'

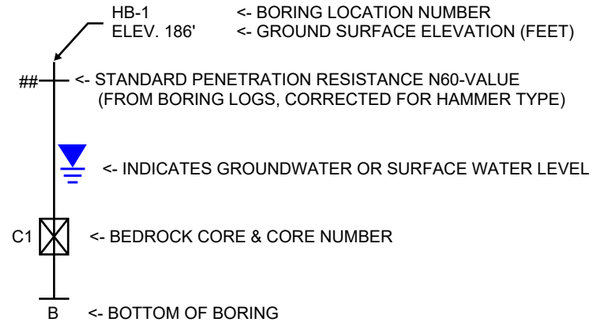
0' 5' 10' 20'

HORIZONTAL SCALE
1" = 15'

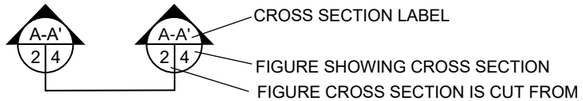
0' 7.5' 15' 30'

LEGEND:

- NON-ENGINEERED FILL: LOOSE, FINE TO MEDIUM SAND WITH LITTLE COARSE SAND, LITTLE TO TRACE GRAVEL, TRACE SILT, AND TRACE ORGANICS (ROOTS)
- REWORKED SOILS: VERY LOOSE TO LOOSE OR SOFT, CLAYEY SILT WITH LITTLE FINE TO MEDIUM SAND OR FINE SAND AND SILT. TRACE ORGANICS (STRAW, WOOD)
- FINE TO MEDIUM SAND: VERY LOOSE TO MEDIUM DENSE, FINE TO MEDIUM SAND, LITTLE TO TRACE SILT
- INTERBEDDED SAND AND SILT: VERY LOOSE TO MEDIUM DENSE OR MEDIUM STIFF TO VERY STIFF LAYERS OF FINE SAND, SILT, CLAYEY SILT, SANDY SILT, FINE SAND AND SILT, AND SILTY SAND. VARIES LOCALLY (REFER TO BORING LOGS
- SAND GLACIAL TILL: MEDIUM DENSE TO VERY DENSE, FINE TO COARSE SAND AND FINE GRAVEL WITH VARYING AMOUNTS OF SILT AND COARSE GRAVEL
- LIKELY SOFT ARKOSE OR GLACIAL TILL - continuous drilling probe performed to determine if competent bedrock within upper 120 feet, no competent rock encountered



CROSS SECTIONAL CUT:



NOTES:

1. STRATIFICATION LINES ARE BASED UPON DATA OBTAINED IN WIDELY SPACED BORINGS AND THUS REPRESENT APPROXIMATE BOUNDARIES BETWEEN SOIL TYPES. ACTUAL TRANSITIONS MAY VARY FROM THOSE SHOWN. INTERPRETATIONS OF THE INFORMATION HAVE BEEN MADE IN THE TEXT OF THIS REPORT.
2. WE NOTE THAT THE THICKNESS OF NON-ENGINEERED FILL MAY VARY SIGNIFICANTLY ACROSS THE SITE. LOCALIZED AREAS OF DEEP FILL ARE LIKELY PRESENT ADJACENT TO EXISTING ABUTMENT WALLS.
3. WATER LEVEL READINGS WERE OBTAINED FROM BORE HOLES AT THE TIMES AND UNDER THE CONDITIONS STATED ON THE BORING LOGS. FLUCTUATIONS IN THESE WATER LEVELS MAY OCCUR DUE TO VARIATIONS IN PRECIPITATION, RUNOFF, AND OTHER FACTORS.

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Designed By: CYI

Drawn By: CYI

Checked By: DAH

Date: 04/10/2023

Revised Date:

CULVERT REPLACEMENT
HOP BROOK
BELCHERTOWN, MA

CROSS SECTION A-A'

PROJECT NO.
J2950-12-02

FIGURE NO.
4

O:\J29000\2950 Fuss & O'Neill\12-04 Belchertown Hop Brook - Review\Figures\2950-12-04 Figure 4 - Cross Section (11X17) 2024-04.pdf

Table 1-1
Degree of Compaction Recommendations

Location	Minimum Compaction
Below Structures (Foundations and Slabs)	95%
Below Pavements/Sidewalks/Exterior Slabs	95%
Against Basement Walls/Retaining Walls	92%
Utility Trenches	95%
General Landscaped Areas	90%

Notes.
1. Percentage of the maximum dry density as determined by Modified Proctor ASTM D1557, Method C.
2. When location falls into two or more categories, the engineer should be notified to determine appropriate compaction efforts and/or methods.
3. Crushed stone should be compacted in lifts of 12 inches to form a dense matrix using either traditional compaction methods (vibratory plate and/or roller) or tamping with an excavator bucket in deep excavations. It is generally not necessary to perform laboratory or field density testing on crushed stone.

Table 1-2
General Guidelines for Compaction Means and Methods

Compaction Method	Maximum Stone Size (Inches Diameter)	Maximum Lift Thickness (Inches)		Minimum Number of Passes	
		Below Structures & Pavement	Non-Critical Areas	Below Structures & Pavement	Non-Critical Areas
Hand-operated Vibratory Plate and confined spaces	3	6	8	6	4
Hand-operated vibratory drum roller (less than 1000 pounds)	3	6	8	6	4
Hand-operated vibratory drum roller (at least 1,000 pounds)	6	8	10	6	4
Light vibratory drum roller (minimum 3000 pounds)	6	10	14	6	4
Heavy vibratory drum roller (minimum 6000 pounds)	6	12	18	6	4

Note: The contractor should reduce or stop drum vibration if pumping of the subgrade is observed.

O:\J2600\2950 Fuss & O'Neill\12-04 Belchertown Hop Brook - Review\Figures\2950-12-04 Sheet 1 - Compaction 2024-04.pdf

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CULVERT REPLACEMENT
HOP BROOK
WARREN WRIGHT ROAD
BELCHERTOWN, MASSACHUSETTS

GENERAL COMPACTION GUIDELINES

DESIGNED BY: ALS
DRAWN BY: DAH
CHECKED BY: MJT
DATE: 04/10/2023
REV. DATE:

PROJECT No. J2950-12-04

SHEET No. 1

APPENDIX A

Limitations

LIMITATIONS

1. The observations presented in this report were made under the conditions described herein. The conclusions presented in this report were based solely upon the services described in the report and not on scientific tasks or procedures beyond the scope of the project or the time and budgetary constraints imposed by the client. The work described in this report was carried out in accordance with the Statement of Terms and Conditions attached to our proposal.

2. The analysis and recommendations submitted in this report are based in part upon the data obtained from widely spaced subsurface explorations. The nature and extent of variations between these explorations may not become evident until construction. If variations then appear evident, it may be necessary to reevaluate the recommendations of this report.

3. The generalized soil profile described in the text is intended to convey trends in subsurface conditions. The boundaries between strata are approximate and idealized and have been developed by interpretations of widely spaced explorations and samples; actual soil transitions are probably more erratic. For specific information, refer to the boring logs.

4. In the event that any changes in the nature, design or location of the proposed structures are planned, the conclusions and recommendations contained in this report shall not be considered valid unless the changes are reviewed and conclusions of this report modified or verified in writing by O'Reilly, Talbot & Okun Associates Inc. It is recommended that we be retained to provide a general review of final plans and specifications.

5. Our report was prepared for the exclusive benefit of our client. Reliance upon the report and its conclusions is not made to third parties or future property owners.

APPENDIX B

Boring Logs

O'Reilly, Talbot & Okun
ENGINEERING ASSOCIATES

BORING LOGS

SUMMARY OF THE BURMISTER SOIL CLASSIFICATION SYSTEM (MODIFIED)

RELATIVE DENSITY (of nonplastic soils) OR CONSISTENCY (of plastic soils)

STANDARD PENETRATION TEST (SPT)
Method: Samples were collected in accordance with ASTM D1586-99, using a 2" diameter split spoon sampler driven 24 inches. If samples were collected using direct push methodology (geoprobe), SPTs were not performed and relative density/consistency were not reported. **N-Value**: The number of blows with a 140 lb. hammer required to drive the sampler the middle 12 inches. **WOR**: Weight Of Rod (depth dependent) **WOH**: Weight Of Hammer (140 lbs.)

COHESIONLESS SOILS		COHESIVE SOILS	
BLOWS/FOOT (SPT N-Value)	RELATIVE DENSITY	BLOWS/FOOT (SPT N-Value)	CONSISTENCY
0-4	Very loose	<2	Very soft
4-10	Loose	2-4	Soft
10-30	Medium dense	4-8	Medium
30-50	Dense	8-15	Stiff
>50	Very dense	15-30	Very stiff
*Based upon uncorrected field N-values		>30	Hard

MATERIAL: (major constituent identified in CAPITAL letters)

COHESIONLESS SOILS		
MATERIAL	FRACTION	GRAIN SIZE RANGE
GRAVEL	Coarse	3/4" to 3"
	Fine	1/4" to 3/4"
SAND	Coarse	1/16" to 1/4"
	Medium	1/64" to 1/16"
	Fine	Finest visible & distinguishable particles
SILT/CLAY	see adjacent table	Cannot distinguish individual particles
COBBLES	3" to 6" in diameter	
BOULDERS	> 6" in diameter	
Note: Boulders and cobbles are observed in test pits and/or auger cuttings.		

COHESIVE SOILS		
SMALLEST DIAMETER	PLASTICITY	IDENTITY
None	Nonplastic	**SILT**
1/4" (pencil)	Slight	**Clayey SILT**
1/8"	Low	**SILT & CLAY**
1/16"	Medium	**CLAY & SILT**
1/32"	High	**Silty CLAY**
1/64"	Very High	**CLAY**
Wetted sample is rolled in hands to smallest possible diameter before breaking.		

ORGANIC SILT: Typically gray to dark gray, often has strong H2S odor. May contain shells or shell fragments. Light weight.

Fibrous PEAT: Light weight, spongy, mostly visible organic matter, water squeezed readily from sample. Typically near top of layer.

Fine grained PEAT: Light weight, spongy, little visible organic matter, water squeezed from sample. Typically below fibrous peat.

DEBRIS: Detailed contents described in parentheses (wood, glass, ash, crushed brick, metal, etc.)

BEDROCK: Underlying rock beneath loose soil, can be weathered (easily crushed) or competent (difficult to crush).

ADDITIONAL CONSTITUENTS

TERM	% OF TOTAL
and	35-50%
some	20-35%
little	10-20%
trace	1-10%

COMMON TERMS

Glacial till: Very dense/hard, heterogeneous mixture of sand, silt, clay, sub-angular gravel. Deposited at base of glaciers, which covered all of New England.

Varved clay: Fine-grained, post-glacial lake sediments characterized by alternating layers (or varves) of silt, sand and clay.

Fill: Material used to raise ground, can be engineered or non-engineered.

COMMON FIELD MEASUREMENTS

Torvane: Undrained shear strength is estimated using an E285 Pocket Torvane (TV). Values in tons/ft^2.

Penetrometer: Unconfined compressive strength is estimated using a Pocket Penetrometer (PP). Values in tons/ft^2.

RQD: Rock Quality Designation is determined by measuring total length of pieces of core 4" or greater and dividing by the total length of the run, expressed as %. 100-90% excellent; 90-75% good; 75-50% fair; 50-25% poor; 25-0% very poor.

PID: Soil screened for volatile organic compounds (VOCs) using a photoionization detector (PID) referenced to benzene in air. Readings in parts per million by volume.

O'Reilly, Talbot & Okun
ENGINEERING ASSOCIATES

LOG OF BORING HB-1

PROJECT	Hop Brook, Warren Wright Culvert Replacement			CONTRACTOR	Seaboard Environmental Drilling		
JOB NUMBER	2950-12-01	FINAL DEPTH (ft)	42.0	DRILLING EQUIPMENT	B-53 Truck Mounted Rig		
LOCATION	Belchertown, MA	SURFACE ELEV (ft)	186.0	FOREMAN	Mike G.	CASING	
START DATE	11/08/2021	DISTURBED SAMPLES	11	HELPER	Nick C.	CASE DIAMETER	4"
FINISH DATE	11/08/2021	UNDISTURBED SAMPLES	0	BIT TYPE	Roller Bit with Wash	HAMMER WGT	300 lb
ENGINEER/SCIENTIST	Jhonatan Escobar	WATER LEVEL		ROD TYPE	N (2 3/8" O.D.)	HAMMER DROP	30"
BORING LOCATION	Northeast of Existing Culvert	FIRST (ft)	1.75	SAMPLER	2" O.D. Split Spoon	ROCK CORING INFORMATION	
		LAST (ft)	N/A	HAMMER TYPE	Safety	TYPE	N/A
		TIME (hr)	N/A	HAMMER WGT/DROP	140 lb / 30" Wire Line	SIZE	N/A

DEPTH (ft)/ SAMPLES	SAMPLES: PENETR. RESIST. (bl / 6 in)	SAMPLES: REC. (in)	SAMPLES: TYPE/ NO.	SAMPLES: FIELD TEST DATA	SAMPLE DESCRIPTION (MODIFIED BURMISTER)	PROFILE DEPTH (ft) ELEV.	REMARKS/ WELL CONSTRUCTION
	4/5/3/5	16/24	S-1 (0-2')	--	Top 13": Loose, dark brown, fine to medium SAND, little coarse sand, trace gravel, trace silt, trace organics (roots), damp (FILL)	FILL	
					Bottom 3": Loose, gray brown, SILT, little fine sand, trace organics (roots), wet (Slight organic odor)	1.5 184.5	
						▽ 184.3	
	2/2/2/1	18/24	S-2 (2-4')	--	Very loose, dark brown, SILT, little fine to medium sand, trace gravel, trace organics (roots), wet (Slight organic odor)	Reworked SILT with organic matter	
5'	2/2/2/2	16/24	S-3 (4-6')	--	Very loose, gray brown, SILT, little fine sand, trace organics (roots), wet (Significant organic odor)		
	1/2/3/5	15/24	S-4 (6-8')	--	Top 13": Loose, gray brown, SILT, little fine sand, trace organics (roots), wet (1" wood at bottom, Significant organic odor)		
					Bottom 2": Loose, gray, fine to medium SAND, trace silt, wet	7.5 178.5	
						FINE TO MEDIUM SAND	
10'	2/5/5/8	13/24	S-5 (10-12')	--	Top 5": Loose, gray, fine to medium SAND, little coarse sand, trace silt		
					Bottom 8": Loose, gray, SILT, little fine sand	11.0 175.0	
						SILT	
15'						15.0 171.0	
	4/7/8/13	5/24	S-6 (15-17')	--	Stiff, gray, clayey SILT, trace gravel	CLAYEY SILT	
20'	3/4/5/6	14/24	S-7 (20-22')	PP=1.0 TSF TV=0.3 TSF	Stiff, gray, clayey SILT, little fine to medium sand		
25'						25.0 161.0	
	8/11/7/7	7/24	S-8 (25-27')	--	Medium dense, red brown, fine to medium SAND, little silt	FINE TO MEDIUM SAND	

Remarks:
1. Undrained shear strength estimated in field using E285 Pocket Torvane (TV). Values in tons/ft^2.
2. Unconfined compressive strength estimated in field using Pocket Penetrometer (PP). Values in tons/ft^2.

PROJECT NO. 2950-12-01

LOG OF BORING HB-1

O'Reilly, Talbot & Okun
ENGINEERING ASSOCIATES

Job No. 2950-12-01

LOG OF BORING HB-1

DEPTH (ft)/ SAMPLES	SAMPLES: PENETR. RESIST. (bl / 6 in)	SAMPLES: REC. (in)	SAMPLES: TYPE/ NO.	SAMPLES: FIELD TEST DATA	SAMPLE DESCRIPTION (MODIFIED BURMISTER)	PROFILE DEPTH (ft) ELEV.	REMARKS/ WELL CONSTRUCTION
						FINE TO MEDIUM SAND (CONTINUED)	
30'						30.0 156.0	
	2/2/3/2	15/24	S-9 (30-32')	--	Loose, red brown, fine SAND and SILT, little medium sand	FINE SAND AND SILT	
35'						35.0 151.0	
	8/9/10/13	15/24	S-10 (35-37')	--	Medium dense, red brown, fine SAND, some silt, some medium sand	SILTY SAND	
40'						40.0 146.0	
	9/8/8/7	10/24	S-11 (40-42')	--	Very stiff, red brown, clayey SILT, little fine sand	CLAYEY SILT	
						42.0 144.0	
					End of Exploration at 42'		
45'							
50'							
55'							
60'							

O'Reilly, Talbot & Okun
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LOG OF BORING HB-2

PROJECT	Hop Brook, Warren Wright Culvert Replacement			CONTRACTOR	Seaboard Environmental Drilling		
JOB NUMBER	2950-12-01	FINAL DEPTH (ft)	42.0	DRILLING EQUIPMENT	B-53 Truck Mounted Rig		
LOCATION	Belchertown, MA	SURFACE ELEV (ft)	188.5	FOREMAN	Mike G.	CASING	
START DATE	11/08/2021	DISTURBED SAMPLES	12	HELPER	Nick C.	CASE DIAMETER	4"
FINISH DATE	11/08/2021	UNDISTURBED SAMPLES	0	BIT TYPE	Roller Bit with Wash	HAMMER WGT	300 lb
ENGINEER/SCIENTIST	Jhonatan Escobar	WATER LEVEL		ROD TYPE	N (2 3/8" O.D.)	HAMMER DROP	30"
BORING LOCATION	Southeast of Existing Culvert	FIRST (ft)	3.5	SAMPLER	2" O.D. Split Spoon	ROCK CORING INFORMATION	
		LAST (ft)	N/A	HAMMER TYPE	Safety	TYPE	N/A
		TIME (hr)	N/A	HAMMER WGT/DROP	140 lb / 30" Wire Line	SIZE	N/A

DEPTH (ft)/ SAMPLES	SAMPLES: PENETR. RESIST. (bl / 6 in)	SAMPLES: REC. (in)	SAMPLES: TYPE/ NO.	FIELD TEST DATA	SAMPLE DESCRIPTION (MODIFIED BURMISTER)	PROFILE DEPTH (ft) ELEV.	REMARKS/ WELL CONSTRUCTION
	5/9/13/10	12/24	S-1 (0-2')	--	Top 5": Medium dense, dark brown, fine to medium SAND, trace gravel, trace silt, trace debris (asphalt), trace organics (roots), damp (FILL)	FILL 1.0 187.5	
					Bottom 7": Medium dense, brown, fine to medium SAND, little gravel, little coarse sand, trace silt, damp	FINE TO MEDIUM SAND	
	4/4/4/4	11/24	S-2 (2-4')	--	Loose, gray brown, fine to medium SAND, little to trace silt, wet at bottom 6"	▽ 185.0	
5'	7/7/13/14	2/24	S-3 (4-6')	--	Medium dense, brown, fine to medium SAND, trace silt, trace gravel, wet		
	10/11/13/15	4/24	S-4 (6-8')	--	Medium dense, brown, fine to medium SAND, little coarse sand, trace gravel, trace silt, wet		
	16/14/10/8	11/24	S-5 (8-10')		Medium dense, gray brown, fine to medium SAND, little coarse sand, trace gravel, trace silt, wet		
10'						10.0 178.5	
	5/13/15/16	11/24	S-6 (10-12')	--	Medium dense, gray, SILT, little fine sand	SILT	
15'						15.0 173.5	
	6/7/9/9	18/24	S-7 (15-17')	PP=1.25 TSF TV=0.55 TSF	Very stiff, gray brown, clayey SILT, trace fine sand	CLAYEY SILT	
20'							
	4/5/5/6	19/24	S-8 (20-22')	--	Stiff, gray brown, clayey SILT, some fine sand		
25'						25.0 163.5	
	4/8/8/10	10/24	S-9 (25-27')	--	Medium dense, red brown, SILT, some fine sand	SANDY SILT	

Remarks:
1. Undrained shear strength estimated in field using E285 Pocket Torvane (TV). Values in tons/ft^2.
2. Unconfined compressive strength estimated in field using Pocket Penetrometer (PP). Values in tons/ft^2.

PROJECT NO. 2950-12-01

LOG OF BORING HB-2

O'Reilly, Talbot & Okun
ENGINEERING ASSOCIATES

Job No. 2950-12-01

LOG OF BORING HB-2

DEPTH (ft)/ SAMPLES	SAMPLES: PENETR. RESIST. (bl / 6 in)	SAMPLES: REC. (in)	SAMPLES: TYPE/ NO.	SAMPLES: FIELD TEST DATA	SAMPLE DESCRIPTION (MODIFIED BURMISTER)	PROFILE DEPTH (ft) ELEV.	REMARKS/ WELL CONSTRUCTION
						SANDY SILT (CONTINUED)	
30'						30.0 158.5	
	9/9/11/10	7/24	S-10 (30-32')	--	Medium dense, red brown, fine SAND, little silt, trace medium sand	FINE SAND	
35'						35.0 153.5	
	5/9/7/7	17/24	S-11 (35-37')	--	Medium dense, red brown, SILT, little fine sand	SILT	
40'						40.0 148.5	
	12/12/13/17	5/24	S-12 (40-42')	--	Medium dense, red brown, fine to medium SAND, little coarse sand, trace silt	FINE TO MEDIUM SAND	
						42.0 146.5	
					End of Exploration at 42'		
45'							
50'							
55'							
60'							

O'Reilly, Talbot & Okun
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LOG OF BORING HB-101

PROJECT	Hop Brook, Warren Wright Culvert Replacement			CONTRACTOR	Seaboard Environmental Drilling		
JOB NUMBER	2950-12-02	FINAL DEPTH (ft)	120.0	DRILLING EQUIPMENT	Track Mounted Rig		
LOCATION	Belchertown, MA	SURFACE ELEV (ft)	186.0	FOREMAN	Doug	CASING	
START DATE	11/29/2022	DISTURBED SAMPLES	19	HELPER	Jarrett	CASE DIAMETER	4"
FINISH DATE	11/30/2022, 12/2/2022	UNDISTURBED SAMPLES	0	BIT TYPE	Roller Bit with Wash	HAMMER WGT	300 lb
ENGINEER/SCIENTIST	Caren Irgang	WATER LEVEL		ROD TYPE	N (2 3/8" O.D.)	HAMMER DROP	30"
BORING LOCATION	North side of existing culvert	FIRST (ft)	1.8	SAMPLER	2" O.D. Split Spoon	ROCK CORING INFORMATION	
		LAST (ft)	N/A	HAMMER TYPE	Automatic	TYPE	N/A
		TIME (hr)	N/A	HAMMER WGT/DROP	140 lb / 30"	SIZE	N/A

DEPTH (ft)/ SAMPLES	SAMPLES: PENETR. RESIST. (bl / 6 in)	REC. (in)	TYPE/ NO.	FIELD TEST DATA	SAMPLE DESCRIPTION (MODIFIED BURMISTER)	PROFILE DEPTH (ft) ELEV.	REMARKS/ WELL CONSTRUCTION
	4/2/4/1	13/24	S-1 (0-2')	--	Top 11": Loose, brown, medium SAND, little fine sand, little coarse sand, little fine gravel, trace organics (roots in top 2"), damp (1" black layer near top)	FILL 1.5 184.5	
					Bottom 2": Medium stiff, dark brown, clayey SILT, little fine sand, trace organics (straw),	▽ 184.3	
	WOH for 6"/ 1/1/1	4/24	S-2 (2-4')	--	Very loose, brown to dark brown, fine SAND, some silt, trace organics (straw), wet	SILT AND SAND with organic matter	1
5'	1/1/2/1	15/24	S-3 (4-6')	--	Top 13": Soft, red to dark brown, clayey SILT, little to some fine sand (in bottom 6"), wet Bottom 2": Very loose, gray brown, fine SAND, some silt, little medium sand, wet (1.5" piece of gravel at tip)		
	WOH for 24"	14/24	S-4 (6-8')	--	Very loose, dark brown, fine to medium SAND, little to some silt, little fine gravel, little to trace coarse sand, trace organics (straw in top 1"), wet (2" layer of clayey silt near top, 1.5" piece of gravel at tip)		
	3/3/3/4	24/24	S-5 (8-10')	--	Top: 2": Loose, brown, medium SAND, little fine gravel, little coarse sand, wet Next 3": Loose, dark brown, SILT, little to some fine sand, trace organics (wood chips), wet (organic odor)		
10'					Next 7": Loose, gray, medium SAND, little fine sand, trace silt, wet	10.0 176.0	
					Next 9": Loose, dark brown, SILT, trace fine sand, wet (seam of clay near bottom)	SAND AND SILT	
					Bottom: 3": Loose, gray, fine to medium SAND, trace organics (wood chips), wet		
	1/3/1/2	15/24	S-6 (10-12')	--	Top 7": Loose, gray, fine SAND, trace silt, trace gravel (1/2" seam silt near center) Bottom 8": Loose, gray, varved fine SAND and SILT (1/8" clay seam near center)		
15'							
	2/2/1/2	10/24	S-7 (15-17')	--	Top 5": Very loose, gray, fine SAND and SILT, trace fine gravel		
					Bottom 5": Soft, red gray to gray, clayey SILT, little fine sand, trace fine gravel	16.0 170.0	
						CLAYEY SILT	
20'							
	WOH for 6"/ 1/4/4	20/24	S-8 (20-22')	PP = 0.75 TSF TV = 0.15 TSF	Medium stiff, red gray, clayey SILT, trace to little fine sand		2 3
25'						25.0 161.0	
	2/2/2/4	14/24	S-9 (25-27')	--	Loose, brown gray, fine SAND, trace to little silt, trace coarse sand (fine sand and silt in top 1")	FINE SAND	

Remarks:
1. WOH = Weight of rods and 140 lb. hammer.
2. Undrained shear strength estimated in field using E285 Pocket Torvane (TV). Values in tons/ft^2.
3. Unconfined compressive strength estimated using Pocket Penetrometer (PP). Values in tons/ft^2.
4. Difficult to advance casing from 58.5' to 75'.
5. End of drilling on 11/29/2022 after advancing casing to 65'.
6. Hammer bouncing at 67' and 73'.
7. Wash water changed to lighter color at 73'.
8. No samples collected after collecting sample S-19 at 80'. Soil below 80' described based upon wash water contents.
9. More difficult drilling conditions at 82.5'.
10. End of drilling on 11/30/2022 after advancing casing to 90'.
11. 100 blows to advance casing 5" at 90', begin open hole drilling

PROJECT NO. 2950-12-02

LOG OF BORING HB-101

O'Reilly, Talbot & Okun
ENGINEERING ASSOCIATES

Job No. 2950-12-02

LOG OF BORING HB-101

DEPTH (ft)/ SAMPLES	SAMPLES: PENETR. RESIST. (bl / 6 in)	SAMPLES: REC. (in)	SAMPLES: TYPE/ NO.	SAMPLES: FIELD TEST DATA	SAMPLE DESCRIPTION (MODIFIED BURMISTER)	PROFILE DEPTH (ft) ELEV.	REMARKS/ WELL CONSTRUCTION
						FINE SAND (Continued)	
30'						30.0 156.0	
	1/4/4/6	20/24	S-10 (30-32')	--	Loose, red gray, fine SAND, little to some silt	FINE SAND AND SILT	
35'							
	5/6/6/7	18/24	S-11 (35-37')	--	Top 12": Medium dense, brown gray, SILT, little fine sand, trace coarse gravel (few clayey layers) Bottom 6": Medium dense, brown gray, fine SAND and SILT	36.5 149.5	
						SILTY SAND	
40'							
	3/2/4/4	13/24	S-12 (40-42')	--	Loose, brown gray, varved SILT and fine SAND		
45'							
	4/3/5/7	14/24	S-13 (45-47')	--	Loose, light brown, fine SAND and SILT, trace coarse gravel		
50'							
	5/6/6/9	17/24	S-14 (50-52')	--	Medium dense, gray red, fine SAND, little to some clayey silt (1/8" seams of clayey silt spaced approximately 1" apart)		
55'							
	6/4/12/31	13/24	S-15 (55-57')	--	Top 2": Medium dense, brown red, fine SAND, little to some silt Next 3": Medium dense, orange, medium SAND, trace fine sand, trace silt (rust staining) Next 4": Medium dense, brown red, fine to coarse SAND and fine GRAVEL, some silt Bottom 4": Medium dense, gray, fine to medium SAND and GRAVEL, some silt, some coarse sand	56.5 129.5	
						SAND AND GRAVEL	
					(from wash water at 59': brown, fine to coarse sand and fine gravel)		4
60'							
	50 for 2"	0/2	S-16 (60-60.2')	--	NO RECOVERY (likely gravel)		

O'Reilly, Talbot & Okun
ENGINEERING ASSOCIATES

Job No. 2950-12-02

LOG OF BORING HB-101

DEPTH (ft)/ SAMPLES	SAMPLES: PENETR. RESIST. (bl / 6 in)	SAMPLES: REC. (in)	SAMPLES: TYPE/ NO.	SAMPLES: FIELD TEST DATA	SAMPLE DESCRIPTION (MODIFIED BURMISTER)	PROFILE DEPTH (ft) ELEV.	REMARKS/ WELL CONSTRUCTION
					(from wash water 60-65': fine to medium sand and fine gravel, some coarse sand)	SAND AND GRAVEL (Continued)	
65'	3/5/14/ 50 for 2"	9/20	S-17 (65-66.6')	--	Medium dense, gray and brown, coarse SAND, some fine gravel, little fine to medium sand, little silt (piece of gravel in tip)		5
						67.0 119.0 FINE GRAVEL AND SAND	6
70'	19/50 for 4"	9/10	S-18 (70-70.8')	--	Very dense, brown, fine GRAVEL, some fine sand, little medium to coarse sand, little silt		
							6, 7
75'							
80'	50 for 4"	3/4	S-19 (80-80.3')	--	Very dense, brown, fine GRAVEL, some coarse sand, little fine to medium sand, little silt		8
							9
85'							
	--	--	--	--	(from wash water at 85-90': fine gravel, some coarse sand, little fine to medium sand)		
90'							10,11
95'	--	--	--	--	(from wash water at 95-97': red brown, fine to medium sand)	95.0 91.0 LIKELY SOFT, FRACTURED ROCK	

O'Reilly, Talbot & Okun
ENGINEERING ASSOCIATES

Job No. 2950-12-02

LOG OF BORING HB-101

DEPTH (ft)/ SAMPLES	SAMPLES: PENETR. RESIST. (bl / 6 in)	SAMPLES: REC. (in)	SAMPLES: TYPE/ NO.	SAMPLES: FIELD TEST DATA	SAMPLE DESCRIPTION (MODIFIED BURMISTER)	PROFILE DEPTH (ft) ELEV.	REMARKS/ WELL CONSTRUCTION
						LIKELY SOFT, FRACTURED ROCK (Continued)	
100'	--	--	--	--	(from wash water at 99': red brown, fine to medium sand)		
105'	--	--	--	--	(from wash water at 105-106': red brown, fine sand, little silt, little medium sand)		
110'	--	--	--	--	(from wash water at 110': red brown, fine sand, little silt, little medium sand)		
115'							
120'	--	--	--	--	(from wash water at 119-120': red brown, fine sand)	120.0 66.0	
					End of Exploration at 120'		
125'							
130'							

O'Reilly, Talbot & Okun
ENGINEERING ASSOCIATES

LOG OF BORING HB-102

PROJECT	Hop Brook, Warren Wright Culvert Replacement			CONTRACTOR	Seaboard Environmental Drilling		
JOB NUMBER	2950-12-02	FINAL DEPTH (ft)	65.5	DRILLING EQUIPMENT	Track Mounted Rig		
LOCATION	Belchertown, MA	SURFACE ELEV (ft)	188.0	FOREMAN	Mike	CASING	
START DATE	12/07/2022	DISTURBED SAMPLES	6	HELPER	Ben	CASE DIAMETER	4"
FINISH DATE	12/07/2022	UNDISTURBED SAMPLES	0	BIT TYPE	Roller Bit with Wash	HAMMER WGT	300 lb
ENGINEER/SCIENTIST	Caren Irgang	WATER LEVEL		ROD TYPE	N (2 3/8" O.D.)	HAMMER DROP	30"
BORING LOCATION	South side of existing culvert	FIRST (ft)	3.5	SAMPLER	2" O.D. Split Spoon	ROCK CORING INFORMATION	
		LAST (ft)	N/A	HAMMER TYPE	Automatic	TYPE	N/A
		TIME (hr)	N/A	HAMMER WGT/DROP	140 lb / 30"	SIZE	N/A

DEPTH (ft)/ SAMPLES	SAMPLES: PENETR. RESIST. (bl / 6 in)	SAMPLES: REC. (in)	SAMPLES: TYPE/ NO.	SAMPLES: FIELD TEST DATA	SAMPLE DESCRIPTION (MODIFIED BURMISTER)	PROFILE DEPTH (ft) ELEV.	REMARKS/ WELL CONSTRUCTION
						FILL 1.0 187.0	1
						FINE TO MEDIUM SAND	
						▽ 184.5	
5'							
	--	--	--	--	(from wash water at 8-15': gray, silt and fine sand, little medium sand)		
10'						10.0 178.0 SILT	
15'						15.0 173.0 CLAYEY SILT	
20'							
25'						25.0 163.0 SANDY SILT	

Remarks:
1. No samples collected during drilling until starting at a depth of 30'. Soil profile above 30' adopted from boring log HB-2.
2. Rod jumping at 54'.
3. Hammer bouncing during sampling of S-4, S-5, and S-6.
4. Bit grinding at 57', after sampling S-4.

PROJECT NO.
2950-12-02

LOG OF BORING
HB-102

O'Reilly, Talbot & Okun
ENGINEERING ASSOCIATES

Job No. 2950-12-02

LOG OF BORING HB-102

DEPTH (ft)/ SAMPLES	SAMPLES: PENETR. RESIST. (bl / 6 in)	SAMPLES: REC. (in)	SAMPLES: TYPE/ NO.	SAMPLES: FIELD TEST DATA	SAMPLE DESCRIPTION (MODIFIED BURMISTER)	PROFILE DEPTH (ft) ELEV.	REMARKS/ WELL CONSTRUCTION
						SANDY SILT (Continued)	
30'						30.0 156.0	
	2/3/4/4	18/24	S-1 (30-32')	--	Loose, brown, fine SAND, little to trace silt	FINE SAND	
35'						36.0 150.0	
	--	--	--	--	(from wash water at 36': dark red brown clayey silt, little medium to coarse sand)	SILT	
40'						40.0 146.0	
	3/4/4/6	18/24	S-2 (40-42')	--	Loose, red brown, fine SAND, little medium sand, little to trace silt (1/4" layers of silt near top and bottom)	FINE SAND	
45'							
50'						50.0 136.0	
	3/4/5/8	23/24	S-3 (50-52')	--	Top 16": Loose, red brown, medium SAND, some fine sand, little coarse sand, trace silt Bottom 7": Loose, red brown, fine to medium SAND, little coarse sand, trace silt	MEDIUM SAND	
						54.0 134.0	2
55'						SAND AND GRAVEL	
	50 for 4"	4/4	S-4 (55-55.3')	--	Very dense, gray, fine to medium SAND, little silt, little coarse sand, trace gravel		3
							4
60'							
	47/50 for 3"	5/9	S-5 (60-60.8')	--	Very dense, gray, fine GRAVEL, little coarse gravel, little fine to medium sand, trace silt		3

O'Reilly, Talbot & Okun
ENGINEERING ASSOCIATES

Job No. 2950-12-02

LOG OF BORING HB-102

DEPTH (ft)/ SAMPLES	SAMPLES: PENETR. RESIST. (bl / 6 in)	SAMPLES: REC. (in)	SAMPLES: TYPE/ NO.	SAMPLES: FIELD TEST DATA	SAMPLE DESCRIPTION (MODIFIED BURMISTER)	PROFILE DEPTH (ft) ELEV.	REMARKS/ WELL CONSTRUCTION
65'						SAND AND GRAVEL (Continued)	
	100 for 5"	3/5	S-6 (65-65.4')	--	Very dense, gray, fine GRAVEL, some fine to medium sand, little silt, little coarse gravel	65.5 122.5	3
					End of Exploration at 65.5'		
70'							
75'							
80'							
85'							
90'							
95'							

APPENDIX C

Calculations

O'Reilly, Talbot & Okun
ENGINEERING ASSOCIATES

SOIL PROPERTIES AND BEARING RESISTANCE

PROJECT INFORMATION

Project:	Hop Brook Culvert	OTO Job No.:	2950-12-04
		Date:	5/19/2024
Address:	Warren Wright Road	Calc. By:	KS
City:	Belchertown State: MA	Checked By:	ALS, Rev. 6-7-24

Ultimate Bearing Capacity Equation (AASHTO LRFD Bridge Design Specifications, Eq. 10.6.6.1.2a-1)

$$q_n = cN_{cm} + 0.5\gamma BN_{\gamma m}C_{w\gamma} + \gamma D_f N_{qm}C_{wq}$$

σ'_{vo}	In-Situ Vertical Effective Stress (psf)
γ	Soil Unit Weight, Total #DIV/0!
$N1_{60} = C_N$ (ER/60) N	SPT N-Value, Corrected for Hammer Efficiency and Overburden
C_N	Correction Factor for Soil Overburden Stress
ER	Hammer Efficiency, as a Percent of Theoretical Free-Fall Energy (%)
N	Uncorrected SPT N-Value
$\phi' = (15.4\ N1_{60})^{0.5} + 20$	Friction Angle (degrees)
q_n	Ultimate Bearing Capacity (psf)
c	Cohesion (psf)
$N_{cm} = N_c\ S_c\ i_c$	Modified Cohesion Bearing Factor
$N_c = (N_q\text{-}1)\ \cot\phi'$	Cohesion Bearing Factor
$S_c = 1 + (B/L)\ (N_q/N_c)$	Cohesion Shape Factor
i_c (from AASTO Article 10.6.3.1.2a)	Cohesion Load Inclination Factor
B	Footing Width (ft)
$N_{\gamma m} = N_\gamma\ S_\gamma\ i_\gamma$	Modified Self Weight Bearing Factor
$N_\gamma = 2\ (N_q\text{+}1)\ \tan\phi'$	Self Weight Bearing Factor
$S_\gamma = 1 - 0.4\ (B/L)$	Self Weight Shape Factor
i_γ (from AASTO Article 10.6.3.1.2a)	Self Weight Load Inclination Factor
$C_{w\gamma}$, C_{wq}	Modifiers for Various Groundwater Cases (0.5 for D_w = 0.0 ft)
$N_{qm} = N_q\ S_q\ i_q\ d_g$	Modified Overburden Bearing Factor
$N_q = \exp(\pi\ \tan\phi')\ \tan^2(45 + \phi'/2)$	Overburden Bearing Factor
$S_q = 1 + (B/L)\ \tan\phi'$	Overburden Shape Factor
i_q (from AASTO Article 10.6.3.1.2a)	Overburden Load Inclination Factor
d_q (from AASHTO Table 10.6.3.1.2a-4)	Depth Factor
D_f	Depth of Foundation Embedment (ft)
D_g	Depth to Groundwater, Relative to Bottom of Footing (ft)
D_w	Depth to Groundwater, Relative to Ground Surface (ft)
ϕ_b (from AASHTO Table 10.5.5.2.2-1)	Bearing Resistance Factor
$q_R = q_n\ \phi_b$	Factored Bearing Resistance (psf)

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BEARING RESISTANCE CALCULATIONS - CULVERT FOOTINGS

Term	Value	Unit	Notes
ϕ'	30	deg	Estimated using boring HB-101
D_W	2.0	ft	Depth to groundwater (from existing ground surface) - "N/E" indicates not encountered
c	0	pcf	Assume no cohesion
γ	115	pcf	Assume typical soil unit weight
i_c	1		Ignore load inclination
i_γ	1		Ignore load inclination
i_q	1		Ignore load inclination
N_q	18.4		
N_γ	22.4		
N_c	30.1		
d_q	1		Assume, conservatively
φ_b	0.45		

Case 1		
B	5.0	ft
L	30.0	ft
D_f	2.5	ft
D_g	0.0	ft
C_{wq}	0.5	
$C_{w\gamma}$	0.5	
S_q	1.10	
S_γ	0.93	
S_c	1.10	
N_{qm}	20.2	
$N_{\gamma m}$	20.9	
N_{cm}	33.2	
q_n	5.9	ksf
q_R	2.7	ksf

Case 2		
B	6.0	ft
L	30.0	ft
D_f	2.5	ft
D_g	0.0	ft
C_{wq}	0.5	
$C_{w\gamma}$	0.5	
S_q	1.12	
S_γ	0.92	
S_c	1.12	
N_{qm}	20.5	
$N_{\gamma m}$	20.6	
N_{cm}	33.8	
q_n	6.5	ksf
q_R	2.9	ksf

Case 3		
B	8.0	ft
L	30.0	ft
D_f	2.5	ft
D_g	0.0	ft
C_{wq}	0.5	
$C_{w\gamma}$	0.5	
S_q	1.15	
S_γ	0.89	
S_c	1.16	
N_{qm}	21.2	
$N_{\gamma m}$	20.0	
N_{cm}	35.0	
q_n	7.7	ksf
q_R	3.4	ksf

Case 4		
B	5.0	ft
L	30.0	ft
D_f	2.0	ft
D_g	0.0	ft
C_{wq}	0.5	
$C_{w\gamma}$	0.5	
S_q	1.10	
S_γ	0.93	
S_c	1.10	
N_{qm}	20.2	
$N_{\gamma m}$	20.9	
N_{cm}	33.2	
q_n	5.3	ksf
q_R	2.4	ksf

Case 5		
B	6.0	ft
L	30.0	ft
D_f	2.0	ft
D_g	0.0	ft
C_{wq}	0.5	
$C_{w\gamma}$	0.5	
S_q	1.12	
S_γ	0.92	
S_c	1.12	
N_{qm}	20.5	
$N_{\gamma m}$	20.6	
N_{cm}	33.8	
q_n	5.9	ksf
q_R	2.7	ksf

Case 6		
B	8.0	ft
L	30.0	ft
D_f	2.0	ft
D_g	0.0	ft
C_{wq}	0.5	
$C_{w\gamma}$	0.5	
S_q	1.15	
S_γ	0.89	
S_c	1.16	
N_{qm}	21.2	
$N_{\gamma m}$	20.0	
N_{cm}	35.0	
q_n	7.0	ksf
q_R	3.2	ksf

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BEARING RESISTANCE CALCULATIONS - CULVERT FOOTINGS

Term	Value	Unit	Notes
ϕ'	30	deg	Estimated using boring HB-101
D_W	2.0	ft	Depth to groundwater (from existing ground surface) - "N/E" indicates not encountered
c	0	pcf	Assume no cohesion
γ	115	pcf	Assume typical soil unit weight
i_c	1		Ignore load inclination
i_γ	1		Ignore load inclination
i_q	1		Ignore load inclination
N_q	18.4		
N_γ	22.4		
N_c	30.1		
d_q	1		Assume, conservatively
φ_b	0.45		

Case 7		
B	10.0	ft
L	30.0	ft
D_f	2.5	ft
D_g	0.0	ft
C_{wq}	0.5	
$C_{w\gamma}$	0.5	
S_q	1.19	
S_γ	0.87	
S_c	1.20	
N_{qm}	21.9	
$N_{\gamma m}$	19.4	
N_{cm}	36.3	
q_n	8.7	ksf
q_R	3.9	ksf

Case 8		
B	11.0	ft
L	30.0	ft
D_f	2.5	ft
D_g	0.0	ft
C_{wq}	0.5	
$C_{w\gamma}$	0.5	
S_q	1.21	
S_γ	0.85	
S_c	1.22	
N_{qm}	22.3	
$N_{\gamma m}$	19.1	
N_{cm}	36.9	
q_n	9.3	ksf
q_R	4.2	ksf

Case 9		
B	12.0	ft
L	30.0	ft
D_f	2.5	ft
D_g	0.0	ft
C_{wq}	0.5	
$C_{w\gamma}$	0.5	
S_q	1.23	
S_γ	0.84	
S_c	1.24	
N_{qm}	22.7	
$N_{\gamma m}$	18.8	
N_{cm}	37.5	
q_n	9.7	ksf
q_R	4.4	ksf

Case 10		
B	10.0	ft
L	30.0	ft
D_f	2.0	ft
D_g	0.0	ft
C_{wq}	0.5	
$C_{w\gamma}$	0.5	
S_q	1.19	
S_γ	0.87	
S_c	1.20	
N_{qm}	21.9	
$N_{\gamma m}$	19.4	
N_{cm}	36.3	
q_n	8.1	ksf
q_R	3.6	ksf

Case 11		
B	11.0	ft
L	30.0	ft
D_f	2.0	ft
D_g	0.0	ft
C_{wq}	0.5	
$C_{w\gamma}$	0.5	
S_q	1.21	
S_γ	0.85	
S_c	1.22	
N_{qm}	22.3	
$N_{\gamma m}$	19.1	
N_{cm}	36.9	
q_n	8.6	ksf
q_R	3.9	ksf

Case 12		
B	12.0	ft
L	30.0	ft
D_f	2.0	ft
D_g	0.0	ft
C_{wq}	0.5	
$C_{w\gamma}$	0.5	
S_q	1.23	
S_γ	0.84	
S_c	1.24	
N_{qm}	22.7	
$N_{\gamma m}$	18.8	
N_{cm}	37.5	
q_n	9.1	ksf
q_R	4.1	ksf

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BEARING RESISTANCE CALCULATIONS - RETAINING WALLS IN UPPER SOILS

Term	Value	Unit	Notes
ϕ'	29	deg	Estimated using boring HB-101
D_W	2.0	ft	Depth to groundwater (from existing ground surface) - "N/E" indicates not encountered
c	0	pcf	Assume no cohesion
γ	115	pcf	Assume typical soil unit weight
i_c	1		Ignore load inclination
i_γ	1		Ignore load inclination
i_q	1		Ignore load inclination
N_q	16.4		
N_γ	19.3		
N_c	27.9		
d_q	1		Assume, conservatively
φ_b	0.45		

Case 1		
B	2.0	ft
L	30.0	ft
D_f	2.0	ft
D_g	0.0	ft
C_{wq}	0.5	
$C_{w\gamma}$	0.5	
S_q	1.04	
S_γ	0.97	
S_c	1.04	
N_{qm}	17.1	
$N_{\gamma m}$	18.8	
N_{cm}	29.0	
q_n	3.0	ksf
q_R	1.4	ksf

Case 2		
B	3.0	ft
L	30.0	ft
D_f	2.0	ft
D_g	0.0	ft
C_{wq}	0.5	
$C_{w\gamma}$	0.5	
S_q	1.06	
S_γ	0.96	
S_c	1.06	
N_{qm}	17.4	
$N_{\gamma m}$	18.6	
N_{cm}	29.5	
q_n	3.6	ksf
q_R	1.6	ksf

Case 3		
B	4.0	ft
L	30.0	ft
D_f	2.0	ft
D_g	0.0	ft
C_{wq}	0.5	
$C_{w\gamma}$	0.5	
S_q	1.07	
S_γ	0.95	
S_c	1.08	
N_{qm}	17.7	
$N_{\gamma m}$	18.3	
N_{cm}	30.1	
q_n	4.1	ksf
q_R	1.9	ksf

Case 4		
B		ft
L		ft
D_f		ft
D_g	0.0	ft
C_{wq}	0.5	
$C_{w\gamma}$	0.5	
S_q	#DIV/0!	
S_γ	#DIV/0!	
S_c	#DIV/0!	
N_{qm}	#DIV/0!	
$N_{\gamma m}$	#DIV/0!	
N_{cm}	#DIV/0!	
q_n	#DIV/0!	psf
q_R	#DIV/0!	psf

Case 5		
B		ft
L		ft
D_f		ft
D_g	0.0	ft
C_{wq}	0.5	
$C_{w\gamma}$	0.5	
S_q	#DIV/0!	
S_γ	#DIV/0!	
S_c	#DIV/0!	
N_{qm}	#DIV/0!	
$N_{\gamma m}$	#DIV/0!	
N_{cm}	#DIV/0!	
q_n	#DIV/0!	psf
q_R	#DIV/0!	psf

Case 6		
B		ft
L		ft
D_f		ft
D_w	0.0	ft
C_{wq}	0.5	
$C_{w\gamma}$	0.5	
S_q	#DIV/0!	
S_γ	#DIV/0!	
S_c	#DIV/0!	
N_{qm}	#DIV/0!	
$N_{\gamma m}$	#DIV/0!	
N_{cm}	#DIV/0!	
q_n	#DIV/0!	psf
q_R	#DIV/0!	psf

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BORING HB-101 INFORMATION

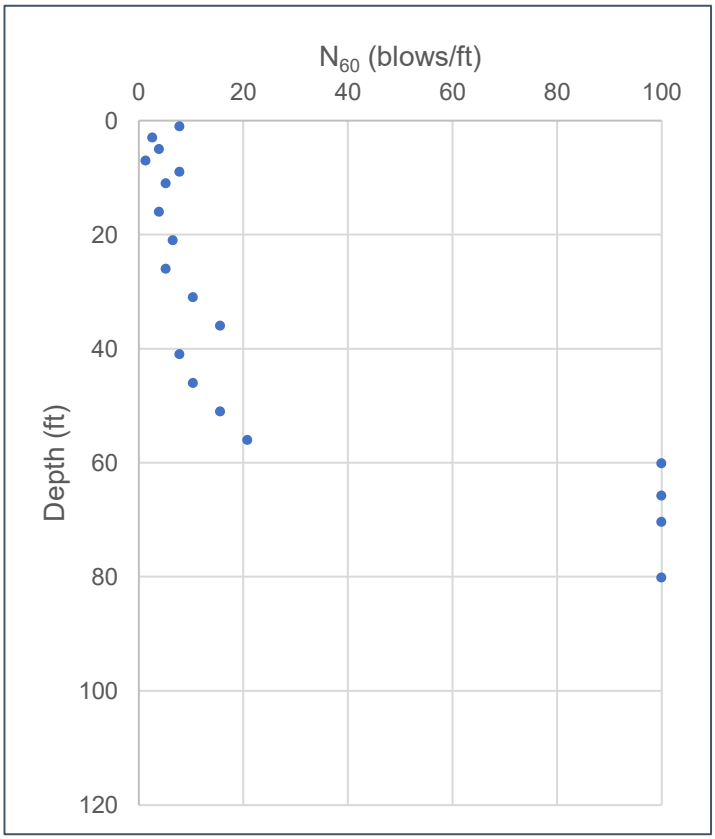
Boring ID:	HB-101	Date:	05/19/2023		
Location:	North of proposed culvert				
Drill Rig Type:	Truck	Depth to GW:	2.0 ft		
Hammer Type:	Automatic	Soil Unit Weight:	115 pcf		
Hammer Correction:	1.30	Water Unit Weight:	62.4 pcf		
		Clayey Soils?	No		
			Predominately silt soil		

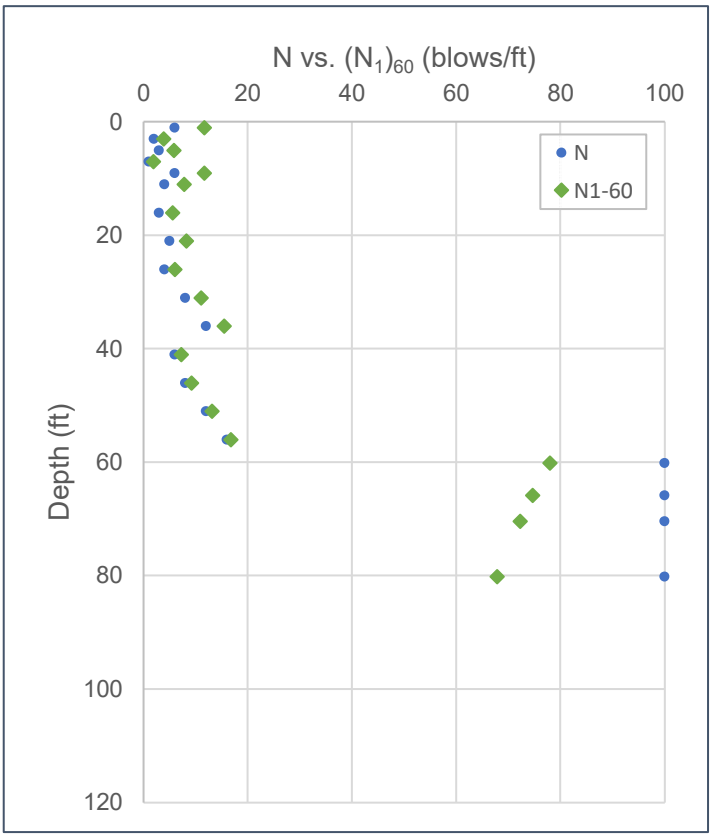
Maximum overburden correction: 1.50

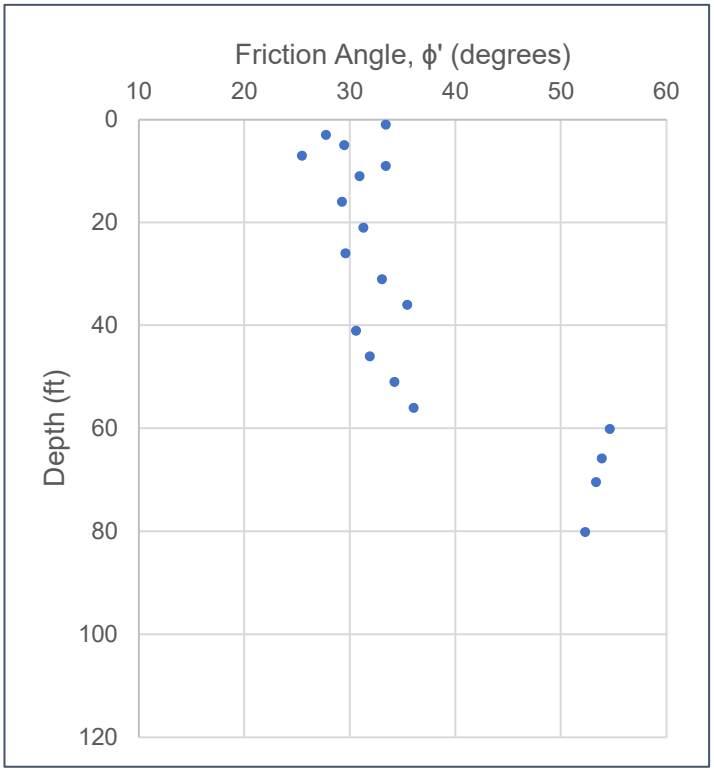
Ground Surface Elev.	186
Proposed BOF Elev.	171.3
Thickness Crushed Stone	1
Depth to Bottom Stone	15.7

