SECTION 01010
SUMMARY OF WORK

PART I – GENERAL

1.01 INTENT OF THE WORK

Rehabilitation of the existing Bogue Brook Reservoir Dam located off of Chesterfield Road in Montville, Connecticut is intended to address dam safety deficiencies, improve the stability of the dam, mitigate seepage/leakage beneath the dam, upgrade the low-level outlet, and to improve the overall dam safety. For the purposes of this Contract, the Dam is owned and operated by the City of New London, Connecticut (City or Owner). Upon completion of the Work of this contract, Bogue Brook Reservoir Dam will have been restored/rehabilitated in accordance with the Plans and Specifications provided as part of the Bid Documents.

The Contractor is referred to the Contract Drawings, which along with these Specifications, define the required work.

1.02 LOCATION OF THE WORK

Bogue Brook Reservoir Dam (State ID# 8602 and NID # CT00235) is located off of Chesterfield Road in the Town of Montville, Connecticut. The dam is located on Bogue Brook approximately 0.8 miles upstream from its confluence with Latimer Brook at Beckwith Pond. The dam is located at Latitude 41.437° N, Longitude 72.210° W, and can be found on the USGS Montville, Connecticut quadrangle map. The dam impounds Bogue Brook and is classified as a **Significant** Hazard structure by the Connecticut Department of Energy and Environmental Protection - Dam Safety Program (CTDEEP). Bogue Brook Reservoir is primarily used as a water supply for the City of New London. The City has continually owned and operated the dam since it was constructed.

The Contract Drawings specifically delineate the project area, including staging and lay-down areas for the Contractor, as well as areas not to be disturbed. The Contractor shall strictly comply with these boundaries. Proper environmental and housekeeping procedures by the Contractor are of the highest priority, as required by the environmental permits secured for the work.

1.03 DESCRIPTION OF THE SITE

The Dam consists of a partially reinforced concrete buttress (i.e. Ambursen) dam with earthen embankments at both abutment areas. The dam was originally constructed in about 1920 by the City of New London for water supply purposes. The concrete central portion of the dam is approximately 241 feet long with a maximum height of approximately 21 feet and a top width of 4 feet. The earthen embankments have a combined length of approximately 103 feet, with a maximum height of approximately 5 feet. According to a topographic survey performed in December of 2015, the top of the dam is at approximate

elevation 207 feet, in the North American Vertical Datum of 1988 (NAVD88). The upstream concrete section of the dam slope is at approximately 1-foot horizontal to 0.9-feet vertical (1H:0.9V).

The primary spillway is an approximately 29 feet wide overflow weir within the main concrete portion of the dam, at the maximum section. The spillway is a broad-crested uncontrolled concrete weir set at approximate elevation 203.7 feet NAVD88. The normal pool elevation of the Bogue Brook Reservoir is approximately 203.7 feet. Flows over the spillway drop approximately 17 feet onto a rip rap lined discharge channel. Approximately 675 feet downstream of the dam, the discharge channel flows under the Chesterfield Road Bridge through concrete culvert.

The Bogue Brook Reservoir Dam is considered by the CTDEEP Dam Safety Program to be in "**FAIR**" condition[1] due to multiple deficiencies. In accordance with the state of Connecticut Regulations of the Department of Energy and Environmental Protection concerning Dam Safety Regulation (Section 22a-409-2), the current DEEP Hazard Classification for this dam is described as a dam that "is a significant hazard potential dam which, if it were to fail, would result in any of the following:

i. Possible loss of life;
ii. Minor damage to habitable structures, residences, including, but not limited to, industrial or commercial buildings, hospitals, convalescent homes, or schools;
iii. Damage to local utility facilities including water supply, sewage treatment plants, fuel storage facilities, power plants, cable or telephone infrastructure, causing localized interruption of these services;
iv. Damage to collector roadways and railroads; or
v. Significant economic loss.

1.04 GENERAL SCOPE OF THE WORK

The proposed project is a major rehabilitation of the Bogue Brook Reservoir Dam, appurtenances and associated structures. The rehabilitation is designed to address the dam safety deficiencies, improve the life expectancy of the structure, as well as reduce the risk to downstream life and property and adjacent natural resources. Rehabilitation features have been designed in accordance with Connecticut Dam Safety Regulations (Section 22a-409-1 of the RCSA) and standard dam engineering practices. It is the intent of the City of New London that the completed project should result in a dam with a stable concrete gravity structure, raised embankment slopes, erosion protection on upstream and downstream embankments, seepage control, upgraded upstream and downstream low-level gate operators, and improved downstream splash pad and discharge channel.

Proposed repairs include but are not limited to the following:

- The installation of new steel sheets piles upstream of the dam;

[1] Based on 2012 Inspection Report dated January 29, 2013, by Karl F. Acimov, P.E.

- The installation of a reinforced concrete apron between the dam and sheet piles;
- The installation of a new reinforced concrete facing and new upstream low-level outlet slide gate and trash rack;
- The removal of deteriorated concrete and former shotcrete repairs;
- The installation of lightweight concrete infill between the buttresses;
- The existing 16-inch low-level outlet pipe will be replaced with a 24-inch diameter cast iron pipe and upstream slide gate to provide upstream control;
- Installation of a new walkway along the top of the dam and a bridge across the spillway for operator access;
- The installation of overtopping and seepage controls, including riprap, reinforced concrete structures, and articulated concrete blocks (ACBs) downstream of the spillway and along the entire length of the dam;
- The installation of a concrete slab covered with riprap to dissipate the energy of overflow water falling from the spillway weir;
- The earthen embankment at the right and left sides of the dam will be raised 1 foot and armored with articulated concrete blocks (ACBs); and,
- The installation of concrete training walls between embankment and gravity sections of the dam.

The temporary construction water control plan for the proposed project requires the pond level to be drawn down during the work. A temporary cofferdam shall be used upstream of the dam to maintain a dry work area. A temporary pipe will be installed to convey flow from the impoundment created by the cofferdam, through the existing Bogue Brook Reservoir Dam and discharge into the downstream channel. A temporary cofferdam barrier shall be installed downstream of the dam to prevent backwater in the work area. Temporary dewatering with primary and backup pumping systems shall be used to remove surface and groundwater present in the work area. Sedimentation and erosion control measures shall be used during construction. Refer to Section 01565 for more detailed description of temporary water control during construction. The Contractor shall maintain public safety during all phases of the Work.

Wetland resources are located both upstream of the dam and downstream of the dam along the downstream channel. The work shall not encroach on downstream or upstream wetlands beyond the limit of work. Minor alteration will occur as part of the installation of a new splash pad and discharge channel within the limits of work.

The work required by the Contract Drawings and Specifications shall include furnishing all labor, skill, supervision, tools, construction plant, equipment and materials and performing all operations necessary for the proper completion of the contract work as shown on the Plans and Specifications, and as required by the Owner. The general scope of work and anticipated project sequence are outlined on Drawing G-2, which lists many but not all expected work items under this Contract.

The Contractor shall also provide all materials, fuels, labor, and other items necessary for the protection of the Work from hot weather, cold weather, precipitation, surface water flow, groundwater, or other potentially adverse conditions which might cause harm to

completed work or work underway. The Contractor shall be prepared to remove personnel, equipment, and materials from areas of potential inundation in the event of excessive flows and be prepared to restore any damage and resume work at the site.

The Connecticut Department of Transportation (ConnDOT) Standard Specifications for Roads, Bridges and Incidental Construction are referenced for materials and/or procedures ONLY.

1.05 ENVIRONMENTALLY SENSITIVE WORK

The Contractor is informed that the Work of the Project is within and around environmentally sensitive areas. The Contract Drawings specifically delineate staging and lay-down areas for the Contractor, as well as areas not to be disturbed. The Contractor shall comply with these boundaries. Proper environmental and housekeeping procedures by the Contractor are of highest priority.

The Contractor is, therefore, strongly urged to become intimately familiar with access and other issues at the dam to better develop a comprehensive work plan and a more informed bid. The Contractor is encouraged to spend as much time as is needed at the site to develop an understanding of the location and the proposed Work.

1.06 SPECIAL PROVISIONS

The Contractor is hereby notified that the Work of this Contract involves construction on an existing dam, built in the 1920s, which is located in an area of special environmental concern. As such, a number of special provisions will be necessary for the successful completion of the Work. Such provisions shall include, but not be limited to, the following:

A. Water Control

The Contractor shall expect a wide range of near continuous flow of water into the reservoir and through the work area. The Owner will attempt to draw down the reservoir to the extent possible via gravity flow through the existing blow off before the start of work, after which the Contractor shall lower and maintain the reservoir to the specified elevation via pumping or gravity flow. It is the Contractor's sole responsibility for the control of water in and around the work area.

Water control is of paramount importance for the successful execution of the Work. This shall include, but not be limited to, construction of cofferdams, control of surface water, control of seepage and groundwater, etc. The Contractor shall have contingency plans in place to deal with potential flooding events that may occur during the execution of the work.

B. Sediment and Erosion Control

Sediment and erosion control measures shall be used during construction as required by environmental permits, as depicted on the drawings, and as required to protect areas inside and outside the limits of work. Such measures shall be used both upstream and downstream of the dam to protect both the reservoir and downstream resources.

The Contractor shall perform all work required to provide, install, maintain and remove siltation and sediment control measures necessary to protect the reservoir and other resource areas from siltation, sedimentation, or siltation damage or other damage related to the Work or work areas.

Sedimentation and siltation control measures shall include, silt fence, turbidity curtains, compost filter socks and other items as necessary. Other measures not specifically called for on the plans may be required to address conditions encountered during construction. The Work shall also include all work necessary to continually clean and maintain and promptly repair/replace all sedimentation and siltation measures as needed to sustain their intended function and operability.

C. Site Access Control

The Work of the Contract shall include all necessary measures to exclude pedestrians and recreational users from the limits of work. This shall include the provision of appropriate fencing, gates, signage, and flagmen, as needed. Such users shall also be protected from construction traffic in areas when construction vehicles are entering or exiting the job site.

1.07 CONTRACT DRAWINGS

The location and general character of the work are shown on the following Contract Drawings:

Drawing No.	Title
G1	Title Sheet, Site Locus, and Index of Drawings
G2	General Notes and Construction Sequence
G3	Existing Conditions Plan
G4	Existing Conditions Sections (1 of 2)
G5	Existing Conditions Sections (2 of 2)
G6	Existing Conditions Downstream Elevation Section
C1	Sedimentation and Erosion Control, Water Control, Site Access, Staging, and Stockpile Plan
C2	Downstream Sedimentation and Erosion Control, Water Control, Site Access Plan
C3	Final Conditions Plan

C4	Final Conditions Sections and Details (1 of 3)
C5	Final Conditions Sections and Details (2 of 3)
C6	Final Conditions Sections and Details (3 of 3)
C7	Final Conditions Downstream Elevation Section
C8	Final Conditions Upstream Elevation Section
C9	Left Abutment Training Wall Sections and ACB Details
C10	Right Abutment Training Wall Sections and Details

The work shall be constructed in accordance with said plans and such further working and details plans as may be furnished from time to time by the Owner. Details shown on said plans are indicative of the types of structures required and are subject to revision, alteration, modification, and variation. Such revisions, alterations, modifications, or variations in said plans are as desirable in the opinion of the Owner, on account of conditions encountered or for other reasons, shall not be considered a variation of terms of this contract and the assent of the surety on the bond accompanying this Contract to such revisions, alterations, modifications, or variations shall not be required.

All said plans, general notes and details, and the specifications shall be considered together, so that any work shown on the plans, though not mentioned in this Contract and any work mentioned in the Contract, though not shown on the plans, shall be executed by the Contractor as part of the performance of this Contract. Figured dimensions shall prevail over scaled. All things which, in the opinion of the Owner, may fairly be inferred from the plans shall be executed by the Contractor as part of the Contract, and the Owner shall be the sole judge as to whether the detail plans conform to the general plans.

Plans, calculations, estimates of quantities, and any statements made in the instructions to Bidders or otherwise as to the conditions under which the work shall be performed, are not guaranteed by the Owner to be correct or to be a complete representation of all existing data on the conditions affecting the work. The Contractor agrees that he has made his own examination and will make no claim for damages on account of any errors, inaccuracies, or omissions that may be found. The Contractor shall not take any advantage or have any claim for damages on account of any discrepancy, error or omission in any plans, calculations, estimates of quantities, or any statements made in the Instructions to Bidders or otherwise as to the conditions under which the work is to be performed, and he shall report such discrepancy, error, or omission to the Owner in writing as soon as it comes to his knowledge, and before proceeding with work relating to such discrepancy, error, or omission.

Any correction of modification of the plans or specifications may be made by the Owner when necessary for the proper fulfillment of their purpose or for their proper interpretation. When there is a conflict between the plans and the specification, the Owner shall be the sole judge of which provision shall be controlling.

1.08 DEFINITIONS OR PARTIES REFERENCED IN SPECIFICATIONS

A. Project Identification: The name of the project is: Bogue Brook Reservoir Dam Rehabilitation Project, Montville, Connecticut.

B. The Project Owner is The City of New London, Connecticut.

C. The terms "City" and "Owner" shall all be considered synonymous for the purposes of reference only within this contract and shall refer to the Project Owner.

D. The terms "Engineers Consultant," "Engineer," "Engineering Consultant," "Owner's Consultant" and "Owner's Representative" shall all be considered synonymous for the purposes of reference only within this contract and shall refer to the Project Design Engineer, GZA GeoEnvironmental, Inc., of Norwood, Massachusetts.

PART 2 – PRODUCTS

Not Used

PART 3 - EXECUTION

3.01 SUMMARY OF WORK

A. The work required by the Contract Drawings and Specifications shall include furnishing all labor, skill, supervision, tools, construction plant, equipment and materials and performing all operations necessary for the proper completion of the contract work as shown on the Plans and Specifications, and as required by the Owner and/or Engineering Consultant. The work shall generally consist of, but not be limited to, the following:

1. Mobilize to the site and deploy temporary sediment and erosion controls associated with the project, including perimeter erosion and sediment control barriers, and other best management practices (BMPs).

2. Notify owner, engineer, and representatives from regulatory agencies having jurisdiction, schedule and conduct site walk to inspect sediment and erosion control measures. Modify sediment and erosion control measures as required. Work may proceed once approval has been granted from said entities.

3. Contractor shall remove stumps, clear trees (if any remain within work limits), shrubs, brush, and related vegetative growth within the limits established on the drawings to allow free and easy access to the work zones.

4. Install approved temporary cofferdams to allow required work to be conducted in the dry. Maintain reservoir drawdown via pumping and gravity flow.

5. Excavate sediment upstream of dam to grades shown on Contract documents. Install sheet pile cutoff wall.

6. Chip and remove deteriorated/loose concrete. Install new reinforced concrete facing and crest.

7. Install new reinforced concrete apron between new sheet pile and dam to complete hydraulic cutoff. Backfill sediment to existing grades.

8. Remove existing 16 inch cast iron low-level outlet pipe and install new 24 inch diameter pipe. Install new downstream blow off and guard gates, and connect new low-level outlet to 12 inch conduit to Beckwith Reservoir. Install upstream cast iron slide gate, operators, and trash rack upstream.

9. Remove/ abandon blow off pipe at spillway.

10. The contractor shall take all necessary precautions to protect existing instrumentation (piezometer) upstream and downstream of the dam. Restore piezometer cables and enclosures after completion of work. Cables shall be accessible during the work for readings by the Engineer and Contractor. Piezometric pressures shall be recorded during the work.

11. Construct new concrete training walls at the right and left ends of the concrete dam. Strip and stockpile topsoil and regrade embankments. Install erosion protection per Contract documents.

12. Excavate downstream soils and between buttresses (cells). Chip and remove loose/deteriorated concrete and shotcrete. Install waterstops and backfill cells with lightweight foamed cellular concrete.

13. Install downstream toe drain and place backfill to existing grades.

14. Install downstream reinforced concrete apron and articulated concrete block overtopping protection.

15. Construct reinforced concrete stilling basin downstream of spillway.

16. Install new railings, bridge over spillway and cantilevered outlet operator platform at top of dam.

17. Loam and seed all disturbed areas or locations where grass cover is specified.

18. Notify Owner, Engineer, and regulators having jurisdiction of final stabilization. Schedule and conduct site inspection.

19. Upon approval remove all perimeter sediment and site access controls, complete demobilization.

3.02 OBSERVATION BY ENGINEERING CONSULTANT

A. The Owner will employ an Engineer (Engineering Consultant, Owner's Representative) to perform full or part-time on-site observation and selected testing during all phases of Work. The services of the Engineering Consultant will include, but not be limited to, the following:

1. Observation during installation of erosion controls, temporary cofferdams and related water and sediment controls.

2. Observation of temporary cofferdam installation and subsequent dewatering of the impoundment and downstream areas.

3. Stump removal and vegetation/tree clearing.

4. Observation during excavation and dewatering.

5. Observation of subgrades.

6. Observation during backfilling and compaction operations.

7. Observation of cleaning, chipping, and removal of deteriorated concrete.

8. Observation of reinforcing steel placement.

9. Observation of concrete placement in upstream (apron) and downstream (splash pad and discharge channel) areas of dam.

10. Observation of steel sheet pile installation.

11. Observation of filling in dam bays with lightweight concrete.

12. Observation of upstream slope concrete refacing.

13. Observation of temporary cofferdam removal, general demobilization.

B. During the course of construction, the Engineering Consultant will advise the Owner and Contractor in writing, if at any time the work does not, in the opinion of the Engineering Consultant, conform to the plans and specifications.

C. The Owner's or Engineering Consultant's presence does not include supervision or direction of the actual work by the Contractor, his/her employees, or agents. Neither the presence of the Engineering Consultant or Owner, nor any observations and testing performed by him/her, or any notice or failure to give notice, shall excuse the Contractor from defects discovered in his/her work.

PART 4 – MEASUREMENT AND PAYMENT

4.01 GENERAL

A. No separate measurement or payment will be made for this section.

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

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SECTION 01050
FIELD ENGINEERING

PART 1 – GENERAL

1.01 GENERAL PROVISIONS

A. All work performed under this section of the specifications shall be subject to the General Conditions and Supplemental Conditions of the Contract.

1.02 SUMMARY

A. This section specifies the field engineering services required to be provided by the Contractor for the Project, including but not limited to:

1. Survey work.

2. Civil, structural, or other professional engineering services specified, or required to execute Contractor's construction methods.

B. The Contractor shall employ in-house personnel for day to day requirements and engage qualified professionals to perform critical layout aspects and as-built survey.

1.03 QUALIFICATIONS OF CONTRACTORS SURVEYOR AND ENGINEER

A. Contractor shall retain a land surveyor, licensed in the State of Connecticut, to layout and establish the critical lines and grades, elevations and locations of new construction and prepare the as-built plan.

B. Submit name and address of surveyor and professional engineer to the Engineering Consultant.

1.04 SURVEY REFERENCE POINTS

A. The basic horizontal control for this Project consists of a Stationed Control Reference Line or "Base Line" drawn along the top of the dam and extending out onto the right and left abutments as shown on the Drawings. Stationing along the line is from 0+00 to 3+60. The coordinates of Station 0+00 are as follows[1]:

Northing = 1148035.1121 Easting = 720552.8083

(Horizontal Datum is referenced to the Connecticut State Plan of the North American Datum of 1983 in feet [NAD83]).

[1] Based on 2015 topographic survey. Refer to Notes on Contract drawings for survey reference.

B. Elevations, in feet, are referenced to the North American Vertical Datum of 1988 (NAVD88).

C. Establish, locate, verify and protect horizontal and vertical controls prior to starting the Work, and preserve all permanent reference points during construction.

1. Make no changes or relocations without prior written notice to the Engineering Consultant.

2. Report to the Engineering Consultant when any reference point is lost or destroyed, or requires relocation because of necessary changes in grade or locations.

3. The Contractor's surveyor shall replace Project horizontal and vertical controls which may be destroyed and establish those replacements based on original survey control.

1.05 PROJECT SURVEY REQUIREMENTS

A. Establish a minimum of one permanent bench mark on-site, referenced to data established by survey control points.

1. Record locations, with horizontal and vertical data, on Project Record Documents.

B. Establish lines and levels, locate and lay out by instrumentation and similar appropriate means the following:

1. Site improvements.

a. Stakes for grading and fill placement;

b. Spillway limits, extents and invert elevations;

c. Extent of dam crest and embankments and applicable elevations;

d. Extent of downstream splash pad;

e. Extent and elevations of discharge channel;

f. Extent, elevations and depths of upstream sheet pile and apron; and

g. Location and invert of low level outlet.

2. Controlling lines and levels required establish lines and grades depicted on the Contract Drawings.

C. From time to time, verify layouts by same methods.

1.06 RECORD DOCUMENTS

A General: Maintain one complete record set of Documents at the site. Do not use Record Documents for construction purposes. Provide access to Record Documents for Engineering Consultant reference. Generally without limitation Record Documents shall include the following:

1. Record Drawings: Record Drawings shall consist of all the Contract Documents. Record Drawings shall be prepared for the entire project and shall include all work.

   a. From the sets of Drawings furnished by the Owner, the Contractor shall reserve one set for record purposes.

   b. The Contractor shall maintain a clean set of Contract Drawings and shop drawings updated weekly to show actual installation, locations and notes.

   c. Maintain a complete, accurate record of all control and survey work as it progresses.

   d. Give particular attention to concealed items.

2. Record Project Manual: Maintain a clean Project Manual, including Addenda, Change Orders, and other modifications, updated weekly to show changes in the actual work performed. Give particular attention to substitutions, selection of options, and similar information.

3 Record Submittals, Samples, and Product Data: Maintain one copy of each reviewed submittal, sample and product data record updated weekly to show changes from products delivered, work performed, and from manufacturer's recommended installation instructions.

4. Record Field Test Reports: Maintain one copy of each Field Test Report.

5. Daily Progress Reports: Maintain one copy of each Daily Progress Report.

B. Final As-Built Survey: At the conclusion of the Work, the Contractor's Connecticut-licensed surveyor shall perform an As-Built conditions survey of the project site including, but not necessarily limited to as-built grades, dimensions, limits, extent and elevations associated with the rehabilitated dam embankment and crest, apron, training walls, downstream area, upstream area, gates and pipes, and spillway including new footbridge and gate structure.

C. Final Record Drawings: The Owner will provide the Contractor with a set of Contract Drawing files in AutoCAD format to use as a base for the Final Record Drawings. The Contractor's final Record Drawings shall include an as-built conditions survey (stamped by a surveyor licensed in the State of Connecticut).

The Contractor shall be responsible for transferring the Contractor's and their subcontractors' as-built notations to the computer files. The computer drafting work shall be done by an experienced AutoCAD draftsperson and shall be consistent with the layering and conventions used on the Contract Drawing files.

Prior to the Owner releasing final payment, the Contractor shall deliver Record Documents to the Engineering Consultant as follows:

1. Updated electronic file.

2. One (1) set of black line prints from the updated electronic file.

3. Each of the above shall be clearly marked "RECORD DRAWING" and bear the date of printing.

PART 2 – PRODUCTS

Not Used.

PART 3 – EXECUTION`

Not Used.

PART 4 - MEASUREMENT AND PAYMENT

No separate measurement or payment will be made for this Section. Compensation (including that for the As-Built survey) shall be included in the prices stipulated on the numbered items on the Bid Form.

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

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SECTION 01060
REGULATORY REQUIREMENTS

PART 1 - GENERAL

1.01 PERMITS AND LICENSES

A. No portion of the Work within and/or adjacent to the Bogue Brook, or adjacent to existing resource areas shall be begun until all necessary and required permits have been secured.

B. The following permits, notifications, and/or approvals have been applied for by the Owner and are expected to be issued prior to start of construction:

- CT Department of Energy & Environmental Protection (DEEP): 401 Water Quality Certification (33 U.S.C. 1341);
- CT DEEP: Dam Safety Construction Permit (CGS Sec. 22a-403);
- US Army Corps of Engineers: Section 404 Programmatic General Permit – Category 2.

If not already attached herein to this Section, copies of those permits/approvals outstanding as of the bids due date will be forwarded to the Contractor by addendum after they have been issued by the permitting agencies. These permits/approvals are to be considered as part of the Contract Documents. The Contractor shall be responsible for adhering to the conditions stipulated in all permits/approvals. No Work shall begin until all required permits have been secured to cover the Work.

The Terms and Conditions which will accompany the required permits, licenses, and approvals still to be issued are not expected to deviate substantially from the requirements of these Contract Documents and the Technical Specifications. No additional payment shall be made for adherence to the terms and conditions of permits, licenses, and approvals yet to be issued for the Project. In the event that compliance with terms and conditions of a permit (applied for by the Owner) requires substantial additional work on the part of the Contractor, a Contract Amendment will be negotiated. No additional payment will be made in any event for compliance with permits obtained by the Contractor.

C. A temporary permit (local) may be required for field trailers or other temporary facilities and, if required, shall be obtained by Contractor. Copies of all required permits and licenses shall be forwarded to the Owner prior to the beginning of the Work. The Contractor shall be responsible for conducting his/her work in accordance to all provisions of said permits.

D. The Contractor shall procure all other required permits and licenses, pay all charges, fees and taxes and shall give all notices necessary and incidental to the due and lawful prosecution of the work under this Contract. The cost thereof shall be included in the prices bid for the various items specified herein for the work of this Contract. Copies

of all required permits and licenses shall be filed with the Engineer prior to the beginning of the work.

E. The disturbance area at the site will be less than one acre in total and therefore not under the jurisdiction of the NPDES general construction permit process. Regardless of the need for a Stormwater Pollution Prevention Plan (SWPPP) under the NPDES permit, the Contractor shall be responsible for sediment and erosion control at the site. The Contractor shall incorporate Best Management Practices (BMPs) shown on the Contract Drawings and other applicable Specifications; however, it shall be understood that these measures called for in the specifications and on the plans represent the MINIMUM acceptable level of sediment and erosion control.

1.02 ADHERENCE TO AUTHORIZATIONS, PERMIT AND LICENSE CONDITIONS AND REQUIREMENTS

The Contractor shall strictly adhere to all conditions and requirements set forth in the authorizations, permits, licenses, etc. issued in relation to the Work of this Contract. The Contractor shall undertake all incidental work necessary to meet the conditions and requirements of the authorizations, permits and licenses and shall perform the Work of the Contract in accord with said conditions and requirements. The cost thereof shall be included in the prices bid for the various items specified herein for the work of this Contract.

The Contractor shall be solely responsible for monitoring and complying with the conditions and requirements of all authorizations, permits and licenses. The Contractor shall solely be responsible for any and all penalties, sanctions, and fines that result from non-compliance with the conditions and requirements of all authorizations, permits and licenses. The Contractor shall be aware that the attached Contract Drawings are a key condition of the permits granted by the U.S. Army Corps of Engineers and CT DEEP. Deviation from the Contract Drawings, including the Construction Sequence and Water Handling Plan, shall not be made without permission of the Resident Engineer and Owner, and consent of regulatory authorities. Neither the Owner nor the Engineer will be held responsible for any penalties which result from Contractor violations of the conditions and requirements of authorizations, permits and licenses.

No additional payment will be made for compliance with the conditions and requirements of the authorizations, permits, variances, or approvals.

Copies of all permits shall be maintained at the site by the Contractor during the Work.

1.03 AIR, SOIL, AND WATER POLLUTION AND NOISE CONTROL

The Contractor shall comply with the applicable local, state, and federal regulations pertaining to Open Burning, and Dust, Odor, Construction and Demolition; and his/her attention is called to applicable Enforcement Provisions in regard to these and other pertinent and applicable regulations. The Contractor shall comply with the provisions of the Clean Air Act of 1970, 42USC, Sections 1857- 1857f.

A Sediment and Erosion Control plan and notes are included within the Contract Drawings. The information contained in the plans, specifications, and notes may be used as the basis for the preparation of any sediment and erosion control plan, but shall be considered the **MINIMUM** acceptable measures. The final content and the responsibility for implementation are the Contractor's alone.

The work of this contract is being conducted within and adjacent to Bogue Brook and Bogue Brook Reservoir at the Owner's site. Bogue Brook Reservoir and its surrounding wetlands are sensitive water resources which provides habitat for fish and other wildlife. The Contractor shall take every precaution to prevent the chemical contamination of soil, groundwater, brook and reservoir water caused by spilling or leaking of oil, hazardous material, or other chemicals and materials used in the construction operation. The Contractor shall be especially careful not to discharge or spill any oil, grout, concrete, or other contaminants in or onto the waters adjacent to and/or within work areas.

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

1.04 HEALTH AND SAFETY

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

A site specific Health and Safety Plan (HASP) must be in place prior to the Start of the Work. The Contractor is hereby notified that Owner shall place the utmost importance on the proper planning, execution and adherence to the HASP and all required general safety procedures. Review of this plan by Owner and/or its Consultant in no way implies acceptance of responsibility for job site safety by the Owner and/or its Consultant. The Contractor shall be solely responsible for job site safety.

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

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

respect to site safety, the Owner and Engineer will be responsible solely for the on-site activities of their own employees and this responsibility will not be construed to relieve the Contractor from its obligations to maintain a safe project site.

1.05 SUBMITTALS

The Contractor shall submit the following documents a minimum of five (5) days prior to the start of work:

1. Health and Safety Plan (HASP) - **FOR INFORMATION ONLY**

PART 2 - PRODUCTS

Not used

PART 3 - EXECUTION

Not used

PART 4 - MEASUREMENT AND PAYMENT

No separate measurement or payment will be made for this section.

Attachments: Applications and permits received as of date of specification preparation for:

- US Army Corps of Engineers: Section 404 Programmatic General Permit – Category 2.

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

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DEPARTMENT OF THE ARMY
NEW ENGLAND DISTRICT, CORPS OF ENGINEERS
696 VIRGINIA ROAD
CONCORD, MASSACHUSETTS 01742-2751

REPLY TO
ATTENTION OF

December 7, 2017

Regulatory Division
File Number: NAE-2017-01774

City of New London
Attn: Mr. Joseph Lanzafame, P.E.
120 Broad Street
New London, Connecticut 06320

Dear Mr. Lanzafame:

We have reviewed your application to conduct dam safety rehabilitation of the Bogue Brook Reservoir Dam, located on Chesterfield Road in Montville, Connecticut (41.4370°N, 72.2099°W). The project will consist of repairs to the existing reservoir dam and will include: improvement of dam stability through concrete infilling of the hollow dam interior, the raising of small earthen embankment sections adjacent to the right and left abutments, installation of steel sheet pile cutoff upstream of the dam with the addition of a concrete apron connecting to the heel of the dam, construction of a new concrete facing on the upstream side of the dam, and downstream scour protection. This work will permanently fill 0.22 acre below ordinary high water with 250 cubic yards of a splash pad/toe-drain, 165 cubic yards of a concrete apron/training wall, and 130 cubic yards of trap rock. During construction, the reservoir will be lowered via diversion pumping with a temporary cofferdam on the upstream side of the dam, temporarily impacting an additional 0.04 acre with fill. This work is illustrated on 13 sheets of plans, which you have in your possession, entitled "Bogue Brook Reservoir Dam Rehabilitation Project" and dated May 22, 2017.

Based on the information that you have provided, we have determined that the proposed activity, which includes a discharge of dredged or fill material into waters or wetlands, will have only minimal individual and cumulative impacts on waters of the United States, including wetlands. Therefore, this work is authorized under General Permit No. 2 of the enclosed Federal permit known as the Connecticut General Permits (GPs). This work must be performed in accordance with the terms and conditions of the GPs and must also be in compliance with the following special conditions:

1. Drawdown must not exceed 18 months and one growing season of April through September.

2. This authorization requires you to complete and return the enclosed Work Start Notification Form to this office at least two weeks before the anticipated starting date. You must also complete and return the enclosed Compliance Certification Form within one month following the completion of the authorized work.

You are responsible for complying with all of the GPs' requirements. Please review the enclosed GPs carefully; as well as the general conditions, to be sure you understand its requirements. You should ensure that whoever does the work also fully understands the requirements and that a copy of the permit document and this authorization letter are at the project site throughout the time the work is being performed.

The Connecticut Department of Energy & Environmental Protection (DEEP) has granted a Water Quality Certification (WQC), as required under Section 401 of the Clean Water Act, for projects permitted under General Permit No. 2 of the Connecticut GPs, provided that drawdown does not exceed 18 months and one growing season.

This authorization expires on August 19, 2021, unless the GPs are modified, suspended, or revoked before then. You must commence or be under contract to commence the work authorized herein by that expiration date and complete the work by August 19, 2022. If not, you must contact this office to determine the need for further authorization *before* beginning or continuing the activity. We recommend you contact us before this permit expires to discuss a permit reissuance.

If you change the plans or construction methods for work within our jurisdiction, please contact us immediately to discuss modification of this authorization. This office must approve any changes before you undertake them.

This permit does not obviate the need to obtain other Federal, state, or local authorizations required by law. Performing work not specifically authorized by this determination or failing to comply with any special condition(s) and all the terms and conditions of the GPs may subject you to the enforcement provisions of our regulations.

This authorization presumes that the work as described above and as shown on your plans noted above is in waters of the U.S. Should you desire to appeal our jurisdiction, please submit a request for an approved jurisdictional determination in writing to this office.

We continually strive to improve our customer service. In order for us to better serve you, we would appreciate your completing our Customer Service Survey located at http://corpsmapu.usace.army.mil/cm_apex/f?p=regulatory_survey.

Please contact Daniel Breen of my staff at (978) 318-8732 if you have any questions.

Sincerely,

Robert J. DeSista
Chief, Permits & Enforcement Branch
Regulatory Division

Enclosures

Copies furnished:

Mr. Jonathan Andrews
GZA GeoEnvironmental, Inc.
249 Vanderbilt Avenue
Norwood, Massachusetts 02062

Mr. Brian Golembiewski, CT DEEP, Chief, Land & Water Resources Division – via email
Mr. Steve Gephard, CT DEEP Fisheries – via email
Mr. Nate Margason, US EPA – via email

US Army Corps of Engineers®
New England District

WORK-START NOTIFICATION FORM
(Minimum Notice: Two weeks before work begins)

****

EMAIL TO: cenae-r@usace.army.mil; or

MAIL TO: **Daniel Breen**
U.S. Army Corps of Engineers, New England District
Permits and Enforcement Branch B
Regulatory Division
696 Virginia Road
Concord, Massachusetts 01742-2751

****

Corps of Engineers Permit No. **NAE-2017-01774** was issued to the **City of New London, Connecticut**. This work is located within Brook Reservoir Dam on Chesterfield Road in Montville. The permit authorized repairs to the reservoir dam, including: improvement of dam stability through concrete infilling of the hollow dam interior, the raising of small earthen embankment sections adjacent to the right and left abutments, installation of steel sheet pile cutoff upstream of the dam with the addition of a concrete apron connecting to the heel of the dam, construction of a new concrete facing on the upstream side of the dam, and downstream scour protection. The authorized impacts included the permanent fill of 0.22 acre below ordinary high water with 250 cubic yards of a splash pad/toe-drain, 165 cubic yards of a concrete apron/training wall, and 130 cubic yards of trap rock. Also permitted was the temporary placement of a cofferdam within 0.04 acre below ordinary high water on the upstream side of the dam.

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: _____

_____

_____

Telephone Numbers: (___) _____ (___) _____

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-2017-01774

Project Manager: Daniel Breen

Name of Permittee: City of New London, Connecticut

Permit Issuance Date: December 7, 2017

Please sign this certification and return it to our office upon completion of the activity and any mitigation required by the permit. You must submit this after the mitigation is complete, but not the mitigation monitoring, which requires separate submittals.

E-MAIL TO: cenae-r@usace.army.mil; or

MAIL TO: Permits and Enforcement Branch B
U.S. Army Corps of Engineers, New England District
Regulatory Division
696 Virginia Road
Concord, Massachusetts 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

Applicant: General Public, State of Connecticut **Effective Date: August 19, 2016**
Expiration Date: August 19, 2021

DEPARTMENT OF THE ARMY GENERAL PERMITS FOR THE STATE OF CONNECTICUT & LANDS LOCATED WITHIN THE BOUNDARIES OF AN INDIAN RESERVATION[1]

The New England District of the U.S. Army Corps of Engineers (Corps) hereby issues twenty-one (21) General Permits (GPs), listed below, for activities subject to Corps jurisdiction in waters of the United States (U.S.), including navigable waters, within boundaries of the State of Connecticut and lands located within the boundaries of an Indian reservation. These GPs are issued in accordance with Corps regulations at 33 CFR 320 - 332 [see 33 CFR 325.5(c)(1)], and authorizes activity-specific categories of work that are similar in nature and cause no more than minimal individual and cumulative adverse environmental impacts. These GPs will provide protection to the aquatic environment and the public interest while effectively authorizing activities that have no more than minimal individual and cumulative adverse environmental effects.

GENERAL CRITERIA

In order for activities to qualify for these GPs, they must meet the terms and eligibility criteria and stipulations listed in Appendix A – General Permits as well as the Appendix B General Conditions.

Projects may qualify for the following:

- Self-Verification (inland) - Self -Verification Notification Form (SVNF) is required
- Self-Verification (coastal) - SVNF NOT required. Corps relies on CT DEEP, OLISP submittals.
- Pre-Construction Notification (PCN) -
    - Inland - Application to and written approval from the Corps is required.
    - Coastal - Notification to Corps provided by CT DEEP, OLISP or by applicants as necessary. Written approval from the Corps is required.

If your project is ineligible for Self-Verification (SV), it may be screened under PCN or may require an Individual Permit. The thresholds for activities eligible for Self-Verification and PCN are defined in Appendix A. These GPs do not affect the Corps Individual Permit review process or activities exempt from Corps regulation.

[1] Indian reservation lands are considered a sovereign nation, and are therefore acknowledged separately from the State of Connecticut for purposes of this General Permit.

Connecticut General Permits

An activity is authorized under GPs 1-21 below only if that activity and the permittee satisfy all of the GP's terms and conditions.

1. Aids to navigation & temporary recreational structures
2. Repair or maintenance of existing currently serviceable, authorized or grandfathered structures/fills, removal of structures
3. Moorings
4. Pile-supported structures & floats, including boat lifts/hoists and other miscellaneous Structures & work
5. Boat ramps and marine railways
6. Utility line activities
7. Dredging, transport & disposal of dredged material, beach nourishment, rock removal & rock relocation
8. Discharges of dredged or fill material incidental to the construction of bridges
9. Shoreline and bank stabilization projects
10. Aquatic habitat restoration, establishment and enhancement activities
11. Fish and wildlife harvesting activities
12. Oil spill and hazardous material cleanup
13. Cleanup of hazardous and toxic waste
14. Scientific measurement devices
15. Survey activities
16. Aquaculture projects and fisheries
17. New/expanded developments & recreational facilities
18. Linear transportation projects – wetland crossings only
19. Stream, river & brook crossings (not including wetland crossings)
20. Energy generation and renewable energy generation facilities and hydropower projects
21. Temporary fill not associated with any other GP activities

SECTION 1
REVIEW CATEGORIES AND APPLICATION PROCEDURES FOR PROJECTS WITHIN NON-TIDAL WATERS AND WETLANDS WITHIN THE STATE OF CONNECTICUT AND LANDS LOCATED WITHIN AN INDIAN RESERVATION

I. ACTIVITIES COVERED:

The discharge of dredged or fill material into Waters of the United States, which is regulated by the Corps under Section 404 of the Clean Water Act (CWA), see 33 CFR 328.

II. REVIEW PROCESS:

1. State and Local Approvals:

In order for authorizations under these GPs to be valid and before commencing any work within Corps jurisdiction, applicants must apply for and obtain State Water Quality Certification as well as any local approvals (see **General Condition 1**):

Water Quality Certification (WQC) under Section 401 of the Federal CWA (33 USC Sec. 1341). Section 401(a)(1) of the Clean Water Act requires that applicants obtain a WQC or waiver from the state water pollution control agency which in Connecticut is the Connecticut Department of Energy and Environmental Protection (CT DEEP) or U.S. EPA for Indian reservation lands to discharge dredged or fill material into waters of the U.S. **(**see **attached Water Quality Certification and table**).

The CT DEEP, Inland Water Resources Division (CT DEEP IWRD) has conditionally granted WQC for Self-Verification (SV) activities in inland wetlands and waterways provided those activities meet the criteria as contained in the attached **Appendix A – General Permits** document.

The CT DEEP- IWRD has granted WQC with terms, limitations and conditions specified therein.

The CT DEEP- IWRD has waived WQC for GP 12, GP 13, GP 14, and GP 15.

The U.S. EPA granted WQC for Self-Verification and PCN activities located on lands within the boundaries of an Indian Reservation.

2. General Permit Review Categories:

a. Self-Verification – An application to the Corps is NOT required. However, submittal of the attached Self-Verification Notification Form at Appendix E to the Corps and CT DEEP, IWRD is required prior to commencement of work authorized by these GPs.

Eligibility Criteria

Activities in Connecticut and lands located within the boundaries of an Indian reservation that meet the following criteria are eligible under Self-verification of this General Permit:

- are subject to Corps jurisdiction (See **General Condition 2**),
- meet the criteria of Self-Verification in the attached **Appendix A - General Permits**, and
- meet the General Conditions of the GPs.

Project proponents seeking Self-Verification authorizations must comply with the General Conditions and other federal laws such as the National Historic Preservation Act, the Endangered Species Act (ESA) and the Wild and Scenic Rivers Act. Therefore, consultation with the Corps and/or outside experts, such as the State Historic Preservation Office and any appropriate Indian tribes, is recommended when there is a high likelihood of the presence of resources of concern.

b. Pre-Construction Notification (PCN) – An application to the Corps is required.