Sample Depth (ft)			d (ft)	N (bpf)	N_{60} (bpf)	σ'_{vo} (psf)	$N1_{60}$	ϕ'	Notes
0	-	2	2	6	7.8	115	11.7	33.4	Soils Above Footing Depth - Disregard
2	-	4	2	2	2.6	283	3.9	27.7	
4	-	6	2	3	3.9	388	5.9	29.5	
6	-	8	2	1	1.3	493	2.0	25.5	
8	-	10	2	6	7.8	598	11.7	33.4	
10	-	12	5	4	5.2	703	7.8	31.0	
15	-	17	5	3	3.9	966	5.6	29.3	
20	-	22	5	5	6.5	1,229	8.3	31.3	
25	-	27	5	4	5.2	1,492	6.0	29.6	
30	-	32	5	8	10.4	1,755	11.1	33.1	
35	-	37	5	12	15.6	2,018	15.5	35.5	
40	-	42	5	6	7.8	2,281	7.3	30.6	
45	-	47	5	8	10.4	2,544	9.2	31.9	
50	-	52	5	12	15.6	2,807	13.2	34.2	
55	-	57	5	16	20.8	3,070	16.8	36.1	
60	-	60.2	5	100	100.0	3,286	78.0	54.7	
65	-	66.6	5	100	100.0	3,586	74.7	53.9	
70	-	70.8	10	100	100.0	3,828	72.3	53.4	
80	-	80.3	0.3	100	100.0	4,341	67.9	52.3	
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BORING HB-101 PLOTS







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BORING HB-2 INFORMATION

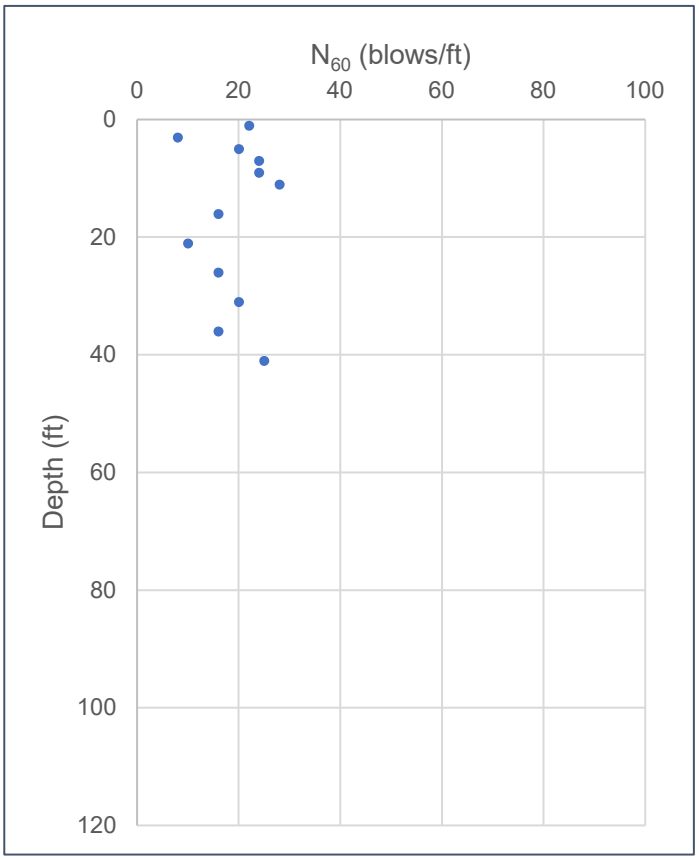
Boring ID:	HB-2	Date:	5/19/2023		
Location:	South of proposed culvert				
Drill Rig Type:	Truck	Depth to GW:	3.5 ft		
Hammer Type:	Safety	Soil Unit Weight:	115 pcf		
Hammer Correction:	1.00	Water Unit Weight:	62.4 pcf		
		Clayey Soils?	No		
			Predominately silt soil		

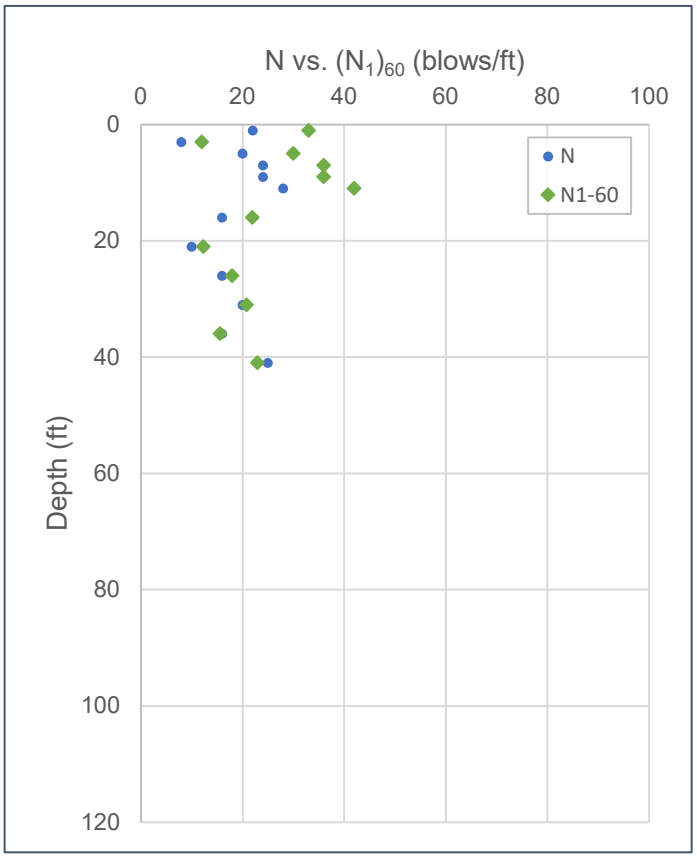
Maximum overburden correction: 1.50

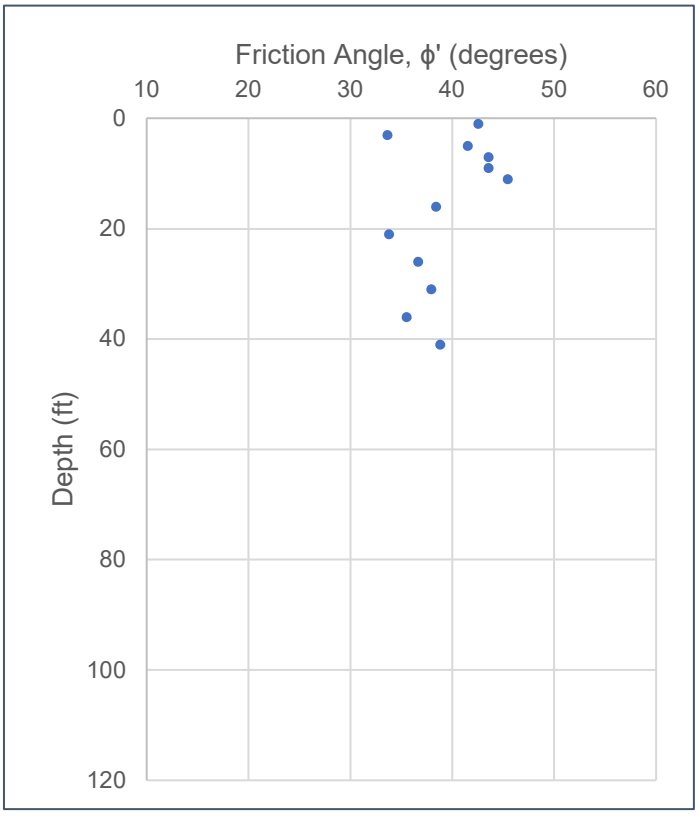
Ground Surface Elev.	188.5
Proposed BOF Elev.	171.3
Thickness Crushed Stone	1
Depth to Bottom Stone	18.2

Sample Depth (ft)			d (ft)	N (bpf)	N_{60} (bpf)	σ'_{vo} (psf)	$N1_{60}$	ϕ'	Notes
0	-	2	2	22	22.0	115	33.0	42.5	
2	-	4	2	8	8.0	345	12.0	33.6	
4	-	6	2	20	20.0	481	30.0	41.5	Fill Above Footing Depth - Disregard
6	-	8	2	24	24.0	587	36.0	43.5	
8	-	10	2	24	24.0	692	36.0	43.5	
10	-	12	5	28	28.0	797	42.0	45.4	
15	-	17	5	16	16.0	1,060	22.0	38.4	38.4
20	-	22	5	10	10.0	1,323	12.3	33.8	33.8
25	-	27	5	16	16.0	1,586	18.0	36.6	36.6
30	-	32	5	20	20.0	1,849	20.8	37.9	37.9
35	-	37	5	16	16.0	2,112	15.6	35.5	35.5
40	-	42	2	25	25.0	2,375	22.9	38.8	38.8
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BORING HB-2 PLOTS







BORING HB-2&HB-102 HARMONIC AVERAGE N-VALUE

Boring ID:	HB-2&HB-102
Location:	North of proposed culvert
Surface Elevation (feet):	188.5
Date:	04/05/2024
By:	KPS

Drill Rig Type:	Truck
Hammer Type:	Safety
Hammer Correction:	1.00
Total Depth (feet):	100

Bottom of Footing Elevation (feet):	171.7
Bottom of Footing Depth Below Ground Surface (feet):	16.8

Sample Depth (feet)			i	Uncorrected N-Value	N spt (i)	d (i)	d(i)/N(i)	
0	-	2	1	22	22	0	0	
2	-	4	2	8	8	0	0	
4	-	6	3	20	20	0	0	
6	-	8	4	24	24	0	0	
8	-	10	5	24	24	0	0	
10	-	12	6	28	28	0	0	bottom of footing
15	-	17	7	16	16	5	0.3125	
20	-	22	8	10	10	5	0.5	
25	-	27	9	16	16	5	0.3125	
30	-	32	10	20	20	5	0.25	
35	-	37	11	7	7	5	0.71429	
40	-	42	12	8	8	10	1.25	
50	-	52	13	9	9	5	0.55556	
55	-	57	14	100	100	5	0.05	
60	-	62	15	100	100	5	0.05	
65	-	67	16	100	100	50	0.5	
	-		17		0	0		
	-		18		0	0		
	-		19		0	0		
	-		20		0	0		
	-		21		0	0		
	-		22		0	0		
	-		23		0	0		
	-		24		0	0		
	-		25		0	0		
						100	4.49	

Notes:

Assumed blow counts were applicable to 2 or 5 foot layers.We do not anticipate average blow counts to significantly drop beyond end of exploration. Bottom of Footing Elevation at 175',Ground Surface Elevation at 186'; therefore, the upper 12 feet from HB-101 was neglected (above footing depth).

Calculations:

$\sum[d(i)/N(i)]$ from i=1 to n = 4.494841

Avg N = $\sum d(i)/\sum[d(i)/N(i)]$ = **22.24773**

Site Class D

BORING HB-101 HARMONIC AVERAGE N-VALUE

Boring ID:	HB-101
Location:	North of proposed culvert
Surface Elevation (feet):	186
Date:	04/05/2024
By:	KPS

Drill Rig Type:	Truck
Hammer Type:	Automatic
Hammer Correction:	1.30
Total Depth (feet):	100

Bottom of Footing Elevation (feet):	171.7
Bottom of Footing Depth Below Ground Surface (feet):	14.3

Sample Depth (feet)			i	Uncorrected N-Value	N spt (i)	d (i)	d(i)/N(i)	
0	-	2	1	6	8	0	0	
2	-	4	2	2	3	0	0	
4	-	6	3	3	4	0	0	
6	-	8	4	1	1	0	0	
8	-	10	5	6	8	0	0	
10	-	12	6	4	5	0	0	bottom of footing
15	-	17	7	3	4	5	1.28205	
20	-	22	8	5	7	5	0.76923	
25	-	27	9	4	5	5	0.96154	
30	-	32	10	8	10	5	0.48077	
35	-	37	11	12	16	5	0.32051	
40	-	42	12	6	8	5	0.64103	
45	-	47	13	8	10	5	0.48077	
50	-	52	14	12	16	5	0.32051	
55	-	57	15	16	21	5	0.24038	
60	-	62	16	20	26	5	0.19231	
65	-	67	17	19	25	5	0.20243	
70	-	72	18	100	100	10	0.1	
80	-	82	19	100	100	35	0.35	
	-		20		0	0		
	-		21		0	0		
	-		22		0	0		
	-		23		0	0		
	-		24		0	0		
	-		25		0	0		
						100	6.34	

Notes:

Assumed blow counts were applicable to 2 or 5 foot layers.We do not anticipate average blow counts to significantly drop beyond end of exploration. Bottom of Footing Elevation at 175',Ground Surface Elevation at 186'; therefore, the upper 12 feet from HB-101 was neglected (above footing depth).

Calculations:

$\sum[d(i)/N(i)]$ from i=1 to n = 6.341532

Avg N = $\sum d(i)/\sum[d(i)/N(i)]$ = **15.76906**

Site Class D

BORING HB-1 HARMONIC AVERAGE N-VALUE

Boring ID:	HB-1
Location:	North of proposed culvert
Surface Elevation (feet):	186
Date:	04/05/2024
By:	KPS

Drill Rig Type:	Truck
Hammer Type:	Safety
Hammer Correction:	1.00
Total Depth (feet):	100

Bottom of Footing Elevation (feet):	172.5
Bottom of Footing Depth Below Ground Surface (feet):	13.5

Sample Depth (feet)			i	Uncorrected N-Value	N spt (i)	d (i)	d(i)/N(i)	
0	-	2	1	8	8	0	0	
2	-	4	2	4	4	0	0	
4	-	6	3	4	4	0	0	
6	-	8	4	5	5	0	0	
10	-	12	5	10	10	0	0	bottom of footing
15	-	17	6	15	15	5	0.33333	
20	-	22	7	9	9	5	0.55556	
25	-	27	8	18	18	5	0.27778	
30	-	32	9	5	5	5	1	
35	-	37	10	19	19	5	0.26316	
40	-	42	11	16	16	20	1.25	
60	-	62	12	100	100	55	0.55	*Based upon nearby borings
	-		13		0	0		
	-		14		0	0		
	-		15		0	0		
	-		16		0	0		
	-		17		0	0		
	-		18		0	0		
	-		19		0	0		
	-		20		0	0		
	-		21		0	0		
	-		22		0	0		
	-		23		0	0		
	-		24		0	0		
	-		25		0	0		
					9	100	4.23	

Notes:

Assumed blow counts were applicable to 2 or 5 foot layers.We do not anticipate average blow counts to significantly drop beyond end of exploration. Bottom of Footing Elevation at 175',Ground Surface Elevation at 186'; therefore, the upper 12 feet from HB-101 was neglected (above footing depth).

Calculations:

$\sum[d(i)/N(i)]$ from i=1 to n = 4.229825

Avg N = $\sum d(i)/\sum[d(i)/N(i)]$ = **23.64164**

Site Class D

Memo: Updated Settlement Analysis 2-27-2026
Hop Brook Culvert Replacement
Bridge No. BIN B-05-028 (CMF)
Belchertown, Massachusetts

Calculations performed by: Ashley L. Sullivan, PE

This analysis was based upon updated project information provided to OTO (including proposed foundation depth, size, updated structural calculations), as well as upon soil information collected from borings at the project Site.

1.0 PROJECT DESCRIPTION

Project plans call for construction of a new, three-sided concrete box culvert, which will replace three existing reinforced concrete pipe culverts at the intersection of Warren Wright Road and Hop Brook. We understand that the culvert footings will each have an effective width of approximately 12 feet and a length of 30 feet. The dimensions of the wingwalls vary; however, we have used an approximate maximum size of 6.2 feet (effective width) by 20.5 feet by for our analysis.

2.0 METHOD OF ANALYSES & UPDATED CALCULATIONS– SETTLEMENT

Our analyses were performed consistent with the Massachusetts LRFD Bridge Manual and with local design practices. Our method of analysis for settlement is based upon consolidation theory, using typical compression index values for primary settlement (based upon SPT boring information and OTO's local knowledge) for each soil layer encountered (below the footing depth). We note that influence factors were determined using Westergaard method, which is appropriate for bedded/layered soil types.

In addition, we reviewed FHWA report no. FHWA-RC/TD-10-001[1] by Samtani et al. (2010, rev. 2017). This report notes that "settlements occur progressively, and a significant portion of the immediate (elastic) settlement may be realized before it becomes an issue with respect to the structural performance of the bridge superstructure". The report suggests that the effects of settlement on the superstructure should only be evaluated with respect to the "immediate settlements resulting from loads imposed by the superstructure construction". In summary, it is often appropriate to neglect immediate settlement which occurs early in the construction sequence (such as during placement of engineered fills and the bridge footings/substructure, when considering effects on performance of the superstructure.

Given the generally granular nature of the Site soils (as determined by the soil borings), it does not appear that long-term consolidation settlement is a significant concern for this project. We expect that most settlement will occur relatively quickly after load application

[1] Samtani, N.C., Nowatzki, E.A., and Mertz, D.R., *Selection of Spread Footings on Soils to Support Highway Bridge Structures*, Federal Highway Administration, 2010 (Revised 2017).

(i.e., during the construction sequence). It is OTO's opinion that the soil settlement experienced due to installation of footings, backfill and the substructure will occur prior to subsequent loading (additional fill, pavement, and live loads), and therefore, will not affect the superstructure (i.e., the majority of settlement due to backfill and foundation loads will occur before construction of the bridge superstructure/roadway).

Structural calculations were provided to OTO for loading conditions after significant construction stages. The incremental and cumulative load for each stage, including the final in-service loading, are shown in the table below. OTO's calculations to estimate settlement for the bridge structure were conservatively performed using the 2,675 pounds per square foot (psf) final in-service loading, less the 551 psf Stage 1 (riser placement) load, or 2,123 psf. We note that settlement from loads placed early in the construction sequence (e.g., riser, frame, and early fills) are expected to occur quickly, prior to placement of the road surface. OTO's estimate indicates less than 1 inch of settlement. Structural calculations (by Fuss & O'Neill) and OTO's settlement estimate calculations are attached.

Construction Stage	Pressure (psf)	Cumulative Pressure[1] (psf)
Stage 1 – Placement of Riser	*551*	--
Stage 2 – Placement of Frame	344	344
Stage 3 – Placement of Fill to Top of Riser	311	655
Stage 4 – Placement of Fill at Sides and Top of Culvert	896	1,551
Stage 5 – Placement of Wearing Service	45	1,596
Final In-Service Condition with Live Load	524	2,123

[1]Cumulative pressure for estimate of settlement that would impact the service of the structure ignores Stage 1 since this load placed early on in construction sequence and resulting settlement from Stage 1 will occur prior to placement of road surface.

In summary, we anticipate that post construction settlement will be one inch or less.

3.0 UPDATED RECOMMENDATIONS OR DESIGN VALUES

3.1 Bearing Resistance

Table 5 Bearing Resistance for Varying Footing Widths was revised using updated information provided by the structural engineer. This Table supersedes the table presented in the June 10, 2024 (Rev. June 2, 2025) report, and is included in the Rev. 4 February 27, 2026 report.

Table 5
Bearing Resistance for Varying Footing Widths

Footing Width (feet)	Bearing Resistance[2]		
	Strength Limit State (ksf)		Service Limit State Nominal (ksf)[3]
	Nominal	Factored	
Footing Embedment Depth (D) =2.5'			
6	6.5	2.9	2.9
12	9.7	4.4	2.3

Notes:
1. Scour Depth >4 feet, therefore, scour depth will govern. Embedment depth assumed to be 2.5 feet, i.e., 2.5 feet below check scour depth
2. Bearing resistance values assumed firm bearing surface, i.e., subgrade is over excavated by a minimum of 12 inches and 12 inches of crushed stone placed beneath footings or mud mat constructed. Bearing pressures should be evaluated on the basis of the "effective footing width" in accordance with Article 10.6.1.3 of the AASHTO LRFD.
3. Bearing resistance for post construction settlement of approximately 1 inch.
4. Minimum embedment depth will be the greater either frost depth (48 inches below finished grade) or scour depth. It appears that scour depth will govern design. Values in table based upon embedment depth of 2.5'.

Attachments: Updated Calculations

O:\Job Files\J2900\2950 Fuss & O'Neill\12-05 Warren Wright Hop Brook - 2025 Update\2026 Revision\Revised 2026 Geotechnical Report Rev. 4\OTO - Hop Brook Culvert - Settlement Discussion 2-27-26.docx

O'Reilly, Talbot & Okun
ENGINEERING ASSOCIATES

J2950-12-05
February 27, 2026

Attn: Ms. Akta Patel, P.E.
Fuss & O'Neill, Inc.
1550 Main Street, Suite 400
Springfield, Massachusetts, 01103

Re: MassDOT Comments to OTO Geotechnical Report (6-10-24, Rev. 6-2-25);
Updated Settlement Analysis & Response to Comments
Hop Brook Culvert Replacement
Bridge No. BIN B-05-028 (CMF)
Belchertown, Massachusetts 01007

Dear Ms. Patel:

O'Reilly Talbot & Okun Associates, Inc. (OTO) is pleased to provide this letter summarizing our updated information and settlement analysis for the proposed culvert replacement at Hop Brook and Warren Wright Road in Belchertown, Massachusetts. This letter is in response to the December 2025 MassDOT comments provided on OTO's June 10, 2024 (Rev. June 2, 2025) Geotechnical Engineering Recommendations report.

This analysis was based upon updated project information provided to OTO (including proposed foundation depth, size, updated structural calculations), as well as upon soil information collected from borings at the project Site.

1.0 PROJECT DESCRIPTION

Project plans call for construction of a new, three-sided concrete box culvert, which will replace three existing reinforced concrete pipe culverts at the intersection of Warren Wright Road and Hop Brook. We understand that the culvert footings will each have an effective width of approximately 12 feet and a length of 30 feet. The dimensions of the wingwalls vary; however, we have used an approximate maximum size of 6.2 feet (effective width) by 20.5 feet by for our analysis.

2.0 METHOD OF ANALYSES & UPDATED CALCULATIONS– SETTLEMENT

Our analyses were performed consistent with the Massachusetts LRFD Bridge Manual and with local design practices. Our method of analysis for settlement is based upon consolidation theory, using typical compression index values for primary settlement (based upon SPT boring information and OTO's local knowledge) for each soil layer encountered (below the footing depth). We note that influence factors were determined using Westergaard method, which is appropriate for bedded/layered soil types.

Hop Brook
2950-12-04
Settlement Estimates, 02/27/2026

Layer Properties

Footing as a Stiff Mat - 12' x 30'
Depth of Footing = 16' => Ignore upper 16 ft of profile, except for initial stresses on soils
GW at 2'

	Layer	Depth (ft)	Unit Weight (pcf)	RR	Thickness (ft)	z (ft)	corrected z (ft)	P0 (psf)	
Fill	A	0-2	120	0	2	1	0	120	Ignored (above bottom of footing)
Organic Mix	B	2-10	52.6	0	8	6	0	450.4	Ignored (above bottom of footing)
Silt & Sand	C	10-15	52.6	0.005	5	12.5	0	792.3	Ignored (above bottom of footing)
Soft Varved Clay	D	15-25	52.6	0.02	10	20	4	1186.8	
Granular Soil	E	25-70	62.6	0.005	45	47.5	31.5	2858.3	
Bedrock/Dense Soil	F	70-100	250	0	30	85	69	8016.8	

***RR based upon SPT soil boring information & OTOs local knowledge of soil type, primary settlement. No significant secondary settlement expected.**

Footing Loads (Break footing into 4 equal rectangles)

L	15	ft	I, Influence factors determined using Westergaard stress distribution, bedded/layered soil conditions
B	6	ft	
q	2164	psf	In-Service Loading (2675 psf) minus Stage 1 Riser Load (551 psf), based upon F&O structural calculations (attached)

Bearing (psf)	m	n	I	delta p I*Column load	delt p (center)	log ((P0+deltaP)/P0) (corner)	delta H (in) (corner)	log ((P0+deltaP)/P0) (center)	delta H (in) (center)
Above Footing									
Above Footing									
Above Footing									
2164	3.75	1.50	0.182	394	1575	0.124	0.30	0.367	0.88
2164	0.48	0.19	0.024	52	208	0.008	0.02	0.030	0.08
2164	0.22	0.09	0.008	17	69	0.001	0.00	0.004	0.00
						Total Footing (corner)	0.32	Total Footing (center)	0.96

Calculations based upon procedures presented in NAVFAC DM 7.1 (UFC 3-220-10N Soil Mechanics), summary attached.

Summary of Settlement Analyses based upon NAVFAC DM 7.1 (UFC 3-220-10N Soil Mechanics)

The estimated settlement ($\boldsymbol{\Delta H}$) at each corner of a rectangular footing is given by:

$$\boldsymbol{\Delta H = \Sigma_i \left[RR_i * Z_i * \log\left(\frac{\sigma_{0i}+\Delta\sigma_i}{\sigma_{0i}}\right)\right]}, \text{ where}$$

(corresponding symbols used in calculation sheet indicated in parentheses)
$\boldsymbol{i}$ (A through F) is a particular soil layer beneath the footing, with distinct soil type or properties
$\boldsymbol{RR_i}$ is the reconsolidation ratio of the subject layer $\boldsymbol{i}$
$\boldsymbol{Z_i}$ (z, corrected z) is the thickness of the subject layer $\boldsymbol{i}$
$\boldsymbol{\sigma_{0i}}$ (P0) is the initial effective vertical stress at the midpoint of the subject layer $\boldsymbol{i}$ given by the sum of the effective stress exerted by the soils above the midpoint of layer $\boldsymbol{i}$
$\boldsymbol{\Delta\sigma_i}$ (delta P) is the change in vertical stress at the midpoint of the subject layer $\boldsymbol{i}$ due to the applied load

given by

$\boldsymbol{\Delta\sigma_i = q * I_i}$, where

$\boldsymbol{q}$ is the pressure due to the applied load

$\boldsymbol{I_i}$ is the influence factor for the increase in vertical stress beneath a corner a uniformly loaded rectangular area (Westergaard stress distribution*) – from NAVFAC DM 7.1 (UFC 3-220-10N Soil Mechanics)

which is based upon

$\boldsymbol{m_i = \frac{B}{z_i}}$ and $\boldsymbol{n_i = \frac{L}{z_i}}$, where

$\boldsymbol{B}$ is one half the total effective width of the footing

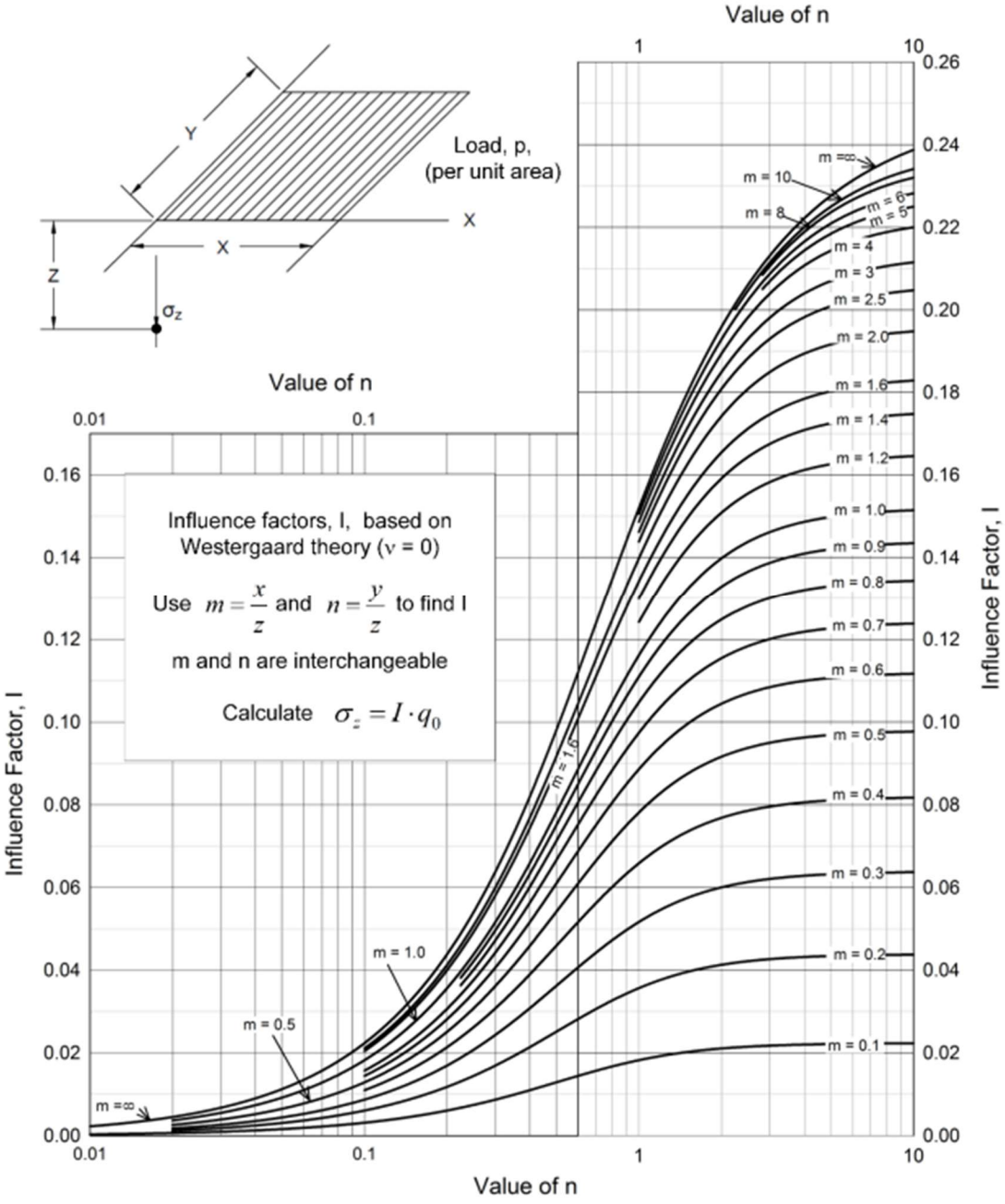
$\boldsymbol{L}$ is one half the total effective length of the footing

$\boldsymbol{z_i}$ is the vertical distance to the midpoint of the subject layer $\boldsymbol{i}$ from the bottom of the footing

Each $\boldsymbol{m}$ and $\boldsymbol{n}$ are used to find the corresponding influence factor $\boldsymbol{I}$ from the Westergaard influence factor chart (provided on the next page)

The estimated settlement ($\boldsymbol{\Delta H}$) at the center of the footing is given by the same equation, except that each $\boldsymbol{\Delta\sigma_i}$ is multiplied by 4 to account for superposition of the four footing quadrants when using corner-based Westergaard influence factors.

*Note that the Westergaard stress distribution is commonly used for settlement calculations in New England soils where strongly layered deposits are present, especially for profiles containing Connecticut Valley Varved Clay (CVVC). The Westergaard analysis is appropriate for soils with closely spaced alternating layers of soft and stiff materials. CVVC typically meets this description, containing thinly bedded layers of soft clay and relatively stiff silt/sand. In contrast, the commonly referenced Boussinesq distribution assumes a generally homogeneous and isotropic soil. This assumption of spatial uniformity is not consistent with the heterogeneous, anisotropic, and distinctly bedded nature of CVVC.



Influence Factors for a Rectangular Loaded Area – Westergaard (from NAVFAC DM 7.1 / UFC 3-220-10N Soil Mechanics, Figure 4-10)

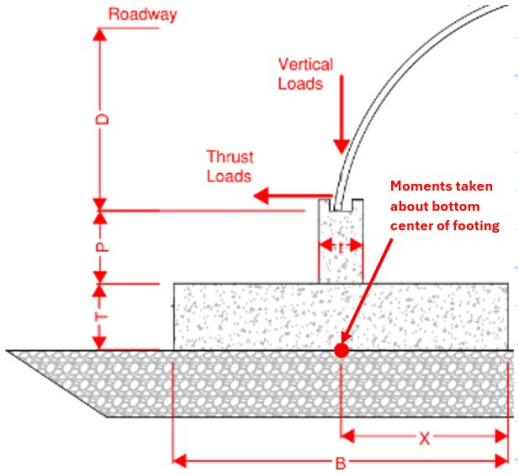
Rigid Frame Footing Design:

Objective: To determine the applied bearing pressures during construction stages. Taken and modified from final structural calculations submitted to MassDOT and used in final Geotechnical Report also submitted to MassDOT.

References:

- AASHTO LRFD Bridge Design Specifications, 9th Edition
- MassDOT Bridge Design Guide June 2013, revised 2020

Footing Sketch & Geometry Inputs:



(Calculations presented in this sheet were originally from a design sheet for an aluminum arch footing)

$P := 4\ ft + 5\ in$

$T := 2\ ft + 6\ in$

$B := 12\ ft + 0\ in$

$X := 4\ ft + 0\ in$

$D := 11.7\ ft$

$t := 2\ ft + 4\ in$

$e := X - \frac{B}{2} = -2\ ft$

Earth Loading Inputs:

$\gamma_{soil} := 120\ pcf$ $\gamma_{conc} := 150\ pcf$

$P + T = 6.917\ ft$ Information taken from 06/10/2024 O'Reilly, Talbot & Okun Geotech Recommendations:

$k_0 := 0.4$ $k_a := 0.25$

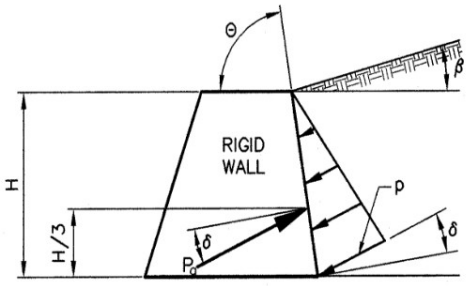


Figure 3.11.5.3-1—Notation for Coulomb Active Earth Pressure

Applied Load Inputs:

Vertical and thrust load frame reactions are taken from STAAD model reaction outputs. See above.

Vertical loads (kip/ft):

$V_{DC} := 3.731\ klf$ $V_{EV} := 1.943\ klf$

Thrust loads (kip/ft):

$Thrust_{DC} := 0.767\ klf$ $Thrust_{EV} := 0.64\ klf$

$V_{DW} := 0.56$ **klf** $V_{LL} := 5.057$ **klf** $Thrust_{DW} := 0.186$ **klf** $Thrust_{LL} := 1.174$ **klf**

(V_{EH} is negligible compared to other loads) $Thrust_{EH_max} := -2.554$ **klf** $Thrust_{EH_min} := -1.277$ **klf**

$V_{BR} := 0.775$ **klf** $Thrust_{BR} := 0.899$ **klf**

Weight of Foundation:

Calculate vertical weight of foundation:

$V_{DC.1} := (B \cdot T) \cdot \gamma_{conc} = 4.5$ **klf** $e_{DC.1} := 0$ **ft**

$V_{DC.2} := (P \cdot t) \cdot \gamma_{conc} = 1.546$ **klf** $e_{DC.2} := e = -2$ **ft**

Vertical Earth Pressure:

Calculate vertical earth pressure on rear of footing:

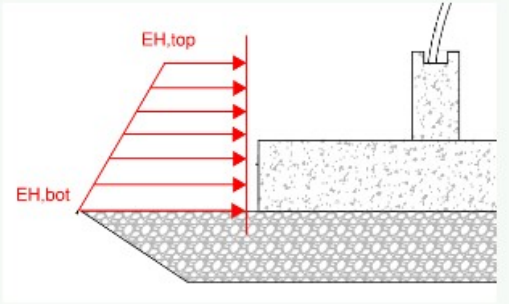
$V_{EV_foot_frame} := \left(B - X - \frac{t}{2}\right) \cdot \gamma_{soil} \cdot (D) = 9.594 \frac{\text{kip}}{\text{ft}}$ $e_{EV_foot_frame} := \frac{B}{2} - \frac{\left(B - X - \frac{t}{2}\right)}{2} = 2.583$ **ft**

$V_{EV_foot_riser} := \left(B - X - \frac{t}{2}\right) \cdot \gamma_{soil} \cdot (P) = 3.622 \frac{\text{kip}}{\text{ft}}$ $e_{EV_foot_riser} := \frac{B}{2} - \frac{\left(B - X - \frac{t}{2}\right)}{2} = 2.583$ **ft**

Lateral Earth Pressure:

Calculate lateral earth pressure on rear of footing. Use earth pressure coefficient as chosen above:

$EH_{top} := -D \cdot \gamma_{soil} \cdot k_a = -0.351$ **ksf** $EH_{bot} := -(D + P + T) \cdot \gamma_{soil} \cdot k_a = -0.559$ **ksf**



Lateral earth pressure on footing:

$L_{EH_foot} := 0.5 \cdot (EH_{top} + EH_{bot}) \cdot (T + P) = -3.145 \frac{\text{kip}}{\text{ft}}$

$e_{EH_foot} := \frac{(EH_{top} \cdot (P + T)) \cdot \frac{(P + T)}{2} + (0.5 \cdot (EH_{bot} - EH_{top}) \cdot (P + T)) \frac{(P + T)}{3}}{(0.5 \cdot (EH_{top} + EH_{bot}) \cdot (T + P))} = 3.195$ **ft**

Lateral earth pressure from frame, maximum thrust:

$L_{EH_frame_Tmax} := Thrust_{EH_max} = -2.554\ \frac{kip}{ft}$

$e_{EH_frame_Tmax} := \frac{Thrust_{EH_max} \cdot (P+T)}{Thrust_{EH_max}} = 6.9\ ft$

Lateral earth pressure from frame, minimum thrust:

$L_{EH_frame_Tmin} := Thrust_{EH_min} = -1.277\ \frac{kip}{ft}$

$e_{EH_frame_Tmin} := \frac{Thrust_{EH_min} \cdot (P+T)}{Thrust_{EH_min}} = 6.9\ ft$

Unfactored Load Summary:

Calculate total vertical, lateral and moments resolved about the center bottom of the foundation.
Check both maximum and minimum thrust conditions for different moment effects:

DC_{Frame}: $V_{DC.Frame_total} := V_{DC} = 3.731\ klf$

$M_{DC.Frame_total} := V_{DC} \cdot e + Thrust_{DC} \cdot (T+P) = -2.157\ klf \cdot ft$

$L_{DC.Frame_total} := Thrust_{DC} = 0.767\ klf$

DC_{Riser}: $V_{DC.Riser_total} := V_{DC.1} + V_{DC.2} = 6.046\ klf$

$M_{DC.Riser_total} := V_{DC.1} \cdot e_{DC.1} + V_{DC.2} \cdot e_{DC.2} = -3.092\ klf \cdot ft$

$L_{DC.Riser_total} := 0\ klf = 0\ klf$

DW: $V_{DW_total} := V_{DW} = 0.56\ klf$

$M_{DW_total} := V_{DW} \cdot e + Thrust_{DW} \cdot (T+P) = 0.167\ klf \cdot ft$

$L_{DW_total} := Thrust_{DW} = 0.186\ klf$

EV: Earth Vertical from Fill placed on footing only up to the top of the riser:

$V_{EV.Riser_total} := V_{EV_foot_riser} = 3.622\ klf$

$M_{EV.Riser_total} := V_{EV_foot_riser} \cdot e_{EV_foot_riser} = 9.356\ ft \cdot klf$

$L_{EV.Riser_total} := 0\ klf$

Earth Vertical from remaining fill placed on the side of the frame and on top:

$V_{EV.Frame_total} := V_{EV} + V_{EV_foot_frame} = 11.537\ klf$

$M_{EV.Frame_total} := V_{EV} \cdot e + Thrust_{EV} \cdot (T + P) + V_{EV_foot_frame} \cdot e_{EV_foot_frame} = 25.325$ **klf·ft**

$L_{EV.Frame_total} := Thrust_{EV} = 0.64$ **klf**

EH: Earth horizontal from fill placed next to the footing and riser:

$V_{EH_foot} := 0$ **klf** $= 0$ **klf**

$V_{EH_frame} := 0$ **klf** $= 0$ **klf**

$M_{EH_foot} := L_{EH_foot} \cdot e_{EH_foot} = -10.05$ **klf·ft**

$L_{EH_foot} = -3.145$ **klf**

Earth horizontal from remaining fill placed next to the frame:

$M_{EH_frame_max} := L_{EH_frame_Tmax} \cdot e_{EH_frame_Tmax} = -17.665$ **klf·ft**

$M_{EH_frame_min} := L_{EH_frame_Tmin} \cdot e_{EH_frame_Tmin} = -8.833$ **klf·ft**

$L_{EH_frame_Tmax} = -2.554$ **klf**

$L_{EH_frame_Tmin} = -1.277$ **klf**

LL: $V_{LL_total} := V_{LL} = 5.057$ **klf**

$M_{LL_total} := V_{LL} \cdot e + Thrust_{LL} \cdot (T + P) = -1.994$ **klf·ft**

$L_{LL_total} := Thrust_{LL} = 1.174$ **klf**

BR: $V_{BR_total} := V_{BR} = 0.775$ **klf**

$M_{BR_total} := V_{BR} \cdot e + Thrust_{BR} \cdot (T + P) = 4.668$ **klf·ft**

$L_{BR_total} := Thrust_{BR} = 0.899$ **klf**

$e_{DC.Frame} := \frac{M_{DC.Frame_total}}{V_{DC.Frame_total}} = -0.58$ **ft**

$\sigma_{DC.Frame} := \frac{V_{DC.Frame_total}}{B - 2 \cdot |e_{DC.Frame}|} = 0.344$ **ksf**

$B - 2 \cdot |e_{DC.Frame}| = 10.844$ **ft**

$e_{DC.Riser} := \frac{M_{DC.Riser_total}}{V_{DC.Riser_total}} = -0.51$ **ft**

$\sigma_{DC.Riser} := \frac{V_{DC.Riser_total}}{B - 2 \cdot |e_{DC.Riser}|} = 0.551$ **ksf**

$B - 2 \cdot |e_{DC.Riser}| = 10.977$ **ft**

$e_{EV.Riser\&Lat} := \frac{M_{EV.Riser_total} + M_{EH_frame_max}}{V_{EV.Riser_total}} = -2.29$ **ft**

$\sigma_{EV.Riser} := \frac{V_{EV.Riser_total}}{B - 2 \cdot |e_{EV.Riser\&Lat}|} = 0.489$ **ksf**

$B - 2 \cdot |e_{EV.Riser\&Lat}| = 7.411$ **ft**

$e_{EV.Frame} := \frac{M_{EV.Frame_total}}{V_{EV.Frame_total}} = 2.20$ **ft**

$\sigma_{EV.Frame} := \frac{V_{EV.Frame_total}}{B - 2 \cdot |e_{EV.Frame}|} = 1.516$ **ksf**

$B - 2 \cdot |e_{EV.Frame}| = 7.61$ **ft**

$e_{DW.Frame} := \frac{M_{DW_total}}{V_{DW_total}} = 0.30\ ft$

$\sigma_{DW.Frame} := \frac{V_{DW_total}}{B - 2 \cdot |e_{DW.Frame}|} = 0.049\ ksf$

$B - 2 \cdot |e_{DW.Frame}| = 11.405\ ft$

Stage 1 - Placement of the Riser:

$e_1 := \frac{M_{DC.Riser_total}}{V_{DC.Riser_total}} = -0.51\ ft$

$\sigma_1 := \frac{V_{DC.Riser_total}}{B - 2 \cdot |e_1|} = 0.551\ ksf$

$B - 2 \cdot |e_1| = 10.977\ ft$

Stage 2 - Placement of the Frame:

$e_2 := \frac{M_{DC.Frame_total} + M_{DC.Riser_total}}{V_{DC.Frame_total} + V_{DC.Riser_total}} = -0.54\ ft$

$\sigma_2 := \frac{V_{DC.Frame_total} + V_{DC.Riser_total}}{B - 2 \cdot |e_2|} = 0.895\ ksf$

$B - 2 \cdot |e_2| = 10.926\ ft$

Stage 3 - Placement of Fill to the Top of the Riser:

$e_3 := \frac{M_{DC.Frame_total} + M_{DC.Riser_total} + M_{EV.Riser_total} + M_{EH_foot}}{V_{DC.Frame_total} + V_{DC.Riser_total} + V_{EV.Riser_total}} = -0.44\ ft$

$\sigma_3 := \frac{V_{DC.Frame_total} + V_{DC.Riser_total} + V_{EV.Riser_total}}{B - 2 \cdot |e_3|} = 1.206\ ksf$

$B - 2 \cdot |e_3| = 11.113\ ft$

Stage 4 - Placement of Fill on the Sides and on Top of the Culvert:

$$e_4 := \frac{M_{DC.Frame_total} + M_{DC.Riser_total} + \left(M_{EV.Riser_total} + M_{EH_foot}\right) + \left(M_{EV.Frame_total} + M_{EH_frame_max}\right)}{V_{DC.Frame_total} + V_{DC.Riser_total} + V_{EV.Riser_total} + V_{EV.Frame_total}} = 0.07 \ \textbf{ft}$$

$$\sigma_4 := \frac{V_{DC.Frame_total} + V_{DC.Riser_total} + V_{EV.Riser_total} + V_{EV.Frame_total}}{B - 2 \cdot |e_4|} = 2.102 \ \textbf{ksf}$$

$$B - 2 \cdot |e_4| = 11.862 \ \textbf{ft}$$

Stage 5 - Placement of Wearing Surface:

$$e_5 := \frac{M_{DC.Frame_total} + M_{DC.Riser_total} + \left(M_{EV.Riser_total} + M_{EH_foot}\right) + \left(M_{EV.Frame_total} + M_{EH_frame_max}\right) + M_{DW_total}}{V_{DC.Frame_total} + V_{DC.Riser_total} + V_{EV.Riser_total} + V_{EV.Frame_total} + V_{DW_total}} = 0.07 \ \textbf{ft}$$

$$\sigma_5 := \frac{V_{DC.Frame_total} + V_{DC.Riser_total} + V_{EV.Riser_total} + V_{EV.Frame_total} + V_{DW_total}}{B - 2 \cdot |e_5|} = 2.151 \ \textbf{ksf}$$

$$B - 2 \cdot |e_5| = 11.852 \ \textbf{ft}$$

Final In-Service Condition w/ Live Load:

$$e_{final} := \frac{M_{DC.Frame_total} + M_{DC.Riser_total} + \left(M_{EV.Riser_total} + M_{EH_foot}\right) + \left(M_{EV.Frame_total} + M_{EH_frame_max}\right) + M_{DW_total} + M_{LL_total} + M_{BR_total}}{V_{DC.Frame_total} + V_{DC.Riser_total} + V_{EV.Riser_total} + V_{EV.Frame_total} + V_{DW_total} + V_{LL_total} + V_{BR_total}} = 0.15 \ \textbf{ft}$$

$$\sigma_{final} := \frac{V_{DC.Frame_total} + V_{DC.Riser_total} + V_{EV.Riser_total} + V_{EV.Frame_total} + V_{DW_total} + V_{LL_total} + V_{BR_total}}{B - 2 \cdot |e_{final}|} = 2.675 \ \textbf{ksf}$$

$$B - 2 \cdot |e_{final}| = 11.709 \ \textbf{ft}$$

Maximum Earth Horizonal is used as that resembles normal operational use.

ATTACHMENT B

BELCHERTOWN CONSERVATION COMMISSION
WETLANDS PROTECTION ACT
ORDER OF CONDITIONS

CONSERVATION COMMISSION

Lawrence Memorial Hall
2 Jabish Street, Post Office Box 670
Belchertown, Massachusetts 01007-0670
(413) 323-0405

April 23, 2024

RE: Order of Conditions for DEP # 104-1112; Town of Belchertown c/o Linda Leduc
Hop Brook Culvert Replacement
Warren Wright Road ROW

Dear Applicant,

I have enclosed the original Order of Conditions for DEP #104-1110 as indicated above. The original Order of Conditions must be recorded at the Hampshire County Registry of Deeds within 21-days of receipt. Please provide the recording information for the Order of Conditions to the Conservation Commission upon filing it at the Hampshire County Registry of Deeds.

In addition you must:

- Wait the full ten-day appeal period (10 business days from the issuance date) before you can begin any work. This appeals period is required by law.
- Notify the Commission prior to beginning any work to schedule a pre-activity site visit. Please refer to the Special Conditions for specific notification details and requirements.
- Post the required DEP File Number Sign at the entrance to the property, so it can be clearly visible from the road. The sign should be a minimum of 2 X 2 feet.

The Commission will be closely monitoring compliance with the Order of Conditions. An Enforcement Order may be issued or the permit may be revoked if work does not comply with any of the enclosed conditions.

The Belchertown Conservation Commission would like to thank you in advance for your cooperation in this matter. Please feel free to contact me if you have any questions about your Order of Conditions.

Sincerely,

Sarah A Fortune

Sarah Fortune, Conservation Administrator
Belchertown Conservation Commission

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

WPA Form 5A – Restoration Order of Conditions

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

Provided by MassDEP:
104-1112
MassDEP File #

Belchertown
City/Town

A. General Information

Please note: this form has been modified with added space to accommodate the Registry of Deeds Requirements

1. From: Belchertown
Conservation Commission

2. This issuance is for (check one):

a. ☒ Restoration Order of Conditions b. ☐ Amended Restoration Order of Conditions

3. To: Applicant:

Important: When filling out forms on the computer, use only the tab key to move your cursor - do not use the return key.

Linda
a. First Name

Leduc
b. Last Name

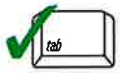
Town of Belchertown
c. Organization

290 Jackson Street, P.O. Box 306
d. Mailing Address

Belchertown
e. City/Town

MA
f. State

01007
g. Zip Code





4. Property Owner (if different from applicant):

a. First Name

b. Last Name

c. Organization

d. Mailing Address

e. City/Town

f. State

g. Zip Code

5. Project Location:

Warren Wright Road
a. Street Address

Belchertown
b. City/Town

c. Assessors Map/Plat Number

Warren Wright Road ROW
d. Parcel/Lot Number

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

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A. General Information (cont.)

Latitude and Longitude, if known: 42.31984 (d. Latitude (in decimal)) -72.46093 (e. Longitude (in decimal))

Note: If the Ecological Restoration Project involves work on a stream crossing, baseline photo-points that capture longitudinal views of the crossing inlet, the crossing outlet and the upstream and downstream channel beds during low flow conditions. The latitude and longitude coordinates of the photo-points shall be included in the baseline data.

6. Property recorded at the Registry of Deeds for (attach additional information if more than one parcel):
   - a. County: Hampshire
   - b. Certificate Number (if registered land):
   - c. Book: 5944
   - d. Page: 44

7. Dates:
   - a. Date Ecological Restoration NOI Filed: 3/20/2024
   - b. Date Public Hearing Closed: 4/22/2024
   - c. Issuance Date: 4/23/2024

8. Final Approved Plans and Other Documents (attach additional plan or document references as needed):
   - a. Plan Title: Hop Brook Culvert Replacement
   - b. Prepared By: Fuss & O'Neil
   - c. Signed and Stamped by: Dan Delany, PE
   - d. Final Revision Date: 3/14/2024
   - e. Scale: 1"=30'
   - f. Additional Plan or Document Title: Please see attached List of Approved Documents & Plans
   - g. Date:

B. Findings

1. Findings pursuant to the Massachusetts Wetlands Protection Act:

Following the review of the Ecological Restoration Notice of Intent described in Section A and based on the information provided in this application and presented at the public hearing, this Commission finds that the areas in which work is proposed is significant to the following interests of the Wetlands Protection Act (the Act). Check all that apply:

a. ☒ Public Water Supply
b. ☒ Private Water Supply
c. ☐ Groundwater Supply
d. ☒ Flood Control
e. ☒ Storm Damage Prevention
f. ☐ Prevention of Pollution
g. ☐ Land Containing Shellfish
h. ☒ Fisheries
i. ☒ Wildlife Habitat

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B. Findings (cont.)