Projects not eligible under Self-Verification of the GPs may be screened under PCN, provided they meet the criteria as defined in the attached **Appendix A – General Permits** for PCN activities.

Eligibility Criteria

Activities in Connecticut and lands located within an Indian reservation that meet the following criteria are eligible under PCN of this General Permit:

- are subject to Corps jurisdiction (See **General Condition 2**),
- meet the criteria of PCN in the attached **Appendix A – General Permits**, and
- meet the General Conditions of the GPs.

3. Applying for an authorization through the PCN process:

Applicants must also submit two copies of the following to the Corps, on a CD if available and hard copy:

- Corps application form (ENG Form 4345) found at http://www.usace.army.mil/Missions/CivilWorks/RegulatoryProgramandPermits/ObtainaPermit.aspx
- 8.5” x 11” or 11” x 17” drawings and one large-scale drawing,
- wetlands functions and values assessment,
- Federal wetland delineation documentation (data sheets),
- The CT DEEP addendum found at: http://www.ct.gov/deep/lib/deep/Permits_and_Licenses/LandUse_General_Permits/Inland_Water_General_Permits/CT_addendum_app.pdf
- Correspondence with the State Historic Preservation Office and Tribal Historic Preservation Officer indicating coordination with these entities along with a completed CT SHPO Form. The CT SHPO Form is available on the CT SHPO website under Historic Preservation – Environmental Review at http://www.cultureandtourism.org/cct/lib/cct/Project_Notification_Form_final.pdf
- a plan describing any proposed mitigation along with an Invasive Species Control Plan.

Applicants must concurrently submit three copies of the following to the CT DEEP at the address below:

- the Corps application form,
- 8.5" x 11" or 11" x 17" drawings and one large-scale drawing,
- wetlands functions and values assessment,
- Federal wetlands delineation documentation (data sheets),
- CT DEEP addendum, and
- a plan describing any proposed mitigation.

State of Connecticut
Department of Energy & Environmental Protection
Central Permit Processing Unit
79 Elm Street
Hartford, CT 06106-5127

NOTE: Applicants must submit all project revisions and modifications to both agencies.

The Corps will coordinate review of all 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. To be eligible and subsequently authorized, an activity must meet the eligibility criteria in **2. General Permit Review Categories** above and result in no more than minimal impacts to the aquatic environment as determined by the Corps in conjunction with the interagency review team which consists of federal and state resource agencies. This may require project modifications involving avoidance, minimization, and/or compensatory mitigation for unavoidable impacts to ensure the net effects of a project are minimal.

Written approval from the Corps for PCN activities is required before work can commence.

Emergency Situation Procedures: 33 CFR 325.2 (e) (4) states that an "emergency" is a situation 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 permit is not undertaken within a time period less than the normal time needed to process the application under standard procedures." Notification to the Corps and CT DEEP – IWRD is required. The Corps will determine if a project qualifies as an emergency and will work with all applicable agencies to expedite authorization in emergency situations. If the project qualifies as an emergency, authorization under Self-verification or PCN of the GPs is not required.

Individual Permit Procedures: Work that is **NOT** eligible for authorization under the GPs as defined in the attached **Appendix A – General Permits**, or that does not meet the terms and conditions of the GPs, will require review under the Corps Individual Permit procedures (see 33 CFR Part 325.1). The applicant shall submit the appropriate application materials (including the Corps ENG 4345 application form) to the Corps of Engineers. General information and application forms can be obtained at the Corps web site noted in Paragraph 3 above. An individual Water Quality Certification is required from the CT DEEP, IWRD. **The application form and instructions for Section 401 Water Quality Certification are available from the Connecticut DEEP web site at http://www.ct.gov/deep/cwp/view.asp?a=2709&q=324168&depNav_GID=1643.**

TABLE 1. CONNECTICUT WATER QUALITY CERTIFICATION
Water Quality Certification – Non-Tidal Waters, Wetlands, and Watercourses *
Department of the Army - General Permits for the State of Connecticut
WQC-201607149

	Self-Verification (SV) **WHERE GRANTED, APPENDIX E: SELF-VERIFICATION NOTIFICATION FORM AND PLANS ARE REQUIRED TO BE FILED WITH CT DEEP – See Appendix E for instructions**	**Pre-Construction Notification (PCN)** **WHERE GRANTED, APPLICATION TO CT DEEP IS REQUIRED – See Section 1, II. 3. (pages 2-3) of the Army Corps GP for instructions**
GP 2. Repair or Maintenance of Existing Currently Serviceable, Authorized or Grandfathered Structures & Fills, Removal of Structures	Granted subject to the following restriction: • Drawdown does not exceed 18 months and one growing season (April through September) **Stream, river, brook or other watercourse crossings are not eligible for Section 401 Water Quality Certification under GP 2. (See GP 19.)** **Culvert slip-lining is not eligible for Section 401 Water Quality Certification under GP2. (See GP 19.)**	Granted for impacts not exceed 0.5 acre, subject to the following restriction: • Drawdown does not exceed 18 months and one growing season (April through September) **Stream, river, brook or other watercourse crossings are not eligible for Section 401 Water Quality Certification under GP 2. (See GP 19.)**
GP 5. Boat Ramps & Marine Railways	Granted	Granted for impacts not exceeding 0.5 acre.
GP 6. Utility Line Activities	Granted	Granted for activities that receive written approval from the Connecticut Department of Energy and Environmental Protection (CT DEEP) through a formal cooperative state interagency screening process jointly conducted by the Connecticut Department of Transportation (CT DOT) and CT DEEP. Granted for activities conducted or funded by the Connecticut Department of Energy and Environmental Protection (CT DEEP) that receive written approval through a formal cooperative CT DEEP intra-agency screening process. **Other activities with impacts exceeding 0.5 acre require individual (regular) Section 401 Water Quality Certification.**
GP 9. Shoreline & Bank Stabilization Projects	Granted for shoreline and banks stabilization activities that receive written approval from the Connecticut Department of Energy and Environmental Protection (CT DEEP) through a formal cooperative state interagency screening process jointly conducted by the Connecticut Department of Transportation (CT DOT) and CT DEEP. Granted for shoreline and bank stabilization activities conducted or funded by the Connecticut Department of Energy and Environmental Protection (CT DEEP) that receive written approval through a formal cooperative CT DEEP intra-agency screening process. **Other shoreline stabilization activities exceeding 50 feet in length are not eligible for Section 401 Water Quality Certification under SV**. **Other stream, river, or brook bank stabilization activities exceeding 50 feet in total length for one stream bank or 50 feet cumulative length for both stream banks are not eligible for Section 401 Water Quality Certification under SV**. **Activities that include the placement of fill within the streambed beyond the toe of slope of the stream bank are not eligible for Section 401 Water Quality Certification under SV**	Granted for activities that receive written approval from the Connecticut Department of Energy and Environmental Protection (CT DEEP) through a formal cooperative state interagency screening process jointly conducted by the Connecticut Department of Transportation (CT DOT) and CT DEEP. Granted for activities conducted or funded by the Connecticut Department of Energy and Environmental Protection (CT DEEP) that receive written approval through a formal cooperative CT DEEP intra-agency screening process. **Other shoreline stabilization activities exceeding 100 feet in total length require individual (regular) Section 401 Water Quality Certification**. **Other stream, river, or brook bank stabilization activities exceeding 100 feet in total length for one stream bank or 100 feet cumulative length for both stream banks require individual (regular) Section 401 Water Quality Certification.**

TABLE 1. CONNECTICUT WATER QUALITY CERTIFICATION
Water Quality Certification – Non-Tidal Waters, Wetlands, and Watercourses *
Department of the Army - General Permits for the State of Connecticut
WQC-201607149

	Self-Verification (SV) **WHERE GRANTED, APPENDIX E: SELF-VERIFICATION NOTIFICATION FORM AND PLANS ARE REQUIRED TO BE FILED WITH CT DEEP – See Appendix E for instructions**	**Pre-Construction Notification (PCN)** **WHERE GRANTED, APPLICATION TO CT DEEP IS REQUIRED – See Section 1, II. 3. (pages 2-3) of the Army Corps GP for instructions**
GP 10. Aquatic Habitat Restoration, Establishment & Enhancement Activities	Granted for activities that receive written approval from the Connecticut Department of Energy and Environmental Protection (CT DEEP) through a formal cooperative state interagency screening process jointly conducted by the Connecticut Department of Transportation (CT DOT) and CT DEEP. Granted for activities conducted or funded by the Connecticut Department of Energy and Environmental Protection (CT DEEP) or by a federal environmental resource management agency that receive written approval through a formal cooperative CT DEEP intra-agency screening process. **Other activities are not eligible for Section 401 Water Quality Certification under SV.**	Granted
GP 11. Fish & Wildlife Harvesting Activities	Granted	Granted
GP 12. Oil Spill & Hazardous Material Cleanup	Waived	Waived
GP 13. Cleanup of Hazardous & Toxic Waste	Waived	Waived
GP 14. Scientific Measurement Devices	Waived	Waived
GP 15. Survey Activities	Waived	Waived
GP 17. New/Expanded Developments & Recreational Facilities	Granted, except as noted below. **New roadway and driveway crossings in wetlands are not eligible for Section 401 Water Quality Certification under GP 17. (See GP 18.)** **Stream, river, brook or other watercourse crossings are not eligible for Section 401 Water Quality Certification under GP17. (See GP 19.)**	Granted for activities conducted or funded by the Connecticut Department of Energy and Environmental Protection (CT DEEP) that receive written approval through a formal cooperative state intra-agency screening process. **Other activities with impacts exceeding 0.5 acre require individual (regular) Section 401 Water Quality Certification.** **New roadway and driveway crossings in wetlands are not eligible for Section 401 Water Quality Certification under GP 17. (See GP 18.)** **Stream, river, brook or other watercourse crossings are not eligible for Section 401 Water Quality Certification under GP 18. (See GP 19.)**

TABLE 1. CONNECTICUT WATER QUALITY CERTIFICATION
Water Quality Certification – Non-Tidal Waters, Wetlands, and Watercourses *
Department of the Army - General Permits for the State of Connecticut
WQC-201607149

	Self-Verification (SV) **WHERE GRANTED, APPENDIX E: SELF-VERIFICATION NOTIFICATION FORM AND PLANS ARE REQUIRED TO BE FILED WITH CT DEEP – See Appendix E for instructions**	**Pre-Construction Notification (PCN)** **WHERE GRANTED, APPLICATION TO CT DEEP IS REQUIRED – See Section 1, II. 3. (pages 2-3) of the Army Corps GP for instructions**
GP 18. Linear Transportation Projects – Wetland Crossings Only	Granted **Stream, river, brook or other watercourse crossings are not eligible for Section 401 Water Quality Certification under GP 18. (See GP 19.)**	Granted for activities that receive written approval from the Connecticut Department of Energy and Environmental Protection (CT DEEP) through a formal cooperative state interagency screening process jointly conducted by the Connecticut Department of Transportation (CT DOT) and CT DEEP. Granted for activities conducted or funded by the Connecticut Department of Energy and Environmental Protection (CT DEEP) that receive written approval through a formal cooperative CT DEEP intra-agency screening process. **All other activities with impacts exceeding 0.5 acre require individual (regular) Section 401 Water Quality Certification.** **Stream, river, brook or other watercourse crossings are not eligible for Section 401 Water Quality Certification under GP 18. (See GP 19.)**
GP 19. Stream, River & Brook Crossings (Not Including Wetland Crossings) Continued on next page	Granted for stream, river or brook crossings that receive written approval from the Connecticut Department of Energy and Environmental Protection (CT DEEP) through a formal cooperative state interagency screening process jointly conducted by the Connecticut Department of Transportation (CT DOT) and CT DEEP. Granted for activities conducted or funded by the Connecticut Department of Energy and Environmental Protection (CT DEEP) that receive written approval through a formal cooperative CT DEEP intra-agency screening process. Granted for all other stream, river, brook or other watercourse crossings by means of a BRIDGE or OPEN-BOTTOM STRUCTURE that meets the following standards: • spans at least 1.2 times the watercourse bank full width, • allows for the continuous, uninterrupted flow of the 50-year frequency storm flows, • no riprap is placed within or across the bed of the brook; and, • appurtenant stream bank stabilization does not exceed 50 feet along any upstream or downstream bank. **Stream, river, brook and other watercourse crossings that do not meet the standards above are not eligible Section 401 Water Quality Certification for Self-Verification.** **Culvert slip lining is not eligible for Section 401 Water Quality Certification for Self-Verification.** **Wetland crossings are not eligible for Section 401 Water Quality Certification under GP 19. (See GP 18.)**	Granted for stream, river or brook crossings that receive written approval from the Connecticut Department of Energy and Environmental Protection (CT DEEP) through a formal cooperative state interagency screening process jointly conducted by the Connecticut Department of Transportation (CT DOT) and CT DEEP. Granted for activities conducted or funded by the Connecticut Department of Energy and Environmental Protection (CT DEEP) that receive written approval through a formal cooperative CT DEEP intra-agency screening process. **All other stream, river and brook crossings require individual (regular) Section 401 Water Quality Certification**. **Wetland crossings are not eligible for Section 401 Water Quality Certification under GP 19. (See GP 18.)**

TABLE 1. CONNECTICUT WATER QUALITY CERTIFICATION
Water Quality Certification – Non-Tidal Waters, Wetlands, and Watercourses *
Department of the Army - General Permits for the State of Connecticut
WQC-201607149

	Self-Verification (SV) **WHERE GRANTED, APPENDIX E: SELF-VERIFICATION NOTIFICATION FORM AND PLANS ARE REQUIRED TO BE FILED WITH CT DEEP – See Appendix E for instructions**	**Pre-Construction Notification (PCN)** **WHERE GRANTED, APPLICATION TO CT DEEP IS REQUIRED – See Section 1, II. 3. (pages 2-3) of the Army Corps GP for instructions**
GP 19. Stream, River & Brook Crossings (Not Including Wetland Crossings)	Granted for stream, river, brook or other watercourse crossings using a culvert provided: • the tributary watershed to the culvert does not exceed 1 sq. mile (640 acres); • the culvert gradient (slope) is no steeper than the streambed gradient immediately upstream or downstream of the culvert, • for a crossing constructed using a single box or pipe arch culvert, the inverts are set not less than 12 inches below the streambed elevation • for a crossing constructed using multiple box or pipe arch culverts, the inverts of one of the boxes or pipe arch culverts are set not less than 12 inches below the elevation of the streambed, • for a crossing constructed using a pipe culvert, the inverts are set such that not less than 25% of the pipe diameter or 12 inches, whichever is less, is set below the streambed elevation, • the culvert is backfilled with natural substrate material matching upstream and downstream streambed substrate, • the structure, including inlet and outlet protection measures, does not otherwise impede the passage of fish and other aquatic organisms, and • the structure allows for continuous flow of the 50-year frequency storm flows	
GP 21. Temporary Fill Not Associated With Any Other GP Activities	Granted	Granted for activities that receive written approval from the Connecticut Department of Energy and Environmental Protection (CT DEEP) through a formal cooperative state interagency screening process jointly conducted by the Connecticut Department of Transportation (CT DOT) and CT DEEP. Granted for activities conducted or funded by the Connecticut Department of Energy and Environmental Protection (CT DEEP) that receive written approval through a formal cooperative CT DEEP intra-agency screening process. **Other activities with impacts exceeding 0.25 acre require individual (regular) Section 401 Water Quality Certification.**

*** ACTIVITIES NOT ELIGIBLE FOR SECTION 401 CERTIFICATION UNDER THIS GENERAL PERMIT CERTIFICATION**

The following activities are not eligible for Section 401 Water Quality Certification under this general permit certification and will require an individual (regular) Section 401 Water Quality Certification:

Detention or retention of stormwater in non-tidal waters, wetlands or watercourses including any watercourse or wetland crossing that by design or default functions to provide stormwater detention, and any construction of a stormwater detention or retention basin in non-tidal waters or wetlands.

Piping, boxing, enclosing or covering of a non-tidal watercourse for a purpose other than a driveway or roadway crossing.

Activities with direct, indirect or secondary impact(s) to: Special Wetlands[(1)], Threatened, Endangered, or Special Concern Species [(2)], Significant Natural Communities/Critical Habitats [(2)] identified by the Connecticut Natural Diversity Database.

Activities within a FEMA established floodplain that would adversely affect the hydraulic characteristics of the floodplain**[(3)].**

DEFINITIONS

(1) Special Wetlands: Include vernal pools, bogs, fens, cedar swamps, spruce swamps, calcareous seepage swamps, and wetlands that provide habitat for threatened or endangered species or species of special concern as designated by the State of Connecticut Natural Diversity Database. The following definitions for bogs, calcareous seepage wetlands, cedar swamps, fens, spruce swamps, and vernal pools apply for the purposes of this GP:

Bog: a peat accumulating wetland dominated by sphagnum moss. Typical plant species include sphagnum moss, leatherleaf, black spruce, pitcher plant and sundew.
Calcareous Seepage Swamp: a forested wetland characterized by the discharge of groundwater with a chemistry influenced by an underlying limestone geology.
Cedar Swamp: a forested wetland characterized by the presence of Northern White Cedar or Atlantic White Cedar.
Fen: a peat accumulating wetland dominated by sedges and/or ericaceous shrubs. Typical plant species include low sedges, ericaceous shrubs, sphagnum and other mosses.
Spruce Swamp: a forested wetland characterized by the presence of Red or Black Spruce.
Vernal Pool: an often temporary body of water occurring in a shallow depression of natural or human origin that fills during spring rains and snow melt and typically dries up during summer months. Vernal pools support populations of species specially adapted to reproducing in these habitats. Such species may include wood frogs, mole salamanders (*Ambystoma* sp.), fairy shrimp, fingernail clams, and other amphibians, reptiles and invertebrates. Vernal pools lack breeding populations of fish. **All vernal pools are subject to the jurisdiction of the Connecticut Department of Energy and Environmental Protection under Connecticut Water Quality Standards.**

(2) Threatened, Endangered or Special Concern Species; Significant Natural Communities/Critical Habitats: Species listed by CT DEP pursuant to Chapter 495 of the Connecticut General Statute as threatened or endangered species or species of special concern. General locations of threatened and endangered species and species of special concern, and significant natural communities/critical habitats are identified on maps published by the Connecticut Department of Energy and Environmental Protection entitled "Natural Diversity Data Base Areas" and on the CTECO Interactive Map Viewers at www.cteco.uconn.edu .

(3) **Adverse Effect to Hydraulic Characteristics:** An adverse effect to hydraulic characteristics includes an increase in flood water surface elevation, an increase in flood flow velocity or a restriction of flood flow conveyance in a manner that would impact upstream, downstream or adjacent property.

SECTION 2:
REVIEW CATEGORIES & APPLICATION PROCEDURES FOR PROJECTS WITHIN TIDAL, COASTAL AND NAVIGABLE WATERS WITHIN THE STATE OF CONNECTICUT

Connecticut's coastal area is statutorily defined as: all lands and waters within the municipalities of Greenwich, Stamford, Darien, Norwalk, Westport, Fairfield, Bridgeport, Stratford, Shelton, Milford, Borough of Woodmont, Orange, West Haven, New Haven, Hamden, North Haven, East Haven, Branford, Guilford, Madison, Clinton, Westbrook, Deep River, Chester, Essex, Borough of Fenwick, Old Saybrook, Lyme, Old Lyme, East Lyme, Waterford, New London, Montville, Norwich, Preston, Ledyard, Groton (city, Town and Long Point Borough), Mystic and Stonington (Town & Borough) [Section 22a-94(a) CGS].

Navigable Waters: Navigable waters of the United States are 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. The Connecticut River has been determined to be a navigable water of the United States. [Refer to Title 33 CFR Part 329]

I. ACTIVITIES COVERED:

- Work and structures that are located in, under or over any navigable water of the U.S. (defined at 33 CFR 329) that affect the course, location, condition, or capacity of such waters; or the excavating from or depositing material in navigable waters. (Regulated by the Corps under Section 10 of the Rivers and Harbors Act of 1899);

- The discharge of dredged or fill material into waters of the U.S. (defined at 33 CFR 328), which is regulated by the Corps under Section 404 of the Clean Water Act (CWA)

- The transportation of dredged material for the purpose of disposal in the ocean. The Corps regulates these activities under Section 103 of the Marine Protection, Research and Sanctuaries Act. See 33 CFR 324.

II. REVIEW PROCESS:

1. Connecticut Department of Energy & Environmental Protection, Office of Long Island Sound Programs (DEEP OLISP) approvals:

In order for authorizations under these GPs to be valid and before commencing any work within Corps jurisdiction, applicants are responsible for applying for and obtaining any of the following required State or local approvals (see **General Condition 1**):

Water Quality Certification (WQC) Issuance or waiver under Section 401 of the Federal CWA (33 USC Section 1341). Section 401(a)(1) of the Clean Water Act requires that applicants obtain a WQC or waiver from the state water pollution control agency (CT DEEP) or EPA for Indian reservation lands to discharge dredged or fill material into waters of the U.S.

Coastal Zone Management Consistency (CZM) - Concurrence under Section 307 of the Federal CZM Act of 1972, as amended. Section 307(c) of the CZM of 1972, as amended, requires applicants to obtain a certification or waiver from CT DEEP OLISP that the activity complies with the state's CZM program for activities affecting a state's Coastal Area.

Project proponents involving dredging/excavation and associated disposal within the Byram River must also coordinate with NY DOS directly to obtain a certification or waiver that the activity complies with NYDOS' CZM program. Also, all projects with disposal at any of the Long Island Sound Disposal Sites require NY DOS CZM consistency. Additional information can be found at their website: **http://www.dos.ny.gov/opd/programs/consistency/.**

2. Corps Authorizations:

a. Self-Verification (SV) – Applicants are not required to submit an Application or Appendix E to the Corps. Instead, DEEP OLISP will forward copies of application packages and their approvals to the Corps on a weekly basis. If the Corps determines that a project meets this category, the Corps will forward verification of eligibility to the applicant.

Eligibility Criteria
Activities in Connecticut and lands located within the boundaries of an Indian reservation may proceed without application or notification to the Corps if they:

- are subject to Corps jurisdiction
- meet the definition of Self-Verification in **Appendix A - General Permits**, and
- meet the General Conditions of the GPs

Note: Activities subject to Corps jurisdiction that are NOT regulated by the DEEP OLISP will be subject to the Pre-Construction Notification (PCN) screening requirements of the GPs as noted below.

Project proponents seeking eligibility under the SV category must comply with the General Conditions of the GPs and other federal laws such as the National Historic Preservation Act, the Endangered Species Act (ESA) and the Wild and Scenic Rivers Act. Therefore, consultation with the Corps and/or outside experts such as the State Historic Preservation Office and any appropriate Indian tribes is recommended when there is a likelihood of the presence of resources of concern.

b. Pre-Construction Notification (PCN) (notification/application and written authorization required)

Projects not eligible under the SV category of the GPs may be screened under PCN category, provided they meet the criteria.

Eligibility Criteria
Activities in Connecticut and lands located within the boundaries of an Indian reservation that meet the following criteria **require written approval from the Corps**:

- are subject to Corps jurisdiction,
- meet the definition of PCN in this Section, and
- meet the General Conditions of the GPs

3. Applying for authorization through the PCN process:

a. CT DEEP, OLISP regulated activities

Structures and Dredging Permit Applications: Applicants/agents shall submit to the Corps, a copy of the DEEP Permit Consultation Form for U.S. Army Corps of Engineers Review along with project plans. The Corps will then coordinate this information with the interagency review team (see paragraph 4 below) and then return the form to applicants/agents for their submission to DEEP OLISP.

Certificates of Permission (COPs), General Permits (GPs) and Modifications: OLISP will forward copies of application packages and approvals to the Corps. If a project is determined to meet any of the PCN activities and is complete, the Corps will coordinate these projects with the interagency review team. If the Corps determines that an Individual permit or additional information is required, the Corps will coordinate directly with the applicant/agent.

NOTE: For projects which involve dredging and open water disposal - Applicants/agents must submit requests for sampling plans to the DEEP, OLISP and the Corps simultaneously, along with other required information specific to dredging/open water disposal, a detailed open water disposal site alternative analysis, and a completed New York State, Department of State (NYS DOS) Federal Consistency Assessment Form found at http://nyswaterfronts.com/downloads/pdfs/fcaf2.pdf. Please see our website at http://www.nae.usace.army.mil/Regulatory/ for a list of all required additional information.

b. Aquaculture activities regulated by the Connecticut Department of Agriculture

This refers to marine- and land-based aquaculture activities, including associated structures regulated by the Department of Agriculture, Bureau of Aquaculture (DA/BA), Connecticut General Statutes Section 22-11h.

Applicants should apply directly to the DA/BA using the Joint Application for Aquaculture form found at: http://www.nae.usace.army.mil/reg/Permits/CT_AquacultureApplication.pdf . The DA/BA will forward a copy of the aquaculture application package to the Corps, the State of Connecticut Department of Energy & Environmental Protection's (CT DEEP) Boating Division, Marine Fisheries Division, Office of Long Island Sound Programs (OLISP), and CT DEEP, Inland Water Resources Division (IWRD) for activities impacting inland waters.

These application packages for marine-based activities will be screened by the Corps, the Federal resource agencies, and the CT DEEP, OLISP with input from the CT DEEP Boating and Marine Fisheries Divisions. Screening will also initiate review of the application by the CT DEEP OLISP for Coastal Zone Management consistency concurrence. The CT DEEP OLISP will make a determination on the completeness of the application for CZM consistency review and/or the eligibility of the activity for state aquaculture permit exemption within 30 days from the date of the screening meeting.

4. Review Procedures:

The Corps will coordinate review of all PCN activities with federal and state agencies (interagency review team), as necessary. To be eligible and subsequently authorized, an activity must meet the eligibility criteria listed above and result in no more than minimal impacts to the aquatic environment as determined by the Corps. This may require project modifications involving avoidance, minimization, and/or compensatory mitigation for unavoidable impacts to ensure the net effects of a project are minimal. Applicants are responsible for applying for the appropriate state and local approvals. Authorizations under these GPs are not valid until all required CT DEEP, OLISP authorizations are granted.

Emergency Situation Procedures: 33 CFR 325.2 (e)(4) states that an "emergency" is a situation 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 permit is not undertaken within a time period less than the normal time needed to process the application under standard procedures." Notification to the Corps is required. The Corps will determine if a project qualifies as an emergency and will work with all applicable agencies to expedite authorization in emergency situations. If the project qualifies as an emergency, authorization under these General Permits is not required.

Individual/Standard Permit Procedures: Work that is not eligible under PCN activities as described therein or that does not meet the terms and general conditions of the GPs, will require the submission of an application to the Corps for an Individual Permit (see 33 CFR Part 325.1). The applicant should submit the appropriate application form and materials at the earliest possible date. General information and application forms can be obtained at our website at **http://www.usace.army.mil/Missions/CivilWorks/RegulatoryProgramandPermits/ObtainaPermit.aspx** or by calling us. Individual WQC and CZM consistency concurrence are required, when applicable, from the State of Connecticut before Corps issuance of an individual permit. Individual Water Quality Certification must be obtained from EPA for activities on lands located within the boundaries of an Indian reservation. The Corps encourages applicants to concurrently apply for a Corps Individual Permit and state permits.

APPENDIX A – GENERAL PERMITS

GP 1. AIDS TO NAVIGATION & TEMPORARY RECREATIONAL STRUCTURES (Section 10; navigable waters of the United States)

The placement of aids to navigation and regulatory markers which are approved by and installed in accordance with the requirements of the U.S. Coast Guard (see 33 CFR, chapter I, subchapter C, part 66)

Self-Verification (SV) Eligible	**Pre-Construction Notification (PCN) Required**
Aids to navigation and regulatory markers that are not located within Corps Federal Navigation Projects (FNPs*). Temporary buoys, markers, floats, etc. for recreational use during specific events, provided they are not located within Corps FNPs **and** are removed within 30 days after use is discontinued. No structures in Submerged Aquatic Vegetation ***FNPs are comprised of Federal Channels, anchorages and turning basins. Please click on the link below for more information:** **http://www.nae.usace.army.mil/Missions/Navigation/Connecticut-Projects/**	Work not eligible for SV. Aids to navigation or temporary markers, floats, etc. that are within a Corps FNP. Temporary markers, floats, etc. that are not to be removed within 30 days.

GP 2. REPAIR OR MAINTENANCE OF EXISTING CURRENTLY SERVICEABLE, AUTHORIZED OR GRANDFATHERED* STRUCTURES & FILLS, REMOVAL OF STRUCTURES (Section 10 & 404; tidal and non-tidal waters of the U.S.) Repair, rehabilitation, or replacement of any previously authorized, currently serviceable structure, or fill, or of any currently serviceable structure or fill authorized by 33 CFR 330.3, 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 techniques, requirements of other regulatory agencies, or current construction codes or safety standards that are necessary to make the repair, rehabilitation, or replacement are authorized. Includes removal of structures and fill. **Not authorized under GP 2:** (a) Permanent impacts >1/2 acre in tidal and non-tidal waters and/or wetlands, >1000 SF in tidal Special Aquatic Site (SAS) other than vegetated shallows, or >100 SF in tidal vegetated shallows.

Self-Verification (SV) Eligible	Pre-Construction Notification (PCN) Required
≤5,000 s.f. of impacts in non-tidal waters & wetlands. No fill in tidal waters & wetlands. Bulkhead replacement via installation of new bulkhead within 18" of existing bulkhead & backfill. Drawdown of impoundment for dam/levee repair provided it does not exceed 18 months and one growing season (April through September) 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. Any bank stabilization measures not directly associated with the structure requires a separate authorization under **GP 9**. Appropriate measures must be taken to maintain normal downstream flows and minimize flooding to the maximum extent practicable, when temporary discharges, such as sandbag cofferdams, access fills, etc. are necessary for construction activities or dewatering of construction sites. Temporary fills must consist of materials and be placed in a manner, that will not be eroded by expected high flows. They must be removed in their entirety and the affected areas returned to pre-construction elevations and must be re-vegetated as appropriate. Work to previously approved tide gates with a Corps-approved operation and maintenance plan and tide gates not affecting the hydraulic regime. No impacts in Special Aquatic Sites (SAS) – see definitions. No slip lining or culvert relining that changes invert elevation. **NOTES:** 1. Removal of bridge structures in navigable waters are covered under **GP 8**, if the Coast Guard issues a bridge permit. 2. Stream, river, brook or other watercourse crossings are not eligible under **GP 2** (See **GP 19**).	Work not eligible for SV. Removal of accumulated sediments and debris in the vicinity of existing structures (e.g., bridges, culverted road crossings, water intake structures, etc.) and/or the placement of new or additional riprap, minimum necessary to protect the structure. The removal of accumulated sediment is limited to the minimum necessary to restore the waterway in the vicinity of the structure to the approximate dimensions that existed when the structure was built, but cannot extend farther than 200 feet in any direction from the structure. Excavated materials must be deposited and retained in an area that has no waters of the United States unless otherwise specifically approved by the district engineer. Drawdown of impoundment for dam/levee repair provided it does not exceed 18 months and one growing season (April through September) *Grandfather dates include work performed & structures installed before 1968 & fill placed before 1975 for Corps purposes only.

GP 3. MOORINGS (Section 10; navigable waters of the U. S.)

New private, non-commercial, non-rental, single-boat moorings & temporary moorings including moorings to facilitate construction or dredging; minor relocation of previously authorized moorings and mooring field expansions, boundary reconfigurations or modifications of previously authorized mooring fields and maintenance and replacement of moorings.

Not authorized under GP 3 are: Moorings within Federal Navigation channels.

Self-Verification (SV) Eligible	**Pre-Construction Notification (PCN) Required**
1. Private, non-commercial, non-rental, single-boat moorings and temporary moorings including moorings that facilitate construction or dredging provided: No new moorings located in Federal anchorages; No new moorings located in Special Aquatic Sites (SAS)**;** No new moorings located in shellfish beds; Authorized by local harbormaster/town; When existing, authorized moorings in SAS are going to be replaced, they shall be replaced with low impact mooring technology that prevents mooring chains from resting or dragging on the bottom substrate at all tides and helical anchors, or equivalent SAS protection systems. 2. Minor relocation of previously authorized moorings, provided: Authorized by the local harbormaster/town; Not located in SAS; Not located in Federal anchorages.	Work not eligible for SV. Moorings associated with an existing boating facility*. Private moorings without harbormaster or local approval. 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. ***Boating Facility: Facilities that provide for a fee, rent, or sell mooring space, such as marinas, yacht clubs, boat clubs, boat yards, town facilities, dockominiums, etc.*** ***Locating new individual moorings in SAS, including eelgrass, should be avoided to the maximum extent practicable. If SAS cannot be avoided, plans should show elastic mooring systems that prevent mooring chains from resting or dragging on the bottom substrate at all tides and helical anchors, or equivalent SAS protection systems, where practicable. For moorings that appear to impact SAS, the Corps may require an eelgrass survey.***

GP 4. PILE-SUPPORTED STRUCTURES & FLOATS, INCLUDING BOAT LIFTS/HOISTS & OTHER MISCELLANEOUS STRUCTURES & WORK (Section 10; navigable waters of the U.S.) New, expansions, reconfigurations or modifications of structures for navigation access including floats, stairs, and boat/float lifts.

Not authorized under GP 4 are: (a) fill or excavation; (b) no structures within Federal Navigation channels; or (c) structures associated with a NEW boating facility*.

Self-Verification (SV) Eligible	**Pre-Construction Notification (PCN) Required**
Private residential structures with a length limit not to exceed 40' beyond mean high water and to a depth of -4' mean low water and limited to 4' in width. The fixed pier component of the dock located in tidal wetlands shall be constructed such that the lowest horizontal member of the fixed pier is no lower than five (5) feet off the surface of any underlying wetland area. Floats must be supported at least 18" above the intertidal and shallow sub-tidal substrate during all tidal cycles. No structures located within Submerged Aquatic Vegetation No structures or floats can be located within the buffer zone (3x the authorized depth of the FNP) of the horizontal limits of FNPs. No structures or floats can extend across >25% of the waterway width at mean low water. No new structures within 25' of riparian property line extensions. No new structures or floats associated with boating facilities. No new pile-supported structures within Shellfish Concentration Areas as designated by the Connecticut Department of Environmental Protection, Coastal Area Management Program under CGS Sec. 22a-90 Reconfiguration of existing authorized structures; private or commercial, provided those structures do not extend beyond the existing perimeter of the facility or encroach into Special Aquatic Sites.	Work not eligible for SV. New structures within an existing boating facility, provided those structures do not extend beyond the existing perimeter of the facility. Structures or work in or affecting tidal or navigable waters that are not defined under any other GP activity. Structures that are located within 25 feet of riparian property line extensions unless the properties are owned by the same owner. If so, the Corps may require a letter of no objection from the abutter(s). ***Boating Facility: Facilities that provide for a fee, rent, or sell mooring space, such as marinas, yacht clubs, boat clubs, boat yards, town facilities, dockominiums, etc.***

GP 5. BOAT RAMPS & MARINE RAILWAYS (Sections 10 and 404; tidal and non-tidal waters of the U.S.) Activities required for the construction of boat ramps and marine railways, including excavation and fill.

Not authorized under GP 5: (a) Permanent and temporary fill >1/2 acre of non-tidal waters and/or wetlands, (b) permanent and temporary impacts >1/2 acre in tidal waters; >1000 SF in tidal SAS other than vegetated shallows, or >100 SF in tidal vegetated shallows; or (c) dredging in navigable waters of the U.S. (see GP **7**)

Self-Verification (SV) Eligible	**Pre-Construction Notification (PCN) Required**
No work in tidal waters and wetlands of the United States. ≤5,000 SF of non-tidal waters and/or wetland fill (permanent and temporary). No work April 1 through June 30 in non-tidal waters that support diadromous fish species.	Work not eligible for SV. Work occurs in tidal waters and wetlands of the United States. Boat ramps are located within 25 feet of riparian property line extensions unless the properties are owned by the same owner. If so, the Corps may require a letter of no objection from the abutter(s).

GP 6. UTILITY LINE ACTIVITIES (Sections 10 & 404; tidal & non-tidal waters of the U.S.)

Activities required for (a) The construction, maintenance, relocation, repair, & removal of utility lines, including outfall and intake structures, and the associated excavation, backfill, or bedding for utility lines; (b) The construction, maintenance or expansion of utility line substation facilities associated with a power/utility line in non-tidal waters; and (c) The construction and maintenance of foundations for overhead utility line towers, poles, and anchors 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 cause the permanent loss of greater than 1 acre of non-tidal waters of the U.S*. Impacts resulting from mechanized pushing, dragging or other similar activities that redeposit excavated soil material shall be figured into the area limit determination.

Not authorized under GP 6: (a) Permanent and temporary fill >1 acre of non-tidal waters and/or wetlands*, (b) permanent and temporary impacts >1/2 acre in tidal waters; >1000 SF in tidal Special Aquatic Sites other than vegetated shallows, or >100 SF in tidal vegetated shallows; or (c) blasting or storage of equipment in wetlands.

Self-Verification (SV) Eligible	**Pre-Construction Notification (PCN) Required**
No work in, over or under tidal waters. No outfalls. ≤5,000 SF of non-tidal waters and/or wetland fill (permanent and temporary). Intake structures that are dry hydrants used exclusively for firefighting activities with no stream impoundments. No silt producing activities from April 1 through June 30 in non-tidal waters that support diadromous fish species. **NOTE**: Construction mats of any area necessary to conduct activities do not count towards the 5,000 SF threshold and should be removed as soon as work is completed.	Work not eligible for SV. Overhead utility lines constructed over Section 10 waters and submarine utility lines that are routed in or under such waters. ***See Table 1 Connecticut Water Quality Certification (CT WQC) in Section 1 for additional details on thresholds.*** **NOTE**: Construction mats of any area necessary to conduct activities do not count towards the 1 acre threshold and should be removed as soon as work is completed.

NOTE: Temporary fills necessary to conduct the utility line activity are also allowed, provided the utility line activity is **within** Corps jurisdiction. Material resulting from trench excavation may be temporarily sidecasted into waters of the United States for no more than three months, provided the material is not placed in such a manner that it is dispersed by currents or other forces. If the utility line activity is not within Corps jurisdiction but temporary fill will be placed in Corps jurisdiction, then see **GP 21** for temporary fills, etc.

GP 7. DREDGING (Section 10; navigable waters of the U.S.), TRANSPORT &DISPOSAL OF DREDGED MATERIAL (Sections 10, 404 &103; tidal waters of the U.S.), BEACH NOURISHMENT (Sections 10 & 404; tidal waters of the U.S.); ROCK REMOVAL (Section 10, navigable waters of the U.S.) &ROCK RELOCATION (Sections 10 & 404; tidal waters of the U.S.)

New, improvement* and maintenance** dredging, including: (a) Disposal of dredged material at a confined aquatic disposal, beach nourishment, near shore, designated open water or ocean water disposal site, provided the Corps finds the dredged material to be suitable for such disposal; (b) Beach nourishment not associated with dredging; (c) Rock removal and relocation for navigation.

Not authorized under GP 7 are: (a) New dredging with >1000 SF of impacts to intertidal areas or saltmarsh or > 100 SF of impacts to vegetated shallows; (b) Maintenance dredging and/or disposal with >1/2 acre of impacts to tidal Special Aquatic Sites (SAS); (c) new dredging where the primary purpose is sand mining for beach nourishment; (d) Beach scraping; (e) Rock removal and relocation for navigation >1/2 acre; or (f) blasting.

Self-Verification (SV) Eligible	**Pre-Construction Notification (PCN) Required**
No work in non-tidal waters or wetlands. Maintenance dredging (with any amount of yardage) provided: Contained upland disposal; Proper siltation controls used & maintained to prevent runback into waterway/wetland; No impacts to SAS, intertidal areas or shellfish beds; Not located within 100' of vegetated shallows or shellfish areas; No work in the Connecticut River; and Work occurs from October 1 through January 31. Rock/boulder relocation with ≤200 SF of impacts and no impacts to SAS. No rock removal.	Work not eligible for SV. Maintenance dredging not eligible for SV; improvement dredging and new dredging. Disposal options include upland disposal, open water disposal, confined aquatic disposal cells (CAD cells), near-shore disposal or beach nourishment. ****Improvement is dredging to deeper depths in areas previously dredged or authorized.*** *****Maintenance dredging includes areas and depths previously authorized by the Corps and dredged.***

GP 8. DISCHARGES OF DREDGED OR FILL MATERIAL INCIDENTAL TO THE CONSTRUCTION OF BRIDGES (Sections 10 & 404; navigable waters of the U.S.)

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, approach fills, 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 STURRA (144h) exemption do not constitute USCG authorization.

Not authorized under GP 8 are causeways.

Self-Verification (SV) Eligible	**Pre-Construction Notification (PCN) Required**
Discharges of dredged or fill material incidental to the construction and modification of bridges. No fill in Special Aquatic Sites. No fill in the Connecticut River.	Work not eligible for SV.