2. This Commission hereby finds the project, as proposed, is an Ecological Restoration Project for:

☐ Dam Removal

☒ Freshwater Stream Crossing Repair and Replacement

☐ Stream Daylighting

☐ Tidal Restoration

☐ Rare Species Habitat Restoration

☐ Restoring Fish Passageways

Approved subject to:

☒ The following conditions are required in accordance with the Ecological Restoration eligibility criteria 310 CMR 10.13 (1) through (7) and performance standards set forth in the wetlands regulations. This Commission orders that all work shall be performed in accordance with the Ecological Restoration Notice of Intent for the project described in Section A. The General Conditions in Section C and Special Conditions checked in Section D are incorporated into this Restoration Order. To the extent that the following conditions modify or differ from the plans, specifications, or other proposals submitted with the Ecological Restoration Notice of Intent, these conditions shall control.

Denied because:

☐ The proposed work does not meet the eligibility criteria in 310 CMR 10.13(1) through (7). Therefore, work on this project may not go forward unless and until a new Notice of Intent (WPA Form 3 or 3A) is submitted and a Final Order of Conditions (WPA Form 5 or 5A) has been issued. The Commission has determined that following the eligibility criteria have NOT been met.

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

WPA Form 5A – Restoration Order of Conditions

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

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B. Findings (cont.)

Inland Resource Area Impacts: Check all that apply below. (For Approvals Only)

Resource Area	Proposed Alteration	Permitted Alteration	Proposed Replacement	Permitted Replacement
4. ☒ Bank	405 a. linear feet	405 b. linear feet	245 c. linear feet	245 d. linear feet
5. ☒ Bordering Vegetated Wetland	9765 a. square feet	9765 b. square feet	8760 c. square feet	8760 d. square feet
6. ☒ Land Under Waterbodies and Waterways	2740 a. square feet	2740 b. square feet	2980 c. square feet	2980 d. square feet
	e. c/y dredged	f. c/y dredged		
7. ☒ Bordering Land Subject to Flooding	8695 a. square feet	8695 b. square feet	1190 c. square feet	1190 d. square feet
Cubic Feet Flood Storage	7602 e. cubic feet	7602 f. cubic feet	0 g. cubic feet	0 h. cubic feet
8. ☐ 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. ☒ Riverfront Area	25140 a. total sq. feet	25140 b. total sq. feet		
Sq ft within 100 ft	c. square feet	d. square feet	e. square feet	f. square feet
Sq ft between 100-200 ft	g. square feet	h. square feet	i. square feet	j. square feet

Coastal Resource Area Impacts: Check all that apply below. (For Approvals Only)

	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	**Note:** *No armoring of a Coastal Dune or Barrier Beach is permitted.* Indicate size under Coastal Beaches and/or Coastal Dunes below			
13. ☐ Coastal Beaches	a. square feet	b. square feet	c/y c. nourishment	c/y d. nourishment

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B. Findings (cont.)

14. ☐ Coastal Dunes — a. square feet; b. square feet; c. c/y nourishment; d. c/y nourishment

Note: *No armoring of a Coastal Dune or Barrier Beach is permitted.*

15. ☐ Coastal Banks — a. linear feet; b. linear feet

16. ☐ Rocky Intertidal Shores — a. square feet; b. square feet

17. ☐ Salt Marshes — a. square feet; b. square feet; c. square feet; d. 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

20. ☐ Fish Runs — Indicate size under Coastal Banks, Inland Bank, Land Under the Ocean, and/or inland Land Under Waterbodies and Waterways, above — a. c/y dredged; b. c/y dredged

21. ☐ Land Subject to Coastal Storm Flowage — a. square feet; b. square feet

22. ☐ Riverfront Area — a. total sq. feet; b. total sq. feet

Sq ft within 100 ft — c. square feet; d. square feet; e. square feet; f. square feet

Sq ft between 100-200 ft — g. square feet; h. square feet; i. square feet; j. square feet

23. ☐ Restoration/Enhancement *: a. square feet of BVW; b. square feet of salt marsh; c. square feet of other wetland resource areas

24. ☐ Stream Crossing(s): a. number of new stream crossings; b. number of replacement stream crossings

* If the project is for the purpose of restoring or enhancing a wetland resource area in addition to the square footage that has been entered in Section B.5.c (BVW) or B.17.c (Salt Marsh) above, please enter the additional amount here

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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 Restoration Order of
2. The Restoration 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 Restoration 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 Restoration 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 Restoration 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 Restoration Order.

5. This Restoration 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 Restoration Order.

6. If this Restoration Order constitutes an Amended Restoration Order of Conditions, this Amended Restoration Order of Conditions does not extend the issuance date of the original Final Order of Conditions and the Restoration Order will expire on _____ unless extended in writing by the Department.
7. Any fill used in connection with this project shall be clean fill. Any fill shall contain no trash, refuse, rubbish, or debris, including but not limited to lumber, bricks, plaster, wire, lath, paper, cardboard, pipe, tires, ashes, refrigerators, motor vehicles, or parts of any of the foregoing.

8. This Restoration Order is not final until all administrative appeal periods from this Restoration Order have elapsed, or if such an appeal has been taken, until all proceedings before the Department have been completed.

9. No work shall be undertaken until the Restoration 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 Restoration 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 Restoration 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 Restoration Order, which form must be stamped by the Registry of Deeds, prior to the commencement of work.

C. General Conditions Under Massachusetts Wetlands Protection Act **(cont.)**

10. A sign shall be displayed at the site not less then two square feet or more than three square feet in size bearing the words,

    "Massachusetts Department of Environmental Protection" [or, "MassDEP"]

    "File Number 104-1112"

11. Where the Department of Environmental Protection is requested to issue a Superseding Restoration Order, the Conservation Commission shall be a party to all agency proceedings and hearings before MassDEP.

12. Upon completion of the work described herein, the applicant shall submit a Request for Certificate of Compliance (WPA Form 8A) to the Conservation Commission.

13. The work shall conform to the plans and special conditions referenced in this order.

14. Any change to the plans identified in Condition #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 Restoration Order at reasonable hours to evaluate compliance with the conditions stated in this Restoration Order, and may require the submittal of any data deemed necessary by the Conservation Commission or Department for that evaluation.

16. This Restoration Order of Conditions shall apply to any successor in interest or successor in control of the property subject to this Restoration Order and to any contractor or other person performing work conditioned by this Restoration 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 Restoration Order.

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C. General Conditions Under Massachusetts Wetlands Protection Act (cont.)

General Conditions for all Ecological Restoration Projects

19. The project shall be conducted in accordance with any preliminary written determination obtained from the Natural Heritage and Endangered Species Program as set forth in 310 CMR 10.11(2) and any time of year restrictions or other conditions recommended in writing by the Division of Marine Fisheries (for projects in coastal Resource Areas) and the Division of Fisheries and Wildlife (for projects in inland Resource Areas) as set forth in 310 CMR 10.11(3), (4) and (5).
20. The applicant shall implement the plan submitted with the Notice of Intent as approved by the Issuing Authority to prevent and control invasive species.
21. If the project involves the dredging of 100 cubic yards or more in a Resource Area or dredging of any amount in an Outstanding Resource Water, the dredging and Dredged Material management shall be performed in accordance with the Water Quality Certification submitted with the Notice of Intent.
22. If the project involves infrastructure, the owner shall operate and maintain the infrastructure in accordance with the operation and maintenance plan submitted with the Notice of Intent as approved by the Issuing Authority. Implementation of the operation and maintenance plan as approved by the Issuing Authority shall be a continuing condition that shall be set forth in the Certificate of Compliance.
23. The work associated with this Order (the "Project")
    (1) ☐ is subject to the Massachusetts Stormwater Standards
    (2) ☒ is NOT subject to the Massachusetts Stormwater Standards

    If the work is subject to the Stormwater Standards, then the project is subject to the following conditions:

    a) All work, including site preparation, land disturbance, construction and redevelopment, shall be implemented in accordance with the construction period pollution prevention and erosion and sedimentation control plan and, if applicable, the Stormwater Pollution Prevention Plan required by the National Pollution Discharge Elimination System Construction General Permit as required by Stormwater Condition 8. Construction period erosion, sedimentation and pollution control measures and best management practices (BMPs) shall remain in place until the site is fully stabilized.

    b) No stormwater runoff may be discharged to the post-construction stormwater BMPs unless and until a Registered Professional Engineer provides a Certification that:

    i. all construction period BMPs have been removed or will be removed by a date certain specified in the Certification. For any construction period BMPs intended to be converted to post construction operation for stormwater attenuation, recharge, and/or treatment, the conversion is allowed by the MassDEP Stormwater Handbook BMP specifications and that the BMP has been properly cleaned or prepared for post construction operation, including removal of all construction period sediment trapped in inlet and outlet control structures;

C. General Conditions Under Massachusetts Wetlands Protection Act (cont.)

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 18(e)) shall execute and submit to the issuing authority an Operation and Maintenance Compliance Statement ("O&M Statement) for the Stormwater BMPs identifying the party responsible for implementing the stormwater BMP Operation and Maintenance Plan ("O&M Plan") and certifying the following:

i.) the O&M Plan is complete and will be implemented upon receipt of the Certificate of Compliance, and

ii.) the future responsible parties shall be notified in writing of their ongoing legal responsibility to operate and maintain the stormwater management BMPs and implement the Stormwater Pollution Prevention Plan.

d) Post-construction pollution prevention and source control shall be implemented in accordance with the long-term pollution prevention plan section of the approved Stormwater Report and, if applicable, the Stormwater Pollution Prevention Plan required by the National Pollution Discharge Elimination System Multi-Sector General Permit.

e) Unless and until another party accepts responsibility, the landowner, or owner of any drainage easement, assumes responsibility for maintaining each BMP. To overcome this presumption, the landowner of the property must submit to the issuing authority a legally binding agreement of record, acceptable to the issuing authority, evidencing that another entity has accepted responsibility for maintaining the BMP, and that the proposed responsible party shall be treated as a permittee for purposes of implementing the requirements of Conditions 18(f) through 18(k) with respect to that BMP. Any failure of the proposed responsible party to implement the requirements of Conditions 18(f) through 18(k) with respect to that BMP shall be a violation of the Restoration 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.

C. General Conditions Under Massachusetts Wetlands Protection Act (cont.)

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") 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 Restoration 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.

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D. Special Conditions for Ecological Restoration Projects

☐ **Dam Removal**

This project involves dam removal and the following special conditions shall apply in addition to the general conditions set forth in 310 CMR 10.14(1):

a) An as-built plan and a written statement from a registered professional engineer or other environmental professional expert in ecological restoration certifying substantial compliance with the design plan and construction specifications approved in the Restoration Order of Conditions shall be submitted to the Issuing Authority within 90 days of completion of the dam removal.

b) The applicant shall monitor the dam removal site during the first two years following completion of the dam removal. Said monitoring shall include a topographic survey of the longitudinal profile and stream cross-sections from downstream of the former dam through the upstream end of the former impoundment. The survey reference point shall comprise a permanent marker or recoverable survey point with known coordinates, such as a fixed point shown on the as-built plan, an existing bench mark, or a new benchmark. That marker should be identified or referenced on the plans and on the as-built plans. The applicant shall establish at least two photo-points for pre- and post-restoration monitoring at the dam removal site. At least one photo-point location shall be chosen to document a view of the dam pre-restoration and to document the same site after the dam is removed. A second location shall be chosen to document a view of the impoundment pre- and post-restoration. Photos shall be taken for two years after the dam removal is completed.

c) The applicant shall submit a report detailing the results of this monitoring within six months of the completion of the two year post-construction monitoring period, or within 30 months after the dam removal is complete whichever is sooner. The report shall include a comparison of post-restoration survey data with pre-restoration survey data as illustrated by the photos taken during the monitoring period.

☒ **Freshwater Stream Crossing Repair and Replacement Projects**

The project involves one or more freshwater crossing repair or replacement and the following special conditions in addition to the general conditions apply:

a) An as-built plan and/or a written statement from a registered professional engineer or other environmental professional expert in ecological restoration certifying substantial compliance with the design plans and construction specifications approved in the Restoration Order of Conditions shall be completed within 90 days of completion of construction. The as-built plan shall include the dimensions of the structure, the invert elevation of the upstream and downstream ends of the structure and the road or other surface elevation above the structure.

D. Special Conditions for Ecological Restoration Projects (cont.)

b) The applicant shall monitor the site by collecting sufficient data within 12 months after construction is complete to evaluate the effect of the structure. At a minimum, when a Certificate of Compliance is requested, the applicant shall provide post-construction photo-points that capture longitudinal views of the crossing inlet, the crossing outlet and the upstream and downstream channel beds during low flow conditions. The photo-points shall be located at the same geographic photo-point latitude and longitude coordinates as required in the Notice of Intent per 310 CMR 10.12(1)(n). The applicant shall submit a report to the Issuing Authority detailing the results of this monitoring within 18 months after construction is complete. The report shall include a comparison of the post-restoration data with pre-restoration data.

☐ **Stream Daylighting**

The project involves stream daylighting and the following special conditions in addition to the general conditions apply:

a) An as-built plan and a written statement from a registered professional engineer or other environmental professional expert in ecological restoration certifying substantial compliance with the design plan and construction specifications approved in the Restoration Order of Conditions shall be submitted to the Issuing Authority within 90 days of completion of the project. At a minimum, when a Certificate of Compliance is requested, the applicant shall provide post-construction photo-points that capture longitudinal views of the upstream and downstream channel beds of the daylighted reach during low flow conditions.

b) The applicant shall conduct photo-point monitoring by establishing at least three photo-points for pre- and post-restoration monitoring at the stream daylighting site. One photo-point location shall be chosen to document the upstream end of the site and one photo-point location shall be chosen to document the downstream end of the site. A third photo-point shall be chosen to document conditions in the restored channel. Photos shall be taken during high flow and low (summer) flow of each year during the two years following completion of the project.

c) Within 30 months after the completion of the project, the applicant shall submit a report describing the ecological changes observed at the project site during the two years following completion of the project, as illustrated by the photos.

D. Special Conditions for Ecological Restoration Projects (cont.)

☐ **Tidal Restoration Projects**

The project involves restoration of tidal influence and the following special conditions in addition to the general conditions apply:

a) If the project is a culvert or bridge replacement or repair project, an as-built plan and a written statement from a registered professional engineer or other environmental professional expert in ecological restoration certifying substantial compliance with the design plans and construction specifications approved in the Restoration Order of Conditions shall be submitted to the Issuing Authority within 90 days of completion of construction. The as-built plan shall include the dimensions of the structure, the invert elevation of the upstream and downstream ends of the structure and the road or other surface elevation above the structure.

b) The applicant shall monitor pre- and post-construction tidal conditions upstream and downstream of the tidal restriction with water level readings measured at an interval no greater than every 10 minutes over a minimum of a one-week period that includes a spring tide. Pre- and post-construction water level readings shall be taken at approximately the same locations and shall be referenced to the same vertical elevation datum. The applicant shall prepare a report detailing the results of this monitoring within 12 months after construction is complete. The report shall include and compare pre- and post-construction tidal elevation monitoring data to assess attainment of the project's predicted post-restoration tidal conditions.

☐ **Rare Species Habitat Restoration**

The project is a Rare Species Habitat Restoration Project and in addition to the general conditions the following special conditions apply:

a) An as-built plan and a written statement from a registered professional engineer or other environmental professional expert in ecological restoration certifying substantial compliance with the design plan, construction specifications, and the Habitat Management Plan submitted with the Notice of Intent as approved in the Restoration Order of Conditions shall be submitted to the Issuing Authority within 90 days of completion of the project.

b) The applicant shall establish at least two photo-points for pre- and post-restoration monitoring at the project site. Photos shall be taken for two years after construction is complete. Within 30 months of completion of the project, the applicant shall submit to the Issuing Authority a report describing the ecological changes observed at the project site as illustrated by the photos.

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands
WPA Form 5A – Restoration Order of Conditions
Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:
104-1112
MassDEP File #

Belchertown
City/Town

D. Special Conditions for Ecological Restoration Projects (cont.)

☐ **Fish Passageway Restoration**

The project involves the repair or replacement of a fish passageway and in addition to the general conditions the following special conditions:

a) The property owner is responsible for maintaining and repairing the fishway in good condition so that it will support safe and efficient fish passage in accordance with an operation and maintenance plan approved by the Division of Marine Fisheries. This requirement is a continuing condition that shall be set forth in the Certificate of Compliance.

b) a post-construction project summary using surveys, a narrative and photographs as needed, that confirm the fishway slope and entrance and exit elevations shall be submitted to and approved by the Division of Marine Fisheries, prior to submittal of a request for a Certificate of Compliance.

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands
WPA Form 5A – Restoration Order of Conditions
Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:
104-1112
MassDEP File #

Belchertown
City/Town

E. Findings Under Municipal Wetlands Bylaw or Ordinance

1. Is a municipal wetlands bylaw or ordinance applicable? ☒ Yes ☐ No

2. The Belchertown Conservation Commission hereby finds (check one that applies):

   a. ☐ that the proposed work cannot be conditioned to meet the standards set forth in a municipal ordinance or bylaw, specifically:

   1. Municipal Ordinance or Bylaw | 2. Citation

   Therefore, work on this project may not go forward unless and until a revised Notice of Intent is submitted which provides measures which are adequate to meet these standards, and a final Order of Conditions is issued.

   b. ☐ that the following additional conditions are necessary to comply with a municipal ordinance or bylaw:

   1. Municipal Ordinance or Bylaw | 2. Citation

3. The Commission orders that all work shall be performed in accordance with the following conditions and with the Notice of Intent referenced above. To the extent that the following conditions modify or differ from the plans, specifications, or other proposals submitted with the Notice of Intent, the conditions shall control.

   The special conditions relating to municipal ordinance or bylaw are as follows (if you need more space for additional conditions, attach a text document):

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

WPA Form 5A – Restoration Order of Conditions

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

Provided by MassDEP:
104-1112
MassDEP File #

Belchertown
City/Town

F. Signatures

This Restoration Order is valid for three years, unless otherwise specified as a special condition pursuant to General Conditions #4, from the date of issuance.

4/23/2024
1. Date of Issuance

Please indicate the number of members who will sign this form.
This Restoration Order must be signed by a majority of the Conservation Commission.

5
2. Number of Signers

The Restoration 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 and the property owner, if different from applicant.

Signatures:

Kate Kelley

☒ by hand delivery on 4/23/2024
Date

☐ by certified mail, return receipt requested, on
Date

G. Appeals

The applicant, the owner, any person aggrieved by this Restoration Order, any owner of land abutting the land subject to this Restoration 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 Restoration 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 Restoration 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 Restoration Order of Conditions 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 Restoration Order, or providing written information to the Department prior to issuance of a Superseding Restoration Order.

The request shall state clearly and concisely how the project permitted under the Restoration Order which is being appealed does or does not meet the eligibility criteria in 310 CMR 10.13(1) and the relevant provisions of 310 CMR 10.13(2) through (7). To the extent that the Restoration 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.

H. Recording Information

Prior to commencement of work, this Restoration 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 Restoration Order shall also be noted in the Registry's Grantor Index under the name of the owner of the land subject to the Restoration Order. In the case of registered land, this Restoration Order shall also be noted on the Land Court Certificate of Title of the owner of the land subject to the Restoration Order of Conditions. The recording information on this page shall be submitted to the Conservation Commission listed below.

Conservation Commission

Detach on dotted line, have stamped by the Registry of Deeds and submit to the Conservation Commission.

To:

Conservation Commission

Please be advised that the Restoration Order of Conditions for the Project at:

Project Location | 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 Restoration 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

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

Request for Departmental Action Fee Transmittal Form

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

DEP File Number:

Provided by DEP

A. Request Information

1. Location of Project

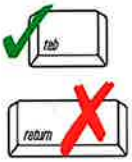
a. Street Address

b. City/Town, Zip

c. Check number

d. Fee amount

Important: When filling out forms on the computer, use only the tab key to move your cursor - do not use the return key.



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

Name

Mailing Address

City/Town

State

Zip Code

Phone Number

Fax Number (if applicable)

3. Applicant (as shown on Determination of Applicability (Form 2), Order of Resource Area Delineation (Form 4B), Order of Conditions (Form 5), Restoration Order of Conditions (Form 5A), or Notice of Non-Significance (Form 6)):

Name

Mailing Address

City/Town

State

Zip Code

Phone Number

Fax Number (if applicable)

4. DEP File Number:

B. Instructions

1. When the Departmental action request is for (check one):

☐ Superseding Order of Conditions – Fee: $120.00 (single family house projects) or $245 (all other projects)

☐ Superseding Determination of Applicability – Fee: $120

☐ Superseding Order of Resource Area Delineation – Fee: $120

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

Request for Departmental Action Fee Transmittal Form

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

DEP File Number:

Provided by DEP

B. Instructions (cont.)

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

Department of Environmental Protection
Box 4062
Boston, MA 02211

2. On a separate sheet attached to this form, state clearly and concisely the objections to the Determination or Order which is being appealed. To the extent that the Determination or Order is based on a municipal bylaw, and not on the Massachusetts Wetlands Protection Act or regulations, the Department has no appellate jurisdiction.

3. Send a **copy** of this form and a **copy** of the check or money order with the Request for a Superseding Determination or Order by certified mail or hand delivery to the appropriate DEP Regional Office (see http://www.mass.gov/eea/agencies/massdep/about/contacts/).

4. A copy of the request shall at the same time be sent by certified mail or hand delivery to the Conservation Commission and to the applicant, if he/she is not the appellant.

TOWN OF BELCHERTOWN CONSERVATION COMMISSION FINDINGS OF FACTS

DEP File # 104-1112: Warren Wright Road
Assessor's Map ROW
Town of Belchertown c/o Linda Leduc; Hop Brook Culvert Replacement

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Description of Approved Project:

The project proposed by the applicant pertains to work associated with the replacement of a road-stream crossing at Warren Wright Road and Hop Brook, as well as addition of a secondary culvert for terrestrial wildlife passage and reconstruction of the roadway, in Belchertown, Massachusetts. The project has been designed to pass the 2070 100-year storm without overtopping the road. The bottom of the terrestrial crossing culvert will be placed at the approximate 5-year storm event so the passage remains dry most of the time but will provide additional overflow relief during larger storm events. The Hop Brook culvert replacement will meet Massachusetts Stream Crossing Standards. The project qualifies as an Ecological Restoration Project as defined in 310 CMR 10.04 and is a Freshwater Stream Crossing Replacement project type listed in 310 CMR 10.13(3). The work is expected to begin no sooner than spring 2025 following the issuance of the required permits and pending funding availability.

Key elements of the proposed restoration will include:

- Replacement of the undersized culverts (3 round, 5-foot diameter corrugated metal pipes with severe condition deficiencies) with a 23-foot span by 8-foot rise open-bottom box culvert which provides hydraulic connectivity for up to the 2070 50-year storm event
- Installation of a second culvert with a 9-foot span by 3-foot rise opening designed for terrestrial wildlife passage located approximately 200 feet north of the existing crossing
- Raising Warren Wright Road approximately 3 feet at the low point to enhance climate resilience

Table 1. MA Stream Crossing Standards Summary

Standard		Project Meets
Structure Type	Open-bottom preferred	Meets requirement
Embedment	Embed culvert 2ft or 25% if pipe	Not applicable because open-bottom
Crossing Span	1.2 x bankfull width minimum (to the maximum extent practicable)	Hydraulic connectivity provided. Hop Brook culvert passes 100-year storm. See note below* Terrestrial passage provided in adjacent culvert.
Substrate	Design requires proposed streambed materials to match native material gradation	Meets requirement
Water Depth & Velocity	Match water depth & velocity in natural stream	Meets requirement
Openness	Openness ratio of at least 0.82ft	Meets requirement - Openness ratio 6.1ft
Banks	Match existing stream profile. Construct to not hinder use by riverine wildlife	Meets requirement

Construction Sequence

Construction Sequence

Overall construction sequencing for the project is anticipated to be as follows, although the sequence may be adjusted based on the contractor's construction plan.

1. Site Preparation
    a. Install erosion and sedimentation controls
    b. Install temporary water controls
    c. Dewater in-stream work area
    d. Traffic management plan implementation
2. Excavation and Culvert and Terrestrial Crossing Installation
    a. Earth excavation
    b. Install structures and gabion retaining walls
    c. Open new culvert to flow
3. Site restoration
    a. Backfill
    b. Roadway reconstruction
    c. Seeding with native seed mix
4. Site Closure
    a. Remove all construction equipment
    b. Once vegetation has established, remove sediment and erosion controls

Construction Period Mitigation Measures

Sediment and Erosion Control

Construction period mitigation for sedimentation and erosion controls includes the following:

- Adequate sedimentation and erosion control management measures, practices and devices, such as installation of sediment control barriers (including silt fence backed by straw bales or similarly effective devices) downgradient of all exposed areas, installation of construction entrance, implementation of a water control sequence, and utilization of construction dewatering discharge settling basins.
- Temporary sediment control barriers shall be removed upon completion of work but not until all disturbed areas are permanently stabilized. The sediment collected by these sediment barriers shall be removed and placed at an upland location and stabilized to prevent its later erosion into a waterway or wetland.
- All exposed soil and other fills shall be permanently stabilized at the earliest practicable date.

Wetland Impact Minimization and Monitoring

Minimization measures and the sequence of work for temporary impacts & in-situ restoration are as follows:

- Wetland flagging shall be maintained throughout the project and subsequent BVW monitoring period, as practicable.
- Color photos shall be taken from an established reference point(s) prior to the commencement of work.
- Erosion controls shall be installed prior to the commencement of work.
- All disturbed areas will be seeded with appropriate seed mixes, as detailed in the Site Plans.
- Once the site is stable, erosion controls shall be removed from within the nearby BVW to facilitate in-situ restoration.
- Color photos shall be taken from established reference point(s) upon the completion of the in situ restoration work.
- Within 12 months after construction is complete, a qualified environmental monitor will evaluate the in-situ BVW restoration and the new culverts (i.e., Hop Brook and terrestrial passage). Monitoring includes post-construction photo-points that capture longitudinal views of the crossing inlet, the crossing outlet

and the upstream and downstream channel beds during low flow conditions. In addition, in-situ BVW restoration areas will be evaluated for types of species and percent cover. The monitoring reports with color photographs shall be submitted to the Conservation Commission within 18 months after construction is complete. If necessary, a corrective plan of action shall be submitted to the Conservation Commission for review and approval. Monitoring Reports will be conducted by a qualified wetland scientist.

Monitoring Criteria

Post-construction monitoring of the wetlands within the limit of work will be conducted to evaluate how the wetland meets the following performance standards:

- At least 75% of the surface area of the wetland restoration area established with indigenous wetland plant species
- Demonstrated progress and function of the wetland restoration area
- The site has wetland hydrology during the growing season
- Coverage of native, hydrophytic vegetation
- Invasive species are being controlled
- All slopes, soils, substrates, and constructed features within and adjacent to the mitigation site are stable

Ecological Restoration Goals

The above elements comprise an ecological restoration project that meets the criteria set forth in 310 CMR 10.13(3) for the project type "Freshwater Stream Crossing Repair and Replacement." The project furthers five of the eight interests of the Wetlands Protection Act, each of which is addressed below: flood control, storm damage, protection of public and private water supply, protection of fisheries, and protection of wildlife habitat.

Flood Control

The proposed project will open up an existing constriction at which hydraulic modeling indicates flooding and overtopping of the road occurs during heavy precipitation events. Enlargement of the crossing will enable passage of peak flows associated with existing and future storm conditions. As detailed in the H&H Report, flooding caused by the constriction will be alleviated and extent of downstream flooding will not be impacted by the project.

Storm Damage Prevention

Under existing conditions, the roadway overtops in the 50- and 100-year events. For future conditions the roadway elevation will be raised and the culverts sized to prevent roadway overtopping during the future projected 50- and 100-year storm events. Raising Warren Wright Road approximately 3 feet at the low point will minimize storm damage due to road overtopping.

Protection of Public and Private Water Supply

Hop Brook, is the primary recharge for the Daigle aquifer and the Lawrence Swamp aquifer. Improving the health of the stream and watershed will help to maintain recharge of these aquifers and play a role in protection of the public water supply serving Belchertown and Amherst.

Protection of Fisheries

Hop Brook is a mapped coldwater fishery resource. Replacing culverts along the stream with a structure that meets the Massachusetts Stream Crossing Standards will improve aquatic organism passage and promote healthy habitat for fish in the stream and will reinstate a more natural sediment and nutrient flow of the system.

Protection of Wildlife Habitat

Installation of a secondary terrestrial passage structure will promote safe connectivity that currently is not present across Warren Wright Road. Fuss & O'Neill has corresponded with NHESP on multiple occasions throughout the design process regarding design parameters for the wildlife passage, species present, and development of a species protection plan as a mitigation measure. Based on the February 18, 2022 meeting with NHESP, suggestions on terrestrial crossing best practices have been incorporated into the current design.

Invasive Species Prevention and Control

The spread of invasives will be avoided to the maximum extent practicable. Measures will be implemented to reduce the potential for introduction or spread of invasive species within the project area. These measures include:

- The source of any imported soils or similar material will be evaluated for the presence of invasive species and appropriately decontaminated before use in construction; all straw bales and erosion control materials will be specified as weed-free.
- Vehicles, equipment, and tools will be cleaned of loose soils and plant materials before mobilization to the site.
- Vehicles, equipment, and tools that have direct contact with invasive species or loose soils during construction will be cleaned or treated before leaving the project area.

Post Construction O&M

Proper maintenance is critical to ensure adequate hydraulic capacity and structural integrity of roadstream crossings. The proposed replacement structure is designed to limit blockages and erosion, however regular inspections are recommended. The same inspection protocol should be used for both the primary stream crossing and secondary terrestrial passage structure.

- First year after installation:
  - Inspect for plant survival and provide temporary irrigation as needed until plants mature.
  - Inspect after every rainfall event in the first six months; inspect after significant rain events (e.g. >0.5 inch) thereafter.
- Inspect semi-annually and after major storms:
  - Check for scour or excessive erosion of streambanks and stream crossings. Repair to match design grades as necessary. Utilize original design material.
  - Remove debris that could cause damage to the structure or any blockages that are altering the flow in a manner that may damage the structure or cause bank erosion.
  - Repair damage caused by vehicles, erosion, wildlife, etc. that affect the integrity of the structure or adjacent streambanks.
  - Inspect for plant health/survival and replace dead or dying native vegetation to maintain percent cover as designed in site plans. Develop a reinforcement planting plan if the vegetation generates a vegetative cover of less than 50% within the first two years of operation.
- Ongoing:
  - Conduct an annual visual inspection of the structure; follow-up on any deficiencies noted by the Town or by MassDOT inspections.
  - Remove burrowing animals in accordance with local, state, and federal guidelines and regulations.
  - Do not apply fertilizer.
  - Do not dump or store snow in the structure.
  - Do not drive vehicles and heavy construction equipment into the structure.
  - Do not obstruct access to and around the infrastructure. Access is required for maintenance purposes.

Flood Impacts

Hop Brook was modelled using a HEC-RAS 2D unsteady model. The modelling demonstrates that the upstream and downstream water surface elevations are not impacted by the proposed culvert replacement and road raising.

The proposed project will result in decreased flow velocities through elimination of the existing constriction point at Hop Brook and Warren Wright Road which causes overtopping of the roadway during the current 25-, 50- and 100-year events. The proposed project is expected to reduce potential flooding impacts. All project activities are being undertaken to protect roadway infrastructure within the project area that is currently susceptible to flooding.

The proposed replacement crossing at Warren Wright Road and Hop Brook will have the hydraulic capacity to pass the pass the current 100-year storm and 2070 100-year storm without overtopping the road. Warren Wright Road currently overtops at an elevation of 186 feet.

Based on the H&H analysis, the proposed culvert will not raise water surface elevation (WSEL) downstream of the project or significantly alter WSEL under current climate conditions. According to the H&H report, a rise of approximately 0.5 feet for the 100-year event is predicted under future conditions, but this rise is occurring throughout the reach as a response to the 27% increase in rainfall depth.

Site/Project History:

The Project Site (i.e., limits of work) consists of a 40,275-square foot (sf) area which includes Warren Wright Road at the crossing with Hop Brook located between the intersections with Goodell Street and Orchard Street. The Project Site includes an approximately 600 linear foot (lf) segment of Warren Wright Road and existing roadway embankments, and small portions of Town-owned property at the culvert crossing which consists of Hop Brook and BVW.

Existing Conditions

Hop Brook flows under Warren Wright Road just north of Orchard Road. The existing stream crossing consists of three 5'-diameter round corrugated metal pipes with severe deficiencies. The crossing receives runoff from a 7 square mile watershed and is known to be undersized; this has since been confirmed via hydraulic modeling. The pipes are partially filled with sediment and are routinely submerged due to beaver activity, despite the presence of a flow-control device/pond leveler installed in the downstream beaver dam.

The crossing has been identified among the top 5% of crossings prioritized for replacement by the Mass Wildlife Climate Action Tool. Hop Brook is a coldwater fishery resource (CWF) and provides the primary recharge for the Daigle aquifer and the Lawrence Swamp aquifer, which are public water sources for Belchertown and Amherst. Further, the culvert links two pieces of conservation property within the Topping Farm Conservation Area and is part of a larger corridor in Belchertown that provides important habitat connectivity. The Warren Wright Road crossing has been identified as a top priority for replacement through a town-wide road/stream crossing assessment.

Regulated Areas under the MA Wetlands Protection Act Regulations (310 CMR 10.00):

Wetland resource areas were delineated on October 19, 2021 by a Fuss & O'Neill wetland and soil scientist. The wetland delineation was conducted in accordance with the Massachusetts Wetland Protections Act

(MAWPA, MGL c. 131 § 40) and 310 CMR 10.00, the Massachusetts Handbook for Delineation of Bordering Vegetated Wetlands, and the U.S. Army Corps of Engineers' 1987 Wetland Delineation Manual and the Regional Supplement to the Corps of Engineers Wetland Delineation
Manual: Northcentral and Northeast Region. In addition, publicly available information about the Project Site and surrounding area using Massachusetts Geographic Information Systems (MassGIS) and FEMA Flood Insurance Rate Map (FIRM) were reviewed.

The following wetland resource areas subject to jurisdiction under MAWPA were identified at or near the Project Site:

- Inland Bank
- Bordering Vegetated Wetlands (BVW)
- Land Under Water Bodies and Waterways (LUWW)
- Bordering Land Subject to Flooding (BLSF)
- Riverfront Area

In addition, the 100-ft Buffer Zone from Bank and BVW is located in the Project Site.

The Project Site is located within FEMA Flood Zone A, which does not include a Base Flood Elevation (BFE). The 100-year flood elevation was determined to be at a BFE of 187.5 feet based on Hydrologic & Hydraulic (H&H) analysis.

Table 2. Wetland Resource Area Change Summary within Limits of Work

Resource Area	Existing Area or Length	Proposed Area or Length	Net Change	Notes
Bank	405 lf	245 lf	-160 lf	Loss of 160 lf due to removal of 3 culverts and replacement with a single culvert.
Bordering Vegetated Wetland (BVW)	9,765 sf	8,760 sf	-1,005 sf	Permanent loss of 1,005 sf due to installation of gabion basket retaining wall.
Land Under Water Bodies and Waterways (LUWW)	2,740 sf	2,980 sf	+240 sf	Gain of 240 sf of new LUWW converted from BLSF as a result of the proposed wider culvert opening.
Bordering Land Subject to Flooding	8,695 sf	1,190 sf	-7,505 sf	Loss of 7,505 sf of area of BLSF within the limits of work and net fill in BLSF (282 cubic yards) resulting from the road raising will not cause an increase or will contribute incrementally to an increase in the horizontal extent and level of flood water during peak flows. According to the H&H analysis, the proposed project is expected to reduce potential flooding impacts to Warren Wright Road at the Hop Brook crossing. The existing modelled 100-year floodplain is at elevation 187.5 feet. The modelled 100-year floodplain after the culvert replacement and associated road raising is at elevation 186.8 feet.
Riverfront Area excludes minor activities per 310 CMR 10.02(2)(b)(2)(p)	25,140 sf	25,140 sf	0 sf	Permanent impact is associated with raising the roadway to allow for hydraulic connectivity under future conditions. Portions of Riverfront Area permanent impacts overlap with permanent impacts to BVW and BLSF.

Approximately 11,315 sf of Riverfront Area within the Project Site is considered previously degraded by pavement. This area was excluded from the Riverfront Area calculations in Table 8-1 based on activities qualifying as an exempt activity within Riverfront Area per 310 CMR 10.02(2)(b)(2)(p) and 310 CMR 10.58(6)(b).

310 CMR 10.58(6)(b) considers minor activities identified in 310 CMR 10.02(2)(b)1 as exempt from requirements for Riverfront Area. 310 CMR 10.02(2)(b)1 references minor activities described in 310 CMR 10.02(2)(b)(2).

310 CMR 10.02(2)(b)(2)(p) considers minor activities within Buffer Zone exempt from filing a Notice of Intent for pavement resurfacing and reclamation:
"Pavement repair, resurfacing, and reclamation of existing roadways within the right-of-way configuration provided that the
roadway and shoulders are not widened, no staging or stockpiling of materials, all disturbed road shoulders are stabilized
within 72 hours of completion of the resurfacing or reclamation, and no work on the drainage system is performed, other
than adjustments and/or repairs to respective structures within the roadway;"

Inland Bank (310 CMR 10.54)

The alteration of approximately 405 lf of Bank is associated with the replacement of the three undersized culverts with one three-sided culvert that meets the Massachusetts Stream Crossing Standards (currently each of the three culverts is considered to have its own bank). Impacts include minor grading to tie in the new culvert and associated streambed to the existing limits of Hop Brook at the crossing with Warren Wright Road. The Bank alignment will generally be maintained compared to existing Bank alignment, although the replacement of three culverts with one larger culvert will shift the location of Bank within the culvert. The proposed culvert replacement will improve the physical stability of the Bank, increase the water carrying capacity of Bank within the culvert, and improve habitat function in this area overall.

Bordering Vegetated Wetlands (BVW) (310 CMR 10.55):

The alteration of approximately 9,765 sf of BVW (1,005 sf permanent and 8,760 sf temporary) is associated with design elements incorporated into the design to accommodate the road raising and to meet MassDOT standards for Warren Wright Road, which is classified as an urban local road. Permanent fill of BVW has been minimized to the maximum extent practicable by utilizing gabion retaining walls instead of grading the road embankment out with a 1.5:1 or 2:1 slope. Temporarily disturbed BVW will be restored with a native seed mix and straw mulch. Although the project results in impacts to BVW due to the placement of gabion retaining walls, the net benefit of restoring hydrologic connectivity of Hop Brook through culvert replacement and enhancing terrestrial passage by installation of the terrestrial passage culvert outweighs these impacts.

Land under Waterbodies and Waterways (LUWW) (310 CMR 10.56):

The alteration of approximately 2,890 sf of LUWW is associated with the culvert replacement, installation of scour protection and minor grading to tie grades from the new culvert in with Hop Brook. Widening of the culvert will result in the creation of an additional 240 sf of LUWW through conversion of upland and from area previously contained within the roadway embankment as the width of the box culvert is extended from 3 round, 5-foot diameter corrugated metal pipes with a 23-foot span by 8-foot rise open-bottom box culvert.

The construction sequencing and erosion and sedimentation controls have been designed to maintain or enhance the following:

1. The water carrying capacity within the defined channel, which is provided by said land in conjunction with the banks;
2. Ground and surface water quality;
3. The capacity of said land to provide breeding habitat, escape cover and food for fisheries; and
4. The capacity of said land to provide important wildlife habitat functions.

While temporary impacts to LUWW may occur, once complete, the proposed work will ultimately improve the ability of LUWW to support the interests of the Act.

Bordering Land Subject to Flooding (BLSF) (310 CMR 10.57)

The alteration of 8,695 sf of BLSF is associated with the full depth reconstruction along Warren Wright Road and the road shoulders. Although the project will result in loss of 7,505 sf of BLSF within the limits of work and net fill of 282 cubic yards in BLSF, the opening of the culvert will not reduce the capacity of the BLSF to provide functions of flood storage. The proposed project will not increase the horizontal extent and level of flood waters during peak flows, restrict flows as to cause an increase in flood stage or velocity, or impact its capacity to provide important wildlife function.

Riverfront Area (310 CMR 10.58)

The alteration of approximately 25,140 sf of Riverfront Area (not including 11,315 sf of Riverfront Area is associated with the Hop Brook culvert replacement and terrestrial passage culvert installation. These Riverfront Area impacts overlap with permanent impact areas of BVW and portions of BLSF. All remaining disturbed areas outside of the road footprint will be restored with native seed mix and straw mulch.

The Riverfront Area within Warren Wright Road is considered a degraded area due to the impervious area of Warren Wright Road. No significant adverse impacts to Riverfront Area will occur as a result of the project, instead, the restoration project has been designed to enhance protection of the interests of the Act. The proposed project will result in an improvement over existing conditions by increasing the capacity of the riverfront area to provide important wildlife habitat functions and enhance hydrologic connectivity of Hop Brook at the crossing with Warren Wright Road.

Full depth reconstruction of the existing roadway within the existing road footprint will take place within the Riverfront Area to improve resilience of the road. As mentioned above, this work, which encompasses 11,315 sf of area, was excluded from the Riverfront Area based on activities qualifying as an exempt activity within Riverfront Area per 310 CMR 10.02(2)(b)(2)(p) and 310 CMR 10.58(6)(b).

Wildlife Habitat (310 CMR 10.59)

The project area is located within an area mapped as Natural Heritage and Endangered Species Program (NHESP) Estimated Habitats of Rare Wildlife and Priority Habitat of Rare Species and is therefore subject to MESA review under 321 CMR 10.18. As described above, Fuss & O'Neill has corresponded with NHESP on multiple occasions throughout the design process regarding design parameters for the wildlife passage, species present, and development of a species protection plan as a mitigation measure. The preliminary determination from NHESP indicated it is anticipated that no adverse effect to the rare wildlife wetland habitat would result from the project, and that the project will require a Division-approved Turtle Protection Plan to be implemented during work in order to avoid a Take.

The NHESP issued a formal determination on 4/17/2024 which stated that the project, as proposed, must be conditioned so that it would not result in a prohibited Take of state-listed species. The condition requires the

development of a Division-approved Turtle Protection Plan, which has been submitted with the Ecological Restoration Notice of Intent application.

Stormwater Management

The proposed project is not subject to the MassDEP Stormwater Management Standards.

Other Applicable Standards and Requirements

Fisheries

The Massachusetts Division of Fisheries and Wildlife (MassWildlife) reviewed the proposed project and indicated that the project is expected to have long-term benefits for natural stream function and connectivity that will likely outweigh any short-term impacts; therefore, MassWildlife supports this project and offered no Time of Year Restrictions.

MassDEP Stormwater Management Guidelines

The proposed work will not result in any new point source of discharge. Per the recommended final decision issued on July 29, 2016 in the Matter of Berkshire Community College Docket # WET-2015-023 from the MassDEP Office of Appeals and Dispute Resolution, it was ruled that 310 CMR 10.5(6)(k) through (q) do not apply to a project that does not propose a "point source" or "Stormwater discharge" within resource areas or their Buffer Zones.

Water Supply Wells

The Proposed Project does not have potential to negatively impact private water supply wells, including agricultural or aquacultural wells or surface water withdrawal points.

Alternatives Analysis:

Multiple alternatives were considered for the project design. Alternatives were evaluated based on hydraulic capacity, resilience of infrastructure to future storms, wildlife considerations, wetland resource area impacts, geotechnical factors, site constraints, and cost. Alternatives considered below focus on roadway design and culvert replacement. The rationale for each alternative is also discussed in the following sections below.

Roadway Design Alternatives: Maintain Road Elevation

This alternative would maintain Warren Wright Road in its current condition. In this condition the road is susceptible to flooding during the current 100-year storm and future 100-year storm. This alternative was not preferred as it would restrict access along this road for residents and emergency vehicles during high precipitation events, which are expected to increase in frequency with climate change. This alternative was eliminated from consideration as it does not improve resilience of the road, especially considering projected future conditions.

Roadway Design Alternatives: Road Raising – Vertical Embankment (Preferred)

This alternative includes the proposed design to raise the road approximately 3 feet at the low point and use of gabion retaining walls to facilitate this design. This design includes passing the 2070 100-year storm without overtopping the road. This is a significant improvement over existing conditions of the road and minimizes wetland impacts by installation of a vertical gabion retaining wall instead of a sloped road embankment. This is the preferred alternative as it enhances climate resilience of the road while minimizing impacts to BVW and Riverfront Area to the maximum extent practicable.

Road Raising – Sloped Embankment

This alternative includes the proposed design to raise the road approximately 3 feet at the low point, but utilizes a different method to stabilize the road embankment. Grading of the embankment slopes to 2:1 or 3:1 would be incorporated, which would result in significantly greater BVW area. Although this design improves climate resilience of the road, it also results in significantly greater impacts compared to a vertical gabion retaining wall. Therefore, this alternative was discarded from consideration.

Culvert Replacement Alternatives: No Action

The No Action alternative would maintain inadequate capacity for storm events and maintain habitat fragmentation of Hop Brook. Current and future high flow events will continue to overtop the road and degrade the culvert and road conditions. This alternative was discarded from consideration as leaving the existing culverts in place fails to address the severe condition deficiencies, hydraulic deficiencies, and limitations to aquatic and terrestrial passage.

Culvert Replacement Alternatives: Open Bottom Box Culvert 23-Foot Span with Separate Terrestrial Passage (Preferred)

This alternative includes the proposed design. Iterations of design for the Hop Brook and terrestrial passage culverts were evaluated in consultation with the DER, NHESP, and the Town. This is the preferred design as it incorporates a culvert with hydraulic capacity to accommodate future precipitation events under climate change and provides terrestrial passage 200 feet north of the Hop Brook culvert.

Culvert Replacement Alternatives: Culvert Replacement In-Kind

Similar to the No Action alternative, culvert replacement in kind would maintain inadequate capacity for storm events and habitat fragmentation. This alternative was discarded from consideration as it does not enhance ecological restoration and maintains the current undersized culverts.

Regulated Areas under the Belchertown Stormwater Management Bylaw, Chapter 112:

The project is not subject to the Belchertown Stormwater Management Bylaw, Chapter 112, pursuant to the following exemption:

Section 7(b)(d): "Activities that are exclusively limited to maintenance and improvement of existing roadways (including widening less than a single lane, adding shoulders, correcting substandard intersections, improving existing drainage systems, and repaving projects.)"

TOWN OF BELCHERTOWN CONSERVATION COMMISSION
APPROVED DOCUMENTS & PLANS

DEP File # 104-1112: Warren Wright Road
Assessor's Map ROW
Town of Belchertown c/o Linda Leduc; Hop Brook Culvert Replacement

Title	Prepared by	Signed/Stamped by	Scale	Date
WPA Form 3A – Notice of Intent for Ecological Restoration Project, including:	Fuss & O'Neil	Linda Leduc, Belchertown DPW Director	No Scale	3/15/2024
Section 1: Introduction	Fuss & O'Neil	N/A	No Scale	3/15/2024
Section 2: Existing Conditions	Fuss & O'Neil	N/A	No Scale	3/15/2024
Section 3: Proposed Project & Ecological Restoration Goals	Fuss & O'Neil	N/A	No Scale	3/15/2024
Section 4: Invasive Species Prevention & Control	Fuss & O'Neil	N/A	No Scale	3/15/2024
Section 5: Operation & Maintenance Plan	Fuss & O'Neil	N/A	No Scale	3/15/2024
Section 6: Flood Impacts	Fuss & O'Neil	N/A	No Scale	3/15/2024
Section 7: Wetland Resource Areas & Impacts	Fuss & O'Neil	N/A	No Scale	3/15/2024
Section 8: Rare Species & Fisheries	Fuss & O'Neil	N/A	No Scale	3/15/2024
Section 9: Alternatives Analysis	Fuss & O'Neil	N/A	No Scale	3/15/2024
Section 10: MassDEP Stormwater Management Guidelines	Fuss & O'Neil	N/A	No Scale	3/15/2024

Section 11: Water Supply Wells	Fuss & O'Neil	N/A	No Scale	3/15/2024
Figure 1: USGS Topographic Map	Fuss & O'Neil	N/A	1"=24,000'	3/1/2024
Appendix A: Site Plans	Fuss & O'Neil	Dan Delany, PE	1"=30'	3/15/2024
Appendix B: MA Inland Resource Area Delineation Report, including Site Photographs	Fuss & O'Neil	Michael Soares, PWS	No Scale	1/13/2022
Appendix C: Hydrologic & Hydraulic Report	Fuss & O'Neil	N/A	No Scale	2/2024
Appendix D: Time of Year Restriction Determination	MA Division of Fisheries & Wildlife	Adam Kautza, Coldwater Fisheries Project Leader	No Scale	3/6/2024
Appendix E: NHESP Information, including:	Varies	Varies	No Scale	Varies
Email RE: Request for Preliminary Determination – Hop Brook Culvert Replacement	Fuss & O'Neil MA Division of Fisheries & Wildlife	Lauren Glorioso, DFW April Doroski, Fuss & O'Neil	No Scale	Varies
MESA Project Review Checklist	Fuss & O'Neil	Linda Leduc, Belchertown DPW Director	No Scale	3/15/2024
Wood Turtle Protection Plan	Fuss & O'Neil	N/A	No Scale	3/2024
Appendix F: Invasive Species Control Plan	Fuss & O'Neil	N/A	No Scale	3/15/2024
Appendix G: Environmental Monitor Notice	Fuss & O'Neil	N/A	No Scale	2/29/2024
Appendix H: Abutter Notification & Certified Abutters List	Belchertown Board of Assessors	John G. Whelihan, Director of Assessments	No Scale	3/13/2024
DEP file number & comments	Mark Stinson, MassDEP WERO Circuit Rider	N/A	No Scale	4/17/2024
Site Plans entitled, "Hop Brook Culvert Replacement, Warren Wright Road, Belchertown, MA (9 Sheets)	Fuss & O'Neil	Dan Delany, PE	1"=30'	3/15/2024

NHESP Determination Letter	Natural Heritage & Endangered Species Program	Jesse Leddick, Assistant Director	No Scale	4/17/2024

ATTACHMENT C

ARMY CORPS OF ENGINEERS PERMIT
MASSACHUSETTS GENERAL PERMIT

DEPARTMENT OF THE ARMY
US ARMY CORPS OF ENGINEERS
NEW ENGLAND DISTRICT
696 VIRGINIA ROAD
CONCORD MA 01742-2751

October 18, 2024

Regulatory Division
File Number: NAE-2024-02104

Linda Leduc
Town of Belchertown
290 Jackson Street, PO Box 306
Belchertown, Massachusetts 01007
(Via Email): lleduc@belchertown.org

Dear Linda Leduc:

This regards your application submitted to the U.S. Army Corps of Engineers (USACE) to permanently impact 3,985 square feet and temporarily impact 15,640 square feet of WOTUS below the Ordinary High Water (OHW) mark for the purposes of replacing an existing 3-pipe culvert with a 3-sided box culvert. The culvert will be 30 feet long, 23 feet wide, with 8 feet of interior height. The culvert will meet all Massachusetts Stream Crossing Standards. A second culvert will be created approximately 200 feet North of the first culvert. The second culvert will be built for the purposes of terrestrial passage. The terrestrial passage will be 29 feet long, 9 feet wide, with 3 feet of interior height. The placement of culverts and associated scour protection will result in permanent impacts of 3,985 square feet of wetlands. Installation of temporary erosion control measures will result in temporary wetlands impacts of 8,760 square feet. All work will be done in the dry. Dry conditions will be met via the installation of temporary cofferdams and bypass pumps. The cofferdams will result in temporary impacts of 6,880 square feet to the stream and its adjacent wetlands. This project is located on Hop Brook, Warren Wright Road Right of Way, Belchertown, Massachusetts 01007 at approximate site coordinates 42.31984, -72.46093. The work is shown on the enclosed plans titled “HOP BROOK CULVERT REPLACEMENT” on 10 sheets and dated “MARCH 14, 2024”.

Based on the information that you have provided, we verify that the activity is authorized under General Permit # 23 and 24 of the June 2, 2023, federal permit known as the Massachusetts General Permits (GPs). The GPs are available at https://www.nae.usace.army.mil/Missions/Regulatory/State-General-Permits/Massachusetts-General-Permit.

Please review the enclosed GPs carefully, in particular the general conditions beginning on page 35, and ensure that you and all personnel performing work authorized by the GPs are fully aware of and comply with its terms and conditions. A copy of the GPs and this verification letter shall be available at the work site as required by General Condition 17. You must perform this work in compliance with the following special

condition(s):

1) You must complete and return the enclosed Work Start Notification Form to this office at least two weeks before the anticipated start date. The form shall be emailed to Maninder Singh at Maninder.Singh@usace.army.mil and cenae-r@usace.army.mil; or mailed to Maninder Singh, Regulatory Division, U.S. Army Corps of Engineers, New England District, 696 Virginia Road, Concord, Massachusetts 01742-2751.

2) You must complete and return the enclosed Compliance Certification Form to this office within one month of the completion of work. The form shall be emailed to Maninder Singh at Maninder.Singh@usace.army.mil and cenae-r@usace.army.mil; or mailed to Maninder Singh, Regulatory Division, U.S. Army Corps of Engineers, New England District, 696 Virginia Road, Concord, Massachusetts 01742-2751.

This authorization expires on June 1, 2028. You must commence or have 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 condition(s) provided above or all the terms and conditions of the GPs 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 Maninder Singh of my staff at (978) 318-8967 or (978)-257-6884 or Maninder.Singh@usace.army.mil if you have any questions.