GP 9. SHORELINE & BANK STABILIZATION PROJECTS (Sections 10 & 404; tidal and non-tidal waters of the U.S.) 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 or slope protection & similar structures as well as vegetative planting, soil bioengineering or alternative techniques that are a combination of the two (e.g. living shorelines), specifically for the purpose of shoreline protection. **Not authorized under GP 9 are:** (a) Bank stabilization >500 LF* in total length including both stream banks; (b) Permanent and temporary impacts >1/2 acre in tidal waters, >1000 SF in tidal Special Aquatic Sites (SAS) other than vegetated shallows, or >100 SF in tidal vegetated shallows. (c) Stream channelization or relocation activities; or (d) breakwaters, groins and jetties.

Self-Verification (SV) Eligible	**Pre-Construction Notification (PCN) Required**
Coastal shoreline & bank stabilization projects ≤200 linear feet; and other stream, river, or brook bank stabilization projects ≤200 linear feet (includes total for more than one stream bank) provided: ≤1 cubic yard of fill per linear foot placed between the high tide line (HTL) and mean low water (MLW) or ≤1 cubic yard of fill per linear foot placed waterward of ordinary high water (OHW). No discharge of fill material within SAS, including mudflats, tidal wetlands, Submerged Aquatic Vegetation and/or shellfish beds. Soft stabilization measures such as bioengineered fiber roll revetments or equivalent, shall be used wherever practicable. No vertical stone structures or embankments angled steeper than 1V: 1H. No new bulkheads. No fill within the streambed. Unconfined work, not including installation and removal of cofferdams, is limited to June 30 through September 30 in non-tidal waters supporting diadromous fish. Unconfined work, not including installation and removal of cofferdams, in other non-tidal waters is limited to the low-flow period June 1 through September 30. Work occurring behind a cofferdam may occur at any time. ***See Table 1 CT WQC in Section 1 for additional details on thresholds.***	Work not eligible for SV. The slope of the structure is steeper than 1V:3H in lakes/ponds; and 1V:1H in non-tidal streams and tidal waters and streams. Fill waterward of the HTL in coastal waters including alternative stabilization techniques that are a combination of soft and hard shoreline stabilization techniques that will affect SAS, change the natural shoreline configuration or alter natural or ecological processes. ***See Table 1 CT WQC in Section 1 for additional details on thresholds.***

GP 10. AQUATIC HABITAT RESTORATION, ESTABLISHMENT & ENHANCEMENT ACTIVITIES (Sections 10 and 404; tidal and non-tidal waters of the U.S.) Activities in waters of the United States associated with 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.

Not authorized under GP 10 are: (a) Conversions of wetlands to open water, except for the excavation of new salt pannes and (b) Artificial reefs.

Self-Verification (SV) Eligible	**Pre-Construction Notification (PCN) Required**
Special Aquatic Site planting and transplanting ≤100 SF in tidal waters. No new ditching to eliminate mosquito breeding habitat. No thin layer deposition. No fill for purposes of converting marsh to upland. Placement of seed shellfish, spatted-shell or cultch in tidal waters for the restoration or enhancement of existing, publicly-managed, recreational shellfish beds provided there is no placement in or impacts to SAS and does not result in degradation of habitat for other aquatic resources. ≤5,000 SF of non-tidal waterway and/or non-tidal wetland fill provided the activity is supported in writing by a state or non-Corps Federal environmental resource management agency. No stream channelization.	Work not eligible for SV Pro-active salt marsh restoration work that includes draining of ponded dieback areas through excavation of runnels with handheld tools or low-impact ground equipment; blocking or unclogging of historic mosquito ditches to restore tidal flushing; excavation of new salt pannes to increase shorebird and waterfowl foraging habitat and placing excavated materials on the marsh surface for establishing suitable vegetative beds. Pond or lake reestablishment or restoration. Water impoundments. Dam removals. Integrated Marsh Management in tidal wetlands for combined wetland enhancement and mosquito control and reduction.

GP 11. FISH & WILDLIFE HARVESTING ACTIVITIES (Sections 10 and 404; tidal and non-tidal waters of the U.S.) Activities in waters of the United States associated with fish and wildlife harvesting devices including pound nets, crab traps, crab dredging, eel pots, lobster traps, duck blinds, and clam and oyster digging, fish aggregating devices, and small fish attraction devices such as open water fish concentrators (sea kites, etc.).

Not authorized by GP 11 are: (a) Artificial reefs, impoundment(s) or semi-impoundment(s) of water; **(b)** Permanent and temporary impacts >1/2 acre in tidal waters, >1000 SF in tidal Special Aquatic Sites (SAS) other than vegetated shallows, or >100 SF in tidal vegetated shallows; and **(c)** Shellfish dredging, either mechanical or hydraulic in SAS.

Self-Verification (SV) Eligible	**Pre-Construction Notification (PCN) Required**
Activities associated with fish and wildlife harvesting devices including pound nets, crab traps, crab dredging, eel pots, lobster traps, duck blinds, clam and oyster digging, small fish aggregating and attraction devices such as open water fish concentrators (sea kites, etc.). No permanent impacts to SAS, including salt marshes and Submerged Aquatic Vegetation (SAV). No structures, cages or traps located in SAS.	Work not eligible for SV Devices located in tidal SAS, including salt marsh and SAV.

GP 12. OIL SPILL & HAZARDOUS MATERIAL CLEANUP (Sections 10 and 404; tidal and non-tidal waters of the U.S.): 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 activities are done under either **(i)** The Spill Prevent, Control & Countermeasure Plan require by 40 CFR 112.3; **(ii)** The direction or oversight of the Federal on-site 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 tidal waters. **d.** Use of structures & fills for spill response training exercises. Special Aquatic Sites (SAS) must be restored in place to pre-impact elevations.

Self-Verification (SV) Eligible	**Pre-Construction Notification (PCN) Required**
1. Activities that are conducted in accordance with **a.** or **b.** above. 2. Booms placed in navigable waters for hazardous and toxic waste containment, absorption and prevention, provided they are removed upon completion of the cleanup. 3. Temporary impacts for spill response training exercises are ≤5,000 SF in non-tidal waters and ≤1,000 SF in tidal waters, and temporary structures in tidal waters with no impacts to SAS and in place for ≤30 days. **Note:** For activities in non-tidal waters of the U.S., permittees have up to two weeks following commencement of these activities to submit the Self-verification form (Appendix E).	Work not eligible for SV. 1. The activity is planned or scheduled, not an emergency response, and will cause turbidity or sediment resuspension in tidal waters or streams. 2. Permanent structures or impacts for spill response training exercises.

GP 13. CLEANUP OF HAZARDOUS & TOXIC WASTE (Sections 10 and 404; tidal and non-tidal waters of the U.S.) Specific activities to effect 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*. Special Aquatic Sites must be restored in place to pre-impact elevations.

Not authorized under GP 13 are: **(a)** the establishment of new disposal sites; or **(b)** the expansion of existing sites used for the disposal of hazardous or toxic waste.

Self-Verification (SV) Eligible	**Pre-Construction Notification (PCN) Required**
Permanent and temporary impacts are ≤5,000 SF in non-tidal waters and wetlands. Booms placed in navigable waters for oil and hazardous substance containment, absorption and prevention, provided they are removed upon completion of the cleanup. **Notes:** For activities in non-tidal waters of the U.S., permittees have up to two weeks following commencement of these activities to submit the Self-verification form (Appendix E).	Work not eligible for SV. Permanent and temporary impacts are >5,000 SF in non-tidal waters and wetlands. Work in navigable waters of the U.S. other than booms placed for hazardous and toxic waste containment, absorption and prevention.

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 Clean Water Act or Section 10 of the Rivers and Harbors Act.

GP 14. SCIENTIFIC MEASUREMENT DEVICES (Sections 10 and 404; tidal and non-tidal waters of the U.S.) Scientific 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 temporary weirs and flumes constructed primarily to record water quantity and velocity provided the discharge is less than 25 cubic yards.

Not authorized under GP 14 are: (a) Permanent and temporary impacts >1 acre in non-tidal waters and wetlands; and **(b)** Permanent and temporary impacts >1/2 acre in tidal waters, >1000 SF in tidal Special Aquatic Sites (SAS) other than vegetated shallows, or >100 SF in tidal vegetated shallows.

Self-Verification (SV) Eligible	**Pre-Construction Notification (PCN) Required**
Permanent and temporary impacts are ≤1,000 SF in non-tidal waters and wetlands. No impacts in non-tidal SAS, other than non-tidal wetlands. No fill in tidal waters and/or wetlands. No impacts in tidal Submerged Aquatic Vegetation. Devices in tidal waters that do not restrict movement of aquatic organisms and will not adversely affect the course, condition or capacity of a waterway.	Work not eligible for SV.

NOTE: 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.

GP 15. SURVEY ACTIVITIES (Sections 10 and 404; tidal and non-tidal waters of the U.S.)

Survey activities such as soil borings, core sampling, seismic exploratory operations, plugging of seismic shot holes and other exploratory-type bore holes, exploratory trenching* and historic resources surveys.

Not authorized under GP 15 are: **(a)** Permanent and temporary fill >1 acre of non-tidal waters and/or wetlands, and **(b)** permanent and temporary impacts >1/2 acre in tidal waters; >1000 SF in tidal Special Aquatic Sites other than vegetated shallows or >100 SF in tidal vegetated shallows.

Self-Verification (SV) Eligible	**Pre-Construction Notification (PCN) Required**
Permanent and temporary impacts ≤5,000 SF in non-tidal waters and wetlands. No impacts, other than soil borings or core sampling, in tidal waters. No permanent structures or drilling and discharge of excavated material from test wells for oil and gas exploration allowed. **NOTE**: Construction mats of any area necessary to conduct activities do not count towards the 5,000 SF threshold and should be removed as soon as work is completed. **** For the purposes of this GP, the term "exploratory trenching" means mechanical land clearing of the upper soil profile to expose bedrock or substrate, for the purpose of mapping or sampling the exposed material.***	Work not eligible for SV. **NOTE**: Construction mats of any area necessary to conduct activities do not count towards the 1 acre threshold and should be removed as soon as work is completed.

NOTE: The area in which the exploratory trench is dug must be restored to its preconstruction elevation upon completion of the work and must not drain a water of the United States. In wetlands, the top 6 to 12 inches of the trench should normally be backfilled with topsoil from the trench.

GP 16. AQUACULTURE PROJECTS & FISHERIES (Sections 10 and 404; navigable waters of the U.S.) The installation of buoys, floats, racks, trays, nets, lines or other structures in navigable waters for the containment and cultivation of indigenous species of shellfish and seaweed/kelp. Also authorized are anchored upweller floats, small-scale shellfish hatchery seawater intake/discharge structures, and discharges of dredged or fill material associated with cultivation such as the placement of cultch or spatted-shell on bottom.

Depth of cultch or spatted-shell must comply with Special Conditions in Section 5, Part (h), items (1) through (7) of CT DEEP, General Permit for Coastal Maintenance (DEEP-OLISP-GP2015-02) and must not result in visible degradation of habitat for other aquatic resources. All structures must be permitted by State of Connecticut Navigation Safety/Boating Access Unit and marked in conformance with applicable State or U.S. Coast Guard Aids to Navigation. **NOTE: All facilities must be installed and operated in compliance with the attached Appendix C Aquaculture Conditions**

Not authorized under GP 16 are impacts to Special Aquatic Sites, including Submerged Aquatic Vegetation.

Self-Verification (SV) Eligible	**Pre-Construction Notification (PCN) Required**
Placement of seed shellfish, spatted-shell or cultch for commercial shellfish aquaculture on leased grounds when performed in compliance with the conditions in Section 5 h. of the CT DEEP General Permit for Coastal Maintenance (DEEP-OLISP-GP-2015-02). The installation of temporary (< six months) structures for research, educational or experimental aquaculture gear impacting ≤1,000 SF for indigenous species under the direct supervision of the Dept. of Agricultural, Bureau of Aquaculture provided there is no adverse effect to navigation. Suspended cages or bags located wholly below and within the footprint of an existing authorized fixed or floating structure in water depths ≤ 10 feet MLW; provided no loose lines and there is a vertical clearance of at least 2 feet between the bottom of the gear and the sea floor at mean low water. Shellfish upweller floats not to exceed 160 sf (anchored/berthed only, no piling installation), with a vertical clearance of at least 2 feet between the bottom of the gear and the sea floor at mean low water, cannot be located within the buffer of a Federal Navigation Project.	Work not eligible for SV. Vertical-drop longlines and suspended gear for the culture of shellfish or other marine organisms, such as kelp and seaweed. Cages, trays, racks, netting or other structures on the ocean bottom or floating on the water surface used to contain, cultivate or depurate shellfish. For additional information, please see "A Guide for Marine Aquaculture Permitting in Connecticut" for guidance and application materials found at: http://www.nae.usace.army.mil/Portals/74/docs/regulatory/StateGeneralPermits/CT/AquaculturePermitGuide.pdf Intake and discharge structure with a diameter ≤ 3 inches, for the withdrawal and discharge of water to support small-scale shellfish land-based hatchery with negative impact on source or discharge waters. Activities that involve a change from authorized gear for bottom culture to floating or suspended gear. Boundaries of Submerged Aquatic Vegetation may be required to be located/surveyed in the field. See Corps website for guidance: http://www.nae.usace.army.mil/Portals/74/docs/regulatory/JurisdictionalLimits/Submerged_Aquatic_Vegetation_Survey_Guidance(Updated_7-12-2016).pdf

GP 17. NEW/EXPANDED DEVELOPMENTS & RECREATIONAL FACILITIES (Section 404; non-tidal waters of the U.S.) Discharges of dredged or fill material for the construction or expansion of developments and/or recreational facilities. This GP authorizes attendant features that are necessary for the use such as parking lots, garages, and yards. Fill area includes all temporary and permanent fill, and regulated discharges associated with excavation.

Not authorized under GP 17 are: (a) Permanent impacts that are >1 acre* in non-tidal waters and wetlands; (b) Stormwater treatment or detention systems, or subsurface sewerage disposal systems in waters of the U.S.; and (c) New roadway and driveway crossings in non-tidal waters and/or wetlands. (See **GPs 18 & 19**)

Self-Verification (SV) Eligible	**Pre-Construction Notification (PCN) Required**
Permanent and temporary impacts ≤5,000 SF of non-tidal waters and/or wetlands provided no impacts to Special Aquatic Sites other than wetlands (e.g. riffle and pool stream habitat, shellfish beds). **NOTE**: Construction mats of any area necessary to conduct activities do not count towards the 5,000 SF threshold and should be removed as soon as work is completed.	Work not eligible for SV. ***See Table 1 CT WQC in Section 1 for additional details on thresholds.*** **NOTE**: Construction mats of any area necessary to conduct activities do not count towards the 1 acre threshold and should be removed as soon as work is completed.

GP 18. LINEAR TRANSPORTATION PROJECTS – WETLAND CROSSINGS ONLY (Section 404; non-tidal waters of the U.S.) Activities 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.

Not authorized under GP 18 are: (a) Permanent and temporary impacts for any single and complete project that are >1 acre* or **(b)** Stream, river, or brook crossing projects (see **GP 19**)

Self-Verification (SV) Eligible	**Pre-Construction Notification (PCN) Required**
Permanent and temporary impacts ≤5,000 SF of non-tidal wetland fill provided: No work in non-tidal Special Aquatic Sites other than wetlands. No slip lining or culvert relining that changes invert elevation. **NOTE**: Construction mats of any area necessary to conduct activities do not count towards the 5,000 SF threshold and should be removed as soon as work is completed.	Work not eligible for SV. ***See Table 1 CT WQC in Section 1 for additional details on thresholds.*** **NOTE**: Construction mats of any area necessary to conduct activities do not count towards the 1 acre threshold and should be removed as soon as work is completed.

GP 19. STREAM, RIVER & BROOK CROSSINGS (NOT INCLUDING WETLAND CROSSINGS) (Sections 10 and 404; tidal and non-tidal waters of the U.S.) Activities 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, provided that work is performed in accordance with Connecticut General Permit Stream Crossing Best Management Practices to the extent practicable - See Appendix G.

Not authorized under GP 19 are: (a) Permanent impacts for any single and complete projects that are >1 acre in non-tidal waters and wetlands*, >1/2 acre in tidal waters of the U.S., >1000 SF in tidal Special Aquatic Sites (SAS) other than vegetated shallows or >100 SF in tidal vegetated shallows; **(b)** Temporary impacts >1 acre in tidal waters, >5000 SF in tidal SAS other than vegetated shallows, or >1000 SF in vegetated shallows; or **(c)** Wetland Crossings (see **GP 18**).

Self-Verification (SV) Eligible	**Pre-Construction Notification (PCN) Required**
No impacts to tidal waters and/or wetlands. Permanent and temporary impacts ≤5,000 SF of non-tidal waters and wetlands provided for stream, river, brook crossings by means of a Bridge or Open-Bottom Structure that meets the following standards: 1. Spans at least 1.2 times the watercourse bank full width, 2. Allows for the continuous, uninterrupted flow of the 50-year frequency storm flows, and 3. No riprap is placed within or across the bed of the brook, and appurtenant stream bank stabilization does not exceed 50 feet along any upstream or downstream bank. Permanent and temporary impacts ≤5,000 SF of non-tidal waters and wetlands provided for stream, river, brook crossings by means of a culvert provided the tributary watershed to the culvert does not exceed 1 sq. mile (640 acres)***** No open trench excavation in flowing waters. Unconfined, in-stream work, not including installation and removal of cofferdams, is limited to the low-flow period, June 1 through September 30 unless CT DEEP requires different resource-driven time of year restriction. Work occurring behind a cofferdam may occur at any time. No stream relocations; no dams or dikes; no new culvert crossings of perennial streams. No slip lining or culvert relining that changes invert elevation. **NOTE**: Construction mats of any area necessary to conduct activities do not count towards the 5,000 SF threshold and should be removed as soon as work is completed. ****See Table 1 CT WQC in Section 1 for additional details on thresholds.***	Work not eligible for SV. ****See Table 1 CT WQC in Section 1 for additional details on thresholds.*** **NOTE**: Construction mats of any area necessary to conduct activities do not count towards the 1 acre threshold and should be removed as soon as work is completed.

GP 20. ENERGY GENERATION & RENEWABLE ENERGY GENERATION FACILITIES (Sections 10 and 404; tidal waters of the U.S.) & HYDROPOWER PROJECTS (Sections 10 and 404; tidal waters of the U.S.) Structures and work in navigable waters of the U.S. and discharges of dredged or fill material into tidal waters of the U.S. for the construction, expansion, modification or removal of: **(a)** Land-based renewable energy production facilities, including attendant features; **(b)** Water-based wind or hydrokinetic renewable energy generation pilot 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.

Self-Verification (SV) Eligible	**Pre-Construction Notification (PCN) Required**
Not allowed under SV.	**For land-based facilities, impacts are:** Permanent impacts ≤1/2 acre in tidal waters; or ≤ 100 SF in tidal vegetated shallows or ≤ 1,000 SF in other tidal Special Aquatic Sites (SAS). Temporary impacts ≤1 acre in tidal waters; ≤ 1,000 SF in vegetated shallows and ≤ 5,000 SF in other tidal SAS. **For water-based wind or hydrokinetic renewable energy generation pilot projects, and hydropower projects permanent and temporary impacts are:** ≤1/2 acre in tidal waters. **NOTE**: Construction mats of any area necessary to conduct activities do not count towards the 1 acre threshold and should be removed as soon as work is completed.

GP 21. TEMPORARY FILL NOT ASSOCIATED WITH ANY OTHER GP ACTIVITES
(Section 404; non-tidal waters of the U.S.) Temporary discharges, such as sandbag/earth cofferdams, access fills, etc., necessary for construction activities or dewatering of construction sites.

Not authorized under GP 21: Temporary impacts >1 acre in non-tidal waters and wetlands*

Self-Verification (SV) Eligible	**Pre-Construction Notification (PCN) Required**
Temporary impacts ≤5,000 SF of temporary non-tidal waters and/or non-tidal wetland. **NOTE**: Construction mats of any area necessary to conduct activities do not count towards the 5,000 SF threshold and should be removed as soon as work is completed.	Work not eligible for SV. ***See Table 1 CT WQC in Section 1 for additional details on thresholds.*** **NOTE**: Construction mats of any area necessary to conduct activities do not count towards the 1 acre threshold and should be removed as soon as work is completed.

APPENDIX B - GENERAL CONDITIONS

1. Other Permits. Permittees must obtain other Federal, State, or local authorizations required by law. Applicants are responsible for applying for and obtaining all required State or local approvals. Work that is not regulated by the State, but is subject to Corps jurisdiction, may be eligible for these General Permits (GPs).

2. Federal Jurisdiction.

a**.** Applicability of the GPs shall be evaluated with reference to Federal jurisdictional limits. Applicants are responsible for ensuring that the limits depicted satisfy the Federal criteria defined at 33 CFR 328 "Waters of the United States." and 33 CFR 329 "Navigable Waters of the United States"

NOTE: Waters of the U.S. include the subcategories "navigable waters of the United States." and "wetlands."

b. Pre-Construction Notification (PCN) Eligible projects require an application to the Corps which must include a delineation of wetlands, other special aquatic sites, and other waters such as lakes and ponds and perennial, intermittent, and ephemeral streams that are on the project site. Wetland delineations must be prepared in accordance with the current federal method required by the Corps. For Corps Wetland Delineation Manual, regional supplements and data sheets, and the National List of Plant Species that Occur in Wetlands, visit our website at http://www.nae.usace.army.mil/Missions/Regulatory.aspx and then click on "Jurisdiction and Wetlands". The Natural Resources Conservation Service (NRCS) publishes the current hydric soil definition, criteria and lists which can be found at http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/use/hydric/. For the Field Indicators for Identifying Hydric Soils in New England, visit: www.neiwpcc.org/hydricsoils.asp.

3. Mitigation (Avoidance, Minimization, and Compensatory Mitigation)

a. Activities must be designed and constructed to avoid and minimize adverse effects, both temporary and permanent, to waters of the United States (U.S.) to the maximum extent practicable at the project site (i.e., on site). Consideration of mitigation (avoiding, minimizing, rectifying, reducing, or compensating) is required to the extent necessary to ensure that the adverse effects to the aquatic environment are no more than minimal.

b. Applicants should consider riparian/forested buffers for stormwater management and low impact development (LID) best management practices (BMPs) to reduce impervious cover and manage stormwater to minimize impacts to the maximum extent practicable.

c. Compensatory mitigation[1] for effects to waters of the U.S., including direct, secondary and temporal[2], will generally be required for projects with permanent impacts that exceed the SV area limits, and may be required for temporary impacts that exceed the SV area limits, 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.

The Corps **Connecticut In-Lieu Fee Program** allows Corps permittees, as compensation for their project impacts to aquatic resources of the United States in Connecticut pursuant to Section 404 of the Clean Water Act, to make monetary payment *in-lieu* of permittee-responsible mitigation. Information is provided at http://www.nae.usace.army.mil/Missions/Regulatory/Mitigation.aspx >>Mitigation>>Connecticut In-Lieu Fee Program. Please note that this only applies to Corps required mitigation and additional Connecticut DEEP mitigation may be required.

4. Discretionary Authority. Notwithstanding compliance with the terms and conditions of this permit, the Corps retains discretionary authority to require an Individual Permit review based on concerns for the aquatic environment or for any other factor of the public interest [33 CFR 320.4(a)]. This authority is invoked on a case-by-case basis whenever the Corps determines that the potential consequences of the proposal warrant Individual Permit review based on the concerns stated above. This authority may be invoked for projects with

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[1] Compensatory mitigation projects provided to offset losses of aquatic resources 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

[2] Temporal loss: The time lag between the losses 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).

cumulative adverse environmental effects that are more than minimal, or if there is a special resource or concern associated with a particular project. Whenever the Corps notifies an applicant that an Individual Permit may be required, authorization under these GPs is voided and no work may be conducted until a Corps Individual Permit is obtained or until the Corps notifies the applicant that further review has demonstrated that the work may be reviewed under these GPs.

5. 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. The GPs shall not be used for piecemeal work and shall be applied to single and complete projects.

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 the Corps 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 treated together as constituting 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.

6. Corps Property and Federal Projects.

a. In addition to any authorization under these GPs, proponents must contact the Corps Real Estate Division at (978) 318-8585 for work occurring on or potentially affecting Corps properties and/or Corps-controlled easements to initiate reviews and determine what real estate instruments are necessary to perform work. Permittees may not commence work on Corps properties and/or Corps-controlled easements until they have received any required Corps real estate documents evidencing site-specific permission to work.

b. Any proposed temporary or permanent modification or use of a Federal project (including but not limited to a levee, dike, floodwall, channel, anchorage, seawall, bulkhead, jetty, wharf, pier or other work built but not necessarily owned by the United States), or any use which would obstruct or impair the usefulness of the Federal project in any manner, and/or would involve changes to the authorized Federal project's scope, purpose, and/or functioning, is not eligible for SV and will also require review and approval by the Corps pursuant to 33 USC 408. Where Section 408 is applicable, a decision on a Department of the Army general permit application will not be rendered prior to the decision on a Section 408 request.

7. National Lands. Activities that impinge upon the value of any National Wildlife Refuge, National Forest, National Marine Sanctuary or any area administered by the National Park Service, U. S. Fish and Wildlife Service (USFWS) or U.S. Forest Service are not eligible for SV.

8. Wild and Scenic Rivers. No 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. Information on Wild and Scenic Rivers 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).

As of July 15, 2016, affected rivers in Connecticut include: the West Branch of the Farmington River from Colebrook to Canton (designated river); the Eightmile River and tributaries in Salem, Lyme and East Haddam (designated river); and the Lower Farmington River from Canton to Windsor (study river – including its tributary Salmon Brook). Additional information can be found at: http://www.rivers.gov/connecticut.php

9. Historic Properties.

a. No undertaking shall cause effects (defined at 33 CFR 325 Appendix C and 36 CFR 800) on properties listed on, determined to be eligible for listing on, or potentially eligible for listing on the National Register of Historic Places[3], including previously unknown historic properties within the permit area, unless the Corps or another Federal action agency has satisfied the consultation requirements of Section 106 of the National Historic Preservation Act (NHPA). The State Historic Preservation Officer (SHPO), Tribal Historic Preservation Officer (THPO) and the National Register of Historic Places can assist with locating information on: i) previously identified historic properties; and ii) areas with potential for the presence of historic resources, which may require identification and evaluation by qualified historic preservation and/or archaeological consultants in consultation with the Corps and the SHPO and/or THPO(s).

b. For activities eligible for SV (inland projects), proponents must ensure and document that the activity will not cause effects as stated in 9(a).

c. Proponents must submit a PCN to the Corps as soon as possible if the authorized activity may cause effects as stated in 9(a) to ensure that the Corps is aware of any potential effects of the permitted activity on any historic property that the consultation requirements of Section 106 of NHPA are satisfied.

d. All PCN (inland projects): i) show notification to the SHPO and applicable THPO(s)[4] for their identification of historic properties, ii) state which historic properties may be affected by the proposed work or include a vicinity map indicating the location of the historic properties or the potential for the presence of historic properties, and iii) include any available documentation from the SHPO or THPO(s) indicating that there are or are not historic properties affected. Starting consultation early in project planning can save proponents time and money.

e. If you discover any previously unknown historic, cultural or archeological remains and artifacts while accomplishing the activity authorized by this permit, you must immediately notify the district engineer of what you have found, and to the maximum extent practicable, avoid construction activities that may affect the remains and artifacts until the required coordination has been completed. The district engineer will initiate the Federal, Tribal and state coordination required to determine if the items or remains warrant a recovery effort or if the site is eligible for listing in the National Register of Historic Places.

10. Federal Threatened and Endangered Species.

a. No activity is authorized which: a) is likely to directly or indirectly jeopardize the continued existence of any listed or proposed species or result in the destruction or adverse modification of designated or proposed critical habitat, as identified under the Federal Endangered Species Act (ESA); b) result in take of a listed species or adversely modifies designated critical habitat; or c) violates the ESA.

b. For listed species or critical habitat under U. S. Fish and Wildlife Service (USFWS) jurisdiction, a PCN is required when a proposed project may affect a listed species or designated critical habitat. To ensure compliance with the Endangered Species Act, project proponents must request an 'Official Species List' from the USFWS IPaC website http://ecos.fws.gov/ipac http://ecos.fws.gov/ipac>. This USFWS IPaC website will record the request and immediately email the list to you. Include the list with all applications. An activity is SV eligible if the Official Species List states the northern long-eared bat (NLEB) (Myotis septentrionalis) is present BUT the activity: i) will not remove trees ≥3 inches dbh; ii) is not within the "buffer" of a NLEB hibernacula or maternity roost tree; and iii) does not involve work on an existing dam, riprap or bridges.

[3] The majority of historic properties are not listed on the National Register of Historic Places and may require identification and evaluation by qualified historic preservation and/or archaeological consultants in consultation with the Corps and the SHPO and/or THPO(s).

[4] Appendix D, #3 Historic Resources, provides contact information and each tribe's "area of concern."

c. For listed species or habitat under NMFS jurisdiction, the Corps will coordinate with NMFS as appropriate for all work eligible for SV that may have an effect on listed species or habitat; therefore SV eligible project proponents are not required to check for listed species or habitat for their projects.

d. Federal applicants should follow their own procedures for complying with the requirements of the ESA. Work may be eligible for SV if another Federal agency has satisfied the requirements of Section 7 of the ESA. Upon request, permittees must provide the Corps with the appropriate documentation to demonstrate compliance with those requirements.

11. Pile Removal and Related Time of Year Restrictions

a. Derelict, degraded or abandoned piles and sheet piles in navigable waters, except for those inside of existing work footprints for piers, must be completely removed or cut and/or driven to 3 feet below the substrate to prevent interference with navigation and in some cases to remove polluting materials. Existing creosote piles in the project area that are affected by project activities should be completely removed. In areas of fine-grained substrates, piles must be removed by the direct, vibratory or clamshell pull method[5] to minimize turbidity and sedimentation impacts. Removed piles shall be disposed of in an upland location landward of MHW or OHW and not in wetlands, tidal wetlands, their substrate or mudflats.

b. Piles should either be installed between November 1 and March 15 **OR** must use a soft start each day of pile driving, building up power slowly from a low energy start-up over a period of 20-40 minutes to provide adequate time for fish and marine mammals to leave the vicinity. The buildup of power should occur in uniform stages to provide a constant increase in output. Bubble curtains can be used to reduce sound pressure levels during vibratory or impact hammer pile driving.

12. 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, through regulations must be installed and maintained at the permittee's expense on authorized facilities in navigable waters of the U.S.

c. Any structure or work that extends closer to the horizontal limits of any Corps Federal Navigation Project than a distance of three times the project's authorized depth shall be subject to removal at the owner's expense prior to any future Corps dredging or the performance of periodic hydrographic surveys. This is applicable to SV and PCN.

d. 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.

e. 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 the Corps, 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.

f. An application to the Corps is required for all work in, over or under an FNP or its buffer zone unless otherwise indicated in Appendix A.

[5] 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.

13. Federal Liability. In issuing this permit, 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 this permit; (d) design or construction deficiencies associated with the permitted work; (e) damage claims associated with any future modification, suspension, or revocation of this permit.

14. Heavy Equipment in Wetlands. Operating heavy equipment other than fixed 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 either have low ground pressure (typically <3 psi), or it shall be placed on swamp/construction/timber mats (herein referred to as "construction mats") that are adequate to support the equipment in such a way as to minimize disturbance of wetland soil and vegetation. Construction mats are to be placed in the wetland from the upland or from equipment positioned on swamp 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 Corps authorization. Similarly, the permittee may request written authorization from the Corps to waive use of mats during frozen or dry conditions. An adequate supply of spill containment equipment shall be maintained on site. Construction mats should be managed in accordance with the following construction mat best management practices:

- Mats should be in good condition to ensure proper installation, use and removal.
- Where feasible, mats should be carried and not dragged unless they are being used as a grading implement.
- Where feasible, place mats in a location that would minimize the amount needed for the wetlands crossing.
- Minimize impacts to wetland areas during installation, use, and removal.
- Install adequate erosion & sediment controls at approaches to mats to promote a smooth transition to, and minimize sediment tracking onto, swamp mats.
- In most cases, construction 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.
- Provide standard construction mat BMP details to work crews.

15. Temporary Fill.

a. Temporary fill, construction mats and corduroy roads shall be **entirely** removed as soon as they are no longer needed to construct the authorized work. Temporary fill shall be placed in its original location or disposed of at an upland site and suitably contained to prevent its subsequent erosion into waters of the U.S.

b. All temporary fill and disturbed soils shall be stabilized to prevent its 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.

c. Unconfined temporary fill authorized for discharge into waters of the U.S. shall consist of material that minimizes impacts to water quality (e.g. washed stone, stone, etc.).

d. 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.

e. Construction debris and/or deteriorated materials shall not be located in waters of the U.S.

16. Restoration of Inland Wetland Areas.

a. Upon completion of construction, all disturbed wetland areas (the disturbance of these areas must be authorized) shall be stabilized with a wetland seed mix containing only plant species native to New England and shall not contain any species listed in the "Invasive and Other Unacceptable Plant Species" Appendix D in the "New England District Compensatory Mitigation Guidance" found at http://www.nae.usace.army.mil/Portals/74/docs/regulatory/Mitigation/CompensatoryMitigationGuidance.pdf

b. The introduction or spread of invasive plant species in disturbed areas shall be controlled. If swamp or timber mats are to be used, they shall be thoroughly cleaned before re-use.

c. In areas of authorized temporary disturbance, if trees are cut they shall be cut at or above ground level and not uprooted in order to prevent disruption 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.

17. Coastal Bank Stabilization. Projects involving construction or reconstruction/maintenance of bank stabilization structures within Corps jurisdiction should be designed to minimize environmental effects, effects to neighboring properties, scour, etc. to the maximum extent practicable. For example, vertical bulkheads should only be used in situations where reflected wave energy can be tolerated. This generally eliminates bodies of water where the reflected wave energy may interfere with or impact on harbors, marinas, or other developed shore areas. A revetment is sloped and is typically employed to absorb the direct impact of waves more effectively than a vertical seawall. It typically has a less adverse effect on the beach in front of it, abutting properties and wildlife. For more information on this topic, go to the Corps Coastal Engineering Manual (supersedes the Shore Protection Manual), located at http://chl.erdc.usace.army.mil. Select "Products/ Services," "Publications." Part 5, Chapter 7-8, a (2) c.

18. Soil Erosion and Sediment Controls. Appropriate soil erosion and sediment controls must be used and maintained in effective operating condition during construction, and all exposed soil and other fills, as well as any work below the ordinary high water mark or high tide line, must be permanently stabilized at the earliest practicable date. Permittees are encourage to perform work within waters of the U.S. during periods of low-flow or no-flow, or during low tides.

19. Aquatic Life Movements & 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. Unless otherwise stated, activities impounding water in a stream require a PCN to ensure impacts to aquatic life species are avoided and minimized. All permanent and temporary crossings of waterbodies (e.g., streams, wetlands) shall be:

i. Suitably culverted, bridged, 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 culvert. Permanent and temporary crossings of wetlands shall be suitably culverted, spanned or bridged in such a manner as to preserve hydraulic and ecological connectivity between the wetlands on either side of the road.

b. To avoid adverse impacts on aquatic organisms, the low flow channel/thalweg shall remain unobstructed during periods of low flow, except when it is necessary to perform the authorized work.

c. To the maximum extent practicable, the pre-construction course, condition, capacity, and location of open waters must be maintained for each activity, including stream channelization and storm water management activities. The activity must be constructed to withstand expected high flows. The activity must 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 preconstruction course, condition, capacity, and location of open waters if it benefits the aquatic environment (e.g., stream restoration or relocation activities).

20. Discharge of Pollutants. All activities involving any discharge of pollutants 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 permit, the authorized work shall be modified to conform with these standards within 6 months of 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. Applicants may presume that state water quality standards are met with issuance of the Section 401 WQC (Applicable only to the Section 404 activity).

21. Spawning, Breeding, and Migratory Areas

a. Jurisdictional activities and impacts such as excavations, discharges of dredged or fill material, and/or suspended sediment producing activities in jurisdictional waters that provide value as fish migratory areas, fish and shellfish spawning or nursery areas, or amphibian and migratory bird breeding areas, during spawning or breeding seasons shall be avoided and minimized to the maximum extent practicable.

b. Jurisdictional activities in waters of the U.S. that provide value as breeding areas for migratory birds must be avoided to the maximum extent practicable. The permittee 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 permittee should contact the appropriate local office of the USFWS to determine if such "take" permits are required for a particular activity.

22. Storage of Seasonal Structures. Coastal structures, such as pier sections and floats, 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 mean high water (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.

23. Environmental Functions and Values. The permittee shall make every reasonable effort to carry out the construction or operation of the work authorized herein in a manner that minimizes any adverse impacts on existing fish, wildlife, and the environmental functions to the extent practicable. The permittee will discourage the establishment or spread of plant species identified as non-native invasive species by any federal or state agency.

24. Vernal Pools.

a. Only vernal pools that meet the current definition of waters of the U.S. are regulated by the Corps.

b. Direct and indirect adverse effects to all vernal pools (VPs), including their envelopes and critical terrestrial habitats (VP Management Areas), shall be avoided and minimized to the maximum extent practicable. Site clearing, grading, and construction activities associated with a regulated activity in the VP Management Area may cause these adverse effects to the VP.

c. When any regulated activities occur within 750 feet of a vernal pool, the following management practices must be followed for all work within any VP Management Area (750' of a VP's edge) *in order to qualify for SV*:

i. No disturbance within the VP Depression or VP Envelope (area within 100 feet of the VP Depression's edge)– does not apply to temporary impact associated with construction mats in previously disturbed areas of existing utility projects or linear transportation projects provided there is a Vegetation Management Plan that avoids, minimizes and mitigates impacts to aquatic resources.

ii. Maintain a minimum of 75% of the Critical Terrestrial Habitat (area within 100-750 feet of the VP Depression's edge) as unfragmented forest with at least a partly-closed canopy of overstory trees to provide shade, deep litter and woody debris;

iii. Maintain or restore forest corridors connecting wetlands and significant vernal pools;

iv. Minimize forest floor disturbance;

v. Maintain native understory vegetation and downed woody debris; and

vi. Cape Cod style-curbing or no curbing options shall be used on new roads to facilitate amphibian passage.

d. A PCN is required for any regulated activity within 750' of a vernal pool when all work within the VP Management Area does not comply with the SV requirements in (c) above. Information on directional buffers in accordance with the VP Directional Buffer Guidance document may be provided in order to demonstrate minimal impact and avoid compensation requirements. Conservation of the un-impacted area within the VP Management Area will often be required.

25. 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. Hence, swamp and timber mats shall be thoroughly cleaned before reuse.

b. Unless otherwise directed by the Corps, all applications for PCN inland projects proposing fill in Corps jurisdiction shall include an Invasive Species Control Plan. Additional information can be found at www.hort.uconn.edu/cipwg/

26. Permit/Authorization Letter On-Site. For PCN projects, 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 Corps 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 General Conditions and the authorization letter (including its drawings, plans, appendices and other attachments) and also includes 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 Corps jurisdiction.

27. Inspections. The permittee shall allow the Corps to make periodic inspections at any time deemed necessary in order to ensure that the work is being or has been performed in accordance with the terms and conditions of this permit. The Corps may also require post-construction engineering drawings for completed work or post-dredging survey drawings for any dredging work.

28. 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. This does not include maintenance of dredging projects. Maintenance dredging is subject to the review thresholds in Appendix A – General Permit #7 as well as any conditions included in a written Corps authorization. Maintenance dredging includes only those areas and depths previously authorized and dredged. Some maintenance activities may not be subject to regulation under Section 404 in accordance with 33 CFR 323.4(a) (2).

29. Property Rights. These GPs do not convey any property rights, either in real estate or material, or any exclusive privileges, nor does it authorize any injury to property or invasion of rights or any infringement of federal, state, or local laws or regulations.

30. **Transfer of GP Verifications**. When the work authorized by these GPs are still in existence at the time the property is transferred, the terms and conditions, including any special conditions, will continue to be binding on the entity or individual who received the authorization, as well as the new owner(s) of the property. If the permittee sells the property associated with a General Permit authorization, the permittee may transfer the General Permit authorization to the new owner by submitting a letter to the Corps to validate the transfer. A

copy of the General Permit 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 should be signed by both the seller and new property owner(s).

31. Modification, Suspension, and Revocation. This permit and any individual authorizations issued thereof may either be 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 United States.

32. Special Conditions. The Corps may impose other special conditions on a project authorized pursuant to this general permit that are determined necessary to minimize adverse environmental effects or based on any other factor of the public interest. These may be based on concerns from CT DEEP or a Federal resource agency. Failure to comply with all conditions of the authorization, including special conditions, will constitute a permit violation and may subject the permittee to criminal, civil, or administrative penalties and/or restoration.

33. False or Incomplete Information. If the Corps makes a determination regarding the eligibility of a project under this permit, and subsequently discovers that it has relied on false, incomplete, or inaccurate information provided by the permittee, the authorization will not be valid, and the U.S. government may institute appropriate legal proceedings.

34. Abandonment. If the permittee decides to abandon the activity authorized under this General Permit, unless such abandonment is merely the transfer of property to a third party, he/she may be required to restore the area to the satisfaction of the Corps.

35. Enforcement cases. These GPs do not apply to any existing or proposed activity in Corps jurisdiction associated with an on-going Corps or EPA enforcement action, until such time as the enforcement action is resolved or the Corps determines that the activity may proceed independently without compromising the enforcement action.

36. Duration of Authorization. These GPs expire five years from the date issued as listed at the top of the cover sheet. Activities authorized by these GPs that have either commenced (i.e., are under construction) or are under contract to commence in reliance upon this authorization will have an additional year from the expiration date to complete the work. The permittee must be able to document to the Corps' satisfaction that the project was under construction or under contract by the expiration date of these GPs. If work is not completed within the one year extended timeframe, the permittee must contact the Corps. The Corps may issue a new authorization provided the project meets the terms and conditions of the CT GPs in effect at the time.

Activities authorized under these GPs will remain authorized until the GP expires, 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 completed under the SV or PCN authorizations of these GPs will continue to be authorized after its expiration date.

JMcCarthy

Jennifer L. McCarthy
Chief, Regulatory Division

19 Aug 16

Date

APPENDIX C

GENERAL PERMIT 16 - STANDARD AQUACULTURE
TERMS AND CONDITIONS

DEPARTMENT OF THE ARMY/STATE OF CONNECTICUT

2016 Connecticut General Permit

1. Aquaculture activities under this General Permit as identified within Appendix 2, Section F are subject to the current General Permit Conditions and Requirements of the Connecticut General Permit.

2. All gear, including buoys shall be marked and maintained in a manner that will make it identifiable to the specific aquaculture project/lease.

3. Before the authorized structures are installed the project proponent **must** contact the CT DEEP Boating Division, Navigation Safety/Boating Access Unit, P.O. Box 280, 333 Ferry Road, Old Lyme, CT 06371-0280 to either obtain a waiver as to the need to install gear-area boundary marker buoys or submit a permit application and receive authorization for Regulatory Markers (Link to Regulatory Marker Permit). If CT DEEP Boating regulation does not apply, the applicant shall contact the U.S. Coast Guard (USCG), First District; Aids to Navigation Branch at 408 Atlantic Avenue, Boston, MA 02110-3350 (800-848-3942) to coordinate the proper buoy markers. The permittee shall install and maintain lights, markings and other features as the CT DEEP/USCG requires. Note: Documentation of this coordination will be necessary for existing operations that seek reconfigurations and/or new approvals for structures from the Dept. of Army and for authorizations from the CT DA/BA.

4. Gear may not be located over or within beds of submerged aquatic vegetation (SAV) such as eelgrass or turtle grass, and coastal wetlands (salt marsh), nor shall such beds or vegetated marsh areas be damaged or removed. Routine lease activity including cage maintenance, washing etc. shall not occur within 25 feet of the edge of beds of SAV.

5. All gear shall be designed and deployed in such a manner as to limit, to the greatest extent practicable, negative impacts on avian resources such as, but not limited to, shore birds, wading birds or members of the waterfowl group. This is meant to include nesting, feeding or resting activities by migratory birds identified at 50 CFR 10.13.

6. Installation of structures, their mooring tackle and lines and any attendant vessels shall not create a hazard or interfere with existing navigation uses in the waterway, and structures shall be set back from the Federal Navigation Project (FNP) a distance of at least 200 feet. A list of Connecticut FNP projects can be obtained from the U.S Army Corps of Engineers website http://www.nae.usace.army.mil/Missions/Navigation/Connecticut-Projects/

7. The right of the public to traverse or utilize the waters not physically occupied by authorized structures and/or moored vessels within the areal limits of the authorized gear perimeter shall not be impeded.

8. The placement of cultch shall comply with all of the Special Conditions in Section 5, part (h), items (1) through (7) of the Connecticut DEEP, General Permit for Coastal Maintenance (DEEP-OLISP-GP2015-02) as listed below:

   - Such placement of cultch shall only be conducted by a licensed shellfish operator in beds or areas designated for shellfishing under section 26-194 or section 26-242 of the General Statutes.

   - Such placement of cultch shall be conducted only in appropriate locations for colonization by oysters, based upon factors of salinity, water quality, water circulation patterns and substrate composition.

   - Such placement of cultch shall not be conducted in areas of tidal wetlands or submerged aquatic vegetation beds.

   - (Prior to the commencement of such placement of cultch, such licensed shellfish operator obtains all required authorizations from the Department of Agriculture Bureau of Aquaculture and Laboratory and the local shellfish commission, as applicable.

   - Prior to the commencement of such placement of cultch, such licensed shellfish operator obtains permission in writing from the owner or lessee of such shellfish bed or area.

   - Such placement of cultch shall be conducted in such a manner that it does not exceed a layer of cultch on the seafloor greater than 12” in depth.

   - Such placement of cultch shall be conducted such that the placement does not exceed 1,500 bushels per acre of seafloor.

9. The permittee shall be responsible to remove all gear and associated equipment within any leased or designated shellfish area in the event that the operator surrenders or loses the right to its use. [1]

10. The subject aquaculture activity shall not discernibly interfere with natural sedimentation and erosion processes.

11. Suspended cages or nets for the rearing or grow out of shellfish are permitted as Self Verification, provided they are located wholly below and within the footprint of an existing, authorized fixed or floating structure and provided there is a vertical clearance of at least 2 feet between the bottom of the gear and the sea floor at MLW. The structures that the gear will be adhered to must be in conformance with the structures permit for that "site."

12. Aquaculture projects authorized herein shall not interfere with public shore access at or below mean high water or interfere with the access to any riparian or littoral property.

13. The following conditions may be required as Special Conditions of an authorization to protect Federally-listed, protected sea turtles:

    a. All gear, including buoys shall be marked and maintained in a manner that will make it identifiable to the specific aquaculture project/lease.

    b. The length of the buoy line shall not exceed 23.1 feet (10% of the maximum water depth at MHHW at the lease site)

    c. The gear sites shall be visited by an attendant surface vessel at least once a week, site conditions permitting.

[1] In some situations, a performance bond may be required.

d. If any listed species of sea turtle is observed to be entangled or otherwise interacting with the facility structure, the permittee (or onboard staff) shall immediately contact the Mystic Aquarium & Institute for Exploration, Marine Mammal and Sea Turtle Stranding Program Hotline at 860-572-5955 x107 and notify the NOAA Fisheries 24-hour Hotline at (866) 755-6622. The permittee should also contact the NOAA Fisheries Protected Resources Division, Sea Turtle Stranding & Disentanglement Coordinator at (978) 282-8470 or NERStranding.staff@noaa.gov.

e. The permittee shall keep the enclosed Sea Turtle Handling and Resuscitation Requirements in a visible location on the attendant vessels at all times. If a sea turtle is entangled in the authorized aquaculture gear and comatose or inactive (but not dead), resuscitation should be attempted by following these procedures.

APPENDIX D

CONTACTS FOR CONNECTICUT GENERAL PERMIT:

1. FEDERAL

U.S. Army Corps of Engineers
New England District, Regulatory Division
696 Virginia Road
Concord, Massachusetts 01742-2751
(800) 343-4789 or (978) 318-8335
(978) 318-8303 - fax

National Park Service
North Atlantic Region
15 State Street
Boston, Massachusetts 02109
(617) 223-5203
(Wild & Scenic Rivers)

Federal Endangered Species (F&WS):
U.S. Fish and Wildlife Service
70 Commercial Street, Suite 300
Concord, New Hampshire 03301-5087
(603) 223-2541

Federal Endangered Species & EFH (NMFS)
National Marine Fisheries Service
55 Great Republic Drive
Gloucester, MA 01930
Phone: (978) 281-9102
(978) 281-9301 - fax

U.S. Environmental Protection Agency, Region I
5 Post Office Square, Suite 100
Boston, Massachusetts 02109
(617) 918-2000

Department of Agriculture
Bureau of Aquaculture
P. O. Box 97
190 Rogers Avenue
Milford, Connecticut 06460
(203) 874-0696

2. STATE OF CONNECTICUT

Department of Energy & Environmental Protection

(Coastal Projects)
Office of Long Island Sound Programs
79 Elm Street
Hartford, Connecticut 06106-5127
(860) 424-3034

(Inland Projects)
Inland Water Resources Division
79 Elm Street
Hartford, Connecticut 06106-5127
(860) 424-3019

(Mashantucket Pequot Tribal Nation)
Department of Natural Resources Protection &
Regulatory Affairs
550 Trolley Line Boulevard
P. O. Box 3202
Mashantucket, Connecticut 06338-3202

(Aquaculture Projects)
Connecticut Department of Agriculture
Bureau of Aquaculture & Laboratory
PO Box 97
Milford, CT 06460
(203) 874-0696

(State Endangered Species)
Bureau of Natural Resources
Wildlife Division
Natural Diversity Data
Base
79 Elm Street
Hartford, Connecticut 06106-5127
(860) 424-3011

3. HISTORIC RESOURCES

Tribal Historic Preservation Officers

Mashantucket Pequot Tribal Nation
Marissa Turnbull, THPO
550 Trolley Line Boulevard
P. O. Box 3202
Mashantucket, Connecticut 06338-3202
Phone (860) 396-6887
Fax (860) 396-6914

Mohegan Tribe of Indians of Connecticut
James Quinn, Tribal Historic Preservation Officer
13 Crow Hill Rd.
Uncasville, CT 06382

Mohegan Tribe of Indians of Connecticut
Compliance and Regulations Department
13 Crow Hill Road
Uncasville, CT 06382

Phone (860) 862-6393
Fax (860) 862-6395

Archaeological Information
State Historic Preservation Office
Department of Economic and Community Development
Catherine Labadia, Deputy State Historic Preservation Officer
One Constitution Plaza, 2nd Floor
Hartford, Connecticut 06103-6103
(860) 256-2800 (main)
(860) 256-2764 (direct)

4. ORGANIZATIONAL WEBSITES

U. S. Army Corps of Engineers – New England District
www.nae.usace.army.mil/missions/regulatory.aspx
U. S. Army Corps of Engineers Headquarters www.usace.army.mil (click "Services for the Public")
U.S. Environmental Protection Agency www.epa.gov/owow/wetlands/
National Marine Fisheries Service www.nmfs.noaa.gov
U.S. Fish and Wildlife Service www.fws.gov
National Park Service www.nps.gov/rivers/index.html/
Federal Emergency Management Agency www.fema.gov
Connecticut Dept. of Energy & Environmental Protection http://www.ct.gov/deep/site/default.asp
Connecticut Dept. of Agriculture, Bureau of Aquaculture & Laboratory
http://www.ct.gov/doag/cwp/view.asp?a=3768&q=451508&doagNav=
U.S. Environmental Protection Agency, Region 1 – Low Impact Development-practices and state-specific resources, including CT DEP Stormwater Quality Manual www.epa.gov/ne/topics/water/lid.html
U.S. Environmental Protection Agency – Green Infrastructure website www.epa.gov/greeninfrastructure

US Army Corps of Engineers®
New England District

Appendix E: Self-Verification Notification Form

This form is required for all **non-tidal projects in Connecticut**, but **not** required if work is done within boundaries of Mashantucket Pequot or Mohegan Tribal Lands. **Before** work commences, complete **all** fields (write "none" if applicable); attach project plans (not required for projects involving the installation of construction mats only); and any state or local approval(s); and send to:

Permits & Enforcement Branch B U.S. Army Corps of Engineers 696 Virginia Road Concord, MA 01742-2751 *or* cenae-r@usace.army.mil	*and*	CT DEEP Inland Water Resources Division 79 Elm Street Hartford, CT 06106-5127

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State or local Permit Number: _____
Date of State or local Permit: _____
State/local Project Manager: _____

Permittee: _____
Address, City, State & Zip: _____
Phone(s) and Email: _____

Contractor: _____
Address, City, State & Zip: _____
Phone(s) and Email: _____

Consultant/Engineer/Designer: _____
Address, City, State & Zip: _____
Phone(s) and Email: _____

Wetland/Soil Scientist Consultant: _____
Address, City, State & Zip: _____
Phone(s) and Email: _____

Project Location (provide detailed description & locus map): _____
_____
Address, City, State & Zip: _____
Latitude/Longitude Coordinates: _____
Waterway Name: _____
Project Purpose (include all aspects of the project including those not within Corps jurisdiction):
_____
_____
Work Description: _____
_____
_____
_____

Work will be done under the following GP(s) (check all that have associated impacts):

_____**GP. 2 - Repair or maintenance of authorized or grandfathered structures/fills**
Area of total wetland impacts: temporary _____SF permanent _____SF
Area of total waterway impacts: temporary _____SF permanent_____SF

_____**GP. 5 - Boat ramps/marine railways**
Area of total wetland impacts: temporary _____SF permanent _____SF
Area of total waterway impacts: temporary _____SF permanent_____SF

_____**GP. 6 - Utility line activities (include calculations for each single & complete crossing – attach additional sheet if necessary)**
Area of total wetland impacts: temporary _____SF permanent _____SF
Area of total waterway impacts: temporary _____SF permanent_____SF

_____**GP. 9 - Shoreline and bank stabilization projects**
Area of total wetland impacts: temporary _____SF permanent _____SF
Area of total waterway impacts: temporary _____SF permanent_____SF

_____**GP. 10 - Aquatic habitat restoration, establishment and enhancement activities**
Area of total wetland impacts: temporary _____SF permanent _____SF
Area of total waterway impacts: temporary _____SF permanent_____SF

_____**GP. 11 - Fish & wildlife harvesting, enhancement and attraction devices and activities**
Area of total wetland impacts: temporary _____SF permanent _____SF
Area of total waterway impacts: temporary _____SF permanent_____SF

_____**GP. 12 - Oil Spill and Hazardous material cleanup**
Area of total wetland impacts: temporary _____SF permanent _____SF
Area of total waterway impacts: temporary _____SF permanent_____SF

_____**GP. 13 - Cleanup of hazardous and toxic waste**
Area of total wetland impacts: temporary _____SF permanent _____SF
Area of total waterway impacts: temporary _____SF permanent_____SF

_____**GP. 14 - Scientific measurements devices**
Area of total wetland impacts: temporary _____SF permanent _____SF
Area of total waterway impacts: temporary _____SF permanent_____SF

_____**GP. 15 - Survey activities**
Area of total wetland impacts: temporary _____SF permanent _____SF
Area of total waterway impacts: temporary _____SF permanent_____SF

_____**GP. 17 - New/expanded developments & recreational facilities**
Area of total wetland impacts: temporary _____SF permanent _____SF
Area of total waterway impacts: temporary _____SF permanent_____SF

_____**GP. 18 - Linear transportation projects- wetland crossings only (include calculations for each single & complete crossing - attach additional sheet if necessary)**
Area of total wetland impacts: temporary _____SF permanent _____SF
Area of total waterway impacts: temporary _____SF permanent_____SF

_____**GP. 19 - Stream, river & brook crossings – not including wetland crossings (include calculations for each single & complete crossing – attach additional sheet if necessary)**
Area of total wetland impacts: temporary _____SF permanent _____SF
Area of total waterway impacts: temporary _____SF permanent_____SF

_____**GP. 21 - Temporary fill not associated with any other GP activities**
Area of total wetland impacts: temporary _____SF permanent _____SF
Area of total waterway impacts: temporary _____SF permanent_____SF

Does your project include any secondary effects? Yes _____ No _____
(Secondary effects include, but are not limited to non-tidal waters or wetlands drained, flooded, fragmented, or mechanically cleared resulting from a single and complete project. See Appendix F - Definitions.) If YES, describe here: _____
_____
_____
_____

Proposed Work Dates: Start: _____ Finish: _____

Your name/signature below, as permittee, confirms that your project meets the self-verification criteria and that you accept and agree to comply with the applicable terms and conditions in the Connecticut General Permits.

_____ _____
Signature of Permittee **Date**

APPENDIX F - DEFINITIONS

Artificial Reef: A structure which is constructed or placed in waters for the purpose of enhancing fishery resources and commercial and recreational fishing opportunities.

Boating facilities: These provide, rent or sell mooring space, such as marinas, boat/yacht clubs, boat yards, dockominiums, town facilities, dockominiums, etc. Not classified as boating facilities are piers shared between two abutting properties or town mooring fields that charge an equitable user fee based on the actual costs incurred.

Construction mats: Construction, 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.

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.

Currently serviceable: Useable as is or with some minor maintenance, but not so degraded as to essentially require reconstruction.

Direct effects: Effects that are caused by the activity and occur at the same time and place.

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 United States.

Discharge: The term "discharge" means any discharge of dredged or fill material into waters of the United States.

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: An ephemeral stream has 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.

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.

Expansions: Work that increases the footprint of fill, depth of basin or drainage feature, structures or floats, or slip capacity.

Fill material & discharge of fill material: These are defined at 33 CFR 323.2(e) and (f). The term fill material is defined as 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.

Federal navigation projects (FNPs): These areas are maintained by the Corps; authorized, constructed and maintained on the premise that they will be accessible and available to all on equal terms; and are comprised of Corps Federal anchorages, Federal channels and Federal turning basins. Information, including the limits, is provided at http://www.nae.usace.army.mil/Missions/Navigation.aspx

FNP Buffer Zone: The buffer zone of a Corps FNP is equal to three times the authorized depth of the FNP. For additional information see http://www.nae.usace.army.mil/Missions/Navigation/Connecticut-Projects/

Historic Property: Any prehistoric or historic district, site (including archaeological site), 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).

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.

Indirect effects: Effects that are caused by the activity and are later in time or farther removed in distance, but are still reasonably foreseeable.

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.

Living Shoreline: A term used to describe a combination of mostly naturally derived materials including plants, shell and rock or manufactured rock-like surfaces that are used along a shoreline exhibiting erosion to dissipate wave energy and to collect naturally deposited sediment.

Maintenance: Maintenance does not include any modification that changes the character, scope, or size of the original fill design.

Navigable waters of the United States: Navigable waters of the United States are 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. The Connecticut River has been determined to be a Navigable water of the United States. Refer to Title 33 CFR Part 329.

Ordinary High Water Mark (OHW): 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).

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.

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.

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 a gain in aquatic resource area.

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.

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: reestablishment and rehabilitation.

Secondary effects: These are 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 a) aquatic areas drained, flooded, fragmented, or mechanically cleared, b) fluctuating water levels in an impoundment and downstream associated with the operation of a dam, c) septic tank leaching and surface runoff from residential or commercial developments on fill, and d) leachate and runoff from a sanitary landfill located in waters of the U.S. See 40 CFR 230.11(h).

Shellfish dredging: Shellfish dredging typically consists of a net on a frame towed behind a boat to capture shellfish and leave the sediment behind. Dredges may skim the surface, utilize hydraulic jets, toothed rakes or suction apparatus.

Special aquatic sites: These include inland and saltmarsh wetlands, mud flats, vegetated shallows (submerged aquatic vegetation), 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.

Stream bed: The substrate of the stream channel between the OHW marks. 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 United States.

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.

Temporary impacts: Temporary impacts include waters of the U.S. that are temporarily filled, flooded, excavated, drained or mechanically cleared because of the regulated activity.

Tide gates: Structures such as duckbills, flap gates, manual and self-regulating tide gates, etc. that regulate or prevent upstream tidal flows.

Utility Line: Any pipe or pipeline for the transportation of any gaseous, liquid, liquescent, or slurry substance, for any purpose, and any cable, line, or wire for the transmission for any purpose of electrical energy, telephone, data, 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 and widgeon grass (*Rupiamaritima*) in marine systems (doesn't include salt marsh) as well as a number of freshwater species in rivers and lakes. Note: These areas are also commonly referred to as submerged aquatic vegetation (SAV).

Vernal pools (VPs): Vernal pools (VPs): For the purposes of these GPs, VPs are depressional wetland basins that typically go dry 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, VPs 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. VP areas are:

• Depression (includes the VP depression up to the spring or fall high water mark, and includes any vegetation growing within the depression),
• Envelope (area within 0-100 feet of the VP depression's edge), and
• Critical terrestrial habitat (area within 100-750 feet of the VP depression's edge).

The envelope and critical terrestrial habitat protect the water quality of the breeding site (e.g., providing shade, leaf litter, and coarse woody material) and support the non-larval life-cycle stages of amphibian species. Note: The Corps may determine that a waterbody should not be designated as a VP based on available evidence.

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 (not unlike a dam) and allows water to flow over the top. Weirs are commonly used to alter the flow regime of the river, prevent flooding, measure discharge and help render a river navigable.

Waters of the United States.: Waters of the United States are defined in Title 33 CFR Part 328. These waters include more than navigable waters of the U.S. and are the waters where permits are required for the discharge of dredged or fill material pursuant to Section 404 of the Clean Water Act. Waters of the U.S. include jurisdictional wetlands.

US Army Corps of Engineers ®
New England District

APPENDIX G

Connecticut General Permits
Stream Crossing Best Management Practices (BMPs)

Design and construction guidance may be found in the U.S. Forest Service stream simulation manual, "Stream Simulation: An Ecological Approach to Providing Passage for Aquatic Organisms at Road-Stream Crossings"[1]. Section 5.3.3 Headcutting Potential and 6.2 Design of the Stream-Simulation Channel Bed are particularly relevant. Sections 7.5.2.3 Construction Methods and 8.2.11 Stream-Simulation Bed Material Placement both show important steps in the project construction. Chapter 6.1 is relevant for proper alignment and construction to prevent bank erosion or streambed scour.

Permanent Crossings in Tidal Streams

These are relevant for new and replacement crossings and culvert extensions.

1. Match the velocity, depth, cross-sectional area, and substrate of the existing stream outside the crossing, if it exists, and size crossings such that they do not restrict tidal flow over the full natural tide range seaward of the crossing. The Corps will typically require a low lying property analysis to ensure flooding is not a concern.
2. Construct crossings in dry conditions.

Permanent Crossings in Non-Tidal Streams

These are relevant for new and replacement crossings and culvert extensions.

1. Span[2] streams or size culverts or pipe arches such that they are wider than bankfull width (BFW). Spans are strongly preferred as they avoid or minimize disruption to the streambed, and avoid entire streambed reconstruction and maintenance inside the culvert or pipe arch (see 4, 5 & 7 below), which may be difficult in smaller structures. The span width of bridges, box culverts and arches at bankfull elevation should be ≥1.2 times BFW where practicable. In many cases bankfull width is not necessarily interchangeable with the elevation of ordinary high water.[3]
2. Embed culverts or pipe arches below the grade of the streambed. This is not required when ledge/bedrock and/or utilities prevents embedment, in which case spans are preferred. The following depths are recommended to prevent streambed washout, and ensure compliance and long-term success:
    a. ≥ 1-2 feet for box culverts and pipe arches[4], or
    b. ≥ 1-2 feet and at least 25% for round pipe culverts.
3. Match the culvert gradient (slope) with the stream channel profile.
4. Construct crossings carrying normal flows with a natural bottom substrate within the structure matching the characteristics of the substrate in the natural stream channel and the banks

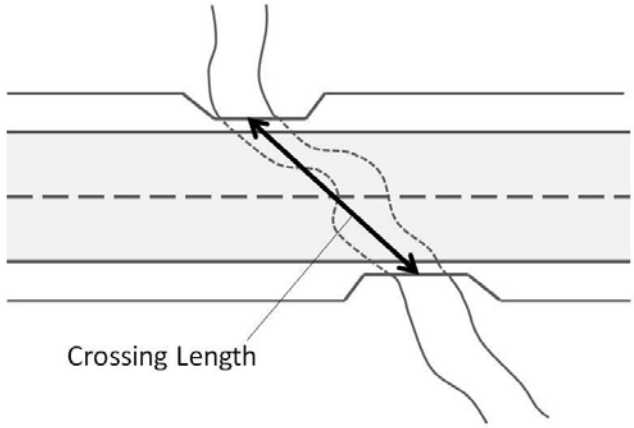
[1] www.nae.usace.army.mil/missions/regulatory.aspx >> "Stream and River Continuity."
[2] For the purposes of this GP, spans are bridges, three-sided box culverts, open-bottom culverts or arches that span the stream. The use of bridge piers or similar supports does not prevent a structure from being considered as a span.
[3] BFW corresponds with "bankfull stage" and this should be field delineated in accordance with the U.S. Forest Service documents: a) U.S. Forest Service stream simulation manual[1]; b) "Stream Channel Reference Sites: An Illustrated Guide to Field Technique[1]" (Harrelson, et al. 1994); and c) "A Guide to Identification of Bankfull Stage in the Northeastern United States".
[4] For 2(a) and 2(b), deeper embedment depths may be needed if there are elements of the constructed stream bed that are greater than 15 inches in diameter.

(mobility, slope, stability, confinement, grain and rock size) at the time of construction and over time as the structure has had the opportunity to pass substantial high flow events.

5. Construct crossings with appropriate bed forms and streambed characteristics so that water depths and velocities are comparable to those found in the natural channel at a variety of flows at the time of construction and over time. In order to provide appropriate water depths and velocities at a variety of flows and especially low flows, it is usually necessary to reconstruct the streambed (sometimes including a low flow channel), or replicate or preserve the natural channel within the structure. Otherwise, the width of the structure needed to accommodate higher flows will create conditions that are too shallow at low flows. The grain and rock size, and arrangement of streambed materials within the structure should be in accordance with (4) above. Flows could go subsurface within the structure if only large material is used without smaller material filling the voids.

6. Openness> 0.82 feet (0.25 meters)

Openness is the cross-sectional area of a structure opening divided by its crossing length when measured in consistent units (e.g. feet). For a box culvert, openness = (height x width)/ length.



For crossing structures with multiple cells or barrels, openness is calculated separately for each cell or barrel. At least one cell or barrel must meet the appropriate openness standard. The embedded portion of a culvert is not included in the calculation of cross-sectional area for determining openness.[5]

Openness > 0.82 feet is recommended to make the structure more likely to pass small, riverine wildlife such as turtles, mink, muskrat and otter that may tend to avoid structures that appear too constricted. This openness standard is too small to accommodate large wildlife such as deer, bear, and moose. Structures that meet this openness standard are much more likely than traditional culverts to pass flood flows and woody debris that would otherwise obstruct water passage. It is likely that most structures that meet all the other general standards will also meet this openness standard. However, for some very long structures it may be impractical or impossible to meet this standard.

7. Construct banks on each side of the stream inside the span that match the horizontal profile of the existing stream and banks outside the span. To prevent failure, all constructed banks should have a height to width ratio of no greater than 1:1.5 (vertical:horizontal) unless the stream is naturally incised. Tie the banks into the up and downstream banks and configure them to be stable during expected high flows. Use materials that match the up and downstream banks (avoid the use of angular riprap and armored slopes, except where necessary for structural reasons, in which case they should be top-dressed with natural stream bed material). Construct a wildlife shelf on at least one of the banks. The constructed banks (with a wildlife shelf) will allow for terrestrial passage for wildlife and prevent flow from being focused to one side and

[5] An Openness Ratio Spreadsheet shows how to calculate the open area for embedded pipe culverts to meet the 0.82 standard for openness. See www.nae.usace.army.mil/missions/regulatory.aspx >> Stream and River Continuity.

scouring the bed, especially against the structure's sidewall which may undermine the footings in the case of spans.

Temporary Crossings in Non-Tidal Streams

Temporary crossings shall consist of spans, culverts, construction mats or fords designed and constructed as follows:

1. All temporary crossings:
    a. Impacts to the streambed or banks require restoration to their original condition (see U.S. Forest Service stream simulation manual referenced on page 1 of this document for stream simulation restoration methods). Use geotextile fabric or other appropriate bedding for stream beds and approaches where practicable to ensure restoration to the original grade.
    b. Avoid excavating the stream or embedding crossings.
2. Culverts:
    a. Install energy dissipating devices downstream if necessary to prevent scour.
3. Stream fords: Equipment may ford streams when: it is not feasible to construct a span or culvert (e.g., streams having no or low banks, emergency situations); the natural stream bed and banks consist of ledge, rock or sand that prevents disturbance and turbidity; and there is a stable, gradual approach.
4. Spans: Anchor spans where practicable so they do not wash out during high water.
5. Construction mats: Build construction mat stream crossings in accordance with the Construction Mat BMPs, specifically the Wetland/Stream Channel Crossing section. See www.nae.usace.army.mil/missions/regulatory.aspx >> State General Permits >> Connecticut General Permit Documents.

SECTION 01100
SPECIAL PROVISIONS

PART 1 - GENERAL

1.01 GENERAL OBLIGATIONS OF THE CONTRACTOR

A. General obligations of the Contractor shall be as set forth in the Contract Documents. Unless special payment is specifically provided in the Bid Form, all incidental work and expense in connection with the completion of work under the Contract will be considered a subsidiary obligation of the Contractor and all such costs shall be included in the appropriate item in the Bid Form in connection with which the costs are incurred.

1.02 SITE INVESTIGATION

A. The Contractor shall satisfy himself/herself as to the conditions existing within the project area, the type of equipment required to perform the work, the character, quality and quantity of the subsurface materials to be encountered insofar as this information is reasonably ascertainable from an inspection of the site, as well as from information presented by the Drawings and related Sections. Any failure of the Contractor to acquaint himself/herself with the available information will not relieve him/her from the responsibility for estimating properly the difficulty or cost of successfully performing the work. The Owner assumes no responsibility for any conclusions or interpretation made by the Contractor on the basis of the information made available by the Owner.

1.03 COORDINATION WITH LOCAL AGENCIES

A. Supply the Owner with the following information.

1. Areas where approved detours are in effect.
2. Immediate notification of any sewer, drain, gas, or water main breaks.
3. Immediate notification of any damage to the dam, outlets, or other appurtenant structures that could result in a sudden uncontrolled release of water from the reservoir.

1.04 PUBLIC UTILITIES

A. Call Before You Dig

1. Notify Call Before You Dig at 1-800-922-4455 at least 72 hours before digging, trenching, blasting, demolishing, boring, grading, landscaping, or other earth moving operations in any public ways, rights of way and easements.

B. Utility Conflicts - General

1. Relocation of existing utilities are required to address known conflicts where shown on the Drawings. Where the relocation can be performed by the Contractor's forces, the Work shall be performed in a timely manner to avoid delays. Where the relocation of the utility must be performed by others, the Contractor shall coordinate this work with the utility company and make all arrangements with the utility company with respect to relocating their utilities and schedule his work to avoid any delays. This may require moving the operation to another portion of the work. The Contractor shall have no claim for delay associated with addressing utility relocations.

2. The Contractor shall exercise extreme caution when excavating in the vicinity of utility structures to avoid any damage. The Contractor shall be responsible for coordinating and scheduling all aspects of work required by private utilities during construction, including the relocation, the protection and the support of utility infrastructures.

3. Any damage to the utility structures that is a result of the Contractor's actions shall be the responsibility of the Contractor.

4. During the Construction of this project, other Utility Companies including CNG, SNET, etc., may have their contractors working within the limits of this project for removing and installing utilities. The Contractor shall be responsible for coordinating his work with other contractors working within the limits of the project.

5. Comply with requirements of private utility companies when working in the area of their utilities.

C. Private Storm Drains; Private Sanitary Services; Water, Gas, and Electrical Services; Overhead Utilities and Other Utility Services.

1. Not all of the private storm drains; private sanitary services; water, gas, and electrical services; overhead utilities and other utilities are shown on the Contract Drawings. The Contractor shall have these services located prior to making any excavation. All services shall be protected from damage, and shall be reconnected or be repaired by the Contractor at no additional cost to the Owner. The Contractor shall pay particular attention to safety issues relating to electrical facilities, both overhead and underground.

1.05 TEST PITS

A. Test pits for the purpose of locating underground pipelines or structures in advance of the construction shall be excavated and backfilled in accordance with Section 02200. Test pits shall be properly backfilled immediately after their purpose has been satisfied and the surface restored and maintained, as specified in Section 02200.

B. Test pits shall be as small as possible while maintaining worker safety. Hand excavation will be required within two feet of any utility.

1.06 PERMITS

A. The Contractor shall obtain all necessary permits required for proper execution of the project. Fill out all forms and furnish all drawings required to obtain the permits. A copy of each permit shall be submitted to the Owner. All fees associated with these permits shall be paid by the Contractor as part of the work. Work shall not commence on any phase of the work requiring a permit until the permit is obtained. Refer to Section 01060 for more information related to permits and requirements.

B. Where required, the Contractor shall obtain required street opening permits for excavations within streets or sidewalk areas.

PART 2 – PRODUCTS

This Section Not Used

PART 3 – EXECUTION

This Section Not Used

PART 4 - MEASUREMENT AND PAYMENT

No separate measurement or payment will be made for this section.

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

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SECTION 01110
ENVIRONMENTAL PROTECTION PROCEDURES

PART 1 - GENERAL

1.01 SCOPE OF WORK

A. The work covered by this Section consists of furnishing all labor, materials and equipment and performing all work required for the prevention of environmental pollution in conformance with applicable laws and regulations, during, and as the result of construction operations under this Contract. For the purpose of this Specification, environmental pollution is defined as the presence of chemical, physical, or biological elements or agents which adversely affect human health or welfare; unfavorably alter ecological balances of importance to human life; or degrade the utility of the environment for aesthetic and recreational purposes.

B. The control of environmental pollution requires consideration of air, water and land, and involves management of noise and solid waste, as well as other pollutants.

C. Schedule and conduct work in a manner that will minimize the erosion of soils in the area of the work and mitigate siltation to reservoirs, wetlands, and water courses. Provide erosion control measures such as diversion channels, sedimentation or filtration systems, berms, staked straw bales, and seeding, mulching or other special surface treatments as required to prevent silting and muddying of streams, rivers, impoundments, etc. All erosion control measures shall be in place in an area prior to any construction activity in that area.

D. These Specifications are intended to ensure that construction is achieved with a minimum of disturbance to the existing ecological balance between a water resource and its surroundings.

1.02 RELATED WORK

A. The following is a list of related work items that shall be performed or furnished under other sections of these specifications as indicated:

1. Regulatory Requirements – Section 01060
2. Special Provisions – Section 01100
3. Temporary Erosion and Sedimentation Controls – Section 01560
4. Temporary Dewatering and Water Control – Section 01565

1.03 APPLICABLE REGULATIONS

A. Comply with all applicable Federal, State and local laws and regulations concerning environmental pollutant control and abatement.

B. Secure all applicable construction related permits not already secured by the Owner or its Design Engineer.

C. The Contractor shall be responsible for identifying all required permits for the work covered under this Contract.

D. At a minimum, comply with requirements set forth by the US Environmental Protection Agency, US Army Corps of Engineers, Connecticut Department of Energy & Environmental Protection, and any Local authorities.

1.04 IMPLEMENTATION

A. Prior to commencement of the work meet with the Owner to develop mutual understanding relative to compliance with these provisions and administration of the environmental pollution control program. Furnish to the Owner detailed plans, specifications, calculations, and other information as may be required to clearly show Contractor's proposed methods for meeting the requirements of these Specifications.

B. Remove temporary environmental control features as needed and incorporate permanent control features into the project at the earliest practicable time.

C. Compliance with the provisions of this Section by subcontractors shall be the responsibility of the Contractor.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Sedimentation and Erosion Control is included in Section 01560.

PART 3 - EXECUTION

3.01 EROSION CONTROL

A. Provide positive means of erosion control such as shallow ditches around construction areas to carry off surface water. Water shall be diverted to channels upstream of siltation barriers. Flow of surface water into excavated areas shall be prevented. At the completion of the work, ditches shall be backfilled and the ground surface restored to original condition. Refer to Section 01560 for additional information.

B. Sufficient precautions shall be taken during construction to minimize the run-off of polluting substances such as silt, clay, fuels, oils, bitumens, calcium chloride, or other polluting materials harmful to humans, fish, or other life, into the supplies and

surface waters of the State. Control measures must be adequate to assure that turbidity in the receiving water will not be increased more than 10 Formazin Turbidity Units (FTU), or as otherwise required by the State or other controlling body, in waters used for public water supply or fish unless limits have been established for the particular water. In surface water used for other purposes, the turbidity must not exceed 25 FTU. Special precautions shall be taken in the use of construction equipment to prevent operations which promote erosion. In cross-slope areas when excavating in wetlands or flood plain, the excavated material shall be placed on the uphill side of the trench so that the trench serves as a barrier between the excavated material and the wetland or flood plain.

3.02 PROTECTION OF STREAMS

A. Care should be taken to prevent, or reduce to a minimum, any damage to any stream from pollution by debris, sediment or other material, or from the manipulation of equipment and/or materials in or near such streams. Water that has been used for washing or processing, or that contains oils or sediments that will reduce the quality of the water in the stream shall not be directly returned to the stream. Such waters shall be diverted through a settling basin, filter, or other treatment process as may be appropriate and as directed by the Owner before being directed into the streams.

B. Do not discharge water from dewatering operations directly into any live or intermittent stream, channel, wetlands, surface water or any storm sewer. Water from dewatering operations shall be treated by filtration, settling basins, or other approved method to reduce the amount of sediment contained in the water to allowable levels.

C. All preventative measures shall be taken to avoid spillage of petroleum products and other pollutants. In the event of any spillage, prompt remedial action should be taken in accordance with the Contractor's contingency action plan.

3.03 PROTECTION OF LAND RESOURCES

A. It is intended that the land resources within the project boundaries and outside the limits of permanent work performed under this Contract be preserved in their present condition or be restored to a condition after completion of construction that will appear to be natural and not detract from the appearance of the project. Insofar as possible, confine construction activities to areas shown on the Drawings.

B. Except within areas bounded by construction easement lines as shown on the Drawings, do not deface, injure, or destroy trees or shrubs, nor remove or cut them without special authority. No ropes, cables, or guys shall be fastened to or attached to any existing nearby trees for anchorage unless specifically authorized by the Owner. Where such special emergency use is permitted, first adequately wrap the trunk with a sufficient thickness of burlap or rags over which softwood cleats shall be tied before any rope, cable, or wire is placed. The Contractor shall be responsible for any damage resulting from such use.

C. Where trees may possibly be defaced, bruised, injured, or otherwise damaged by the Contractor's equipment or by dumping or other operations, protect adequately such trees by placing boards, planks, or poles around them. Monuments and markers shall be protected similarly before beginning operations near them.

D. The location of the Contractor's storage, and other construction buildings, required temporarily in the performance of the work, shall be upon cleared portions of the job site and shall require written approval of the Owner. The preservation of the landscape shall be an imperative consideration of buildings. Plans showing storage facilities shall be submitted for review and approval of the Owner.

E. Eliminate all signs of temporary construction facilities such as haul roads, work areas, structures, foundations of temporary structures, stockpiles of excess or waste materials, or any other vestiges of construction as directed by the Owner. Excavation, filling and plowing of roadways will be required to restore the area to near natural conditions which will permit the growth of vegetation thereon. The disturbed areas shall be prepared and seeded as described in Section 02930, or as approved by the Owner.

F. All debris and excess material shall be disposed of outside wetland or floodplain areas in an environmentally sound manner.

3.04 PROTECTION OF AIR RESOURCES

A. Burning at the project site for the disposal of refuse, debris or other materials is not allowed.

B. Maintain all excavations, embankments, stockpiles, access roads, plant sites, waste areas, borrow areas, and all other work areas within or outside the project boundaries free from dust which would cause a hazard or nuisance to others.

C. Approved temporary stabilization methods consisting of sprinkling, chemical treatment, light bituminous treatment or similar methods will be permitted to control dust.

D. Sprinkling, to be approved, must be repeated at such intervals as to keep all parts of the disturbed area at least damp at all times, and have sufficient competent equipment on the job to accomplish this if sprinkling is used. Dust control shall be performed as the work proceeds and whenever a dust nuisance or hazard occurs.

E. Maintain equipment, including mufflers and air pollution control devices, and keep them all in proper working order.

3.05 NOISE CONTROL

A. Make every effort to minimize noises caused by the construction operations. Equipment shall be equipped with silencers or mufflers designed to operate with the

least possible noise in compliance with Federal and State regulations.

3.06 MAINTENANCE OF POLLUTION CONTROL FACILITIES DURING CONSTRUCTION

A. During the life of this Contract maintain all facilities constructed for pollution control under this Contract as long as the operations creating the particular pollutant are being carried out or until the material concerned has become stabilized to the extent that pollution is no longer being created.

3.07 PROTECTION OF WETLANDS

A. The following specifications shall apply within the wetland limits shown on the Drawings, as well as any additional area determined by the Owner.

B. Material excavation from the Work shall be stockpiled on the upland side.

C. Wetland topsoil shall be separated from remainder of excavated material and used in the restoration of the surface of the excavated area. The surface shall be restored to pre-construction elevation. No mound shall be created, nor shall fill be placed on the surface.

D. No loaming, seeding, or turf establishment will be permitted in wetland areas unless there is a shortage of stockpiled wetland topsoil.

E. Construction of new access roads in wetland areas is prohibited.

F. Storage of equipment, construction material, or excavation material in wetland areas is prohibited except as required for completion of work within wetlands.

3.08 POLLUTION CONTROL

A. Provide methods, means and facilities required to prevent contamination of soil, water or atmosphere by the discharge of noxious substances from construction operations.

B. Provide equipment and personnel, perform emergency measures required to contain any spillages, and to remove contaminated soils or liquids.

1. Excavate and legally dispose of any contaminated earth off-site, and replace with suitable compacted fill and topsoil.

C. Care shall be taken to prevent, or reduce to a minimum, damage to any water resource from pollution by debris, sediment or other material, or from the manipulation of equipment and/or materials in or near such waters. Water that has been used for washing or processing, or that contains oils or sediments that will reduce water quality shall be diverted through a settling basin or filter before being discharged.

D. No materials shall be dispersed or stockpiled in any wetland area. No excavated

materials or materials to be used in backfilling shall be deposited within 100 feet of any watercourse, wetland area, or drainage facility without prior approval from the Owner and regulatory agencies.

E. The storage of fuel oil and refueling of equipment shall be restricted to designated areas approved by the Owner and appropriate regulatory agencies.