Sincerely,

Paul Maniccia

Paul Maniccia
Chief, Massachusetts Section
Regulatory Division

Enclosures

Cc:
Samantha Dow, Fuss & O'Neill; Samantha.Dow@fando.com
Ed Reiner, U.S. EPA, Region 1, Boston, MA, reiner.ed@epa.gov
Rachel Croy, U.S. EPA, Region 1, Boston, MA, croy.rachel@epa.gov
Michael McHugh, DEP WERO, Wetlands and Waterways, Springfield, MA; michael.mchugh@state.ma.us
David Robinson, MA Board of Underwater Archaeological Resources (BUAR); david.s.robinson@mass.gov
Belchertown Conservation Commission; sfortune@belchertown.org

US Army Corps of Engineers ®
New England District

WORK-START NOTIFICATION FORM

(Minimum Notice: Two weeks before work begins)

****

EMAIL TO: Maninder.Singh@usace.army.mil and cenae-r@usace.army.mil; or

MAIL TO: Maninder Singh
Regulatory Division
U.S. Army Corps of Engineers, New England District
696 Virginia Road
Concord, Massachusetts 01742-2751

****

Corps of Engineers Permit No. **NAE-2024-02104** was issued to **Linda Leduc**. This work is located in Hop Brook, Warren Wright Road Right of Way, Belchertown, Massachusetts 01007 at approximate site coordinates 42.31984, -72.46093 and authorized to permanently impact 3,985 square feet and temporarily impact 15,640 square feet of WOTUS below the Ordinary High Water (OHW) mark for the purposes of replacing an existing 3-pipe culvert with a 3-sided box culvert. The culvert will be 30 feet long, 23 feet wide, with 8 feet of interior height. The culvert will meet all Massachusetts Stream Crossing Standards. A second culvert will be created approximately 200 feet North of the first culvert. The second culvert will be built for the purposes of terrestrial passage. The terrestrial passage will be 29 feet long, 9 feet wide, with 3 feet of interior height. The placement of culverts and associated scour protection will result in permanent impacts of 3,985 square feet of wetlands. Installation of temporary erosion control measures will result in temporary wetlands impacts of 8,760 square feet. All work will be done in the dry. Dry conditions will be met via the installation of temporary cofferdams and bypass pumps. The cofferdams will result in temporary impacts of 6,880 square feet to the stream and its adjacent wetlands.

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: _____ **Date Permit Expires:** _____

****

FOR USE BY THE CORPS OF ENGINEERS

PM: _____ Submittals Required: _____

Inspection Recommendation: _____

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-2024-02104

Project Manager: Maninder Singh

Name of Permittee: Linda Leduc

Permit Issuance Date: October 18, 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; & Maninder.singh@usace.army.mil *
*
* 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

Department of the Army
General Permits for the Commonwealth of Massachusetts

The New England District of the U.S. Army Corps of Engineers (USACE) hereby issues twenty-five (25) regional general permits (GPs) for activities subject to USACE jurisdiction in waters of the U.S., including wetlands, navigable waters within the Commonwealth of Massachusetts and adjacent ocean waters to the seaward limit of the outer continental shelf. The Massachusetts GPs (hereafter referred to as the MA GP or GP) are issued in accordance with USACE regulations at 33 CFR 320 – 332 [see 33 CFR 325.5(c)(1)]. These GPs establish criteria and contain permit conditions to ensure that the authorized activities have no more than minimal individual and cumulative adverse impacts to the environment.

This document contains the following sections: Pages

SECTION I	Statutory Authorities & Regulated Activities	2
SECTION II	Review Categories & Application Procedures	3-7
SECTION III	Massachusetts General Permits	8-34
SECTION IV	General Conditions	35-51
SECTION V	Mitigation Standards	52-54
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APPENDIX A	Guidance for Section 106 NHPA Compliance in Massachusetts	67-71
APPENDIX B	Pre-Construction Notification	72-77
APPENDIX C	Self-Verification Notification	78-81
APPENDIX D	Pre-Construction Notification Application Checklist	82-88

In issuing these GPs, the Federal Government does not assume any liability for the following: (a) damages to the permitted project or uses thereof as a result of other permitted or unpermitted activities or from natural causes; (b) damages to the permitted project or uses thereof as a result of current or future activities undertaken by or on behalf of the U.S. in the public interest; (c) damages to persons, property or to other permitted or unpermitted activities or structures caused by the activity authorized by any of the GPs; (d) design or construction deficiencies associated with the permitted work; or (e) damage claims associated with any future modification, suspension or revocation of these permits.

Tammy R. Turley 02 June 2023

Tammy R. Turley Date
Chief, Regulatory Division

SECTION I. STATUTORY AUTHORITES & REGULATED ACTIVITIES

1. Work Requiring USACE Authorization

a. Section 10: Work and structures that are located in, over, under or that affect navigable waters of the United States (U.S.) (see 33 CFR 329). The USACE regulates these activities under section 10 of the Rivers and Harbors Act of 1899 (see 33 CFR 322).

b. Section 404: The discharge of dredged or fill material into waters of the U.S (see 33 CFR 328). The USACE regulates these activities under Section 404 of the Clean Water Act (CWA). The term "discharge of dredged or fill material" also includes certain discharges resulting from excavation. Applicants should contact USACE to determine if a particular excavation discharge occurring within waters of the U.S., is a regulated activity. See 33 CFR 323.4 of the CWA for exempted activities.

For additional information on the limits of USACE jurisdiction, please see: https://www.nae.usace.army.mil/Portals/74/docs/regulatory/JurisdictionalLimits/Jurisdictional_Limits_Brochure.pdf

2. Authority to Issue General Permits

a. In accordance with 33 CFR 322.2(f), 325.2(e)(2), and 325.5(c), USACE may issue regional general permits authorizing activities under Section 10 of the RHA.

b. In accordance with Section 404(e) of the CWA, 33 USC 1344(e), and 33 CFR 323.2(h), 325.2(e)(2), and 325.5(c), after notice and opportunity for public hearing, USACE may issue regional general permits for any category of activities involving discharges of dredged or fill material if the activities in such category are similar in nature, will cause only minimal adverse environmental effects when performed separately, and will only have minimal cumulative adverse effect on the environment.

3. Related Laws

33 CFR 320.3 includes a list of related laws including, but not limited to, Section 408 of the Rivers and Harbors Act of 1899, Section 401 of the Clean Water Act, Section 402 of the Clean Water Act, Section 307(c) of the Coastal Zone Management Act of 1972, Section 106 of the National Historic Preservation Act of 1966, Section 7 of the Endangered Species Act, the Fish and Wildlife Coordination Act of 1956, the Magnuson-Stevens Fishery Conservation and Management Act, the Fish and Wildlife Coordination Act, Section 302 of the Marine Protection, Research and Sanctuaries Act of 1972, Section 7(a) of the Wild and Scenic Rivers Act, the Golden Eagle Protection Act, and the Migratory Bird Treaty Act.

SECTION II. REVIEW CATEGORIES & APPLICATION PROCEDURES

To qualify under these GPs, the design, construction, and maintenance associated with each proposed activity must meet the terms and eligibility criteria listed in Section III, all applicable general conditions (GCs) in Section IV, and any specific mitigation requirements in Section V. Applicants should first review the GPs to see if a project is eligible for authorization under one or more of the GPs within this document. Any activity not specifically listed may still be eligible for authorization under these GPs; applicants are advised to contact USACE for specific eligibility determination.

Please note that these GPs allow for Self-Verification (SV) contingent upon meeting all criteria and with full adherence to all GCs. Projects that do not qualify for SV, may meet criteria for Pre-Constriction Notification (PCN). Tables are provided under each activity, which outline criteria for SV and PCN. Activities that do not meet criteria for SV or PCN may require review as an Individual Permit (IP). Activities may require a PCN or IP as noted in Sections III and/or IV of this GP. Notwithstanding compliance with the terms of these GPs, USACE retains discretionary authority to require either PCN review or IP review on a case-by-case basis for any project based on concerns for the environment or for any of the other public interest factors found in 33 CFR 320.4(a). These GPs also do not replace or change those activities identified as exempt from USACE regulation (33 CFR 323.4).

1. Pre-Application Assistance

Prospective applicants may request a pre-application meeting to address any questions they may have. USACE may also request a pre-application meeting or additional information to facilitate review of the request. Pre-application meetings and/or site visits help streamline the authorization process by alerting the prospective applicant to potentially time-consuming factors that may arise during the evaluation of their project (e.g., avoidance, minimization and compensatory mitigation requirements, historic properties, endangered species, essential fish habitat, impacts to federal projects, and/or dredging of contaminated sediments).

To schedule a pre-application meeting, present questions, or if you need further assistance, please contact USACE at:

Email: cenae-r-ma@usace.army.mil (strongly preferred) Phone: (978) 318-8338

Mail: U.S. Army Corps of Engineers
New England District
Regulatory Division, Massachusetts Section
696 Virginia Road
Concord, MA 01742

2. Submitting a Request

Please follow the procedures outlined in Sections II.2-5 when requesting an SV or applying for PCN authorization for activities covered by these GPs. The GPs are provided in Section III below. For SV-eligible projects, the Self-Verification Notification (SVN) must be submitted within 30 days of commencing work. Otherwise, a Pre-Construction Notification (PCN) must be submitted for work that is not SV-eligible. Please include appropriate drawings and attachments and submit your request using the mailbox identified in Section II.4 or II.5 below. USACE will promptly confirm receipt of your request and notify you in the event additional information is required. Guidance on

how to submit electronic correspondence is located on the NAE Regulatory website here: https://www.nae.usace.army.mil/Missions/Regulatory/Submitting-Electronic-Correspondence.

3. Local, State & Federal Approvals

Applicants are responsible for applying for and obtaining any required local, state, and federal permits or approvals. These must be obtained prior to the commencement of work in waters. Such authorizations may include a Water Quality Certification, a Coastal Zone Management Act consistency determination, and other approvals as noted below. Authorization under these GPs does not obviate the need for the permittee to obtain other Federal, State, or local permits, approvals, or authorizations required by law.

I. Water Quality Certification under Section 401 of the Federal Clean Water Act (33 USC 1341).
Applicants are responsible for determining the appropriate 401 Water quality Certification (WQC) requirements and submitting this information to the USACE at the time of their PCN application or when completing their SVN. Applicants that are unsure of whether their activity has been certified should contact MassDEP, or EPA Region 1 when the activity is located on tribal lands, for a determination. The 401 WQC requirement must be satisfied by acquiring one of the following WQCs from MassDEP (see GC 8):

General 401 WQC: The MassDEP issued a WQC on April 21, 2023 conditionally certifies all activities in GPs 1 – 24 eligible for SV and PCN so long as the activity is described in 314 CMR 9.03, and is not an activity described in 314 CMR 9.04, and so long as the activity meets all other requirements, terms and conditions of this WQC. The MassDEP WQC also conditionally certifies activities described in GP 25 so long as the activity meets all other conditions of the WQC. Emergency projects described in GP 25 must obtain an emergency certification or otherwise be authorized pursuant to 310 CMR 10.06, qualify under a Severe Weather Emergency Declaration pursuant to 310 CMR 10.06(8) issued by the MassDEP, or meet the requirements of 9.12(2) or (3) in order to be certified under the WQC

Applicants should refer to the following link to determine if their activity is eligible: *https://www.nae.usace.army.mil/Missions/Regulatory/ State-General-Permits/ Massachusetts-General-Permit/*. If eligible, you must comply with all applicable WQC conditions. Activities listed in 314 CMR 9.03 that are not exempt from the Wetland Protection Act must have a valid Final Order of Conditions (OOC) or Final Restoration Order of Conditions pursuant to 310 CMR 10.00 to be eligible under the General 401 WQC.

Individual 401 WQC: In the event the proposed activity is not covered by the general WQC, applicants shall contact MassDEP and apply for an individual 401 WQC if their activity does not qualify for a General 401 WQC as outlined above. MassDEP may issue, waive, or deny the individual 401 WQC on a case-by-case basis. All activities listed in 314 CMR 9.04 must obtain an individual 401 WQC from MassDEP to be eligible under these GPs. When an Individual 401 WQC is required for *PCN activities*, the applicant shall submit their Individual 401 WQC application concurrently to MassDEP and the USACE to comply with 40 CFR 121.

Activities Proposed on Tribal Lands: When an activity is proposed on Tribal lands, the applicant shall refer to the general 401 WQCs granted by the Environmental Protection Agency (EPA), Region 1 on May 15, 2023. These 401 WQCs are located on the USACE Regulatory website: https://www.nae.usace.army.mil/Missions/Regulatory/State-General-Permits/Massachusetts-General-Permit/.

II. Coastal Zone Management Act Federal Consistency Concurrence pursuant to Section 307 of the CZMA of 1972, as amended. Federal consistency concurrence is required for all activities located within the coastal zone, unless determined otherwise by the Massachusetts Office of Coastal Zone Management (MA CZM) (see GC 9). As applicable, this requirement must be satisfied by acquiring one of the following from the MA CZM:

General CZM Federal Consistency Concurrence (General Concurrence): MA CZM has granted General Concurrence for all SV and PCN activities for GPs 1-25 and this can be found at: https://www.nae.usace.army.mil/Missions/Regulatory/State-General-Permits/Massachusetts-General-Permit/. The applicant must obtain all applicable permits and approvals prior to the commencement of work in USACE jurisdiction (i.e., construction begins on site). For SVs, General Concurrence is automatically granted and no further action is required from the applicant. For PCNs, the USACE will coordinate with MA CZM to acquire General Concurrence as part of the PCN application review. During review of the PCN application, USACE may request additional information from the applicant to support CZM's evaluation of the activity.

Individual CZM Federal Consistency Concurrence (Individual Concurrence): In certain cases, MA CZM may elevate any GP activity 1-25 to require Individual Concurrence. The applicant must contact MA CZM and follow the procedures to obtain Individual Concurrence as determined appropriate by MA CZM.

The MA CZM program includes five regional offices that serve 78 coastal municipalities. The following map provides more information about these offices: https://www.mass.gov/service-details/czm-regions-coastal-communities-and-coastal-zone-boundary

III. Other Approvals: Approvals typically required in Massachusetts include, but are not limited to, a Chapter 91 Permit/License, Massachusetts Environmental Protection Act (MEPA) review, Wetlands Protection Act Order of Conditions, and/or Aquaculture Certification. *Applicants should also be aware that USACE may not be able to render a permit decision in the event the proposed activity is denied by another local, state and/or federal agency.*

4. Procedures for Self-Verification (SV) Eligible Projects

If the activity is eligible for an SV, the Self-Verification Notification (SVN) must be completed prior to the start of project construction and submitted to USACE within 30 days of commencing work. The purpose of the SVN is to provide applicants with a tool to assist them when determining if the activity as proposed is SV-eligible. The following GPs do not require submission of the SVN: GP 1 (SV #1), GP 3 (SV #2-3), GP 4 (SV #2), GP 11, GP 12 (note #2), GP 14 (see note), GP 15 (see note), and GP 24 (SV #3). **For the activities not listed above, the SVN must be completed prior to the start of work and be kept on site at all times during project construction.** The applicant shall not begin work for SV-eligible activities until they have completely verified the bulleted items below.

Digital submittals by email are **strongly encouraged** to facilitate the most efficient processing of the SVN submittal. Please communicate with USACE staff if you are unable to provide a digital copy. Addresses are cenae-r-ma-sv@usace.army.mil (email) or Regulatory Division, U.S. Army Corps of Engineers, New England District, 696 Virginia Road, Concord, MA 01742-2751 (mail).

Eligible SV Activities:

- Are subject to USACE jurisdiction (see GC 2); and
- Qualify for one or more of the GPs within this document (Section III); and
- Meet the GCs within this document (Section IV); and

- When required, are supported by a complete SVN (Appendix C); and
- Receive all other required local, State, and/or Federal approvals.

5. Procedures for Pre-Construction Notification (PCN) Eligible Projects

For activities that require a PCN, an application to and written authorization from USACE is required. *No work requiring a PCN may proceed until the applicant receives written authorization from USACE verifying that the activity is authorized.* The verification letter may include special conditions that the applicant must comply with. When possible, it is *highly* recommended that PCN application materials are submitted at least 90 days before the target start date to allow for USACE evaluation and any necessary agency consultations. PCN applications shall demonstrate in writing how the proposed activity complies with all GCs, as applicable to their activity.

Digital submittals by email are **strongly encouraged** to facilitate the most efficient processing of the PCN application. Please communicate with USACE staff if you are unable to provide a digital copy. Addresses are cenae-r-ma@usace.army.mil or Regulatory Division, U.S. Army Corps of Engineers, New England District, 696 Virginia Road, Concord, MA 01742-2751 (mail).

Eligible PCN Activities:

- Are subject to USACE jurisdiction (see GC 2); and
- Qualify for one or more of the GPs within this document (Section III); and
- Meet the GCs within this document (Section IV); and
- Comply with the Mitigation Standards within this document (Section V); and
- Are supported by a complete PCN document (Appendix B); and
- When required, are supported by the submittal of project information to the appropriate parties identified in Appendix A; and
- Receive all other required local, State, and/or Federal approvals.

6. Interagency Review Procedures

The USACE reserves the opportunity to coordinate PCN activities with Federal and State agencies to ensure that the proposed activity results in no more than a minimal impact to the aquatic environment. In some cases, USACE may require project modifications involving avoidance, minimization, and/or compensatory mitigation for unavoidable impacts to ensure the net effects of a project are minimal. The USACE determines, after review and coordination with the agencies and/or the applicant, if PCN applications:

a. Meet the terms and conditions of the GP as proposed;
b. Require additional information;
c. Require avoidance, minimization, compensatory mitigation, construction sequencing, project modification, or other special conditions to avoid or minimize adverse impacts to the aquatic environment;
d. Require individual permit review regardless of whether the terms and GCs of these GPs are met, based on concerns for the aquatic environment or any other factor of the public interest (see Section 9 below).

For activities requiring a PCN, the applicant must wait for written authorization from USACE before commencing activities in waters of the U.S. Beginning work for PCN required activities without a USACE written authorization is a violation of these GPs, and the terms and conditions of this document. The applicant may be subjected to an enforcement action by USACE and/or the Environmental Protection Agency (EPA).

7. Construction of Solid Fill Structures and Fills Along the Coastline or Baseline from Which the Territorial Sea is Measured.

Projects involving the construction of solid fill structures or discharge of fill that may extend beyond the coastline or the baseline from which the territorial sea is measured (i.e., mean low water) will require a PCN. The USACE will submit a description of the proposed work and a copy of the plans to the Solicitor, Department of the Interior, Washington, DC 20240, and request comments concerning the effects of the proposed work on the outer continental rights of the United States. These comments will be included in the administrative record of the application. After completion of permit review, the record will be forwarded to the Chief of Engineers. The decision on the application will be made by the Secretary of the Army after coordination with the Attorney General.

8. Emergency Activities

Per 33 CFR 325.2(e)(4), an emergency is limited to a situation that would result in an unacceptable hazard to life, a significant loss of property, or an immediate, unforeseen, and significant economic hardship if corrective action requiring a permit is not undertaken within a time period less than the normal time needed to process an application under standard procedures. Emergency work shall be limited to that which is necessary to stabilize and secure the situation. Additional work needed for final repairs shall not be completed until approval is obtained through the appropriate, non-emergency process. Emergency work is subject to the same terms and conditions of these GPs as non-emergency work, and similarly, must qualify for authorization under these GPs; otherwise, an IP is required. *See GP 25 Emergency Situations for additional information.*

9. Individual Permit

Projects that do not meet the terms and conditions of this GP may require review as an IP (33 CFR 325.5 (b)). Proposed work in this category will require a separate Federal application for an individual permit from USACE (33 CFR 325.1). In addition, USACE retains discretionary authority on a case-by-case basis to elevate GP-eligible activities to an IP based on concerns for the environment or any other factor of the public interest (33 CFR 320.4 (a)). Applicants are required to submit the appropriate application materials directly to USACE as early as possible to expedite the permit review process. General information and application forms can be obtained at our website or by contacting our office at cenae-r-ma@usace.army.mil or (978) 318-8338. Individual 401 WQC and/or CZMA Federal consistency concurrence from the appropriate MA agencies are required before USACE can issue an individual permit. Applying for an IP does not relieve the applicant from their obligation to obtain all required Federal, State and/or local approvals.

10. Compliance

Applicants shall ensure compliance with all applicable GPs in Section III, GCs in Section IV, and any special conditions included in USACE verification letters. Noncompliance with these GPs, GCs, and special conditions may subject the applicant to criminal, civil, or administrative penalties, and/or an ordered restoration, and/or the permit may be modified, suspended or revoked by USACE. The USACE will consider any activity requiring USACE authorization to be noncompliant if that activity does not comply with all GP terms and conditions at all times, including while the project is under construction and when work is completed.

SECTION III. MASSACHUSETTS GENERAL PERMITS

Applicants are encouraged to review Sections I & II prior to submitting an application to confirm that the activity as proposed complies with all terms and conditions of the 2023 MA GPs. Applicants are also encouraged to review the definitions in Section VII, Definitions & Acronyms, of this document. Several terms are frequently used throughout the GPs, and it is important for the reader to understand these terms. If seeking verification for an activity previously verified under the 2018 MA GPs, please contact the USACE to discuss permitting needs in advance of submitting an application.

General Permits

1. Aids to Navigation and Temporary Recreational Structures
2. Maintenance
3. Moorings
4. Structures in Navigable Waters of the U.S.
5. Boat Ramps and Marine Railways
6. Utility Lines, Oil or Natural Gas Pipelines, Outfall Or Intake Structures, and Appurtenant Features
7. Dredging, Disposal of Dredged Material, Beach Nourishment, Rock Removal and Rock Relocation
8. U.S. Coast Guard Approved Bridges
9. Bank and Shoreline Stabilization
10. Aquatic Habitat Restoration, Enhancement, and Establishment Activities
11. Fish and Wildlife Harvesting and Attraction Devices and Activities
12. Response Operations, Oil and Hazardous Substances
13. Cleanup of Hazardous and Toxic Waste
14. Scientific Measurement Devices
15. Survey Activities
16. Land and Water-Based Renewable Energy Generation Facilities and Hydropower Projects
17. Residential, Commercial and Institutional Developments, and Recreational Facilities
18. Aquaculture
19. Mining Activities
20. Living Shorelines
21. Agricultural Activities
22. Reshaping Existing Drainage Ditches, Construction of New Ditches, and Mosquito Management
23. Linear Transportation Projects and Wetland/Stream Crossings
24. Temporary Construction, Access, and Dewatering
25. Emergency Situations

GP 1. AIDS TO NAVIGATION AND TEMPORARY RECREATIONAL STRUCTURES (Authority: §10)	
(a) The placement of aids to navigation and regulatory markers that are approved by and installed in accordance with the requirements of the U.S. Coast Guard (USCG). See 33 CFR, Part 66; and (b) Temporary buoys, markers, and similar structures placed for recreational use during specific events such as water skiing competitions and boat races or seasonal use. See GC 16.	
Self-Verification Eligible	**Pre-Construction Notification Required**
1. Aids to navigation and regulatory markers approved by and installed in accordance with the requirements of the USCG. 2. Temporary buoys, markers and similar structures that are: (a) placed for recreational use during specific events and removed within 30 days after event; or (b) placed during winter events on ice and removed before spring thaw. These structures must be authorized by the local harbormaster, not located within an FNP or its buffer zone, and not located in saltmarsh or tidal vegetated shallows.	1. Impacts in saltmarsh or tidal vegetated shallows. 2. Activities that are not SV eligible.
Note: An SVN submittal to USACE is not required for work authorized under SV #1 above.	

GP 2. MAINTENANCE (Authorities: §10 and §404)

Repair, rehabilitation, or replacement of any previously authorized[1], currently serviceable structure, or fill, or of any currently serviceable structure or fill authorized by 33 CFR 330.3 (activities occurring before certain dates), provided that the structure or fill is not to be put to uses differing from those uses specified or contemplated for it in the original permit or the most recently authorized modification. Minor deviations in the structure's configuration or filled area, including those due to changes in materials, construction technique requirements of other regulatory agencies, or current construction codes or safety standards that are necessary to make the repair, rehabilitation, or replacement are authorized. This GP also authorizes temporary structures, fills, and work, including the use of temporary mats, necessary to conduct the activities above. Maintenance dredging and beach nourishment are not eligible under GP 2 (see GP 7). Stream crossing modifications (including sliplining), replacements or extensions are not eligible under GP 2 (see GPs 6, 17, 23). *See GP 25 Emergency Situations for expedited review of emergency activities.*

Not authorized under GP 2 (IP required): (a) Permanent impacts in >1 acre in non-tidal waters and/or wetlands; or (b) Permanent impacts >1/2 acre in tidal waters; >1000 SF in saltmarsh, mud flats, riffle and pool complexes, or non-tidal vegetated shallows; or >100 SF in tidal vegetated shallows; or (c) Temporary impacts >1 acre in tidal waters; >5000 SF in saltmarsh, mud flats, riffle and pool complexes, or non-tidal vegetated shallows; or >1000 SF in vegetated shallows; (d) New stream channelization or stream relocation projects (e.g., those in response to storm or flood events).

Self-Verification Eligible

Maintenance activities that meet all of the following terms:

1. In non-tidal waters, the combined permanent and temporary impacts extending beyond the original footprint are ≤5,000 SF[2] and not located in vegetated shallows or riffle and pool complexes.

2. In tidal waters, the combined permanent and temporary impacts extending beyond the original footprint are ≤5,000 SF, ≤1,000 SF in mudflats and/or natural rocky habitat, and not located in saltmarsh and tidal vegetated shallows.

3. Minor deviations in the repair, rehabilitation, or replacement of previously authorized, currently serviceable structures or fills.

4. Bulkhead replacement in tidal and non-tidal waters via installation of new bulkhead within 18 inches of the existing bulkhead and associated backfill.

5. Drawdown of an impoundment for dam/levee repair provided it does not exceed 18 months and one growing season (April through September).

Pre-Construction Notification Required

1. Discharges associated with removal of accumulated sediments and debris in the vicinity of existing structures, including intake and outfall structures and associated canals.

2. The removal of sediment outside the immediate vicinity of existing structures (e.g., bridges, culverted road crossings, water intake structures, etc.) that is ≥200 linear feet. This activity is limited to the minimum necessary to restore the waterway in the vicinity of the structure to the approximate dimensions existing when the structure was built.

3. Dam and flood control or levee repair, rehabilitation, or replacement involves:
   a. A change in the flood elevation or permanent water surface elevation of the impoundment; or
   b. Drawdown of impoundment for construction exceeding one growing season (see SV eligible #5);
   c. Any modification that changes the character, scope, or size of the original fill design; or
   d. Does not meet SV eligible 1-7.

4. Installation of steel piles, including steel sheet piles, that cannot be done in the dry and where NOAA-ESA listed species are mapped as present.

[1] Some maintenance activities may not be subject to regulation under Section 404 of the CWA in accordance with 33 CFR 323.4(a)(2). Per 33 CFR 330.3, Vested dates are: a) Work performed and structures installed before December 18, 1968 (Section 10); and b) Fill placed before July 25, 1975 (Section 404).
[2] This excludes dam projects that may require a temporary drawdown with impacts >5,000 SF in non-tidal waters. Instead, the drawdown shall comply with SV #5 to be eligible under Self-Verification.

6. Any stream channel modification is limited to the minimum necessary for the repair, rehabilitation, or replacement of the structure or fill; such modifications, including the removal of material from the stream channel, must be immediately adjacent to the project or within the boundaries of the structure or fill. 7. Work to previously approved tide gates not affecting upstream tidal resource areas.	5. Activities located in the Connecticut River or Merrimack River, unless they are completed in the dry or when the tide is waterward of the work area. 6. Activities on USACE properties & USACE-controlled easements. 7. Activities that do not require an IP. Activities that do not require a PCN or an IP may be SV eligible.
Notes: 1. This authorizes the repair, rehabilitation, or replacement of any previously authorized structure or fill that does not qualify for the CWA §404(f) exemption for maintenance. See 33 CFR 323.4(a)(2). Prior USACE permits may have included authorization to maintain the activity, in which case authorization under this GP is not necessary. 2. See GC 22 for information on temporary construction mats.	

GP 3. MOORINGS (Authority: §10)

New moorings and mooring fields; the relocation of previously authorized moorings; expansions, boundary reconfigurations or modifications of previously authorized mooring fields; and maintenance and replacement of moorings.

Not authorized under GP 3 (IP required): (a) Moorings or mooring fields converted to or associated with a new boating facility[1]; or (b) Moorings in a USACE Federal Navigation Anchorage or USACE Federal Navigation Channel, except municipal-operated mooring fields.

Self-Verification Eligible	**Pre-Construction Notification Required**
1. New or relocated moorings that meet all the following terms: a. Authorized by a local harbormaster/ municipality under MGL Chapter 91 §10A; and b. No interference with navigation; and c. Single boat, single-point and non-commercial; and d. Not associated with a boating facility, and e. Neither placed within nor impact tidal vegetated shallows (e.g., eelgrass); and f. Not located within a USACE Federal navigation project (FNP) or the FNP buffer zone. 2. Existing, authorized moorings are converted from traditional moorings to low impact mooring technology (see note below) and/or helical anchors. 3. Maintenance and replacement of moorings authorized by the USACE.	1. New mooring fields; or expansions, boundary reconfigurations or modifications of existing, authorized mooring fields. 2. Moorings located such that they, and/or vessels docked or moored at them, are within the buffer zone of the horizontal limits of a Federal Anchorage. The buffer zone is equal to 3 times the authorized depth of that channel (see GC 15). 3. New individual moorings located in saltmarsh, mudflats, natural rocky habitat, and tidal vegetated shallows. Locating moorings these areas should be avoided to the maximum extent practicable. If these areas cannot be avoided, plans should show conservation mooring or low-impact mooring systems that prevent mooring chains from resting or dragging on the bottom substrate at all tides, where practicable. USACE may require a survey in areas previously mapped as containing eelgrass or within 100 ft. of existing eelgrass beds to document presence or absence of eelgrass and to determine the appropriate type and amount of compensatory mitigation for impacts to eelgrass. 4. Replacement moorings located in tidal vegetated shallows. 5. Moorings that are not SV eligible and do not require an IP.

Notes:

1. Low impact mooring systems, including conservation moorings, are encouraged to minimize impacts of chain scouring from conventional moorings during the tidal cycle.
2. An SVN submittal to USACE is not required for work authorized under SV #2-3 above.

[1] Boating facilities are marinas, yacht clubs, boat clubs, boat yards, dockominiums, town facilities, land/homeowner's associations, etc. that provide for a fee, rent or sell mooring or docking space. Not classified as boating facilities are municipal moorings or municipal mooring fields that charge an equitable user fee based only on the actual costs incurred.

GP 4. STRUCTURES IN NAVIGABLE WATERS OF THE U.S. (Authority: §10 & §404)

New, expansions, reconfigurations or modifications of structures for navigational access in waters of the U.S. including but not limited to temporary/seasonal or permanent pile and pole-supported piers, floats, stairs, shore outhauls, and boat and float lifts.

Not authorized under GP 4 (IP required): (a) Structures associated with a new boating facility; (b) Structures in a USACE Federal anchorage or channel; or (c) Artificial reefs.

Self-Verification Eligible

1. Private, non-commercial piers, floats and lifts that meet all the following terms:

   a. Piers and floats in: (i) Tidal waters total ≤600 SF combined; and (ii) Non-tidal navigable waters of the U.S. total ≤600 SF combined; and

   b. Piers are ≤4 feet wide and ≥6 feet above the marsh substrate (the height is measured from the marsh substrate to the bottom of the lowest longitudinal support); and

   c. Floats and lifts in tidal waters and non-tidal navigable waters of the U.S. are ≥24 inches above the substrate during all tidal cycles. Float stops are preferred when site conditions warrant them (i.e., low tide exposes substrate), and skids can only be used in areas where piles are not feasible and on sandy or hard bottom substrates; and

   d. Piers, floats and lifts: (i) Are ≥25 feet from previously mapped or existing vegetated shallows, or riparian property line extensions; (ii) Extend ≤25% of the waterway width in non-tidal navigable waters of the U.S. or MHW in tidal navigable waters of the U.S.

   e. Installation of ≤12-inch diameter timber piles. Installation of ≥12-inch diameter piles of any material type when installed in the dry.

2. Fenders and similar structures.

Pre-Construction Notification Required

1. Shore outhauls.
2. Expansions, modifications, or new reconfiguration zones at any authorized boating facility.
3. New, expansions, reconfigurations, reconfiguration zones, or modifications of structures that provide public, community or government recreational uses such as boating, fishing, swimming, access, etc.
4. Installation of steel piles, including steel sheet piles, that cannot be done in the dry and where NOAA-ESA listed species are mapped as present.
5. Located within the buffer zone of the horizontal limits of an FNP (GC 15).
6. Miscellaneous structures.
7. Impacts in tidal vegetated shallows.
8. Structures that are not SV eligible and do not require an IP.

Notes:

1. See GC 19 regarding pile driving and pile removal in navigable waters and
2. See GC 20 regarding time of year restrictions in tidal waters.
3. Boating facilities are facilities that provide for a fee, rent, or sell mooring space, such as marinas, yacht clubs, boat clubs, boat yards, town facilities, dockominiums, etc. Pile supported structures with no discharges of dredged or fill material are not regulated by USACE in non-navigable waters.
4. A SVN submittal to USACE is not required for SV #2 above.

GP 5. BOAT RAMPS AND MARINE RAILWAYS (Authorities: §10 and §404)

Activities required for the construction of boat ramps and marine railways, including excavation and fill.

Not authorized under GP 5 (IP required): (a) Permanent impacts that are >1 acre in non-tidal waters of the U.S., >½ acre in tidal waters; >1000 SF in saltmarsh, mud flats, riffle and pool complexes, or non-tidal vegetated shallows; or >100 SF in tidal vegetated shallows; (b) Temporary impacts in tidal waters that are >1 acre; >5000 SF in saltmarsh, mud flats, or riffle and pool complexes; or >1000 SF in vegetated shallows[1]; or (c) dredging in navigable waters of the U.S. (see GP 7).

Self-Verification Eligible	Pre-Construction Notification Required
1. In non-tidal waters, the combined permanent and temporary impacts are (a) ≤5,000 SF, and (b) not located in riffle and pool complexes and non-tidal vegetated shallows.	1. Boat ramps are located within 25 feet of property line extensions unless the properties are owned by the same owner. The USACE may require a letter of no objection from the abutter(s).
2. In tidal waters, the combined permanent and temporary impacts are (a) ≤5,000 SF, (b) ≤1,000 SF in mudflats and/or natural rocky habitat, and (c), not located in saltmarsh and tidal vegetated shallows.	2. Activities that are not eligible for SV and do not require an IP.

GP 6. UTILITY LINES, OIL OR NATURAL GAS PIPELINES, OUTFALL OR INTAKE STRUCTURES, AND APPURTENANT FEATURES (Authorities: §10 & §404)

Activities required for: (a) The construction, maintenance, repair or removal of utility lines, oil or natural gas pipelines[1], outfall or intake structures[2], and appurtenant features including the associated excavation, backfill, or bedding for these structures. (b) The construction, maintenance, or expansion of substations and other appurtenant facilities associated with a utility line, oil or natural gas pipeline, and outfall or intake structure in non-tidal waters of the U.S.; and (c) The construction and maintenance of foundations for overhead utility line towers, poles, and anchors in tidal and non-tidal waters of the U.S., provided the foundations are the minimum size necessary and separate footings for each tower leg (rather than a larger single pad) are used where feasible. This GP authorizes the construction of access roads to facilitate construction of the above activities provided the activity, in combination with all other activities included in one single and complete project, does not exceed the thresholds identified below (IP required). Access roads used solely for construction of the utility line must be removed upon completion of the work. This GP also authorizes temporary structures, fills, and work, including the use of temporary mats, necessary to conduct the activities above.[3]

Not authorized under GP 6 (IP required): (a) Permanent impacts for any single and complete project that are >1 acre in non-tidal waters of the U.S.; >½ acre in tidal waters; >1000 SF in saltmarsh, mud flats, riffle and pool complexes, or non-tidal vegetated shallows; or >100 SF in tidal vegetated shallows; (b) Temporary impacts in tidal waters that are >1 acre; >5000 SF in saltmarsh, mud flats, or riffle and pool complexes; or >1000 SF in vegetated shallows; (c) Stormwater treatment or detention systems, or subsurface sewage disposal systems in waters of the U.S.; or (d) New tide gates that do not meet SV criteria below.

Self-Verification Eligible	**Pre-Construction Notification Required**
1. In non-tidal waters, the combined permanent and temporary impacts are (a) ≤5,000 SF, and (b) not located in riffle and pool complexes and non-tidal vegetated shallows. 2. In tidal waters, the combined permanent and temporary impacts are (a) ≤5,000 SF, (b) ≤1,000 SF in mudflats and/or natural rocky habitat, and (c), not located in saltmarsh and tidal vegetated shallows. 3. Intake structures that are dry hydrants used exclusively for firefighting activities with no stream impoundments. 4. New tide gates on outfall structures for pipes conveying stormwater and/or industrial NPDES-permitted discharges from waters that are not waters of the U.S.	1. New outfall and/or intake structures. 2. Unconfined work or silt producing activities in streams with diadromous fish. 3. Submarine cables, conduits, or pipelines that occur in, over or under navigable waters of the U.S. 4. Stream channelization, relocation, impoundment, or loss of streambed occurs. 5. The activity is placed within and runs parallel to or along a streambed within waters of the U.S. 6. There is a permanent change in preconstruction contours in waters of the U.S. 7. Installation of utility lines or gas/oil pipelines using trench excavation where material is temporarily sidecast into waters of the U.S. for >3 months. Applicants must demonstrate how the material would not be dispersed by currents or other forces. 8. Activities that are not SV eligible and do not require an IP.

[1] See the definitions of a “utility line” and “oil or natural gas pipeline” in Section VII.

[2] Outfall structures must be in compliance with regulations issued under the National Pollutant Discharge Elimination System Program (Section 402 of the Clean Water Act).

[3] Temporary impacts shall comply with all GCs, including GC 32 Utility Line Installation and Removal.

GP 7. DREDGING (Authority: §10), DISPOSAL OF DREDGED MATERIAL (Authorities: §10, §404), BEACH NOURISHMENT (Authorities: §10 & §404), ROCK REMOVAL (Authority: §10) AND ROCK RELOCATION (Authorities: §10 & §404)

New, improvement and maintenance dredging (see notes below) including: (a) Disposal of dredged material at a confined aquatic disposal cell, beach nourishment location, near shore site, or ocean disposal site selected under Section 404 of the Clean Water Act pursuant to the 404(b)(1) Guidelines, provided the dredged material meets the requirements for such disposal; (b) Beach nourishment not associated with dredging; and (c) Rock removal and relocation for navigation.

Not authorized under GP 7 (IP required): (a) Dredging where ocean disposal is required for the disposal of dredged material (Section 103); New dredging >½ acre; ≥10,000 CY; >1000 SF permanent impacts to intertidal areas, saltmarsh, mud flats, riffle and pool complexes, or non-tidal vegetated shallows; or >100 SF permanent impacts to tidal vegetated shallows; (b) Maintenance or improvement dredging and/or disposal with >1 acre of impacts to intertidal areas, saltmarsh, mudflats, riffle and pool complexes, or non-tidal vegetated shallows; (c) New dredging where the primary purpose is sand mining for beach nourishment; (d) Beach scraping; (e) Boulder removal and relocation for navigation >½ acre; or (f) Blasting.

Self-Verification Eligible

1. Maintenance dredging of previously dredged areas, with upland disposal, that meet all of the following terms:
   a. Dredged area ≤1/2 acre; and
   b. Activities comply with GC 20, TOY Restrictions. The time-of-year restriction(s) stated in Appendix B of the MA Division of Marine Fisheries (DMF) Technical Report TR-47[1] can apply instead if the general TOY restriction if a TOY is provided for a specific waterbody and is less restrictive. This is to protect endangered species, EFH, and other species; and
   c. The dredge footprint is located >25' from salt marsh or >100' from vegetated shallows; and
   d. Combined permanent and temporary impacts that are (i) ≤1,000 SF in mudflats or natural rocky habitat, or (ii) ≤5,000 SF within intertidal habitat and areas containing shellfish (an area contains shellfish unless: it is verified that minimal shellfish are present per the local shellfish constable or a shellfish survey; or it is not mapped as a MassGIS shellfish suitability area).
   e. No return water from upland disposal areas.

2. Boulder relocation with ≤1,000 SF of impacts, relocated to a similar depth and substrate.

Pre-Construction Notification Required

1. Maintenance dredging where the primary purpose is sand mining for beach nourishment.

2. New dredging and associated disposal ≤1/2 acre or <10,000 cubic yards.

3. Improvement dredging.

4. Beach nourishment in waters of the U.S. not associated with dredging.

5. Activities that are located in saltmarsh and tidal vegetated shallows.

6. Dredging in a Federal Navigation Project or within the buffer zone (see GC 15).

7. Activities that are not eligible for SV and do not require an IP.

Notes:

1. See Section VII for definitions of improvement and maintenance dredging.
2. For PCN activities, the USACE may waive or adjust the time of year requirement on a case-by-case basis after consultation with resource agencies.
3. Disposal site of any dredged material must be identified prior to obtaining USACE authorization.
4. Contact the USACE if a ten-year authorization to maintain an area is desired.

[1] The MA DMF Technical Report TR-47: https://www.nae.usace.army.mil/Missions/Regulatory/State-General-Permits/Massachusetts-General-Permit/

GP 8. U.S. COAST GUARD APPROVED BRIDGES (Authorities: §404)

Discharges of dredged or fill material incidental to the construction and modification of bridges across navigable waters of the U.S., including cofferdams, abutments, foundation seals, piers, and temporary construction and access fills provided that the USCG authorizes the construction of the bridge structure under Section 9 of the Rivers and Harbors Act of 1899 or other applicable laws. A USCG Authorization Act Exemption or a Surface Transportation and Uniform Relocation Assistance Act (STURRA) (144h) exemption do not constitute USCG authorization.

Not authorized under GP 8 (IP Required): Causeways and approach fills (see GP 23).

Self-Verification Eligible	**Pre-Construction Notification Required**
1. Discharges of dredged or fill material that are incidental to the construction of bridges across navigable waters and meet all of the following: a. Combined permanent and temporary impacts that are ≤5,000 SF. b. Combined permanent and temporary impacts that are ≤1,000 SF in mudflats and natural rocky habitat. c. Not located in saltmarsh and tidal vegetated shallows.	1. Activities on USACE properties & USACE controlled easements.2. Installation of steel piles, including steel sheet piles, that cannot be done in the dry and where NOAA-ESA listed species are mapped as present. 3. Activities that are not eligible for SV and do not require an IP.

Notes:

1. GP 8 is not applicable to bridges over inland waters or wetlands that are not tidally influenced or regulated as navigable under Section 10.
2. See eligibility criteria for GPs 2 & 23 for projects that are not subject to USCG regulations.

GP 9. BANK AND SHORELINE STABILIZATION (Authorities: §10 & §404)

Bank stabilization activities necessary for erosion protection along the banks of lakes, ponds, streams, estuarine and ocean waters, and any other open waters. Includes bulkheads, seawalls, riprap, revetments, living seawalls, or slope protection & similar structures, specifically for the purpose of shoreline protection. This GP also authorizes temporary structures, fills, and work, including the use of temporary mats, necessary to conduct the activities above.

Activities must meet the following criteria: (a) No material is placed in excess of the minimum needed for erosion protection; (b) No material is of a type, or is placed in any location, or in any manner, that will impair surface water flow into or out of any waters of the U.S.; (c) No material is placed in a manner that will be eroded by normal or expected high flows (properly anchored native trees and treetops may be used in low energy areas); (d) Native plants appropriate for current site conditions, including salinity, must be used for bioengineering or vegetative bank stabilization; (e) The activity is not a stream channelization activity; and (f) The activity must be properly maintained, which may require repairing it after severe storms or erosion events. This GP authorizes those maintenance and repair activities if they require authorization. This GP also authorizes temporary structures, fills, and work, including the use of temporary mats, necessary to construct the bank stabilization activity. See GP 20 for living shoreline stabilization structures or fills.

Not authorized under GP 9 (IP required): (a) New bank stabilization >500 feet in total length (>1,000 linear feet in total length when necessary to protect transportation infrastructure) or permanent loss of saltmarsh >1,000 SF, unless the District Engineer waives this criterion by making a written determination concluding that the discharge of dredged or fill material will result in no more than minimal adverse environmental effects (an exception is for bulkheads – the district engineer cannot issue a waiver for a new bulkhead that is >1,000 feet in length along the bank); (b) Stream channelization or relocation activities; or (c) Breakwaters, groins or jetties.

Self-Verification Eligible

1. Activities in tidal and non-tidal waters that are:
   a. <200 feet in length.
   b. <400 feet in length when necessary to protect transportation infrastructure.
   c. ≤1 cubic yard of fill per linear foot average along the bank waterward of the plane of OHW or HTL.
   d. Not located in non-tidal wetlands, saltmarsh, vegetated shallows.

Pre-Construction Notification Required

1. Activities in tidal and non-tidal waters that are:
   a. ≥200 feet to ≤500 feet in total length. Activities >500 feet in total length must have a written waiver from USACE.
   b. ≥400 feet to ≤1,000 feet in total length when necessary to protect transportation infrastructure. Activities >1,000 feet in total length must have a written waiver from USACE.
   c. >1 cubic yard of fill per linear foot average along the bank waterward of the plane of OHW or HTL.
   d. Located in non-tidal wetlands, saltmarsh, vegetated shallows.
2. Activities with permanent loss of tidal or non-tidal waters that is (a) ≥5,000 SF or (b) ≥1,000 SF in mudflats and natural rocky habitat.
3. Activities that are (a) located in the Connecticut River or Merrimack River and/or (b) require installation of steel piles/steel sheet piles that cannot be done in the dry where NOAA ESA-listed species are mapped as present.
4. Activities on USACE properties & USACE-controlled easements.
5. Activities that require grouted riprap and/or poured/unformed concrete.
6. Activities that are not eligible for SV and do not require an IP.

Note: The applicant shall comply with GC 24. This includes utilization of bioengineering techniques in lieu of hard armoring to the maximum extent practicable as site conditions allow.

GP 10. AQUATIC HABITAT RESTORATION, ENHANCEMENT, AND ESTABLISHMENT ACTIVITIES (Authorities: §10 and §404)

Activities for the restoration, enhancement and establishment of non-tidal and tidal wetlands and riparian areas, including invasive, non-native or nuisance species control; the restoration and enhancement of non-tidal streams and other non-tidal open waters; the relocation of non-tidal waters, including non-tidal streams & associated wetlands for reestablishment of a natural stream morphology and reconnection of the floodplain; the restoration and enhancement of shellfish, finfish and wildlife; and the rehabilitation or enhancement of tidal streams, tidal wetlands and tidal open waters; provided those activities result in net increases in aquatic resource functions and services. See GP 9 for bank and shoreline stabilization. See GP 20 for living shorelines.

Not authorized under GP 10 (IP required): Stream channelization activities and artificial reefs.

Self-Verification Eligible	**Pre-Construction Notification Required**
1. In tidal and non-tidal waters excluding tidal vegetated shallows, the combined permanent and temporary impacts are ≤5,000 SF. 2. Eelgrass (vegetated shallows) planting and transplanting ≤100 SF in tidal waters.	1. In tidal and non-tidal waters excluding tidal vegetated shallows, the combined permanent and temporary impacts are >5,000 SF. 2. Eelgrass (vegetated shallows) planting and transplanting >100 SF in tidal waters. 3. Permanent water impoundments, dam removal, fish ladders, or tide gates. 4. Stream relocation, impoundment, or loss of streambed occurs. 5. Runneling projects with the purpose of restoring saltmarsh by removing excess water that ponds on the saltmarsh surface. 6. The conversion of: (a) a stream or natural wetlands to another aquatic habitat type (e.g., stream to wetland or vice versa, wetland to pond, etc.) or uplands, (b) one wetland type to another (e.g., forested wetland to an emergent wetland). 7. Activities in the Connecticut River from the Turners Falls Dam to the MA/CT border, or Merrimack River from the Essex Dam to the mouth, involving permanent or temporary impacts unless they are performed <5 feet waterward from OHW or HTL and in the dry. This is to protect endangered species. 8. Activities on USACE properties & USACE-controlled easements. 9. Activities that are not eligible for SV and do not require an IP.

Notes:

1. Changes in wetland plant communities that occur when wetland hydrology is more fully restored during wetland rehabilitation activities are not considered a conversion to another aquatic habitat type.
2. See RGL 18-01 for guidance on removal of obsolete dams and other structures from rivers and streams. https://www.usace.army.mil/missions/civil-works/regulatory-program-and-permits/guidance-letters/
3. An ecological reference site may be used for a design basis of the restoration activity. The reference site should possess characteristics of an intact aquatic habitat or riparian area that exists in the region. The reference site shall represent the target habitat type of the proposed activity. A reference site may be required at the discretion of USACE.

GP 11. FISH AND WILDLIFE HARVESTING AND ATTRACTION DEVICES AND ACTIVITIES (Authorities: §10 and §404)

Fish and wildlife harvesting and attraction devices and activities in waters of the U.S. such as pound nets, crab traps, crab and shellfish dredging, eel pots, lobster traps, duck blinds, clam and oyster digging, fish aggregating devices, and small fish attraction devices such as open-water fish concentrators (sea kites, etc.).

Not authorized under GP 11 (IP required): Artificial reefs; or new, or expansions of, impoundments and semi-impoundments of waters of the U.S. for the culture or holding of motile species such as lobster with an impounded area >½ acre.

Self-Verification Eligible	**Pre-Construction Notification Required**
1. In non-tidal waters, the combined permanent and temporary impacts are (a) ≤1/2 acre, and (b) not located in riffle and pool complexes and non-tidal vegetated shallows. 2. Fish and wildlife harvesting and attraction devices and activities that do not require a PCN or IP.	1. Pound nets, impoundments or semi-impoundments of waters of the U.S. for the culture or holding of motile species such as lobster with an impounded area ≤½ acre, fish aggregating devices, or small fish attraction devices. 2. Devices and activities that are located in tidal vegetated shallows, mud flats, or saltmarsh. 3. Devices and activities that do not require an IP.

Note: An SVN submittal to USACE is not required for work authorized under GP 11.

GP 12. RESPONSE OPERATIONS, OIL AND HAZARDOUS SUBSTANCES (Authorities: §10 & §404)

(a) Activities conducted in response to a discharge or release of oil and hazardous substances that are subject to the National Oil and Hazardous Substances Pollution Contingency Plan (40 CFR 300) including containment, cleanup, and mitigation efforts, provided that the activities are done under either: (i) The Spill Prevention, Control and Countermeasure Plan required by 40 CFR 112.3; (ii) The direction or oversight of the Federal on-scene coordinator designated by 40 CFR 300; or (iii) Any approved existing State, regional or local contingency plan provided that the Regional Response Team concurs with the proposed response efforts or does not object to the response effort; (b) Activities required for the cleanup of oil releases in waters of the U.S. from electrical equipment that are governed by EPA's polychlorinated biphenyl (PCB) spill response regulations at 40 CFR 761; (c) Booms placed in navigable waters of the U.S. for oil and hazardous substance containment, absorption and prevention; and (d) The use of structures and fills for spill response training exercises. Wetlands, vegetated shallows, mudflats, and riffle and pool complexes should be restored in place at the same elevation.

Self-Verification Eligible	**Pre-Construction Notification Required**
1. Activities are conducted in accordance with (a) or (b) above that are not planned or scheduled, but an emergency response (see Note 1). 2. Booms placed in navigable waters of the U.S. for oil and hazardous substance containment, absorption and prevention. 3. Temporary impacts for spill response training exercises ≤5000 SF in non-tidal waters and ≤1000 SF in tidal waters with no impacts to wetlands, saltmarsh, mudflats, or vegetated shallows. 4. Temporary structures in tidal waters with no impacts to wetlands, saltmarsh, mudflats, vegetated shallows, or riffle and pool complexes and in place ≤30 days.	1. Activities (a) or (b) above are planned or scheduled, not an emergency response; or 2. Activities that are not eligible for SV and do not require an IP.

Notes:

1. For emergency response activities in the Connecticut River from the Turners Falls Dam to the MA/CT border, Merrimack River from the Essex Dam to the mouth, and remaining tidal waters that are not rivers, the permittee must contact the USACE at (978) 318-8338 before or as soon as possible after the work authorized under GP 12(a) - (c) commences for the USACE to address effects under the Endangered Species Act.
2. An SVN submittal to USACE is not required for booms used for spill prevention, or properly contained and cleaned de minimus oil or hazardous substance discharges into navigable waters of the U.S.

GP 13. CLEANUP OF HAZARDOUS AND TOXIC WASTE (Authorities: §10 and §404)

Specific activities required to affect the containment, stabilization, or removal of hazardous or toxic waste materials, including court ordered remedial action plans or related settlements, which are performed, ordered or sponsored by a government agency with established legal or regulatory authority.

Not authorized under GP 13: (a) Establishment of new disposal sites; or (b) Expansion of existing sites used for the disposal of hazardous or toxic waste.