F. Contractor shall not locate his storage of equipment and materials within 100 feet of wetland boundaries, floodplains, or water supply reservoirs.

G. All debris and excess material will be disposed of outside the boundaries of wetland or floodplain areas in an environmentally sound manner as determined by the federal, state, and local regulations.

H. Take special measures to prevent harmful substances from entering public waters.

1. Prevent disposal of wastes, effluents, chemicals, or other such substances adjacent to streams, or in sanitary or storm sewers.

2. Provide systems for control of atmospheric pollutants.

3. Prevent toxic concentrations of chemicals.

4. Prevent harmful dispersal of pollutants into the atmosphere.

I. All Contractor's equipment used during construction shall conform to all current federal, state and local laws and regulations.

3.09 SIGNIFICANTLY IMPORTANT ARCHAEOLOGICAL AREAS

A. For the Contractor's information, the Owner has no information suggesting that the Project site is of archaeological significance.

B. Should the Contractor or Owner discover evidence of remains or other items of archaeological significance, Contractor shall report these findings to the local police department, and shall exercise the utmost care to ensure that these areas remain undisturbed. Contractor shall allow recovery of such finds by the authorities, shall not remove such artifacts under penalty of law, and shall prevent construction or private vehicles from crossing over these areas. In addition, when directed by the Owner, cover these areas with a 1-foot thickness of common fill to the limits directed by the Owner.

PART 4 - MEASUREMENT AND PAYMENT

No separate measurement or payment will be made for this section.

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

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SECTION 01200
PROJECT COORDINATION AND MEETINGS

PART I – GENERAL

1.01 SUMMARY

A. The Contractor shall attend meetings prior to and during execution of the Work, as necessary to facilitate the smooth and orderly execution of the Work. All meetings will be held at a location designated by the Owner and/or Engineering Consultant.

B. The Contractor shall conduct daily site safety briefings as necessary for Contractor and Subcontractor employees working the site.

C. All meetings with the Owner and/or Engineering Consultant shall be attended by the Contractor's Superintendent and other personnel having authority to legally bind Contractor to issues discussed and resolved during the meetings. The Contractor's subcontractor(s) may also be required to attend such meetings. Subcontractor attendance shall be at the discretion of the Engineering Consultant.

D. Formal meetings that require attendance by the Contractor are as follows:

1. Pre-construction conference
2. Pre-construction visit by permitting authorities having jurisdiction
3. Weekly progress and coordination meetings (if/as scheduled)
4. Other special meetings
5. Final walkthrough by local permitting authorities having jurisdiction
6. Punch-list meeting
7. Final closeout

1.02 PRE-CONSTRUCTION CONFERENCE

The Contractor shall not commence Work at the Site until a pre-construction conference has been held at the Site or another mutually agreed on location at which representatives of the Contractor, Engineering Consultant, regulatory entities, and Owner are present. The pre-construction conference(s) will be arranged by the Owner or his agent and is intended to establish lines of communication between the parties involved, establish project schedules, discuss proposed performance methods, and coordinate Work to be performed by subcontractors. The time and place of the pre-construction conference(s) shall be determined after the Contract has been executed by the Contractor and the Owner.

1.03 WEEKLY PROGRESS MEETINGS

A. The Contractor and all Subcontractors shall be required to attend a Weekly Progress Meeting conducted by the Owner and/or Engineering Consultant at the work site. The purpose of these meetings is to coordinate the efforts of all Contractors and to update the Owner with respect to progress, and resolve outstanding issues.

B. Weekly Progress Meetings will be held at a time to be determined by the Owner or his agent.

C. The Contractor shall be prepared to discuss progress, resolutions to problems and anticipated problems that could delay timely completion of the work. The Contractor shall bring to each meeting: updated schedule, daily work summaries, safety meeting minutes, daily progress reports and other pertinent information as requested by the Owner.

D. The Engineering Consultant will record the meeting minutes and distribute them to the Contractor, Subcontractors and Attendees.

E. The Owner and/or Engineering Consultant may waive the Weekly Progress Meetings individually if appropriate.

1.04 SPECIAL MEETINGS

A. From time to time, the Contractor shall be required to attend Special Meetings on site as requested by the Owner and/or Engineering Consultant. The purpose of these meetings is to address Contractor and/or his Subcontractor's performance, schedule, change orders, modifications, alternatives, substitutions, safety, payment or other issues as they relate to the Work. Special meetings may also include meetings with regulatory agencies or others.

1.05 PUNCHLIST MEETING

A. Upon substantial completion of the project, the Contractor shall attend a "punch list" meeting with the Owner and their Engineering Consultant. The purpose of this meeting will be to discuss and list all items which require additional attention or work by the Contractor prior to final acceptance. A "punch list" memo will be produced by the Owner following this meeting and provided to the Contractor.

1.06 CLOSEOUT (FINAL ACCEPTANCE) MEETING

A. Upon resolution of all items listed on the "punch list", the Contractor shall meet with the Owner and the Engineering Consultant at the project site to verify completion such that the Owner can issue final acceptance. At this meeting the Contractor shall provide to the Owner with all outstanding documentation, records, spares, maintenance items, or other information and materials.

1.07 JOB SITE ADMINISTRATION

A. The Contractor shall keep a competent and authorized supervisory representative at the project location during all working hours who shall act as the agent of the Contractor. The supervisory representative's responsibilities shall include ensuring all issues/questions raised by the Owner and/or Engineering Consultant are addressed in a timely fashion.

B. The supervisory representative shall be a competent superintendent capable of reading and thoroughly understanding the Drawings and Specifications, with full authority to fulfill the Contractor's duties and responsibilities on the job. If, in the opinion of the Owner and/or Engineering Consultant, the supervisory representative, or any of his successors is incompetent, or otherwise not satisfactory, then the Contractor shall replace him upon written request by the Owner.

C. The Contractor shall only employ competent workmen on the job who have received training applicable to the nature and extent of the work they are employed to perform. Whenever the Owner notifies the Contractor in writing that, in his opinion, any workmen on the job, whether employed by the Contractor or any of his subcontractors, is incompetent, unfaithful, disorderly, or otherwise unsatisfactory, such workmen shall be discharged from the contract Work and shall not be employed on it, except with the written consent of the Owner.

1.08 SUBMITTALS

A. Within five (5) days of the Notice to Proceed, the Contractor shall submit the names and contact information for the following persons involved with the Work of the Contract. Contact information shall include cell phone and home phone numbers and an e-mail address.

1. Owner of Chief Executive of Prime Contracting Company

2. Contractor's Project Manager

3. Contractor's Site Superintendent

4. Contractor's Safety Officer

5. Contractor's Environmental Compliance Responsible Party

PART 2 – PRODUCTS

Not Used

PART 3 - EXECUTION

Not Used

PART 4 – MEASUREMENT AND PAYMENT

No separate payment will be made for this Section.

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

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SECTION 01300
SUBMITTALS

PART 1 - GENERAL

1.01 DESCRIPTION

A. This section specifies the general requirements and procedures for preparing and transmitting data to the Engineer and the Owner for information or review. Required submittals are specified herein as well as under applicable sections of the Contract Specifications.

B. All submittals shall be clearly identified by reference to Section Number, Paragraph, Drawing Number or Detail as applicable. Submittals shall be clear and legible and of sufficient size for presentation of data.

1.02 CONTRACTOR'S DRAWINGS

A. The Contract Plans and these Specifications show the general arrangement and such details as are necessary to provide a description of the work to be performed.

B. Shop drawings as specified in individual Sections include, custom-prepared data such as fabrication and erection/installation (working) drawings, scheduled information, setting diagrams, actual shop work manufacturing instructions, custom templates, special wiring diagrams, coordination drawings, individual system or equipment inspection and test reports including performance curves and certifications, as applicable to the work.

C. The Contractor shall prepare shop and working drawings, for temporary and permanent work as required under the applicable sections of the Contract Specifications, complete with all relevant calculations, descriptions, technical and performance data, as necessary to adequately perform the work. The Contractor shall take responsibility for such drawings and for the safe and successful construction of the work.

D. Shop drawings shall be presented in a clear and thorough manner, complete with respect to dimensions, design criteria, materials of construction, and like information to enable Consultant to review information as required.

E. Sheet size: 8½ x 11 inches or larger, as required. Typically, significant shop drawings shall be 24” x 36”.

1.03 CONSTRUCTION SCHEDULES

A. Submit three (3) copies of overall project schedule no later than eight (8) working days after Notice to Proceed.

B. Construction schedules shall be updated and re-submitted to the Engineer and Owner as required.

1.04 SAMPLES

A. Samples specified in individual Sections include, physical examples of the work such as sections of manufactured or fabricated work, small cuts or containers of materials, complete units of repetitively-used products, color/texture/pattern swatches and range sets, specimens for coordination of visual effect, graphic symbols and units of work to be used by the Engineer or Owner for independent inspection and testing, as applicable to the work.

B. Any samples shall be clearly identified as to material, manufacturer, any pertinent catalog numbers, and use for which intended, and shall be of sufficient size and quantity to clearly illustrate functional characteristics of item, with integrally related parts and attachment devices.

1.05 PRODUCT DATA

A. Product data as specified in individual Sections include, standard prepared data for manufactured products (sometimes referred to as catalog data or catalog cut sheets), such as the manufacturer's product specification and installation instructions, availability of colors and patterns, manufacturer's printed statements of compliances and applicability, roughing-in diagrams and templates, catalog cuts, product photographs, standard wiring diagrams, printed performance curves and operational-range diagrams, production or quality control inspection and test reports and certifications, mill reports, product operating and maintenance instructions and recommended spare-parts listing and printed product warranties, as applicable to the work.

1.06 RELATED WORK SPECIFIED ELSEWHERE

A. Required submittals are listed under the relevant Section of the Contract and Specifications. It shall be the Contractor’s responsibility to read each Section and provide the submittal(s) required therein.

1.07 CONTRACTOR RESPONSIBILITIES

A. Review shop drawings, product data and samples, including those by subcontractors, prior to submission to determine and verify the following:

1. Field measurements.
2. Field construction criteria.
3. Catalog numbers and similar data.
4. Conformance to specifications.

B. Coordinate each submittal with requirements of work and of Contract Documents.

C. Notify Consultant and Owner in writing, at time of submission, of any deviations in submittals from requirements of Contract Documents. Any such deviations permitted by

Owner will require modifications to the Contract Documents.

D. The review and approval of shop drawings, samples or product data by the Owner's Consultant will not relieve the Contractor from the responsibility for the fulfillment of the terms of the Contract. All risks of error and omission are assumed by the Contractor, and the Engineer will have no responsibility therefore.

E. Project work, materials, fabrication, and installation shall conform with approved shop drawings, applicable samples, and product data.

F. No portion of the work requiring a shop drawing, sample, or product data shall be started nor shall any materials be fabricated or installed prior to the approval or qualified approval of such item. Fabrication performed, materials purchased or on-site construction accomplished which does not conform to approved shop drawings and data shall be at the Contractor's risk. The Owner will not be liable for any expense or delay due to corrections or remedies required to accomplish conformity.

1.08 SUBMISSION REQUIREMENTS

A. Make submittals to Owner promptly in accordance with approved schedule and in such sequence as to cause no delay in the Work or in the work of any other Contractor. Each submittal, appropriately coded, will be returned within 30 calendar days following receipt of submittal by the Owner's Consultant.

B. At a minimum, submittals shall be provided to the Owner, and (in duplicate) to the Engineer. Additional requirements for the number of are contained in the specific Specification sections. Additional copies may be required as per the Supplementary General Conditions.

C. Shop Drawings: Shop Drawings shall be submitted as necessary to the Owner and Consultant for review and comment for the limited purpose of checking for conformance with information given in the design concept expressed in the Contract Documents. Shop drawings shall be presented in a clear and thorough manner, complete with respect to dimensions, design criteria, materials of construction, and the like information to enable the Owner and Consultant to review information as required. Sheet size shall be 8½ x 11 inches or larger.

D. Submittals shall contain:

1. Date and number of submission, and any previous submissions.
2. Project title and number.
3. Names of:
    a. Contractor
    b. Manufacturer/Supplier
4. Identification of product, with specification section number.

5. Field dimensions, clearly identified as such.

6. Relation to adjacent or critical features of work or materials.

7. Applicable standards, such as ASTM or other applicable federal or state regulations.

8. Identification of deviations from Contract Documents.

9. Identification of revisions on re-submittals.

10. A blank space suitably sized for Contractor and Consultant's stamps.

11. Where calculations are required to be submitted by the Contractor, the calculations shall have been checked by a qualified individual other than the preparer. The submitted calculations shall clearly show the names of the preparer and of the checker. Where required, calculations and drawings shall be certified and stamped by a Professional Engineer licensed in the State of Connecticut.

E. Each submittal shall be numbered. The numbering system shall utilize the Section number to which the submittal pertains and then a sequential number designating the order of the submittal for that Section. For instance, the first submittal applying to Earthwork shall be numbered as 02200-1. The second submittal applying to Earthwork shall be numbered as 02200-2.

F. Resubmission Requirements: Make any corrections, additions and/or changes in submittals required by the Owner, and re-submit revised editions. Revised submittals shall be designated with a revision number. For instance, the first revision to the second Earthwork submittal shall be numbered as 02200-2 Rev. 1.

G. Shop drawings and product data sheets 11 x 17-inch and smaller shall be bound together in an orderly fashion and bear the Certification Statement from Section 1.09.D on the cover sheet. The cover sheet shall fully describe the packaged data and include a listing of all items within the package.

1.09 CERTIFICATES

A. When specified in individual specification sections, submit certification by the manufacturer, installation/application subcontractor.

B. Indicate material or Product conforms to or exceeds specified requirements. Submit supporting reference data, affidavits, and certificates as appropriate.

C. Certificates may be recent or previous test results on material or Product, but must be acceptable to the Owner.

D. Each shop drawing, sample and product data submitted by the Contractor shall have affixed to it the following Certification Statement including the Contractor's Company name and signed by the Contractor: "Certification Statement: by this submittal, I hereby represent that I have determined and verified all field measurements, field construction

criteria, materials, dimensions, catalog numbers and similar data and I have checked and coordinated each item with other approved shop drawings and all Contract requirements."

1.10 DISTRIBUTION

A. The Contractor will distribute submittals to concerned parties as appropriate. Promptly report any inability to comply with revisions. One copy of each submittal shall be submitted directly to the Owner. A minimum of two duplicates shall be submitted directly to the Consultant.

1.11 CONSULTANT'S AND RESIDENT ENGINEER'S DUTIES

A. The Owner's Engineer will review submittals only for general conformance to design concept of project and compliance with information given in Contract Documents. Review shall not extend to means, methods, sequences, techniques or procedures of performing the Work or to safety precautions or program incident thereto. Review of a separate item as such will not indicate approval of assembly in which item functions.

B. The Engineer will return submittals to the Contractor and Owner with the Engineer's written opinion as to the general conformance of the submittal with the Contract Documents. The Engineer will normally respond to all submittals within five (5) working days from the date of receipt, but no later than two weeks from the date of receipt. Re-submittals required as a result of review and comment shall be re-submitted promptly by the Contractor. Work shall not commence until all submittals related to it are submitted and accepted

C. The Engineer's review of submittals shall not relieve Contractor from responsibility for any deviations from Contract Documents unless Contractor has, in writing, called attention to such deviation at time of submission and has received written concurrence pursuant to Contract Documents to specific deviation, nor shall any concurrence in submittals.

D. The Owner's personnel may also perform submittal review duties, at the discretion of the Owner.

1.12 OWNER'S DUTIES

A. The Owner will receive comments from the Engineer.

B. The Owner will have the final authority to judge the adequacy of the Contractor's submittal and will have final authority for approval or rejection.

1.13 SUBMITTALS PRIOR TO INITIATION OF WORK

A. The Contractor shall complete and submit all of the following submittal items consistent with the Specification requirements. All of the following submittals shall be made within eight (8) working days after the Notice to Proceed and prior to the initiation of work.

Other submittals, as per the Contract Specifications, may be required prior to the initiation of work.

The relevant submittals include, but are not necessarily limited to the following:

- Health and Safety Plan – For Information Only
- CMP Baseline Schedule
- Schedule of Values
- Temporary Access Control Plan

1.14 SUBMITTALS DURING THE PERFORMANCE OF THE WORK

A. During the performance of the Work, the Contractor shall submit progress reports, as requested by the Owner. Progress reports shall be submitted at the beginning of (or before) progress meetings (Section 01200 - Project Coordination and Meetings). Such reports shall contain:

1. A summary of Work activities occurring during the period covered by the report.
2. The type of materials and/or major equipment being installed by the Contractor and the total number of employees working in each category on that particular day.
3. The names of the subcontractors working and the type of materials and/or major equipment being installed by each together with the total number of employees working for each subcontractor on that particular day.
4. The excavation, compaction, and other equipment being used by the Contractor and each subcontractor.
5. A discussion of problems encountered and corrective actions taken.

1.15 REVIEW OF SHOP DRAWINGS, PRODUCT DATA AND SAMPLES

A. The review of shop drawings, data and samples will be for general conformance with the design concept and Contract Documents. They shall not be construed:

1. as permitting any departure from the Contract requirements;
2. as relieving the Contractor of responsibility for any errors, including details, dimensions, and materials;
3. as approving departures from details furnished by the Engineer, except as otherwise provided herein.

B. The Contractor remains responsible for details and accuracy, for coordinating the work with all other associated work and trades, for selecting fabrication processes, for techniques of assembly, and for performing work in a safe manner.

C. If the shop drawings, data or samples as submitted describe variations and show a departure from the Contract requirements which the Owner's Engineer finds to be in the interest of the Owner and to be so minor as not to involve a change in Contract Price or

Contract Time, the Engineer may return the reviewed drawings without noting an exception.

D. Submittals will be returned to the Contractor under one of the following codes:

Code 1 – "REVIEWED" – This code is assigned when there are no notations or comments on the submittal. When returned under this code the Contractor may release equipment or material for manufacture.

Code 2 – "REVIEWED AS NOTED" – This code is assigned when a confirmation of the notations and comments IS NOT required by the Contractor. The Contractor may release equipment or material for manufacture; however, all notations and comments must be incorporated into the final product.

Code 3 – "REVIEWED AS NOTED/RESUBMISSION REQUIRED" - This combination of codes is assigned when a confirmation of the notations and comments IS required by the Contractor. The Contractor may, at his own risk, release equipment or material for manufacture; however, all notations and comments must be incorporated into the final product. This confirmation shall specifically address each omission and nonconforming item that was noted. Confirmation is to be received by the Engineer within 15 calendar days of the date of the Engineer's transmittal requiring the confirmation.

Code 4 – "REVISE AND RESUBMIT" - This combination of codes is assigned when notations and comments are extensive enough to require a re-submittal of the package. This re-submittal is to address all comments, omissions and non-conforming items that were noted. Re-submittal is to be received by the Engineer within 15 calendar days of the date of the Engineer's transmittal requiring the re-submittal.

Code 5 – "REJECTED"- This code is assigned when the submittal does not meet the intent of the Contract Documents. The Contractor must resubmit the entire package revised to bring the submittal into conformance.

Code 6 – "COMMENTS ATTACHED" – This code is assigned where there are comments attached to the returned submittal which provide additional data to aid the Contractor.

Code 7 – "RECEIPT ACKNOWLEDGED" - This code is assigned to acknowledge receipt of a submittal that is not subject to the Design Engineer's review and approval; and, is being filed for informational purposes only.

Codes 1 through 5 designate the status of the reviewed submittal with Code 6 showing there has been an attachment of additional data.

E. Re-submittals will be handled in the same manner as first submittals. On re-submittals the Contractor shall identify all revisions made to the submittals, either in writing on the letter of transmittal or on the shop drawings by use of revision triangles or other similar

methods. The re-submittal shall clearly respond to each comment made by the Owner's Consultant on the previous submission. Additionally, the Contractor shall direct specific attention to any revisions made other than the corrections requested by the Owner's Consultant on previous submissions.

F. Partial submittals may not be reviewed. The Owner's Engineer will be the only judge as to the completeness of a submittal. Submittals not complete will be returned to the Contractor and will be considered "REJECTED" until resubmitted. The Owner's Engineer may at his option provide a list or mark the submittal directing the Contractor to the areas that are incomplete.

G. Repetitive Review

1. Shop drawings and other submittals will be reviewed no more than twice at the Owner's expense. All subsequent reviews will be performed at times convenient to the Owner's Engineer and at the Contractor's expense, based on the Engineer's then prevailing rates. The Contractor shall reimburse the Owner for all such fees invoiced to the by the Engineer. Submittals are required until given a review Code status 1, 2 or 7.

2. Any need for more than one resubmission, or any other delay in obtaining Consultant's review of submittals, will not entitle Contractor to extension of the Contract Time.

H. If the Contractor considers any correction indicated on the shop drawings to constitute a change to the Contract Documents, the Contractor shall give written notice thereof to the Owner and Engineer at least 7 working days prior to release for manufacture.

I. When the shop drawings have been completed to the satisfaction of the Engineer, the Contractor shall carry out the construction in accordance therewith and shall make no further changes therein except upon written instructions from the Owner's Engineer.

PART 2 - PRODUCTS

This Section Not Used

PART 3 - EXECUTION

This Section Not used.

PART 4 – MEASUREMENT AND PAYMENT

No separate payment will be made for this Section.

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

SECTION 01451
INDEPENDENT TESTING SERVICES

PART 1 – GENERAL

1.01 SUMMARY

A. Section Includes

1. Independent testing services including geotechnical and concrete inspection and testing provided by Contractor.
2. Testing laboratory services provided by Contractor

B. Related Sections

1. Section 02200, Earthwork
2. Section 02930, Loaming and Seeding
3. Section 03300, Cast-in-Place Concrete

1.02 REFERENCES

A. General

1. ASTM E329 -Standard Specifications for Agencies Engaged in the Testing Inspection of Materials used in Construction

B. Soil Testing

1. American Association of State Highway and Transportation Officials (AASHTO)
2. ASTM (ASTM International, formerly American Society for Testing and Materials)

C. Concrete Testing

1. Cement and Concrete Reference Laboratory (CCRL)
2. Connecticut DOT testing requirements.

1.03 SUBMITTALS

A. Qualifications, experience, and certifications of each proposed testing service.

B. Certificate of calibration for testing equipment.

1.04 QUALITY ASSURANCE

A. General

1. Testing services shall have the following general qualifications:

a. Minimum five years as a firm with the type of testing specified.

b. Ability to provide timely field testing services to minimize the impact of the testing requirements on construction progress.

c. Certification to perform the specified services in the state in which the Work is to be performed.

2. Testing services proposed by the Contractor shall be subject to review by the Owner and Owner's Engineer. Any testing firm not acceptable to the Owner or Engineer will be rejected.

B. All testing agencies and laboratories must meet the requirements of ASTM E329.

C. Testing company shall have been in business for a minimum of the last 5 years providing applicable testing services.

D. Testing equipment shall be calibrated at maximum 12 month intervals by devices of accuracy traceable to National Bureau of Standards. Submit copy of certificate of calibration made by accredited calibration agency.

E. Testing shall be in accordance with applicable codes and regulations referenced in individual Specification Sections, and with selected standards of the ASTM.

PART 2 – PRODUCTS

This Section Not Used

PART 3 - EXECUTION

3.01 TESTING SERVICES -GENERAL

A. Contractor to provide testing services meeting the following:

1. Provide qualified personnel promptly on notice.

2. Perform inspections required by the Contract Documents. Sample and test materials and observe methods of construction to determine compliance with applicable standards and with the requirements of the Contract Documents.

3. Take specimens and samples for testing, as required in individual Specification Sections. Provide all sampling equipment and deliver all specimens and Samples.

4. Promptly notify the Owner and the Engineer of irregularities or deficiencies in the Work which are observed during performance of services, including test results or observations which indicate Work is not in accordance with Contract Documents.

5. Promptly submit electronic copies of reports of inspections and tests to the Owner, and one copy to the Engineer including:

    a. Date issued

    b. Project title and number

    c. Testing laboratory or agency name and address

    d. Name and signature of inspector

    e. Date of inspection or sampling

    f. Record of temperature and weather

    g. Date of test

    h. Identification of product and Specification Section

    i. Location of Project

    j. Type of inspection or test

    k. Results of tests and observations regarding compliance with Contract Documents

B. Perform additional tests and services as required to assure compliance with the Contract Documents.

C. Obtain Owner's approval of testing laboratory before performing testing services.

D. Coordinate with testing laboratory

3.02 GEOTECHNICAL TESTING

A. Provide field testing and laboratory services for geotechnical soil testing required in Section 02200.

3.03 CONCRETE TESTING

A. Provide qualified independent field and laboratory testing service to perform the concrete testing required in Section 03300.

B. The concrete testing laboratory shall have been inspected by the CCRL within the past five years.

C. The testing laboratory shall be a licensed concrete testing laboratory by the State of Connecticut.

D. Field testing technicians shall have a Class A concrete technician license as certified by the State of Connecticut.

3.04 COORDINATION WITH TESTING LABORATORY

A. Provide testing laboratory personnel access to site and manufacturer's operations.

B. Provide laboratory with representative samples of materials to be tested in required quantities.

C. Furnish labor and facilities:

1. To provide access to Work to be tested.
2. To facilitate inspections and tests.
3. For laboratory's exclusive use for storage and curing of test samples.
4. To provide forms for preparing concrete test beams and cylinders.

D. Notify laboratory sufficiently in advance of operations to allow for assignment of personnel and scheduling of tests.

E. Arrange with laboratory and pay for additional inspections, samples, and tests required for Contractor's convenience.

PART 4 – MEASURMENT AND PAYMENT

No separate measurement or payment shall be made of any work performed under this section. No separate payment shall be made for any work performed under this section. The cost of any work done

or facilities provided under this section is incidental to the work shall be included under other bid items within the Contract.

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

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SECTION 01500
TEMPORARY FACILITIES & CONTROLS

PART 1 - GENERAL

1.01 SCOPE

A. This Section includes requirements for temporary facilities and controls.

B. Possible Contractor staging areas are located as shown on the Contract Drawings. The locations of all temporary facilities described must be approved by the Owner or Engineer.

C. The Work of this Section includes the provision, maintenance, and removal of a temporary field office trailer for the Owner/Engineer, at the site. The field office trailer shall be provided and maintained by the Contractor for the duration of the project for the exclusive use of the Owner/Engineer.

D. The Work of this Section shall include the provision and maintenance of certain equipment for the use of the Owner/Engineer.

E. The Contractor may separately provide for his/her own field office trailer.

F. All temporary facilities provided by the Contractor under this Section as specified herein shall meet all federal, state and local codes and requirements for such temporary installations. All temporary field office facilities shall be provided and maintained so as not to create fire or safety hazards. Costs necessary to satisfy all requirements specified herein shall be borne by the Contractor. All necessary permits for setup and utility installation shall be the responsibility of the Contractor. All temporary field office facilities shall be entirely removed upon completion of the work and the site shall be left in a clean condition to the satisfaction of the Owner.

G. The Contractor shall be responsible for installing, providing, maintaining, and decommissioning all utility service to any temporary field offices. The cost of all utilities shall be considered incidental to the cost of this item. Electric service is available to the in the vicinity. The Contractor shall verify the location of electric service with the Owner.

H. The Contractor shall provide the Engineer and representatives of the Owner, including its Consultants, with access to and use of all temporary facilities and services provided by the Contractor.

I. The Work of this Section shall also include such additional work as the Owner deems necessary for informing the public of the work at the site. This public

information work shall include all such work not otherwise required under other Sections of the Work or as conditions in permits issued to the Project.

1.02 TEMPORARY OFFICES FOR CONTRACTOR AND ENGINEER

A. Temporary offices shall be established at the site, within the staging area or where approved by the Owner/Engineer, adequately furnished, and maintained in a clean, orderly condition by the Contractor. The structure must comply with all applicable local, state, and federal standards and codes. All necessary permits for setup and utility installation shall be the responsibility of the Contractor. The temporary field office provided to the Engineer shall conform to the specifications shown below in Paragraph 2.01 and supplied with the equipment and supplies described therein. The trailer, its contents, and all service to the trailer shall be provided for the duration of the project. It shall be Contractor's responsibility, at his sole expense, to maintain, supply, clean, and service the trailer for the duration of the project, including the provision of all utilities and sanitary service.

B. The Contractor is not required to provide a portable trailer or other such structure as his/her own temporary project field office. If the Contractor chooses to do so, such structures must comply with all applicable local, state, and federal standards and codes. Location of the field office at the site shall be approved by the Owner. All necessary permits for setup and utility installation shall be the responsibility of the Contractor.

1.03 SUBMITTALS

A. No later than ten (10) calendar days prior to bringing the facilities on site, the Contractor shall submit a description of the temporary facilities and controls.

B. No later than ten (10) calendar days prior to bringing the facilities on site, the Contractor shall submit a description of the temporary facilities and services to be used by the Contractor, including the location of laydown/storage areas, fueling areas, fencing, proposed temporary office trailer, and any other temporary facilities.

1.04 TEMPORARY LIGHT AND POWER

A. The Contractor shall supply temporary electricity to the Engineer's field office. Electric supply shall be provided by a temporary service wiring connected to the grid or generator.

B. Alternatively, the Contractor may choose to provide electricity to portions of the Project by means of temporary on-site generators. On-site generators must comply with local ordinances on noise control and fuel containment. The Contractor shall service and fuel the generators, if used, for the duration of the Project.

C. Temporary lighting and wiring shall be installed in accordance with all local, state, and federal regulations.

D. Ground fault circuit interrupters (GFCI) shall be required on all electrical equipment.

E. The Contractor may elect to install temporary lighting to illuminate the worksite for work (or security purposes) after dark. However, the Contractor is subject to all local and state work ordinances and must file appropriate applications and receive acceptance prior to performing work outside of the approved window. The use of temporary lighting for security purposes or work after dark shall be only with prior approval of the Owner.

F. Provide guard cages or tempered glass enclosures where temporary lighting may be exposed to breakage. Provide exterior fixtures where temporary lighting may be exposed to moisture.

1.05 TEMPORARY HEAT

A. Provide all heat as may be necessary for thawing out and heating the ground or materials and for proper execution, protection, curing, and drying out of the work.

1.06 WEATHER PROTECTION

A. The Contractor shall provide all such temporary facilities needed to protect completed and on-going work and on-site materials from inclement weather, including rain, heat, snow, and cold. This shall include, but not be limited to, the provision of covers, shelters, heaters, etc. The use of rigid barriers for weather protection shall be used as required and as determined by the Owner/Engineer.

B. Temporary heating units shall have been tested and labeled by UL, FM, or other recognized association related to the type of fuel being used, and maintain reasonable temperatures within the temporary enclosures.

C. The Contractor shall be responsible for maintaining and/or restoring access and appropriate working conditions at the site in the event of inclement weather. This shall include, but not be limited to, providing for plowing and ice removal in the event of snow and freezing temperatures.

D. Snow plowed or removed by the Contractor may not be disposed of in the reservoir or any other waterway.

1.07 TEMPORARY AIR, STEAM AND WATER

A. Provide all air, steam and water, including temporary piping and appurtenances required to perform the work of this Contract, as required. Remove temporary piping and appurtenances upon completion and approval of Work.

1.08 TEMPORARY SANITARY FACILITIES

A. Provide self-contained, single occupant toilet units of the chemical, aerated recirculation, or combustion type, properly vented and fully enclosed in a fiberglass or other approved non-absorbent shell. These facilities shall be maintained weekly, at a minimum.

1.09 FIRE PROTECTION

A. All operations on the site premises shall be so performed that fire hazards are not created or allowed to exist. If the Contract Work involves a fire hazard, sufficient firefighting equipment with trained, capable operators shall be in the area to contain any fire until the local fire District arrives. The Contractor shall make sure that persons employed directly or indirectly by him, while on the site premises, comply with all pertinent local, state and federal fire regulations. The Contractor shall have a procedure for response to fires on-site. The Contractor shall be responsible for compliance by personnel of his organization for their cooperation in fire prevention, fire reporting and protective measures to minimize loss.

B. Provide portable UL rated, Class A fire extinguishers for temporary offices and similar spaces. In other locations, provide portable UL rated Class ABC dry chemical extinguishers or a combination of NFPA recommended Classes for the exposure. Comply with NFPA 10 and 241for classification, extinguishing agent and size required by location and class of fire exposure.

1.10 TEMPORARY FENCING/BARRIERS

A. The Contractor shall provide temporary fencing or barriers to prevent unauthorized entry to construction areas and Work Zones, to delineate temporary contractor staging areas, and to protect existing facilities, adjacent properties and the public from damage from construction operations. Additional temporary fencing or barriers may be required on the site, as determined by the Owner and/or Engineer, and shall be provided at no extra cost.

1.11 MISCELLANEOUS REQUIREMENTS

A. The Contractor shall provide temporary medical and first-aid supplies at the work site, adequately equipped, maintained and located, to serve the needs of the workmen and employees of the Contractor, subcontractors and assigned contractors.

1.12 SECURITY AND PROTECTION OF WORK

A. The Contractor shall be responsible for providing and maintaining security for protection of his work, equipment, supplies and employees and shall be responsible for protecting same from unauthorized entry, vandalism, or theft.

B. The Contractor shall protect installed work and excavations and provide special protection where specified in individual specifications.

C. The Contractor shall provide temporary and removable protection for equipment and open excavations, and shall control activity in the immediate work area to minimize damage.

1.13 REMOVAL OF TEMPORARY FACILITIES AND CONTROLS

A. The Contractor shall remove all temporary equipment, facilities, and materials after completion and acceptance of work at the Site.

B. The Contractor shall clean and repair damage caused by installation or use of temporary facilities and controls.

C. Restore existing and permanent facilities used during construction to original condition.

PART 2 - PRODUCTS

2.01 TEMPORARY OFFICE FOR OWNER/RESIDENT ENGINEER

A. The temporary office shall be weather-tight with minimum 8 foot by 20 foot floor plan, have a tight floor at least 8-inches off the ground, and shall be insulated all around with rigid insulation board not less than ½-inch thick and suitably ventilated. The office shall have at least three screened windows capable of being opened, a screen door and a solid door provided with cylinder lock and three keys. The office shall be provided with janitorial service on a weekly basis, heating equipment, electrical wiring, outlets and fixtures suitable to light the tables and desk adequately as directed. Provide separate toilet facilities for the exclusive use of the Owner/Engineer. A minimum of two (2) parking spaces shall be provided for the use of the Owner/Engineer.

B. The field office trailer shall contain the following minimum operable standard furnishings and equipment:

1. One plan table, 3-foot by 5-foot and one stool
2. Two (2) Desks about 3-foot by 5-foot with desk chair

3. Four additional chairs
4. Plan rack, as directed
5. Shelves, as directed
6. Four-drawer, filing cabinet with lock
7. Coat rack and hooks
8. Desk calculator
9. Air Conditioner (12,000 BTU)
10. Current model of multifunction printer/copier/scanner/fax capable of handling paper up to 11 by 17 inches, Aficio MP C2051 by Ricoh or equal.
11. One conference table (12-foot).
12. Sixteen folding chairs.
13. Cross-cut shredder with basket, Fellowes Model No. P600C02, or equal.
14. First aid kit suitable for ten people with manual, American White Cross No. K10 or equal.

C. The Contractor shall supply all fuel for heating and pay all utility bills for the temporary office.

D. All temporary electrical and plumbing services shall be done in accordance with the National and Connecticut Electrical Code and the Connecticut Plumbing Code, respectively.

E. At the time the field office is made available to the Owner/Resident Engineer, the Contractor shall furnish evidence to the Owner that insurance in the minimum amount of $2,500.00 (non-deductible) has been obtained which will protect the Owner and/or its employees or agents against loss of property in the field office from fire, theft, storm or flood. The insurance will be kept in effect during the entire period of occupancy, with evidence of all necessary renewals being promptly forwarded to the Owner.

F. In the case of fire, theft or breakdown, all equipment involved shall be repaired or replaced by the Contractor within 48 hours.

G. In the event the field office is destroyed or rendered untenable for any reasons, it shall be replaced within two weeks, or as directed.

2.02 EQUIPMENT

A. The Contractor shall provide all necessary equipment related to the requirements of this Section such that the work of the Contract can be conducted in accordance with the applicable Contract Documents.

2.03 PROJECT SIGNAGE

A. The Contractor shall also construct and install any signage required by regulatory agencies, permits, or Orders. These signs, if required, shall be mounted below the Project Sign.

B. The final Project Sign configuration and content shall be reviewed and approved by the Owner prior to fabrication.

PART 3 - EXECUTION

3.01 GENERAL

A. The Contractor shall sweep and clean as necessary to maintain neat, orderly work areas.

B. The Contractor shall furnish all materials and perform all work necessary, including excavation and backfill. No disturbance will be allowed in areas outside those indicated on the plans, without prior approval from the Owner. The Contractor will be responsible for repairing all cuts made for temporary utilities and for the removal of temporary utilities and post-removal restoration.

3.02 FIELD OFFICE MAINTENANCE

A. All sewer, water, electric and telephone services shall be continuously connected. Electric lights and current, proper heating, hot and cold water, satisfactorily cooled drinking water and telephones shall be available at all times, both night and day. The toilets and lavatories shall be maintained in continual service; trash, garbage and other wastes shall be properly and satisfactorily disposed of. Janitor service, to keep the quarters and equipment neat and clean as acceptable working space, shall be furnished regularly, at least once per week. Repairs shall be made from time to time, as required and as directed by the Owner.

B. The Contractor shall furnish a supply of fluorescent light bulbs, copy paper, printer photo paper, ink cartridges, and toner cartridges all as approved by the Owner.

C. The Contractor shall also provide snow removal of access and parking areas.

3.03 SIGNAGE

A. Maintain signage throughout the duration of the project. The Contractor shall repair or replace the signage at his sole expense in the event of damage.

B. Logos for the Owner and Engineer are available upon request. Cost numbers and other information will be provided to the Contractor after award of the Contract.

C. Remove all temporary signage at the completion of the project and lawfully dispose. Fill post holes.

3.04 PUBLIC INFORMATION

A. The Owner may request the Contractor to take certain steps to assist in providing information to the public regarding this project. This assistance may take the shape of additional informational signage, newspaper ads, or other similar outreach actions.

B. The Owner will provide the Contractor with the form and text of any requested public information steps which are to be executed under this item.

C. The Work of this Section is separate from any required public information steps which are required in other Sections of the Work and/or by permit conditions. The cost of public information notices and other similar steps (including but not limited to signs, newspaper ads, etc.) required under other Sections of the Work and/or by Permit Conditions shall be included in the price bid for other Items.

PART 4 - MEASUREMENT AND PAYMENT

4.01 MEASUREMENT FOR PAYMENT

No measurement shall be made of this item. The bid item under this section is a lump sum quantity.

4.02 PAYMENT

Payment for the scope of the work specified herein, including all labor, materials, equipment and incidentals and mobilization/demobilization costs to provide, install, clean, maintain, supply, and remove the Resident Engineer's Field Office and provide temporary facilities and controls as specified herein.

Item No.	Payment Item	Unit
01500.01	Temporary Facilities	Lump Sum

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

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SECTION 01560
TEMPORARY EROSION AND SEDIMENTATION CONTROLS

PART 1 - GENERAL

1.01 DESCRIPTION

A. The Contractor shall furnish all labor, materials and equipment and shall perform all work required to install, maintain, and remove erosion, sedimentation, and siltation control measures to protect the site, and upstream and downstream wetlands, water bodies, streams, and drainage structures from siltation and sedimentation damage and accumulation or damage from other byproducts of the work during this Contract, as specified herein and as directed by the Owner or its Engineer.

B. Erosion control measures are used to prevent the displacement of soil. Such measures may include, but not be limited to, grading, erosion control matting, plastic coverings, mulching, temporary seeding, riprap, check dams, cross tracking, and other items intended to stabilize soil material and/or reduce the erosive potential of water.

C. Sedimentation and siltation control measures are used to prevent the movement and transport of soil particles. Sedimentation and siltation control measures may include, but not be limited to, use of compost filter socks, pumped water filter bag(s), filtration dams, siltation sumps, turbidity curtains, and other items as necessary to contain sediment and other deleterious material produced from tree stump and related vegetation removal, excavation, shaping and filling, dewatering, bridge and sheetpile installation, structure construction, concrete refacing and infill, embankment rehabilitation, and related contract operations.

D. The Work shall also include all work necessary to continually clean and maintain and promptly repair/replace all erosion, sedimentation, and siltation measures as needed to sustain their intended function and operability.

E. The Contractor shall use all Best Management Practices (BMPs), both structural and operational, to reduce, to the greatest extent possible, the erosion and transport of soil and sediment. The Contractor shall use all measures which are both prudent under good construction practices and required under local, state, and Federal regulations and law. The Contractor shall monitor, maintain, and repair all BMPs. In the event of the failure of sediment and erosion control BMPs, the Contractor shall provide, at no additional cost to the Owner, all work necessary to mitigate and correct the situation, including, but not limited to, the removal of transported sediment.

F. The work of this Section includes sediment and erosion control both upstream and downstream of the dam, as well as in and around all disturbed areas, including staging and laydown areas.

1.02 SCOPE OF WORK

A. The scope of the Work of this Section includes the installation of compost filter socks, pumped water filter bags, stabilized construction entrance, and turbidity curtain as shown on the Contract Drawings, and as needed elsewhere. This work also includes the monitoring, cleaning, maintenance, and repair/replacement of all installed compost filter socks and other siltation and water control/handling devices as well as proper removal and disposal of same after final stabilization of the site.

B. General work covered and paid for under this Section includes the installation of all other sediment and erosion control BMPs, as shown on the Contract Drawings, and as needed elsewhere. This work also includes the monitoring, cleaning, maintenance, and repair of all installed sediment and erosion control BMPs and disposal after final stabilization of the site. General work covered and paid for under this Section also includes all other work, including record keeping and reporting, necessary to meet the conditions of the Contract Documents, Permits, Approvals, Licenses issued for the project and all relevant codes, rules, regulations, laws and ordinances applicable to sediment and erosion control.

1.03 SPECIAL CONDITIONS

A. All work shall comply with all codes, rules, regulations, laws and ordinances and executed in conformance with any permits, licenses etc., as issued by the City of New London, the Connecticut Department of Energy and Environmental Protection (CTDEEP), and all other authorities having jurisdiction within the project areas. All work necessary to make site preparation comply with such requirements shall be provided without additional cost to the Owner.

B. Copies of all permits and licenses listed under Sections 01060, and not otherwise included in that section, will be forwarded to the Contractor prior to the beginning of the work. The Contractor shall conduct its work in accordance with all provisions of said permits.

C. The Contractor shall procure all other required permits and licenses, (except for those to be obtained by the Owner as stated herein), pay all charges, fees and taxes and shall give all notices necessary and incidental to the due and lawful prosecution of the work under this Contract. The cost thereof shall be included in the prices bid for the various items specified herein for the work of this Contract. Copies of all required permits and licenses shall be filed with the Owner prior to the beginning of the work.

D. The disturbance area at the site is likely to be less than one acre in total and therefore not under the jurisdiction of the NPDES general construction permit process.

Regardless of the need for a SWPPP under the NPDES permit, the Contractor shall be responsible for developing a site-specific sediment and erosion control plan which shall be submitted to the Owner. The Contractor's plan shall incorporate the requirements of this Section and the controls and BMPs shown on the Contract Drawings; however, it shall be understood that these measures called for in the specifications and on the plans represent the MINIMUM acceptable level of sediment and erosion control. The Contractor's plan shall be designed to account for the anticipated work plan, construction sequence, and anticipated level of disturbance.

E. No work of any type in any area shall commence until sedimentation control measures are in place to the satisfaction of the Owner, the Engineering Consultant and permitting agencies/representatives having jurisdiction.

1.04 IMPLEMENTATION

A. The Contractor shall familiarize himself with the nature of work to be performed. The Contractor shall be responsible for scheduling his submittals and/or meetings, if required, with the applicable regulatory agencies.

B. Measures may include, but not be limited to, the following:

- Compost Filter Socks.
- Stabilized construction entrances.
- Turbidity Curtains.
- Placement and operation of pumped water filter bags.
- Filling and stabilizing of erosion gullies with gravel.
- Application of weed-free straw (or other) mulch.
- Track-roughening of slopes to slow runoff flow.
- Temporary swales to divert drainage flow.
- Energy dissipaters for pipe, culvert, and hose discharge points.

1.05 LOCATION AND STORAGE OF MATERIALS

A. No materials shall be dispersed or stockpiled in any wetland areas, except as shown on the Contract Drawings. No excavated materials or materials to be used in the backfilling shall be deposited within one hundred feet (100') of any spillways and related areas, watercourses, wetland areas or drainage facilities unless appropriate and approved measures are specifically taken to protect the adjacent resource area and storage has been approved by the Engineering Consultant. Materials rejected for use in the Work shall be removed and disposed of as soon as practical to do so. Adequate protective measures shall be taken to prevent the erosion of stockpiled and/or placed materials and resultant sedimentation of adjacent spillways and related areas, watercourses, wetland areas or drainage facilities, during the course of performing the work. These include containing stockpiles using compost filter socks and covering the stockpiles with 20-mil poly plastic sheeting overnight and in advance of forecast rainfall.

1.06 PROTECTION OF THE RESERVOIR AND RELATED WATER RESOURCES

A. The Contractor shall employ Best Management Practices (BMP's) throughout the conduct of the work of this Contract and ensure that impact on Bogue Brook Reservoir, surrounding wetlands and downstream channel is minimized.

B. The Contractor shall not store or discharge fuel oil, sewage, septic water or other deleterious substances into the reservoir, stream, groundwater supplies or wetlands areas. The storage of fuel oil and refueling of equipment shall be restricted to designated areas approved by the Engineer, the Owner or regulatory agencies. Machinery shall not be refueled or washed within 100 feet of any resource area. Any spillage of deleterious substance (fuel oil, hazardous material, sewage, septic waste, etc.) shall be reported to the Engineer, the Owner, and appropriate regulatory agency, by the Contractor and appropriate measures taken, (at costs solely borne by the Contractor) as determined by the regulatory agency, to contain and to clean up the affected areas. Any water that is pumped or bailed from the excavations shall be conveyed by conduit or hose to approved points of discharge. **Water shall be filtered through approved discharge area erosion controls and/or pumped water filter bag(s), constructed in such a manner so as to minimize velocities of discharge and to contain silt.** Sedimentation barriers shall be cleaned and/or replaced periodically to ensure effective control and protection of wetlands and water resource areas.

C. The Contractor shall insure that temporary erosion and sediment controls are adequate to insure compliance with applicable local, State and Federal regulations, or other more stringent regulations, as needed.

Solids - These waters shall be free from floating, suspended and settleable solids in concentrations or combinations that would impair any use assigned to this class, that would cause aesthetically objectionable conditions, or that would impair the benthic biota or degrade the chemical composition of the bottom.

Color and Turbidity - These waters shall be free from color and turbidity in concentrations or combinations that are aesthetically objectionable or would impair any use assigned to this class. Turbidity in wetland resource areas resulting from activities in or near wetlands shall not exceed 50 N.T.U's, or as otherwise required by the State or other controlling body.

1.07 RELATED WORK SPECIFIED ELSEWHERE

A. The following is a list of related work items that shall be performed or furnished under other Sections of these Specifications as indicated.
Regulatory Requirements - Section 01060.

1. Temporary Erosion and Sedimentation Controls – Section 01560

2. Temporary Dewatering and Water Controls - Section 01565.

3. Clearing, Grubbing, and Stripping - Section 02110.

4. Temporary Cofferdam - Section 02170

5. Earthwork - Section 02200.

1.08 SUBMITTALS

A. A written plan detailing the methods and layout of BMPs proposed to contain sediments, soils, and debris at Bogue Brook Reservoir Dam must be submitted to the Owner for review and approval prior to proceeding with the work of this Section.

PART 2 - PRODUCTS

2.01 TEMPORARY GRASS SEED

A. Grass seed for temporary erosion control shall be Annual Ryegrass applied at a minimum rate of 2 pounds per 1,000 square feet (SF).

2.02 PUMPED WATER FILTER BAG

A. Pumped water filter bags used as sedimentation control and filtration of water generated from dewatering activities shall be a Dirtbag® pumped sediment control device(s) (Model 53 or 55) as detailed on the Drawings or approved equivalent. The Dirtbag® pumped-silt control system is marketed by ACF Environmental, Inc., Richmond, Virginia.

B. The Dirtbag® shall be a nonwoven geotextile bag which is sewn with a double needle matching using a high strength thread. Seams shall have an average width strength per ASTM D-4884 as follows: Dirtbag® 53 ASTM D-4884 60 pounds per inch (lb./in); Dirtbag® 55 ASTM D-4884 100 lb./in.

C. Each standard Dirtbag® shall have a fill spout large enough to accommodate a 4-inch discharge hose. Straps shall be used to secure the hose and prevent pumped water from escaping without being filtered.

D. Geotextile fabric shall be nonwoven fabric with the following properties:

Properties	**Test Method**	**Units**	**Nonwoven**	
			53	**55**
Weight	ASTM D-3776	Oz/yd.	8	10
Grab Tensile	ASTM D-4632	Lbs.	203	250
Puncture	ASTM D-4833	Lbs.	130	165
Flow Rate	ASTM D-4491	Gal/Min/Ft^2	80	70
Permittivity	ASTM D-4491	$Sec.^{-1}$	1.5	1.3
Mullen Burst	ASTM D-3786	$Lbs./in^2$	400	550
UV Resistant	ASTM D-4355	%	70	70
AOS % Retained	ASTM D-4751	%	100	100

2.03 COMPOST FILTER SOCKS

A. Compost filled filter socks for use as a sedimentation control device shall be 12-inch minimum diameter by 10 feet long SiltSoxx as manufactured by Filtrexx International, LLC of Grafton, Ohio, or approved equivalent. The sock shall be designed to provide intimate contact with the ground surface to prevent blowouts or undermining. At the same time the sock shall allow water to flow through the compost, minimizing overtopping, slowing high water flow velocities, and intercepting and stopping silt movement.

B. Stakes for affixing compost filter socks in place shall be wooden, 2-inch square by a minimum of 36-inches long. Stakes shall be installed in accordance with SiltSoxx manufacturer's instructions.

2.04 TURBIDITY CURTAIN

A. Turbidity Curtains are a floating system designed to confine and control suspended sediment in a water body. The turbidity curtain system provided by the Contractor shall provide for an impermeable barrier which will trap suspended sediment within the area encircled by the curtain and promote settling of suspended particles. The turbidity curtain system used shall account for the specific conditions at the site, including range of depths, water velocity, wind and wave action, sediment characteristics, etc.

B. Turbidity curtains shall include a floatation boom, a suspended impermeable curtain or skirt of appropriate length, ballast, a skirt connection system, and an anchorage system.

C. Turbidity curtains shall include end and intermediate anchors sufficient to maintain the position of the line of curtains.

D. Turbidity curtain systems manufactured by Elastec, American Marine, ABASCO or

equal will be accepted.

2.05 SAFETY FENCE

A. Safety fence shall be model number PSF-50 (48 inch x 50 feet) or PSF-100 (48 inch x 100 feet) as available from DGI Industries, New Hampshire or approved equivalent.

B. Composition shall be of polyethylene and conform to the following specifications:

Material	Polyethylene
Color	OSHA Orange
Roll Width	48 inches
Aperture Size	MD x TD 3.75" x 1.75"
Rib Thickness	MD ⅛", TD ¼"
Tensile Strength	MD 100.33 N/strand, TD 123.33 N/strand
Ultraviolet Resistance	2 year exposure resistance
Elongation at Break	50% +/-
Working Temp. Range	-85 to 195 degrees Fahrenheit

C. Safety fence shall be supported every eight feet (8') on center with sixty inch (60") wood posts having a minimum cross section surface area of one and one half (1½) inches and secured with five (5) wire or zip ties at each posts. Posts shall extend twelve (12") inches below grade.

2.06 SOIL MATERIAL

A. Soil material for use in sediment and erosion control measures shall conform to the specifications set out in Section 02200 – Earthwork. In general, all soil material must be clean, stable, and free or silt, clay, and organics.

2.07 STONE AND ROCK

A. Stone and rock material for use in sediment and erosion control measures shall conform to the material specifications of the Connecticut Department of Transportation Standard Specifications (latest edition). In general, all soil material must be clean, stable, and free or silt, clay, and organics. Sizing of the stone shall be determined by the Contractor and shall be appropriate for expected flow rates and velocities. Storms with return periods of not less than two-years should be used in determining the sizing of stone and rock.

2.08 OTHER MATERIALS

Other materials required for completion of the work in this Section shall be of adequate quality and construction such that intended performance is satisfied. Note that hay bales **shall NOT** be used as erosion control for this site due to the potential for introduction of

unwanted seeds.

PART 3 - EXECUTION

3.01 FLOOD FLOWS

A. The Contractor is advised that flows into Bogue Brook Reservoir and water levels of resource areas may vary substantially due to climatic and seasonal conditions and they shall be responsible for controlling and handling ground and/or surface water regardless of the volume of water and regardless of whether this flow is due to flood waters from storms. Refer to Section 01565 for additional information on the site's hydrology.

3.02 SEDIMENTATION, EROSION AND TURBIDITY CONTROL

A. The Contractor shall take every precaution to minimize and control erosion and turbidity within the project limits. These precautions shall be subject to approval by the Engineering Consultant who will be at the site to observe critical portions of the work. Sedimentation, erosion and turbidity control precautions shall include, but not necessary be limited to, the following:

1. Stockpiles of excavated materials as well as exposed slopes shall be kept to minimum gradients whenever possible. If these surfaces are to be exposed for more than two weeks, or are subject to heavy rainfall, they will be treated with straw, mulch, netting, grass seed or combination of the above to slow down the rate of surface run-off and to reduce the volume of suspended solids in the runoff water.

2. Compost Filter Socks shall be staked in place down gradient from all exposed borrow areas or materials storage areas in order to reduce the amount of suspended solids in runoff water as generally depicted on the Drawings. The exact location of the erosion barriers will be determined in the field, as work progresses.

3. Compost Filter Socks shall be installed with wooden stakes in accordance with manufacturer's directions and as shown on the Drawings.

4. Regulatory agencies reserve the right to determine the adequacy of the erosion control measures during construction. All inadequate devices, as determined by these governmental bodies or their agents, shall be replaced with devices deemed adequate, at the Contractor's expense.

3.03 GENERAL SEDIMENT AND EROSION CONTROL PLAN AND CONSTRUCTION SEQUENCE

Creating a project specific construction sequence with respect to proper handling of water,

sediment and erosion control particularly at the beginning stages and throughout construction of the proposed development is of high importance. Final details for such shall be determined by the Contractor as part of their means and methods. However, the Contractor responsible for the construction will be contractually obligated to fulfill all applicable provisions of the City of New London conditions, state and federal permits and the Contract Drawings and Specifications.

A Sediment and Erosion Control, Water Control, and Site Access Staging and Stockpiling Plan has been included as Drawing C-1 and C-2. An anticipated construction sequence is included on Drawing G-2. Construction period Best Management Practices (BMPs) including erosion control barriers shall be used to mitigate against the erosion and discharge of on-site sediment.

It is anticipated that the Contractor will install a Porta-Dam (or other submitted and reviewed temporary cofferdam) upstream of the spillway in the early stages of the work to isolate the spillway work area. A temporary by-pass flow system would consist of a pipe positioned through the center of the cofferdam.

Once all construction work is complete, the Contractor shall disassemble all cofferdam and temporary BMPs and begin site restoration as per the Drawings. The disturbed areas shall be restored and disturbed vegetated areas shall be re-seeded as specified in other sections applicable to that work.

3.04 INITIAL CONSTRUCTION ACTIVITIES AND PRELIMINARY DRAINAGE CONTROL

A Prior to beginning any dewatering, clearing, stockpiling, excavation or filling, the Contractor shall perform the following sequence of implementation of sedimentation and siltation control measures.

1. Perform all necessary work to install all anticipated sedimentation barriers including but not necessarily limited to compost filter socks, pumped water filter bags, stabilized construction entrances, and other items as necessary. Provide all necessary sedimentation and siltation control measures as required by the Engineer, Owner and regulatory agencies to minimize sedimentation or siltation from occurring beyond the immediate limits of work.

2. In addition to initial sedimentation and siltation control set-up measures, take additional steps as necessary to minimize sedimentation and siltation within work areas and eliminate sedimentation and siltation outside of work areas throughout the conduct of the Work at no additional cost to the Owner.

3. Following initial setup of sediment and erosion controls, the site shall be inspected by the Owner, Engineer, and other environmental agencies having jurisdiction. No work can continue until the Erosion controls meet the approval of said entities.

4. Damaged or loose compost filter socks or other control features shall be replaced as necessary to maintain their function of controlling sedimentation and siltation. Damaged or broken dewatering sumps, damaged or sediment filled pumped water filter bags or other items installed for sedimentation and siltation control shall be replaced immediately.

B. Remove any accumulation of silt or soil build-up behind compost filter socks as it occurs. Remove accumulations of silt and soil build-up from siltation sumps and silt traps as necessary to properly maintain their function.

C. Following periodic cleaning of all sedimentation controls and upon completion of the use of the controls, the accumulated sediment shall be allowed to dry prior to transporting to lawful off-site upland disposal locations. Costs of said disposal shall be included as part of the price stated on the Bid Proposal Form.

D. The Contractor shall repair any damage resulting from sedimentation or siltation during subsurface exploration program and related activities and restore property to its prior condition at no additional cost to the Owner.

3.05 ADDITIONAL EROSION AND SEDIMENTATION CONTROLS

A. The Engineer will make periodic inspections of the site and advise the Contractor of the need for additional erosion and sedimentation controls necessary to meet the performance standards of this Section. Representatives of the Owner and of regulatory agencies may also make similar inspections.

B. Additional erosion and sedimentation control necessary to deal with transient conditions on the site, such as following the placement of topsoil but prior to the establishment of grass cover, shall be provided by the Contractor as needed and at no additional cost to the Owner.

3.06 INSPECTION AND MAINTENANCE

In addition to the Conditions specified in the permits, the Contractor shall also undertake the following:

A. Throughout the entire duration of the Contract (including periods when on actual site work is being conducted), the Contractor shall perform weekly inspections of erosion and sediment control installations. Additional inspections shall be required immediately after each rain event exceeding one-half inch (0.5”). The Contractor shall develop a checklist to assist with periodic inspection and maintenance and shall keep completed copies of the checklist for each inspection on file along with the sediment and erosion control plan.

B. Throughout the duration of the Contract (including periods when on actual site work is being conducted), the Contractor shall repair any damage resulting from sedimentation or erosion during construction and/or construction related activities and restore property to its prior condition at no additional cost to the Owner.

C. Throughout the duration of the Contract (including periods when on actual site work is being conducted), the Contractor shall take such steps as are necessary to maintain the sediment and erosion controls in good working order, including repair or replacing controls and cleaning or removing sediment from controls.

D. The site entrance(s) shall be maintained in a condition that will prevent tracking or flow of mud onto public right-of-way. All materials spilled, dropped, washed, or tracked from vehicles onto the public roadways or into on- or off-site storm drains must be removed immediately.

E. In the event of inclement weather, the Contractor shall protect the site and materials from damage or injury from the weather. If, in the opinion of the Owner or its Engineer, any portion of the Work or materials has been damaged by reason of failure on the part of the Contractor to so protect the Work, such Work and materials shall be removed and replaced with new materials and Work to the satisfaction of the Owner. Weather protection shall include all activities necessary to prevent the spread of sediment from wind, runoff, erosion, and other causes.

3.07 REMOVAL AND CLEANUP

A. At the end of the contract work, and after each site has been fully stabilized against erosion, remove sediment control devices and accumulated silt. The Contractor shall dispose of accumulated silt materials legally off-site.

Dispose of legally off-site all other sedimentation and siltation control devices such as, but not limited to compost filter socks, filter bags, sand bags, stakes, construction site entrance materials, and all other related products. Any sediment control materials, including sandbags, etc., which have been dislodged or otherwise transported into the stream, pond or adjacent wetland resource areas must also be recovered and removed from the site.

PART 4 - MEASUREMENT AND PAYMENT

4.01 MEASUREMENT FOR PAYMENT

No measurement shall be made of this item. The bid item under this section is a lump sum quantity.

4.02 PAYMENT

A. Payment for Temporary Sedimentation and Erosion Control costs associated with the work of the Contract will be paid for based on the Lump Sum price stated for Item No. 01560.01 on the Form for Bid. Temporary Sedimentation and Erosion Control costs for all work under the Contract not specifically addressed on the Form for Bid shall be considered incidental, and the costs for such shall be included as part of the work of that Section (and included in the respective Form for Bid price items) and/or as part of the work of this Contract.

B. Partial payments for Temporary Sedimentation and Erosion Control shall be provided as follows: Sixty percent (60%) of lump sum bid price upon completion of installation and approval by the Owner's Consultant and permitting agencies/representatives having jurisdiction. Following the satisfactory completion of work, forty percent (40%) of lump sum bid price will be paid upon removal and cleanup of Temporary Sedimentation and Erosion Control items as per Paragraph 3.07 above

Item No.	Payment Item	Unit
01560.01	Temporary Erosion and Sediment Controls	Lump Sum

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

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SECTION 01565
TEMPORARY DEWATERING AND WATER CONTROL

Part A of this Section describes Temporary Surface Water Control.
Part B of this Section describes Temporary Construction Dewatering and Groundwater Control.
All Temporary Dewatering and Water Control shall be paid under a single Pay Item.

PART A – TEMPORARY SURFACE WATER CONTROL

PART 1 - GENERAL

1.01 DESCRIPTION

A. This section specifies the removal and control of surface water, groundwater and hydrostatic pressures in the work areas in order to permit all excavation, construction, installations, and demolition to be performed in the dry. The work under this section includes the furnishing of all labor, equipment, supplies, materials and utilities required for the operation, maintenance and supervision of the control of water (except as specifically specified under other Sections) such that all construction can proceed unhindered by water and flow into or through the work areas. Water control shall also extend to all provisions necessary to control water in the Reservoir and surface drainage from upland areas from flowing into, disrupting, and damaging the work areas. All work shall be performed in accordance with the plans and specifications and to the satisfaction of the Owner. Water control is of the utmost importance. Reducing hydrostatic pressure on the dam is extremely important, especially during excavation and filling between buttresses.

B. Bogue Brook Reservoir is a raw water impoundment, used as part of the City of New London Water Supply. The water surface will be drawn down preliminarily by the City through the low-level outlet. It will be the sole responsibility of the Contractor to complete and maintain the drawdown of the Reservoir through a combined means of gravity flow through the existing outlet supplemented via pumps as necessary to perform the work (e.g. during installation of new angled gate on the upstream side of the dam).

C. The Contractor shall provide two complete, separate, continuous, redundant discharge systems for surface water control. Refer to Water Control Notes on Drawing G2.

D. The Contractor is hereby notified that the City will, through the operation of existing valves, assist the Contractor whenever possible in his water control efforts. However, such assistance is limited by the requirements of the City water supply, and the configuration/condition of the existing low-level outlet. The City also has no control over the rate of inflow into the reservoir from the watershed. The City makes no guarantees as to the water levels in the Reservoir during the Project.

E. In all cases, the City shall retain sole responsibility and right to operate the existing valves and outlets at the reservoir.

F. The Contractor shall be responsible for determining the need for and the means and methods of implementing water control during the work of the Contract, except as specifically stated herein and in other Sections. The Owner and/or Engineering Consultant will monitor conditions at the site and the effects of water levels and flows on the Work. If, in the Owner or Engineering Consultant's opinion, the presence of water has the potential to create a deleterious effect on the Work, then the Contractor shall take measures to control such water to the satisfaction of the Owner and/or Engineering Consultant at no additional cost to the Owner.

G. The control of surface water shall consist of installing such provisions, as needed, to divert, reduce, or stop water which may be flowing into, on, or through the work site. The need for control of surface water will change over the course of the project depending on the work underway, as well as rainfall/runoff conditions encountered, which may change the level of the Pond or stream channel. Pumping, siphoning, and/or diversion channels may be required for certain activities.

H. Installation of temporary cofferdams (i.e. upstream Portadam or other approved similar water control structure) will be necessary for completion of the Work of this Contract as indicated on the Drawings. **The temporary cofferdam shall be provided and will be paid for under a separate Section (Section 02170).** Temporary water control shall act in concert with the temporary cofferdam.

I. Temporary construction (groundwater) dewatering systems may be necessary for completion of the Work of this Contract. The temporary construction of dewatering systems to be provided are described in Part B of this Section. Temporary construction dewatering systems shall be operated in concert with the surface water control and temporary cofferdams.

J. The Contractor shall take all necessary precautions during construction to provide and maintain proper equipment and facilities to remove promptly and dispose of properly, all water entering work area and keep work areas dry, as necessary. The Contractor shall implement such temporary surface water control measures as necessary to maintain the water level such that all work, where judged necessary, proceeds in the dry. Temporary water control work may include, but shall not be limited to diversion pipes, channels, swales, pumps, siphons, culverts, temporary cofferdam, etc.

K. Water control measures shall be in operation as needed until all work within those areas of the work zone subject to interference by surface water is complete and accepted by the Owner.

L. The Contractor shall remove all channeled, pumped, diverted, or siphoned surface water away from the work area, and provide sedimentation control and recharge in accordance with all applicable local codes and laws. All water which is discharged by water control measures shall be passed through appropriate and adequate sediment and/or filtration measures such that the effluent meets the standards specified in Section 01560 – Sedimentation and Erosion Control and those provided below. Water diverted or pumped by the Contractor shall be discharged back into the Pond upstream of the temporary cofferdam or to the culvert/stream channel downstream of the downstream end of the upper spillway shelf, and shall maintain water quality standards. Adequate provision for erosion control at the discharge point(s) shall be provided as part of the Work of this Section.

M. All temporary surface water control work shall be coordinated with temporary sedimentation and erosion control work as specified under Section 01560.

N. The Contractor shall prepare and implement a Flood Emergency/Response Plan subject to review by the Engineering Consultant and Owner describing the measures to be implemented in the case of potential flooding of the work areas.

1.02 ADHERENCE TO REGULATORY CONDITIONS

A. All work shall comply with all codes, rules, regulations, laws and ordinances and executed in conformance with any permits, licenses etc., as issued by the Connecticut Department of Energy & Environmental Protection (CTDEEP), the U.S. Army Corps of Engineers, and all other authorities having jurisdiction within the project areas. All work necessary to make the work site comply with such requirements shall be provided without additional cost to the Owner.

B. Copies of permits and licenses listed under section 01060, not otherwise included in that Section, will be forwarded to the Contractor by the Owner prior to the beginning of the work. The Contractor shall be responsible for conducting their work in accordance to all provisions of said permits.

C. The Contractor shall procure all other required permits and licenses, (except for those to be obtained by the Owner as stated herein), pay all charges, fees and taxes and shall give all notices necessary and incidental to the due and lawful prosecution of the work under this Contract. The cost thereof shall be included in the prices bid for the various items specified herein for the work of this Contract. Copies of all required permits and licenses shall be filed with the Owner prior to the beginning of the work.

D. The Contractor shall be responsible for complying with all orders and permit conditions of regulatory agencies for the installation, maintenance, and removal of all erosion and sedimentation control measures.

E. No work of any type in any area shall commence until sedimentation control measures are in place to the satisfaction of the Owner and its Engineering Consultant.

1.03 CRITICAL NATURE OF THE WORK

Dewatering and water control is critical during the work of this Contract. This work will take place in areas which are subject to inundation by waters of Bogue Brook and the Bogue Brook Reservoir. Dewatering and water control is therefore critical to constructing and maintaining the Work of the Contract in-the-dry.

1.04 RELATED WORK

A. The following is a list of related work items that shall be performed or furnished under other sections of these specifications as indicated:

1. Regulatory Requirements - Section 01060
2. Temporary Erosion and Sedimentation Control - Section 01560
3. Temporary Cofferdam - Section 02170

1.05 GENERAL DEWATERING AND WATER CONTROL WORK

A. The Contractor shall implement surface water control measures as necessary such that all work, including excavations, proceeds in the dry.

B. The Contractor shall take such steps as are necessary to control the leakage of water through the temporary cofferdams such that said leakage will not interfere with the Work of the Contract.

C. The Contractor shall take all reasonable and prudent precautions during construction to provide and maintain proper equipment and facilities to remove promptly and dispose of properly, all water entering work areas and keep such areas dry so as to obtain a satisfactory undisturbed subgrade condition.

D. Dewatering measures (and cofferdam) shall be in operation until all work below normal Reservoir and stream elevations is complete, and accepted by the Owner and Engineering Consultant.

E. Shallow sumps may be required for surface water collection. Sumps shall be surrounded by suitable filter material. Pumping shall be continuous as necessary to maintain the work in the dry.

1.06 SUBMITTALS

A. Not less than ten (10) days prior to the scheduled start of work, the Contractor shall submit his proposed method of controlling surface water and maintaining dry conditions, to the

Engineering Consultant for review. The submittal shall include as a minimum the following items:

1. The Contractor's proposed design, sequence of operation, maintenance and supervision of the surface water and control systems, as needed for each major phase of the work, and coordination with temporary groundwater control and the temporary cofferdams.

2. Design of temporary cofferdams shall be submitted under Section 02170.

3. The Contractor's proposed contingency plan for additional surface water measures for all systems in the event of cofferdam or pumping system failure. Plan shall include monitoring, instrumentation, on-call repair, etc.

4. Scheduling requirements with regard to Sedimentation Control and temporary cofferdam installation.

5. The Contractor's proposed Flood Emergency/Response contingency plan for potential storm emergency conditions (i.e. anticipated heavy rainfall). The contingency plan should address, but not to be limited to, measures for pre-storm water releases from the impoundment, handling flooding of the work area, removing equipment and materials from the work area.

1.07 PROTECTION OF WORK FROM FLOOD CONDITIONS

A. The Contractor shall take all such precautions necessary to protect the site and the Works of this Contract, either completed or incomplete, from flood waters and flows which would either damage the Work or the site or cause a delay to the Work.

B. In the event of significant natural flooding, the Contractor may need to actively release water from the Reservoir via pumping or siphoning depending upon the stage of construction. If extensive flooding is expected, the Contractor shall implement his/her contingency plan in conjunction with the Engineering Consultant to release water from the impoundment at the maximum rate allowed to drawdown the impoundment in advance of the storm (within the allowable limits). The release of water shall not exceed the discharge rates described above or elsewhere in the contract documents including the related permits. All water releases shall be coordinated with Engineering Consultant. The Contractor shall remove all equipment and erosion-susceptible material from areas liable to be inundated or otherwise impacted by flooding. The Contractor shall secure the site and make all efforts to protect completed and incomplete work.

1.08 ANTICIPATED RESERVOIR LEVELS AND INFLOWS

A. The Contractor shall be required and responsible for taking necessary precautions against potential flooding during the course of the Work. In the event of uncontrolled increases

in the Reservoir level, the Contractor shall undertake measures to protect existing structures and new work, including but not necessarily limited to pumping or siphoning of water from the Reservoir upstream of the cofferdam in order to maintain or maintain the level in the Reservoir within specified levels.

B. **Reservoir water surface elevations will be influenced by rainfall, inflows, evaporation, and other climatic conditions beyond the control of City. The City makes no guarantees regarding the Reservoir or stream channel water surface elevation at the start of and during construction.**

C. In the event that dry conditions lead to naturally low Reservoir levels, the Contractor will NOT be required to take steps to raise the Reservoir level beyond what would occur naturally.

1/09 DISCHARGE OF WATER

The general performance standard for the discharge of effluent into state waters states that the discharge water shall not have a significant impact on the receiving waters. The discharged water shall therefore meet the following standards:

Solids - Discharge waters shall be free from floating, suspended and settleable solids in concentrations or combinations greater than that of the receiving waters, that would cause aesthetically objectionable conditions, or that would impair the benthic biota or degrade the chemical composition of the bottom.

Color and Turbidity - These waters shall be free from color and turbidity in concentrations or combinations that are aesthetically objectionable or are significantly different from the receiving waters. Turbidity in wetland resource areas resulting from activities in or near wetlands shall not exceed 50 N.T.U's, or as otherwise required by the State or other controlling body.

In addition, aquatic wildlife in the receiving waters may be sensitive to increased temperatures. Therefore, to the extent practicable, the temperature of water discharged directly into the Reservoir (upstream of the cofferdam) or stream channel (downstream of the work areas) should be limited to not more than 70º F.

The Contractor is reminded to adhere to all provisions and conditions regarding the discharge of water and general water control contained in all permits and licenses. In particular, specific guidelines (if any) regarding Total Suspended Solids (TSS), Oil and Grease, and pH in discharge water should be adhered to.

PART 2 - PRODUCTS

2.01 PUMPS, HOSES, SIPHONS

A. Pumps, hoses, or siphons used at the site shall be sized appropriately and shall be maintained in good working order by the Contractor.

B. Pumps shall be sized appropriately by the Contractor and shall operate in a manner which does not create a nuisance to abutters (i.e. quietly and without significant exhaust).

C. Electric power service is not currently available at the worksite. Fuel for pumps and generators must be located such that fuel cannot be released into the Reservoir or stream. Secondary containment shall be provided for gasoline or diesel-powered pumping equipment. All appropriate precautions shall be taken to protect the Reservoir and stream and downstream resource areas. Electrical generators, fuel supplies or other supplementary equipment required for operation of pumps shall be located in areas approved by the Owner and Engineering Consultant with secondary containment.

2.02 PIPE

A. Pipes used for water control and/or diversions shall be sized appropriately and shall be in good condition without leaks or cracks. Pipe pressure ratings shall be adequate for static head loading when pressure flow is expected. Pipe joints shall be watertight and installed as per the manufacturer's recommendations.

2.03 SANDBAGS

A. Sandbags shall consist of polypropylene bags about 14 to 18 inches wide (14" to 18"), and 30 to 36 inches long (30" to 36"). Sandbags shall be filled with Select Sand Fill as set out in Section 02200-Earthwork. On-site soil sources may be used as appropriate.

PART 3 - EXECUTION

3.01 GENERAL

A. This section defines the intent of water control work, but the Contractor shall ultimately be responsible for means and methods and compliance with the specification will be judged on a performance criteria. The Contractor shall submit a water control plan to the Owner for review and may, at that time, propose alternative water control strategies. The Contractor's water control plan must however satisfy the terms and conditions of all permits issued to the project.

B. The Contractor shall provide all necessary electrical power for running the dewatering and water control systems. The Contractor shall provide a back-up electrical generator,

pumps and related equipment and supplies on-site with output capacity sufficient to maintain continuous operation of the dewatering and water control systems in the event the original equipment or power source(s) which is in use becomes inoperable. The back-up generator, pumps and necessary equipment and supplies shall be connected to the operating system to the greatest degree possible prior to the start of all operations in such a manner to allow immediate replacement of the inoperable equipment. If the Contractor chooses to store any backup equipment off-site, the capability to mobilize to the site and install within 8 hours shall be maintained.

C. The Contractor shall take all reasonable and prudent precautions during construction to provide and maintain proper equipment and facilities to control and divert water. Extra vigilance in monitoring any cofferdam structure is vital since dislodgement of such a structure could cause injury to workers within.

D. If necessary, water control systems shall be operated continuously during all construction specified herein. The operation time may include breaks, nights, weekends, holidays and other times when work is not otherwise being performed on the site. The Contractor shall be responsible for protecting his equipment from damage due to vandalism.

E. Where the Contractor proposes to remove water from the bottom of an excavation or ponding area by sumping as approved by the Owner and Engineering Consultant, the sump shall be surrounded by a suitable filter to prevent removal of soil fines. Pumping from sumps which remove fines from the soil shall be immediately terminated and the dewatering method revised accordingly. Pumping from the dewatering system shall be continuous until the pipe or structure is adequately backfilled.

F. Water control in the site area shall account for the range of flow reasonably expected in and to the Pond during the course of the Project. The temporary cofferdam shall be constructed of such materials and to such extents that they will withstand the forces, pressures, flows, and depths of a reasonable expected magnitude. The cofferdam shall be compatible with other dewatering, water control, and sedimentation control procedures. Dewatering equipment shall be provided as needed to remove water from the interior area of a downstream cofferdam/diversion barrier.

G. The Contractor shall make provisions to remove any impediments to flow through the spillway or other water conveyance structures expeditiously in the event of a flood event which threatens to overwhelm the water control system or cause increased water levels which might lead to damage at the Work or other property upstream or downstream of the Work area.

H. If deployed by the Contractor, pumps must be operated in such a way as to not disturb abutters (e.g. noise). Pump intakes shall be placed so as to reduce the potential for sediment entrainment and pump discharge points shall make provisions for reducing erosion potential through energy dissipation, riprap protection, etc.

I. The dewatering system shall not cause damage to newly constructed or existing properties, buildings, utilities or other work due to loss of ground or support from incompletely drained soils or from removal of soil particles caused by the dewatering system.

J. Dewatering facilities shall be located where they will not cause interference with work performed by others.

K. If the dewatering system utilized by the Contractor causes or threatens to cause damage to new or existing facilities the dewatering system shall be removed and/or modified at no additional expense to the Owner.

3.02 GENERAL WATER CONTROL METHODOLOGY LIMITATIONS

In order to maintain the quality of dewatering and water control effluent and to prevent the discharge of unacceptable quantities of sediment, the following minimum restrictions shall be observed.

A. Intakes for pumps and siphons will not be allowed to rest directly on the reservoir or stream bottom. To prevent this, a frame may be attached to the intake to elevate the intake off the bottom, or the intake may be attached to a float to maintain the intake at a height determined by the Contractor above the bottom to prevent unacceptable discharge of sediment.

B. When sumps are required, the intake must be placed within a perforated pipe and the annular space between the pipe and the sump pit (as well as the bottom of the pit) must be filled with Crushed Stone as submitted by the Contractor. Filter fabric may also be used if necessary.

C. Discharge water may be passed through “Silt socks,” “Dirt Bags,” or other proprietary devices which reduce turbidity.

PART B – TEMPORARY CONSTRUCTION DEWATERING AND GROUNDWATER CONTROL

PART 1 - GENERAL

1.01 SCOPE

A. This section specifies the removal and control of groundwater and hydrostatic pressures in the work areas in order to permit excavation, construction, installations, and demolition to be performed in the dry. The work under this section includes the furnishing of all labor, equipment, supplies, materials and utilities required for the operation, maintenance and supervision of the dewatering system and control of water such that the excavation and/or backfilling operation can proceed unhindered by groundwater and flow into or through the work area. All work shall be performed in accordance with the plans and specifications and to the satisfaction of the Owner and the Engineering Consultant.

B. The Contractor shall implement groundwater dewatering and control measures to maintain the groundwater level such that excavation work proceeds in the dry.

C. The Contractor shall take all reasonable and prudent precautions during construction to provide and maintain proper equipment and facilities to remove promptly and dispose of properly, all groundwater entering work area and keep such areas dry so as to obtain a satisfactory undisturbed subgrade condition.

D. Shallow sumps may be required to maintain the lowered groundwater level until work has been completed. Sumps shall be surrounded by suitable filter material. Well points or dewatering wells may be required in place of or in addition to other dewatering techniques. Pumping shall be continuous as necessary to maintain the work in the dry.

E. The Contractor shall remove all pumped water away from the work area, and provide sedimentation control and recharge in accordance with all applicable local codes and laws as well as the Sedimentation and Erosion Control and Surface Water Control Sections of the Contract Documents. Requirements specified by any regulatory agencies shall be met during this process. All water which is discharged by dewatering measures shall be passed through appropriate and adequate sediment and/or filtration measures such that the effluent meets the standards set out in Section 01560 and those provided below. The Contractor shall discharge all dewatering and groundwater control effluent into the Reservoir upstream of the temporary cofferdam or to the culvert/stream channel downstream of the downstream end of the upper spillway shelf, and shall maintain water quality standards.

F. Dewatering systems shall act in concert with surface water control systems, noted in Part A above, and with the temporary cofferdam.

1.02 ADHERENCE TO REGULATORY CONDITIONS

A. See Part A for Regulatory Conditions.

1.03 RELATED WORK

A. See Part A for list of Related Work.

1.04 DISCHARGE OF WATER

A. See Part A for Discharge of Water requirements.

1.05 SUBMITTALS

A. Not less than ten (10) days prior to the scheduled start of groundwater dewatering work, the Contractor shall submit his proposed method of dewatering and maintaining dry conditions, to the Engineering Consultant for review. The submittal shall include as a minimum the following items:

1. The Contractor's proposed design, sequence of operation, maintenance and supervision of the dewatering system for the maintenance of groundwater levels as specified herein and as needed for the Contractor’s operations.

2. The Contractor's proposed contingency plan for groundwater control measures for all systems.

3. Scheduling requirements with regard to Sedimentation Control, Temporary Cofferdam installations, sheet pile installation, excavation, and other pertinent work.

PART 2 - PRODUCTS

This Section Not Used

PART 3 – EXECUTION

3.01 GENERAL

A. Electric power service is not currently available at the Worksite. The Contractor shall provide a back-up electrical generator, pumps and related equipment and supplies on-site with output capacity sufficient to maintain continuous operation of the dewatering systems in the event the original dewatering equipment or power source(s) which is in use becomes inoperable. The back-up generator, pumps and necessary equipment and supplies shall be connected to the system to the greatest degree possible prior to the

start of all dewatering operations in such a manner to allow immediate replacement of the inoperable equipment.

B. Dewatering systems shall be operated continuously and groundwater levels monitored and maintained at specified levels during all construction specified herein. The operation time is to include breaks, nights, weekends, holidays and other times when work is not otherwise being performed on the site. The Contractor shall be responsible for protecting his equipment from damage due to vandalism.

C. Prior to dewatering, all sedimentation controls shall be in-place and operable. Prior to excavation, groundwater levels shall be lowered and maintained by the dewatering system submitted by the Contractor and approved by the Engineering Consultant to two feet (2') below the subgrade elevation in all work areas. Compliance of the dewatered levels with the level specified herein shall be determined by visual observation of sumps, subgrades, etc.

D. Where the Contractor proposes to remove groundwater from the bottom of the excavation by sumping as approved by the Engineering Consultant, the sump shall be surrounded by a suitable filter to prevent removal of soil fines. Pumping from sumps which remove fines from the soil shall be immediately terminated and the dewatering method revised accordingly.

E. All pumped water shall be discharged in accordance with Section 01560 and the requirements specified in Part A above as applicable.

F. If applicable, all requirements regulatory agencies shall be satisfied.

G. The Contractor may stage his dewatering plan such that dewatering and groundwater control is limited to areas where work is or soon will be occurring. Groundwater control may cease when the Contractor and Owner and its Engineering Consultant are satisfied that groundwater will no longer affect the Work of the Contract or the integrity of the structure in the area.