Self-Verification Eligible	**Pre-Construction Notification Required**
1. In non-tidal waters, the combined permanent and temporary impacts are (a) ≤5,000 SF, and (b) not located in vegetated shallows and riffle and pool complexes.	1. In non-tidal waters, the combined permanent and temporary impacts are (a) >5,000 SF, and (b) located in vegetated shallows and riffle and pool complexes. 2. Permanent and temporary impacts in tidal waters or navigable waters of the U.S. 3. Stream channelization, relocation, impoundment, or loss of streambed occurs. 4. Activities that are not eligible for SV and do not require an IP.

Notes:

1. Wetlands, vegetated shallows, mudflats, and riffle and pool complexes should be restored in place at the same elevation to the maximum extent practicable.
2. Activities undertaken entirely on a Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) site by authority of CERCLA, are not required to obtain permits under Section 404 of the CWA or Section 10 of the Rivers and Harbors Act.

GP 14. SCIENTIFIC MEASUREMENT DEVICES (Authorities: §10 and §404)

Scientific measurement devices for measuring and recording scientific data, such as staff gauges, tide and current gauges, meteorological stations, water recording and biological observation devices, water quality testing and improvement devices, and similar structures. Also eligible are small weirs and flumes constructed primarily to record water elevation, flow and/or velocity. Upon completion of the use of the device to measure and record scientific data, the measuring device and any other structures or fills associated with that device (e.g., foundations, anchors, buoys, lines, etc.) must be removed to the maximum extent practicable and the site restored to preconstruction elevations.

Not authorized under GP 14 (IP required): (a) Permanent impacts that are >5,000 SF in tidal and non-tidal waters of the U.S.; >1000 SF in tidal saltmarsh, mud flats, riffle and pool complexes; or >100 SF in tidal vegetated shallows; or (b) Temporary impacts in tidal waters that are >1 acre, unless the District Engineer waives this criterion by making a written determination concluding that the discharge of dredged or fill material will result in no more than minimal adverse environmental effects; >5000 SF in saltmarsh, mud flats, or riffle and pool complexes; or >1000 SF in vegetated shallows.

Self-Verification Eligible	**Pre-Construction Notification Required**
1. In non-tidal waters, the combined permanent and temporary impacts are (a) ≤5,000 SF, (b) not located in riffle and pool complexes and non-tidal vegetated shallows. 2. In tidal waters, the combined permanent and temporary impacts are (a) ≤5,000 SF, (b) ≤1,000 SF in mudflats and/or natural rocky habitat, (c) not located in saltmarsh and tidal vegetated shallows. 3. Temporary, non-biological sampling devices in waters that do not restrict or concentrate movement of aquatic organisms and will not adversely affect the course, condition, or capacity of a waterway for navigation. 4. Scientific measurement devices, and small weirs and flumes constructed primarily to record water quantity and velocity provided the discharge of fill is limited to 25 cubic yards. These cannot obstruct or restrict the waterway course, condition, capacity, and location. 5. Temporary measuring devices and associated structures (e.g., anchors, buoys, etc.) in tidal and non-tidal waters that do not require a PCN or IP.	1. Biological sampling devices, weirs or flumes, or the activity restricts or concentrates movement of aquatic organisms. 2. Permanent towers located in navigable waters that record and measure scientific data. 3. Devices that are not eligible for SV and do not require an IP.

Note: An SVN submittal to USACE is not required for temporary measuring devices with a footprint of <10 SF, with a profile of <3 feet high measured from the substrate and located in water deeper than -10 feet MLW.

GP 15. SURVEY ACTIVITIES (Authorities: §10 and §404)

Survey activities such as soil borings, core sampling, seismic exploratory operations, plugging of seismic shot holes and other exploratory-type bore holes, exploratory trenching, soil surveys, sampling, sample plots or transects for wetland delineations, and historic resources surveys.

Not authorized under GP 15 (IP required): (a) Permanent impacts that are >1 acre in tidal and non-tidal waters; >1000 SF in tidal saltmarsh, mud flats, or riffle and pool complexes; or >100 SF in tidal vegetated shallows; or (b) Temporary impacts in tidal waters that are >1 acre, unless the District Engineer waives this criterion by making a written determination concluding that the discharge of dredged or fill material will result in no more than minimal adverse environmental effects; >5000 SF in saltmarsh, mud flats, or riffle and pool complexes; or >1000 SF in vegetated shallows.

Self-Verification Eligible	**Pre-Construction Notification Required**
1. In non-tidal waters, the combined permanent and temporary impacts are (a) ≤5,000 SF, (b) not located in riffle and pool complexes and non-tidal vegetated shallows. 2. In tidal waters, the combined permanent and temporary impacts are (a) ≤5,000 SF, (b) ≤1,000 SF in mudflats and/or natural rocky habitat, (c) not located in saltmarsh and tidal vegetated shallows.	1. Exploratory trenching (see Note 2) occurs in waterways (e.g., streams, tidal waters). 2. Activities associated with the recovery of historic resources, and the drilling and discharge of excavated material from test wells for oil and gas exploration. 3. Seismic exploratory operations occur in tidal waters, the Connecticut River from the Turners Falls Dam to the MA/CT border, or the Merrimack River from the Essex Dam to the mouth. This is to protect endangered species. 4. Activities that are not eligible for SV and do not require an IP.

Notes:

1. An SVN submittal is not required for wetland delineations, and core sampling conducted for preliminary evaluation of dredge project analysis.
2. For the purposes of GP 15, the term “exploratory trenching” means mechanical land or underwater clearing of the upper soil profile to expose bedrock or substrate for the purpose of mapping or sampling the exposed material.
3. The discharge of drilling mud and cuttings may require a permit under §402 of the CWA.

GP 16. LAND AND WATER-BASED RENEWABLE ENERGY GENERATION FACILITIES (Authorities: §10 and §404), AND HYDROPOWER PROJECTS (Authority: §10 and §404)

Structures and work in tidal waters and discharges of dredged or fill material into tidal and non-tidal waters for the construction, expansion, modification or removal of: (a) Land-based renewable energy production facilities (e.g., solar, wind, biomass, geothermal) and their attendant features; (b) Water-based wind or hydrokinetic renewable energy generation projects and their attendant features; and (c) Discharges of dredged or fill material associated with hydropower projects. Attendant features may include, but are not limited to, land-based collection and distribution facilities, control facilities, and parking lots. For each single and complete project in (b) above, no more than 10 generation units (e.g., wind turbines or hydrokinetic devices) are authorized in navigable waters of the U.S. Upon completion of the pilot project (see note 2), the generation units, transmission lines, and other structures or fills associated with the pilot project must be removed to the maximum extent practicable.

Not authorized under GP 16 (IP required): (a) Permanent impacts that are >1 acre in non-tidal waters, >½ acre in tidal waters; >1000 SF in saltmarsh, mud flats, riffle and pool complexes, or non-tidal vegetated shallows; or >100 SF in vegetated shallows; or (b) Temporary impacts in tidal waters that are >1 acre; >5000 SF in saltmarsh, mud flats, or riffle and pool complexes; or >1000 SF in vegetated shallows.

Self-Verification Eligible	**Pre-Construction Notification Required**
In non-tidal waters, the combined permanent and temporary impacts for land-based activities are (a) ≤5,000 SF, (b) not located in riffle and pool complexes and non-tidal vegetated shallows.	1. In non-tidal waters, the combined permanent and temporary impacts for land-based activities are (a) >5000 SF, or (b) located in vegetated shallows or riffle and pool complexes. 2. Permanent and temporary impacts in tidal waters. 3. Water-based wind or hydrokinetic renewable energy generation projects, and hydropower projects. 4. For all activities eligible for authorization under GP 16: a. The activity occurs in tidal waters or in, over or under navigable waters. b. Stream channelization, relocation, impoundment, or loss of streambed occurs. 5. Activities that are not eligible for SV and do not require an IP.

Notes:

1. Utility lines constructed to transfer the energy from the land-based renewable generation or collection facility to a distribution system, regional grid, or other facility may be authorized by GP 6.
2. For the purposes of this GP, the term “pilot project” means an experimental project where the renewable energy generation units will be monitored to collect information on their performance and environmental effects at the project site.

GP 17. RESIDENTIAL, COMMERCIAL AND INSTITUTIONAL DEVELOPMENTS AND RECREATIONAL FACILITIES (AUTHORITIES: §404)

Discharges of dredged or fill material into non-tidal waters for the construction or expansion of: (a) Residences and residential subdivisions; (b) Residential, commercial and institutional building foundations and building pads; and (c) Recreational facilities such as playgrounds, playing fields, bikeways, trails, etc. This GP also authorizes attendant features that include, but are not limited to, roads, parking lots, garages, yards, and utility lines, and stormwater management facilities. This GP authorizes attendant features if they are necessary for the use of the project purpose.

Not authorized under GP 17 (IP required): (a) Permanent impacts that result in loss of non-tidal waters >1/2 acre; >1000 SF in riffle and pool complexes or vegetated shallows; or (b) Subsurface sewerage disposal systems in non-tidal waters.

Self-Verification Eligible	**Pre-Construction Notification Required**
1. In non-tidal waters, the combined permanent and temporary impacts are (a) <5,000 SF, and (b) not located in riffle and pool complexes and non-tidal vegetated shallows. 2. Stream channelization or relocation resulting in loss of streambed that is <200 LF.	1. In non-tidal waters, the combined permanent and temporary impacts are (a) ≥5,000 SF, or (b) located in riffle and pool complexes or non-tidal vegetated shallows. 2. Stream and wetland crossings that require a PCN per GCs 20 TOY Restrictions and GC 31 Stream Work and Crossings & Wetland Crossings. 3. Stream channelization or relocation resulting in loss of streambed that is ≥200 LF. Stream impoundment activities of any kind. 4. Activities on USACE properties & USACE-controlled easements. 5. Activities that are not SV eligible and do not require an IP.

Notes:

1. Stream and wetland crossings (permanent and temporary), including those built with construction mats; and modifications (including sliplining), replacements or extensions to existing crossings.
2. See GC 22 for information on temporary construction mats.
3. Subdivisions: For residential subdivisions, the aggregate total loss of waters of United States authorized by this GP cannot exceed 1/2-acre. This includes any loss of waters of the United States associated with development of individual subdivision lots.

GP 18. AQUACULTURE (Authorities: §10 and §404)

(a) The installation of buoys, floats, racks, trays, nets, lines, tubes, containers, and other structures into navigable waters of the U.S.; (b) Discharges of dredged or fill material into tidal and non-tidal waters necessary for shellfish seeding, rearing, cultivating, transplanting, and harvesting activities; and (c) Shellfish seeding or brushing the flats projects. Any fill material imported to the project from offsite (this is limited to mineral growth medium used in culture trays) shall be clean and of comparable grain size to the native substrate. Activities authorized under this GP must have (a) their MA DMF Aquaculture Certificate letter for licensed shellfish aquaculture sites, (b) documentation that the applicant has coordinated with the U.S. Coast Guard regarding USCG Private Aids to Navigation standards, (c) their MEPA Certificate (if required), and (d) documentation that the applicant has contacted their local authorities (ex. harbormaster, select board, shellfish constable) for authorization of their facility.

Not authorized under GP 18 (IP required): (a) New, or expansions of, impoundments and semi-impoundments of tidal and non-tidal waters for the culture or holding of motile species such as lobster with an impounded area >½ acre; (b) Cultivation of a nonindigenous species (see Note 1) unless that species has been previously cultivated in the waterbody; (c) Cultivation of an aquatic nuisance species (see Note 1); (d) Attendant features such as docks, piers, boat ramps (see GP 4); (e) stockpiles, staging areas, or the deposition of shell material back into tidal and non-tidal waters as waste.

Self-Verification Eligible

1. In tidal waters, a new lease site area is (a) ≤2-acre, (b) not located in salt marsh, natural rocky habitat, or tidal vegetated shallows.

2. In tidal waters, *expansions* of existing lease sites not to exceed 2 acres for the entire site (e.g. 1 acre lease site increasing to a 2 acre lease site may qualify as SV). A PCN is required for expansions in salt marsh, natural rocky habitat, and tidal vegetated shallows.

3. Cages, racks that are elevated ≥2 feet above the ocean floor with legs within a lease site with ≤4 buoys marking the corners.

4. Floating cage strings with a single connecting line, ≤2 anchors and ≤2 end marker buoys per string within a lease site with ≤4 buoys marking the corners.

5. No activities located within 25 feet of tidal vegetated shallows.

6. Culture only indigenous species.

7. Not located in FNP or within a distance of three times the authorized depth of an FNP (see GC 15).

8. Not located in or impinge upon the value of any National Lands or Federal Properties.

9. Floating upweller docks that total ≤600 SF in area.

Pre-Construction Notification Required

1. Discharges of fill material associated with aquaculture >5,000 SF.

2. Research, educational, commercial-viability or experimental aquaculture gear activities >1,000 SF.

3. Kelp or finfish aquaculture.

4. Land-based hatchery intakes >3 inches in diameter.

5. Activities in water depths >10 feet mean low lower water (MLLW).

6. Activities with in-water lines, ropes or chains that are not SV eligible (see #3-4).

7. Activities occur in the Connecticut River from the Turners Falls Dam to the MA/CT border or the Merrimack River from the Essex Dam to the mouth. This is to protect endangered species.

8. New, or expansions of, impoundments and semi-impoundments for the culture or holding of motile species such as lobster with an impounded area ≤1/2 acre.

9. Activities that do not require an IP. Activities that do not require a PCN or an IP may be SV eligible.

Note: The Nonindigenous Aquatic Nuisance Prevention and Control Act of 1990 defines: (a) nonindigenous species as “any species or other viable biological material that enters an ecosystem beyond its historic range, including any such organism transferred from one country into another”; and (b) aquatic nuisance species as “a nonindigenous species that threatens the diversity or abundance of native species or the ecological stability of infested waters, or commercial, agricultural, aquacultural, or recreational activities dependent on such waters.”

GP 19. MINING ACTIVITIES (Authorities: §10 and §404)

Discharges of dredged or fill material into non-tidal waters for mining activities, except for coal mining and metallic mineral mining activities.

Not authorized under GP 19 (IP required): (a) Permanent impacts >1 acre in non-tidal waters; or (b) Activities in tidal waters.

Self-Verification Eligible	Pre-Construction Notification Required
In non-tidal waters, the combined permanent and temporary impacts are (a) ≤5,000 SF, and (b) not located in riffle and pool complexes, non-tidal vegetated shallows, and streams.	1. In non-tidal waters, the combined permanent and temporary impacts are (a) >5,000 SF, or (b) located in riffle and pool complexes, non-tidal vegetated shallows, and streams. 2. The activity occurs in non-tidal navigable waters of the U.S. 3. Stream channelization, relocation, impoundment, loss of streambed, or discharge of tailings into streams occurs. 4. Work on USACE properties & USACE-controlled easements. 5. Activities that are not eligible for SV and do not require an IP.

GP 20. LIVING SHORELINES[1] (Authorities: §10 and §404)

Construction and maintenance of living shorelines to stabilize banks and shores in tidal waters. In non-tidal waters that are not subject to the ebb and flow of the tide, nature-based bank stabilization techniques such as bioengineering and vegetative stabilization may be authorized by GP 9. This GP authorizes those maintenance and repair activities in-kind that are necessary to address changing environmental conditions.

The following terms must be met for both SVs and PCNs as applicable: (a) Coir logs, coir mats, stone, native oyster shell, native wood debris, and other structural materials must be adequately anchored, of sufficient weight, or installed in a manner that prevents relocation in most wave action or water flow conditions, except for extremely severe storms; (b) For living shorelines consisting of tidal fringe wetlands, native plants appropriate for current site conditions, including salinity and elevation, must be used if the site is planted by the permittee; (c) Discharges of dredged or fill material into waters of the U.S., and oyster or mussel reef structures in navigable waters, must be the minimum necessary for the establishment and maintenance of the living shoreline; (d) If sills or other structural materials per PCN #4 must be constructed to protect fringe wetlands for the living shoreline, those structures must be the minimum size necessary to protect those fringe wetlands; (e) The activity must be designed, constructed, and maintained so that it has no more than minimal adverse effects on water and sediment movement between the waterbody and the shore and the movement of aquatic organisms between the waterbody and the shore; and (f) The living shoreline must be properly maintained and monitored, which may require periodic repair of sills, bioengineered components, or replacing sand fills after severe storms or erosion events. Vegetation may be replanted to maintain the living shoreline.

Not authorized under GP 20 (IP required): (a) The activity is ≥1000 feet in length along the bank (≥2000 LF both banks) unless waived by the District Engineer; or (b) The activity is >30 feet channel ward of mean low water in tidal waters; or (c) Upland reclamation activities; or (d) Stream channelization or relocation activities; or (e) Breakwaters, groins, jetties, or artificial reefs; or (f) Permanent impacts >1,000 SF in existing saltmarsh; >100 SF in existing tidal vegetated shallows.

Self-Verification Eligible	**Pre-Construction Notification Required**
1. Tidal and non-tidal living shorelines ≤100 LF for each bank (≤200 LF for both banks). 2. Combined permanent and temporary impacts ≤5,000 SF in tidal waters, excluding existing salt marsh, tidal vegetated shallows, natural rocky habitat, and mudflats.	1. Tidal and non-tidal living shorelines >100 LF to <1000 LF (>200 LF to <2000 LF for both banks). 2. Permanent and temporary impacts in existing salt marsh, tidal vegetated shallows, or mudflats. 3. Work on USACE properties & USACE-controlled easements. 4. Use of stone sills, native oyster shell, native wood debris, or other structural materials.

Notes:

1. PCNs require monitoring for a minimum of 5 years in accordance with an approved restoration plan, unless otherwise determined by the USACE. The first year of monitoring will be the first year that the site has been through a full growing period after completion of construction and planting.
2. Applicants are encouraged to obtain a MEPA certificate prior to submitting a USACE permit application.

[1] A living shoreline has a footprint that is made up mostly of native material. It incorporates vegetation or other living, natural "soft" elements alone or in combination with some type of harder shoreline structure (e.g., oyster or mussel reefs or rock sills) for added protection and stability. Living shorelines should maintain the natural continuity of the land-water interface and retain or enhance shoreline ecological processes. Living shorelines must have a substantial biological component, either tidal or lacustrine fringe wetlands or oyster or mussel reef structures.

GP 21. AGRICULTURAL ACTIVITIES (Authority: §404)

Discharges of dredged or fill material in non-tidal waters for agricultural activities, including the construction of building pads for farm buildings. Authorized activities include: (a) installation, placement, or construction of drainage tiles, ditches, or levees; mechanized land clearing; land leveling; the relocation of existing serviceable drainage ditches; and similar activities; (b) construction of farm ponds, excluding perennial streams, provided the farm pond is used solely for agricultural purposes; and (c) discharges of dredged or fill material to relocate existing serviceable drainage ditches constructed in non-tidal streams.

Not authorized under GP 21 (IP required): (a) Permanent impacts that are >1 acre in non-tidal waters; or >1000 SF in riffle and pool complexes, or non-tidal vegetated shallows; (b) Work in tidal waters; or (c) Construction of farm ponds in perennial streams.

Self-Verification Eligible	**Pre-Construction Notification Required**
In non-tidal waters, the combined permanent and temporary impacts are (a) ≤5,000 SF, and (b) not located in riffle and pool complexes and non-tidal vegetated shallows.	1. In non-tidal waters, the combined permanent and temporary impacts are (a) >5,000 SF, or (b) located in riffle and pool complexes and non-tidal vegetated shallows. 2. Activities occur in non-tidal navigable waters of the U.S. 3. Stream channelization, relocation, impoundment, loss of streambed, or farm ponds in non-perennial streams occurs. 4. Activities that are not eligible for SV and do not require an IP.

Note: Some discharges for agricultural activities may qualify for an exemption under Section 404(f) of the CWA (see 33 CFR 323.4). This GP authorizes the construction of farm ponds that do not qualify for the CWA §404(f)(1)(C) exemption because of the recapture provision at §404(f)(2).

GP 22. RESHAPING EXISTING DRAINAGE DITCHES, CONSTRUCTION OF NEW DITCHES, AND MOSQUITO MANAGEMENT (Authorities: §10 and §404)

Discharges to modify the cross-sectional configuration of currently serviceable drainage ditches constructed in tidal and non-tidal waters, for the purpose of improving water quality by regrading the drainage ditch with gentler slopes, which can reduce erosion, increase growth of vegetation, and increase uptake of nutrients and other substances by vegetation. Also authorized are mosquito reduction activities.

Not authorized under GP 22 (IP required): Stream channelization, relocation, impoundments, or loss of streambed.

Self-Verification Eligible	**Pre-Construction Notification Required**
≤500 linear feet of drainage ditch will be reshaped provided excavated material is deposited in an upland area.	1. >500 linear feet of drainage ditch will be reshaped, excavated material is deposited in a water of the U.S., or the reshaping of the ditch increases the drainage capacity beyond the original as-built capacity or expands the area drained by the ditch as originally constructed (i.e., the capacity of the ditch is not the same as originally constructed or drains additional wetlands or other waters of the U.S.). 2. Permanent and temporary impacts in tidal vegetated shallows. 3. New ditches or relocation of drainage ditches constructed in waters of the U.S. (i.e., the location of the centerline of the reshaped drainage ditch is not approximately the same as the location of the centerline of the original drainage ditch). 4. Activities that are not eligible for SV and do not require an IP.

Note: Some ditch activities are exempt under Section 404(f) of the CWA (see 33 CFR 323.4).

GP 23. LINEAR TRANSPORTATION PROJECTS AND WETLAND/STREAM CROSSINGS (Authorities: §10 & §404)

Activities[1] required for the construction, expansion, modification, or improvement of linear transportation projects (e.g., driveways, roads, highways, railways, trails, airport runways, and taxiways) and attendant features. This GP also authorizes temporary structures, fills, and work, including the use of temporary mats (see Note 1), necessary to construct the linear transportation project.

Not authorized under GP 23 (IP required): (a) Permanent impacts for any single and complete project that are >1 acre in non-tidal waters; >½ acre in tidal waters; >1000 SF in saltmarsh, mud flats, riffle and pool complexes, or non-tidal vegetated shallows; or >100 SF in tidal vegetated shallows; (b) Temporary impacts in tidal waters that are >1 acre; >5000 SF in saltmarsh, mud flats, or riffle and pool complexes; or >1000 SF in vegetated shallows; (c) Non-linear features commonly associated with transportation projects, such as vehicle maintenance or storage buildings, parking lots, train stations, or aircraft hangars (see GP 17); or (d) New tide gates.

Self-Verification Eligible	**Pre-Construction Notification Required**
1. In non-tidal waters, the combined permanent and temporary impacts are a) ≤5,000 SF; b) not located in riffle and pool complexes and non-tidal vegetated shallows; and c) meet the Massachusetts River and Stream Crossing Standards 2. Existing crossings (e.g., culverts, elliptical or arch pipes, etc.) are not modified by (a) decreasing the diameter of the crossing or (b) changing the friction coefficient, such as through slip lining (retrofitting an existing culvert by inserting a smaller diameter pipe), culvert relining or invert lining. 3. Stream channelization or relocation resulting in loss of streambed that is <200 LF.	1. In non-tidal waters, the combined permanent and temporary impacts are a) >5,000 SF; b) located in vegetated shallows or riffle and pool complexes; or c) do not meet the Massachusetts River and Stream Crossing Standards (see note 4). 2. The activity occurs in tidal waters, salt marsh, or in, over or under navigable waters of the U.S. 3. Stream and wetland crossings that require a PCN per GC 20 TOY Restrictions and GC 31 Stream Work and Crossings & Wetland Crossings. 4. Stream channelization or relocation resulting in loss of streambed that is ≥200 LF. Stream impoundment activities of any kind. 5. Work on USACE properties & USACE-controlled easements. 6. Activities that are not eligible for SV and do not require an IP.

Notes:

1. See GC 22 for information on temporary construction mats.
2. Discharges of dredged or fill material incidental to the construction of bridges across navigable waters of the U.S. may be authorized under GP 8.
3. Loss of streambed does not require a PCN when bridge piers or similar supports are used.
4. In their PCN application submission to the USACE, applicants must explain why they are unable to meet the Massachusetts River and Stream Crossing Standards.
5. For tidal crossings, modeling is encouraged as a method to verify the proposed crossing would not be undersized and resilient to the effects of sea level rise.

[1] Stream crossings must conform with the MA Stream Crossing Guidelines when practicable and comply with all applicable GCs of this document (Section IV).

GP 24. TEMPORARY CONSTRUCTION, ACCESS, AND DEWATERING (Authorities: §10 and §404)

Temporary structures, work, and discharges, including cofferdams, necessary for construction activities or access fills or dewatering of construction sites that are not authorized under another GP activity.

Not authorized under GP 24 (IP required): (a) Permanent structures or impacts; (b) Temporary impacts in tidal waters that are >1 acre; >5000 SF in saltmarsh, mud flats, or riffle and pool complexes; or >1000 SF in vegetated shallows; (c) Use of cofferdams to dewater wetlands or other aquatic areas to change their use; (d) Temporary stream crossings (see GPs 6, 17, 23); (e) Structures or fill left in place after construction is completed.

Self-Verification Eligible	**Pre-Construction Notification Required**
1. In non-tidal waters, temporary impacts are a) ≤5,000 SF; b) not located in riffle and pool complexes and non-tidal vegetated shallows. 2. In tidal waters, temporary impacts are a) ≤5,000 SF, b) ≤1,000 SF in mudflats and/or natural rocky habitat, and c) not located in saltmarsh and tidal vegetated shallows. 3. Structures in navigable waters of the U.S. provided impacts do not require a PCN and they are left in place ≤30 days.	1. In non-tidal waters, temporary impacts are a) >5,000 SF; b) located in riffle and pool complexes or non-tidal vegetated shallows. 2. In tidal waters, temporary impacts are a) >5,000 SF; b) >1,000 SF in mudflats and/or natural rocky habitat, or (c) located in saltmarsh and tidal vegetated shallows. 3. Activities in the Connecticut River from the Turners Falls Dam to the MA/CT border, or Merrimack River from the Essex Dam to the mouth, involving temporary impacts unless they are performed <5 feet waterward from OHW or HTL and in the dry. This is to protect endangered species; or 4. Activities not eligible for SV and do not require an IP.

Notes:

1. Turbidity or sediment resuspension is generally not considered to occur when properly using management techniques to work in dry conditions. See GC 25.
2. Total impact areas under SV Eligible 1-2 exclude use of temporary construction mats. See GC 22 for information on temporary construction mats.
3. An SVN submittal to USACE is not required for SV #3 above.

GP 25. EMERGENCY SITUATIONS (Authorities: §10 and §404)

Structures or work in or affecting navigable waters of the U.S. and the discharge of dredged or fill material into waters of the U.S., including wetlands, necessary for repair or protection measures associated with an emergency situation[1], MassDEP Emergency Declaration/Certification, or FEMA Declared Disaster. The activity shall be the minimum necessary to alleviate the immediate emergency unless that additional work would result in no more than minimal effects to aquatic environment and is necessary to reduce the potential for future failure or loss of the structure or site. Typical activities authorized under this GP include, but are not limited to, restoration of damaged areas; bank stabilization; temporary fills for staging, access, and dewatering; and, repair, replacement, or rehabilitation of existing structures and/or fills (i.e., roads, bridges, utility pipelines and flood control structures, including attendant features, and other existing structures located in waters of the U.S.).

For the restoration of areas damaged by storms floods, or other discrete events: (a) The restored area must not extend waterward of the ordinary high-water mark or high tide line that existed prior to the damage. (b) The slope of the restored area below the ordinary high-water mark or high tide line must not exceed the slope that existed prior to the damage. (c) The bottom elevation of the restored area must not exceed the bottom elevation that existed prior to the damage (i.e., the restored area must not result in a reduction in the depth of the waterbody that existed prior to the damage). (d) Except in cases of FEMA reimbursement, the activity must be initiated, under contract to commence, or funds shall be allocated for the activity within 30 days of authorization under GP 25.

Not authorized under GP 25 (IP required): (a) Permanent impacts for a single and complete project >1/2 acre in tidal waters, unless the district engineer waives this criterion by making a written determination concluding that the activity will result in no more than minimal adverse environmental effects; >1,000 SF in saltmarsh, mud flats, riffle and pool complexes, or non-tidal vegetated shallows; or >100 SF in tidal vegetated shallows; (b) Temporary impacts in tidal waters that are >5,000 SF in saltmarsh, mud flats, or riffle and pool complexes; or >1,000 SF in vegetated shallows; (c) New structures or fills that did not previously exist before the storm event or other discrete event (see other GPs).

Self-Verification Eligible	**Pre-Construction Notification Required**
1. Activities that qualify under a Severe Weather Emergency Declaration pursuant to 310 CMR 10.06(8) and/or receive an Emergency Certification pursuant to 310 CMR 10.06 and/or meet the requirements of 314 CMR 9.12(2) or (3); and 2. Activities eligible under a FEMA Declared Disaster that also comply with #1 above.	1. Activities that are eligible under a FEMA Declared Disaster and do not qualify under SV #1. 2. Minor deviations in the structure or fill area, including those to existing structures or fills are authorized due to changes in materials, construction techniques, requirements of other regulatory agencies, or current construction codes or safety standards that are necessary to alleviate the emergency. 3. Activities that are not eligible for SV and do not require an IP.

Notes:

1. Review the GCs (Section IV) to confirm if a PCN is not required elsewhere in this document.
2. If the activity is not a MassDEP Emergency Declaration/Certification, does not meet the requirements of 314 CMR 9.12(2) or (3), or is not a FEMA Declared Disaster, applicants must explain in writing why their activity qualifies as an emergency (see footnote) to be eligible under GP 25.
3. SV eligible activities qualify under the general 401 WQC MassDEP issued for the 2023 MA GPs (GC 9).

[1] An emergency, as determined by this office and 33 CFR 325.2(e)(4), is one which would result in an unacceptable hazard to life, a significant loss of property, or an immediate, unforeseen, and significant economic hardship if corrective action requiring a Department of the Army permit is not undertaken within a time period less than the normal time to process the request under standard processing procedures.

SECTION IV. GENERAL CONDITIONS:

To qualify for GP authorization, the applicant must comply with the following general conditions, as applicable, in addition to authorization-specific conditions imposed by the division or district engineer.

1. Other Permits
2. Federal Jurisdictional Boundaries
3. Single and Complete Projects
4. Use of Multiple General Permits
5. Suitable Material
6. Tribal Rights & Burial Sites
7. Avoidance, Minimization, and Compensatory Mitigation
8. Water Quality & Stormwater Management
9. Coastal Zone Management
10. Federal Threatened and Endangered Species
11. Essential Fish Habitat
12. National Lands
13. Wild and Scenic Rivers
14. Historic Properties
15. USACE Property and Federal Projects (§408)
16. Navigation
17. Permit/Authorization Letter On-Site
18. Storage of Seasonal Structures
19. Pile Driving and Pile Removal in Navigable Waters
20. Time of Year Restrictions
21. Heavy Equipment in Wetlands
22. Temporary Fill & Construction Mats
23. Restoration of Wetland Areas
24. Bank Stabilization
25. Soil Erosion and Sediment Controls
26. Aquatic Life Movements and Management of Water Flows
27. Spawning, Breeding, and Migratory Areas
28. Vernal Pools
29. Invasive Species
30. Fills Within 100-Year Floodplains
31. Stream Work and Crossings & Wetland Crossings
32. Utility Line Installation and Removal
33. Water Supply Intakes
34. Coral Reefs
35. Blasting
36. Inspections
37. Maintenance
38. Property Rights
39. Transfer of GP Verifications
40. Modification, Suspension, and Revocation
41. Special Conditions
42. False or Incomplete Information
43. Abandonment
44. Enforcement Cases
45. Previously Authorized Activities
46. Duration of Authorization

1. Other Permits. Authorization under these GPs does not obviate the need for the permittee to obtain other Federal, State, or local permits, approvals, or authorizations required by law. Permittees are responsible for obtaining all required permits, approvals, or authorizations. Activities that are not regulated by the State, but subject to USACE jurisdiction, may still be eligible for these GPs.

2. Federal Jurisdictional Boundaries.
a. Applicability of these GPs shall be evaluated with reference to Federal jurisdictional boundaries. Activities shall be evaluated with reference to "waters of the U.S." under the CWA (33 CFR 328) and "navigable waters of the U.S." under §10 of the Rivers and Harbors Act of 1899 (33 CFR 329). Permittees are responsible for ensuring that the boundaries used satisfy the Federal criteria defined at 33 CFR 328-329. These sections prescribe the policy, practice, and procedures to be used in determining the extent of the USACE jurisdiction. Note: Waters of the U.S. includes all waters pursuant to 33 CFR 328.3(a), and adjacent wetlands as the term is defined in 33 CFR 328.3(c).
b. Wetlands shall be delineated in accordance with the USACE Wetlands Delineation Manual and the most recent Northcentral/Northeast Regional Supplement. Wetland delineation and jurisdiction information is located at: www.nae.usace.army.mil/missions/regulatory/jurisdiction-and-wetlands and maps are located at www.nae.usace.army.mil/missions/regulatory/state-general-permits/massachusetts-general-permit.
c. Vegetated shallows shall be delineated when present on the project site. Vegetated shallow survey guidance and maps are located at: www.nae.usace.army.mil/missions/regulatory/state-general-permits/massachusetts-general-permit.
d. Natural rocky habitats shall be delineated when present on the project site. The definition of natural rocky habitats is in Section VII of the MA GP. Natural rocky habitat survey guidance and maps are located at: www.nae.usace.army.mil/ missions/regulatory/state-general-permits/massachusetts-general-permit.

3. Single and Complete Projects. The MA GP shall not be used for piecemeal work and shall be applied to single and complete projects. The term "single and complete project" is defined at 33 CFR 330.2(i) as the total project proposed or accomplished by one owner/developer or partnership or other association of owners/developers.
a. For non-linear projects, a single and complete project must have independent utility. Portions of a multi-phase project that depend upon other phases of the project do not have independent utility. Phases of a project that would be constructed, even if the other phases were not built, can be considered as separate single and complete projects with independent utility.
b. Unless USACE determines the activity has independent utility, all components of a single project and/or all planned phases of a multi-phased project (e.g., subdivisions should include all work such as roads, utilities, and lot development) shall be evaluated as one single and complete project.
c. For linear projects such as power lines or pipelines with multiple crossings, a "single and complete project" is all crossings of a single water of the U.S. (i.e., single waterbody) at a specific location. For linear projects crossing a single waterbody several times at separate and distant locations, each crossing is considered a single and complete project. However, individual channels in a braided stream or river, or individual arms of a large, irregularly shaped wetland or lake, etc., are not separate waterbodies, and crossings of such features cannot be considered separately. If any crossing requires a PCN review or an individual permit review, then the entire linear project shall be reviewed as one project under PCN or the individual permit procedures.

4. Use of Multiple General Permits. The use of more than one GP for a single and complete project is prohibited, except when the acreage loss of waters of the U.S. authorized by the GPs does not exceed the acreage limit of the GPs with the highest specified acreage limit. For example, if a road crossing over waters is constructed under GP 23, with an associated utility line

crossing authorized by GP 6, if the maximum acreage loss of waters of the U.S. for the total project is ≥1 acre it shall be evaluated as an IP.

5. Suitable Material & Discharge of Pollutants. No activity may use unsuitable material (e.g., trash, debris, car bodies, asphalt, etc.). All activities involving any discharge into waters of the U.S. authorized under these GPs shall be consistent with applicable water quality standards, effluent limitations, standards of performance, prohibitions, and pretreatment standards and management practices established pursuant to the CWA (33 U.S.C. 1251), and applicable state and local laws. If applicable water quality standards, limitations, etc., are revised or modified during the term of this GP, the authorized work shall be modified to conform with these standards within six months from the effective date of such revision or modification, or within a longer period of time deemed reasonable by the District Engineer in consultation with the Regional Administrator of the EPA. Unless monitoring data indicates otherwise, applicants may presume that their activity complies with state water quality standards provided they are in compliance with the Section 401 WQC (Applicable only to the Section 404 activity).

6. Tribal Rights & Burial Sites

a. For all SV and PCN applications, prospective permittees shall follow the guidance set forth in Appendix A, Guidance for NHPA Section 106 Compliance in Massachusetts.

b. No activity or its operation may impair reserved tribal rights, including, but not limited to, reserved water rights and treaty fishing and hunting rights.

c. Many tribal resources are not listed on the National Register of Historic Places (NRHP) and may require identification and evaluation in collaboration with the identifying tribe and by qualified professionals. The Tribal Historic Preservation Officer (THPO) and State Historic Preservation Officer (SHPO) may be able to assist with locating information on:

i. Previously identified tribal resources; and
ii. Areas with potential for the presence of tribal resources.

d. Discovery of Previously Unknown Remains and Artifacts: If any previously unidentified human remains, cultural deposits, or artifacts are discovered while accomplishing the activity authorized by this permit, you must immediately notify the USACE of what you have found, and to the maximum extent practicable, cease work and avoid construction activities that may affect the remains and artifacts until the required coordination has been completed. The USACE will initiate the appropriate the Federal, Tribal, and state coordination required to determine if the items or remains are eligible for listing in the NRHP and warrant a recovery effort or can be avoided.

e. Burial Sites: Burial sites, marked or unmarked, are subject to state law (Massachusetts Unmarked Burial Law). Native American burial sites on federal or tribal land are subject to the provisions of Native American Graves Protection and Repatriation Act (NAGPRA). Regulated activities may not result in disturbance or removal of human remains until disposition of the remains has been determined by the appropriate authority under these laws, and the work is authorized by the USACE. Regulated activities which result in an inadvertent discovery of human remains must stop immediately, and the USACE, as well as the appropriate state and tribal authority, must be notified. Regulated work at inadvertent discovery sites requires compliance with state law or NAGPRA, as appropriate, prior to re-starting work.

7. Avoidance, Minimization, and Compensatory Mitigation. To qualify under the MA GP, activities must comply with Section V Mitigation Standards and the following as applicable:

a. Avoid and Minimize: Activities must be designed and constructed to avoid and minimize adverse effects, both temporary and permanent, to waters of the U.S. to the maximum extent practicable at the project site. Avoidance and minimization are required to the extent necessary to ensure that the adverse effects to the aquatic environment (both area and function) are no more than minimal.

b. Compensatory mitigation for unavoidable impacts to waters of the U.S., including direct, indirect, secondary, and temporal loss, will generally be required for permanent impacts that exceed the thresholds identified in Section V, and may be required for temporary impacts, to offset unavoidable impacts which remain after all appropriate and practicable avoidance and minimization has been achieved and to ensure that the adverse effects to the aquatic environment are no more than minimal. Proactive restoration projects or temporary impact work with no secondary effects may generally be excluded from this requirement.
c. Mitigation proposals shall follow the guidelines found in the Compensatory Mitigation for Losses of Aquatic Resources; Final Rule April 10, 2008; 33 CFR 332. Prospective permittees may purchase mitigation credits in-lieu of permittee-responsible mitigation as compensation for unavoidable impacts to waters of the U.S. in the Commonwealth of Massachusetts.

8. Water Quality & Stormwater Management. The 401 WQC requirement applies to all activities listed under GPs 1-25, unless determined otherwise by MassDEP. Permittees shall also satisfy stormwater management requirements in Massachusetts.

a. General 401 WQC: MassDEP issued a WQC on April 21, 2023 which conditionally certifies all activities in GPs 1 – 24 eligible for SV and PCN so long as the activity is described in 314 CMR 9.03, and is not an activity described in 314 CMR 9.04, and so long as the activity meets all other requirements, terms and conditions of the WQC. The MassDEP WQC also conditionally certifies activities described in GP 25 so long as the activity meets all other conditions of the WQC. Emergency projects described in GP 25 must obtain an emergency certification or otherwise be authorized pursuant to 310 CMR 10.06, qualify under a Severe Weather Emergency Declaration pursuant to 310 CMR 10.06(8) issued by the MassDEP, or meet the requirements of 9.12(2) or (3) in order to be certified under the WQC. Prospective permittees may refer to the following link to determine if their activity is eligible: https://www.nae.usace.army.mil/Missions/Regulatory/State-General-Permits/ Massachusetts-General-Permit/. The General 401 WQC is located here, and it provides detailed information regarding what activities are certified and the conditions for certification. Activities listed in 314 CMR 9.03 that are not exempt from the Wetland Protection Act must have a valid Final Order of Conditions (OOC) or Final Restoration Order of Conditions pursuant to 310 CMR 10.00 to be eligible under the General 401 WQC.
b. Individual 401 WQC: Prospective permittees shall contact MassDEP and apply for an individual 401 WQC if their activity does not qualify for a General 401 WQC as outlined above. MassDEP may issue, waive, or deny the individual 401 WQC on a case-by-case basis. All activities listed in 314 CMR 9.04 must obtain an individual 401 WQC from MassDEP to be eligible under these GPs. When an Individual 401 WQC is required for *PCN activities*, the prospective permittee shall submit their Individual 401 WQC application concurrently to MassDEP and USACE to comply with 40 CFR 121.
c. The prospective permittee is responsible for determining the appropriate 401 WQC requirement and submitting this information to the USACE at the time of their PCN application or when completing their SVN. Prospective permittees that are unsure of whether their activity has been certified should contact MassDEP for a determination.
d. As applicable, all activities shall be compliant with the Massachusetts Stormwater Handbook. The Stormwater Handbook can be accessed on the NAE Regulatory website here: https://www.nae.usace.army.mil/Missions/Regulatory/State-General-Permits/Massachusetts-General-Permit/.
e. No work requiring authorization under Section 404 of the CWA may be performed unless (1) the prospective permittee qualifies for coverage under the April 21, 2023 General 401 WQC, (2) the prospective permittee receives an individual Section 401 WQC from the MassDEP, or (3) the MassDEP waives individual Section 401 WQC.

9. Coastal Zone Management. The permittee must obtain CZM consistency concurrence when an activity is located in the coastal zone in order to be eligible under the MA GP. This requirement

shall be satisfied by acquiring one of the following from the Massachusetts Office of Coastal Zone Management (MA CZM):

a. General CZM Federal Consistency Concurrence (General Concurrence): MA CZM has granted General Concurrence for all SV and PCN activities for GPs 1-25. The prospective permittee must obtain all applicable permits and approvals before construction of the authorized activity begins (e.g., before work begins on site). For SVs, General Concurrence is automatically granted and no further action is required from the prospective permittee. For PCNs, the USACE will coordinate with MA CZM to acquire General Concurrence as part of the PCN application review.
b. Individual CZM Federal Consistency Concurrence (Individual Concurrence): In certain cases, MA CZM may elevate any GP activity 1-25 and require Individual Concurrence. The prospective permittee must contact MA CZM and follow the procedures to obtain Individual Concurrence as determined appropriate by MA CZM.
c. Permittees must obtain CZM consistency concurrence as outlined above before commencing work authorized under these GPs.

10. Federal Threatened and Endangered Species

a. No activity is authorized under any GP which is likely to directly or indirectly jeopardize the continued existence of a threatened or endangered species or a species proposed for such designation, as identified under the Federal Endangered Species Act (ESA), or which will directly or indirectly destroy or adversely modify designated critical habitat or critical habitat proposed for such designation. No activity is authorized under any GP which "may affect" a listed species or critical habitat, unless ESA section 7 consultation addressing the consequences of the proposed activity on listed species or critical habitat has been completed. See 50 CFR 402.02 for the definition of "effects of the action" for the purposes of ESA section 7 consultation, as well as 50 CFR 402.17, which provides further explanation under ESA section 7 regarding "activities that are reasonably certain to occur" and "consequences caused by the proposed action."
b. Other Federal agencies should follow their own procedures for complying with the requirements of the ESA (see 33 CFR 330.4(f)(1)). If a PCN is required for the proposed activity, the Federal permittee must provide USACE with the appropriate documentation to demonstrate compliance with those requirements. The USACE will verify that the appropriate documentation has been submitted. If the appropriate documentation has not been submitted, additional ESA section 7 consultation may be necessary for the activity and the respective federal agency would be responsible for fulfilling its obligation under section 7 of the ESA.
c. USFWS ESA-Listed Species: Non-federal applicants shall use the USFWS website, Information for Planning and Consultation (IPAC), to determine if their activity is located within the ESA-listed species range. The IPAC website can be accessed on the NAE Regulatory website: https://www. nae.usace.army.mil/Missions/Regulatory/State-General-Permits/Massachusetts-General-Permit/. Applicants shall ensure they have an updated, valid species list before construction begins. This may require applicants to update their species list in IPAC before the start of construction. Note: Applicants should refer to the NAE Regulatory Website at the link above to determine if they have been designated as a non-federal representative. Applicants shall complete Section 7 consultation according to the guidance document located on the NAE Regulatory Website. After completing the Rangewide Determination Key and reaching the outcome "may affect, not likely to adversely affect", you may be required to wait up to 15 days before that outcome is final and compliance under Section 7 of the ESA is fulfilled.

i. *Self-Verification Criteria*: The activity is SV-eligible if:
   1) The activity is not located within the ESA-listed species range;
   2) Another (lead) Federal agency has completed Section 7 consultation; or
   3) The activity is located within the ESA-listed species range ***and*** USACE has designated the applicant as a non-federal representative under 50 CFR 402.08 of the ESA for all

species within the project's action area. As the non-federal representative, the applicant shall complete consultation through IPAC and reach the outcome of "no effect" or "not likely to adversely affect".

ii. *Pre-Construction Notification Criteria*: The activity requires a PCN if:

1) The activity is located within the ESA-listed species range ***and*** USACE has NOT designated the applicant as a non-federal representative under 50 CFR 402.08 of the ESA for all species within the project's action area;

2) The activity is located in designated or proposed critical habitat; or

3) The activity is located within the ESA-listed species range and completion of the IPAC determination key has resulted in the outcome of "may affect" or "may affect, likely to adversely affect"; or

4) A PCN is required elsewhere in this document.

d. NOAA-Listed Species: Non-federal applicants shall refer to the Section 7 Mapper for federally listed species to determine if any species are mapped as present. When NOAA-listed species are present, the applicant shall generate a species report through the mapper and submit this document as part of their PCN or SVN submission. The NOAA Fisheries' Section 7 Mapper can be accessed here on the NAE Regulatory website here: https://www.nae.usace.army.mil/Missions/Regulatory/State-General-Permits/Massachusetts-General-Permit/.

e. Authorization of an activity by an GP does not authorize the "take" of a threatened or endangered species as defined under the ESA. In the absence of separate authorization (e.g., an ESA Section 10 Permit, a Biological Opinion with "incidental take" provisions, etc.) from the FWS or the NMFS, the Endangered Species Act prohibits any person subject to the jurisdiction of the United States to take a listed species, where "take" means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct. The word "harm" in the definition of "take" means an act which actually kills or injures wildlife. Such an act may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding or sheltering.

11. Essential Fish Habitat (EFH).

a. SV eligible activities have been determined to result in no more than minimal adverse effects, provided the permittee complies with all terms and conditions of the MA GP as appliable to the activity. NMFS has granted General Concurrence [50 CFR 600.920(g)] for all SV eligible activities. These activities do not require project specific EFH consultation.

b. For PCN required activities, the applicant is required to describe and identify potential adverse effects to EFH and should refer to NOAA Fisheries' EFH Mapper (http://www.fisheries.noaa.gov/resource/map/essential-fish-habitat-mapper) and Omnibus Essential Fish Habitat Amendment 2 Volume 2: EFH and HAPC Designation Alternatives and Environmental Impacts (https://www.habitat.noaa.gov/application/efhmapper/oa2_efh_hapc.pdf). If an activity is located within EFH, the PCN application must contain:

1. A description of the action located in EFH.
2. An analysis of the potential adverse effects of the action on EFH and the managed Species.
3. Conclusions regarding the effects of the action on EFH.
4. Proposed mitigation, if applicable (refer to the mitigation thresholds located in Section V).

c. Federal agencies shall follow their own procedures for complying with the EFH requirements of the Magnuson-Stevens Fishery Conservation and Management Act. For activities requiring a PCN, the applicant is responsible for furnishing documentation that demonstrates consultation for EFH has been completed.

d. For PCN activities, no work may commence until EFH consultation as required by the Magnuson-Stevens Act has been completed.

12. National Lands. Activities that impinge upon the value of any National Wildlife Refuge, National Forest, National Marine Sanctuary, National Historic Landmarks or any other area administered by the National Park Service, U. S. Fish and Wildlife Service (USFWS) or U.S. Forest Service (USFS) require a PCN or Individual Permit. Federal land managers seeking authorization for activities located in the above listed National Lands may proceed under SV, unless a PCN is required elsewhere in this document.

13. Wild and Scenic Rivers. The following activities in designated river or study river segments in the National Wild and Scenic River (WSR) System require a PCN unless the Federal agency with direct management responsibility for such river, in Massachusetts this is generally the National Park Service, has determined in writing to the proponent that the proposed work will not adversely affect the WSR designation or study status:

a. Activities that occur in WSR segments, in and 0.25 miles up or downstream of WSR segments, or in tributaries within 0.25 miles of WSR segments;
b. Activities that occur in wetlands within 0.25 miles of WSR segments;
c. Activities that have the potential to alter free-flowing characteristics in WSR segments.

No GP activity may occur in a component of the National Wild and Scenic River System, or in a river officially designated by Congress as a "study river" for possible inclusion in the system while the river is in an official study status, unless the appropriate Federal agency with direct management responsibility for such river, has determined in writing that the proposed activity will not adversely affect the Wild and Scenic River designation or study status.

As of May 10, 2023, affected rivers in Massachusetts include: the Taunton River (40 miles), Sudbury River (16.6 miles), Assabet River (4.4 miles), Concord River (8 miles), Nashua River (27 miles), Squannacook River (16.3 miles), Nissitissit River (4.7 miles), and the Westfield River, including West Branch, Middle Branch, Gendale Brook, East Branch, Drowned Land Brook, Center Brook, Windsor Jambs Brook, Shaker Mill Brook, Depot Brook, Savery Brook, Watson Brook, Center Pond Brook (78.1 miles). The most up to date list of designated and study rivers and their descriptions may be obtained from the appropriate Federal land management agency responsible for the designated Wild and Scenic River or study river (e.g., National Park Service, U.S. Forest Service, Bureau of Land Management, U.S. Fish and Wildlife Service). Information on these rivers is also available at: http://www.rivers.gov/.

14. Historic Properties

a. For all SV and PCN applications, permittees shall follow the guidance set forth in Appendix A, Guidance for NHPA Section 106 Compliance in Massachusetts.

b. No undertaking authorized by these GPs shall cause effects[1] (defined in 36 CFR Part 800 and 33 CFR Part 325, Appendix C, and its Interim Guidance) on properties listed on, determined to be eligible for listing on, or potentially eligible for listing on the National Register of Historic Places (NRHP)[2], including previously unknown historic properties within the permit area, unless the USACE or another Federal action agency has satisfied the consultation requirements of Section 106 of the National Historic Preservation Act (Section 106). If another Federal agency is determined the lead federal agency for compliance with Section 106, applicant must obtain the appropriate documentation and provide this information to the USACE to demonstrate compliance with Section 106. The applicant shall not begin the activity until the USACE notifies them in writing that the documentation provided satisfies Section 106 requirements.

[1] Effect means the alteration to the characteristics of a historic property qualifying it for inclusion in or eligibility for the National Register of Historic Properties.

[2] See the NAE Regulatory website, National Register of Historic Places link here: https://www.nae.usace.army.mil/Missions/Regulatory/State-General-Permits/Massachusetts-General-Permit/.

c. Many historic properties are not listed on the NRHP and may require identification and evaluation by qualified historic preservation and/or archaeological consultants. The State Historic Preservation Officer (SHPO), Massachusetts Board of Underwater Archaeological Resources (BUAR), local historical societies, certified local governments, general public, and NRHP may also be able to assist with locating information on:

i. Previously identified historic properties; and
ii. Areas with potential for the presence of historic properties.

d. Discovery of Previously Unknown Remains and Artifacts: If any previously unidentified human remains, cultural deposits, or artifacts are discovered while accomplishing the activity authorized by this permit, you must immediately notify the USACE of what you have found, and to the maximum extent practicable, cease work and avoid construction activities that may affect the remains and artifacts until the required coordination has been completed. The USACE will initiate the Federal, State and tribal coordination required to determine if the items or remains warrant a recovery effort and/or if the site is eligible for listing in the National Register of Historic Places.

e. Section 110k: Prospective permittees should be aware that section 110k of the NHPA (54 U.S.C. § 306113) prevents the USACE from granting a permit or other assistance to an applicant who, with intent to avoid the requirements of Section 106, has intentionally significantly adversely effected a historic property to which the permit would relate, or having legal power to prevent it, allowed such significant adverse effect to occur, unless the USACE, after consultation with the Advisory Council on Historic Preservation (ACHP), determines that circumstances justify granting such assistance despite the adverse effect created or permitted by the applicant. If circumstances justify granting the assistance, the USACE is required to notify the ACHP and provide documentation specifying the circumstances, the degree of damage to the integrity of any historic properties effected, and proposed mitigation. This documentation must include any views obtained from the applicant, SHPO/THPO, appropriate Indian tribes if the undertaking occurs on or effects historic properties on tribal lands or effects properties of interest to those tribes, and other parties known to have a legitimate interest in the impacts to the permitted activity on historic properties.

f. Underwater Archaeological Resources: Under Massachusetts General Law Ch. 6, s.'s 179-180, and Ch. 91, s. 63, the BUAR has statutory jurisdiction within state waters and is the sole trustee of the Commonwealth's underwater heritage, charged with the responsibility of encouraging the discovery and reporting, as well as the preservation and protection, of underwater archaeological resources. Underwater archaeological resources located within the waters of the Commonwealth of Massachusetts are property of the Commonwealth, which holds title to these resources and retains regulatory authority over their use. Under Massachusetts General Law, no person, organization or corporation may "remove, displace, damage, or destroy" any underwater archaeological resources located within the Commonwealth's submerged lands except through consultation with the BUAR and in conformity with the permits it issues. https://www.mass.gov/orgs/board-of-underwater-archaeological-resources.