H. Groundwater levels in excavations shall be maintained two feet (2') below the working surface so that work can be conducted "in-the-dry."

3.02 GENERAL WATER CONTROL METHODOLOGY LIMITATIONS

In order to maintain the quality of dewatering and water control effluent and to prevent the discharge of unacceptable quantities of sediment, the following minimum restrictions shall be observed:

A. When sumps are required, the intake must be placed within a perforated pipe and the annular space between the pipe and the sump pit (as well as the bottom of the pit) must be filled with crushed stone. Filter fabric may also be used, if necessary.

B. Discharge water may be passed through sedimentation chambers, basins, "Silt socks," "Dirt Bags," or other proprietary devices which mitigate turbidity delivered to receiving waters. These devices should have a supplemental perimeter line of turbidity curtains or siltation barrier.

C. Discharge may also be passed through a temporary sedimentation tank sized appropriately for the flow rate.

Part 4 below applies to the work of both Part A and Part B of this section.

PART 4 - MEASUREMENT AND PAYMENT

4.01 MEASUREMENT FOR PAYMENT

No measurement shall be made of this item. The bid item under this section is a lump sum quantity.

4.02 PAYMENT

Payment for the scope of the work specified herein, including all labor, materials, equipment and incidentals and mobilization/demobilization costs to provide dewatering and water control associated with the work of this Contract shall be paid for at the applicable Lump Sum price stated on the Form for Bid.

Item No.	Payment Item	Unit
01565.01	Temporary Dewatering and Water Control	Lump Sum

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

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SECTION 01566
SUBSURFACE, HYDRAULIC, AND HYDROLOGIC DATA
(FOR INFORMATIONAL PURPOSES ONLY)

PART 1 - GENERAL

1.01 GENERAL, PURPOSE, AND INTENT OF DATA

A. The Owner's Engineer has compiled the data referenced and contained herein regarding certain subsurface, hydraulic, hydrologic, and as-built information pertaining to the Bogue Brook Reservoir Dam and its watershed associated with the Project, along with data on climate in the area. This information is presented **FOR INFORMATION ONLY**. Neither the Owner nor the Engineer makes any assurances as to the accuracy of the information depicted or referenced in this section. The Contractor is responsible for making their own assumptions, interpretations, and conclusions based on the data presented herein. The Contractor may, at their own expense, make additional evaluations, investigations, and studies to confirm the information presented herein at no additional expense to the Owner. If the Contractor chooses to perform additional subsurface explorations, obtain prior permission from the Owner.

B. Review pertinent data for the site, including the following.

1. Hydrologic, and hydraulic data are included in the permit applications referenced in Section 01060. Exploration locations are shown on the Plans. Permit applications may be made available upon written request from the Owner.
2. Subsurface exploration logs prepared by GZA are attached to this Section.
3. As-built drawings for original dam construction and subsequent repairs are attached to this Section.
4. A 2016 dive survey report and video on the upstream side of the dam is available upon written request from Owner.

C. Aforementioned data is for general information and is accurate only at the particular locations and times the data was collected or evaluated, in accordance with limits of the methods employed. It is the Contractor's responsibility to make interpretations and draw conclusions based on the conditions and character of materials to be encountered and the impact on his work based on his expert knowledge of the area and of construction techniques. Additional Limitations are included in the above-referenced data sources.

1.02 STREAM FLOW DATA FOR BOGUE BROOK RESERVOIR

The watershed associated with the Bogue Brook Reservoir Dam site is a total area of approximately 1.7 square miles divided into two subbasins. The dam is located on Bogue Brook approximately 0.8 miles upstream from its confluence with Latimer Brook at Beckwith Pond. Subbasin I consists of the drainage area contributory to Bogue Brook Reservoir and has an area of 1.56 square miles. The Bogue Brook Reservoir with an area of 0.12 square miles. The Bogue Brook Reservoir Dam watershed is an ungaged watershed. The U.S. Geological Survey operates a gage on Pendleton Hill Brook near Clark Falls, CT, which has a comparable watershed drainage area (4.0 square miles) with Bogue Brook

Reservoir Dam (1.7 square-miles), is located about 20 miles from Bogue Brook Reservoir Dam, and it has similar watershed characteristics. Data from this gage may be useful as a surrogate for data regarding Bogue Brook tributary, provided appropriate scaling factors are applied. The gage number is 01118300, and data from the gage is available via the internet at:

https://waterdata.usgs.gov/usa/nwis/uv?site_no=01118300

The watershed area associated with this gage is approximately 4.0 square miles. Peak flow statistics associated with the gage are here:

https://streamstatsags.cr.usgs.gov/gagepages/html/01118300.htm

The Owner's Engineer has estimated hydrologic and hydraulic characteristics regarding the watershed, pond, and hydraulic control structures. A portion of this information is summarized below. This hydrologic information is presented for informational purposes only. No warranty, expressed or implied, is made on the accuracy of the information herein. The Contractor is responsible for making his or her own interpretation of possible precipitation and/or resultant flow conditions, and responsible for all such decisions which may affect Contractor's water control and construction methods or associated cost of construction. The information below represents analysis of data using standard statistical methods. Actual conditions may differ from those presented in **Table 1** below.

TABLE 1: STATISTICS OF MONTHLY MEAN STREAM FLOWS (cfs) FOR BOGUE BROOK RESERVOIR DAM BASED ON DRAINAGE AREA RATIO METHOD

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Mean	4.7	5.0	6.6	5.8	3.9	2.6	1.1	0.8	0.9	1.6	3.1	4.7
Max	16.9	8.7	20.7	18.7	9.0	12.6	9.6	4.8	6.5	6.8	9.2	11.2
Min	0.7	1.1	2.3	1.7	1.5	0.3	0.1	0.04	0.02	0.1	0.4	0.7

The calculated peak flow rates to Bogue Brook Reservoir are included in **Table 2** below. The flow rates were calculated using the U.S. Army Corps of Engineers Hydraulic Engineering Center (HEC) Hydraulic Modeling System (HMS) model and Snyder's Method (Viessman et al, 1977), a common and reliable unit hydrograph method, which is internal to the HEC-HMS code. The precipitation depths were based on the National Oceanic and Atmospheric Administration (NOAA) Atlas 14 (NOAA, 2016) obtained from the Precipitation Frequency Data Server (PFDS) (http://hdsc.nws.noaa.gov/hdsc/pfds/). The NOAA rainfall depths were used with the 24-hour, SCS Type III temporal distribution selected in HEC-HMS.

TABLE 2: CALCULATED PEAK INFLOW RATES DUE FOR VARIOUS FLOOD RECURRENCES FOR BOGUE BROOK RESERVOIR DAM

Flood	24-Hour Precipitation Depth (in)	Peak Inflow to Pond (cfs)
1-Year	2.89	290
2-Year	3.45	360
5-Year	4.37	480
10-Year	5.14	570
25-Year	6.19	710
50-Year	7.00	810
100-Year	7.81	920

PART 2 – PRODUCTS

Not Used

PART 3 - EXECUTION

Not Used

PART 4 - MEASUREMENT AND PAYMENT

No measurement shall be made of any work performed under this section. No separate payment shall be made for any work performed under this section. The cost of any work done or facilities provided under this section shall be included under other bid items within the Contract.

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

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TEST BORING LOG

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Bogue Brook Reservoir
Dam Improvement
Montville, Connecticut

BORING NO.: GZ-1
SHEET: 1 of 1
PROJECT NO: 01.0172560.00
REVIEWED BY: CBN

Drilling Co.: Geologic
Foreman: P. Fisher
Logged By: J. Davis

Type of Rig: ATV
Rig Model: CME 45
Drilling Method: Rotary Wash

Boring Location: See Plan
Ground Surface Elev. (ft.): 189.5
Final Boring Depth (ft.): 29.5
Date Start - Finish: 1/11/2016 - 1/14/2016

H. Datum: NAD83
V. Datum: NAVD88

Auger/Casing Type: Automatic
I.D./O.D.: 4" ID
Hammer Weight (lb.): 140
Hammer Fall (in.): 30
Other: Nx

Sampler Type: Split Spoon
I.D./O.D (in.): 2.0
Sampler Hmr Wt: 140 lbs
Sampler Hmr Fall: 30"
Other:

Groundwater Depth (ft.)

Date	Time	Water Depth	Stab. Time
1/12/16	1400	+3.0	2 hrs.
1/13/16	1530	+3.8	27.5 hrs.
1/14/16	0730	+3.8	43.5 hrs.

Depth (ft)	Casing Blows/ Core Rate	Sample No.	Sample Depth (ft.)	Pen. (in)	Rec. (in)	Blows (per 6 in.)	SPT Value	Sample Description Modified Burmister	Remark	Field Test Data	Stratum Depth (ft)	Stratum Description	Stratum Elev. (ft)	Equipment Installed
	P	S-1	0-2	24	4	4 3		S-1: Loose, dark brown, fine to coarse	1					No Equipment Installed
	P					1 2	4	SAND and SILT, trace Gravel, trace Roots.						
	P	S-2	2-4	24	0	12 29		S-2: NO RECOVERY (Gravel stuck in	*					
	74					17 14		spoon tip)				FILL		
5		S-3	4-6	24	13	11 13		S-3: Dense, brown, fine to coarse SAND,						
						17 19	30	some Gravel, little Silt.			6'		183.5'	
		S-4	6-8	24	12	21 31		S-4: Brown, fine to coarse SAND, some	*					
						34 39		Gravel, little Silt.						
		S-5	8-10	24	14	28 32		S-5: Brown, fine to coarse SAND and						
						33 27	65	GRAVEL, little Silt.						
10		S-6	10-12	24	15	24 39		S-6: Brown, fine to coarse SAND and	*					
						47 48		GRAVEL, little Silt.				GLACIAL TILL		
15		S-7	15-16.3	15	12	29 43		S-7: Brown, fine to coarse SAND, little Silt,						
						100/3"	R	trace Gravel.	2		16.5'		173.0'	
20	5	S-8	19.5-	0	0	75/0"	R	S-8: No Penetration	3					
	4	C-1	19.5	60	52			C-1: Top 38": Hard, slightly weathered,						
	3		19.5-24.5					sound, fine to coarse grained, gray/pink						
	2							GRANITIC GNEISS with moderately dipping						
	2							foliation.				BEDROCK		
25	3	C-2	24.5-	60	42			Bottom 14": Hard, slightly to moderately						
	2		20.5					weathered, moderately fractured, fine to						
	3							coarse grained, Gray/white GRANITIC						
	2							GNEISS. (% REC - 87, RQD = 58%) (rust						
	4							staining in fracture @ 9", 21", 25", 38") (soil						
30								seam @ ~42")	4		29.5'		160.0'	
								C-2: Moderately hard to hard, moderately to	5					
								highly weathered, moderately to extremely	6					
								fractured, fine to coarse grained, gray						
								SCHIST, with moderately dipping						
								foliation.(% REC = 70, RDQ = 0%)						
35								Bottom of boring at 29.5 feet.						

REMARKS

1. Borehole advanced with 4-inch diameter casing and rotary wash drilling methods to about 19.5 feet. Casing advanced with 140 lb automatic hammer. P = Push. Borehole advanced by rotary wash dilling ahead of casing from 10 to 19.5 feet.
*. Split spoon sampled through previous split spoon sample hole without drilling out to top of sample interval. Blow counts may not be representative.
2. Difficult drilling from about 16 feet to 18 feet. Resistance increased again at 18 feet.
3. Rock coring performed with Nx size double tube core barrel under about 200 psi down pressure (rig weight). Core rate in units of minutes per foot. RQD = Rock Quality Designation.
4. Borehole tremie grouted to ground surface. Theoretical volume ~18.5 gallons. Actual volume ~60 gallons. Approximately 8 feet of 4-inch casing abandoned in hole due to artesion condition.
5. Elevation of Bogue Brook Reservoir approximately 199.5 ft. on January 11, 2016.
6. "Artesian" groundwater conditions observed during drilling Casing stickup left above ground surface to offset water pressure during grouting.

See log key for explanation of sample descriptions and identification procedures. Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

Boring No.: GZ-1

172560 BOGUE BROOK RESERVOIR.GPJ; STANDARD BORING W/E W/SMPL 2PG; 7/6/2017

TEST BORING LOG

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Bogue Brook Reservoir
Dam Improvement
Montville, Connecticut

BORING NO.: GZ-2
SHEET: 1 of 1
PROJECT NO: 01.0172560.00
REVIEWED BY: CBN

Drilling Co.: Geologic
Foreman: P. Fisher
Logged By: J. Davis

Type of Rig: ATV
Rig Model: CME 45
Drilling Method: Rotary Wash

Boring Location: See Plan
Ground Surface Elev. (ft.): 196.5
Final Boring Depth (ft.): 24
Date Start - Finish: 1/12/2016 - 1/12/2016

H. Datum: NAD83
V. Datum: NAVD88

Auger/Casing Type: Automatic
I.D./O.D.: 4", 3" ID
Hammer Weight (lb.): 140
Hammer Fall (in.): 30
Other: Nx

Sampler Type: Split Spoon
I.D./O.D (in.): 2.0
Sampler Hmr Wt: 140 lbs
Sampler Hmr Fall: 30"
Other:

Groundwater Depth (ft.)

Date	Time	Water Depth	Stab. Time
1/12/16	1500	+0.8'	15 min.

Depth (ft)	Casing Blows/ Core Rate	Sample No.	Sample Depth (ft.)	Sample Pen. (in)	Sample Rec. (in)	Sample Blows (per 6 in.)	SPT Value	Sample Description Modified Burmister	Remark	Field Test Data	Stratum Depth (ft)	Stratum Description	Stratum Elev. (ft)	Equipment Installed
0		S-1	0-2	24	11	4 3 4 8	7	S-1: Top 8": Dark brown, fine to coarse SAND and SILT, little Gravel, trace Roots.	1					No Equipment Installed
		S-2	2-4	24	14	13 20 17 12		Bottom 3": Orange-brown SILT and fine to coarse SAND, trace Gravel.	* 2			FILL		
5		S-3	4-6	24	15	29 24 15 16	39	S-2: Light brown, fine to coarse SAND and GRAVEL, little Silt (wet).			6'		190.5'	
		S-4	6-8	24	9	24 19 19 18		S-3: Top 9": Light brown, fine to coarse SAND, little Silt, trace Gravel.	*					
		S-5	8-10	24	14	15 13 15 12	28	Bottom 6": Rust-brown, fine to coarse SAND and Clayey SILT, little Gravel.						
10		S-6	10-12	24	12	14 11 12 10		S-4: Brown, fine to coarse SAND, little Silt, trace Gravel.	*			GLACIAL TILL		
								S-5: Medium dense, light brown, fine to coarse SAND, little Silt, trace Gravel. (Decomposed Gravel observed)						
15		S-7	15-15.5	6	3	100/6"	R	S-6: Light brown, fine to coarse SAND, little Silt, little Gravel.	3					
								S-7: Light brown, fine to coarse SAND, little Silt.	4		17.5'		179.0'	
	2.5	C-1	19-24	60	60			C-1: Very hard, slightly weathered, sound, fine to coarse grained, gray SCHIST with pink Granitic Gneiss intrusions with steep dipping foliation. (% REC = 100, RQD = 87%) (Bottom 3" moderately weathered)				BEDROCK		
20	2.5													
	2.5													
	3													
	3										24'		172.5'	
25									5					
								Bottom of boring at 24 feet.	6					
30														

REMARKS

1. Borehole advanced with 4-inch diameter casing and rotary wash drilling methods to about 15 feet. 4-inch casing advanced with 140 lb automatic hammer. Borehole advanced by rotary wash drilling ahead of casing from 14.5 to 19 feet. 3-inch diameter casing telescoped through 4" casing to advance borehole from 15 to 19 feet.
*. Split spoon sampled through previous split spoon sample hole without drilling out to top of sample interval. Blow counts may not be representative.
2. Increased drilling resistance from 2 to 4, 14 to 14.5, 15.5 to 16, and 17.5 feet to bottom of borehole.
3. 4" casing refusal at 15 feet. Rollerbit refusal at 19 feet.
4. Rock coring performed with Nx size double tube core barrel under about 200 psi of down pressure (rig weight). Core rate in units of minutes per foot. RQD - Rock Quality Designation
5. Elevation of Bogue Brook Reservoir approximately 199.6ft. on January 12, 2016.
6. "Artesian" groundwater conditions observed during drilling Casing stickup left above ground surface to offset water pressure during grouting.

See log key for explanation of sample descriptions and identification procedures. Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

Boring No.: GZ-2

TEST BORING LOG

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Bogue Brook Reservoir
Dam Improvement
Montville, Connecticut

BORING NO.: GZ-3
SHEET: 1 of 1
PROJECT NO: 01.0172560.00
REVIEWED BY: CBN

Drilling Co.: Geologic
Foreman: P. Fisher
Logged By: J. Davis

Type of Rig: ATV
Rig Model: CME 45
Drilling Method: Rotary Wash

Boring Location: See Plan
Ground Surface Elev. (ft.): 203
Final Boring Depth (ft.): 18
Date Start - Finish: 1/13/2016 - 1/13/2016

H. Datum: NAD83
V. Datum: NAVD88

Auger/Casing Type: Automatic
I.D./O.D.: 4", 3" ID
Hammer Weight (lb.): 140
Hammer Fall (in.): 30
Other: Nx

Sampler Type: Split Spoon
I.D./O.D (in.): 2.0
Sampler Hmr Wt: 140 lbs
Sampler Hmr Fall: 30"
Other:

Groundwater Depth (ft.)

Date	Time	Water Depth	Stab. Time
1/13/16	1300	1.5	1 hr.

Depth (ft)	Casing Blows/ Core Rate	Sample No.	Sample Depth (ft.)	Pen. (in)	Rec. (in)	Blows (per 6 in.)	SPT Value	Sample Description Modified Burmister	Remark	Field Test Data	Stratum Depth (ft)	Stratum Description	Stratum Elev. (ft)	Equipment Installed
		S-1	0-2	24	5	2 4 3 3	7	S-1: Loose, orange-brown and brown, fine SAND, some Silt, trace Gravel, trace Roots.	1		0.3'	FOREST MAT	202.7'	No Equipment Installed
		S-2	2-4	24	10	7 10 19 14		S-2: Light brown, fine to coarse SAND, little Gravel, little Silt.	*		3'	SUBSOIL	200.0'	
5		S-3	4-6	24	12	49 34 37 33	71	S-3: Very dense, light brown, fine to coarse SAND, some Silt, some Gravel.						
		S-4	6-8	24	11	25 35 32 35		S-4: Light brown, fine to coarse SAND, some Gravel, some Silt.	*			GLACIAL TILL		
		S-5	8-10	24	12	33 30 25 20	55	S-5: Very dense, light brown, fine to coarse SAND, little Silt, trace Gravel.						
10		S-6	10-11	12	5	20 100/6"	R	S-6: Light brown, fine to coarse SAND, little Silt, trace Gravel.	* 2		11'		192.0'	
	2.5	C-1	13-18	60	56			C-1: Very hard, slightly weathered, slightly fractured to sound, fine to coarse grained, pink GRANITIC GNEISS with gray Schist intrusions with moderately dipping foliation. (% REC = 93, RQD = 63%)	3			BEDROCK		
15	2 2 2.5 2.5								4		18'		185.0'	
								Bottom of boring at 18 feet.	5					
20														
25														
30														

REMARKS

1. Borehole advanced with 4-inch diameter casing and rotary wash drilling methods. 4-inch casing advanced with 140 lb automatic hammer. Borehole advanced by rotary wash drilling ahead of casing from 4 to 13 feet. 3-inch casing telescoped through 4' casing to advance borehole from 10 to 13 feet.
*. Split spoon sampled through previous split spoon sample hole without drilling to top of sample interval. Blow counts may not be representative.
2. Increased drilling resistance from 11 to 13 feet. Rollerbit refusal at 13 feet.
3. Rock coring performed with Nx-size double tube core barrel under about 200 psi (rig weight). Core rate in units of minutes per foot. RQD = Rock Quality Designation
4. Borehole tremie grouted to ground surface. Theoretical volume ~15 gallons, actual volume ~25 gallons.
5. Elevation of Bogue Brook Reservoir approximately 199.8 ft. on January 13, 2016.

See log key for explanation of sample descriptions and identification procedures. Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

Boring No.: GZ-3

TEST BORING LOG

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Bogue Brook Reservoir
Dam Improvement
Montville, Connecticut

BORING NO.: GZ-4
SHEET: 1 of 1
PROJECT NO: 01.0172560.00
REVIEWED BY: CBN

Drilling Co.: Geologic
Foreman: P. Fisher
Logged By: J. Davis

Type of Rig: ATV
Rig Model: CME 45
Drilling Method: Rotary Wash

Boring Location: See Plan
Ground Surface Elev. (ft.): 190
Final Boring Depth (ft.): 15
Date Start - Finish: 1/15/2016 - 1/15/2016

H. Datum: NAD83
V. Datum: NAVD88

Auger/Casing Type: Automatic
I.D./O.D.: 4" ID
Hammer Weight (lb.): 140
Hammer Fall (in.): 30
Other: NA

Sampler Type: NA
I.D./O.D (in.): NA
Sampler Hmr Wt: 140 lbs
Sampler Hmr Fall: 30"
Other:

Groundwater Depth (ft.)

Date	Time	Water Depth	Stab. Time
1/15/16	1100	+3.8'	10 min.

Depth (ft)	Casing Blows/ Core Rate	Sample No.	Sample Depth (ft.)	Sample Pen. (in)	Sample Rec. (in)	Sample Blows (per 6 in.)	Sample SPT Value	Sample Description Modified Burmister	Remark	Field Test Data	Stratum Depth (ft)	Stratum Description	Stratum Elev. (ft)	Equipment Installed
0	15							No sampling. Refer to Note 2.	1		0		190	
	17								2			FILL		
	90										6'		184.0'	Grout (0-13')
5														
10									3			GLACIAL TILL		
									4					
15									5		15'		175.0'	Bentonite Chips (13-14') Filter Sand (14-15') Vibrating Wire Piezometer (14.4-14.6')
								Bottom of boring at 15 feet.	6					
20														
25														
30														

REMARKS

1. Borehole advanced with 4-inch diameter casing and rotary wash drilling methods. Casing advanced with 140 lb automatic hammer.
2. Soil stratum based on adjacent boring GZ-1. Refer to GZ-1 test boring log for additional information.
3. Artesian conditions observed starting at about 10 feet.
4. 4-inch diameter casing refusal at 10 feet. Increased rollerbit resistance and rapping of drill rods from about 10 to 12 feet. 4-inch casing advanced to 15 feet after rollerbitting ahead of casing. Rollerbit and casing refusal at 15 feet.
5. GeoKon 4500S vibrating wire piezometer installed at about 14.5 feet. Filter sand installed from 15 to 14 feet. Bentonite chips installed from 14 to 13 feet. Bentonite-cement grout tremied to about 2 feet below grade. 8 feet of 4-inch casing abandoned in hole due to artesian conditions. Theoretical grout: 11 gallons, actual grout: 30 gallons.
6. Elevation of Bogue Brook Reservoir approximately 199.9 ft. on January 15, 2016.

See log key for explanation of sample descriptions and identification procedures. Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

Boring No.: GZ-4

172560 BOGUE BROOK RESERVOIR.GPJ; STANDARD BORING W/E W/SMPL 2PG; 7/6/2017

TEST BORING LOG

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Bogue Brook Reservoir
Dam Improvement
Montville, Connecticut

BORING NO.: GZ-5
SHEET: 1 of 2
PROJECT NO: 01.0172560.00
REVIEWED BY: CBN

Drilling Co.: Geologic
Foreman: P. Fisher
Logged By: J. Davis

Type of Rig: ATV
Rig Model: CME 45
Drilling Method: Rotary Wash

Boring Location: See Plan
Ground Surface Elev. (ft.): 207.5
Final Boring Depth (ft.): 49.7
Date Start - Finish: 1/18/2016 - 1/19/2016

H. Datum: NAD83
V. Datum: NAVD88

Auger/Casing Type: Automatic
I.D./O.D.: 4" ID
Hammer Weight (lb.): 140
Hammer Fall (in.): 30
Other: NA

Sampler Type: Split Spoon
I.D./O.D (in.): 2.0
Sampler Hmr Wt: 140 lbs
Sampler Hmr Fall: 30"
Other:

Groundwater Depth (ft.)

Date	Time	Water Depth	Stab. Time
1/18/16	1115	8	15 min.
1/19/16	0915	13'	16 hrs.

Depth (ft)	Casing Blows/ Core Rate	Sample No.	Sample Depth (ft.)	Pen. (in)	Rec. (in)	Blows (per 6 in.)	SPT Value	Sample Description Modified Burmister	Remark	Field Test Data	Stratum Depth (ft)	Stratum Description	Stratum Elev. (ft)	Equipment Installed
		S-1	0-2	24	13	7 3 2 2	5	S-1: Top 6": Dark brown, fine to coarse SAND and SILT, trace Gravel, trace Roots. Bottom 7": Orange-brown, fine to coarse SAND and SILT, trace Gravel.	1		0.5'	FOREST MAT	207.0'	No Equipment Installed
		S-2	2-4	24	8	7 15 15 16			*			SUBSOIL		
5		S-3	4-6	24	11	15 15 12 15	27	S-2: Light brown, fine to coarse SAND, some Gravel, trace Silt.			2.5'		205.0'	
		S-4	6-8	24	15	17 26 17 16		S-3: Medium dense, light brown, fine to coarse SAND, some Gravel, trace Silt.	*			FILL		
		S-5	8-10	24	0	26 17 11 10	28	S-4: Light brown, fine to coarse SAND, some Gravel, little (-) Silt.						
10		S-6	10-12	24	0	8 6 6 5		S-5: NO RECOVERY S-6: NO RECOVERY	*		10'		197.5'	
		S-7	13-15	24	9	8 4 4 5	8	S-7: Loose, brown, SILT, trace Sand.						
15		S-8	15-17	24	15	4 3 3 2	6	S-8: Loose, brown, SILT, trace Sand.						
		S-9	17-19	24	18	2 3 3 4	6	S-9: Loose, brown, SILT, trace Sand.						
		S-10	19-21	24	0	2 3 3 3	6	S-10: NO RECOVERY						
20												SAND AND SILT		
		S-11	21-23	24	16	5 6 5 6	11	S-11: Medium dense, light brown, SILT and fine SAND.	2					
		S-12	23-25	24	17	2 1 2 3	3	S-12: Very loose, light brown, SILT and fine SAND.						
25		S-13	25-27	24	21	3 4 3 6	7	S-13: Loose, light brown, fine SAND and SILT.						
		S-14	27-29	24	14	4 6 7 10	13	S-14: Medium dense, brown, fine SAND and SILT.						
30		S-15	29-31	24	8	3 2		S-15: Loose, brown, fine SAND						

REMARKS

1. Borehole advanced with 4-inch diameter casing and rotary wash drilling methods. Casing advanced with 140 lb automatic hammer.
*. Split spoon sampled through previous split spoon sample hole without drilling out to top of sample interval. Blow counts may not be representative.
2. Fine sand portion of samples below 23 feet appeared "coarser-grained" than fine sand above 23 feet which appeared "finer-grained".

See log key for explanation of sample descriptions and identification procedures. Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

Boring No.: GZ-5

TEST BORING LOG

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Bogue Brook Reservoir Dam Improvement Montville, Connecticut

BORING NO.: GZ-5
SHEET: 2 of 2
PROJECT NO: 01.0172560.00
REVIEWED BY: CBN

Depth (ft)	Casing Blows/ Core Rate	Sample No.	Sample Depth (ft.)	Sample Pen. (in)	Sample Rec. (in)	Sample Blows (per 6 in.)	Sample SPT Value	Sample Description Modified Burmister	Remark	Field Test Data	Stratum Depth (ft)	Stratum Description	Stratum Elev. (ft)	Equipment Installed
						4 5	6	and SILT.						
		S-16	31-33	24	15	4 3 5 6	8	S-16: Loose, brown, fine SAND and SILT.						
		S-17	33-35	24	13	6 5 8 8	13	S-17: Medium dense, brown, fine SAND and SILT.						
35		S-18	35-37	24	12	6 5 8 9	13	S-18: Medium dense, brown, fine SAND and SILT.				SAND AND SILT		
		S-19	37-39	24	8	5 7 13 10	20	S-19: Medium dense, brown, fine SAND and SILT. (mica seam 1/16" thick)						
40		S-20	39-41	24	13	6 4 6 100	10	S-20: Medium dense, light-brown, gray, and rust-brown, fine SAND, little Silt. (stratified colors)	3		41'		166.5'	
45		S-21	44-46	24	7	11 14 13 12	27	S-21: Top 2": Brown, fine SAND, some Silt. (DECOMPOSED BEDROCK) Middle 3": Orange-brown, fine to coarse SAND, little Silt. (DECOMPOSED BEDROCK)	4 5 6			BEDROCK		
50		S-22	49-49.7	8	5	42 100/2"	R	Bottom 2": Brown, fine SAND, some Silt. (DECOMPOSED BEDROCK) S-22: White and gray, fine to coarse SAND, some Silt, trace Gravel. (DECOMPOSED BEDROCK)	7		49.7'		157.8'	
55								Bottom of boring at 49.7 feet.						
60														
65														

REMARKS

3. Increased drilling resistance and rapping of drill rods between 41 and 42 feet (possible boulder).
4. Mica observed in top 2" and bottom 2" of sample S-21.
5. Decreased rollerbit penetration rate from about 47 to 48 feet.
6. Borehole tremie grouted to ground surface. Theoretical volume: 41 gallons: actual volume: 60 gallons.
7. Elevation of Bogue Brook Reservoir approximately 200.5 ft. on January 18, and 19, 2016.

See log key for explanation of sample descriptions and identification procedures. Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

Boring No.: GZ-5

TEST BORING LOG

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Bogue Brook Reservoir
Dam Improvement
Montville, Connecticut

BORING NO.: GZ-6
SHEET: 1 of 1
PROJECT NO: 01.0172560.00
REVIEWED BY: CBN

Drilling Co.: Geologic
Foreman: R. Eastwood
Logged By: J. Davis

Type of Rig: ATV
Rig Model: Acker Soil Scout
Drilling Method: Rotary Wash

Boring Location: See Plan
Ground Surface Elev. (ft.): 189
Final Boring Depth (ft.): 10
Date Start - Finish: 1/12/2016 - 1/12/2016

H. Datum: NAD83
V. Datum: NAVD88

Auger/Casing Type: Donut
I.D./O.D.: 4" ID
Hammer Weight (lb.): 140
Hammer Fall (in.): 30
Other: NA

Sampler Type: Split Spoon
I.D./O.D (in.): 2.0
Sampler Hmr Wt: 140 lbs
Sampler Hmr Fall: 30"
Other:

Groundwater Depth (ft.)

Date	Time	Water Depth	Stab. Time

Depth (ft)	Casing Blows/ Core Rate	Sample No.	Sample Depth (ft.)	Sample Pen. (in)	Sample Rec. (in)	Sample Blows (per 6 in.)	SPT Value	Sample Description Modified Burmister	Remark	Field Test Data	Stratum Depth (ft)	Stratum Description	Stratum Elev. (ft)	Equipment Installed
		S-1	0-2	24	6	WR WR WR WR	0	S-1: Very soft, dark brown SILT, trace fine Sand, trace Shells.	1 2					No Equipment Installed
5		S-2	5-7	24	13	19 13 15 21	28	S-2: Medium dense, brown, fine to coarse SAND, some SILT, trace Gravel.				SILTY SAND		
10		S-3	9-10	12	5	62 120/6"	R	S-3: Brown, fine to coarse SAND, some fine to coarse Gravel, little Silt.	3		10'		179.0'	
								Bottom of boring at 10 feet.	4					
15														
20														
25														
30														

REMARKS

1. Borehole advanced with 4-inch diameter casing and rotary wash methods. Casing advanced with 300 lb donut hammer.
2. Depths referenced below mudline. Approximately 12.5 feet of water at time of boring.
3. Split spoon refusal at 10 feet. Borehole terminated and offset 5 feet upstream.
4. Elevation of Bogue Brook Reservoir approximately 199.5 ft. on January 12, 2016.

See log key for explanation of sample descriptions and identification procedures. Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

Boring No.: GZ-6

TEST BORING LOG

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Bogue Brook Reservoir
Dam Improvement
Montville, Connecticut

BORING NO.: GZ-7
SHEET: 1 of 1
PROJECT NO: 01.0172560.00
REVIEWED BY: CBN

Drilling Co.: Geologic
Foreman: R. Eastwood
Logged By: J. Davis

Type of Rig: ATV
Rig Model: Acker Soil Scout
Drilling Method: Rotary Wash

Boring Location: See Plan
Ground Surface Elev. (ft.): 188.5
Final Boring Depth (ft.): 24
Date Start - Finish: 1/13/2016 - 1/14/2016

H. Datum: NAD83
V. Datum: NAVD88

Auger/Casing Type: Donut
I.D./O.D.: 4", 3" ID
Hammer Weight (lb.): 140
Hammer Fall (in.): 30
Other: Nx

Sampler Type: Split Spoon
I.D./O.D (in.): 2.0
Sampler Hmr Wt: 140 lbs
Sampler Hmr Fall: 30"
Other:

Groundwater Depth (ft.)

Date	Time	Water Depth	Stab. Time

Depth (ft)	Casing Blows/ Core Rate	Sample No.	Sample Depth (ft.)	Sample Pen. (in)	Sample Rec. (in)	Sample Blows (per 6 in.)	Sample SPT Value	Sample Description Modified Burmister	Remark	Field Test Data	Stratum Depth (ft)	Stratum Description	Stratum Elev. (ft)	Equipment Installed
5									1 2			SILTY SAND		Bentonite Chips (0-10.5')
10		S-1	9-10.6	19	8	50 46 70 100/1"	R	S-1: Very dense, brown, fine to coarse SAND and GRAVEL, little Silt.	3		11'		177.5'	Filter Sand (10.5-11.5') GeoKon 4500S Piezometer
15		S-2	14-14.4	5	2	100/5"	R	S-2: Brown, fine to coarse SAND and GRAVEL, trace Silt. (DECOMPOSED ROCK)				BEDROCK		Bentonite Chips (11.5-24')
20	2 2.5 2.5 3 2	C-1	19-24	60	60			C-1: Hard, slightly to moderately weathered, slight to moderately fractured, fine to coarse grained, gray SCHIST with moderately dipping foliation.	4 5		24'		164.5'	
25								Bottom of boring at 24 feet.	6					
30														

REMARKS

1. Borehole advanced with 4-inch diameter casing and rotary wash methods. Casing advanced with 300 lb donut hammer. Borehole advanced with rotary wash drilling ahead of casing from 10 to 19 feet. 3-inch diameter casting telescoped through 4-inch from 11 to 19 feet. 3-inch casing advanced by spinning.
2. Depths referenced below mudline. Approximately 11.5 feet of water at time of boring.
3. Increased drilling resistance from about 11 feet to 16 feet and 17 to 19 feet.
4. Rock coring performed with Nx-size double tube core barrel under about 200 psi down pressure (rig weight). Core rate in units of minutes per foot. RQD = Rock Quality Designation.
5. GeoKon 4500s vibrating wire piezometer installed at about 11 feet. Bentonite chips installed between bottom of borehole and 10.5 fet. Filter sand installed between 11.5 and 10.5 feet. Bentonite chips placed between 10.5 and mudline.
6. Elevation of Bogue Brook Reservoir between 199.8 and 199.9 ft. on January 13 and 14, 2016, respectively.

See log key for explanation of sample descriptions and identification procedures. Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

Boring No.: GZ-7

TEST BORING LOG

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Bogue Brook Reservoir
Dam Improvement
Montville, Connecticut

BORING NO.: GZ-8
SHEET: 1 of 1
PROJECT NO: 01.0172560.00
REVIEWED BY: CBN

Drilling Co.: Geologic
Foreman: R. Eastwood
Logged By: J. Davis

Type of Rig: ATV
Rig Model: Acker Soil Scout
Drilling Method: Rotary Wash

Boring Location: See Plan
Ground Surface Elev. (ft.): 190
Final Boring Depth (ft.): 19
Date Start - Finish: 1/15/2016 - 1/15/2016

H. Datum: NAD83
V. Datum: NAVD88

Auger/Casing Type: Donut
I.D./O.D.: 4", 3" ID
Hammer Weight (lb.): 140
Hammer Fall (in.): 30
Other: Nx

Sampler Type: NA
I.D./O.D (in.): NA
Sampler Hmr Wt: 140 lbs
Sampler Hmr Fall: 30"
Other:

Groundwater Depth (ft.)

Date	Time	Water Depth	Stab. Time

Depth (ft)	Casing Blows/ Core Rate	Sample No.	Sample Depth (ft.)	Sample Pen. (in)	Sample Rec. (in)	Sample Blows (per 6 in.)	Sample SPT Value	Sample Description Modified Burmister	Remark	Field Test Data	Stratum Depth (ft)	Stratum Description	Stratum Elev. (ft)	Equipment Installed
5									1 2 3			SILTY SAND		
10											12.5'		177.5'	Bentonite Chips (0-18')
15	2 2.5 0.5 2 2	C-1	14-19	60	40			C-1: Moderately hard to hard, slightly to moderately weathered, moderately fractured, fine to coarse grained, gray SCHIST with moderately dipping foliation. (% REC = 67, RQD = 50%) (possible highly weathered seam between 16 and 17 feet)	4 5 6			BEDROCK		
20								Bottom of boring at 19 feet.	7		19'		171.0'	Vibrating Wire Piezometer Filter Sand (18-19')
25														
30														

REMARKS

1. Borehole advanced with 4-inch diameter casing and rotary wash methods. Casing advanced with 300 lb donut hammer. 3-inch casing telescoped through 4-inch casing from about 12.5 to 14 feet. 3-inch casing advanced by spinning.
2. Depths referenced below mudline. Approximately 10 feet of water at time of boring.
3. Soil stratum based on adjacent boring GZ-7. Refer to GZ-7 test boring log for additional information
4. 4-inch casing refusal at about 12.5 feet. Rollerbit to about 13.5 and advance 3-inch casing. 3-inch casing advanced to 14 feet during installation.
5. Rock coring performed with Nx-sized double tube core barrel under about 200 psi of down pressure (rig weight). Core rate in units of minutes per foot. RQD = Rock Quality Designation
6. GeoKon 4500S vibrating wire piezometer installed at about 18.5 feet. Filter sand installed between 19 and 18 feet. Bentonite chips installed from 18 feet to mudline.
7. Elevation of Bogue Brook Reservoir approximately 199.9 ft. on January 15, 2016.

See log key for explanation of sample descriptions and identification procedures. Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

Boring No.: GZ-8

TEST BORING LOG

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Bogue Brook Reservoir
Dam Improvement
Montville, Connecticut

BORING NO.: GZ-9
SHEET: 1 of 1
PROJECT NO: 01.0172560.00
REVIEWED BY: CBN

Drilling Co.: Geologic
Foreman: R. Eastwood
Logged By: J. Davis

Type of Rig: ATV
Rig Model: Acker Soil Scout
Drilling Method: Rotary Wash

Boring Location: See Plan
Ground Surface Elev. (ft.): 190
Final Boring Depth (ft.): 4
Date Start - Finish: 1/18/2016 - 1/18/2016

H. Datum: NAD83
V. Datum: NAVD88

Auger/Casing Type: Donut
I.D./O.D.: 4" ID
Hammer Weight (lb.): 140
Hammer Fall (in.): 30
Other: NA

Sampler Type: Split Spoon
I.D./O.D (in.): 2.0
Sampler Hmr Wt: 140 lbs
Sampler Hmr Fall: 30"
Other:

Groundwater Depth (ft.)

Date	Time	Water Depth	Stab. Time

Depth (ft)	Casing Blows/ Core Rate	Sample No.	Sample Depth (ft.)	Sample Pen. (in)	Sample Rec. (in)	Sample Blows (per 6 in.)	SPT Value	Sample Description Modified Burmister	Remark	Field Test Data	Stratum Depth (ft)	Stratum Description	Stratum Elev. (ft)	Equipment Installed
		S-1	0-2	24	2	WR WR WR WR	0	S-1: Very loose, brown, fine SAND and SILT.	1 2					No Equipment Installed
		18	2-3.5	6	WR	WR 30		18: Top 3": Brown, fine SAND and SILT. Bottom 3": Gray-brown, fine to coarse SAND, some Silt.	3 4		4'	SAND	186.0'	
5								Bottom of boring at 4 feet.	5					
10														
15														
20														
25														
30														

REMARKS

1. Borehole advanced with 4-inch diameter casing and rotary wash drilling methods. Casing advanced with 300 lb donut hammer.
2. Depths referenced below mudline. Approximately 10.5 feet of water at time of boring.
3. WR = Weight of Rods
4. Casing advancement refusal at 4 feet. Borehole backfilled with bentonite chips.
5. Elevation of Bogue Brook Reservoir approximately 200.5 ft. on January 18, 2016.

See log key for explanation of sample descriptions and identification procedures. Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

Boring No.: GZ-9

TEST BORING LOG

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Bogue Brook Reservoir
Dam Improvement
Montville, Connecticut

BORING NO.: GZ-10
SHEET: 1 of 1
PROJECT NO: 01.0172560.00
REVIEWED BY: CBN

Drilling Co.: Geologic
Foreman: R. Eastwood
Logged By: J. Davis

Type of Rig: ATV
Rig Model: Acker Soil Scout
Drilling Method: Rotary Wash

Boring Location: See Plan
Ground Surface Elev. (ft.): 190
Final Boring Depth (ft.): 9.8
Date Start - Finish: 1/18/2016 - 1/18/2016

H. Datum: NAD83
V. Datum: NAVD88

Auger/Casing Type: Donut
I.D./O.D.: 4" ID
Hammer Weight (lb.): 140
Hammer Fall (in.): 30
Other: NA

Sampler Type: Split Spoon
I.D./O.D (in.): 2.0
Sampler Hmr Wt: 140 lbs
Sampler Hmr Fall: 30"
Other:

Groundwater Depth (ft.)

Date	Time	Water Depth	Stab. Time

Depth (ft)	Casing Blows/ Core Rate	Sample No.	Sample Depth (ft.)	Sample Pen. (in)	Sample Rec. (in)	Sample Blows (per 6 in.)	Sample SPT Value	Sample Description Modified Burmister	Remark	Field Test Data	Stratum Depth (ft)	Stratum Description	Stratum Elev. (ft)	Equipment Installed
									1					No Equipment Installed
									2					
5		S-1	4-6	24	10	6 7 8 8	15	S-1: Medium dense, gray, fine SAND, little Silt.				SILTY SAND		
		S-2	6-8	24	9	9 12 10 12	22	S-2: Medium dense, gray, fine SAND, some Silt.						
		S-3	8-9.8	20	6	14 31 100/8"	R	S-3: Very dense, gray, fine to coarse SAND, some Silt.	3 4		9.8'		180.2'	
10								Bottom of boring at 9.8 feet.						
15														
20														
25														
30														

REMARKS

1. Borehole advanced with 4-inch diameter casing and rotary wash drilling methods. Casing advanced with 300 lb donut hammer.
2. Depths referenced below mudline. Approximately 10.5 feet of water of time of boring.
3. Split spoon refusal at 9.8 feet. Borehole backfilled with bentonite chips.
4. Elevation of Bogue Brook Reservoir approximately 200.5 ft. on January 18, 2016.

See log key for explanation of sample descriptions and identification procedures. Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

Boring No.: GZ-10

TEST BORING LOG

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Bogue Brook Reservoir
Dam Improvement
Montville, Connecticut

BORING NO.: GZ-11
SHEET: 1 of 1
PROJECT NO: 01.0172560.00
REVIEWED BY: CBN

Drilling Co.: Geologic
Foreman: P. Fisher
Logged By: J. Davis

Type of Rig: ATV
Rig Model: CME 45
Drilling Method: Rotary Wash

Boring Location: See Plan
Ground Surface Elev. (ft.): 197
Final Boring Depth (ft.): 8
Date Start - Finish: 1/19/2016 - 1/19/2016

H. Datum: NAD83
V. Datum: NAVD88

Auger/Casing Type: Automatic
I.D./O.D.: 4" ID
Hammer Weight (lb.): 140
Hammer Fall (in.): 30
Other: NA

Sampler Type: Split Spoon
I.D./O.D (in.): 2.0
Sampler Hmr Wt: 140 lbs
Sampler Hmr Fall: 30"
Other:

Groundwater Depth (ft.)

Date	Time	Water Depth	Stab. Time
1/19/16	1430	1'	15 min.

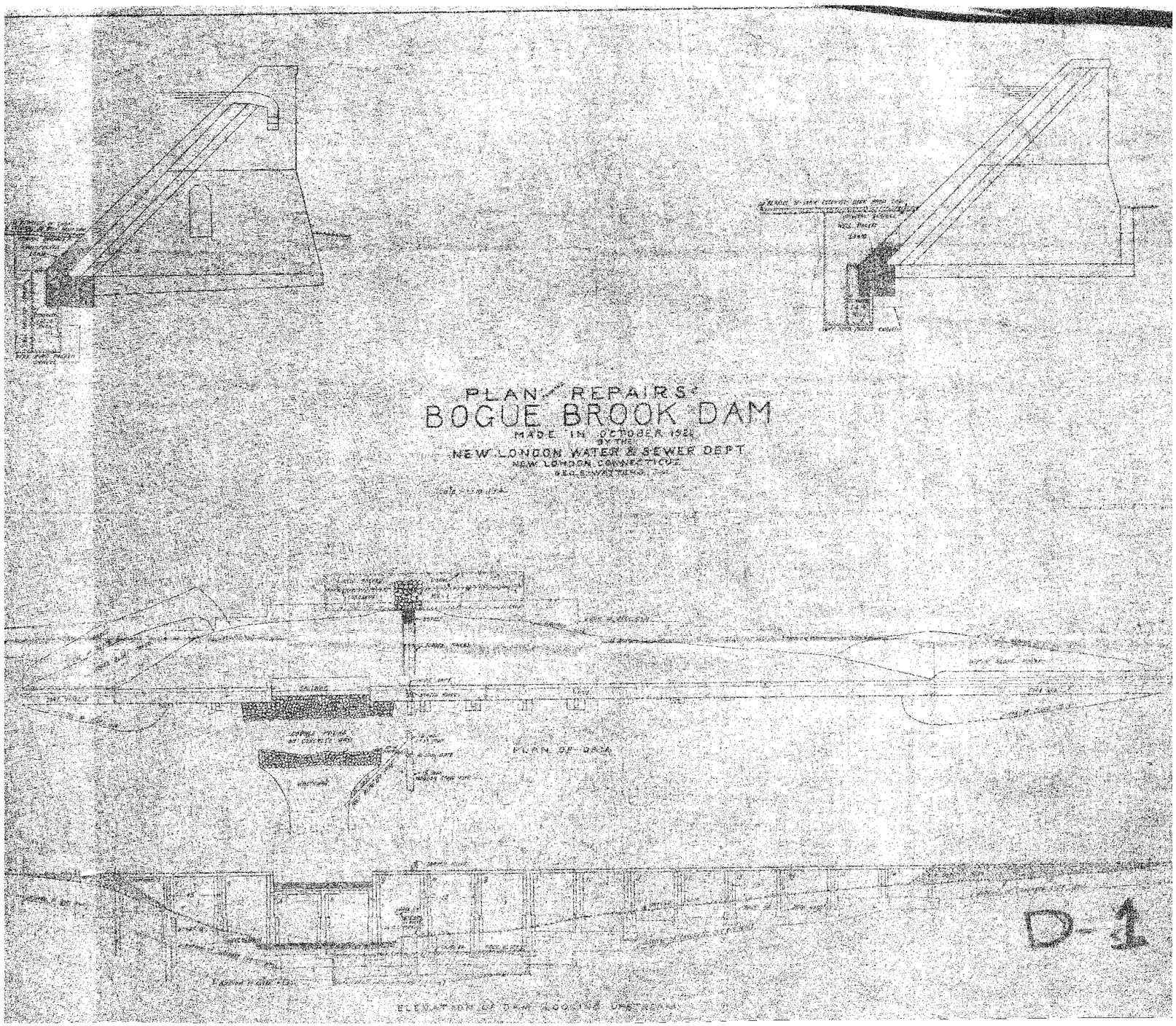
Depth (ft)	Casing Blows/ Core Rate	Sample No.	Sample Depth (ft.)	Sample Pen. (in)	Sample Rec. (in)	Sample Blows (per 6 in.)	SPT Value	Sample Description Modified Burmister	Remark	Field Test Data	Stratum Depth (ft)	Stratum Description	Stratum Elev. (ft)	Equipment Installed
0	P P	S-1	0-2	24	12	WH WH 1 2	1	S-1: Top 8": Dark brown, fine SAND and SILT, trace Roots. Bottom 4": Orange-brown, fine to coarse SAND and SILT, little fine Gravel (wet).	1					No Equipment Installed
	15 23	S-2	2-4	24	10	3 6 10 10	16	S-2: Medium dense, brown, fine to coarse SAND, some Silt, some Gravel.	2			FILL		
5	30 48	S-3	4-6	24	12	9 21 16 19	37	S-3: Top 4": Orange-brown and light brown, fine to coarse SAND and SILT, little Gravel. Bottom 8": Brown, fine to coarse SAND, some Gravel, little Silt.			5'		192.0'	
		S-4	6-8	24	9	18 23 19 15	42	S-4: Dense, brown, fine to coarse SAND, and GRAVEL, little Silt.	3			GLACIAL TILL		
10								Bottom of boring at 8 feet.	4		8'		189.0'	
15														
20														
25														
30														

REMARKS

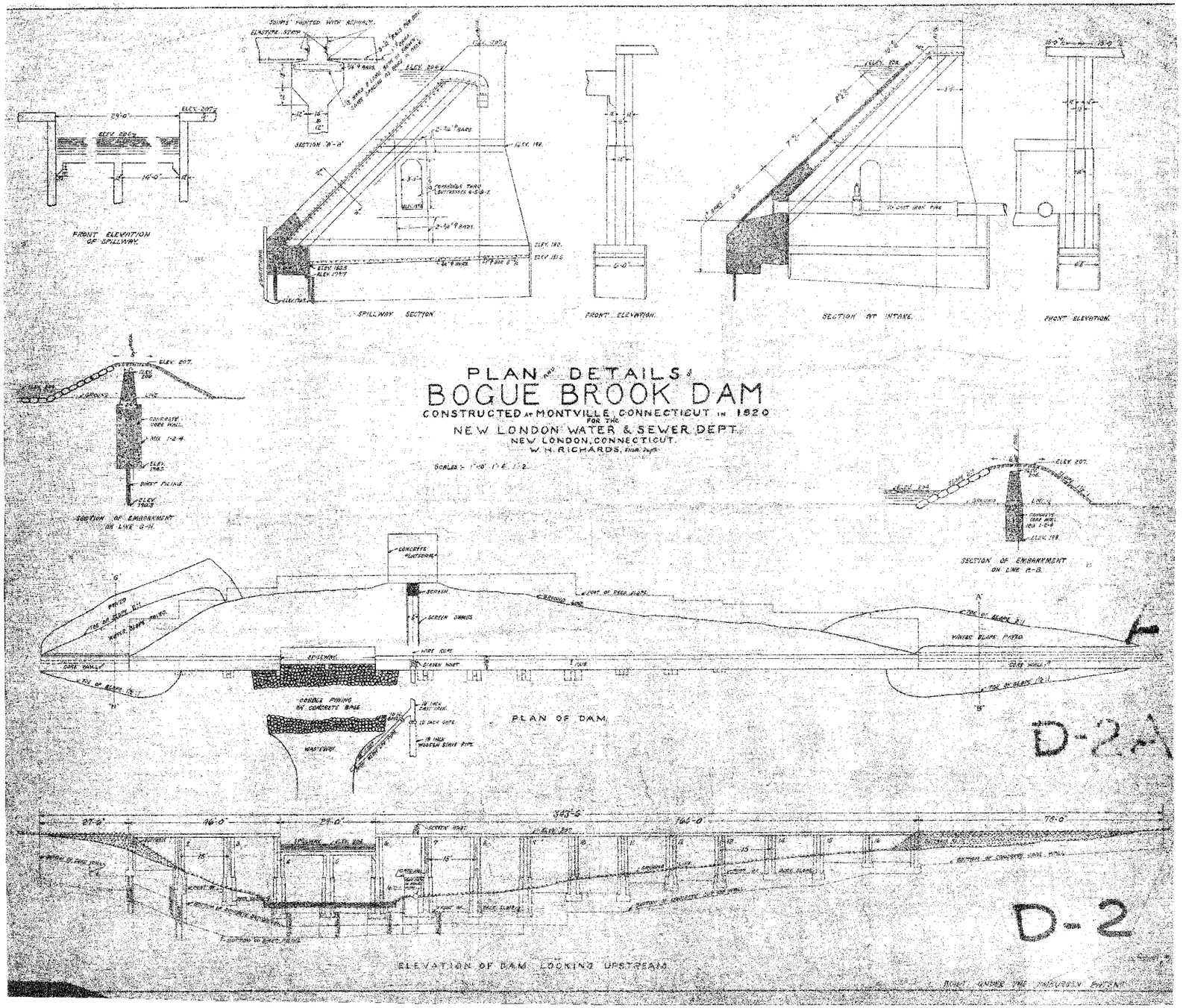
1. Borehole advanced with 4-inch diameter casing and rotary wash drilling methods. Casing advanced with 300 lb donut hammer.
2. P = Push. WH = Weight of Hammer
3. Borehole tremie grouted to ground surface. Theoretical volume: ~7 gallons, actual volume: ~10 gallons.
4. Elevation of Bogue Brook Reservoir approximately 200.5 ft. on January 19, 2016.

See log key for explanation of sample descriptions and identification procedures. Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

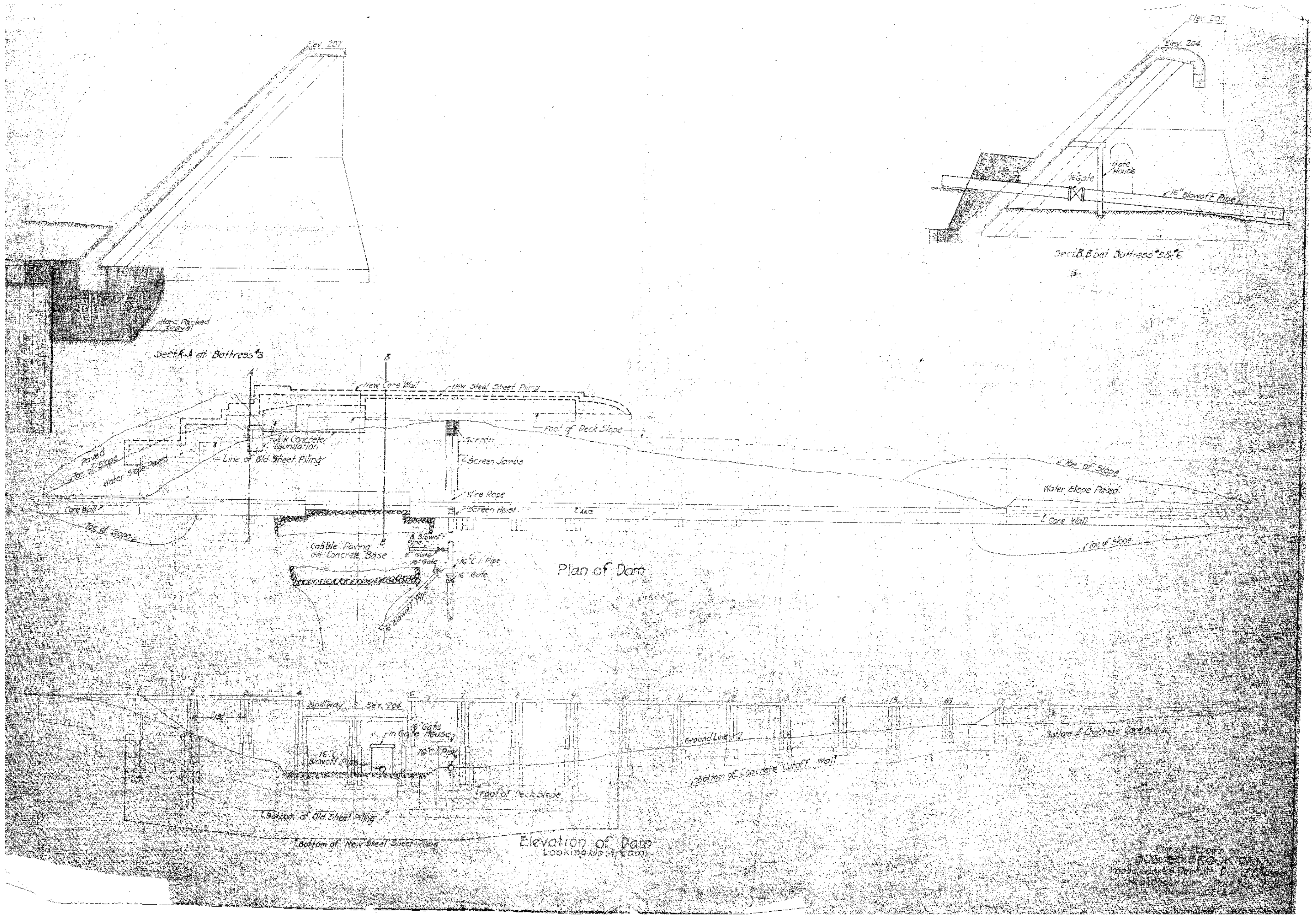
Boring No.: GZ-11

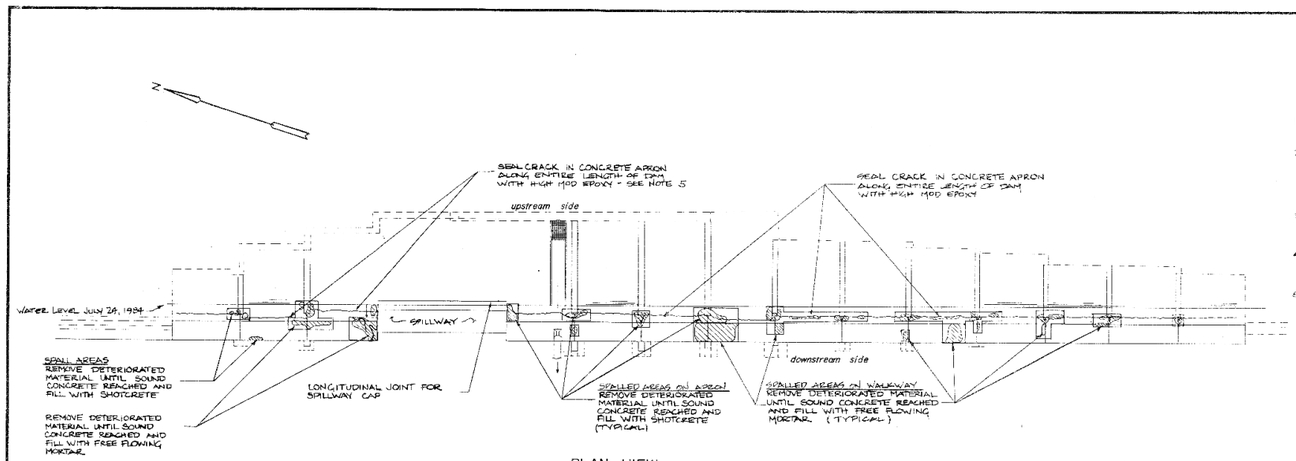


01566 – Attachment



01566 – Attachment

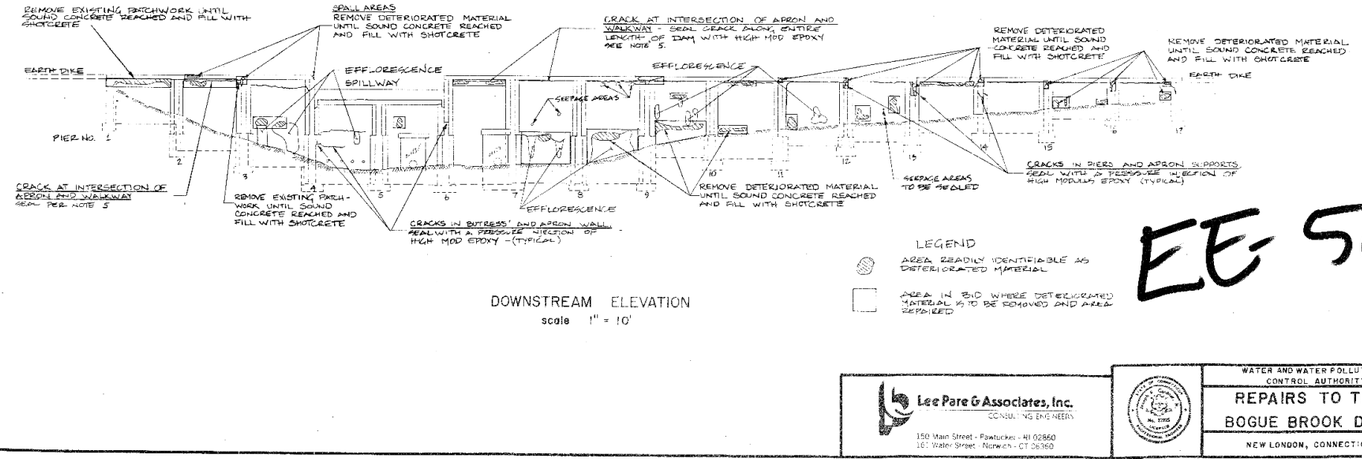

Sect.A-A at Buttress #3
Plan of Dam
Elevation of Dam
Looking Upstream
Gate House
Screen Jambs
Wire Rope
Core Wall
Toe of Slope
Water Slope Paved
Ground Line
Bottom of Old Sheet Piling
Bottom of New Steel Sheet Piling



PLAN VIEW
scale 1" = 10'

NOTES

1. PRIOR TO BIDDING THE PROJECT THE CONTRACTOR SHALL VISIT THE SITE TO VERIFY CONDITIONS.
2. INFORMATION SHOWN ON THE DRAWINGS RELATING TO THE LOCATIONS OF CRACKS IS APPROXIMATE. THE OWNER RESERVES THE RIGHT TO ISOLATE IN THE FIELD DURING CONSTRUCTION THE EXACT AMOUNT OF CRACKS AND SPALLED AREAS TO BE REPAIRED.
3. UPON COMPLETION OF THE WORK ALL DISTURBED AREAS SHALL BE RESTORED TO A CONDITION EQUAL TO OR BETTER THAN EXISTED PRIOR TO CONSTRUCTION.
4. THE CONTRACTOR SHALL MAINTAIN A SET OF RECORD DRAWINGS WHICH SHALL BE SUBMITTED TO THE ENGINEER AT THE COMPLETION OF THE PROJECT.
5. THE LONGITUDINAL CRACKING ALONG THE DAMS CONCRETE APRON SHALL BE SEALED IN THE FOLLOWING MANNER. THE UNDERSIDE OF THE CRACK SHALL BE BUTTERED WITH AN EPOXY GEL. THIN HIGH MODULUS EPOXY SHALL BE GRAVITY FEED INTO THE CRACK UNTIL WITHIN ONE INCH OF THE CRACKS SURFACE. A BOND BREAKER SHALL BE PLACED ON THE EPOXY AND THEN THE REMAINDER OF THE CRACK WILL BE FILLED WITH A LOW MODULUS ELASTOMERIC SEALANT.



DOWNSTREAM ELEVATION
scale 1" = 10'

LEGEND
- AREA READILY IDENTIFIABLE AS DETERIORATED MATERIAL
- AREA IN BID WHERE DETERIORATED MATERIAL IS TO BE REMOVED AND AREA REPAIRED

EE-56

Lee Pare & Associates, Inc.
CONSULTING ENGINEERS
150 Main Street - Pawtucket - RI 02860
167 Water Street - Norwich - CT 06360

WATER AND WATER POLLUTION CONTROL AUTHORITY

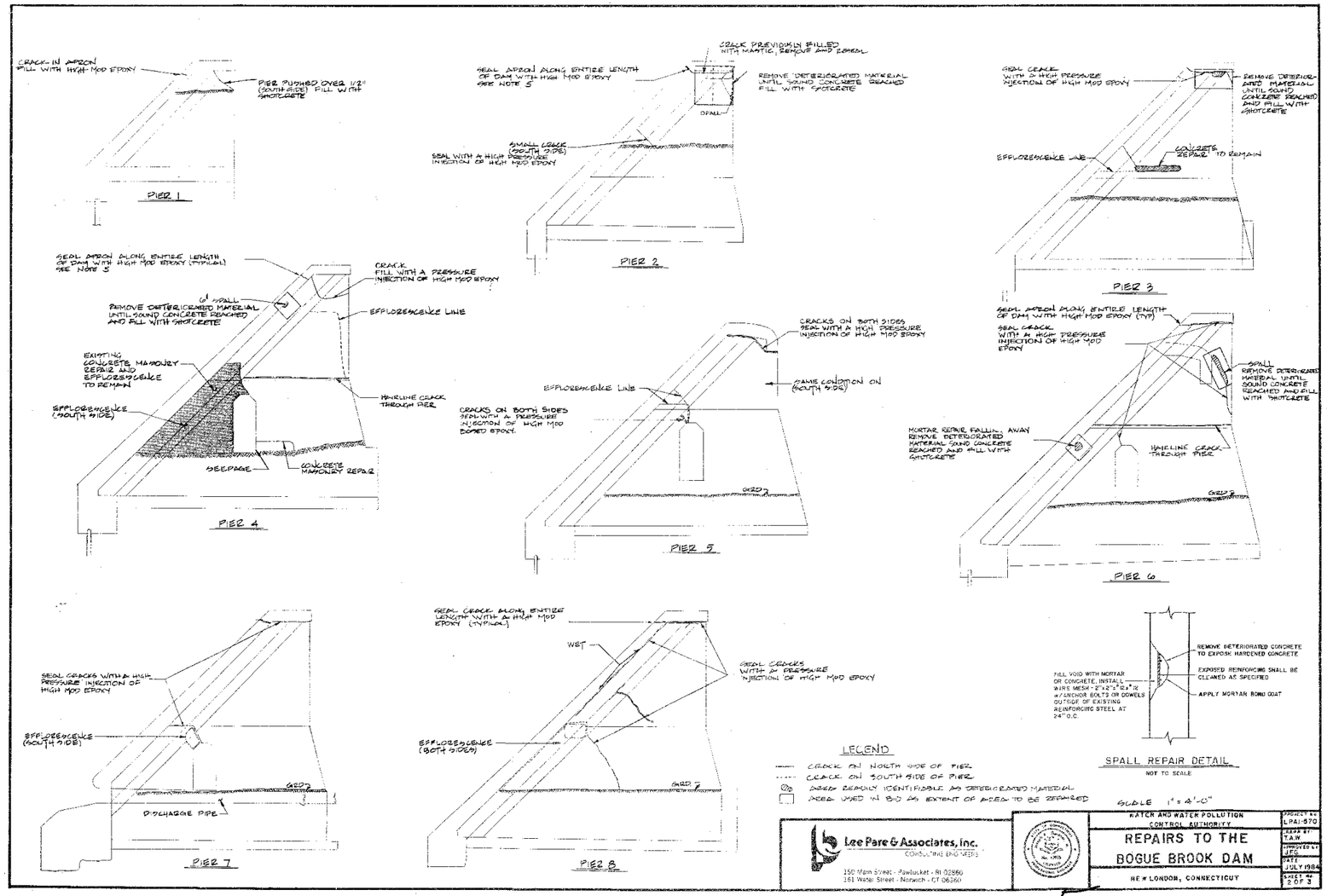
REPAIRS TO THE BOGUE BROOK DAM

NEW LONDON, CONNECTICUT

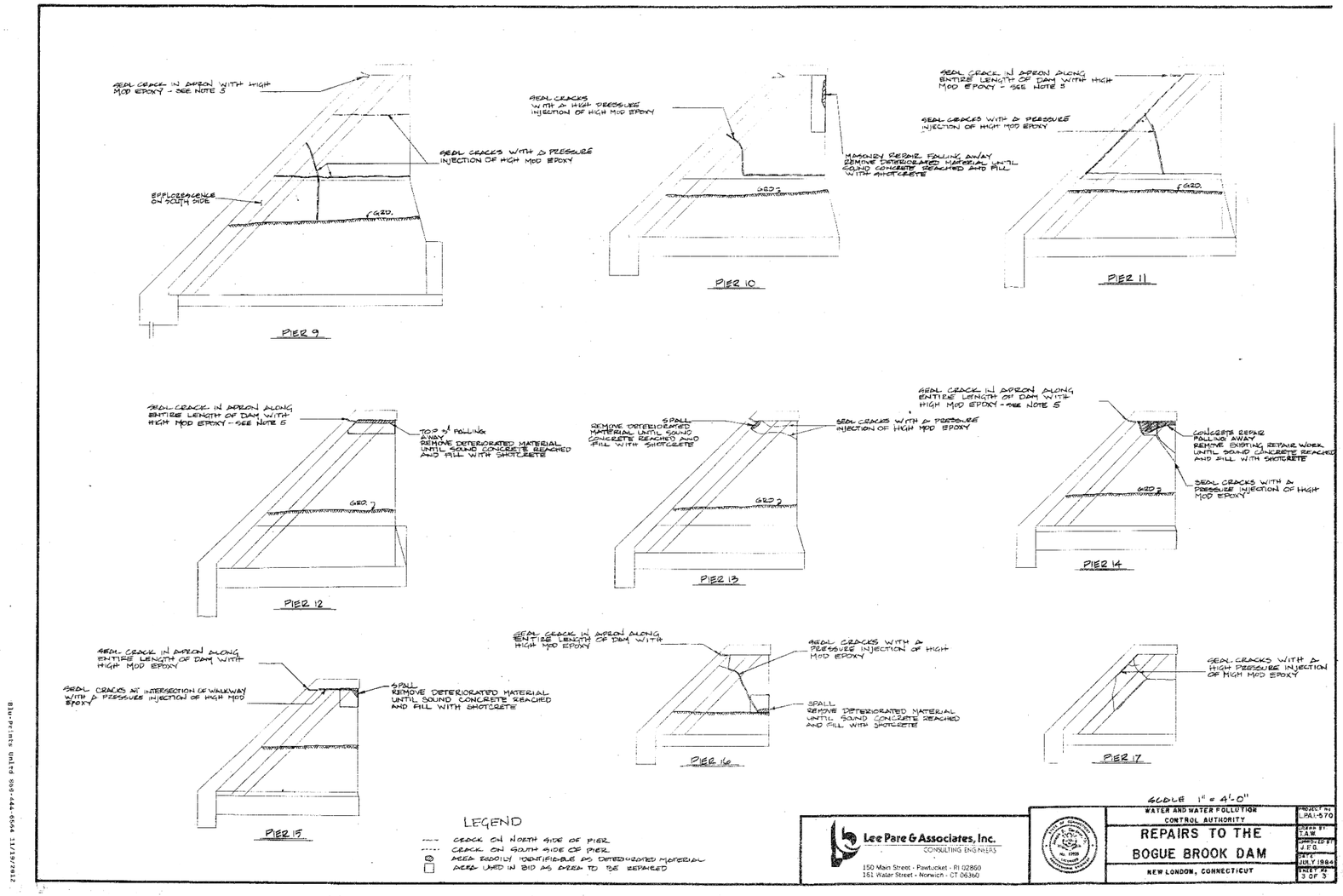
PROJECT No.	L.PAI-570
DRAWN BY	T.A.W
APPROVED BY	J.F.D.
DATE	JULY 1984
SHEET No.	1 OF 3

EE-56

Blue Prints United 860-444-6964 11/19/2015



Blu-Prints Until (860-444-5564 11/19/2012



01566 – Attachment

SECTION 01740
SITE RESTORATION

PART 1 - GENERAL

1.01 SCOPE

A. The work under this Section shall consist of all work and operations, including, but not limited to equipment, supplies, material, personnel, and incidentals to restore areas in and around the project site to pre-construction conditions.

B. The intent of the Work of this Section is that areas which are disturbed as a result of the overall Work of this Contract, whether intentionally or unintentionally, planned or unplanned, are restored to at or better than their conditions prior to the start of work. The Scope of Work under this Section shall also include both significant and incidental work necessary to repair damage to the site beyond those areas shown as disturbed on the Project Drawings. Areas to be restored shall include, but not be limited to, the downstream and upstream area surrounding the dam, locations of trailers (if any), laydown and storage areas, construction access ways, etc. Facilities to be restored include the temporary staging area, laydown and stockpile areas, other grassed areas, and trees. Additionally restoration shall include the public roadway (Chesterfield Road) and private property areas, if disturbed.

C. It is the intent of the Contract that the Contractor avoid and minimize indirect construction impact to the maximum extent possible. To this end, the site and surrounding areas should be protected, as needed and as provided for under separate Sections of the Contract. The Contractor should also develop a plan to protect the site and inform and educate their forces regarding protective measures to be implemented. This Section covers the restoration of damage caused by unavoidable or inadvertent actions by the Contractor's forces, including all sub-contractors, material deliverers, and others under the Contractor's employ or authority. It is the intent of the Contract that the work of this Section be minimized to the extent possible by the Contractor's actions to avoid damage to the site and area.

1.02 DOCUMENTATION OF EXISTING CONDITIONS

A. Project Location: Access to the general and immediate project site location is via Chesterfield Road in Montville which is a paved public residential street.

B. Staging, Laydown and Stockpile Area: Access to this area is located off of Chesterfield Road. The staging, laydown, and stockpile area is located near the right abutment of the dam within an existing cleared area. This property is part of the large parcel which includes the entire dam and pond owned by the City.

Prior to the start of work, the Contractor shall be responsible for documenting the pre-construction conditions of these and other areas which might be disturbed by the Work of the Contract, including, but not limited to, Chesterfield Road, the Staging, Laydown and Stockpile Area, nearby residences, driveways, etc. This documentation, in the form of

photographs, video tapes, and written documentation shall be provided to the Owner if requested. This documentation shall be used to determine the extent to which post-construction site restoration shall be needed.

1.03 PROTECTION OF EXISTING FEATURES

The Contractor shall take such steps and measures as are necessary to protect the project site and adjacent areas from damage by construction activities and thereby minimize the extent of work to be done under this Section. Site protection shall be paid for under the Scope of other Sections.

PART 2 – PRODUCTS

Products used in Site Restoration shall meet the requirements of the applicable Section of the Contract Documents. If work similar to the nature of the necessary site restoration is not specified elsewhere in the Contract Documents, the applicable section of the State of Connecticut, Department of Transportation Standard Specifications (latest edition) shall control. Materials for restoration of utilities shall meet with the standards of the Owner or the utility to be restored.

PART 3 – EXECUTION

3.01 GENERAL

The work required and services for site restoration shall be done in a safe workmanlike manner and shall conform to any pertinent local or state law, regulation or code. Good housekeeping consistent with safety shall be maintained. The Contractor shall be responsible for all necessary permits and approvals.

3.02 PRE-CONSTRUCTION SITE DOCUMENTATION

Prior to the start of work at the site, the Contractor shall coordinate with the Owner and its Engineer to perform a pre-construction site walk for the purposes of documenting conditions prior to disturbance by the Contractor's forces and equipment. A representative from the Owner and/or its Engineer will accompany the Contractor during the site walk, but it shall be the Contractor's sole responsibility to properly document existing conditions in all areas which might be subject to disturbance. The Contractor shall use photographs, video, written descriptions, sketches, and any other means to document pre-construction conditions. If requested, the Contractor shall supply the Owner with one copy each of the documentation, including both hard copies and digital files, as appropriate. The Owner alone shall be empowered to make decisions about the pre-construction condition of areas not covered by the Contractor's documentation.

3.03 RESTORATION METHODOLOGY

Means of Site Restoration shall meet the requirements of the applicable Section of the Contract Documents. If work similar to the nature of the necessary site restoration is not

specified elsewhere in the Contract Documents, the applicable section of the State of Connecticut Department of Transportation Standard Specifications (latest edition) shall control. Proper sediment, erosion, and water control shall be provided, as needed, at no additional cost.

3.04 RESTORATION OF ROADS

A. The Contractor shall be required to repair any damage to roadways caused during the course of construction, in order to return the roads to pre-construction condition or better. Cost of this work shall be factored into the cost presented for this Section on the Bid Form.

3.05 RESTORATION OF STAGING, LAYDOWN AND STOCKPILE AREA

A. The Contractor shall be prepared to repair any damage to the area which will be used as the main staging, laydown/storage and stockpile area. This area shall be restored to its pre-construction condition or better. Restoration is likely to include clean up to remove any/all materials, trash and debris resulting from its use during the work, as well as grading of the site to smooth out any disturbances made during the work. The Contractor shall be required to repair any damage to this area as well as the entrance area where it meets the existing sidewalk and roadway caused during the course of construction, in order to return the area to pre-construction condition or better. The area shall receive Cost of this work shall be factored into the cost presented for this Section on the Bid Form.

3.06 RESTORATION OF VEGETATED AREAS

A. The Contractor shall be responsible for restoring all vegetated areas beyond the indicated limits of work disturbed during the work of this Contract. Restoration shall include, but not be limited to, loam placement, regrading, seeding, mulching, and maintenance. The intent is to restore damaged areas to pre-construction condition or better. Loaming, seeding, and revegetation of areas which are shown on the plans as being filled, excavated, or graded shall be paid for under a separate Section of the Contract. Loaming, seeding, and revegetation of other areas, including areas disturbed by construction traffic, trailer placement, material stockpiling, etc. shall be paid for under the pay item for this Section.

B. The Contractor shall be responsible for maintenance and care of all restored vegetated areas until establishment.

3.07 TREES

A. The Contractor shall be responsible for pruning and other actions necessary to repair construction-related damage to trees which are shown to remain in place or are outside of the construction areas.

B. The Contractor shall hire a certified arborist to perform restoration work on large trees, if judged necessary by the Owner.

PART 4 - MEASUREMENT AND PAYMENT

4.01 MEASUREMENT FOR PAYMENT

A. No measurement shall be made for Site Restoration. The bid item for Site Restoration is a lump sum quantity.

4.02 PAYMENT

A. Payment for Site Restoration associated with the work of the contract will be paid for based on the Lump Sum price stated for Item No. 01740.01 on the Form for Bid.

Item No.	Payment Item	Unit
01740.01	Site Restoration	Lump Sum

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

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SECTION 01900
MOBILIZATION/DEMOBILIZATION

PART I – GENERAL

1.01 DESCRIPTION

The work under this Section shall consist of the Contractor's preparatory work and operations, including, but not limited to transporting equipment, supplies, personnel and incidentals to the work site, and **all** other operations which must be performed or for costs which must be incurred prior to the commencement of the work.

Work under this Section shall also include **all** work, services, equipment and other incidental items, whether specifically mentioned herein or not, to perform similar tasks at the work site at the conclusion of the work, in order to restore the site to its intended condition and remove all items which are not a permanent part of the work from the site, and to leave the site in a clean and orderly manner to the satisfaction of the Engineer and as directed by the Owner.

1.02 EXISTING CONDITIONS

Bogue Brook Reservoir Dam is located off of Chesterfield Road in Montville, Connecticut. Access to the general and immediate project site location is via Chesterfield Road which is a paved public residential street. Construction laydown, staging and stockpile areas for all work shall be located at the right abutment of the dam, unless otherwise allowed by the Owner.

The Contract Drawings specifically delineate the staging and lay-down areas for the Contractor, as well as areas not to be disturbed. The Contractor shall be strictly monitored for compliance with these boundaries. Proper mobilization/demobilization of equipment, tools, etc., as well as environmental and housekeeping procedures by the Contractor are of highest priority.

The Contractor shall be prepared to provide working platforms/ramps, cribbing, shoring, matting, and all other specialized support equipment required to minimize impact to wetland resource areas, and to ensure safe access of all personnel, equipment and materials necessary for completion of the work of this Contract in accordance with the Specifications and Drawings.

The Contractor is strongly encouraged to become intimately familiar with respective access and other issues at the dam during the Pre-Bid Meeting process to better develop a comprehensive work plan and a more informed bid. No additional coordinated site visits will be allowed beyond the Pre-Bid Meeting unless specifically approved by the Owner.

SCHEDULE AND SEQUENCE

A. The Contractor shall conduct the work of the Contract on as continual a basis as possible.

Certain weather conditions (such as an extended period of very heavy rainfall and/or an abnormal weather event such as a hurricane) could cause a significant rise in the depth of water in the impounded areas and channels feeding them. Therefore, the Contractor shall establish his mobilization/demobilization bid price accordingly in order to maintain all necessary equipment to be able to rapidly demobilize from work areas and protect the work, if necessary. In the event of an emergency demobilization action the Contractor shall take all necessary measures to protect the work in progress and replace at his own expense all work, materials and equipment lost or damaged as a result of an emergency action.

No separate payment will be made for Emergency Demobilization and Remobilization as a result of increase in the upstream or downstream water level.

1.03 BONDS AND INSURANCE

A. Cost for Payment and Performance Bonds as well as Insurance and other similar features required as part of the Contract shall be covered under the cost of this Section as applicable.

PART 2 – PRODUCTS

Not Used

PART 3 - EXECUTION

3.01 GENERAL

The work required and services for Mobilization/Demobilization shall be done in a safe workmanlike manner and shall conform to any pertinent local or state law, regulation or code. Good housekeeping consistent with safety shall be maintained.

PART 4 – MEASUREMENT AND PAYMENT

4.01 MEASUREMENT FOR PAYMENT

A. No measurement shall be made for general Mobilization/Demobilization. The bid items for general Mobilization/Demobilization are lump sum quantities.

B. No additional payment shall be made for any necessary temporary Demobilization and Remobilization.

4.02 PAYMENT

A. The price bid for Mobilization/Demobilization shall not exceed ten percent (10%) of the total contract bid price.

B. Payment for Mobilization/Demobilization costs associated with the work of the Contract will be paid for based on the Lump Sum price stated for Item No. 01900.01 on the Form for Bid. Mobilization/Demobilization costs for all work under the Contract not specifically addressed on the Form for Bid shall be considered incidental, and the costs for such shall be included as part of the work of that Section (and included in the respective Schedule of Values price items) and /or as part of the work of this Contract.

C. Partial payments for Mobilization/Demobilization shall be provided as follows: Sixty percent (60%) of lump sum bid price upon completion of mobilization. Following the satisfactory completion of work, forty percent (40%) of lump sum bid price will be paid upon completion of the As-Built survey of the final site conditions (by a surveyor licensed in the State of Connecticut - refer to Section 01050 for additional information) and demobilization.

Item No.	Payment Item	Unit
01900.01	Mobilization/Demobilization	Lump Sum

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

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