15. USACE Property and Federal Projects. (33 USC §408)

a. USACE projects and property can be found at: https://www.nae.usace.army.mil/Missions/Civil-Works/.

b. In addition to any authorization under these GPs, prospective permittee shall contact the USACE Real Estate Division (https://www.nae.usace.army.mil/Missions/Real-Estate-Division/) at (978) 318-8585 for work occurring on or potentially affecting USACE properties and/or USACE-controlled easements. Work may not commence on USACE properties and/or USACE-controlled easements until they have received any required USACE real estate documents evidencing site-specific permission to work.

c. Any proposed temporary or permanent occupation or alteration of a Federal project (including, but not limited to, a levee, dike, floodwall, channel, anchorage, breakwater, seawall, bulkhead, jetty, wharf, pier, or other work built or maintained but not necessarily owned by the United States),

is not eligible for SV and requires a PCN. This includes all proposed structures and work in, over, or under a USACE federal navigation project (FNP) or in the FNP's buffer zone. The buffer zone is an area that extends from the horizontal limits of the FNP to a distance of three times the FNP's authorized depth. The activity also requires review and approval by the USACE pursuant to 33 USC 408 (Section 408 Permission). The prospective permittee may reach out to the POCs located here: https://www.nae.usace.army.mil/ Missions/Section-408/.
d. Any structure or work constructed in a FNP or its buffer zone shall be subject to removal at the owner's expense prior to any future USACE dredging or the performance of periodic hydrographic surveys.
e. Where a Section 408 permission is required, written verification for the PCN will not be issued prior to the decision on the Section 408 permission request.

16. Navigation
a. No activity may cause more than a minimal adverse effect on navigation.
b. Any safety lights and signals prescribed by the U.S. Coast Guard, must be installed, and maintained at the permittee's expense on authorized facilities in navigable waters of the U.S.
c. There shall be no unreasonable interference with navigation by the existence or use of the activity authorized herein, and no attempt shall be made by the permittee to prevent the full and free use by the public of all navigable waters at or adjacent to the activity authorized herein.
d. The permittee understands and agrees that if future U.S. operations require the removal, relocation, or other alteration of the structure or work herein authorized, or if, in the opinion of the Secretary of the Army or his authorized representative, said structure or work shall cause unreasonable obstruction to the free navigation of the navigable waters, the permittee will be required, upon due notice from USACE, to remove, relocate, or alter the structural work or obstructions caused thereby, without expense to the U.S. No claim shall be made against the U.S. on account of any such removal or alteration.

17. Permit/Authorization Letter On-Site. For PCNs, the permittee shall ensure that a copy of these GPs and the accompanying authorization letter are at the work site (and the project office) whenever work is being performed, and that all personnel with operational control of the site ensure that all appropriate personnel performing work are fully aware of its terms and conditions. The entire permit authorization shall be made a part of any and all contracts and sub-contracts for work that affects areas of USACE jurisdiction at the site of the work authorized by these GPs. This shall be achieved by including the entire permit authorization in the specifications for work. The term "entire permit authorization" means these GPs, including GCs and the authorization letter (including its drawings, plans, appendices, special conditions, and other attachments), and any permit modifications. If the authorization letter is issued after the construction specifications, but before receipt of bids or quotes, the entire permit authorization shall be included as an addendum to the specifications. If the authorization letter is issued after receipt of bids or quotes, the entire permit authorization shall be included in the contract or sub-contract as a change order. Although the permittee may assign various aspects of the work to different contractors or sub-contractors, all contractors and sub-contractors shall be obligated by contract to comply with all environmental protection provisions contained within the entire authorization letter, and no contract or sub-contract shall require or allow unauthorized work in areas of USACE jurisdiction. For SVs, the permittee shall ensure that a complete and signed copy of the SVN is present on site during construction and is made available for review at any time by USACE and other Federal, State, & Local regulatory agencies. A complete and signed copy of the SVN must be submitted to USACE Regulatory within 30 days of initiating construction of the authorized activity, unless stated otherwise in the applicable GP.

18. Storage of Seasonal Structures. Coastal structures such as pier sections, floats, etc., that

are removed from the waterway for a portion of the year (often referred to as seasonal structures) shall be stored in an upland location, located above MHW and not in tidal wetlands. These seasonal structures may be stored on the fixed, pile-supported portion of the structure that is seaward of MHW. This is intended to prevent structures from being stored on the marsh substrate and the substrate seaward of MHW.

19. Pile Driving and Pile Removal in Navigable Waters.
a. Derelict, degraded or abandoned piles and sheet piles in navigable waters of the U.S., except for those inside existing work footprints for piers, must be completely removed, cut and/or driven to 3 feet below the substrate to prevent interference with navigation, and existing creosote piles that are affected by project activities shall be completely removed if practicable. In areas of fine-grained substrates, piles must be removed by the direct, vibratory or clamshell pull method[1] to minimize sedimentation and turbidity impacts and prevent interference with navigation from cut piles. Removed piles shall be disposed of in an upland location landward of MHW or OHW and not in wetlands, tidal wetlands or mudflats.
b. A PCN is required for the installation or removal of structures with jetting techniques.
c. A PCN is required for the installation of >12 inch-diameter piles of any material type or steel piles of any size in tidal waters, unless they are installed in the dry. If piles are not installed in the dry:
i. Impact pile driving shall commence with an initial set of three strikes by the hammer at 40% energy, followed by a one-minute wait period, then two subsequent 3-strike sets at 40% energy, with one minute waiting periods, before initiating continuous impact driving.
ii. Vibratory pile driving shall be initiated for 15 seconds at reduced energy followed by a one-minute waiting period. This sequence of 15 seconds of reduced energy driving, one-minute waiting period shall be repeated two more times, followed immediately by pile-driving at full rate and energy.
iii. In addition to using a soft start at the beginning of the workday for pile driving as described in 19c(i-ii), a soft start must also be used at any time following a cessation of pile driving for a period of 30 minutes or longer.
d. Bubble curtains may be used to reduce sound pressure levels during vibratory or impact hammer pile driving.

20. Time-of-Year (TOY) Restrictions. Activities that include in-water work must comply with the TOY Restrictions below to be SV eligible, otherwise a PCN is required. PCN submittals shall contain written justification for deviation from the TOY Restrictions. The term “in-water work” does not include conditions where the work site is “in-the-dry” (e.g., intertidal areas exposed at low tide). The term “in-the-dry” includes work contained within a cofferdam so long as the cofferdam is installed and subsequently removed outside the TOY Restriction. The TOY restrictions stated in Appendix B of the MA DMF Technical Report TR-47[2] can apply instead for activities in tidal waters if (1) TOYs are provided for a specific waterbody where the activity is proposed and (2) the TOYs are less restrictive than below. The activity must also not require a PCN elsewhere in this document to be SV eligible.

[1] Direct Pull: Each piling is wrapped with a choker cable or chain that is attached at the top to a crane. The crane then pulls the piling directly upward, removing the piling from the sediment. Vibratory Pull: The vibratory hammer is a large mechanical device (5-16 tons) that is suspended from a crane by a cable. The vibrating hammer loosens the piling while the crane pulls up. Clamshell Pull: This can remove intact, broken or damaged pilings. The clamshell bucket is a hinged steel apparatus that operates like a set of steel jaws. The bucket is lowered from a crane and the jaws grasp the piling stub as the crane pulls up. The size of the clamshell bucket is minimized to reduce turbidity during piling removal.
[2] The MA DMF Technical Report TR-47: https://www.nae.usace.army.mil/Missions/Regulatory/State-General-Permits/Massachusetts-General-Permit/

	TOY Restriction (No work)
Non-tidal Waters	Defer to TR-47
Tidal Waters	January 15 – November 15

Alternate work windows proposed under a PCN will generally be coordinated with the USFWS and NMFS. Resulting written verifications may include species-specific work allowed windows.

21. Heavy Equipment in Wetlands. Operating heavy equipment (drill rigs, fixed cranes, etc.) within wetlands shall be minimized, and such equipment shall not be stored, maintained, or repaired in wetlands, to the maximum extent practicable. Where construction requires heavy equipment operation in wetlands, the equipment shall:

i. Have low ground pressure (typically ≤3 psi);

ii. Be placed on swamp/construction/timber mats (herein referred to as "construction mats" or "mats") that are adequate to support the equipment in such a way as to minimize disturbance of wetland soil and vegetation. See GC 22 for information on the placement of construction mats; or

iii. Be operated on adequately dry or frozen wetlands such that shear pressure does not cause subsidence of the wetlands immediately beneath the equipment and upheaval of adjacent wetlands. Construction mats are to be placed in the wetland from the upland or from equipment positioned on mats if working within a wetland. Dragging construction mats into position is prohibited. Other support structures that are capable of safely supporting equipment may be used with written USACE authorization.

22. Temporary Fill, Work & Construction Mats.

a. *Construction mats in non-tidal waters*: Temporary construction mats shall be in place ≤1 year *and* for one growing season or less to be SV eligible. A PCN is required if construction mats are in place >1 year *or* for more than one growing season. Construction mats can be placed in an area of any size in non-tidal waters. The activity may occur in segments to ensure the requirements for SV above are met, otherwise a PCN is required.

b. *Construction mats in tidal waters*: Temporary construction mats placed in an area <5,000 SF in tidal waters are SV eligible, provided those mats are in place ≤6 months. Temporary construction mats placed in an area ≥5,000 SF or in place >6 months in tidal waters require a PCN.

c. *Management of construction mats:* At a minimum, construction mats shall be managed in accordance with the following construction mat best management practices (BMPs):

1. Mats shall be in good condition to ensure proper installation, use, and removal.
2. As feasible, mats shall be placed in a location that will minimize the amount of mats needed for the wetland crossing(s).
3. Inspect mats prior to their re-use and remove any plant debris. Mats are to be thoroughly cleaned before re-use to prevent the spread of invasive plant species.
4. Impacts to wetland areas shall be minimized during installation, use, and removal of the mats.
5. Adequate erosion & sediment controls shall be installed at approaches to mats to promote a smooth transition to, and minimize sediment tracking onto, the mats.
6. In most cases, mats should be placed along the travel area so that the individual boards are resting perpendicular to the direction of traffic. No gaps should exist between mats. Place mats far enough on either side of the resource area to rest on firm ground.

d. A PCN is required for temporary fills in place >2 years. All temporary fills and disturbed soils shall be stabilized to prevent the material from eroding into waters of the U.S. where it is not authorized. Work shall include phased or staged development to ensure only areas under active development are exposed and to allow for stabilization practices as soon as practicable. Temporary fill must be placed in a manner that will prevent it from being eroded by expected high flows.

e. Activities that require unconfined temporary fill and are authorized for discharge into waters of the U.S. shall consist of material that minimizes effects to water quality.
f. Appropriate measures must be taken to maintain normal downstream flows and minimize flooding to the maximum extent practicable when temporary structures, work, and discharges of dredged or fill material, including cofferdams, are necessary for construction activities, access fills, or dewatering of construction sites. Materials shall be placed in a location and manner that does not adversely impact surface or subsurface water flow into or out of the wetland. Temporary fill authorized for discharge into wetlands shall be placed on geotextile fabric or other appropriate material laid on the pre-construction wetland grade where practicable to minimize impacts and to facilitate restoration to the original grade. Construction mats are excluded from this requirement.
g. Construction debris and deteriorated materials shall not be located in waters of the U.S.
h. Temporary fills, construction mats, and corduroy roads shall be entirely removed as soon as they are no longer needed to construct the authorized activity and the disturbed areas be restored to pre-construction contours and conditions.
i. Construction equipment, such as temporary barges in tidal waters, shall provide clearance above the substrate to avoid grounding onto the substrate during all tides.

23. Restoration of Wetland Areas.
a. Upon completion of construction, all disturbed wetland areas shall be stabilized with a wetland seed mix or plant plugs containing only plant species native to New England, and be appropriate for site conditions, including salinity and frequency of inundation, and shall not contain any species listed in the "Invasive and Other Unacceptable Plant Species" Appendix K of the New England District "Compensatory Mitigation Standard Operating Procedures" found at https://www.nae.usace.army.mil/Missions/Regulatory/Mitigation.aspx.
b. The introduction or spread of invasive plant species in disturbed areas shall be prevented and controlled. Equipment shall be thoroughly cleaned before and after project construction to prevent the spread of invasive species. This includes, but is not limited to, tire treads and construction mats.
c. In areas of authorized temporary disturbance, if trees are cut in USACE jurisdiction, they shall be cut at or above ground level and not uprooted in order to prevent disruption of any kind to the wetland soil structure and to allow stump sprouts to revegetate the work area, unless otherwise authorized.
d. Wetland areas where permanent disturbance is not authorized shall be restored to their original condition and elevation, which under no circumstances shall be higher than the pre-construction elevation. Original condition means careful protection and/or removal of existing soil and vegetation, and replacement back to the original location such that the original soil layering and vegetation schemes are approximately the same, unless otherwise authorized.

24. Bank Stabilization.
a. Projects involving construction or reconstruction/maintenance of bank stabilization within USACE jurisdiction shall be designed to minimize environmental effects, effects to neighboring properties, scour, conversion of natural shoreline to hard armoring, etc. to the maximum extent practicable.
b. Projects involving the construction of new bank stabilization within USACE jurisdiction shall use bioengineering techniques and natural materials in the project design to the maximum extent practicable. Use of hard structures shall be eliminated or minimized unless the prospective permittee can demonstrate that use of bioengineering techniques is not practicable due to site conditions.
c. Where possible, bank stabilization projects shall optimize the natural function of the shoreline, including self-sustaining stability to attenuate flood flows, fishery, wildlife habitat and water quality protection, while protecting upland infrastructure from storm events that can cause erosion as well as impacts to public and private property.
d. No material shall be placed in excess of the minimum needed for erosion protection.
e. No material shall be placed in a manner that will be eroded by normal or expected high flows (properly anchored native trees and treetops may be used in low energy areas).

f. Native plants appropriate for current site conditions, including salinity, must be used for bioengineering or vegetative bank stabilization.
g. The activity must be properly maintained, which may require repairing it after severe storms or erosion events.

25. Soil Erosion and Sediment Controls.
a. Appropriate soil erosion and sediment controls[1] (hereinafter referred to as "controls") must installed prior to earth disturbance and maintained in effective operating condition during construction. Biodegradable wildlife friendly erosion controls should be used whenever practicable to minimize effects to water quality.
b. Activities in streams (rivers, streams, brooks, etc.) and tidal waters that are capable of producing sedimentation or turbidity should be done during periods of low-flow or no-flow, when the stream or tide is waterward of the work area. Controls may also be used to obtain dry work conditions (e.g., coffer dam, turbidity curtain). The prospective permittee must demonstrate in the project plans where the controls are proposed and how these controls would avoid and/or minimize turbidity or sedimentation.
c. A PCN is required for controls that encroach: i) >25% of the stream width measured from OHW in non-tidal diadromous streams from March 15 to June 30; or ii) >25% of the waterway width measured from MHW in tidal waters from Feb. 1 to June 30, or >50% of the waterway width measured from MHW in tidal waters from July 1 to Jan. 14. This is to protect upstream fish passage. Proponents must also maintain downstream fish passage throughout the project.
d. No dewatering shall occur with direct discharge to waters or wetlands. Excess water in isolated work areas shall be pumped or directed to a sedimentation basin, tank or other dewatering structures in an upland area adequately separated from waters or wetlands. Suspended solids shall be removed prior to discharge back into waters or wetlands from these dewatering structures. All discharge points back into waters and wetlands shall use appropriate energy dissipaters and erosion and sedimentation control BMPs.
e. Temporary controls shall be removed upon completion of work, but not until all exposed soil and other fills, as well as any work waterward of OHW or the HTL, are permanently stabilized at the earliest practicable date. Sediment and debris collected by these devices shall be removed and placed at an upland location in a manner that will prevent its later erosion into a waterway or wetland. Controls may be left in place if they are biodegradable and flows and aquatic life movements are not disrupted.

26. Aquatic Life Movements and Management of Water Flows.
a. No activity may substantially disrupt the necessary life cycle movements of those species of aquatic life indigenous to the waterbody, including those species that normally migrate through the area, unless the activity's primary purpose is to impound water. All permanent and temporary crossings of waterbodies and wetlands shall be:
i. Suitably spanned, bridged, culverted, or otherwise designed and constructed to maintain low flows to sustain the movement of those aquatic species; and
ii. Properly aligned and constructed to prevent bank erosion or streambed scour both adjacent to and inside the crossing.

[1] Appropriate soil erosion, sediment and turbidity controls include cofferdams, bypass pumping around barriers immediately up and downstream of the work footprint (i.e., dam and pump), installation of sediment control barriers (i.e., silt fence, vegetated filter strips, geotextile silt fences, filter tubes, erosion control mixes, hay bales or other devices) downhill of all exposed areas, stream fords, retention of existing vegetated buffers, application of temporary mulching during construction, phased construction, and permanent seeding and stabilization, etc.

b. To avoid adverse impacts on aquatic organisms, the low flow channel/thalweg shall remain unobstructed during periods of low flow, except when necessary to perform the authorized work.
c. For work in tidal waters, in-stream controls (e.g., cofferdams) should be installed in such a way as to not obstruct fish passage.
d. Riprap and other stream bed materials shall be installed in a manner that avoids organism entrapment in rock voids or water displaced to subterranean flow with crushed stone and riprap.
e. To the maximum extent practicable, the preconstruction course, condition, capacity, and location of open waters must be maintained for each activity, including stream channelization, storm water management activities, and temporary and permanent road crossings, except as provided below. The activity must be constructed to withstand expected high flows. The activity shall not restrict or impede the passage of normal or high flows unless the primary purpose of the activity is to impound water or manage high flows. The activity may alter the pre-construction course, condition, capacity, and location of open waters if it benefits the aquatic environment (e.g., stream restoration or relocation activities).

27. Spawning, Breeding, and Migratory Areas.
a. Activities in spawning areas during spawning seasons must be avoided to the maximum extent practicable. Activities that result in the physical destruction (e.g., through excavation, fill, or downstream smothering by substantial turbidity) of an important spawning area are not authorized under these GPs.
b. Activities in waters of the U.S. that serve as breeding areas for migratory birds must be avoided to the maximum extent practicable.
c. The applicant is responsible for obtaining any "take" permits required under the USFWS's regulations governing compliance with the Migratory Bird Treaty Act or the Bald and Golden Eagle Protection Act. The applicant should contact the appropriate local office of the USFWS to determine if such "take" permits are required for a particular activity.
d. Information on spawning habitat for species managed under the Magnuson-Stevens Fishery Conservation and Management Act (i.e., EFH for spawning adults) can be obtained from NAE Regulatory website, Essential Fish Habitat section, at: https://www.nae.usace.army.mil/Missions/Regulatory/State-General-Permits/Massachusetts-General-Permit/.
e. Information regarding diadromous fish habitat can be obtained from the following DMF website at: https://www.mass.gov/info-details/massgis-data-diadromous-fish.

28. Vernal Pools.
a. A PCN is required if a discharge of dredged or fill material is proposed within a vernal pool depression that is also a water of the U.S.
b. Vernal pools must be identified on the plans that show aquatic resource delineations.
c. Adverse impacts to vernal pools shall be avoided & minimized to the maximum extent practicable.

29. Invasive Species.
a. The introduction, spread or the increased risk of invasion of 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 shall be avoided. Construction mats shall be thoroughly cleaned before reuse to avoid spread of invasive species.
b. Unless otherwise directed by USACE, all applications for PCN non-tidal projects proposing fill in USACE jurisdiction shall include an Invasive Species Control Plan. Additional information can be found at: https://www.nae.usace.army.mil/Missions/Regulatory/Invasive-Species/, https://www.nae.usace.army.mil/Missions/Regulatory/Mitigation/.

30. Fills Within 100-Year Floodplains. The activity shall comply with applicable Federal Emergency Management Agency (FEMA) approved, Massachusetts Emergency Management

Agency (MEMA) approved and/or local floodplain management requirements. Applicants should contact FEMA and/or MEMA regarding floodplain management requirements.

31. Stream Work and Crossings & Wetland Crossings.
a. When feasible, all temporary and permanent crossings of waterbodies and wetlands (hereinafter referred to as "crossings") shall conform to the "Massachusetts River and Stream Crossing Standards" located at: https://www.mass.gov/doc/massachusetts-river-and-stream-crossing-standards/download or https://www.nae.usace.army.mil/Missions/Regulatory/State-General-Permits/Massachusetts-General-Permit/. Projects that do not conform to these guidelines shall be reviewed under PCN or IP procedures.
b. Crossings shall be suitably culverted, bridged, or otherwise designed to withstand and to prevent the restriction of high flows, to maintain existing low flows, maintain water quality, and not obstruct the movement of aquatic life indigenous to the waterbody beyond the duration of construction.
c. Crossings shall be installed in such a manner as to preserve hydraulic capacity and flow, sediment transport, and organism passage at its present level, between the wetlands on either side of the road. The applicant shall take necessary measures to correct any wetland damage resulting from deficiencies in hydraulic capacity, sediment transport and organism passage.
d. Stream crossings shall utilize a natural mixed grain-size streambed material composition that matches upstream and downstream substrates to create a stable streambed. Substrate should function appropriately during normal and high flows without washing out. If natural streambed material is not utilized, a PCN is required.
e. Activities involving open trench excavation in flowing waters require a PCN. Work should not occur in flowing waters (requires using management techniques such as temporary flume pipes, culverts, cofferdams, etc.). Normal flows should be maintained within the stream boundary's confines when practicable. Projects utilizing these management techniques must meet all applicable terms and conditions of the GP, including the GCs in Section IV.

32. Utility Line Installation and Removal
a. Subsurface utility lines must be installed at a sufficient depth to avoid damage from anchors, dredging, etc., and to prevent exposure from erosion and stream adjustment.
b. When utility lines are installed via horizontal directional drilling, a frac-out contingency plan shall be present on site for the duration of construction. As necessary, the applicant shall immediately contain, control, recover, and remove drilling fluids released into the environment.
c. Abandoned or inactive utility lines must be removed and faulty lines (e.g., leaking hazardous substances, petroleum products, etc.) must be removed or repaired. A written verification from the USACE is required if they are to remain in place, e.g., to protect sensitive areas or ensure safety.
d. Utility lines shall not adversely alter existing hydrology, and trenches cannot be constructed or backfilled in such a manner as to drain waters of the U.S. (e.g., backfilling with extensive gravel layers, creating a French drain effect). In wetland areas, structures such as ditch plugs, cut-off walls, clay blocks, bentonite, or other suitable material shall be used within utility trenches to ensure that the trench through which the utility line is installed does not drain waters of the U.S. including wetlands.
e. Stockpiling of tree debris, to the extent where it has the effect of fill material, shall not occur in waters of the U.S. Tree debris shall be removed from waters of the U.S. and placed in uplands without causing additional disturbance to aquatic resources. Failure to meet this condition could change the bottom elevation of the wetland and be considered a discharge of fill material, and depending on the area of alteration, may require a PCN or IP.

33. Water Supply Intakes. No activity may occur in the proximity of a public water supply intake, except where the activity is for the repair or improvement of public water supply intake structures or adjacent bank stabilization.

34. Coral Reefs. Impacts to coral reefs are not authorized under these GPs. Coral reefs consist of the skeletal deposit, usually of calcareous or silicaceous materials, produced by the vital activities of anthozoan polyps or other invertebrate organisms present in growing portions of the reef.

35. Blasting. Blasting in waters of the U.S. associated with work such as dredging, trenching, pile installation, etc. is not authorized under these GPs.

36. Inspections. The permittee shall allow USACE to make periodic inspections at any time deemed necessary to ensure that the work is being or has been performed in accordance with the terms and conditions of this permit. To facilitate these inspections, for activities requiring a PCN, the permittee shall complete and return the Certificate of Compliance when it is provided with a PCN verification letter. For SV-eligible activities, the permittee shall complete and submit the SVN to USACE within 30 days of initiating project construction, at which point, USACE may opt to inspect the activity to verify compliance with the terms and conditions of the GP. Post-construction engineering drawings may be required by USACE for completed work. This includes post-dredging survey drawings for any dredging work.

37. Maintenance. The permittee shall maintain the activity authorized by these GPs in good condition and in conformance with the terms and conditions of this permit. Some maintenance activities may not be subject to federal regulation under Section 404 in accordance with 33 CFR 323.4(a)(2). This condition is not applicable to maintenance of dredging projects. Prospective permittees should contact USACE to inquire about maintenance of dredging projects, and its eligibility under these GPs. Maintenance dredging is subject to the review thresholds in GP #7 as well as any conditions included in a written USACE authorization. Maintenance dredging includes only those areas and depths previously authorized and dredged.

38. Property Rights. Per 33 CFR 320.4(g)(6), these GPs do not convey any property rights, either in real estate or material, or any exclusive privileges, nor do they authorize any injury to property or invasion of rights or any infringement of Federal, State, or local laws or regulations.

39. Transfer of GP Verifications. When the work authorized by these GPs is still in existence at the time the property is transferred, the terms and conditions of these GPs, including any special conditions, will continue to be binding on the entity or individual who received the GP authorizations, as well as the new owner(s) of the property. If the permittee sells the property associated with a GP authorization, the applicant may transfer the GP authorization to the new owner by submitting a letter to USACE to validate the transfer. A copy of the GP authorization letter must be attached to the letter, and the letter must include the following statement: “The terms and conditions of these general permits, including any special conditions, will continue to be binding on the new owner(s) of the property.” This letter shall be signed by both the seller and new property owner(s).

40. Modification, Suspension, and Revocation. These GPs and any individual authorization issued thereof may be either modified, suspended, or revoked in whole or in part pursuant to the policies and procedures of 33 CFR 325.7; and any such action shall not be the basis for any claim for damages against the U.S.

41. Special Conditions. The USACE may impose other special conditions on a project authorized pursuant to these GPs that are determined necessary to minimize adverse navigational and/or environmental effects or based on any other factor of the public interest. Failure to comply with all conditions of the authorization, including special conditions, constitutes a permit violation and may subject the applicant to criminal, civil, or administrative penalties or restoration.

42. False or Incomplete Information. If USACE makes a determination regarding the eligibility of a project under these GPs, and subsequently discovers that it has relied on false, incomplete, or inaccurate information provided by the applicant, the authorization will not be valid, and the U.S. Government may institute appropriate legal proceedings.

43. Abandonment. If the permittee decides to abandon the activity authorized under these GPs, unless such abandonment is merely the transfer of property to a third party, he/she/they may be required to restore the area to the satisfaction of USACE.

44. Enforcement cases. These GPs do not apply to any existing or proposed activity in USACE jurisdiction associated with an on-going USACE or EPA enforcement action, until such time as the enforcement action is resolved or USACE or EPA determines that the activity may proceed independently without compromising the enforcement action.

45. Previously Authorized Activities.

a. Completed projects that received prior authorization from USACE (SV or PCN), shall remain authorized in accordance with the original terms and conditions of those authorizations, including their terms, GCs, and any special conditions provided in a written verification.

b. Activities authorized pursuant to 33 CFR 330.3 (activities occurring before certain dates) are not affected by these GPs.

46. Duration of Authorization.

These GPs expire on June 1, 2028. Activities authorized under these GPs will remain authorized until the GPs expire, unless discretionary authority has been exercised on a case-by-case basis to modify, suspend, or revoke the authorization in accordance with 33 CFR 325.2(e)(2). Activities authorized under GPs 1-25 that have either commenced (i.e., are under construction) or are under contract to commence in reliance upon this authorization will have until June 1, 2029 to complete the work. If requested by USACE, the permittee shall furnish documentation that demonstrates the project was under construction or under contract to commence by June 1, 2028. If work is not completed before June 1, 2029, the permittee must contact USACE. The USACE may issue a new authorization provided the project meets the terms and conditions of the MA GPs in effect at the time. Activities completed under the SV or PCN authorizations of these GPs will continue to be authorized after their expiration date.

SECTION V: MITIGATION STANDARDS

1. Mitigation Types

For all activities, applicants must (a) demonstrate how the project has been designed to avoid or minimize impacts to aquatic resources; and (b) describe measures taken to avoid or minimize impacts to aquatic resources through construction techniques and/or site access. Please see https://www.nae.usace.army.mil/Missions/Regulatory/Mitigation/ for assistance with preparing mitigation in accordance with the 2008 Compensatory Mitigation for Losses of Aquatic Resources; Final Rule (33 CFR 332.3), hereafter referred to as "2008 Mitigation Rule."

Avoidance - Avoidance of impacts (direct and indirect) to aquatic resources means that project activities would not result in the placement of fill material or installation of a structure that could impact the resource area. Avoidance can include, but is not limited to, designing the project to avoid impacts to all or a portion of the aquatic resource areas.

Minimization - Minimization of impacts (direct and indirect) to aquatic resources means that measures are taken to ensure the amount and duration of impacts are limited to the maximum extent practicable. There are many minimization measures that could be implemented, prior to, during, or after the proposed activity, to ensure impacts are minimized. Examples include, but are not limited to:

- Permanent preservation of avoided aquatic features and buffer zone, in perpetuity. In these cases, the preserved area would be under a conservation easement and managed by conservation oriented third-party manager.
- Utilization of best management practices (BMPs) to ensure impacts are limited, and do not result in adverse impacts to the integrity and long-term functions of preserved/avoided features.

Compensatory Mitigation - Compensatory mitigation is generally required for PCN activities in which the impacts to the aquatic resources have been avoided and minimized to the maximum extent practicable but would still result in unavoidable adverse effects to the environment that are considered more than minimal or are contrary to the public interest. *Whatever the case may be, compensatory mitigation is no substitute for avoidance and minimization.*

2. Thresholds for Compensatory Mitigation

The basic objective of compensatory mitigation in the USACE Regulatory Program is to offset environmental losses resulting from unavoidable impacts to waters of the U.S. authorized by Department of the Army permits. **The following compensatory mitigation thresholds apply to all PCN activities that result in loss[1] of the resource area types listed below. Activities[2] in waters of the U.S. associated with the restoration, enhancement, and establishment of tidal and non-tidal aquatic resources are not considered loss and are not subject to the thresholds below.** Thresholds for different resource areas may not be combined to exceed 5,000 SF of total loss of all waters. The USACE will continue to evaluate projects on a case-by-case basis, and may in some cases require compensatory mitigation below these thresholds (e.g. minor impacts that add to a cumulative loss).

[1] See definition of loss in Section VII.
[2] These activities must result in net increases in aquatic resource functions and services to be exempted from the thresholds above.

Compensatory Mitigation Thresholds in Massachusetts		
Resource Area	**Non-Tidal Threshold**	**Tidal Threshold**
Stream	200 LF	200 LF
Bank Stabilization	500 LF	500 LF
Open Water	Project Dependent	Project Dependent
Wetland	5,000 SF	500 SF
Vernal Pool	All	N/A
SAV	Project dependent	25 SF
Mudflat	N/A	1,000 SF
Intertidal	N/A	1,000 SF

These thresholds can be utilized to determine at what point compensatory mitigation is required but are not used to determine how much mitigation may be needed to offset impacts to resources. Per the 2008 Mitigation Rule (33 CFR 332.3(f)(1)) "the amount of required compensatory mitigation must be, to the extent practicable, sufficient to replace lost aquatic resource functions. In cases where appropriate functional or condition assessment methods or other suitable metrics are available, these methods should be used where practicable to determine how much compensatory mitigation is required. If a functional or condition assessment or other suitable metric is not used, a minimum one-to-one acreage or linear foot compensation ratios must be used."

3. Compensatory Mitigation Hierarchy

Compensatory mitigation should follow the hierarchy as outlined in 33 CFR 332.3(b)(2-6) or current regulation. This hierarchy in order of preference includes: (1) Mitigation Bank credits, (2) In-Lieu Fee program credits, (3) permittee-responsible mitigation under a watershed approach, (4) permittee-responsible mitigation through on-site and in-kind mitigation, and (5) permittee-responsible mitigation through off-site and/or out-of-kind mitigation. If the proposed mitigation deviates from this mitigation hierarchy, the applicant **must** justify in writing why the proposed mitigation is environmentally preferable to the preferred method of compensatory mitigation (See 2008 Mitigation Rule). **In order for your application to be considered complete, you must provide a statement that discusses how your project will compensate for the loss or impact to aquatic resources.** If you are proposing permittee responsible mitigation, the 12 components of a mitigation plan (33 CFR 332.4(c)(2-14) must be addressed for your application to be considered complete. Prospective applicants are encouraged to contact USACE with questions at any time. Addressing the 12 components of a mitigation plan is commensurate with the amount of compensatory mitigation required, and USACE can assist prospective applicants with the level of information needed to satisfy each component.

For activities resulting in the loss of marine or estuarine resources, permittee-responsible mitigation may be environmentally preferable if there are no mitigation banks or in-lieu fee programs in the area that have marine or estuarine credits available for sale or transfer to the permittee.

4. In-Lieu Fee (ILF)

The purchase of credits from the Massachusetts In-Lieu Fee Program (MA ILFP) is the ***preferred*** method of compensatory mitigation in Massachusetts since, as of the issuance date of this GP, there are no mitigation banks available in Massachusetts. The applicant shall develop a mitigation plan that addresses the baseline conditions at the impact site and the number of credits to be provided (see 33 CFR 332.4(c)(1)(ii)).

The MA ILFP is administered by the Massachusetts Department of Fish & Game (DFG) in accordance with the 2008 Mitigation Rule at 33 CFR 332. The Mitigation Rule governs in-lieu fee compensatory mitigation associated with USACE permits under §404 of the Clean Water Act and/or §9 or §10 of the Rivers and Harbors Act of 1899.

MA ILFP Website: https://www.mass.gov/in-lieu-fee-program

Acceptance of an ILF payment into the ILFP established by the 2014 MA ILFP Instrument (link below) is an acknowledgement by DFG that it assumes all legal responsibility for satisfying the mitigation requirements of the USACE (i.e., the implementation, performance, and long-term management and monitoring of the compensatory mitigation project(s) approved under this Instrument and subsequent Compensatory Mitigation Plans). This transfer of legal responsibility is established by: 1) the approval of this In-Lieu Fee Instrument; 2) receipt by the district engineer of a Notice of Credit Sale and Transfer of Legal Responsibility to DFG that is signed by the DFG and the permittee and dated; and 3) the transfer of fees from the permittee to DFG.

MA ILFP Fact Sheet: https://www.mass.gov/files/documents/2017/01/sj/ilfp-fact-sheet-ma-ilfp-fees.pdf

MA ILFP Instrument: https://www.mass.gov/files/documents/2016/08/nd/ilfp-final-instrument-dfg.pdf

5. Permittee-Responsible

The USACE may determine that the proposed permittee-responsible compensatory mitigation is appropriate on a case-by-case basis. As described in the Compensatory Mitigation Hierarchy section above, applicants must justify in writing why the proposed mitigation is environmentally preferable to the purchase of ILF credits. Applicants are encouraged to contact the USACE prior to submission of a permit application to seek further guidance regarding USACE mitigation requirements.

Applicants will demonstrate their proposed compensatory mitigation in writing by addressing the 12 components of a mitigation plan (33 CFR 332.4(c)(2-14). *Please note that all elements must be addressed, or the permit application will be deemed incomplete.* In certain circumstances, the district engineer may determine that prior approval of the final mitigation plan is not practicable or not necessary to ensure timely completion of the required compensatory mitigation (see 33 CFR 332.3(k)(3)). Guidance on how to address these components can be found on the New England District Mitigation webpage: https://www.nae.usace.army.mil/Missions/Regulatory/Mitigation/

Performance standards will be used to measure the successfulness of the mitigation project. A successful mitigation project is one that is self-sustaining. For a mitigation project that will restore, enhance, or create wetlands, proper performance standards must address hydrology, hydric soils, and hydrophytic vegetation. The mitigation proposal must include an explanation of quantitative methods used to measure the success of performance standards (i.e., percent cover may be measured using vegetation plots, hydrology may be measured using data loggers, soil cores may be taken and evaluated for hydric soil indicators).

Monitoring methods should include quantitative sampling methods following established, scientific protocols. Sampling documentation, as part of monitoring reports, should include maps and coordinates (also shapefiles, if available) showing locations of sampling points, transects, quadrats, etc. In addition, permanent photo stations should be established coincident with sampling locations.

SECTION VI: FEDERAL & STATE AGENCY CONTACT INFORMATION & ORGANIZATIONAL WEBSITES

Federal Agencies

U.S. Army Corps of Engineers
Regulatory Division
696 Virginia Road
Concord, Massachusetts 01742-2751
(978) 318-8338 (phone); (978) 318-8303 (fax)
www.nae.usace.army.mil/missions/regulatory

U.S. Army Corps of Engineers
Navigation Division – Section 408
696 Virginia Road
Concord, Massachusetts 01742-2751
See link below for contact information:
https://www.nae.usace.army.mil/Missions/Section-408/

National Marine Fisheries Service
55 Great Republic Drive
Gloucester, Massachusetts 01930
(978) 281-9300 (phone)
(*Federal endangered species & EFH)*

U.S. Fish & Wildlife Service
70 Commercial Street, Suite 300
Concord, New Hampshire 03301
(603) 223-2541 (phone)
(Federal endangered species)

National Park Service
15 State Street
Boston, Massachusetts 02109
(617) 223-5191 (phone)
(*Wild and Scenic Rivers*)

Bureau of Ocean and Energy Management
1849 C Street, NW
Washington D.C. 20240
202-208-6474 (phone)
(*Offshore Wind Facilities)*

Chief, Risk Analysis Branch
FEMA Region 1
99 High Street, 6th Floor
U.S. Department of Homeland Security
Boston, Massachusetts 02110
(617) 956-7576 (phone)

Commander (dpb)
First Coast Guard District
Battery Building
One South Street
New York, New York 10004-1466
(212) 514-4331 (phone); (212) 514-4337 (fax)
(*Bridge permits*)

U.S. Environmental Protection Agency
5 Post Office Square
Suite 100 (OEP06–3)
Boston, Massachusetts 02109-3912
(617) 918-1692 (phone)

State Agencies in Massachusetts

Massachusetts Department of Environmental Protection (MassDEP)	
DEP Division of Wetlands & Waterways	100 Cambridge Street, Suite 900 Boston, Massachusetts 02114 (617) 292-5695
Northeast Region	150 Presidential Way, Suite 300 Woburn, Massachusetts 01801 (978) 694-3200
Southeast Region	20 Riverside Drive, Route 105 Lakeville, Massachusetts 02347 (508) 946-2800
Central Region	8 New Bond Street Worcester, Massachusetts 01606 (508) 792-7650
Western Region	436 Dwight Street Springfield, Massachusetts 01103 (413) 784-1100

Massachusetts Office of Coastal Zone Management (CZM) Emails may be sent to: czm@mass.gov	
MA Office of Coastal Zone Management	100 Cambridge Street, Suite 900 Boston, Massachusetts 02114 (617) 626-1200
North Shore Region	2 State Fish Pier Gloucester, Massachusetts 01930 (978) 281-3972
South Shore Region	175 Edward Foster Road Scituate, Massachusetts 02066
Cape Cod and Islands Region	3195 Main Street, P.O. Box 220 Barnstable, MA 02630
South Coastal Region	81-B County Road, Suite E Mattapoisett, MA 02739

Massachusetts Historical Commission (MHC)	
Office Location:	220 Morrisey Boulevard Boston, Massachusetts 02125 (617) 727-8470

Massachusetts Board of Underwater Archaeological Resources (BUAR) Emails may be sent to: david.s.robinson@mass.gov	
Office Location:	100 Cambridge Street, Suite 900 Boston, Massachusetts 02114 (617) 626-1014

SECTION VII: Definitions & Acronyms

Artificial or Living Reef: A structure which is constructed or placed in waters for the purpose of enhancing fishery resources and commercial and recreational fishing opportunities.
Attendant Features: Occurring with or as a result of; accompanying.
Biodegradable: A material that decomposes into elements found in nature within a reasonably short period of time and will not leave a residue of plastic or a petroleum derivative in the environment after degradation. In contrast, degradable plastics break down into plastic fragments that remain in the environment after degradation. Examples of biodegradable materials include jute, sisal, cotton, straw, burlap, coconut husk fiber (coir) or excelsior. In contrast, degradable plastics break down into plastic fragments that remain in the environment after degradation. Photodegradable, UV degradable or Oxo-(bio)degradable plastics are not considered biodegradable under this GP.
Boating facilities: These provide, rent or sell mooring space, such as marinas, yacht clubs, boat yards, dockominiums, municipal facilities, land/home owners, etc. Not classified as boating facilities are piers shared between two abutting properties or municipal mooring fields that charge an equitable user fee based on the actual costs incurred.
Compensatory mitigation: The restoration (re-establishment or rehabilitation), establishment (creation), enhancement, and/or in certain circumstances preservation of aquatic resources for the purposes of offsetting unavoidable adverse impacts which remain after all appropriate and practicable avoidance and minimization has been achieved. Must comply with the applicable provisions of 33 CFR 332. See also the New England District Compensatory Mitigation Guidance at http://www.nae.usace.army.mil/Missions/Regulatory/Mitigation.aspx.
Construction mats: Constructions, swamp and timber mats (herein referred to as “construction mats”) are generic terms used to describe structures that distribute equipment weight to prevent wetland damage while facilitating passage and providing work platforms for workers and equipment. They are comprised of sheets or mats made from a variety of materials in various sizes. A timber mat consists of large timbers bolted or cabled together. Corduroy roads, which are not considered to be construction mats, are cut trees and/or saplings with the crowns and branches removed, and the trunks lined up next to one another. Corduroy roads are typically installed as permanent structures. Like construction mats, they are considered as fill whether they are installed temporarily or permanently.
Cumulative Impacts: The impact on the environment, which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions, regardless of what agency or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time (40 CFR 1508.1). Although the impact of a particular discharge may constitute a minor change in itself, the cumulative effect of numerous such piecemeal changes can result in a major impairment of the water resources and interfere with the productivity and water quality of existing aquatic ecosystems. See 40 CFR 230.11(g).
Currently serviceable: Useable as is or with some maintenance, but not so degraded as to essentially require reconstruction.
Dredging:
Improvement Dredging: For the purposes of these GPs, this is dredging deeper than previously authorized by the USACE and dredged under that authorization.
Maintenance Dredging: For the purposes of these GPs, this is dredging from an area previously authorized by the USACE and dredged under that authorization. The USACE may require proof of authorization and dredging. Maintenance dredging typically refers to the routine removal of accumulated sediment to maintain the design depths of serviceable navigation channels, harbors, marinas, boat launches and port facilities. Maintenance dredging is conducted for navigational purposes and does not include any expansion of the previously dredged area. The USACE may

review a maintenance dredging activity as new dredging if sufficient time has elapsed to allow for the colonization of SAS, shellfish, etc.

New Dredging: For the purposes of these GPs, this is a) first time the USACE authorizes dredging of a particular location or b) dredging has not occurred for an extended period of time, and this has allowed for aquatic resources (i.e., eelgrass, shellfish, etc.) to redevelop in the area.

Dredged material & discharge of dredged material: These are defined at 33 CFR 323.2(c) and (d). The term dredged material means material that is excavated or dredged from waters of the U.S.

Enhancement: The manipulation of the physical, chemical, or biological characteristics of an aquatic resource to heighten, intensify, or improve a specific aquatic resource function(s). Enhancement results in the gain of selected aquatic resource function(s) but may also lead to a decline in other aquatic resource function(s). Enhancement does not result in a gain in aquatic resource area.

Ephemeral stream: A stream with flowing water only during, and for a short duration, after precipitation events in a typical year. Ephemeral stream beds are located above the water table year-round. Groundwater is not a source of water for the stream. Runoff from rainfall is the primary source of water for stream flow.

Erosion Controls: Appropriate soil erosion, sediment and turbidity controls include cofferdams, bypass pumping around barriers immediately up and downstream of the work footprint (i.e., dam and pump), installation of sediment control barriers (i.e., silt fence, vegetated filter strips, geotextile silt fences, filter tubes, erosion control mixes, hay bales or other devices) downhill of all exposed areas, stream fords, retention of existing vegetated buffers, application of temporary mulching during construction, phased construction, and permanent seeding and stabilization, etc.

Establishment (creation): The manipulation of the physical, chemical, or biological characteristics present to develop an aquatic resource that did not previously exist at an upland site. Establishment results in a gain in aquatic resource area (33 CFR 332.2).

Expansions: Work that increases the footprint of fill, structures, depth of basin or drainage features, or floats, or slip capacity.

Essential Fish Habitat (EFH): The Federal Magnuson-Stevens Fishery Management and Conservation Act broadly defines EFH to include those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity. See www.greateratlantic.fisheries.noaa.gov/habitat for more information.

Fill material & discharge of fill material: Material placed in waters of the U.S. where the material has the effect of either replacing any portion of a water of the U.S. with dry land or changing the bottom elevation of any portion of a water of the U.S. Fill material does not include any pollutant discharged into the water primarily to dispose of waste. These are defined at 33 CFR 323.2 (e) & (f).

Federal navigation projects (FNPs): These areas are maintained by the USACE; authorized, constructed and maintained on the premise that they will be accessible and available to all on equal terms; and comprised of USACE Federal anchorages, Federal channels and Federal turning basins. The buffer zone is equal to three times the authorized depth of a FNP. The following are FNPs in MA and more information, including the limits, is provided at www.nae.usace.army.mil/missions/navigation >> Navigation Projects:

- Andrews River, Harwich, MA
- Aunt Lydia's Cove
- Beverly Harbor
- Boston Harbor
- Buttermilk Bay Channel
- Canapitsit Channel
- Cape Cod Canal
- Chatham Harbor
- Cohasset Harbor
- Cross Rip Shoals, Nantucket Sound
- Cuttyhunk Harbor
- Dorchester Bay and Neponset River
- Duxbury Harbor
- Edgartown Harbor
- Essex River
- Fall River Harbor
- Falmouth Harbor
- Gloucester Harbor and Annisquam River
- Green Harbor
- Hingham Harbor
- Hyannis Harbor
- Ipswich River
- Island End River (Chelsea, MA)
- Kingston Harbor
- Lagoon Pond
- Little Harbor Woods Hole

Lynn Harbor
Malden River
Menemsha Creek
Merrimack River
Mystic River
Nantucket Harbor of Refuge
New Bedford and Fairhaven Harbor
Newburyport Harbor
Oak Bluffs Harbor
Pigeon Cove Harbor
Plymouth Harbor
Pollock Rip Shoals, Nantucket Sound
Provincetown Harbor
Red Brook Harbor
Rockport Harbor
Salem Harbor
Sandy Bay Harbor of Refuge
Saugus River
Scituate Harbor
Sesuit Harbor
Taunton River
Vineyard Haven Harbor
Wareham Harbor
Wellfleet Harbor
Westport River and Harbor
Weymouth Back River
Weymouth Fore and Town Rivers
Winthrop Harbor
Woods Hole Channel

Flume: An open artificial water channel, in the form of a gravity chute, which leads water from a diversion dam or weir alongside a natural flow. A flume can be used to measure the rate of flow.
FNP buffer zone: The buffer zone of a USACE Federal Navigation Project (FNP) is equal to three times the authorized depth of the FNP.
Frac out: During horizontal directional drilling (HDD) operations, drilling fluid travels up the borehole into a pit. When the borehole becomes obstructed or the pressure becomes too great inside the borehole, the ground fractures and fluid escapes to the surface and may affect surface waters.
Ground disturbance: Any activity that compacts, relocates, overturns, removes, mixes, or otherwise disturbs the ground, including under water. Ground disturbance can be caused by the use of hand tools (shovels, pick axe, posthole digger, etc.), heavy equipment (excavators, backhoes, bulldozers, dredgers, trenching and earthmoving equipment, etc.), and heavy trucks (large four wheel drive trucks, dump trucks and tractor trailers, etc.). Trenching, bulldozing, dredging, excavating, scraping, and plowing are typical examples of ground disturbance activities.
Height:width ratio: The height of structures shall at all points be equal to or exceed the width of the deck. For the purpose of this definition, height shall be measured from the marsh substrate to the bottom of the longitudinal support beam.
High Tide Line (HTL): The line of intersection of the land with the water's surface at the maximum height reached by a rising tide. The high tide line may be determined, in the absence of actual data, by a line of oil or scum along shore objects, a more or less continuous deposit of fine shell or debris on the foreshore or berm, other physical markings or characteristics, vegetation lines, tidal gages, or other suitable means that delineate the general height reached by a rising tide. The line encompasses spring high tides and other high tides 58 that occur with periodic frequency but does not include storm surges in which there is a departure from the normal or predicted reach of the tide due to the piling up of water against a coast by strong winds. (33 CFR 328). Refer to the highest predicted tide for the current year at the nearest NOAA tide gage. https://tidesandcurrents.noaa.gov/map/index.html
Historic Property: Any prehistoric or historic site (including archaeological sites), district, building, structure, or other object included in, or eligible for inclusion in, the National Register of Historic Places maintained by the Secretary of the Interior. This term includes artifacts, records, and remains that are related to and located within such properties. The term includes properties of traditional religious and cultural importance to an Indian tribe or Native Hawaiian organization and that meet the National Register criteria (36 CFR part 60).
Impacts:
Direct Impacts: Effects that are caused by the activity and occur at the same time and place (40 CFR 1508.7).
Indirect impacts: Effects that are caused by the activity and are later in time or farther removed in distance, but are still reasonably foreseeable.
Secondary impacts: Effects on an aquatic ecosystem that are associated with a discharge of dredged or fill materials, but do not result from the actual placement of the dredged or fill material.

Information about secondary effects on aquatic ecosystems shall be considered prior to the time final section 404 action is taken by permitting authorities. Some examples of secondary effects on an aquatic ecosystem are: aquatic areas drained, flooded, fragmented; fluctuating water levels in an impoundment and downstream associated with the operation of a dam; septic tank leaching and surface runoff from residential or commercial developments on fill; and leachate and runoff from a sanitary landfill located in waters of the U.S. See 40 CFR 230.11(h).

Incidental Fallback: Incidental fallback is the redeposit of small volumes of dredged material that is incidental to excavation activity in waters of the U.S. when such material falls back to substantially the same place as the initial removal (33 CFR 323.2(d)(2)(iii)).

In the dry: Work that is done under dry conditions, e.g., work behind cofferdams or when the stream or tide is waterward of the work.

Independent utility: A test to determine what constitutes a single and complete non-linear project in the USACE Regulatory Program. A project is considered to have independent utility if it would be constructed absent the construction of other projects in the project area. Portions of a multi-phase project that depend upon other phases of the project do not have independent utility. Phases of a project that would be constructed even if the other phases were not built can be considered as separate single and complete projects with independent utility.

Individual permit: A Department of the Army authorization that is issued following a case-by-case evaluation of a specific structure or work in accordance with the procedures of 33 CFR 322, or a specific project involving the proposed discharge(s) in accordance with the procedures of 33 CFR 323, and in accordance with the procedures of 33 CFR 325 and a determination that the proposed discharge is in the public interest pursuant to 33 CFR 320.

Intermittent stream: An intermittent stream has flowing water during certain times of the year, when groundwater provides water for stream flow. During dry periods, intermittent streams may not have flowing water. Runoff from rainfall is a supplemental source of water for stream flow.

Intertidal: The area in between mean low water and the high tide line.

Living reef: See the definition of “artificial or living reef.”

Living shoreline: A term used to describe a low-impact approach with a substantial biological component to shoreline protection and restoration along coastal shores, riparian zones, lacustrine fringe wetlands, or oyster or mussel reef structures. This approach integrates natural features to restore, enhance, maintain, or create habitat, functions, and processes while also functioning to mitigate flooding or shoreline erosion. Living shorelines may stabilize banks and shores with small fetch and gentle slopes that are subject to low-to mid-energy waves. A living shoreline has a footprint that is made up mostly of native material. It incorporates vegetation or other living, natural “soft” elements alone or in combination with some type of harder shoreline structure (e.g., oyster or mussel reefs or rock sills) for added protection and stability. Living shorelines should maintain the natural continuity of the land-water interface and retain or enhance shoreline ecological processes.

Loss of waters of the United States: Waters of the U.S. that are permanently adversely affected by filling, flooding, excavation, or drainage because of the regulated activity. The loss of stream bed includes the acres of stream bed that are permanently adversely affected by filling or excavation because of the regulated activity. Permanent adverse effects include permanent discharges of dredged or fill material that change an aquatic area to dry land, increase the bottom elevation of a waterbody, or change the use of a waterbody. The acreage of loss of waters of the U.S. is a threshold measurement of the impact to jurisdictional waters or wetlands for determining whether a project may qualify for a GP; it is not a net threshold that is calculated after considering compensatory mitigation that maybe used to offset losses of aquatic functions and services. Waters of the U.S. temporarily filled, flooded, excavated, or drained, but restored to pre-construction contours and elevations after construction, are not included in the measurement of loss of waters of the U.S. Impacts resulting from activities that do not require Department of the Army authorization, such as activities eligible for exemptions under section 404(f) of the Clean Water Act, are not considered when calculating the loss of waters of the U.S.

Maintenance: The repair, rehabilitation, or in-kind replacement of any previously authorized, currently serviceable structure or fill, or of any currently serviceable structure or fill authorized by 33 CFR 330.3 – "Activities occurring before certain dates," provided that the structure or fill is not to be put to uses differing from those uses specified or contemplated for it in the original permit or the most recently authorized modification. Maintenance includes minor deviations in the structure's configuration or filled area, including those due to changes in materials, construction techniques, or current construction codes or safety standards that are necessary to make repair, rehabilitation, or replacement are authorized. Currently serviceable means useable as is or with some maintenance, but not so degraded as to essentially require reconstruction.

Maintenance Exemption: In accordance with 33 CFR 323.4(a)(2), any discharge of dredged or fill material that may result from any of the following activities is not prohibited by or otherwise subject to regulation under Section 404 of the CWA: "Maintenance, including emergency reconstruction of recently damaged parts, of currently serviceable structures such as dikes, dams, levees, groins, riprap, breakwaters, causeways, bridge abutments or approaches, and transportation structures. Maintenance does not include any modification that changes the character, scope, or size of the original fill design."

Mean high water: Line on the shore reached by the plane of the average high water. Where precise determination of the actual location of the line becomes necessary, it must be established by survey with reference to the available tidal datum, preferably averaged over a period of 18.6 years. Less precise methods, such as observation of the "apparent shoreline" which is determined by reference to physical markings, lines of vegetation, or changes in type of vegetation, may be used only where an estimate is needed of the line reached by the mean high water.

Mechanized land clearing: Land clearing activities using mechanized equipment such as backhoes or bulldozers with sheer blades, rakes or discs constitute point source discharges and are subject to section 404 jurisdiction when they take place in wetlands or waters of the U.S (Regulatory Guidance Letter 90-05).

Metallic mineral: Any ore or material to be excavated from the natural deposits on or in the earth for its metallic mineral content to be used for commercial or industrial purposes. "Metallic mineral" does not include thorium or uranium.

Minor deviations: Deviations in the structure's configuration or filled area, including those due to changes in materials, construction techniques, or current construction codes or safety standards, which are necessary to make repair, rehabilitation, or replacement are permitted, provided the adverse environmental effects resulting from such repair, rehabilitation, or replacement are minimal.

Natural Rocky Habitats: Intertidal and subtidal substrates of pebble-gravel, cobble, boulder, or rock ledge and outcrops. Manufactured stone (e.g., cur or engineered riprap) is not considered a natural rocky habitat. Natural rocky habitats are either found as pavement (consolidated pebble-gravel, cobble, or boulder areas) or as a mixture with fines (i.e., clay and sand) and other substrates. Rocky habitats as EFH are defined as follows: (1) All pebble-gravel, cobble, or boulder pavements; (2) Pebble-gravel mixed with fines: mixed substrate of pebble-gravel and fines where pebble-gravel is an evident component of the substrate (either through visual observation or within sediment samples). Sediment samples with a content of 10% or more of pebble-gravel in the top layer (6-12 inches) should be delineated; (3) Scattered cobble, scattered boulder, scattered cobble/boulder: mixed substate of cobble and/or boulder and other substrates. The aerial extent of cobbles and/or boulders should be delineated; and (4) All rock ledge outcrops: area should be delineated along the edge of the ledge/outcrop (as defined by NMFS Habitat and Ecosystems Services Branch, Gloucester, MA).

Navigable waters or Navigable waters of the U.S.: These waters are subject to section 10 of the Rivers and Harbors Act of 1899 and are defined as those waters that are subject to the ebb and flow of the tide and/or are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce (33 CFR Part 329). Work or structures in navigable

waters require permits pursuant to §9 and §10 of the Rivers and Harbors Act of 1899. Also see the definition of "waters of the U.S." below.
Note: Currently the following non-tidal waters have been determined to be navigable waters of the U.S. subject to permit jurisdiction in Massachusetts: Merrimack River, Connecticut River, and Charles River to the Watertown Dam.
Nearshore disposal: This is defined in the USACE Coastal Engineering Manual as "(1) In beach terminology an indefinite zone extending seaward from the shoreline well beyond the breaker zone. (2) The zone which extends from the swash zone to the position marking the start of the offshore zone, typically at water depths of the order of 20m." A nearshore berm is an artificial berm built in shallow water using dredged material. Often, the berm is intended to renourish the adjacent and downdrift shore over time under the influence of waves and currents.
Non-regulated activity: Only structures or fills that were previously authorized and are in compliance with the terms and condition of the original authorization can be maintained as a non-regulated activity under 33 CFR 323.4(a)(2). Minor deviations from the previously authorized footprint do not qualify as a non-regulated activity and require new authorization from the USACE. The state's maintenance provisions may differ from the USACE and a project may require reporting and written authorization from the state.
Non-tidal wetlands: A non-tidal wetland is a wetland that is not subject to the ebb and flow of tidal waters. Non-tidal wetlands contiguous to tidal waters are located landward of the HTL (*i.e.,* spring HTL). Also see the definition of "Waters of the U.S." below.
Oil or natural gas pipeline: Any pipe or pipeline for the transportation of any form of oil or natural gas, including products derived from oil or natural gas, such as gasoline, jet fuel, diesel fuel. heating oil, petrochemical feedstocks, waxes, lubricating oils, and asphalt.
Ordinary High Water Mark (OHWM): A line on the shore established by the fluctuations of water and indicated by physical characteristics, or by other appropriate means that consider the characteristics of the surrounding areas. See 33 CFR 328.3(e).
Overall project: The overall project, for purposes of these GPs, includes all regulated activities that are reasonably related and necessary to accomplish the project purpose. Also see the definition of "single and complete linear project."
Perennial stream: A perennial stream has flowing water year-round during a typical year. The water table is located above the stream bed for most of the year. Groundwater is the primary source of water for stream flow. Runoff from rainfall is a supplemental source of water for stream flow.
Practicable: Available and capable of being done after taking into consideration cost, existing technology, and logistics in light of overall project purposes.
Permanent impacts: Permanent impacts means waters of the U.S. that are permanently affected by filling, flooding, excavation, or drainage because of the regulated activity. Permanent impacts include permanent discharges of dredged or fill material that change an aquatic area to dry land, increase the bottom elevation of a waterbody, or change the use of a waterbody.
Preconstruction notification (PCN): A request submitted by the applicant to the USACE for confirmation that a particular activity is authorized by these GPs. The request may be a permit application, letter, or similar document that includes information about the proposed work and its anticipated environmental effects. Preconstruction notification may be required by the terms and conditions of these GPs. A PCN may be voluntarily submitted in cases where PCN is not required and the applicant wants confirmation that the activity is authorized under these GPs.
Preservation: The removal of a threat to, or preventing the decline of, aquatic resources by an action in or near those aquatic resources. This term includes activities commonly associated with the protection and maintenance of aquatic resources through the implementation of appropriate legal and physical mechanisms. Preservation does not result in a gain of aquatic resource area or functions (33 CFR 332.2).
Real estate subdivision: Includes circumstances where a landowner or developer divides a tract of land into smaller parcels for the purpose of selling, conveying, transferring, leasing, or

developing said parcels. This would include the entire area of a residential, commercial or other real estate subdivision, including all parcels and parts thereof

Reconfiguration zone: A USACE authorized area in which permittees may rearrange pile-supported structures and floats without additional authorizations. A reconfiguration zone does not grant exclusive privileges to an area or an increase in structure or float area.

Re-establishment: The manipulation of the physical, chemical, or biological characteristics of a site with the goal of returning natural/ historic functions to a former aquatic resource. Re-establishment results in rebuilding a former aquatic resource and results in again in aquatic resource area and functions (33 CFR 332.2).

Reference Site: Reference sites - Compensatory restoration, rehabilitation, and creation mitigation projects should seek to duplicate the features of reference aquatic resources or enhance connectivity with adjacent natural upland and aquatic resource landscape elements. Performance standards related to reference sites are encouraged. Mitigation project sites must be selected based on their ability to be, and continue to be, resistant to disturbance from the surrounding landscape, by locating them adjacent to refuges, buffers, green spaces, and other preserved natural elements of the landscape. In general, aquatic resource mitigation projects must be designed to be self-sustaining, natural systems within the landscape and climate in which they are located, with little or no ongoing maintenance and/or hydrologic manipulation.

Rehabilitation: The manipulation of the physical, chemical, or biological characteristics of a site with the goal of repairing natural/historic functions to a degraded aquatic resource. Rehabilitation results in a gain in aquatic resource function, but does not result in a gain in aquatic resource area (33 CFR 332.2).

Restoration: The manipulation of the physical, chemical, or biological characteristics of a site with the goal of returning natural/historic functions to a former or degraded aquatic resource. For the purpose of tracking net gains in aquatic resource area, restoration is divided into two categories: re-establishment and rehabilitation (33 CFR 332.2).

Riffle and pool complex: Riffle and pool complexes are special aquatic sites under the 404(b)(1) Guidelines. Riffle and pool complexes sometimes characterize steep gradient sections of streams. Such stream sections are recognizable by their hydraulic characteristics. The rapid movement of water over a course substrate in riffles results in a rough flow, a turbulent surface, and high dissolved oxygen levels in the water. Pools are deeper areas associated with riffles. A slower stream velocity, a streaming flow, a smooth surface, and a finer substrate characterize pools.

Sedimentation: Sedimentation is defined as the process of deposition of a solid material from a state of suspension. Deposited sediments may accumulate and have temporal impacts to aquatic resource areas. See secondary effects definition above. For the purposes of this document, “greater than minimal sedimentation” is generally not considered to occur when using proper erosion controls (GC 25) or when sedimentation is considered “de minimis” 33 CFR 323.2(d)(5).

Single and complete linear project: A linear project is a project constructed for the purpose of getting people, goods, or services from a point of origin to a terminal point, which often involves multiple crossings of one or more waterbodies at separate and distant locations. The term “single and complete project” is defined as that portion of the total linear project proposed or accomplished by one owner/ developer or partnership or other association of owners/developers that includes all crossings of a single water of the U.S. (i.e., a single waterbody) at a specific location. For linear projects crossing a single or multiple waterbodies several times at separate and distant locations, each crossing is considered a single and complete project for the purposes of these GPs. However, individual channels in a braided stream or river, or individual arms of a large, irregularly shaped wetland or lake, etc., are not separate waterbodies, and crossings of such features cannot be considered separately.

Single and complete non-linear project: For non-linear projects, the term “single and complete project” is defined at 33 CFR 330.2(i) as the total project proposed or accomplished by one owner/developer or partnership or other association of owners/developers. A single and complete

non-linear project must have independent utility (see the definition of “independent utility”). Single and complete non-linear projects may not be “piecemealed” to avoid the limits in a GP authorization.

Special aquatic sites (SAS): These include inland and saltmarsh wetlands, mud flats, vegetated shallows, sanctuaries and refuges, coral reefs, and riffle and pool complexes. These are defined at 40 CFR 230.3 and listed in 40 CFR 230 Subpart E.

Streambed: The stream substrate between the OHW marks on each side. The substrate may be bedrock or inorganic particles that range in size from clay to boulders. Wetlands contiguous to the streambed, but outside of the OHW marks, are not considered part of the streambed.

Stream channelization: The manipulation of a stream’s course, condition, capacity, or location that causes more than minimal interruption of normal stream processes. A channelized stream remains a water of the U.S.

Structure: An object that is arranged in a definite pattern of organization. Examples of structures include, without limitation, any pier, boat dock, boat ramp, wharf, dolphin, weir, boom, breakwater, bulkhead, revetment, riprap, jetty, artificial island, artificial reef, permanent mooring structure, power transmission line, permanently moored floating vessel, piling, aid to navigation, or any other manmade obstacle or obstruction.

Temporal loss: The time lag between the loss of aquatic resource functions caused by the permitted impacts and the replacement of aquatic resource functions at the compensatory mitigation site(s) (33 CFR 332.2).

Temporary impacts: Temporary impacts include, but are not limited to, jurisdictional waters that are temporarily filled, flooded, excavated, or drained because of the regulated activity. Impacts are considered temporary when they are removed immediately upon completion of the activity. Note: An impact is considered temporary when the aquatic resource is restored to pre-project conditions, but effects to archaeological and/or cultural resources may be permanent in duration.

Tidal wetlands: A wetland that is subject to the ebb and flow of the tide. See the definition of “Waters of the U.S.” below.

Tide gates: Structures such as duckbills, flap gates, manual and self-regulating tide gates, etc. that regulate or prevent upstream tidal flows.

Turbidity: A measure of the level of particles such as sediment, plankton, or organic by-products, in a body of water. As the turbidity of water increases, it becomes denser and less clear due to a higher concentration of these light-blocking particles. Suspended solids are more likely to carry toxic chemicals, and can also negatively affect aquatic organisms, water temperature, and dissolved oxygen levels.

Utility line: Any pipe or pipeline for the transportation of any gaseous, liquid, liquescent, or slurry substance, for any purpose that is not oil, natural gas, or petrochemicals. A utility line also includes any cable, line, or wire for the transmission for any purpose of electrical energy, telephone, and telegraph messages, and radio and television communication. The term ‘utility line’ does not include activities that drain a water of the U.S., such as drainage tile or French drains, but it does apply to pipes conveying drainage from another area.

Vegetated shallows: Permanently inundated areas that under normal circumstances support communities of rooted aquatic vegetation, such as eelgrass *(Zostera marina)* and widgeon grass (*Rupia maritima*) in marine systems (does not include salt marsh) as well as a number of freshwater species in rivers and lakes. These are a type of SAS defined at 40 CFR 230.43. Vegetated shallows are commonly referred to as submerged aquatic vegetation or SAV. Vegetated shallow survey guidance is located at www.nae.usace.army.mil/missions/regulatory /jurisdiction-and-wetlands. Maps of vegetated shallows in Massachusetts are located at www.nae.usace.army.mil/missions/regulatory/state-general-permits/massachusetts-general-permit.

Vernal pools: For the purposes of these GPs, vernal pools are depressional wetland basins that typically dry up in most years and may contain inlets or outlets, typically of intermittent flow. Vernal pools range in both size and depth depending upon landscape position and parent material(s). In

most years, vernal pools support one or more of the following obligate indicator species: wood frog, spotted salamander, blue-spotted salamander, marbled salamander, Jefferson's salamander and fairy shrimp. However, they should preclude sustainable populations of predatory fish.

Water diversions: Water diversions are activities such as bypass pumping (e.g., "dam and pump") or water withdrawals. Temporary flume pipes, culverts or cofferdams where normal flows are maintained within the stream boundary's confines aren't water diversions. "Normal flows" are defined as no change in flow from pre-project conditions.

Waters of the United States (U.S.) These waterbodies are the waters where permits are required for the discharge of dredged or fill material pursuant to §404 of the CWA. These waters include but are not limited to navigable waters of the U.S. and tidal wetlands and include many non-tidal wetlands and other waterbodies. See definitions for navigable waters of the U.S., tidal wetlands, waterbody, and non-tidal wetlands. (33 CFR 328)

Waterbody: Examples of "waterbodies" include oceans, coastal waters, rivers, streams, ditches, lakes, ponds, and wetlands. If a wetland is adjacent to a waterbody determined to be a water of the U.S., that waterbody and any adjacent wetlands are considered together as a single aquatic unit (see 33 CFR 328.4(c)(2)).

Weir: A barrier across a river designed to alter the flow characteristics. In most cases, weirs take the form of a barrier, smaller than most conventional dams, across a river that causes water to pool behind the structure and allows water to flow over the top. Weirs are commonly used to alter the flow regime of a river, prevent flooding, measure discharge and help render a river navigable.

Wetland: Wetlands are areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas. The Corps of Engineers Wetlands Delineation Manual in conjunction with the associated regional supplement should be used to determine if a wetland is present and delineate wetland boundaries.

Acronyms

BMPs	Best Management Practices
BUAR	Massachusetts Board of Underwater Archaeological Resources
CWA	Clean Water Act
CZM	Coastal Zone Management
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act
EFH	Essential Fish Habitat
FNP	Federal Navigation Project
GC	General Condition
GP	General Permit
HTL	High Tide Line
IP	Individual Permit
LID	Low impact development
MassDEP	Massachusetts Department of Environmental Protection
MA DMF	Massachusetts Division of Marine Fisheries
MHC	Massachusetts Historical Commission
MHW	Mean High Water
MLLW	Mean Lower Low Water
MLW	Mean Low Water
NHPA	National Historic Preservation Act
NMFS	National Marine Fisheries Service
OHW	Ordinary High Water Mark
PCN	Preconstruction Notification
SAS	Special Aquatic Sites
SF	Square Feet
SV	Self-Verification
SHPO	State Historic Preservation Officer
THPO	Tribal Historic Preservation Officer
USFWS	U.S. Fish and Wildlife Service
USCG	U.S. Coast Guard
USFS	U.S. Forest Service
USGS	U.S. Geological Service
WQC	Water Quality Certification

Appendix A: Guidance for NHPA Section 106 Compliance in Massachusetts

1. Purpose & Applicability

Section 106 of the National Historic Preservation Act of 1966, as amended (NHPA) (54 U.S.C § 306108), requires Federal agencies to take into account the effects of their undertakings on Historic Properties and afford the Advisory Council on Historic Preservation a reasonable opportunity to comment on such undertakings. Therefore, in order for an activity to be eligible for authorization under the 2023 Massachusetts General Permit, the USACE must consider the effect the activity may have on historic properties. Historic properties may include, but are not limited to, historic districts, archaeological districts, sites, buildings, structures, objects, sacred sites, traditional cultural places, and traditional cultural landscapes that are included in, or eligible for inclusion in, the National Register of Historic Places (NRHP).

This guidance applies to projects that require authorization under Section 404 of the Clean Water Act (33 U.S.C. § 1344) and/or Section 10 of the Rivers and Harbors Act (33 U.S.C. §403) and will assist applicants when evaluating and documenting the presence of historic properties within or near their project site(s). The prospective applicant will evaluate their proposed project using the criteria below to determine if their project has the potential to affect historic properties and if so, whether or not historic properties are present or are likely to be present. All activities authorized under these GPs shall follow the terms outlined in General Condition 14: Historic Properties and General Condition 6: Tribal Rights & Burial Sites. Prospective applicants shall complete their due diligence according to the procedures below for their application to be deemed complete.

2. No Potential to Affect Historic Properties

Certain activities do not have the potential to cause effects on historic properties, assuming such historic properties were present, based on the nature of the activity and site-specific conditions. Therefore, these activities **do not** require historic property identification efforts or notification of the SHPO, THPOs, and/or BUAR under Section 106. The USACE has determined the following activities within the stated parameters have no potential to affect historic properties:

General Permit	Activity Parameters
1	Temporary buoys, markers and similar structures that are placed during winter events on ice and removed before spring thaw.
2	Repair or rehabilitation of structures that are less than 45 years in age. Any temporary structures or fills or work necessary to complete repairs or rehabilitation must not result in any ground disturbance.
3	Maintenance and replacement of moorings that are less than 45 years in age.
6	Maintenance, repair, replacement, or removal of utility lines, oil or natural gas pipelines, outfall or intake structures, and/or appurtenant features that are less than 45 years in age when all access, staging, and ground disturbance is strictly limited to previously disturbed areas (including any previous ground disturbance). Replacement must be in kind or smaller in size. Installation of tide gates on outfall structures that are less than 45 years in age.
7	Maintenance dredging of previously dredged areas where dredging does not extend beyond the original bottom elevations.

	Disposal of dredged material at an existing established and USACE-approved confined aquatic disposal cell. Beach nourishment in ongoing existing nourishment areas.
11	Fish and wildlife harvesting and attraction devices and activities.
13	Cleanup of hazardous and toxic waste materials, including contaminated sediments, that are less than 45 years in age.
16	Removal of land-based and water-based renewable energy generation facilities and hydropower projects that are less than 45 years in age.
18	Installation of buoys, floats, racks, trays, nets, lines, tubes, containers, and other structures for previously authorized by the USACE and ongoing aquaculture activities. Discharges of dredged or fill material into tidal or non-tidal waters necessary for shellfish seeding, rearing, cultivating, transplanting, and harvesting activities for previously authorized and ongoing aquaculture activities.
20	Maintenance activities for existing living shorelines excluding maintenance activities that require new ground disturbance such as excavation or re-sloping of the bank/shoreline.
22	Reshaping or maintenance of existing drainage ditches less than 45 years in age excluding ditch enlargement.
23	Placement of temporary and removable linear transportation and wetland/stream crossings that have no ground disturbance prior to placement, during placement, and during removal (i.e., placed on the surface and subsequently removed within one year of placement).
24	Placement of temporary and removable crossings and cofferdams that have no ground disturbance prior to placement, during placement, and during removal (i.e., placed on the surface and subsequently removed within one year of placement).
25	Emergency repair of existing structures and/or fills less than 45 years in age.

3. Historic Property Identification

If the activity does not fit under the criteria above, the following historic property identification efforts must be completed to demonstrate compliance with Section 106 of the NHPA. This includes documenting previously identified and unidentified historic properties in the project area.

a. Previously Identified Historic Properties: The prospective applicant shall document if previously identified historic properties are present on or adjacent to the project site by notifying the Massachusetts Historical Commission (MHC) and the Massachusetts Board of Underwater Archaeological Resources (BUAR), as appropriate, of the proposed project. The MHC and BUAR will check their records for the presence of any previously identified historic properties. The following outlines how prospective applicants should notify the MHC and BUAR.

i. The prospective applicant will notify the SHPO and BUAR to identify any previously recorded cultural resources. Applicants shall mail a completed Project Notification Form[18], project narrative, location (coordinates), plans, soil maps, and information on known cultural resources to the MHC. The MHC does not accept submissions via email. Applicants shall email or mail this information to the BUAR when the activity is located in lakes, ponds, rivers, and/or navigable waters in MA. Emailed file attachments should be <10MB. Any files >10MB shall be delivered via a file exchange system or the hard copy documents shall be mailed. Preferred contact information is listed below.

ii. **When sending this information, applicants must also document proof of receipt OR proof the information was delivered.** Proof of receipt constitutes a certified mail receipt, read email receipt, or other mail/email/online tracking services that document the information has reached the intended recipient(s). Proof the information was delivered constitutes a certificate of mailing, email delivery receipt, or other mail/email/online services that document the information was sent at a particular time. When using proof of delivery such (e.g., certificate of mailing), applicants should add 5 days to the 30-day notification period so the mail has time to reach its intended recipient. When using proof of receipt, the applicant may begin the 30-day notification period from the date received by the intended recipient.

iii. When mailing or emailing the application materials, applicants should include the following statement: "Please send responses to this notification directly to the USACE via email: cenae-r-ma@usace.army.mil or address regular mail responses to: Regulatory Division, U.S. Army Corps of Engineers, New England District, 696 Virginia Road, Concord, Massachusetts 01742-2751." Email responses to the USACE are strongly preferred. The SHPO and BUAR will contact the USACE and cc the applicant(s) within 30 days of receiving the notification if their records indicate that historic properties are located in the project vicinity, and if additional review and/or surveys are recommended to ensure NHPA compliance. If the SHPO and/or BUAR do not respond within 30 days of receiving the notification, is it presumed that no known historic properties are present.

b. Previously Unidentified Historic Properties: The prospective applicant shall evaluate the project site and determine the sensitivity for the presence of historic properties if the project site has not been previously surveyed for cultural resources within the last 10 years. If the sensitivity is determined to be moderate to high, an intensive archaeological and/or architectural survey is required to investigate the potential presence of historic properties. The individual conducting this survey must meet the Secretary of the Interior's Standards for Professional Qualifications (48 FR 44738-44739) in the discipline relevant to a particular resource type. For example, archeologists should not document and evaluate buildings or structures and architectural historians should not document and evaluate archaeological sites. The identification and qualifications for those participating in any survey and evaluation of resources should be included with the survey results. The criteria listed below are indicators of low sensitivity for the presence of historic properties for consideration when determining if an archaeological or architectural survey is needed.

Low sensitivity indicators:

- Previous archaeological and/or architectural survey within the last 10 years with negative results.
- In a location created in modern times (i.e., built on fill placed within the last 45 years or within an area excavated within the last 45 years).
- USACE has reviewed the project description and determined that a survey is not warranted based on the proposed activity and its location.

State survey guidance and standards are provided in the September 1995 Historic Properties Survey Manual Guidelines for the Identification of Historical and Archaeological Resources in Massachusetts available. State survey guidance and standards for underwater surveys are provided

[18] https://www.sec.state.ma.us/mhc/mhcform/formidx.htm

in the Board of Underwater Archaeological Resources' 2022 Policy Guidance on Archaeological Investigations and Related Survey Standards for the Discovery of Underwater Archaeological Resources. This guidance is available on the NAE Regulatory website: https://www.nae.usace.army.mil/Missions/Regulatory/State-General-Permits/Massachusetts-General-Permit/.

Please note, a negative result from MHC and/or BUAR does not necessarily mean no historic properties are present. Often proposed project sites have not been previously subject to a survey, so historic properties which may be present have not been previously recorded.

4. Tribal Coordination

Prospective applicants shall mail the Project Notification Form, project narrative, location (coordinates), plans with locus map, soil maps, and information on cultural resources to the Wampanoag Tribe of Gay Head (Aquinnah), Mashpee Wampanoag Tribe, Narragansett Indian Tribe, and/or Stockbridge-Munsee Community Band of Mohican Indians with interests in the project location. Preferred tribal contact information, including their respective areas of interest, can be found below. Applicants shall follow the same procedures as identified in Section 3(a)i-iii above when notifying Tribes of the proposed activity. Applicants shall provide the USACE with any responses received from the tribe(s) with their PCN application. If a tribe does not respond within 30 days of receiving the notification, the applicant shall provide USACE with all documentation of tribal outreach with their SV or PCN submission (e.g., emails, letters, phone call log, etc.). If the tribe indicates the presence of a previously unrecorded cultural resource, including a traditional cultural property (TCP) or traditional cultural landscape (TCL), a PCN is required.

5. Effect Determination

The project may have the potential to affect historic properties and/or tribal resources if 1) notification recipients respond within 30 calendar days of notification with concerns, 2) historic properties eligible for listing, or potentially eligible for listing in the NRHP, are present or 3) tribal resources are known to be present. The USACE may need to further review the project to confirm potential effects to historic properties and/or tribal resources. A PCN is required for any activity that may affect a historic property.

The USACE may determine the project will have 'no effect' on historic properties (i.e., no historic properties affected) when procedures outlined in Section 3 above are followed and no cultural resources are identified. Similarly, if historic properties are identified and will be completely avoided, the USACE may determine 'no effect.'

6. Contact Information:

Massachusetts Historical Commission

The Massachusetts Archives Building
220 Morrissey Boulevard
Boston, Massachusetts 02125

No email. Applicants or their representatives must send project information via certified mail and submit the certified mail receipt to the USACE or send via regular mail and submit proof of delivery.

Area of concern: All of Massachusetts.

Massachusetts Board of Underwater Archaeological Resources (BUAR)

100 Cambridge Street, Suite 900
Boston, Massachusetts 02114
Email: david.s.robinson@mass.gov

Applicants or their representatives must send project information via email (***strongly preferred***) or regular mail and provide proof of receipt or proof of delivery.

Area of concern: All waterbodies in Massachusetts.

Wampanoag Tribe of Gay Head (Aquinnah)

Bettina Washington
Tribal Historic Preservation Officer (THPO)
20 Black Brook Road
Aquinnah, Massachusetts 02535
Email: thpo@wampanoagtribe-nsn.gov

Applicants or their representative must send project information via email (***preferred***) or regular mail and provide proof of receipt or proof of delivery.

Area of concern: All of Massachusetts.

Mashpee Wampanoag Tribe

ATTN: David Weeden
Tribal Historic Preservation Officer (THPO)
483 Great Neck Road South
Mashpee, Massachusetts 02649
Email: 106review@mwtribe-nsn.gov
Cc: David.weeden@mwtribe-nsn.gov

Applicants or their representative must send project information via email (***preferred***) or regular mail and provide proof of receipt or proof of delivery.

Area of concern: All of Massachusetts.

Narragansett Indian Tribe

ATTN: John Brown
Tribal Historic Preservation Officer (THPO)
Narragansett Indian Longhouse
4425 South County Trail
Charlestown, Rhode Island 02813
Email: tashtesook@aol.com

Applicants or their representative must send project information via email (***preferred***) or regular mail and provide proof of receipt or proof of delivery.

Area of concern: Massachusetts east of the Connecticut River.

Stockbridge-Munsee Community Band of Mohican Indians

ATTN: Jeff Bendremer
Tribal Historic Preservation Manager
Stockbridge-Munsee Community
Tribal Historic Preservation Extension office
86 Spring Street
Williamstown, Massachusetts 01267
Email: thpo@mohican-nsn.gov

Applicants or their representative must send project information via email (***preferred***) or regular mail and provide proof of receipt or proof of delivery.

Area of concern: West of the Connecticut River and Northfield, Montague, Miller's Falls, Turner's Falls, Sunderland, Amherst, Hadley, South Hadley, Chicopee, Springfield and Longmeadow.

APPENDIX B PRE-CONSTRUCTION NOTIFICATION

U.S. Army Corps of Engineers (USACE), New England District (NAE)

PRE-CONSTRUCTION NOTIFICATION (PCN)

DATA REQUIRED BY THE PRIVACY ACT OF 1974

Authority Rivers and Harbors Act, Section 10, 33 USC 403; Clean Water Act, Section 404, 33 USC 1344; Regulatory Programs of the Corps of Engineers; Final Rule 33 CFR 320-332.

Principal Purpose The information provided will be used in evaluating activities under Pre-Construction Notification procedures within New England.

Routine Uses This information may be shared with other federal, state, and local government agencies during the application review process. Submission

Disclosure of requested information is voluntary. However, if information is not provided the PCN application cannot be fully evaluated nor can USACE render a permit decision.

Instructions The applicant must complete ALL required sections of this document before their submission to USACE. The PCN submission to USACE shall include one set of drawings which show the location and character of the proposed activity, statements that address each required field below, and documentation that supports each field (e.g., emails, letters, description/narrative, phone calls, surveys, reports, etc.). Electronic submissions to the following address are strongly preferred: cenae-r-ma@usace.army.mil. The email subject line shall contain the following: General Permit #, PCN, City/Town, and date submitted. An application that is not completed in full will be returned.

(ITEMS 1 THRU 4 TO BE FILLED BY USACE)

1. APPLICATION NO.	2. FIELD OFFICE CODE	3. DATE RECEIVED	4. DATE APPLICATION COMPLETE

(ITEMS BELOW TO BE FILLED BY APPLICANT)

5. APPLICANT'S NAME	8. AUTHORIZED AGENT'S NAME AND TITLE (*agent is not required*)
First - Middle - Last -	First - Middle - Last -
Company -	Company -
E-mail Address -	E-mail Address -
6. APPLICANT'S ADDRESS:	9. AGENT'S ADDRESS:
Address-	Address-
City - State - Zip - Country -	City - State - Zip - Country -
7. APPLICANT'S PHONE NOs. with AREA CODE	10. AGENT'S PHONE NOs. with AREA CODE
a. Residence b. Business c. Fax d. Mobile	a. Residence b. Business c. Fax d. Mobile

STATEMENT OF AUTHORIZATION

11. I hereby authorize, _____ to act on my behalf as my agent in the processing of this general permit PCN application and to furnish, upon request, supplemental information in support of this general permit PCN application.

_____ _____

SIGNATURE OF APPLICANT DATE

NAME, LOCATION, AND DESCRIPTION OF PROJECT OR ACTIVITY

12. PROJECT NAME or TITLE (*see instructions*)

13. NAME OF WATERBODY, IF KNOWN (*if applicable*)	14. PROPOSED ACTIVITY STREET ADDRESS (*if applicable*)
15. LOCATION OF PROPOSED ACTIVITY (*see instructions*)	City: State: Zip:
Latitude: °N Longitude: °W	

16. OTHER LOCATION DESCRIPTIONS, IF KNOWN (*see instructions*)

State Tax Parcel ID: Municipality:

Section: Township: Range:

17. DIRECTIONS TO THE SITE.

18. IDENTIFY THE SPECIFIC GENERAL PERMIT(S) YOU PROPOSE TO USE:

19. DESCRIPTION OF PROPOSED GENERAL PERMIT ACTIVITY (*see instructions*)

20. DESCRIPTION OF PROPOSED MITIGATION MEASURES (*see instructions*)

21. PURPOSE OF GENERAL PERMIT ACTIVITY (*Describe the reason or purpose of the project, see instructions*)

22. Quantity of Wetlands, Streams, or Other Types of Waters Directly Affected by Proposed General Permit Activity (*see instructions*)

Area (square feet)	Length (linear feet)	Volume (cubic yards)	Duration	Purpose

Each PCN must include a delineation of wetlands, other special aquatic sites, and other waters, such as lakes and ponds, and perennial, intermittent, and ephemeral streams, on the project site.

23. List any other GP(s), regional general permit(s), or individual permit(s) used or intended to be used to authorize any part of the proposed project on any related activity (*see instructions*)

24. If the proposed activity will result in the loss of aquatic resources that exceed those identified in the New England District Compensatory Mitigation Thresholds, explain how the compensatory mitigation requirement will be satisfied. (*see instructions*)

25. Is Any Portion of the General Permit Activity Already Complete? ☐ Yes ☐ No If Yes, describe the completed work:

26. List the name(s) of any species listed as endangered or threatened under the Endangered Species Act that might be affected by the proposed GP activity or utilize the designated critical habitat that might be affected by the proposed GP activity. (*see instructions*)

27. List any historic properties that have the potential to be affected by the proposed GP activity or include a vicinity map indicating the location of the historic property or properties. Attach relevant project information, along with any responses received from project notifications to this submittal. (*see instructions*)

28. For a proposed GP activity that will occur in a component of the National Wild and Scenic River System, or in a river officially designated by Congress as a "study river" for possible inclusion in the system while the river is in an official study status, identify the Wild and Scenic River or the "study river":

29. If the proposed GP activity also requires permission from the USACE pursuant to 33 U.S.C. 408 because it will alter or temporarily or permanently occupy or use a U.S. Army Corps of Engineers federally authorized civil works project, have you submitted a written request for section 408 permission from the USACE district having jurisdiction over that project? ☐ Yes ☐ No

If "yes", please provide the date your request was submitted to the USACE District:

30. Does the activity require a 401 Water Quality Certification (WQC)? If so, specify the type of 401 WQC that is required (general or individual). In cases where an individual 401 WQC is required, provide the date the 401 WQC certification request was submitted to the certifying authority and their contact information.

31. If the terms of the GP(s) you want to use require additional information to be included in the PCN (i.e. sampling and analysis plan), please include that information in this space or provide it on an additional sheet of paper marked Block 30. (*see instructions*)

32. I certify that the information in this pre-construction notification is complete and accurate. I further certify that I possess the authority to undertake the work described herein or am acting as the duly authorized agent of the applicant.

SIGNATURE OF APPLICANT	DATE	SIGNATURE OF AGENT	DATE

The Pre-Construction Notification must be signed by the person who desires to undertake the proposed activity (applicant) and, if the statement in block 11 has been filled out and signed, the authorized agent.

18 U.S.C. Section 1001 provides that: Whoever, in any manner within the jurisdiction of any department or agency of the United States knowingly and willfully falsifies, conceals, or covers up any trick, scheme, or disguises a material fact or makes any false, fictitious or fraudulent statements or representations or makes or uses any false writing or document knowing same to contain any false, fictitious or fraudulent statements or entry, shall be fined not more than $10,000 or imprisoned not more than five years or both.

Instructions for Preparing a

Department of the Army

General Permit (GP) Pre-Construction Notification (PCN)

Blocks 1 through 4. To be completed by the U.S. Army Corps of Engineers.

Block 5. Applicant' Name. Enter the name and the e-mail address of the responsible party or parties. If the responsible party is an agency, company, corporation, or other organization, indicate the name of the organization and responsible officer and title. If more than one party is associated with the PCN, please attach a sheet of paper with the necessary information marked Block 5.

Block 6. Address of Applicant. Please provide the full address of the party or parties responsible for the PCN. If more space is needed, attach an extra sheet of paper marked Block 6.

Block 7. Applicant Telephone Number(s). Please provide the telephone number where you can usually be reached during normal business hours.

Blocks 8 through 11. To be completed, if you choose to have an agent.

Block 8. Authorized Agent's Name and Title. Indicate name of individual or agency, designated by you, to represent you in this process. An agent can be an attorney, builder, contractor, engineer, consultant, or any other person or organization. Note: An agent is not required.

Blocks 9 and 10. Agent's Address and Telephone Number. Please provide the complete mailing address of the agent, along with the telephone number where they can be reached during normal business hours.

Block 11. Statement of Authorization. To be completed by the applicant, if an agent is to be employed.

Block 12. Proposed General Permit Activity Name or Title. Please provide a name identifying the proposed GP activity, e.g., Windward Marina, Rolling Hills Subdivision, or Smith Commercial Center.

Block 13. Name of Waterbody. Please provide the name (if it has a name) of any stream, lake, marsh, or other waterway to be directly impacted by the GP activity. If it is a minor (no name) stream, identify the waterbody the minor stream enters.

Block 14. Proposed Activity Street Address. If the proposed GP activity is located at a site having a street address (not a box number), enter it in Block 14.

Block 15. Location of Proposed Activity. Enter the latitude and longitude of where the proposed GP activity is located. Indicate whether the project location provided is the center of the project or whether the project location is provided as the latitude and longitude for each of the "corners" of the project area requiring evaluation. If there are multiple sites, please list the latitude and longitude of each site (center or corners) on a separate sheet of paper and mark as Block 15.

Block 16. Other Location Descriptions. If available, provide the Tax Parcel Identification number of the site, Section, Township, and Range of the site (if known), and / or local Municipality where the site is located.

Block 17. Directions to the Site. Provide directions to the site from a known location or landmark. Include highway and street numbers as well as names. Also provide distances from known locations and any other information that would assist in locating the site. You may also provide a description of the location of the proposed GP activity, such as lot numbers, tract numbers, or you may choose to locate the proposed GP activity site from a known point (such as the right descending bank of Smith Creek, one mile downstream from the Highway 14 bridge). If a large river or stream, include the river mile of the proposed GP activity site if known. If there are multiple locations, please indicate directions to each location on a separate sheet of paper and mark as Block 17.

Block 18. Identify the Specific General Permit(s) You Propose to Use. List the number(s) of the General Permit(s) you want to use to authorize the proposed activity (e.g., GP 4).

Block 19. Description of the Proposed General Permit Activity. Describe the proposed GP activity, including the direct and indirect adverse environmental effects of the proposed activity. The description of the proposed activity should be sufficiently detailed for USACE to determine that the adverse environmental effects of the activity will be no more than minimal. Identify the materials to be used in construction, as well as the methods by which the work is to be done.

Provide drawings to show that the proposed GP activity complies with the terms of the applicable GP(s). Drawings should contain sufficient detail to provide an illustrative description of the proposed GP activity, but do not need to be detailed engineering plans. The written descriptions and illustrations are an important part of the application. Please describe, in detail, what you wish to do. If more space is needed, attach an extra sheet of paper marked Block 19.

Block 20: Description of Proposed Mitigation Measures. Describe any proposed mitigation measures intended to reduce the adverse environmental effects caused by the proposed GP activity. The description of any proposed mitigation measures should be sufficiently detailed for USACE to determine how the measures would avoid and minimize adverse environmental effects. If adverse effects exceed the New England District compensatory mitigation thresholds, you must document how compensatory mitigation would be satisfied in Block 24.

Block 21. Purpose of General Permit Activity. Describe the purpose and need for the proposed GP activity. What will it be used for and why? Also include a brief description of any related activities associated with the proposed project. Provide the approximate dates you plan to begin and complete all work.

Block 22. Quantity of Wetlands, Streams, or Other Types of Waters Directly Affected by the Proposed General Permit Activity. For discharges of dredged or fill material into Waters of the U.S., provide the amount of wetlands, streams, or other types of waters filled, flooded, excavated, or drained by the proposed GP activity. For structures or work in Navigable Waters of the U.S. subject to Section 10 of the Rivers and Harbors Act of 1899, provide the amount of navigable waters filled, dredged, occupied by one or more structures (e.g., aids to navigation, mooring buoys) by the proposed GP activity. The area of impact includes the structures or fills with direct or indirect effects to waters of the U.S. The length of impact includes the length of a stream, including is banks, that are directly affected by the structures or fills. The duration of impact should be identified as temporary (xx days) or permanent. The impact purpose should briefly describe what structure or fill is responsible for the impact.

Block 23. Identify Any Other General Permit(s), Regional General Permit(s), or Individual Permit(s) Used to Authorize Any Part of Proposed Activity or Any Related Activity. List any other GP(s) or individual permit(s) used or intended to be used to authorize any part of the proposed project or any related activity. For linear projects, list other separate and distant crossings of waters and wetlands authorized by these GPs that do not require PCNs. If more space is needed, attach an extra sheet of paper marked Block 23.

Block 24. Compensatory Mitigation Statement for Losses Greater Than the New England District Compensatory Mitigation Thresholds. New England District requires compensatory mitigation at a minimum one for one replacement ratio or greater for all aquatic resource losses that require a PCN and exceed the New England District Compensatory Mitigation Thresholds, unless USACE determines in writing that either some other form of mitigation is more environmentally appropriate or the adverse environmental effects of the proposed GP activity are no more than minimal without compensatory mitigation, and provides an activity specific waiver of this requirement. Describe the proposed compensatory mitigation for wetland losses greater than the New England District Compensatory Mitigation Thresholds or provide an explanation of why USACE should not require wetland compensatory mitigation for the proposed GP activity. If more space is needed, attach an extra sheet of paper marked Block 24.

Block 25. Is Any Portion of the General Permit Activity Already Complete? Describe any work that has already been completed for the GP activity.

Block 26. List the Name(s) of Any Species Listed As Endangered or Threatened under the Endangered Species Act that Might be Affected by the General Permit Activity. If you are not a federal agency, and if any listed species or designated critical habitat might be affected or is in the vicinity of the proposed GP activity, or if the proposed GP activity is located in designated critical habitat, list the name(s) of those endangered or threatened species that might be affected by the proposed GP activity or utilize the designated critical habitat that might be affected by the proposed GP activity. If you are a Federal agency, and the proposed GP activity requires a PCN, you must provide documentation demonstrating compliance with Section 7 of the Endangered Species Act.

Block 27. List Any Historic Properties that Have the Potential to be Affected by the General Permit Activity. If you are not a federal agency, and if any historic properties have the potential to be affected by the proposed GP activity, list the name(s) of those historic properties that have the potential to be affected by the proposed GP activity. Provide all relevant documentation about these historic properties in the PCN submittal. If you are a Federal agency, and the proposed GP activity requires a PCN, you must provide documentation demonstrating compliance with Section 106 of the National Historic Preservation Act.

Block 28. List the Wild and Scenic River or Congressionally Designated Study River if the General Permit Activity Would Occur in such a River. If the proposed GP activity will occur in a river in the National Wild and Scenic River System or in a river officially designated by Congress as a "study river" under the Wild and Scenic Rivers Act, provide the name of the river. For a list of Wild and Scenic Rivers and study rivers, please visit http://www.rivers.gov/

Block 29. General Permit Activities that also Require Permission from the USACE Under 33 U.S.C. 408. If the proposed GP activity also requires permission from the USACE under 33 U.S.C. 408 because it will temporarily or permanently alter, occupy, or use a USACE federal authorized civil works project, indicate whether you have submitted a written request for section 408 permission from the USACE district having jurisdiction over that project.

Block 30. 401 Water Quality Certification. As described above, specify if the activity requires a 401 WQC from the certifying authority.

Block 31. Other Information Required For General Permit Pre Construction Notifications. The terms of some of the General Permits include additional information requirements for preconstruction notifications:

* Maintenance – information regarding the original design capacities and configurations of the outfalls, intakes, small impoundments, and canals.
* Temporary Construction, Access, and Dewatering – a restoration plan showing how all temporary fills and structures will be removed and the area restored to pre-project conditions.
* Repair of Uplands Damaged by Discrete Events – documentation, such as a recent topographic survey or photographs, to justify the extent of the proposed restoration.
* Commercial Shellfish Aquaculture Activities – (1) a map showing the boundaries of the project area, with latitude and longitude coordinates for each corner of the project area; (2) the name(s) of the species that will be cultivated during the period this GP is in effect; (3) whether canopy predator nets will be used; (4) whether suspended cultivation techniques will be used; and (5) general water depths in the project area (a detailed survey is not required).Dredging – (1) a proposed sampling and analysis plan shall be provided to USACE for approval prior to its execution. Pre-application meetings are encouraged.
* Beach Nourishment – sediment grain size should be determined for the length of the beach where nourishment is proposed. The frequency and locations of sediment sampling shall be sufficient to identify the sediment composition of the beach profile. This data shall be consolidated to generate a sediment gradation curve for each sampled transect. Each sampled transect should also be identified on the project plans (drawings).

If more space is needed, attach an extra sheet of paper marked Box 31.

Block 32. Signature of Applicant or Agent. The PCN must be signed by the person proposing to undertake the GP activity, and if applicable, the authorized party (agent) that prepared the PCN. The signature of the person proposing to undertake the GP activity shall be an affirmation that the party submitting the PCN possesses the requisite property rights to undertake the GP activity (including compliance with special conditions, mitigation, etc.).

DELINEATION OF WETLANDS, OTHER SPECIAL AQUATIC SITES, AND OTHER WATERS

Each PCN must include a delineation of wetlands, other special aquatic sites, and other waters, such as lakes and ponds, and perennial, intermittent, and ephemeral streams, on the project site. Wetland delineations must be prepared in accordance with the current wetland delineation manual and regional supplement published by the USACE. The permittee may ask the USACE to delineate the special aquatic sites and other waters on the project site, but there may be a delay if the USACE does the delineation, especially if the project site is large or contains many wetlands, other special aquatic sites, and other waters. The 60-day PCN review period will not start until a delineation has been completed.

DRAWINGS AND ILLUSTRATIONS

General Information.

Three types of illustrations are needed to properly depict the work to be undertaken. These illustrations or drawings are identified as a Vicinity Map, a Plan View or a Typical Cross Section Map. Identify each illustration with a figure or attachment number. For linear projects (e.g. roads, subsurface utility lines, etc.) gradient drawings should also be included. Please submit one copy of all drawings on 8½ x 11 inch plain white paper (electronic submissions preferred). Use the fewest number of sheets necessary for your drawings or illustrations. Each illustration should identify the project, the applicant, and the type of illustration (vicinity map, plan view, or cross section). While illustrations need not be professional (many small, private project illustrations are prepared by hand), they should be clear, accurate, and contain all necessary information.

ADDITIONAL INFORMATION AND REQUIREMENTS

For proposed GP activities that involve discharges into waters of the United States, water quality certification from the State, Tribe, or EPA must be obtained or waived. Some States, Tribes, or EPA have issued water quality certification for one or more GPs. Please check the New England District website to see if water quality certification has already been issued for the GP(s) you wish to use. For proposed GP activities in coastal states, state Coastal Zone Management Act consistency concurrence must be obtained, or a presumption of concurrence must occur. Some States have issued Coastal Zone Management Act consistency concurrences for one or more GPs. Please check the New England District website to see if Coastal Zone Management Act consistency concurrence has already been issued for the GP(s) you wish to use.

APPENDIX C SELF-VERIFICATION NOTIFICATION

U.S. Army Corps of Engineers (USACE)

SELF-VERIFICATION NOTIFICATION (SVN)

DATA REQUIRED BY THE PRIVACY ACT OF 1974

Authority Rivers and Harbors Act, Section 10, 33 USC 403; Clean Water Act, Section 404, 33 USC 1344; Regulatory Programs of the Corps of Engineers; Final Rule 33 CFR 320-332.

Principal Purpose This information will be used in evaluating activities under Self-Verification procedures within Massachusetts.

Routine Uses Routine uses will include: (1) Documenting compliance with the terms and conditions of the General Permit (GP) for activities that may require authorization pursuant to one or more of USACE's Regulatory authorities. (2) Records may be referred to other Federal, State, and local agencies for evaluation and enforcement purposes.

Disclosure Failure to fully comply and abide by the GP terms and conditions prior to commencing work and after completion project may result in formal enforcement action, up to and including monetary penalties and/or legal action, pursuant to 33 CFR Part 326.

Instructions The permittee must complete ALL required sections of this document before commencing USACE-regulated activities. A copy of this completed SVN must be kept on site during construction and be made available for review by USACE and other Federal, State, & Local regulatory authorities at any time. Within 30 days of initiating project construction, the permittee shall submit the completed SVN to USACE. The SVN shall be submitted to USACE as **ONE signed document** that includes project plans and documentation that supports each field (e.g., emails, letters, description, phone calls, surveys). Electronic submissions to the following address are strongly preferred: cenae-r-ma-sv@usace.army.mil. The email subject line shall contain the following: GP #, SVN, City/Town, and date submitted.

(ITEMS 1 THRU 3 TO BE FILLED BY USACE)

1. APPLICATION NO.	2. FIELD OFFICE CODE	3. DATE RECEIVED

APPLICANT AND AGENT INFORMATION

4. APPLICANT'S NAME	7. AGENT'S ADDRESS:
First - Middle - Last -	First - Middle - Last -
Company -	Company -
E-mail Address -	E-mail Address -
5. APPLICANT'S ADDRESS:	8. AGENT'S ADDRESS:
Address-	Address-
City - State - Zip - Country -	City - State - Zip - Country -
6. APPLICANT'S PHONE NOs. w/AREA CODE	9. AGENTS PHONE NOs. w/AREA CODE
a. Residence b. Business c. Fax	a. Residence b. Business c. Fax

NAME, LOCATION, AND DESCRIPTION OF PROJECT SITE

10. PROJECT NAME OR TITLE

11. FILE NUMBER(S) OF PREVIOUS USACE ACTIONS ON THE SITE (if applicable)	12. NAME OF WATERBODY
13. PROJECT COORDINATES (in decimal degrees)	14. PROJECT STREET ADDRESS (if applicable)
Latitude: ◦N Longitude: ◦W	Address
	City - State - Zip -

ACTIVITY TYPE, PROJECT IMPACTS, AVOIDANCE & MINIMIZATION

15. GENERAL PERMIT ACTIVITIES (CHECK ALL THAT APPLY)

1 ☐	6 ☐	11 ☐	16 ☐	21 ☐
2 ☐	7 ☐	12 ☐	17 ☐	22 ☐
3 ☐	8 ☐	13 ☐	18 ☐	23 ☐
4 ☐	9 ☐	14 ☐	19 ☐	24 ☐
5 ☐	10 ☐	15 ☐	20 ☐	25 ☐

16. SUMMARY OF PROJECT IMPACTS (*see instructions*)

Area (square feet)	Length (linear feet)	Volume (cubic yards)	Duration

17. PROJECT PLANS (BY CHECKING THE BOXES BELOW, YOU CERTIFY THESE ITEMS ARE COMPLETE) (*see instructions*)

- ☐ a. Plans shall at least contain the following: Vicinity Map, Plan View, and Typical Cross Section View of the proposed activity.
- ☐ b. All direct, indirect and secondary impacts from USACE regulated activities are shown on the project plans.
- ☐ c. The size of the impact area for each activity (acre, square feet, linear feet) are shown on the project plans.
- ☐ d. For discharges of fill material (§404), the volume of fill material is identified on the project plans.
- ☐ e. The duration of each impact, permanent or temporary (X days), is identified on the project plans.
- ☐ f. Do activities with permanent impacts result in the loss of waters? If so, this is identified on the project plans.
- ☐ g. All aquatic resources in the vicinity of the USACE regulated activities are delineated on the project plans.

18. AVOIDANCE & MINIMIZATION (BY CHECKING THE BOXES BELOW, YOU CERTIFY THESE CRITERIA ARE MET) (*see instructions*)

- ☐ a. The project has been designed to avoid and minimize impacts to aquatic resources.
- ☐ b. The footprint of activities in waters of the U.S. has been reduced to only what is necessary to achieve the overall project purpose.
- ☐ c. All practicable measures have been taken to avoid and minimize impacts to aquatic resources through construction techniques and site access (e.g., Best Management Practices, Time of Year Restrictions).
- ☐ d. All temporary impacts from USACE regulated activities will be restored upon completion of construction and the project area will be returned to pre-construction contours and conditions.

COMPLIANCE WITH FEDERAL REGULATIONS & SUPPLEMENTAL INFORMATION

19. DUE DILIGENCE (*see instructions*)

Complete the entries below to document compliance with the following Federal requirements. Construction may NOT begin if a PCN is/may be required, and you must contact USACE to determine permitting requirements. Documentation that demonstrates how the activity complies with each field below shall be submitted to the USACE as noted in the instructions block. See each General Condition (GC) in the GP for how to comply with each requirement.

a. State Historic Preservation Officer	Select Option
b. Massachusetts BUAR	Select Option
c. Tribal Historic Preservation Officers	Select Option
d. Endangered Species Act - NOAA	Select Option
e. Endangered Species Act - USFWS	Select Option
f. Northern Long Eared Bat (ESA)	Select Option
g. Essential Fish Habitat	Select Option
h. Wild & Scenic Rivers	Select Option
i. 401 Water Quality Certification 401	Select Option
	401 WQC/OOC File Number: OOC issued: 401 issued:
j. Section 408 Permission	Select Option
k. Coastal Zone	Select Option
l. Construction Mats	Select Option
m.Time of Year Restrictions	Select Option
n. Vernal Pools	Select Option
o. Sediment & Erosion Controls	Select Option
p. Stream/Wetland Crossings	Select Option

20. AQUACULTURE ACTIVITIES - GP 18 (*see instructions*)

- ☐ a. If required, an Aquaculture Certification from the Massachusetts Division of Marine Fisheries was obtained prior to commencing work.
- ☐ b. Coordination with the U.S. Coast Guard pursuant to Private Aids to Navigation has occurred prior to commencing work.
- ☐ c. If required, a MEPA Certificate was obtained from the Massachusetts Environmental Protection Agency prior to commencing work. Select Option
- ☐ d. The prospective permittee contacted local authorities (e.g. harbormaster, select board, shellfish constable) for authorization of their facility prior to commencing work.

21. ADDITIONAL INFORMATION/ATTACHMENTS (*see instructions*)

- ☐ a. The project plans are enclosed in this SVN submittal (see block 17).
- ☐ b. The activity Select Option funded through the Bipartisan Infrastructure Bill (also known as the Infrastructure Investment and Jobs Act).
- ☐ c. All required state, local and federal approvals were acquired prior to starting construction in USACE jurisdiction.
- ☐ d. After construction of the activity is completed, a complete Certificate of Compliance will be submitted to USACE.

22. IS THERE ANOTHER LEAD FEDERAL AGENCY:

☐ YES ☐ NO

23. STATEMENT OF AUTHORIZATION *(see instructions)*

I certify that I possess the authority to undertake the work described herein or am acting as the duly authorized agent of the applicant.

SIGNATURE OF APPLICANT	DATE	SIGNATURE OF AGENT	DATE

24. SIGNATURES *(see instructions)*

I hereby certify that the information in this Self-Verification Notification is complete and accurate. As the applicant or their duly authorized agent, I certify the activity was completed in accordance with the terms and conditions of the GP. This includes all applicable terms, general conditions, and activity-specific GP criteria. I agree to allow the duly authorized representatives of the Corps of Engineers Regulatory Program and other regulatory or advisory agencies to enter upon the premises of the project site at reasonable times to evaluate inspect and photograph site conditions. This consent to enter the property is superior to, takes precedence over, and waives any communication to the contrary. For example, if the property is posted as “no trespassing” this consent specifically supersedes and waives that prohibition and grants permission to enter the property despite such posting.

SIGNATURE OF APPLICANT	DATE	SIGNATURE OF AGENT	DATE

18 U.S.C. Section 1001 provides that: Whoever, in any manner within the jurisdiction of any department or agency of the United States knowingly and willfully falsifies, conceals, or covers up any trick, scheme, or disguises a material fact or makes any false, fictitious or fraudulent statements or representations or makes or uses any false writing or document knowing same to contain any false, fictitious or fraudulent statements or entry, shall be fined not more than $10,000 or imprisoned not more than five years or both.

Instructions for Preparing a
Department of the Army
General Permit (GP) Self-Verification

Blocks 1 through 3. To be completed by the Corps of Engineers.

Block 4. Applicant' Name. Enter the name and the e-mail address of the responsible party or parties. If the responsible party is an agency, company, corporation, or other organization, indicate the name of the organization and responsible officer and title. If more than one party is associated with the self-verification, please attach a sheet of paper with the necessary information marked Block 4.

Block 5. Address of Applicant. Please provide the full address of the party or parties responsible for the self-verification. If more space is needed, attach an extra sheet of paper marked Block 5.

Block 6. Applicant Telephone Number(s). Please provide the telephone number where you can usually be reached during normal business hours.

Blocks 7 through 9. To be completed, if you choose to have an agent.

Block 7. Authorized Agent's Name and Title. Indicate name of individual or agency, designated by you, to represent you in this process. An agent can be an attorney, builder, contractor, engineer, consultant, or any other person or organization. Note: An agent is not required.

Blocks 8 and 9. Agent's Address and Telephone Number. Please provide the complete mailing address of the agent, along with the telephone number where they can be reached during normal business hours.

Block 10. Proposed General Permit Activity Name or Title. Please provide a name identifying the proposed GP activity, e.g., Windward Marina, Rolling Hills Subdivision, or Smith Commercial Center.

Block 11. File Number(s) of Previous USACE Actions on the Site Please provide any known USACE file number. If the activity does not have a known USACE file number, you may state N/A.

Block 12. Name of Waterbody. Please provide the name (if it has a name) of any stream, lake, marsh, or other waterway to be directly impacted by the GP activity. If it is a minor (no name) stream, identify the waterbody the minor stream enters.

Block 13. Proposed Activity Coordinates. Please enter the latitude and longitude of where the proposed GP activity is located. Indicate whether the project location provided is the center of the project or whether the project location is provided as the latitude and longitude for each of the "corners" of the project area. If there are multiple sites, please list the latitude and longitude of each site (center or corners) on a separate sheet of paper and mark as Block 13.

Block 14. Proposed Activity Street Address. If the proposed activity is located at a site having a street address (not a box number), enter it in Block 14.

Block 15. General Permit Activity Type. Please select all GP activity types that apply to the proposed activity. A list of GP activity types can be found in Section III of the GP.

Block 16. Summary of Project Impacts. Please provide ALL proposed impacts, both temporary and permanent in duration, that are located in Waters of the United States. The area of impact shall be provided in square feet (SF). When applicable, impacts that result in conversion of stream bank or shoreline must also be identified in linear feet (LF). Dredging or the discharge of dredged or fill material shall also include the volume, cubic yards (CY), of material removed from or placed into Waters of the U.S. If more entries are required, please attach a table matching the desired format in Block 16.

Block 17. Project Plans. Please verify that items a-g are included in the project plans. Three types of illustrations are necessary to properly depict the proposed work. These illustrations or drawings are identified as a Vicinity Map, a Plan View (Aerial view) and a Cross Section Map. For linear projects (e.g. roads, subsurface utility lines, etc.) gradient drawings (longitudinal profile) should also be included. Plans must accurately depict the existing conditions and all aspects of the proposed activity located in waters of the U.S. Please submit one copy of all drawings formatted to print on 8½ x 11 inch or 11 x 17 inch plain white paper. Use the fewest number of sheets necessary for your drawings or illustrations. Each illustration should identify the project, the applicant, and the type of illustration (vicinity map, plan view, or cross section). While illustrations need not be certified engineering sheets; they should be clear, accurate, contain all necessary information, and depict all proposed work. Each submission must also include a delineation of wetlands, other special aquatic sites, and other waters, such as lakes and ponds, and perennial, intermittent, and ephemeral streams, on the project site. Wetland delineations must be prepared in accordance with the current wetland delineation manual and regional supplement published by USACE.

Block 18. Avoidance & Minimization. Please verify that items a-d have been implemented for the proposed activity.

Block 19. Due Diligence. Please complete all the fields and submit documentation to USACE to demonstrate compliance with the above requirements. This Documentation may include emails, letters, meeting notes, phone call log, project narrative, project plans, a species list from the NOAA Section 7 Mapper, a completed copy of the IPAC determination keys, etc. Documentation should be limited to what is necessary to demonstrate how the proposed activity meets each requirement. Refer to the MA GP, Appendix A, for specific guidance on the identification of previously identified historic properties and previously unidentified historic properties. Endangered Species: *The applicant must be designated as the non-federal representative for the purposes of Section 7 consultation to select the Rangewide D-Key options. Otherwise, the applicant shall select the following option when IPAC indicates the NLEB is present: "The activity IS located within the NLEB Species Range (PCN Required)."

Block 20. Aquaculture Activities. Please verify that items a-d have been obtained or completed prior to commencing work in waters of the U.S.

Block 21. Additional Information/Attachments. Please verify that items a-d have been completed prior to commencing work in waters of the U.S.

Block 22. Lead Federal Agency. Please identify if there is another lead federal agency involved with the proposed activity. Enter the lead federal agency name (e.g., the Federal Emergency Management Agency, FEMA) and the agency's designated person of contact for the activity.

Block 23. Statement of Authorization. The applicant shall sign this section for all activities. If an agent is to be employed, the agent shall sign this section.

Block 24. Signatures. The SVN must be signed by the person proposing to undertake the GP activity, and if applicable, the authorized party (agent) that prepared the SVN. The signature of the person proposing to undertake the GP activity shall be an affirmation that the party submitting the SVN possesses the requisite property rights to undertake the GP activity.

US Army Corps of Engineers®
New England District

APPENDIX D: PCN APPLICATION CHECKLIST

The following information shall be submitted for all PCNs for USACE to properly evaluate your application. Some applications may require more information and this checklist is offered as a tool to assist applicants with submitting a complete application.

SECTION 1: GENERAL APPLICATION INFORMATION

1. ☐ Complete the Pre-Construction Notification document (Appendix B).
2. ☐ Specify which local/state/federal authorizations are required for the project and if any have been obtained or applied for at the time of USACE application submittal.
3. ☐ Identify all funding sources the project will receive or has received to date. Provide any relevant information in the application submission.
4. ☐ Is this part of a larger project that is being implemented in phases? If so, describe the project schedule and how each phase will be implemented.
5. ☐ Describe the existing conditions on the site and the general land use in the vicinity of the project at the time application submittal.
6. ☐ Provide any historic information available that you may have of project area, e.g., existing USACE permit numbers, the names under which the permits were obtained if the permit numbers are unknown, construction dates and proof of prior existence (aerials, photos, town hall records, affidavits, state or local permits, etc.) to verify that the project predates regulation and is "vested".[19]
7. ☐ The anticipated start and end dates for construction.

SECTION 2: WETLAND DELINEATION

8. ☐ Data used to support aquatic resource boundary determinations (delineation forms, delineation map(s) that show the locations of each aquatic resource in the project area, aerial and ground photographs, LIDAR imagery, national wetland inventory maps, soil maps, national hydrography dataset maps, floodplain maps, historical imagery, etc.).
9. ☐ Photographs of the wetland(s) and/or waterway(s) where impacts are proposed. Photos at low tide are preferred for work in tidal waters.
10. ☐ Indicate the relationship of the project area to waters of the U.S., i.e., adjacent wetlands, tidal influence or hydraulic connectivity through culverts, or other conveyances, etc.
11. ☐ At minimum the delineation map/figure should include the following:
    a. Contour lines showing topography.
    b. North arrow.
    c. Bar and text scale.
    d. Legend.
    e. Drawn project boundary.
    f. High tide line, mean high water, mean low water, ordinary high water mark, and/or wetland boundaries.
    g. Captions with a unique name for each aquatic resource and the area or length of the aquatic resource within the project area.

[19] Vested is exempt (someone or something) from a new law or regulation.

h. Appropriate landmarks and features (e.g., culverts, special aquatic sites, etc.).
i. Points showing the paired upland and wetland delineation locations for tidal and non-tidal wetlands only.

SECTION 3: AVOIDANCE & MINIMIZATION

12. ☐ Describe specific measures taken to avoid impacts to aquatic resources or describe why aquatic resources could not be avoided while achieving the project purpose and need.
13. ☐ For impacts to aquatic resources that could not be avoided, describe specific considerations/ measures taken to minimize the area of proposed impacts to aquatic resources in designing the project.
14. ☐ Describe specific measures taken to avoid and minimize the proposed direct, indirect, and secondary impacts to aquatic resources and their functions through construction techniques and timing.
15. ☐ If applicable, provide a restoration plan that describes how all temporary fills and structures will be removed and the area restored to pre-impact conditions (see GC 22).
16. ☐ If applicable, provide an Invasive Species Control Plan (see GC 29). For sample control plans, see www.nae.usace.army.mil/missions/regulatory/invasive-species.
17. ☐ If applicable, describe how the proposed wetland/waterbody crossing is compliant with GC 31, Stream Work and Crossings, and Wetland Crossings.

SECTION 4A: PROJECT IMPACTS

18. ☐ Describe the overall project and the activities located in Waters of the U.S. (WOTUS) that you are seeking authorization for.
19. ☐ Identify the following for project impacts in WOTUS:
    a. ☐ Direct, indirect, secondary impacts[20] within WOTUS.
    b. ☐ The size of each impact (square feet or acres, or linear feet).
    c. ☐ For discharges of fill material (§404), specify the volume of fill material to be discharged (cubic yards).
    d. ☐ The impact duration from each activity, permanent or temporary (X days).

SECTION 4B: PROJECT PLANS

20. ☐ Submit project plans that depict all impacts in WOTUS. On the project plans, applicants shall provide:

    General Information

    a. ☐ Plan view and typical cross-section view sheets that show the existing and proposed conditions. These illustrations should each be identified with a figure number, date of the map, the project title, the name of the applicant and the type of illustration (vicinity map, plan view, or cross section).
    b. ☐ Drawings, sketches, or plans that are legible, reproducible (color is encouraged, but features must be distinguishable in black and white), drawn to scale, and no larger than 11”x17” and 10 MB when submitted in digital format. Numeric and graphic/bar scales must agree, and plan details must be measurable using a standard engineer’s scale on printed plans. Reduced plans are not acceptable.
    c. ☐ The north arrow and remove miscellaneous non-wetland or water project related features such as conduits, utility poles, guardrails, etc.

[20] See definitions section for the definitions of direct, indirect, secondary impacts.

d. ☐ Clearly draw the overall limits of work, staging areas, disposal sites, access routes, and any permittee responsible mitigation sites. These areas may include both aquatic resources and upland areas.
e. ☐ Names or numbers of all roads in the site's vicinity and ownership and numbers of abutting parcels.
f. ☐ Datum in plan and elevation views. The horizontal datum shall be in the NAD 83 Massachusetts State Plane Coordinate System (INSERT) in U.S. survey feet. The vertical data in coastal projects shall be referenced to either MLLW or the North American Vertical Datum of 1988 (NAVD 88). Both the distance and depth units shall be U.S. survey feet and specified on the project plans.

Aquatic Resources & Project Impacts

g. ☐ Delineation of all aquatic resource types on site including salt marsh; other special aquatic sites (vegetated shallows, mudflats, riffles and pools, coral reefs, and sanctuaries and refuges); other waters, such as lakes, ponds, vernal pools, natural rocky habitat (tidal only), and perennial, intermittent, and ephemeral streams.
h. ☐ Identify the substrate type (cobble/gravel, organic detritus, sand/shell, silt, mud) and the approximate percentage of each substrate type on site. Grain sizes shall be based on Wentworth grain size classification scale for granules, pebbles, cobbles, and boulders. Sediment samples with a content of 10% or more of pebble-gravel-cobble and/or boulder in the top layer (6-12 inches) should be delineated and material with epifauna/macroalgae should be differentiated from bare pebble-gravel-cobble and boulder.
i. ☐ The direction of ebb and flood in tidal waters and direction of flow in non-tidal waters.
j. ☐ In tidal waters, the project boundary distance from special aquatic sites identified in 20g above if within 25 feet from that resource.
k. ☐ USACE jurisdictional boundaries including ordinary high-water mark (OHWM), high tide line (HTL), mean high water (MHW). Other boundaries include mean low water (MLW), mean lower low water (MLLW), as applicable.
   - Non-tidal: OHWM and/or wetland boundaries.
   - Tidal (structures/work only): MHW, MLW.
   - Tidal (Fill and Structures/work): HTL, MHW, MLW.
   - Tidal (Dredging/Beach Nourishment): HTL, MHW, MLW, MLLW.
l. ☐ Identification of each aquatic resource with a unique name (ex. Wetland 1, Wetland 2, Tributary 1, Beaver Brook, Atlantic Ocean) and the size of each aquatic resource within the project area (square feet or acres).
m. ☐ Impacts to each aquatic resource with captions denoting the size of each impact (square feet, acres, or linear feet) and the duration of the impact (ex. Permanent, Temporary (X days).

SECTION 4C: PROJECT PLANS - SPECIFIC PROJECT INFORMATION

21. ☐ For projects involving Navigation, Structures, Dredging, and/or Beach Nourishment, the applicant shall also address the following:

Navigation

a. ☐ Identify the locations of adjacent Federal navigation project (FNP) and/or state/local navigation projects on the project plans.
b. ☐ Specify the distance between the FNP and proposed project boundary, the authorized depths of the FNP, and state plane coordinates of seaward end(s) of project structures near an FNP.

Structures

a. ☐ Identification of the piling type (steel, timber, concrete) and diameter to be removed and/or installed.
b. ☐ Specify the minimal height of the structures' frame over saltmarsh. To meet the SV threshold, piers must be ≤4 feet in width and this minimal height must achieve a 1.5:1 ratio (i.e., a 4-foot-wide pier is 6 feet above a saltmarsh).
c. ☐ For floats, the methods of securing them (piles, bottom anchors) and for keeping them off substrate (skids, stops) at low water. To meet the SV threshold, a minimum depth of 18-inches of water should be maintained below a floating dock/structure at lower tide levels.

Dredging

a. ☐ The area (SF, acre) and volume (CY) of material to be dredged waterward of MHW for each dredge location.
b. ☐ Dredge boundaries.
c. ☐ Bathymetry for existing, proposed, and historical (include dates and USACE permits) dredge depths.
d. ☐ The likely final angle of repose of the side cuts based on the physical characterization of the material to be dredged and based upon the high/ medium/low, wave or current energy of the location.
e. ☐ Label area whether the dredging is new, maintenance, improvement, or a combination.
f. ☐ Location of the disposal site (include location sheet). NOTE: For projects proposing open water, nearshore disposal, or beach nourishment, contact USACE as early as possible for sampling and testing protocols. Sediment testing, including physical (e.g., grain-size analysis), chemical and biological testing may be required. Sampling/testing of sediments without such contact should not occur and if done, will be at the applicant's risk.
g. ☐ The methods and areas used to retain or prevent dredged material from running back into the wetland or waterway. Provide the capacity of the storage area and points of runback, including the overflow route, into the aquatic system.
h. ☐ For open-water disposal, explain why inland or beneficial reuse sites are not practicable.
i. ☐ Show the finished top elevation of the disposal site.

Beach Nourishment

a. ☐ For beach nourishment, identify the disposal footprint, existing and proposed nourishment profiles (multiple profiles are appropriate if the site is more than 150 feet long or non-contiguous), total fill area (SF) and volume (CY), fill area and volume waterward of the HTL, and delineation of dunes, banks, existing beach vegetation, and contours.
b. ☐ For beach nourishment identify the substrate type (fine sand, sand, cobble, boulder) and/or grain-size of existing material.

SECTION 5: STRUCTURES

22. ☐ For projects with the removal of existing pilings identify the number, type (steel, timber, concrete) and diameter of pilings to be removed and the methodology for removal (cut off at mud line, pulling, vibratory, etc.).
23. ☐ For projects with the installation of new pilings identify the number, type (steel, timber, concrete) and diameter of pilings to be installed and the methodology for installation (vibratory hammer, impact hammer etc.).
24. ☐ Identify any existing structures and moorings in waters adjacent to the proposed activity, their dimensions, and the distance to the limits and coordinates of any proposed mooring field or reconfiguration zone. For reconfiguration zone and mooring fields, provide the coordinates for all

corners based on the Massachusetts State Plane Coordinate System. Specify the maximum number of slips and/or moorings within proposed reconfiguration zones or anchorage areas.

25. ☐ The dimensions of the structure or work and extent of encroachment waterward of MHW and from affixed point on the shoreline or upland.
26. ☐ Shoreline of adjacent properties and property boundary offset for structures. In narrow waterbodies, the distance to opposite shoreline, waterway width, and structures across from proposed work.
27. ☐ For new commercial boating facilities, anchorage areas or reconfiguration zones, provide a description of the type of vessels that would use the facility, and any plans for sewage pump-out facilities, fueling facilities and contingency plans for oil spills.
28. ☐ See Sections 4A-C above.

SECTION 6: AQUACULTURE

29. ☐ Identify the coordinates for lease area corners and gear configuration area on the project plans.
30. ☐ Identify the proposed aquaculture gear type (buoys, floats, racks, trays, nets, lines, tubes, cages, containers, and other structures). Provide the impacts for each aquaculture gear type (see Section 4A 19a-d).
31. ☐ For a GP 18 to be valid, applicants must have (a) their MA DMF Aquaculture Certification letter for licensed shellfish aquaculture sites, (b) documentation that the applicant has coordinated with the U.S. Coast Guard regarding USCG Private Aids to Navigation standards, (c) their MEPA Certificate (if required), and (d) documentation that the applicant has contacted their local authorities (ex. harbormaster, select board, shellfish constable) for authorization of their facility.
32. Provide information on site the operation, maintenance, and access. Will the site be accessed via boat, kayak, etc.? Will cages be removed in the winter? How often will gear be checked on? Is there an operations plan for the proposed aquaculture area?
33. ☐ See Sections 4A-C above.

SECTION 7: DREDGING

34. ☐ Sampling plan requests for new, improvement or maintenance dredging must submit completed **Dredged Material Evaluation checklist found at Dredged Material Evaluation Checklist, Sampling and Analysis Plan Requirements from Applicant (army.mil)** and identify the method of handling/transporting the dredged material.
35. ☐ Identify grain-size of material to be dredged (e.g., silty sand) and provide any existing sediment grain size and bulk sediment chemistry data from the proposed project or nearby projects. Include information on any recent spills of oil and/or other hazardous materials and/or nearby outfalls. Document the information source, e.g., EPA database, the harbormaster or fire chief. If there are none, state “none”.
36. ☐ See Section 4A, 4B and 4C, Dredging 21(a-i) above.

SECTION 8: WETLAND/WATERBODY CROSSINGS

37. ☐ For the stream crossing, identify the crossing methodology on the project plan (e.g., dam and pump, dry, wet, etc.). Submit a waterway crossing sequencing plan with the application.
38. ☐ If the project includes a permanent crossing of a tidal waterway, your project design should be modified to match the velocity, depth, cross-sectional area, and substrate of the existing waterbody adjacent to the crossing and provide documentation (hydraulic analysis including low lying property analysis) that the size of the crossing will not restrict tidal flow over the full natural tide range and will not adversely affect abutting infrastructure.

39. ☐ If the work includes a permanent crossing of a non-tidal stream, your project design should be modified to match the culvert gradient of the existing stream channel profile, provide clearance for ≥1.2 times bank full width and conveyance should be embedded ≥1-2 feet for box culverts and pipe arches or ≥1-2 feet and at least 25 percent for rounded pipes/culverts in accordance with the Massachusetts Stream Crossing Standards. Provide the basis for any variation to this requirement.
40. ☐ If the work includes a permanent crossing of a non-tidal stream, the structure should be designed to include a natural bottom substrate within the conveyance that matches the characteristics of the substrate in the natural stream channel and the character of the banks (mobility, slope, stability, confinement, grain and rock size). The conveyance should be designed with a minimum openness ratio ≥0.82-feet (0.25-meters). For how to calculate openness ratio and stream simulation ecological approach for road and stream crossings, see https://www.nae.usace.army.mil/Missions/Regulatory/Stream-and-River-Continuity/.

SECTION 9: COMPENSATORY MITIGATION

41. ☐ Does the project require Compensatory Mitigation[21] for impacts to Waters of the U.S.? (See Section V in the 2023 Massachusetts General Permit)
42. ☐ If the project requires mitigation, does the selected compensatory mitigation option (i.e., In-Lieu Fee, permittee-responsible mitigation) deviate from the order of the options presented in §332.3(b)(2)-(6)? If so, please explain why. https://www.ecfr.gov/current/title-33/chapter-II/part-332/section-332.3
43. ☐ For any compensatory mitigation that involves preservation, the applicant must use a site protection instrument to preserve the parcel in perpetuity. (Conservation Easement, Deed Restriction, etc.) https://www.mass.gov/service-details/conservation-restriction-review-program.

SECTION 10: HISTORIC PROPERTIES & NOTIFICATIONS TO SHPO, THPOs, BUAR

44. ☐ Notify the SHPO, Massachusetts Historical Commission, of the Project via Certified Mail and include proof of delivery or receipt in the application package (See Appendix A).
45. ☐ As applicable, notify the THPOs, Narragansett Indian Tribe, Wampanoag Tribe of Gay Head (Aquinnah), and Mashpee Wampanoag Tribe, of the Project via email OR mail and include proof of delivery or receipt in the application package (See Appendix A).
46. ☐ As applicable, notify the BUAR via email (*strongly preferred*) OR mail and include proof of delivery or receipt in the application package (See Appendix A).
47. ☐ Include responses to this notification in the permit application.
48. ☐ As applicable, information on historic properties (Tribal and Archaeological) within the project area should be provided in the permit application.

SECTION 11: ENDANGERED SPECIES & ESSENTIAL FISH HABITAT

49. ☐ Provide a USFWS Information for Planning and Consultation (IPaC) Official Species List from https://ecos.fws.gov/ipac and the email of the individual who generated the list (see GC 10 of the 2023 Massachusetts General Permit for more information).
50. ☐ Provide a species list from the NMFS Section 7 Endangered Species Act mapper at https://noaa.maps.arcgis.com/apps/webappviewer/index.html.
51. ☐ Provide a species list from the NMFS Essential Fish Habitat Mapper at https://www.habitat.noaa.gov/apps/efhmapper/?page=page_3.

[21] Your mitigation proposal must be consistent with the December 29, 2020 Compensatory Mitigation Standard Operating Procedures at https://www.nae.usace.army.mil/Portals/74/docs/regulatory/Mitigation/Compensatory-Mitigation-SOP-2020.pdf and 2008 Mitigation Rule.

52. ☐ If the project will generate turbidity, describe the extent of turbidity and if erosion controls will be used to contain turbidity. If turbidity controls are not operationally feasible, explain the basis for your conclusion and identify any other measures that you will implement to minimize resuspension of sediment.
53. ☐ Identify the substrate type and any aquatic resources that will be affected by the proposed action. (SAV, salt marsh, sand, silt/clay, rocky/hard bottom)
54. ☐ For projects which will include the installation of pilings/sheet-piles, identify the substrate at the project site (sand, cobble, silt/mud/clay), the installation method (vibratory hammer, impact hammer, combination) and indicate whether the following "soft start" procedures at beginning of the workday and after a 30-minute period of rest will be deployed:
    a. ☐ Vibratory Pile Installation: pile driving will be initiated for 15 seconds at reduced energy followed by a one-minute waiting period. This sequence of 15 seconds of reduced energy driving, one-minute waiting period will be repeated two additional times, followed immediately by pile-driving at full rate and energy.
    b. ☐ Impact Pile Installation: pile driving will commence with an initial set of three strikes by the hammer at 40% energy, followed by a one-minute wait period, then two subsequent 3-strike sets at 40% energy, with one-minute waiting periods, before initiating continuous impact driving.
55. ☐ If the project involves dredging, describe any dredge history, number of dredge events to be covered by the permit, erosion/sediment controls, dredge type, intake structures (mesh screen size), dredged material disposal site.
56. ☐ For project activities associated with structures, identify the number, type (drill barge, work boat, tugboat, etc.), and size of any temporary vessels that will be used. Specify measures that will be implemented to ensure vessels are not berthed in shallow water or will "ground out" at low tide.
57. ☐ For aquaculture projects identify whether any component of the gear is seasonal (will be removed annually) or will be in place year-round. If gear will be present year-round and will be variably managed (e.g., floating in summer, bottom in winter) identify month/date for such configurations.
58. ☐ For aquaculture projects identify whether the project will involve use of an existing vessel or new vessel. Identify the length for all work vessels and identify the distance round trip from vessel berthing location and aquaculture area.
59. ☐ For project activities associated with docking structures (either commercial, industrial, or recreational) identify the number, type (motorized/non-motorized, jet-ski, sailboat, kayak, canoe, other that will be berthed there and the sizes of each.
60. ☐ Information required for Section 305(b)(2) of the Magnuson-Stevens Fishery Conservation and Management Act:
    a. Results of an eelgrass survey completed per the INSERT.
    b. Essential Fish Habitat Assessment to determine project-related impacts to essential fish habitat, using guidance developed by the National Marine Fisheries Service.
61. ☐ A document containing the following information (requirements of 50 CFR §600.920(e)(3)):
    a. Description of proposed action.
    b. Analysis of potential adverse effects on essential fish habitat.
    c. Conclusions regarding the effects of the action on essential fish habitat.
    d. If applicable, proposed mitigation.
    e. Analysis of alternatives to the proposed action.
    f. Other:

ATTACHMENT D

TURTLE PROTECTION PLAN

FUSS & O'NEILL
1550 Main Street, Suite 400
Springfield, MA 01103
413.452.0445
www.fando.com

Wood Turtle Protection Plan

Hop Brook Culvert Replacement

NHESP File No. 24-17255

Town of Belchertown

Belchertown, Massachusetts

April 10, 2026 (revised April 30, 2026)

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Hop Brook Culvert Replacement
Belchertown, Massachusetts

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B Site Plans

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D Scientific Collection Permit Application

End of Report

1 Background

The Hop Brook Culvert Replacement Project includes the replacement of the undersized, failing culverts, with a culvert to meet the Massachusetts Stream Crossing Standards. Additional activities include installation of a secondary culvert for terrestrial wildlife passage designed in coordination with Natural Heritage and Endangered Species Program (NHESP), and raising of the roadway.

The project was formally reviewed by NHESP through the submittal of the Notice of Intent and MESA Project Checklist. NHESP issued a determination letter for the project (NHESP File No. 24-17255) indicating the presence of the wood turtle (*Glyptemys insculpta,* Species of Special Concern). The NHESP determination letter (*Appendix A*) included a condition the Applicant shall submit a Turtle Protection Plan for review and approval prior to the start of work.

This Turtle Protection Plan (TPP) was developed to promote best management practices during construction, including the turtles' active season: March 15 – October 31 and outside of the turtles' active season in compliance with the NHESP Determination letter Condition #1. The riparian areas within the mapped habitat may provide potential migration and/or a travel corridor, while the bordering wetlands offer foraging and aestivation opportunities. Undercut banks, exposed tree roots, pools, abandoned burrows within and along Hop Brook and may provide overwintering habitat for the wood turtle. The entire limits of work are located within mapped Priority Habitat. An updated set of the Site Plans are provided in *Appendix B*.

2 Turtle Protection Measures During Construction

The following measures are proposed for construction in the potential wood turtle habitat at the crossing of Warren Wright Road and Hop Brook in Belchertown, MA. Construction is anticipated between June 2026 and June 2027. In stream work is anticipated to be completed between June 2026 and December 2026.

2.1 Contractor Education and Awareness Program

1. A copy of the site plans will be on-site during construction (*Appendix B)*.
2. Contractors working at the Site will complete a training seminar on turtle biology, identification, and ecology. Information from the NHESP fact sheets will be discussed during the training. The training will be conducted by Fuss & O'Neill's qualified wildlife monitor:
    - Fuss & O'Neill's wildlife monitor will meet with contractors at the Site to review the wood turtle identification, habitat, and procedures to follow if a turtle is encountered.
    - Fuss & O'Neill's wildlife monitor will provide handouts (*Appendix C*) to Contractors to refer to in the field. These handouts will include color photographs and brief descriptions of the importance of these species and key identifying features.
    - Contractors will be instructed to notify Fuss & O'Neill's wildlife monitor and a representative of the Town of Belchertown if a wood turtle is encountered.
3. Increased human activity in the vicinity of turtle habitat can also lead to an increase of potential nest predator species such as raccoons and skunks. To discourage an increase in the predator population, contractors will be required to practice good housekeeping and securely dispose of food wrappers and rubbish.

4. Prior to construction each day, an appointed "lead monitor" from the contractor will conduct visual turtle "sweeps" to ensure turtles are not present within the day's work area. Each morning these turtle sweeps will be performed before mobilization of any equipment or start of any work. Refer to the Monitoring and Reporting section for additional details.
5. A Scientific Collection Permit (*Appendix D*) will be obtained from NHESP in order for on-site personnel to handle the turtles, if encountered.

2.2 Best Management Practices (BMPs)

1. Erosion and sediment controls will be installed and regularly maintained to protect water quality.
2. Parking of contractor vehicles in the habitat area will be avoided.
3. Equipment will be monitored regularly for leaks, and secondary containment (such as absorbent pads or plastic trays) will be used under equipment that will be parked in the habitat for lengths of time. When feasible, refueling will not occur within 100 feet of wetlands or waterways. When refueling must occur within 100 feet of wetlands or waterways for more stationary equipment, secondary containment will be used.

2.3 Vegetation Management

1. The contractor will make efforts to preserve low-growing, native vegetation outside of direct work areas, specifically focusing on food sources such as blackberry (*Rubus sp.*), willow (*Salix sp.*), and herbaceous species.
2. Mechanical clearing/mowing will be avoided during the peak nesting season (May 15th to July 15th).
    - If mowing is performed during nesting season, mower blades will be raised to 10 to 12 inches above the ground to reduce the likelihood of turtle mortality. Mowing will occur in low gear or at slow speeds and begin from the center of the ROW out towards edges and streams, to allow turtles time to react.

2.4 Nesting Habitat and Stockpile Management

No nesting habitat has been observed within the Site. If nesting habitat was identified, it must be sealed off with appropriate barriers prior to May 15th to prevent turtles from nesting within the work area. If potential nesting areas are not sealed off prior, and turtles may have accessed them, no work may occur within these areas until after hatchling emergence, post October 1.

Stockpile materials may serve as attractive nesting features. Stockpile materials must be fully enclosed with a continuous turtle exclusion barrier (e.g., silt fence) meeting the following requirements:

- 36-inch staked silt fence or approved alternative installed by hand
- Trenched and buried a minimum of 4 inches deep, backfilled and compacted to prevent digging underneath. If trenching is not possible, the bottom of barrier must be secured to the ground.
- Any additional protection measures (e.g., straw bales or wattles) shall be installed within the stockpile side.
- Securely staked and tight to the ground with no gaps

2.5 Monitoring and Reporting

1. When equipment access and any land disturbance or alteration (including in-water) is necessary during the turtles' active season (March 15 to October 31 of any year), monitoring (i.e., turtle sweeps) will be provided by a qualified wildlife monitor or the appointed lead monitor.
    - If in-water work (including within dewatered areas) occurs outside of the turtles' active season, monitoring by a qualified wildlife monitor or the appointed lead monitor will be required to minimize potential impacts to turtles foraging and/or overwintering.
2. A contractor employee will be trained and appointed as the "lead monitor" to oversee sweeps conducted daily and prior to any heavy machinery entering the work area.
3. Prior to the start of any work (including mobilization) the assigned lead monitor will perform the turtle sweeps. These sweeps include walking through the work area with the identification guide (provided by the wildlife monitor) to visually sweep areas of proposed work, including on land and in water. Areas of proposed work include, but are not limited to areas utilized for mobilization, staging, or any areas of land disturbance or alteration. For in-water work, the assigned lead monitor is required to perform sweeps during wet and dewatered conditions. The sweeps will also include a full inspection of the turtle exclusion barrier around any stockpile locations. The barrier will be inspected for compliance with specifications described in *Section 1.1.4*. Any holes, tears, sagging, wash out, loose stakes or other discrepancies in the turtle exclusion fencing around the stockpile will be fixed prior to the start of work.
4. If a turtle is encountered, the lead monitor will:
    1. Immediately notify Fuss & O'Neill's wildlife monitor (see contact information below) and a representative of the Town of Belchertown of the encounter.
    2. Photo-document the turtle adjacent to a ruler or item for scale and document the location observed.
    3. Move the turtle to a safe distance outside the limits of construction (250–500 feet, as recommended by NHESP), away from the path of equipment, and placed in the direction the turtle was oriented when observed.
    4. Observe the movement of the relocated turtle to make sure the turtle does not return to the Site.
    5. Proceed with care as there may be more turtles within or near the Site.
    6. Any observations of state-listed species are required to be reported through the Heritage Hub online system. Fuss & O'Neill's wildlife monitor will be responsible for this reporting.

If wood turtles or any state-listed species are found, <u>immediately</u> call:

April Doroski, PWS, CPSS
413-333-5881
Fuss & O'Neill, Inc.
1550 Main Street Suite 400
Springfield, MA 01103

Appendix A

NHESP Determination Letter

MASSWILDLIFE

DIVISION OF
FISHERIES & WILDLIFE

1 Rabbit Hill Road, Westborough, MA 01581
p: (508) 389-6300 | f: (508) 389-7890
MASS.GOV/MASSWILDLIFE

April 17, 2024

Samantha Dow
1550 Main St
Springfield, MA 01103

Belchertown Conservation Commission
2 Jabish Street
PO Box 670
Belchertown, MA 01007

RE: Applicant: Samantha Dow
Project Location: Warren Wright Road at crossing with Hop Brook (Lat: 42.31984, Long: -72.46093)
Project Description: Hop Brook Culvert Replacement
DEP Wetlands File No.: -
NHESP File No.: 24-17255

Dear Commissioners and Applicant:

The Natural Heritage & Endangered Species Program of the Massachusetts Division of Fisheries & Wildlife (the "Division") received a Notice of Intent in compliance with the rare wildlife species section of the Massachusetts Wetlands Protection Act Regulations (310 CMR 10.58(4)(b), 10.59). The Division also received the MESA Review Checklist and supporting documentation for review pursuant to the MA Endangered Species Act Regulations (321 CMR 10.18).

The Division has determined that this Project, as currently proposed, will occur **within** the actual habitat of the following species:

Scientific Name	Common Name	Taxonomic Group	State Status
Glyptemys insculpta	Wood Turtle	Reptile	Special Concern

This species and their habitats are protected in accordance with the rare species provisions of the WPA and the MESA.

Wetlands Protection Act (WPA)
Based on a review of the information that was provided and the information that is currently contained in our database, the Division has determined that this project, as currently proposed, **will not adversely affect** the actual

Resource Area Habitat of state-protected rare wildlife species. Therefore, it is our opinion that this project meets the state-listed species performance standard for the issuance of an Order of Conditions.

Please note that this determination addresses only the matter of rare wildlife habitat and does not pertain to other wildlife habitat issues that may be pertinent to the proposed project.

Massachusetts Endangered Species Act (MESA)

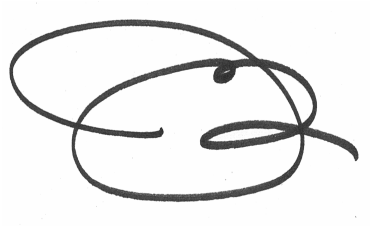
The MESA is administered by the Division, and prohibits the Take of state-listed species. The Take of state-listed species is defined as "in reference to animals…harm…kill…disrupt the nesting, breeding, feeding or migratory activity…and in reference to plants…collect, pick, kill, transplant, cut or process…Disruption of nesting, breeding, feeding, or migratory activity may result from, but is not limited to, the modification, degradation, or destruction of Habitat" of state-listed species (321 CMR 10.02).

Based on the information provided and the information contained in our database, the Division finds that this project, as currently proposed, **must be conditioned** to avoid a prohibited Take of state-listed species (321 CMR 10.18(2)(a)). **To avoid a prohibited Take of state-listed species, the conditions attached to this letter must be met.**

Provided the attached conditions are fully implemented and there are no changes to the project plans, this project will not result in a Take of state-listed species. We note that all work is subject to the anti-segmentation provisions (321 CMR 10.16) of the MESA. This determination is a final decision of the Division of Fisheries and Wildlife pursuant to 321 CMR 10.18. Any changes to the proposed project or any additional work beyond that shown on the site plans may require an additional filing with the Division pursuant to the MESA. This project may be subject to further review if no physical work is commenced within five years from the date of issuance of this determination, or if there is a change to the project.

Please note that this determination addresses only the matter of state-listed species and their habitats. If you have any questions regarding this letter please contact Melany Cheeseman, Endangered Species Review Assistant, at Melany.Cheeseman@mass.gov, (508) 389-6357.

Sincerely,



Jesse Leddick
Assistant Director

cc: Linda Leduc, Town of Belchertown
Belchertown Conservation Commission
DEP Western Region

Attachment: List of Conditions

List of Conditions

Applicant: Samantha Dow
Project Location: Warren Wright Road at crossing with Hop Brook (Lat: 42.31984, Long: -72.46093)
Project Description: Hop Brook Culvert Replacement
NHESP File No.: 24-17255
Heritage Hub Form ID: RC-84326
Approved Plan: Hop Brook Culvert Replacement
Plan date: March 14, 2024 Revised Date: N/A

To avoid a prohibited Take of state-listed species, the following condition(s) must be met:

1. **Turtle Protection Plan:** Prior to the start of work (including vegetation clearing or soil disturbance), the Applicant shall submit a Wood Turtle Protection Plan to the Division for review and written approval. Said Plan shall detail procedures for protecting state-listed turtles during construction, and be prepared and implemented by a qualified, Division-approved wildlife biologist. The Division is available for consultation on Plan development and can provide contact information for qualified biologists. The Division-approved Plan shall be implemented as written; any proposed changes to the Plan must be submitted to the Division for review and written approval prior to implementation of said changes. By December 31st of any year in which work occurs, the qualified biologist shall submit: a) a summary report to the Division detailing project status and compliance with the Plan; and b) any observations of state-listed turtles at https://www.mass.gov/how-to/report-rare-species-vernal-pool-observations.

Appendix B

Site Plans

Appendix C

Wood Turtle Handout

WOOD TURTLE *(Glyptemys insculpta)*

The Wood Turtle is a species of Special Concern in the Commonwealth of Massachusetts and they occur on this site.

Characteristics:

Adult

- Top shell is tan, greyish-brown, or brown, often with black or yellow lines on the larger scales
- Bottom shell is yellow with oblong dark patches on the outside corners of each scale
- Orange to reddish coloration on legs and neck

Hatchlings

- Dull-colored shell that is broad and low, and a tail almost as long as their upper shell
- Lack the orange to reddish coloration on their neck and legs

Habitat:

- Late Summer, Fall, Winter - Slower-moving mid-sized streams with sandy bottoms and heavily vegetated stream banks (hibernate over winter)
- Spring and Summer – Mixed or deciduous forests, fields, hay fields, wet meadows, bogs, and beaver ponds

Average Size: 5.5 – 8.0 in / 14 – 20 cm

I think I found an Eastern Box Turtle, what do I do?

- Immediately notify Fuss & O'Neill's wildlife monitor
- Take a photo of the turtle
- Carefully pick the turtle up by the sides of its shell *(never by its tail)*
- Move the turtle to a safe distance outside the limits of construction (250–500 feet), away from the path of equipment, and placed in the direction the turtle was oriented when observed
- Observe the movement of the turtle to make sure it does not return to the Site
- *It is illegal to harm, harass, or feed turtles*

Environmental Compliance Monitor contact:

April Doroski, PWS, CPSS | (413) 333-5881

**Facts from the Natural Heritage & Endangered Species Program (NHESP)*

WOOD TURTLE *(Glyptemys insculpta)*







Photos from:
https://www.mass.gov/info-details/wood-turtle

Appendix D

Scientific Collection Permit Application

MASSACHUSETTS

COMMERCIAL SCIENTIFIC COLLECTION PERMIT APPLICATION

MASSWILDLIFE

Permit Type

Please submit separate applications for each taxonomic group.

☐ Mammals ☐ Fish ☐ Invertebrates

☐ Birds ☑ Reptiles & Amphibians ☐ Plants

If this application is for birds, do you have a Migratory Bird Permit? Y☐ N☑ If yes, Permit #: _____

**Permit Holder Info*

April Doroski		Fuss & O'Neill, Inc.	
*** Name**		**Company**	
1550 Main Street, Suite 440	Springfield	MA	01103
***Street Address**	***City/Town**	***State**	***Zip Code**
april.doroski@fando.com	413-333-5881		
Email	**Telephone**		

Name(s) of any subpermittee(s): Michael Soares, Jacob Gentile, Megan Woytik, Alison Baranovic

**Location*

Location of where collections will be made: Warren Wright Road at the crossing with Hop Brook (Lat: 42.31984, Long: -72.4609

***Required:** Enclose a map with the location of where collections will be made clearly marked and centered on the page.

**Permit Information*

State the species of animals or plants to be collected and/or possessed: Searches will be conducted for the wood turtle (Glyptemys insculpta) on a daily basis during the length of the proposed structure replacement project. If encountered, turtles will be moved outside of the limits of work.

Is this collection/possession being undertaken in relation to a project undergoing a NHESP regulatory review? Y☑ N☐

If Yes, **NHESP Tracking Number (required)**: 2417255

Do you have a NHESP approved survey protocol? Y☐ N☐

Note: A NHESP approved survey protocol is required for regulatory review.

Institution to which collected specimens will be donated: None. No specimens willl be removed from the wild.

Desired start date: June 1, 2026

State your qualifications and attach site specific methodology and survey protocols:

For this species, the permittee has developed protection plans, performed sweeps at project sites, and provided trainings to contractors on best management practices to prevent and minimize impacts to the species and its habitats in MA and CT. The permittee has attended turtle training (turtlepalooza) provided by NHESP for utility projects. The subpermittees have performed turtle sweeps in CT.

*Filing Fee

* **Fee: $100/permit**. Payable via check to **Comm. of MA - NHESP**

*Required Signature

I hereby certify under the pains and penalties of perjury that the information contained is true and complete to the best of my knowledge.

Signature of Applicant

4/10/2026
Date

Please mail this completed form, with the required document and fee to:
NHESP Regulatory Review | MassWildlife Field Headquarters | 1 Rabbit Hill Road | Westborough, MA 01581

ATTACHMENT E

PROJECT FORMS

WORK CHANGE DIRECTIVE NO.: ____

Owner:	City of Belchertown	Owner's Project No.:	
Engineer:	Fuss & O'Neill, Inc.	Engineer's Project No.:	120.0170390.070
Contractor:		Contractor's Project No.:	
Project:	**Hop Brook Culvert Replacement**		
Contract Name:			
Date Issued:		Effective Date of Field Order:	

Contractor is directed to proceed promptly with the following change(s):

Description:

Attachments:

Purpose for the Work Change Directive:

Directive to proceed promptly with the Work described herein, prior to agreeing to change in Contract Price and Contract Time, is issued due to:

☐ Non-agreement on pricing of proposed change. ☐ Necessity to proceed for schedule or other reasons.

Estimated Change in Contract Price and Contract Times (non-binding, preliminary):

Contract Price: $ _____ **[increase] [decrease] [not yet estimated]**.

Contract Time: _____ days **[increase] [decrease] [not yet estimated]**.

Basis of estimated change in Contract Price:

☐ Lump Sum ☐ Unit Price ☐ Cost of the Work ☐ Other

	Recommended by Engineer	Authorized by Owner
By:		
Title:		
Date:		

CHANGE ORDER NO.: ____

Owner:	City of Belchertown	Owner's Project No.:	
Engineer:	Fuss & O'Neill, Inc.	Engineer's Project No.:	120.0170390.070
Contractor:		Contractor's Project No.:	
Project:	**Hop Brook Culvert Replacement**		
Contract Name:			
Date Issued:		Effective Date of Field Order:	

The Contract is modified as follows upon execution of this Change Order:
Description:

Attachments:

CHANGE IN CONTRACT PRICE	**CHANGE IN CONTRACT TIMES** *[note changes in Milestones if applicable]*
Original Contract Price: $_____	Original Contract Times: Substantial Completion: _____ Ready for Final Payment: _____ days or dates
[Increase] [Decrease] from previously approved Change Orders No. ___ to No. ___: $_____	[Increase] [Decrease] from previously approved Change Orders No. ___ to No. ___: Substantial Completion: _____ Ready for Final Payment: _____ Days
Contract Price prior to this Change Order: $_____	Contract Times prior to this Change Order: Substantial Completion: _____ Ready for Final Payment: _____ days or dates
[Increase] [Decrease] of this Change Order: $_____	[Increase] [Decrease] of this Change Order: Substantial Completion: _____ Ready for Final Payment: _____ days or dates
Contract Price incorporating this Change Order: $_____	Contract Times with all approved Change Orders: Substantial Completion: _____ Ready for Final Payment: _____ days or dates

RECOMMENDED:	ACCEPTED:	ACCEPTED:
By: _____	By: _____	By: _____
Engineer (if required)	Owner (Authorized	Contractor (Authorized
Title: _____	Title: _____	Title: _____
Date: _____	Date: _____	Date: _____

Approved by Funding Agency (if applicable)

By: _____ Title: _____ Date: _____

FIELD ORDER NO.: _____

Owner:	Town of South Hadley, Massachusetts	Owner's Project No.:	
Engineer:	Fuss & O'Neill	Engineer's Project No.:	20170390.V90
Contractor:		Contractor's Project No.:	
Project:	Replacement of Bridge S-18-021 (CK8)		
Contract Name:	Replacement of Bridge S-18-021 (CK8) Pearl Street over Elmer Brook		
Date Issued:		Effective Date of Field Order:	

Contractor is hereby directed to promptly perform the Work described in this Field Order, issued in accordance with Paragraph 11.04 of the General Conditions, for minor changes in the Work without changes in Contract Price or Contract Times. If Contractor considers that a change in Contract Price or Contract Times is required, submit a Change Proposal before proceeding with this Work.

Reference:

Specification Section(s):

Drawing(s) / Details (s):

Description:

Attachments:

Issued by Engineer

By: _____

Title: _____

Date: _____

ATTACHMENT F

PROJECTDOG BIDDING WEBSITE INSTRUCTIONS AND GUIDANCE

Projectdog E-Bidding Instructions to Bidders

Bid Documents

Bid Forms and Contract Documents shall be available online at Projectdog.com. Documents are made available to all bidders in electronic form at no cost. Bidders desiring hard copies shall be solely responsible for all costs related to printing and shipping of hard copy documents. Neither Owner nor Architect/Engineer shall be responsible for full or partial sets of the Bidding Documents, including Addenda if any, obtained from sources other than Projectdog, Inc.

Receipt of Bids

This project is being Electronically Bid (E-Bid). All bids shall be submitted online at Projectdog.com. Hard copy bids will not be accepted by the Awarding Authority. Tutorials and Instructions are available online at Projectdog.com. For assistance, contact Projectdog, Inc. at 978.499.9014.

Preparation and Submission of Bids

Bid Forms will be posted online at Projectdog.com. All required Bid Forms must be completed and submitted in unrestricted PDF formatted files. The Bidder must fill-in all required fields and signatures either digitally or manually (print, fill-in, and scan to PDF).

The Bidder shall access the Projectdog.com E-Bidding System by entering the Project Code in the project locator box and then selecting “Sub E-Bid” or “GC E-Bid” from the project’s “Project Details” page. The Bidder must enter their bid price as a numeric, whole dollar value only with no punctuation. If no base bid price is applicable, Bidders are instructed to enter an amount of $1.00 (one dollar). **For GC E-Bids with Sub-Bids, General Contractors shall input the total Contract Price, i.e., the sum of all selected Sub-Bid amounts plus the amount for the work of the General Contractor.** The E-Bidding system automatically translates the numeric value into words and displays the bid price in both figures and words on the submitted bid form.

Bidders may upload (“Add File” or “Replace File”), review (“View File”), Save, submit (“Submit my E-Bid”), or retract (“Retract my E-Bid”) their E-Bid at any time prior to the designated deadline. The server clock is displayed on the project’s E-Bidding page and is the time of record. **Bidders must select “Submit my E-Bid” prior to the designated deadline to officially submit their E-Bid online.** Once submitted, an E-Bid cannot be edited. To modify a submitted E-Bid, Bidders must retract their submission, save any changes, and then submit the updated E-Bid. Upon submitting or retracting their E-Bid, Bidders will receive a convenience email for informational purposes only. Bidders shall contact Projectdog if the email is not received.

Bidders shall review their submitted E-Bid package by selecting “View My Bid Package” from the project’s E-Bidding page. Uploaded files may be reviewed individually by selecting “View File”. It

is also the Bidder's responsibility to ensure that their submitted bid is 100% true, complete, and accurate.

It is also the Bidder's responsibility to confirm online that their E-Bid package has been submitted successfully. Timely submission of an E-Bid shall be the full responsibility of the Bidder.

Alternates

Each Bidder shall acknowledge Alternates by entering the dollar amount and selecting the "Add" or "Subtract" radio button necessitated by each Alternate listed in the corresponding space on the project's E-Bidding page.

If an Alternate does not involve a change in dollar value, the Bidder shall so indicate by typing "0" for the dollar value of that Alternate and by selecting the "Add" radio button in the corresponding space on the project's E-Bidding page.

Bid Security

Bid Security in the form of a Bid Bond shall be submitted with your E-Bid online at Projectdog.com. In lieu of an insurance Bid Bond certificate, Bid Security in the form of cash, or a certified check, treasurer's, or cashier's check issued by a responsible bank or trust company and made payable to the Owner, with a completed Bid Deposit Affidavit must be received by the Owner before the bidding deadline. Visit the Downloads page at Projectdog.com to acquire a Bid Deposit Affidavit fill-in form.

Addenda

Addenda, if issued, will be posted to the Projectdog website and shall be accompanied by email notification to every individual or firm on record as having received the Bid Documents. Hard copies of addenda will not be mailed or faxed. It shall be the sole responsibility of the Contractor to ascertain and acknowledge "◉ Yes" to the existence of zero or all addenda within the E-Bidding System.

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

Withdrawal of Bids (Before the Bid Opening)

Any bid may be withdrawn (retracted) prior to the designated deadline by selecting "Retract My E-Bid" from the project's E-Bidding page. Upon retracting, the Bidder will receive a convenience email for informational purposes only. It is the Bidder's responsibility to review and confirm online that their bid has been retracted successfully.

Bid Opening

Once the bid deadline has closed the E-Bid links are no longer available. All E-Bids are compiled in real time upon bid close and published forthwith on the "Project Details" page titled as "List of Bids Received". Official bid tabulations are posted at the discretion of the Awarding Authority.